Research Article

Share Repurchases, Undervaluation, and Corporate Social Responsibility

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Abstract

This study examines how firms' socially responsible behavior relates to the timing of their share repurchases, considering share mispricing and the resulting wealth transfer between sellers and ongoing shareholders. We hypothesize that firms with a stronger commitment to societal goals prioritize the interests of all stakeholders more equally than those with a weaker commitment. Therefore, their managers are less likely to take advantage of the wealth transfer from selling to ongoing shareholders, which occurs when the firm is undervalued. Our results show that firms with higher corporate social responsibility (CSR) engagement, *ceteris paribus*, announce repurchases during periods of lower undervaluation. Additional analyses show that this effect is more pronounced when investor protection is stronger at the country level. Moreover, higher institutional ownership increases the relevance of undervaluation in buyback decisions and the distribution of excess cash is a relatively more important reason for share repurchases when firms display higher CSR engagement. Overall, our findings demonstrate that firms that generally act in a socially responsible manner also refrain from exploiting sellers for the benefit of ongoing investors.

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Stock buybacks or share repurchases have become increasingly popular in recent years (S. Banerjee et al., 2018; Nguyen et al., 2021). These actions involve multiple facets of corporate decision-making (Vermaelen, 2005) and are conducted for various reasons (Dittmar, 2000). One of the most relevant motives for choosing a share repurchase is to take advantage of the firm's shares being undervalued (Baker & Wurgler, 2002; Brav et al., 2005; Dittmar, 2000), which represents a positive net present value project for the firm and thus increases the wealth of ongoing shareholders.

Parallel to this trend, the concept of corporate social responsibility (CSR) has been investigated for almost half a century (Vishwanathan et al., 2020). CSR refers to a company's commitment to operate in an economically, socially, and environmentally sustainable manner while recognizing the interests of various stakeholders, including employees, customers, suppliers, local communities, and the environment. This holistic approach goes beyond mere compliance with legal requirements and involves proactive efforts to promote ethical behavior, community engagement, and environmental stewardship. The influence of CSR engagement on various aspects of the firm is undisputed.

Given these two important aspects of corporate decision-making—share repurchases and CSR—current literature investigates their intersection. For instance, Samet and Jarboui (2017) and Sheikh (2022) find that firms with stronger CSR engagement tend to exhibit higher payouts, with a preference for share repurchases over dividend payments. This propensity is more pronounced among firms characterized by high information asymmetry, weak corporate governance structures, and lower financial reporting quality (Zadeh, 2021). Mahoney et al. (2021) reveal a positive correlation between a firm's transparency regarding its CSR activities and the number of shares it repurchases, whereas the impact of CSR performance on share repurchases is weaker. Jha et al. (2022) suggest a connection between a firm's ethical culture and its decisions regarding stock repurchases. The authors find that firms with robust CSR commitments repurchase a greater number of shares, which they attribute to CSR aligning buybacks with shareholder interests by relying mostly on excess cash as the motive for share repurchases. Conversely, Vaupel et al. (2023) investigate firms' ethical dilemmas when balancing financial and sustainable interests. The researchers identify a cubic negative relationship between a firm's environmental value orientation and the extent of share repurchases, contrasting previous results.

Moreover, literature investigated the wealth transfer (Maxwell & Stephens, 2003) which is induced by buybacks conducted during periods of undervaluation. Sloan and You (2015) and DeLisle et al. (2020) show that since selling shareholders trade their shares at a price below the fair value, the wealth of ongoing shareholders increases at the expense of selling shareholders. As firms mostly choose periods of undervaluation to buy back their stocks (Baker &Wurgler, 2002; Bessler et al., 2014; D'Mello & Shroff, 2000; Mitchell et al., 2006), selling shareholders find themselves at the losing end of most buybacks, while ongoing shareholders profit.

From the existing literature, it is evident that a clear relationship between a firm's CSR engagement and its propensity to engage in share buybacks has not yet been established. Further, although the correlation between CSR and the volume of buybacks has been examined, the relationship between CSR and the timing of share repurchases in view of the wealth distribution resulting from buybacks conducted during periods of undervaluation has not. Consequently, we pose the question:

> *Does a company's CSR engagement affect the timing of its stock repurchases?*

Or more precisely:

> *Does CSR engagement influence the importance of undervaluation as a buyback motive?*

To answer this question, we make use of an integrated approach combining insights from agency theory and stakeholder theory. This theory suggests that the management of high-CSR firms adopts a more holistic view of corporate governance, not only considering itself the agent of shareholders but also balancing a broader array of stakeholder interests.

In this vein, we posit that firms committed to socially responsible behavior are more concerned with the overall welfare of all stakeholders since these firms view themselves as a nexus of (implicit) contracts between different stakeholders (Ni et al., 2020). Hence, a firm's undervaluation is less relevant for these firms, as they do not exploit certain groups of society such as selling shareholders. In fact, under the assumption of a decreasing marginal utility of financial wealth, increasing inequality among investors will always result in a net welfare loss. Only firm management willing to disregard social responsibility would consider such behavior. Therefore, we investigate whether firms with high overall stakeholder orientation have lower buyback sensitivity to undervaluation. In this context, we use a firm's

level of CSR engagement measured as the simple average of a firm's environmental and social CSR scores provided by Refinitiv as a proxy for a company's devotion to societal goals in general. We hypothesize that high-CSR firms (CSR as our main independent variable) rather refrain from repurchasing shares (the probability of buybacks as our dependent variable) during periods of undervaluation (our main moderator variable) compared with low-CSR firms.

Our empirical analyses of a large dataset of firms worldwide confirm that firms with higher CSR engagement display a smaller propensity to buy back stocks during periods of undervaluation. This first and main result holds for different specifications of undervaluation as well as several other robustness checks.

In an additional second test, we consider that firms might have to choose between the alternatives of repurchasing stocks or increasing their dividends rather than not paying out excess cash and demonstrate that high-CSR firms indeed favor increasing their dividends over buybacks when undervalued. Third, we find that more socially responsible firms are more likely to engage in buybacks when their excess cash holdings are higher. This finding indicates that the overall welfare-increasing motive of paying out excess cash is more important for more socially responsible firms. In our fourth supplementary analysis, we also examine the role of institutional investors. Given that institutional investors mainly profit from buybacks when the firm is undervalued, since they are well informed and thus less likely to sell their shares during such periods, we argue that institutional investors use their influence over a firm's management to induce wealth-distributing buybacks. We consistently observe that institutional ownership increases firms' sensitivity to undervaluation in their buyback decisions. As CSR only works as a proxy for stakeholder orientation if it is genuine, authentic, and not led by opportunistic managerial behavior, we conduct a fifth and final test. We examine the effect of a country's institutional framework on safeguarding investors against managerial misconduct, expecting our observed effect to be more pronounced in countries with higher investor protection. Our results confirm this relationship.

Thus, our study sheds light on a largely neglected aspect of socially responsible firm behavior. Specifically, we highlight the relevance of balancing the interests of shareholder groups. Our main result provides direct evidence that managers of high-CSR firms refrain from conducting buybacks during periods of undervaluation giving indications that those managers might be aware of the wealth transfer from selling to ongoing shareholders. We thus demonstrate with our first result that managers of more socially responsible firms consider the exploitation of selling shareholders for the benefit of ongoing shareholders as less desirable.

These new insights contribute to the understanding of the interplay between businesses and society because share repurchases play a significant practical role and have grown increasingly popular in recent years. Share repurchases may reduce a firm's (excess) cash and thus leave less cash for wasteful projects, leading to fewer agency problems and increasing overall welfare (Jensen, 1986). In addition, share repurchases can be beneficial for investors for various reasons, such as preferential treatment by tax laws compared to dividend payments (Rau & Vermaelen, 2002), their potential to offset the dilution caused by managerial stock options (Brav et al., 2005), or retaining flexibility regarding payout policy and investments (Jagannathan, 2000). Abusing share repurchases as an instrument for wealth redistribution, however, harms vulnerable groups of investors and hence may undermine the welfare increasing potential of buybacks. In particular, investors' trust in this mode of divesting by firms could erode, threatening its continued effectiveness if investors start to reject buybacks as managerial attempts to cheat them.

Our findings are relevant for investors and companies alike. In particular, we recommend less informed retail investors, who have limited access to financial information compared to institutional investors, to invest in firms with greater CSR engagement. These firms' managers are more likely to consider all investors' interests, ensuring that shareholders are treated fairly even when they decide to sell their shares, without the company resorting to practices that might exploit them. Companies striving to act in a socially responsible way may learn from our study that socially responsible divestments are not only characterized by *which* investments are terminated, but also by *how* firms divest. Hence, companies with a focus on stakeholder orientation should design their share buybacks in a socially responsible manner, ensuring that the process is transparent and equitable, by refraining from exploiting selling shareholders who may be unaware of the firm's true value. This approach promotes fairness and integrity in corporate transactions, aligning with broader ethical standards and stakeholder interests.

The remainder of this article is organized as follows: it begins with background information on share repurchases and undervaluation, followed by an exploration of the overarching theoretical framework. A review of the relevant literature on buybacks, misvaluation, and CSR is provided, leading to the development of our hypothesis. The article then describes the data and methodology used in the analysis, presents the baseline regression results, and includes several robustness checks to validate the findings. Additional supporting evidence for the main hypothesis is offered, and the study concludes with a summary of key insights.

Background on Share Repurchases

Share repurchases can be organized as fixed-price tender offers—a form that has become rather uncommon—in which the firm makes a public offer to buy back its shares at a specific price; or open-market repurchases, in which shares are bought back directly from the market. Regardless of the mode of organization, stock buybacks involve several corporate decision-making aspects (Vermaelen, 2005). First, repurchasing shares is a payout decision that leaves the firm with more flexibility regarding its future payout policy than dividend increases (Grullon & Michaely, 2002; Jagannathan, 2000). Second, share repurchases can affect ownership structure. In this sense, a stock buyback is also a divestment decision initiated by the firm but finally executed by the selling shareholders. Third, share repurchases are relevant to a firm's capital structure, as excess cash is reduced, and the firm's leverage increases. Finally, share buybacks are investment decisions in which the management decides to invest in the firm itself. Given these decision-making dimensions, several potential motives drive a firm's choice to repurchase its own shares (Dittmar, 2000). In addition to the distribution of excess cash, undervaluation is an important, if not the most important, reason for conducting a buyback. For investors, share repurchases are often viewed as a positive signal that management believes the stock is undervalued, thus instilling greater confidence in the company's future performance (Billett & Yu, 2016).

Against this background, the practice of share repurchases is not without controversy. Critics argue that buybacks can lead to short-termism, where companies prioritize immediate stock price gains over long-term investments in innovation, research, and development (Lazonick, 2014). Additionally, in cases of significant undervaluation, share repurchases can result in wealth transfers that may disadvantage selling shareholders who are unaware of the firm's intrinsic value (Maxwell & Stephens, 2003).

Corporate policy reforms and regulations regarding share repurchases vary widely across the globe. In the United States, the Securities and Exchange Commission regulates buybacks under Rule 10b-18, which provides a safe harbor for companies, protecting them from accusations of market manipulation if they adhere to certain conditions regarding the timing, volume, and price of repurchases. This regulatory framework has been relatively permissive. In contrast, European regulations have historically been more stringent, with stricter limits on the volume of shares that can be repurchased and more rigorous disclosure requirements. However, the European Union has been gradually aligning its rules with global standards, allowing for greater flexibility in corporate buyback strategies. This shift is part of broader capital markets reforms aimed at enhancing the competitiveness of

European firms in the global marketplace (Andriosopoulos & Hoque, 2013). Asian markets exhibit a mixed approach, with countries like Japan embracing buybacks as part of corporate governance reforms aimed at improving capital efficiency and shareholder returns. The Japanese government has actively encouraged share repurchases thus exhibiting the growing recognition of the role buybacks can play in enhancing shareholder value (Kim et al., 2005). On the other hand, countries like China and India maintain more conservative stances, with stringent rules governing the circumstances under which buybacks can be executed, reflecting concerns about market stability and investor protection (Guo et al., 2021; Reddy et al., 2013).

Globally, share repurchase activity has surged over the past two decades, particularly in the United States (Grullon & Ikenberry, 2000), where buybacks have often been preferred over dividends as a method of returning capital to shareholders (Fried, 2001). This trend reflects a broader shift in corporate finance strategies, where firms increasingly use repurchases as a flexible tool to manage capital structure, optimize tax efficiency, and adjust earnings per share. In Europe and Asia, share repurchases have also gained traction, albeit at a slower pace compared to the United States (Andriosopoulos & Hoque, 2013; B. S. Lee & Suh, 2011; Von Eije & Megginson, 2008), as the regulatory environments in these regions have historically been more restrictive.

Summarizing, share repurchases, or buybacks, have become an increasingly prominent strategy for corporate financial management, particularly in the context of undervaluation (Nguyen et al., 2021). When a company perceives its shares to be undervalued, it may opt to repurchase its own stock as a means to signal confidence in its future prospects and to enhance shareholder value. This practice has seen significant global adoption, with varying degrees of regulation and oversight depending on the jurisdiction.

Theoretical Background

Agency and Stakeholder Theories

Agency theory, conceptualized by Michael Jensen and William Meckling in 1976, is a fundamental framework in corporate governance and economics that explores the relationships and conflicts between principals and agents within an organization. This theory is grounded in the notion that there is an inherent divergence of interests between the owners of the firm and those hired to manage it. In the context of a corporation, shareholders are the principals who invest their capital in the company, seeking to maximize their (risk-adjusted) returns. Managers, on the other hand, are the agents employed

to run the company on behalf of the shareholders. Ideally, agents should act in the best interests of the principals, ensuring that their actions and decisions enhance shareholder value. However, due to the separation of ownership and control, managers may pursue their own objectives, which can lead to conflicts of interest. A significant issue in the principal-agent relationship is information asymmetry, where managers typically have better knowledge about the firm's operations, strategies, and future prospects than shareholders. Further, managers may undertake actions that are not observable by shareholders and could deviate from the shareholders' best interests. These concepts of hidden information and hidden action (Arrow, 1985) can be exploited by managers to make decisions that benefit themselves at the expense of shareholders, leading to welfare losses also known as agency costs. Managers, motivated by self-interest, may engage in various opportunistic behaviors. A country's legal framework as well as special contractual arrangements between managers and shareholders may help to align the interests of principals and agents and so reduce agency costs (Porta et al., 1998). In this regard, institutional investors may play a critical role in mitigating agency problems. With substantial ownership stakes, institutional investors have the resources and expertise to monitor managerial performance and exert influence on corporate governance practices. Their active involvement can drive reforms and improvements in managerial accountability and firm performance (Holderness & Sheehan, 1988; Johnson & Greening, 1999).

While traditional agency theory focuses primarily on the relationship between shareholders and managers, emphasizing the need to align managerial actions with shareholder interests to minimize agency costs, a more contemporary perspective expands this framework to consider managers as agents of all stakeholders, not just shareholders (Donaldson & Preston, 1995; Eisenhardt, 1989; Hill & Jones, 1992). This view combines notions from the stakeholder theory formulated by Freeman (2010) with the agency theory. The stakeholder theory provides a comprehensive framework for understanding the relationships and responsibilities that a firm has toward various groups and individuals who have a stake in the business. This theory marks a significant departure from the traditional shareholder-centric view, advocating instead for a broader, more inclusive approach to corporate governance and decision-making. Stakeholder theory is grounded in the belief that businesses operate within a complex web of relationships involving multiple stakeholders. These stakeholders are defined as any group or individual who can affect or is affected by a firm's activities. This group includes, but is not limited to, shareholders, employees, customers, suppliers, creditors, local communities, and environmental groups (Clarkson, 1995; Haigh & Griffiths, 2009).

It remains open to question why managers should act in the interest of all stakeholders, although legal and contractual rules mainly aim at aligning managers' interests with those of the shareholders. Firstly, even if the owners of a company follow the "shareholder expense view" (Friedman, 1998; Jawahar & McLaughlin, 2001) in the sense that taking into account the interests of other stakeholders is mainly a cost factor and thus should be avoided, it is known from agency theory that due to the problem of asymmetric information, there still will be some room for managerial discretion. Therefore, it is possible that the management acts against the will of the shareholders and takes the interests of other stakeholder groups into account, because it is intrinsically motivated to do so. Secondly, shareholders might actually recognize that considering stakeholder interests ultimately aligns with their long-term goals, leading to higher returns. This notion is in line with the "stakeholder value maximization view" (Deng et al., 2013; Eccles et al., 2014; Freeman et al., 2004; Jo et al., 2015), which posits that a broader focus on stakeholder interests can enhance the firm's reputation, ensure sustainability, and drive long-term profitability, thus benefiting shareholders indirectly.

CSR serves as an institutionalized concept that operationalizes stakeholder theory by embedding the principles of stakeholder inclusivity into corporate practices and providing concrete strategies and measurable outcomes. CSR initiatives encompass a wide range of activities designed to address the economic, social, and environmental impacts of a firm's operations. By adopting CSR practices, firms demonstrate their commitment to balancing the interests of all stakeholders, aligning with the core tenets of stakeholder theory. CSR involves proactive efforts to ensure ethical behavior, sustainability, and community engagement, reflecting a company's dedication to its broader social obligations (Carroll, 1999; Dahlsrud, 2008).

In the context of share repurchases, this expansion of the agency framework by stakeholder theory suggests that managers may consider the impact of their actions on all stakeholders. Share repurchases during periods of undervaluation can lead to a wealth transfer from selling shareholders, who may be uninformed about the firm's true value, to ongoing shareholders. This practice can be seen as exploiting information asymmetry to the detriment of some stakeholders. Managers who act as agents for all stakeholders would therefore be less inclined to engage in such opportunistic behavior, recognizing the ethical implications and potential harm to the firm's reputation and stakeholder relationships. Additionally, managers who prioritize stakeholder interests might also consider the broader implications of share repurchases on the firm's financial health and capacity to invest in socially responsible initiatives. Thus, extending agency theory to include stakeholder interests requires

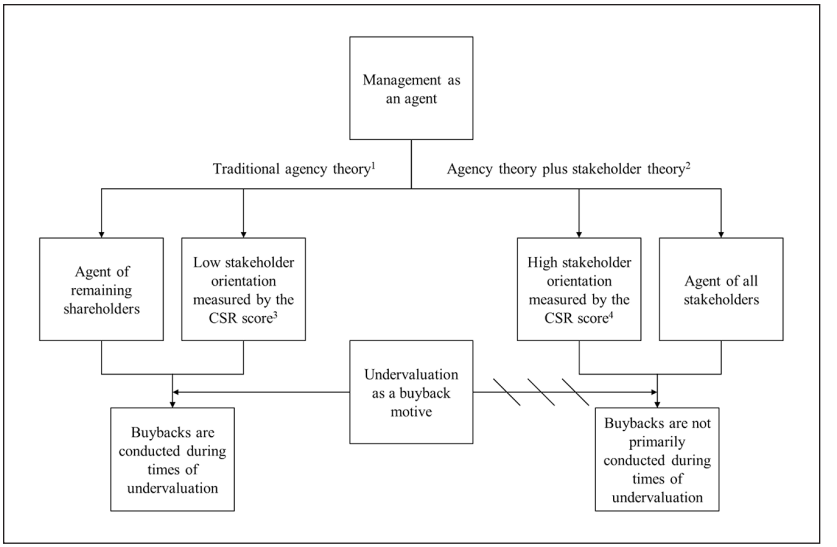

Figure 1. Agency Theory, Stakeholder Theory, and Undervaluation as a Buyback Motive.

Note. CSR = corporate social responsibility.

[1]Traditional agency theory understands the management as the agent of one group of principals, namely the shareholders of a company.

[2]Contemporary agency theory which includes notions of the stakeholder theory takes a broader approach and considers all stakeholders as principals for which the management serves as an agent.

[3]Low stakeholder orientation is shown to be highly correlated with low levels of CSR engagement.

[4]High stakeholder orientation is shown to be highly correlated with high levels of CSR engagement.

managers to adopt a more holistic approach to corporate governance. This perspective not only aims to reduce traditional agency costs associated with shareholder-manager conflicts but also seeks to balance the broader array of stakeholder interests, fostering a more sustainable and ethically responsible business model.

We thus posit that low CSR activities coincide with share repurchases motivated by undervaluation as (remaining) shareholders following the shareholder expense view have been successful in securing their interests and circumventing management from realizing presumably shareholder value destroying CSR measures. Moreover, high CSR activities are assumed to be accompanied by share repurchases induced by other motives than undervaluation, because managers and/or shareholders follow the stakeholder value maximization view. The following Figure 1 summarizes this idea:

The following section pursues the question of the empirically observable correlations related to the above presented theoretical framework and builds a bridge between our theory and our hypothesis.

The Management's Fundamental Decision Problem

Essential concepts in the context of undervaluation are a firm's "true" or "fair" value and the implications of asymmetric information. According to Miller and Modigliani (1961), it is irrelevant whether a company repurchases shares or pays dividends to investors in a perfect market. However, this irrelevance theorem does not hold true any longer in situations with asymmetric information. An important consequence of asymmetric information can be the misvaluation of firms' shares. Let V_0 be the current market value of the firm's equity. Moreover, V_{true} denotes the market value of the firm's equity in a situation with symmetric information; that is, its "true" or "fair" value. A situation in which these shares are undervalued is characterized by the inequality $V_0 < V_{\text{true}}$.

Depending on whether firm management focuses on the interests of all shareholders or only those remaining after a share buyback, the aforementioned inequality together with (expected) future share price movements could create incentives for a firm to repurchase shares. More specifically, we assume that only a portion r of all investors sells all their shares, while the other fraction $1-r$ of the investors refrains from participating in the share buyback. This leads to an overall cash outflow paid by the firm of $r \cdot V_0$, which is also the wealth position of the selling investors. Assuming the cash holdings utilized to buy back the shares cannot be invested in projects with positive net present value and investors' dividend expectations remain unchanged, the overall value of the remaining shares would then be $(1-r) \cdot V_0$. However, we further assume that informational asymmetry is reduced as a consequence of share repurchases. Hence, the market value of the firm's equity (before considering the cash outflow due to the share repurchase) changes to $V_1 > V_0$ in the wake of the repurchase transaction, which serves as a (credible) signal to the capital market regarding the true value of the firm (Billett & Yu, 2016).[1] Thus, share repurchases result in a positive price effect of $V_1 - V_0$. The difference between V_1 and V_0 will be greater if the degree of the remaining informational asymmetry decreases, and will become smaller if the liquidity necessary to buy back shares can only be extracted when liquidating investment projects with a positive net market value contribution. Presuming $V_1 > V_0$ means that the former effect dominates the latter. Then, the resulting market value of the firm's equity when considering the cash outflow amounts to $V_1 - r \cdot V_0$ with

$$V_0 < V_1 \leq V_{\text{true}}. \quad (1)$$

The overall wealth positions of the remaining and the leaving shareholders amount together to $V_1 - r \cdot V_0 + r \cdot V_0 = V_1$. From this perspective, there is no apparent relationship between the extent of undervaluation of a firm's shares and management's incentive to buy them back.

This observation raises the question of why undervaluation is a prevalent motive for buybacks. To investigate this question and highlight the importance of the agency theory and a firm's stakeholder orientation in this context, the following literature review provides an overview of the interactions among buybacks, misvaluation, and the representation of different stakeholder groups. The review also derives our hypothesis.

Empirical Literature Review and Hypothesis Development

Buybacks and Misvaluation

Prior literature observes that firms deliberately repurchase shares when they are undervalued. Ikenberry et al. (1995) demonstrate that the undervaluation of repurchasing firms amounts to roughly 15% and that they experience long-term positive abnormal returns. D'Mello and Shroff (2000) estimate the fair values of repurchasing and non-repurchasing firms and compare them to their respective market values. The authors conclude that undervaluation is stronger for repurchasing firms than for non-repurchasing firms. In a more recent study on German firms, Bessler et al. (2014) obtain similar results. Mitchell et al. (2006) analyze Australian stock repurchases and observe that repurchasing firms are more undervalued than non-repurchasing firms. Thus, it is not surprising that several studies have measured positive announcement effects for share repurchases in the short and even the long term (Ikenberry et al., 1995; Manconi et al., 2019). Along these lines, Baker and Wurgler (2002) explain the lower leverage ratios of firms with higher market-to-book ratios through timing considerations: they argue that firms issue equity when their market valuation is high and repurchase shares when their valuation is low. These insights lead us to the following assertion.

We conclude from the literature: firms engaging in share repurchases tend to believe that their shares are undervalued.

Buybacks and Wealth Transfer

The common practice of repurchasing shares in periods of undervaluation leads to a wealth transfer from selling to ongoing shareholders (DeLisle et al.,

2020; Maxwell & Stephens, 2003; Sloan & You, 2015). Selling shares for a price below the fair value decreases the wealth of selling shareholders to the same extent as ongoing shareholders profit. According to the simple model context, introduced above, selling shareholders are left with an overall wealth of $r \cdot V_0 = r \cdot V_1 - r \cdot (V_1 - V_0)$, while the value of the shares of the remaining investors amounts to $V_1 - r \cdot V_0 = (1-r) \cdot V_1 + r \cdot (V_1 - V_0)$. The wealth transfer from the former group of the investors to the latter is therefore $r \cdot (V_1 - V_0) > 0$.

This practice coincides with managerial incentives. As highlighted by Barclay and Smith (1988), managers are incentivized to time buybacks in the interests of ongoing shareholders and neglect the wealth position of selling shareholders. One central mechanism that aligns managers' interests with those of ongoing but not selling shareholders is compensation plans based on stock performance or stock options. Moreover, selling shareholders may not be the only stakeholders who experience a loss when buybacks are timed to occur when the firm is undervalued. Share repurchases may also benefit stockholders at the expense of bondholders (Maxwell & Stephens, 2003). However, the literature provides mixed evidence on this issue (Alderson et al., 2020; Maxwell & Stephens, 2003).

From existing research, we deduce: Ongoing shareholders profit at the expense of selling shareholders in the case of buybacks conducted during times of undervaluation.

Stakeholder Orientation and CSR

Recent years have seen a rise in firms' CSR efforts as they try to incorporate the interests of more stakeholders than only shareholders into their decision-making (Ni et al., 2020). For instance, Dawkins and Lewis (2003) demonstrate that firms with a high level of CSR commitment value the interests of shareholders and other stakeholders. Several studies such as Clarkson (1995), Wood and Jones (1995), Dawkins and Lewis (2003), and Steurer et al. (2005) recognize the predominant stakeholder orientation of firms with superior CSR engagement.

An extensive and growing body of literature documents that managers of firms with higher CSR engagement behave less opportunistically toward other stakeholders. Eccles et al. (2014) show that firms with higher CSR engagement are generally more reputable for doing something good for stakeholders. Because of their reputation and genuine long-term behavior, Lins et al. (2017) argue that stakeholders perceive the probability of higher-CSR firms breaking (implicit) contracts or deceiving stakeholders to be lower. Bénabou and Tirole (2010) note that firms with superior CSR levels are more long-term-oriented. Therefore, managers of these firms have fewer incentives to engage in short-term opportunistic behavior. Gao et al. (2014)

show that managers of high-CSR firms are less likely to undertake insider trading or trade on future earnings news, demonstrating that managers of these firms are less likely to exploit their informational advantage.

Jo et al. (2015) derive a link between stakeholder-initiated strategic governance and CSR. The authors document that firms with stronger stakeholder governance—characterized by higher transparency, fewer corruption and instability issues, more effective corporate governance, fewer controversies regarding business ethics, stronger anti-competitive practices, or fewer legal and regulatory risks—display higher CSR engagement. Similarly, Eccles et al. (2014) show that sustainably operating firms implement corporate governance mechanisms that reflect the interests of all stakeholders.

Preexisting scholarly work ascertains: Firms with a higher CSR engagement value the interests of all stakeholders more equally.

Hypothesis Development

From the section "Buybacks and Misevaluation" we conclude that firms tend to buy back their shares during periods of (perceived) undervaluation. According to the section "Buybacks and Wealth Transfer," this behavior typically leads to a wealth transfer from selling to ongoing shareholders. Specifically, the overall wealth position of the ongoing shareholders is described by $V_1 - r \cdot V_0$, which implies a wealth position per a remaining representative shareholder with just one share after the reduction of informational asymmetry through the buyback of:

$$\left(V_1 - r \cdot V_0\right) / \left(1 - r\right). \tag{2}$$

This wealth position increases in the fraction r bought back if the first inequality in (1) holds, and V_1 and V_0 are independent of r. Thus, firm management solely considering the interests of ongoing shareholders under these conditions would strive to buy back as many undervalued shares as possible. Term (2) describes the target function to be maximized by management with such priorities. Examining the wealth position per remaining representative shareholder is necessary, as management only targets the remaining shareholders, but their fraction is a function of r.[2] We now return to the impact of r on V_1 and V_0.

According to the section "Stakeholder Orientation and CSR," firms with higher CSR performance value all stakeholders' interests equally. Thus, these firms consider not only the wealth position of the ongoing shareholders but also that of the selling shareholders. As the number of stakeholders considered does not depend on r under this assumption, the firms' target function to be maximized is characterized as follows, which is also independent of r:

$$\left(V_1 - r \cdot V_0\right) + r \cdot V_0 = V_1. \tag{3}$$

Hence, managers of high-CSR firms, who consider the interests of ongoing and selling investors as more equal than managers of low-CSR firms, see less reason to buy back shares when inequality (1) holds; that is, in the case of undervaluation. The intuition behind this observation is that the management of high-CSR firms views the wealth transfer resulting from a share repurchase as a zero-sum game and is thus less motivated to repurchase shares in times of undervaluation.[3]

Firms with lower (vs. higher) CSR engagement focus on the interests of shareholders who can effectively exert influence over the firm's managers (i.e., ongoing shareholders). Thus, we expect the managers of low-CSR firms to consider their current valuations more strongly in buyback decisions. They seek to time their repurchase activities in periods of higher undervaluation, as this behavior benefits ongoing shareholders. Managers of high-CSR firms are more agnostic about firm valuation when deciding whether or when to repurchase shares because they do not intend to exploit their informational advantage by buying undervalued stocks from certain shareholders.

These considerations lead to the hypothesis to be tested in this study:

1. Firms with higher CSR engagement repurchase shares in periods of *ceteris paribus* lower undervaluation.

So far, we have not taken a closer look at the problem of cash outflow due to share repurchases being financed by liquidating investment projects with a positive net market value. Because of the inefficient liquidation of investment projects for sufficiently high values of r, $V_1(r)$ eventually becomes a strictly decreasing function of r. However, there might be an incentive for share repurchases even in this case for low-CSR firms if the undervaluation of a firm's shares is sufficiently pronounced so that $V_1 > V_0$ still results. This notion might also explain why low-CSR firms with undervalued stocks do not try to buy back almost all of them; that is, to maximize r.[4] For high-CSR firms, the target function according to (3) will eventually be strictly decreasing in r implying that high-CSR firms will abstain from inefficient liquidation of investment projects as a means of financing share repurchases and thus choose lower values for r than low-CSR firms.[5]

Our hypothesis coincides with a contemporary perspective on agency theory which considers managers not only as the agents of the shareholders but of all stakeholders (Donaldson & Preston, 1995; Eisenhardt, 1989; Hill & Jones, 1992). As has already been sketched in the section "Agency and Stakeholder Theories," this approach aligns agency theory with notions from stakeholder theory which advocates the consideration of all stakeholders in

corporate decision making. According to this perspective, high-CSR firms consider the interests of all stakeholders more equally. Thus, the argument that high-CSR firms view buybacks during times of undervaluation as a zero-sum game and perceive the wealth transfer associated with such buybacks as undesirable is consistent with this theoretical framework.

Data and Methodology

Our firm-level data come from Refinitiv. For a firm-year observation to be included in the sample, the observation has to be covered by Refinitiv's corporate action database as well as Refinitiv's ASSET4 database, which provides data on environmental, social, and governance aspects of a firm. We also require firm-year observations to have total assets and a market value of at least $10 million (Almeida et al., 2005; Mortal & Reisel, 2013). One reason for excluding small firms is that linear models, such as those used to decompose the market-to-book ratio, are inadequate for small firms (Campello & Graham, 2013).

Based on Refinitiv's corporate actions database, we construct a dummy variable ($BB_{i,t}$) indicating whether firm i announced a buyback during year t. We do not discriminate between different organizational forms of buybacks, such as open market purchases or tender offers, as all forms of buybacks lead to wealth transfers. We only consider each firm's first buyback announcement during each year and require that this announcement was not rescinded. We further demand that the firm actually went on to repurchase stocks for a value of at least $5 million and 1 % of its market capitalization at the time of the announcement. Small buybacks do not result in a relevant wealth transfer. They could be motivated, for example, by firms' needs to fulfill managers' stock option exercises (Kahle, 2002; Sonika & Shackleton, 2020). Small buybacks could also be the result of firms not following up on their initial buyback announcements and instead purchasing only a negligible amount of stock, which comes close to rescinding a buyback. If a buyback does not meet these requirements or if the information to verify these requirements is missing from the database, we delete the firm-year observation from our sample.

A firm's CSR engagement ($CSR_{i,t}$) is calculated as the simple average of the firm's environmental and social CSR scores in year t, provided by Refinitv's ASSET4 (Ioannou & Serafeim, 2012; Kyaw et al., 2017; Ortas et al., 2015; Stolowy & Paugam, 2018), which we divide by 100 to obtain meaningful coefficient estimates. The social score captures a firm's "capacity to generate trust and loyalty with its workforce, customers, and society through the use of best management practices" (see ASSET4). The environmental score measures a firm's "impact on living and non-living natural

systems, including the air, land and water, as well as complete ecosystems" (see ASSET4). Although ASSET4 also provides a governance score, we only use the environmental and social score, as the governance score targets a firm's "systems and processes, which ensure that its board members and executives act in the best interests of its long-term shareholders." Thus, the governance score focuses on the interests of (long-term) shareholders. We use $CSR_{i,t}$ to capture a firm's degree of stakeholder orientation, specifically toward non-investing stakeholders. The social and environmental scores assess a firm's activities regarding these stakeholders.

One central task of our analysis is to estimate corporate misvaluations. A common approach for gauging misvaluation is to use long-term stock performance following a buyback announcement. The rationale behind this method is that if a firm's undervaluation prior to the announcement of a repurchase is higher, the firm should generate *ceteris paribus* higher abnormal long-term returns in the periods following the announcement to offset the undervaluation. However, owing to confounding influences, post-announcement returns are a poor proxy for firms' undervaluation at the time of buyback announcements (Bargeron et al., 2017; I. Lee et al., 2020). Thus, we rely on two approaches to decompose the market-to-book ratio into a growth opportunity and a misvaluation component.

First, we use the approach developed by Campello and Graham (2013), who demonstrate that firm and industry fundamentals can largely explain the growth opportunity component of the market-to-book ratio. The projection of market values has been used to capture growth opportunities in various studies (Asker et al., 2015; Mortal & Reisel, 2013). The fraction of the market-to-book ratio that is not explained by fundamentals constitutes the mispricing component.

To implement this approach, we regress the market-to-book ratio of each firm i and year t ($MTBR_{i,t}$) on its respective return on assets ($ROA_{i,t}$), cash flows ($CF_{i,t}$), sales growth ($SG_{i,t}$), book leverage ($Lev_{i,t}$), the year-specific average sales growth of the firm's entire Fama-French 12-industry n ($indSG_{n,t}$), and all these variables lagged by 1 year.

$$MTBR_{i,t} = \alpha + \beta_1 \times Var_{i,n,t} + \beta_2 \times Var_{i,n,t-1} + \varepsilon_{i,t}, \tag{4}$$

in which $\mathrm{Var}_{i,n,\tau} = \left(ROA_{i,\tau}, CF_{i,\tau}, SG_{i,\tau}, Lev_{i,\tau}, indSG_{n,\tau}\right)^T$, $\tau \in \{t,\ t-1\}$ and β_l ($l = 1, 2$) are the corresponding row vectors of the regression coefficients. The fitted values in this regression analysis represent a firm-year's growth opportunities. The residuals ($\varepsilon_{i,t}$) multiplied by minus one proxy for the firm's undervaluation ($UV_{i,t}^{(CG)}$).

While all the dependent variables in Equation 4 refer to the firm's fiscal year, we use pre-announcement market-to-book ratios for all firm-year observations during which a buyback was announced. Specifically, we calculate the pre-announcement market-to-book ratio based on simple averages of daily market values over an event window of 1 month (20 trading days) prior to the buyback announcement. For all firm-year observations in which no buyback was announced, we use the yearly average market-to-book ratio.

Our second measure of undervaluation is based on a methodology developed by Rhodes-Kropf et al. (2005) and employed by Hertzel and Li (2010), among others, who decompose the market-to-book ratio into a growth opportunities component and a misvaluation component to analyze the motivation underlying secondary equity offerings.

We follow prior studies and estimate the following regression separately for each industry-year with at least 20 observations, based on the Fama-French 12-industry classification:

$$\ln\left(MV_{i,t}\right) = \alpha + \beta_1 \times \ln\left(BV_{i,t}\right) + \beta_2 \times \ln\left(absNI_{i,t}\right) + \beta_3 \times NI_{i,t}^{(-)} \times \ln(absNI_{i,t}) + \beta_4 \times MarketLev_{i,t} + \varepsilon_{i,t}, \quad (5)$$

in which $MV_{i,t}$ is the market value of the firm's equity, $BV_{i,t}$ is the book value of equity, $absNI_{i,t}$ is the absolute value of net income, $NI_{i,t}^{(-)}$ is a dummy variable that equals one if net income is negative, and $MarketLev_{i,t}$ is the market leverage ratio. We take the natural logarithms of all variables except $MarketLev_{i,t}$.

Rhodes-Kropf et al. (2005) divide misvaluation into a firm- and an industry-specific component. To obtain the total misvaluation, we use the Fama-French 12-industry average of the regression coefficients from Model (5) over all years to calculate the fitted values for $\ln\left(MV_{i,t}\right)$. The total undervaluation of the stocks of firm *i* in year *t* ($UV_{i,t}^{(RRV)}$) is then calculated as $\ln(MV_{i,t})$ minus its respective fitted value multiplied by minus one.

We again use the average values of the firm's market value of equity over the same time windows prior to the announcement of the buyback or the yearly average values if no buyback was announced during year *t* to calculate $MV_{i,t}$ and $MarketLev_{i,t}$.

Our hypothesis argues that a firm's willingness to make socially responsible divestment decisions, proxied by its CSR score, curtails its tendency to engage in buybacks during periods of undervaluation. We test this hypothesis by estimating the following regression model with the probit estimator.

$$\begin{aligned}\text{probit } BB_{i,t} = {} & \alpha + \beta_1 \times CSR_{i,t} \times UV_{i,t} + \beta_2 \times UV_{i,t} + \beta_3 \times CSR_{i,t} \\ & + \sum_j \gamma_j \times Control_{j,i,t} + \sum_k \varphi_k \times Control_{k,h,t} \\ & + \pi_i + \tau_t + \delta_h + \varepsilon_{i,t},\end{aligned} \tag{6}$$

in which $CSR_{i,t} \times UV_{i,t}$ is the interaction term of $CSR_{i,t}$ and $UV_{i,t}$ and evaluates whether the propensity of firms to announce buybacks in periods of higher undervaluation is related to their CSR performance.

Our set of firm-level controls ($Control_{j,i,t}$) comprises a wide range of variables, whose relevance for buyback decisions or outcomes has been established in prior work. We control for firm size ($Size_{i,t}$) and the remaining growth opportunities component of the market-to-book ratio from the respective estimation of undervaluation ($GO_{i,t}^{(CG)}$ or $GO_{i,t}^{(RRV)}$). Zhang (2005) shows that announcement effects on share repurchases differ depending on firm size and market-to-book ratio. We also condition on the firm's financial situation using operating income ($ROA_{i,t}$), cash from operating activities ($CF_{i,t}$), book leverage ($Lev_{i,t}$), sales growth ($SG_{i,t}$), capital expenditures ($Inv_{i,t}$),[6] and cash and short-term investments ($Cash_{i,t}$), as in prior literature on corporate payouts (Hasan & Habib, 2020; Zadeh, 2021).

Jacob and Jacob (2013) demonstrate that firms' buyback behaviors depend heavily on tax legislation. Moreover, other country-level factors such as country-level governance, other institutional factors, and national culture could determine buyback behavior. To control for these factors to the extent that they are time-invariant, regression Model (6) includes country dummies (δ_h). *h* indicates the country in which firm *i* is headquartered. Moreover, we add a set of time-variant country-level controls ($Control_{k,h,t}$). Similar to Jacob and Jacob (2013), we consider the country's economic situation, specifically, its gross domestic product ($GDP_{h,t}$), as well as its annual growth in GDP ($GDPgrowth_{h,t}$), and the GDP per capita ($GDPpc_{h,t}$), both deflated to 2005 U.S. dollar values.

Finally, we include Fama-French 12-industry and year dummies (π_i and τ_t) to capture unobserved industry-level heterogeneity and trends. We provide details on the construction of all the variables in Table 1.

Table 2 presents the summary statistics for all the variables employed in our analysis. After excluding observations with extreme values that could indicate major corporate events such as mergers as described in Table 1, our panel dataset comprises 26,975 firm-year observations from 3,374 firms and 36 countries from 2001 to 2017. 1,362 of these observations are classified as buyback years.

Table 1. Variable Definitions.

Variable	Definition
$BB_{i,t}$	Dummy variable indicating whether firm *i* announced a buyback during year *t*. See section "Data and Methodology" for details.
$CSR_{i,t}$	Simple average of environmental and social score in year *t* divided by 100 based on Refinitiv ASSET4.
$MTBR_{i,t}$	If a buyback was announced by firm *i* during year *t*: (Average daily market capitalization over an event window of 120 trading days prior to the buybacks announcement + (total debt in year *t* + total debt in year *t* − 1)/2)/(total assets in year *t* + total assets in year *t*)/2. If no buyback was announced by firm *i* during year *t*: (average daily market capitalization over fiscal year *t* + (total debt in year *t* + total debt in year *t* − 1)/2)/(total assets in year *t* + total assets in year *t*)/2.
$ROA_{i,t}$	(Operating income in year *t*/total assets in year *t* − 1).
$CF_{i,t}$	(Cash from operating activities in year *t*/total assets in year *t* − 1).
$SG_{i,t}$	(Net sales in year *t*/net sales in year *t* − 1) − 1.
$Lev_{i,t}$	Book value of total debt in year *t*/book value of total equity in year *t*.
$UV_{i,t}$	Measure of undervaluation calculated based on the approach of Campello and Graham (2013) ($UV_{i,t}^{(CG)}$) or alternatively based on the approach of Rhodes-Kropf et al. (2005) ($UV_{i,t}^{(RRV)}$). See section "Data and Methodology" for details.
$Size_{i,t}$	Natural logarithm of total assets in year *t*.
$GO_{i,t}$	Measure of growth opportunities based on the approach of Campello and Graham (2013) ($GO_{i,t}^{(CG)}$) or alternatively based on the approach of Rhodes-Kropf et al. (2005) ($GO_{i,t}^{(RRV)}$). See section "Data and Methodology" for details.
$Inv_{i,t}$	Capital expenditures in year *t*/total assets in year *t* − 1.
$Cash_{i,t}$	Cash and short-term investments in year *t*/total assets in year *t*.
$GDPgrowth_{h,t}$	The firm's home country's percentage growth in gross domestic product over year *t* as reported by the World Bank.
$GDP_{h,t}$	The firm's home country's gross domestic product in year *t* as reported by the World Bank in trillions of 2005 US dollars.
$GDPpc_{h,t}$	The firm's home country's gross domestic product per capita in year *t* as reported by the World Bank in thousands of 2005 US dollars.
$Social_{i,t}$	Social CSR engagement reported by the Refinitiv ASSET4 database at the end of year *t*.
$Environ_{i,t}$	Environmental CSR engagement reported by the Refinitiv ASSET4 database at the end of year *t*.
$CSRgov_{i,t}$	Simple average of environmental, social, and governance score in year *t* divided by 100 based on Refinitiv ASSET4.
$CSRkld_{i,t}$	CSR score based on the MSCI KLD dimensions "community," "diversity," "employee relations," "environment," and "human rights." See the section "Robustness Checks" for details.
$Placebo_{i,t}$	Dummy variable indicating whether a firm announced and withdrew a buyback or repurchased only a small amount of shares. See the section "Robustness Checks" for details.
$AnalDisp_{i,t}$	Standard deviation of 1 year forward earnings per share forecasts for year *t* across all analysts/absolute value of mean of the respective earnings per share forecasts across all analysts.
$Intang_{i,t}$	(Intangible assets in year *t*/total assets in year *t* − 1).
$Stake_{h}$	Measure of stakeholder orientation as recognized by a country's institutions. See the section "Robustness Checks" for details.
$InstOwn_{i,t}$	Percentage of traded shares held by institutional investors at the end of year *t*.
$AnalystCov_{i,t}$	The average number of analysts following the firm at the end of each month over the course of year *t*.
$BoardIndep_{i,t}$	Percentage of non-executive board members at the end of year *t* according to Refintiv ASSET4.
$BoardSize_{i,t}$	The number of board members at the end of year *t* according to Refintiv ASSET4.
$CEOBoardMem_{i,t}$	Dummy variable equal to one if the CEO is also a board member at the end of year *t*.
$EIndex_{i,t}$	Measure of the degree of managerial entrenchment. See the section "Robustness Checks" for details.
$BBvsDiv_{i,t}$	Dummy variable equal to one if firm *i* announced a buyback during year *t* and zero if it increases its dividends per share by at least 25% during year *t*. If the firm *i* increases its dividend and also announces a buyback during year *t*, the firm-year observation is not considered. The same happens if neither a buyback announcement nor a dividend increase of at least 25% occurs in year *t*.
$XCash_{i,t}$	Measure of excess cash in year *t*. See the section "Additional Evidence" for details.

Note. This table defines the variables used in our regression analyses. We exclude observations with extreme values, which might indicate implausible accounting information or major corporate events like mergers ($MTBR_{i,t} > 100$, $ROA_{i,t} < -0.5$ and > 2, $CF_{i,t} < -1$ and > 2, $SG_{i,t} < -0.5$ and > 1, $Lev_{i,t} < 0$ and > 100, $Cash_{i,t} < 0$ and > 1). We also winsorize all variables 1% in each tail. All financial data are deflated to 2005 using the GDP deflators provided by the World Bank.

Table 2. Descriptive Statistics.

Panel A: Summary statistics on buybacks, undervaluation, CSR, and country-level stakeholder orientation across our sample countries before winsorizing

Country	Number of observations	Number of firms	Number of buyback years	Mean $CSR_{i,t}$	Mean $UV_{i,t}^{(CG)}$	Mean $UV_{i,t}^{(RRV)}$	$Stake_h$
Australia	2,023	312	118	0.4230	−0.0663	0.1632	1.58
Austria	122	12	7	0.6013	0.5262	0.1675	1.25
Belgium	213	21	5	0.6122	0.3884	0.1306	1.29
Brazil	91	28	15	0.5693	0.1300	0.1996	−1.92
Canada	1,323	167	53	0.4244	0.0840	−0.0136	0.56
China	834	162	43	0.3223	−0.0962	−0.0304	
Czech Republic	18	2	1	0.3939	0.5144	0.6616	
Denmark	196	19	36	0.6557	−0.4194	−0.1283	2.95
Finland	289	24	23	0.7785	0.1751	0.0106	1.89
France	847	84	62	0.7939	0.2418	−0.0939	1.12
Germany	689	71	32	0.6830	0.2071	−0.0874	0.81
Greece	143	13	8	0.4514	0.2347	0.2534	−0.33
Hong Kong	798	97	57	0.4037	0.0183	0.2545	−1.11
India	446	81	6	0.6030	−1.0792	−0.3351	−2.73
Indonesia	186	29	14	0.5566	−0.8185	−0.2621	
Isle of Man	6	2	1	0.1780	0.3988	0.2975	
Italy	234	24	14	0.6673	0.4071	−0.1568	−0.09
Japan	4,362	359	565	0.5796	0.1611	0.0817	−0.95
Korea	618	85	60	0.6041	0.1515	0.0590	−1.57
Luxembourg	54	8	1	0.6953	0.3734	−0.1075	
Macao	21	3	2	0.3253	−1.2331	−1.0134	
Morocco	14	2	1	0.4021	0.2957	−0.2021	
Netherlands	295	33	26	0.7150	0.0987	−0.1184	1.52
New Zealand	198	37	3	0.3688	−0.0594	0.0848	0.64
Norway	125	15	10	0.6621	0.3138	−0.0279	2.62
Poland	74	11	3	0.5395	0.5888	0.4668	
Russia	190	23	5	0.5267	0.4643	0.0547	
Singapore	404	36	62	0.4453	−0.0431	0.0991	−0.59
South Africa	627	91	3	0.6705	−0.0401	0.0895	−1.42
Spain	301	31	2	0.7548	−0.2629	−0.3150	−0.42
Sweden	520	61	3	0.6866	0.1521	−0.0138	2.90
Switzerland	607	58	23	0.6218	−0.1310	−0.1009	1.34
Thailand	180	28	5	0.6144	−0.1617	−0.1926	−1.96
Turkey	50	9	1	0.5398	0.4918	0.1082	
United Kingdom	2,667	266	23	0.6286	0.0298	−0.1096	0.47
United States	7,210	1,070	69	0.4534	−0.1671	−0.2569	−1.55

Panel B: Descriptive statistics on all variables employed in our tabulated analyses before winsorizing

Variable	Number of observations	Mean	Standard deviation	Minimum	Median	Maximum
$BB_{i,t}$	26,975	0.0505	0.219	0	0	1
$CSR_{i,t}$	25,159	0.5379	0.2981	0.0593	0.5545	0.9812
$MTBR_{i,t}$	26,975	1.5576	1.5832	0.0211	1.1294	78.3259
$ROA_{i,t}$	26,975	0.1308	0.116	−0.4932	0.1148	1.6816
$CF_{i,t}$	26,975	0.1026	0.0945	−0.8572	0.0897	1.4261
$SG_{i,t}$	26,975	0.0548	0.2021	−0.4994	0.0346	0.997
$Lev_{i,t}$	26,975	1.0648	2.9678	0	0.5253	97.9366
$UV_{i,t}^{(CG)}$	25,695	−0.0111	1.1277	−49.5299	0.1723	4.4722
$UV_{i,t}^{(RRV)}$	26,962	−0.061	0.5723	−3.9512	−0.0322	3.8005
$Size_{i,t}$	26,975	22.1202	1.5366	16.2878	22.1195	27.6189
$GO_{i,t}^{(CG)}$	25,695	1.5269	0.7617	−2.653	1.4046	11.8492
$GO_{i,t}^{(RRV)}$	26,962	0.7223	0.5183	−2.1318	0.7515	3.4474

(continued)

Table 2. (continued)

Panel B: Descriptive statistics on all variables employed in our tabulated analyses before winsorizing

Variable	Number of observations	Mean	Standard deviation	Minimum	Median	Maximum
$Inv_{i,t}$	26,975	0.0592	0.0699	−0.2486	0.0409	1.3844
$Cash_{i,t}$	26,975	0.1299	0.1332	0	0.0873	0.9704
$GDPgrowth_{h,t}$	26,975	2.0839	2.4899	−21.5945	2.0529	25.2642
$GDP_{h,t}$	26,975	5.5222	5.5466	0.0035	2.66	15.7263
$GDPpc_{h,t}$	26,975	38.1666	14.1195	0.7442	42.1626	101.28
$Social_{i,t}$	25,159	0.5372	0.3084	0.0358	0.5633	0.9937
$Environ_{i,t}$	25,159	0.5386	0.3196	0.0813	0.5581	0.9721
$CSRgov_{i,t}$	20,438	0.5394	0.2347	0.0507	0.5641	0.976
$CSRkld_{i,t}$	2,904	0.0764	0.715	−2.3333	0	4.4444
$Placebo_{i,t}$	25,613	0	0	0	0	0
$AnalDisp_{i,t}$	25,047	0.3329	9.0133	0	0.0747	1034.989
$Intang_{i,t}$	23,453	0.0683	0.1011	−0.2161	0.0291	0.8198
$Stake_{h}$	25,528	−0.3436	1.3205	−2.73	−0.95	2.95
$InstOwn_{i,t}$	24,068	67.05	22.7452	0.0004	69.0327	100
$AnalystCov_{i,t}$	26,975	11.6759	9.3953	0	10.6667	58.0833
$BoardIndep_{i,t}$	17,945	0.7232	0.2388	0	0.8	1
$BoardSize_{i,t}$	18,556	10.1654	3.4697	1	10	37
$CEOBoardMem_{i,t}$	17,440	0.8775	0.3279	0	1	1
$EIndex_{i,t}$	15,223	0.5346	0.3112	0	0.5	1
$BBvsDiv_{i,t}$	5,557	0.1925	0.3943	0	0	1
$XCash_{i,t}$	10,921	−0.0005	0.1027	−0.4606	−0.0152	0.7647

Baseline Results

Table 3 displays the results of estimating the regression Model (6). We first present versions of this model in which we separately consider the effects of $CSR_{i,t}$ on $BB_{i,t}$ without $UV_{i,t}$ and the interaction term. We present this model using the probit estimator in Columns 1 and 5, in which we calculate $UV_{i,t}$ and $GO_{i,t}$ based on Campello and Graham (2013) and Rhodes-Kropf et al. (2005), respectively.

$CSR_{i,t}$ relates negative but only weakly significant or even insignificant to $BB_{i,t}$. This relationship is consistent with our hypothesis. If firms with a higher CSR performance are in fact less likely to use buybacks to take advantage of undervaluation, the overall buyback activity of high-CSR firms should be smaller than that of their low-CSR peers, if not other buyback motives are more relevant for the former group.

Next, we add $UV_{i,t}$ to the regression models and present the results in Columns 2 and 6 of Table 3. What stands out from these models is that share repurchases are more common in periods of higher undervaluation, as the coefficient on $UV_{i,t}$ is positive and significant in both models. This finding coincides with the prior literature demonstrating that firms repurchase shares in periods of higher undervaluation (D'Mello & Shroff, 2000).

Table 3. Main Results.

	$UV^{(CG)}_{i,t}$ and $GO^{(CG)}_{i,t}$				$UV^{(RRV)}_{i,t}$ and $GO^{(RRV)}_{i,t}$			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Indep. Variable	$BB_{i,t}$	$BB_{i,t}$	$BB_{i,t}$	$BB_{i,t}$	$BB_{i,t}$	$BB_{i,t}$	$BB_{i,t}$	$BB_{i,t}$
$UV_{i,t} \times \text{CSR}_{i,t}$			−0.236*** (0.086)	−0.469*** (0.175)			−0.374*** (0.131)	−0.768*** (0.276)
$UV_{i,t}$		0.058** (0.027)	0.162*** (0.045)	0.329*** (0.092)		0.150*** (0.046)	0.339*** (0.082)	0.690*** (0.172)
$CSR_{i,t}$	−0.144 (0.091)	−0.141 (0.091)	−0.117 (0.091)	−0.190 (0.188)	−0.162* (0.090)	−0.136 (0.089)	−0.098 (0.090)	−0.115 (0.186)
$GO_{i,t}$	0.094 (0.084)	0.088 (0.084)	0.083 (0.085)	0.217 (0.176)	0.278*** (0.059)	0.262*** (0.061)	0.257*** (0.060)	0.549*** (0.126)
$ROA_{i,t}$	0.542 (0.435)	0.632 (0.440)	0.675 (0.442)	1.205 (0.933)	0.506* (0.265)	0.667** (0.263)	0.689*** (0.261)	1.460*** (0.539)
$CF_{i,t}$	−0.019 (0.355)	−0.003 (0.354)	−0.004 (0.355)	−0.007 (0.741)	0.094 (0.293)	0.228 (0.288)	0.261 (0.288)	0.587 (0.617)
$Inv_{i,t}$	−1.159** (0.457)	−1.256*** (0.465)	−1.215*** (0.463)	−2.872*** (1.028)	−1.134*** (0.420)	−1.146*** (0.424)	−1.143*** (0.425)	−2.603*** (0.933)
$Lev_{i,t}$	−0.041* (0.022)	−0.036* (0.022)	−0.037* (0.022)	−0.098* (0.056)	−0.029 (0.019)	−0.005 (0.019)	−0.007 (0.020)	−0.030 (0.046)
$SG_{i,t}$	−0.380*** (0.097)	−0.390*** (0.097)	−0.390*** (0.097)	−0.789*** (0.203)	−0.297*** (0.095)	−0.298*** (0.095)	−0.288*** (0.096)	−0.609*** (0.197)
$Size_{i,t}$	0.093*** (0.019)	0.085*** (0.019)	0.087*** (0.019)	0.169*** (0.041)	0.123*** (0.019)	0.121*** (0.019)	0.118*** (0.019)	0.235*** (0.040)
$Cash_{i,t}$	0.685*** (0.161)	0.759*** (0.165)	0.798*** (0.167)	1.491*** (0.336)	0.559*** (0.155)	0.607*** (0.157)	0.617*** (0.158)	1.134*** (0.322)
$GDP_{h,t}$	−0.214*** (0.048)	−0.218*** (0.048)	−0.220*** (0.048)	−0.386*** (0.107)	−0.202*** (0.047)	−0.206*** (0.047)	−0.213*** (0.047)	−0.377*** (0.105)
$GDPgrowth_{h,t}$	−0.013 (0.012)	−0.013 (0.012)	−0.014 (0.012)	−0.010 (0.025)	−0.008 (0.012)	−0.006 (0.012)	−0.007 (0.012)	0.006 (0.025)
$GDPpc_{h,t}$	0.027*** (0.007)	0.027*** (0.007)	0.027*** (0.007)	0.045*** (0.015)	0.028*** (0.007)	0.029*** (0.007)	0.029*** (0.007)	0.050*** (0.015)
Observations	23,950	23,950	23,950	23,950	25,135	25,135	25,135	25,135
Pseudo-R^2	0.187	0.187	0.189	0.194	0.191	0.193	0.194	0.199

Note. This table presents results of probit regressions that evaluate the effect of CSR engagement on the sensitivity of firms toward undervaluation in their buyback decisions. We measure $UV_{i,t}$ and $GO_{i,t}$ based on the model of Campello and Graham (2013) in Columns 1 to 4 or Rhodes-Kropf et al. (2005) in Columns 5 to 8. Columns 4 and 8 use the logit instead of the probit estimator. We include Fama-French 12-industry, year, and country dummies in all models. Variable definitions can be found in Table 1. We present standard errors clustered at the firm-level in parentheses (*$p < .1$. **$p < .05$. ***$p < .01$).

Turning to our hypothesis, the results of applying the full Model (6) with the probit estimator are presented in Columns 3 and 7 for the two alternative undervaluation specifications. For robustness, we present the results of an estimation using the logit estimator in Columns 4 and 8. The coefficient estimate of the interaction term $UV_{i,t} \times CSR_{i,t}$ is negative and significant for all models. As our hypothesis predicts, the timing of repurchases in periods of higher undervaluation is curtailed by greater CSR engagement. This result holds for both specifications of undervaluation and thus strongly supports our hypothesis. These findings are consistent with the view that the undervaluation motive is less relevant for managers of socially responsible firms, and that buybacks of firms with higher CSR engagement coincide with smaller wealth transfers from selling to ongoing shareholders. Our findings highlight an instance of financial decision-making in which high-CSR firms are stakeholder-oriented, and are thus in line with the *stakeholder value maximization view* as well as the *shareholder expense view*.

Partial effects at the average demonstrate that the size of the observed effects is economically meaningful. Considering the results of our probit regression analyses, the likelihood that an otherwise average firm with $UV_{i,t}^{(CG)}$ at the 0.90-quantile and $CSR_{i,t}$ at the 0.25-quantile announces a share repurchase is 2.76%. Holding all other factors constant, this probability decreases to 1.81%, when $CSR_{i,t}$ is at the 0.75-quantile. For $UV_{i,t}^{(RRV)}$, the values are 3.01% and 1.92%, respectively. In this example, the buyback likelihood of an undervalued firm is about 52.5% to 56.8% higher if it displays low CSR performance than if it displays high CSR performance.

Robustness Checks

This section examines the robustness of our findings to alternative specifications of the main variables of interest, sample selection criteria, and estimation techniques.

Alternative Time Windows of Misvaluation Prior to Buyback Announcements

Our main specification considers the average misvaluation over the 20 trading days prior to the buyback announcement. We examine whether our results are robust to alternative time windows by estimating regression Model (6), in which we use 40 or 120 trading days prior to the buyback announcement to calculate $UV_{i,t}^{(CG)}$, $UV_{i,t}^{(RRV)}$, $GO_{i,t}^{(CG)}$, and $GO_{i,t}^{(RRV)}$. The results presented in Table 4 show that the observed effects persist but slightly decrease for longer time windows. These findings are consistent with higher-CSR firms not only being less inclined to take advantage of short-term undervaluation but also of undervaluation that persisted over longer periods.

Table 4. Alternative Time Windows of Undervaluation Prior to Buyback Announcements.

	$UV_{i,t}$ and $GO_{i,t}$ calculated over 40 trading days prior to the announcement		$UV_{i,t}$ and $GO_{i,t}$ calculated over 120 trading days prior to the announcement	
	$UV_{i,t}^{(CG)}$ and $GO_{i,t}^{(CG)}$	$UV_{i,t}^{(RRV)}$ and $GO_{i,t}^{(RRV)}$	$UV_{i,t}^{(CG)}$ and $GO_{i,t}^{(CG)}$	$UV_{i,t}^{(RRV)}$ and $GO_{i,t}^{(RRV)}$
	(1)	(2)	(3)	(4)
Indep. Variable	$BB_{i,t}$	$BB_{i,t}$	$BB_{i,t}$	$BB_{i,t}$
$UV_{i,t} \times CSR_{i,t}$	−0.233*** (0.085)	−0.362*** (0.131)	−0.216** (0.084)	−0.340*** (0.131)
$UV_{i,t}$	0.155*** (0.044)	0.317*** (0.082)	0.141*** (0.043)	0.283*** (0.082)
$CSR_{i,t}$	−0.119	−0.104	−0.116	−0.107
$GO_{i,t}$	0.084 (0.085)	0.266*** (0.060)	0.649 (0.441)	0.618** (0.262)
$ROA_{i,t}$	0.663 (0.442)	0.662** (0.261)	−0.014 (0.355)	0.210 (0.289)
$CF_{i,t}$	−0.006 (0.355)	0.242 (0.288)	−1.189** (0.462)	−1.128*** (0.424)
$Inv_{i,t}$	−1.203*** (0.462)	−1.138*** (0.424)	−0.038* (0.022)	−0.013 (0.020)
$Lev_{i,t}$	−0.037* (0.022)	−0.010 (0.020)	−0.388*** (0.097)	−0.289*** (0.095)
$SG_{i,t}$	−0.389*** (0.097)	−0.288*** (0.096)	0.085 (0.084)	0.279*** (0.059)
$Size_{i,t}$	0.088*** (0.019)	0.119*** (0.019)	0.088*** (0.019)	0.120*** (0.019)
$Cash_{i,t}$	0.792*** (0.167)	0.609*** (0.158)	0.787*** (0.167)	0.601*** (0.158)
$GDP_{h,t}$	−0.220*** (0.048)	−0.212*** (0.047)	−0.219*** (0.048)	−0.210*** (0.048)
$GDPgrowth_{h,t}$	−0.014 (0.012)	−0.007 (0.012)	−0.013 (0.012)	−0.007 (0.012)
$GDPpc_{h,t}$	0.027*** (0.007)	0.029*** (0.007)	0.027*** (0.007)	0.029*** (0.007)
Observations	23,950	25,135	23,949	25,134
Pseudo-R^2	0.189	0.194	0.188	0.194

Note. This table presents results of probit regressions that evaluate the effect of CSR engagement on the sensitivity of firms toward undervaluation in their buyback decisions. We measure $UV_{i,t}$ and $GO_{i,t}$ based on the model of Campello and Graham (2013) in Columns 1 and 2 or Rhodes-Kropf et al. (2005) in Columns 3 and 4. This table differs from Table 3 in that we measure undervaluation over a time window of 40 or 120 trading days prior to the buyback announcement in Columns 1 and 2 or Columns 3 and 4, respectively. We include Fama-French 12-industry, year, and country dummies in all models. Variable definitions can be found in Table 1. We present standard errors clustered at the firm-level in parentheses (*$p < .1$. **$p < .05$. ***$p < .01$).

Alternative Measures of CSR Engagement

We also employ alternative measures to capture firms' CSR engagement. First, we perform our main regression analysis using either the social score ($Social_{i,t}$) or the environmental score ($Environ_{i,t}$), both divided by 100. Second, we use the lagged CSR score ($CSR_{i,t-1}$), which ensures that the firm's attitude toward socially responsible behavior precedes the buyback announcement and mitigates the issue of reverse causality. Columns 1 to 6 of Table 5 show that our findings remain qualitatively identical in all the models.

Our primary measure of CSR engagement does not include the governance component of the ASSET4 database. For robustness, we used a version of our CSR measure that also considers the governance score from the

Table 5. Alternative CSR Engagement Measures.

$CSR_{i,t}$ substitute	$Environ_{i,t}$		$Social_{i,t}$		$CSR_{i,t-1}$	
	$UV_{i,t}^{(CG)}$ and $GO_{i,t}^{(CG)}$	$UV_{i,t}^{(RRV)}$ and $GO_{i,t}^{(RRV)}$	$UV_{i,t}^{(CG)}$ and $GO_{i,t}^{(CG)}$	$UV_{i,t}^{(RRV)}$ and $GO_{i,t}^{(RRV)}$	$UV_{i,t}^{(CG)}$ and $GO_{i,t}^{(CG)}$	$UV_{i,t}^{(RRV)}$ and $GO_{i,t}^{(RRV)}$
	(1)	(2)	(3)	(4)	(5)	(6)
Indep. Variable	$BB_{i,t}$	$BB_{i,t}$	$BB_{i,t}$	$BB_{i,t}$	$BB_{i,t}$	$BB_{i,t}$
$UV_{i,t} \times CSR_{i,t}$	−0.207*** (0.078)	−0.318*** (0.121)	−0.228*** (0.085)	−0.369*** (0.128)	−0.237*** (0.081)	−0.325*** (0.125)
$UV_{i,t}$	0.146*** (0.040)	0.312*** (0.078)	0.163*** (0.047)	0.337*** (0.080)	0.159*** (0.042)	0.303*** (0.078)
$CSR_{i,t}$	−0.109 (0.084)	−0.095 (0.083)	−0.092 (0.086)	−0.074 (0.084)	−0.094 (0.089)	−0.085 (0.087)
$GO_{i,t}$	0.083 (0.085)	0.259*** (0.060)	0.083 (0.085)	0.255*** (0.060)	0.040 (0.085)	0.266*** (0.058)
$ROA_{i,t}$	0.677 (0.441)	0.695*** (0.261)	0.661 (0.443)	0.683*** (0.262)	0.745 (0.469)	0.570** (0.266)
$CF_{i,t}$	−0.008 (0.354)	0.248 (0.288)	−0.009 (0.355)	0.264 (0.289)	0.221 (0.358)	0.351 (0.305)
$Inv_{i,t}$	−1.220*** (0.463)	−1.152*** (0.426)	−1.225*** (0.464)	−1.142*** (0.425)	−1.279*** (0.465)	−1.200*** (0.429)
$Lev_{i,t}$	−0.037* (0.022)	−0.007 (0.020)	−0.036* (0.021)	−0.007 (0.020)	−0.038* (0.022)	−0.008 (0.020)
$SG_{i,t}$	−0.386*** (0.097)	−0.288*** (0.095)	−0.390*** (0.097)	−0.285*** (0.096)	−0.343*** (0.096)	−0.250*** (0.095)
$Size_{i,t}$	0.086*** (0.019)	0.117*** (0.019)	0.084*** (0.019)	0.116*** (0.019)	0.084*** (0.020)	0.117*** (0.019)
$Cash_{i,t}$	0.784*** (0.167)	0.615*** (0.159)	0.808*** (0.167)	0.619*** (0.158)	0.797*** (0.164)	0.604*** (0.155)
$GDP_{h,t}$	−0.217*** (0.048)	−0.210*** (0.047)	−0.223*** (0.048)	−0.214*** (0.047)	−0.220*** (0.049)	−0.213*** (0.048)
$GDPgrowth_{h,t}$	−0.014 (0.012)	−0.007 (0.012)	−0.013 (0.012)	−0.007 (0.012)	−0.008 (0.012)	0.001 (0.012)
$GDPpc_{h,t}$	0.027*** (0.007)	0.029*** (0.007)	0.027*** (0.007)	0.029*** (0.007)	0.027*** (0.008)	0.029*** (0.007)
Observations	23,950	25,135	23,950	25,135	23,596	24,706
Pseudo-R^2	0.189	0.194	0.189	0.194	0.188	0.193

(continued)

Table 5. (continued)

$CSR_{i,t}$ substitute	$CSRgov_{i,t}$		$CSRkld_{i,t}$	
	$UV_{i,t}^{(CG)}$ and $GO_{i,t}^{(CG)}$	$UV_{i,t}^{(RRV)}$ and $GO_{i,t}^{(RRV)}$	$UV_{i,t}^{(CG)}$ and $GO_{i,t}^{(CG)}$	$UV_{i,t}^{(RRV)}$ and $GO_{i,t}^{(RRV)}$
	(7)	(8)	(9)	(10)
Indep. Variable	$BB_{i,t}$	$BB_{i,t}$	$BB_{i,t}$	$BB_{i,t}$
$UV_{i,t} \times CSR_{i,t}$	−0.387*** (0.117)	−0.446*** (0.172)	−0.229 (0.159)	−0.420** (0.185)
$UV_{i,t}$	0.252*** (0.059)	0.380*** (0.100)	0.038 (0.087)	0.148 (0.216)
$CSR_{i,t}$	−0.083 (0.124)	−0.084 (0.121)	−0.053 (0.112)	−0.162 (0.119)
$GO_{i,t}$	0.087 (0.093)	0.278*** (0.064)	0.372 (0.313)	0.380 (0.271)
$ROA_{i,t}$	0.436 (0.506)	0.390 (0.294)	−0.086 (1.347)	0.892 (0.876)
$CF_{i,t}$	0.295 (0.398)	0.578* (0.331)	−2.119 (1.702)	−0.986 (1.332)
$Inv_{i,t}$	−1.240** (0.518)	−1.185** (0.481)	0.148 (1.353)	0.472 (1.369)
$Lev_{i,t}$	−0.032 (0.023)	−0.001 (0.022)	0.035 (0.037)	0.040 (0.042)
$SG_{i,t}$	−0.386*** (0.105)	−0.270** (0.106)	0.101 (0.327)	0.447 (0.332)
$Size_{i,t}$	0.077*** (0.021)	0.111*** (0.021)	0.037 (0.052)	0.061 (0.053)
$Cash_{i,t}$	0.838*** (0.180)	0.609*** (0.171)	−0.439 (0.678)	−0.562 (0.596)
$GDP_{h,t}$	−0.207*** (0.054)	−0.203*** (0.053)		
$GDPgrowth_{h,t}$	−0.005 (0.013)	0.004 (0.013)		
$GDPpc_{h,t}$	0.027*** (0.008)	0.031*** (0.008)		
Observations	19,533	20,420	1,597	1,652
Pseudo-R^2	0.185	0.189	0.0596	0.0732

Note. This table presents results of probit regressions that evaluate the effect of CSR engagement on the sensitivity of firms toward undervaluation in their buyback decisions. We measure $UV_{i,t}$ and $GO_{i,t}$ based on the model of Campello and Graham (2013) in Columns 1, 3, 5, and 7 or Rhodes-Kropf et al. (2005) in Columns 2, 4, 6, and 8. We use three alternative measures for CSR engagement as indicated at the top of the table. We include Fama-French 12-industry, year, and country dummies in all models. Variable definitions can be found in Table 1. We present standard errors clustered at the firm-level in parentheses (*$p < .1$. **$p < .05$. ***$p < .01$).

ASSET4 database. As Villiers et al. (2022) show in their literature review, including or excluding the governance score are both common ways of constructing a measure of CSR performance based on the ASSET4 database. $CSRgov_{i,t}$ is calculated as the simple average across the firm's environmental, social, and governance CSR scores in year t from ASSET4 divided by 100. Columns 7 and 8 of Table 5 show the robustness of the baseline results for this alternative CSR specification.

Moreover, the ASSET4 database is commonly used in international CSR research (Aouadi & Marsat, 2018; El Ghoul et al., 2018; Gallego-Álvarez & Ortas, 2017; Graafland & Noorderhaven, 2020; Ioannou & Serafeim, 2012). A frequently used alternative for U.S. studies is the MSCI KLD database (Dumitrescu & Zakriya, 2021; Ng & Rezaee, 2015). Thus, we attempt to replicate our results for the U.S. observations in our sample using the MSCI KLD data. Our construction of $CSRkld_{i,t}$ follows Lins et al. (2017). We only consider the categories "community," "diversity," "employee relations," "environment," and "human rights" and exclude "corporate governance" and "product," which coincides with our focus on the environmental and social dimensions of CSR. We observe a correlation of .35 between $CSRkld_{i,t}$ and $CSR_{i,t}$, which does not deviate much from the correlations of .42 observed by Berg et al. (2022). We present the results of estimating our baseline model with $CSRkld_{i,t}$ instead of $CSR_{i,t}$ in Columns 9 and 10 of Table 5. We do not use country dummies because the sample includes only U.S. observations. Despite the relatively low similarity of the two CSR measures, the effect on $UV_{i,t} \times CSR_{i,t}$ is significant in one model and insignificant ($p = .149$) in the other. We interpret this result to support the robustness of our findings.

Alternative Specifications of Buyback Years

We now test the robustness of our results for two alternative specifications of $BB_{i,t}$. Our baseline model considers only the first buyback announcement for each year because buyback announcements often result in a stock price increase, which reduces the firm's undervaluation (Ikenberry et al., 1995; Vermaelen, 1981). Our first alternative specification uses only the buyback announcement for each year in which the firm purchased the largest volume of stocks, measured as the fraction of the firm's market capitalization repurchased in the buyback. Columns 1 and 2 of Table 6 report the results of estimating regression Model (6) using this alternative specification of $BB_{i,t}$. $UV_{i,t} \times CSR_{i,t}$ continues to display a negative and significant effect.

Second, we alter the minimum repurchase volume for buyback announcements in our analysis. We require the firm to repurchase stocks with a value of at least \$50 million and 5% of its market capitalization. The results in

Table 6. Alternative Specification of Buyback Years.

	Largest buyback only		Buyback volume >50 million and >5% of market capitalization		Rescinded or small buybacks	
	$UV_{i,t}^{(CG)}$ and $GO_{i,t}^{(CG)}$	$UV_{i,t}^{(RRV)}$ and $GO_{i,t}^{(RRV)}$	$UV_{i,t}^{(CG)}$ and $GO_{i,t}^{(CG)}$	$UV_{i,t}^{(RRV)}$ and $GO_{i,t}^{(RRV)}$	$UV_{i,t}^{(CG)}$ and $GO_{i,t}^{(CG)}$	$UV_{i,t}^{(RRV)}$ and $GO_{i,t}^{(RRV)}$
	(1)	(2)	(3)	(4)	(5)	(6)
Indep. Variable	$BB_{i,t}$	$BB_{i,t}$	$BB_{i,t}$	$BB_{i,t}$	$Placebo_{i,t}$	$Placebo_{i,t}$
$UV_{i,t} \times CSR_{i,t}$	−0.206** (0.082)	−0.368*** (0.129)	−0.262*** (0.086)	−0.343** (0.145)	−0.191 (0.185)	0.079 (0.489)
$UV_{i,t}$	0.142*** (0.043)	0.329*** (0.081)	0.153*** (0.045)	0.280*** (0.092)	−0.042 (0.083)	−0.207 (0.283)
$CSR_{i,t}$	−0.094 (0.092)	−0.073 (0.090)	0.008 (0.094)	−0.006 (0.093)	−0.192 (0.315)	−0.237 (0.309)
$GO_{i,t}$	0.071 (0.084)	0.247*** (0.060)	0.114 (0.092)	0.330*** (0.066)	−0.150 (0.270)	−0.056 (0.182)
$ROA_{i,t}$	0.692 (0.441)	0.675*** (0.256)	0.674 (0.484)	0.656** (0.286)	2.075 (1.611)	1.062 (0.733)
$CF_{i,t}$	−0.030 (0.352)	0.225 (0.285)	−0.010 (0.396)	0.240 (0.316)	0.403 (1.221)	0.396 (0.841)
$Inv_{i,t}$	−1.117** (0.454)	−1.074*** (0.416)	−1.250** (0.514)	−1.141** (0.477)	1.484* (0.863)	0.911 (0.757)
$Lev_{i,t}$	−0.037* (0.021)	−0.009 (0.020)	−0.038* (0.023)	−0.012 (0.020)	0.035 (0.036)	0.006 (0.038)
$SG_{i,t}$	−0.337*** (0.094)	−0.246*** (0.092)	−0.416*** (0.106)	−0.288*** (0.105)	0.316 (0.287)	0.130 (0.290)
$Size_{i,t}$	0.080*** (0.019)	0.110*** (0.019)	0.132*** (0.020)	0.164*** (0.020)	−0.003 (0.065)	−0.017 (0.066)
$Cash_{i,t}$	0.777*** (0.169)	0.607*** (0.160)	0.914*** (0.163)	0.745*** (0.154)	0.501 (0.446)	0.453 (0.422)
$GDP_{h,t}$	−0.212*** (0.048)	−0.204*** (0.047)	−0.256*** (0.051)	−0.246*** (0.050)	−0.451 (0.278)	−0.435 (0.286)
$GDPgrowth_{h,t}$	−0.008 (0.012)	−0.002 (0.012)	−0.029** (0.013)	−0.023* (0.013)	0.001 (0.066)	0.002 (0.063)
$GDPpc_{h,t}$	0.028*** (0.008)	0.029*** (0.007)	0.028*** (0.007)	0.030*** (0.007)	0.127*** (0.047)	0.121*** (0.046)
Observations	24,863	26,082	23,197	24,351	6,936	7,303
Pseudo-R^2	0.189	0.194	0.173	0.178	0.194	0.191

Note. This table presents results of probit regressions that evaluate the effect of CSR engagement on the sensitivity of firms toward undervaluation in their buyback decisions. We measure $UV_{i,t}$ and $GO_{i,t}$ based on the model of Campello and Graham (2013) in Columns 1, 3, and 5 or Rhodes-Kropf et al. (2005) in Columns 2, 4, and 6. We use three alternative specifications for buyback years: Columns 1 and 2 only consider the largest buyback in each year. Columns 3 and 4 require a larger buyback volume for a buyback to be considered than our baseline specification. And Columns 5 and 6 display the results of a placebo test, where we only consider rescinded or very small buybacks. We include Fama-French 12-industry, year, and country dummies in all models. Variable definitions can be found in Table 1. We present standard errors clustered at the firm-level in parentheses (*$p < .1$. **$p < .05$. ***$p < .01$).

Columns 3 and 4 of Table 6 demonstrate that our findings hold if we consider only large buybacks.

We also perform a placebo test to rule out the possibility that the observed effect does not exist for buybacks that were either rescinded or in which the firm purchased only a negligible volume of stocks. The announcement of such buybacks does not result in a (relevant) wealth transfer and is hence not motivated by wealth transfer considerations. For example, small buybacks occur when a firm intends to distribute shares as part of compensation payments. Rescinded buybacks could be a consequence of unexpected developments rendering prior decisions obsolete (e.g., unforeseen changes in management, suddenly arising new investment opportunities) or an attempt to attract scrutiny from investors who discover the firm's undervaluation (Bhattacharya & Jacobsen, 2016). We construct a dummy variable ($Placebo_{i,t}$) that equals one for years in which a buyback was announced that was later rescinded or when the firm purchased shares with a value of less than $1 million and less than 0.2% of its market capitalization. It is zero for years in which no buybacks are announced. If the observed results in our previous model were due to the wealth transfer motive, we would expect to find no effect in the regression analyses that employ $Placebo_{i,t}$ instead of $BB_{i,t}$. Substantiating our argument, neither the extent of undervaluation $UV_{i,t}$ nor the interaction term on $UV_{i,t} \times CSR_{i,t}$ exhibits a significant effect in Columns 5 and 6 of Table 6.

Time-Varying Country Characteristics

Another issue might arise if country characteristics that could determine a firm's propensity to engage in buybacks, such as tax legislation that treats cash distribution by buybacks as different from dividend payments, change over our sample period and are correlated with a firm's CSR engagement and undervaluation (Jacob & Jacob, 2013). Although our baseline model controls for unobserved country-level characteristics using country fixed effects, this approach does not account for potential changes in country-level characteristics over time.

To capture such potential alterations on a yearly basis, we modify the regression Model (6) to incorporate year-specific country fixed effects ($\tau_t \cdot \delta_h$). The estimates of the corresponding models are presented in Table 7. Although the number of observations is reduced in comparison to our baseline model, since all observations from country-year combinations with no variation in $BB_{i,t}$ are excluded, and the number of independent variables is drastically increased because of the large number of country-year-specific dummies included, our results remain highly significant.

Table 7. Unobserved Country-Year Specific Heterogeneity.

	$UV_{i,t}^{(CG)}$ and $GO_{i,t}^{(CG)}$	$UV_{i,t}^{(RRV)}$ and $GO_{i,t}^{(RRV)}$
	(1)	(2)
Indep. Variable	$BB_{i,t}$	$BB_{i,t}$
$UV_{i,t} \times CSR_{i,t}$	−0.230** (0.096)	−0.415*** (0.144)
$UV_{i,t}$	0.167*** (0.047)	0.367*** (0.089)
$CSR_{i,t}$	−0.140 (0.099)	−0.122 (0.097)
$GO_{i,t}$	0.055 (0.091)	0.289*** (0.064)
$ROA_{i,t}$	0.932** (0.474)	0.765*** (0.276)
$CF_{i,t}$	−0.045 (0.388)	0.147 (0.311)
$Inv_{i,t}$	−1.123** (0.473)	−1.034** (0.438)
$Lev_{i,t}$	−0.036 (0.023)	−0.008 (0.021)
$SG_{i,t}$	−0.347*** (0.104)	−0.256** (0.101)
$Size_{i,t}$	0.074*** (0.022)	0.110*** (0.021)
$Cash_{i,t}$	0.825*** (0.182)	0.608*** (0.171)
Observations	17,541	18,628
Pseudo-R^2	0.194	0.203

Note. This table presents results of probit regressions that evaluate the effect of CSR engagement on the sensitivity of firms toward undervaluation in their buyback decisions after conditioning on country-year-specific heterogeneity. We measure $UV_{i,t}$ and $GO_{i,t}$ based on the model of Campello and Graham (2013) in Column 1 or Rhodes-Kropf et al. (2005) in Column 2. We include Fama-French 12-industry dummies and interactions between year and country dummies in all models. Variable definitions can be found in Table 1. We present standard errors clustered at the firm-level in parentheses (*$p < .1$. **$p < .05$. ***$p < .01$).

Sample Composition

As Table 2 shows, disproportionately many firms in our sample are from Japan, the United Kingdom, the United States, Australia, and Canada. To rule out the possibility that specific circumstances in these countries, such as tax laws, drive our results, we exclude all firms from these countries for an additional test. Following Lie (2005), we exclude all financial firms as a further validity check. Moreover, we eliminate all firms from countries that are not members of the Organisation for Economic Co-operation and Development (non-OECD countries). Columns 1 to 6 of Table 8 present the results of the robustness tests. The coefficient estimate on the interaction term remains significant in all the models.

Some firms did not announce buybacks during the sample period. If such firms differ systematically in terms of misvaluation or CSR engagement, this discrepancy could result in endogeneity problems. To address this concern, we again estimate regression Model (6), but only including firms that

Table 8. Sample Construction.

	Without large countries		Without financial firms	
	$UV^{(CG)}_{i,t}$ and $GO^{(CG)}_{i,t}$	$UV^{(RRV)}_{i,t}$ and $GO^{(RRV)}_{i,t}$	$UV^{(CG)}_{i,t}$ and $GO^{(CG)}_{i,t}$	$UV^{(RRV)}_{i,t}$ and $GO^{(RRV)}_{i,t}$
	(1)	(2)	(3)	(4)
Indep. Variable	$BB_{i,t}$	$BB_{i,t}$	$BB_{i,t}$	$BB_{i,t}$
$UV_{i,t} \times CSR_{i,t}$	−0.282*** (0.108)	−0.463** (0.200)	−0.256*** (0.088)	−0.517*** (0.137)
$UV_{i,t}$	0.176** (0.070)	0.279** (0.141)	0.174*** (0.047)	0.402*** (0.089)
$CSR_{i,t}$	−0.005 (0.146)	−0.020 (0.144)	−0.090 (0.099)	−0.058 (0.097)
$GO_{i,t}$	0.004 (0.143)	0.283*** (0.092)	0.103 (0.089)	0.269*** (0.063)
$ROA_{i,t}$	0.840 (0.752)	0.180 (0.434)	0.565 (0.473)	0.665** (0.279)
$CF_{i,t}$	−0.060 (0.547)	0.109 (0.412)	0.053 (0.380)	0.297 (0.306)
$Inv_{i,t}$	−1.165 (0.851)	−1.196 (0.793)	−1.018** (0.479)	−0.881** (0.437)
$Lev_{i,t}$	−0.003 (0.025)	0.001 (0.023)	−0.093*** (0.030)	−0.052** (0.025)
$SG_{i,t}$	−0.074 (0.148)	0.041 (0.143)	−0.408*** (0.107)	−0.306*** (0.106)
$Size_{i,t}$	0.074** (0.030)	0.116*** (0.029)	0.081*** (0.021)	0.112*** (0.020)
$Cash_{i,t}$	1.513*** (0.269)	1.195*** (0.257)	0.722*** (0.200)	0.505*** (0.187)
$GDP_{h,t}$	0.121 (0.077)	0.117 (0.072)	−0.191*** (0.050)	−0.193*** (0.049)
$GDPgrowth_{h,t}$	0.007 (0.017)	0.013 (0.017)	−0.019 (0.013)	−0.016 (0.013)
$GDPpc_{h,t}$	−0.000 (0.009)	0.006 (0.009)	0.023*** (0.007)	0.026*** (0.007)
Observations	7,630	8,010	21,505	22,525
Pseudo-R^2	0.144	0.149	0.200	0.205

	Only OECD countries		Only firms with at least one buyback over sample period	
	$UV^{(CG)}_{i,t}$ and $GO^{(CG)}_{i,t}$	$UV^{(RRV)}_{i,t}$ and $GO^{(RRV)}_{i,t}$	$UV^{(CG)}_{i,t}$ and $GO^{(CG)}_{i,t}$	$UV^{(RRV)}_{i,t}$ and $GO^{(RRV)}_{i,t}$
	(5)	(6)	(7)	(8)
Indep. Variable	$BB_{i,t}$	$BB_{i,t}$	$BB_{i,t}$	$BB_{i,t}$
$UV_{i,t} \times CSR_{i,t}$	−0.246** (0.099)	−0.390*** (0.151)	−0.266** (0.105)	−0.273* (0.142)
$UV_{i,t}$	0.120** (0.051)	0.321*** (0.094)	0.196*** (0.057)	0.327*** (0.089)
$CSR_{i,t}$	−0.103 (0.102)	−0.072 (0.100)	−0.202** (0.099)	−0.172* (0.095)
$GO_{i,t}$	0.150 (0.097)	0.301*** (0.067)	0.094 (0.110)	0.181*** (0.066)
$ROA_{i,t}$	0.496 (0.499)	0.796*** (0.298)	0.733 (0.573)	0.791** (0.338)
$CF_{i,t}$	0.025 (0.439)	0.327 (0.367)	−0.138 (0.464)	0.279 (0.365)
$Inv_{i,t}$	−1.511*** (0.521)	−1.451*** (0.479)	−0.982* (0.538)	−0.957* (0.495)
$Lev_{i,t}$	−0.060** (0.030)	−0.028 (0.028)	−0.031 (0.021)	0.004 (0.021)
$SG_{i,t}$	−0.374*** (0.112)	−0.288** (0.113)	−0.332*** (0.119)	−0.238** (0.118)
$Size_{i,t}$	0.099*** (0.021)	0.120*** (0.021)	0.053** (0.021)	0.076*** (0.021)
$Cash_{i,t}$	0.584*** (0.188)	0.440** (0.178)	0.662*** (0.195)	0.523*** (0.187)
$GDP_{h,t}$	−0.437*** (0.067)	−0.423*** (0.065)	−0.225*** (0.064)	−0.220*** (0.062)
$GDPgrowth_{h,t}$	0.021 (0.016)	0.028* (0.017)	−0.011 (0.015)	−0.001 (0.016)
$GDPpc_{h,t}$	0.046*** (0.010)	0.046*** (0.010)	0.029*** (0.009)	0.030*** (0.009)
Observations	18,333	19,157	7,705	8,007
Pseudo-R^2	0.193	0.198	0.137	0.140

Note. This table presents results of probit regressions that evaluate the effect of CSR engagement on the sensitivity of firms toward undervaluation in their buyback decisions. We measure $UV_{i,t}$ and $GO_{i,t}$ based on the model of Campello and Graham (2013) in Columns 1, 3, 5, and 7 or Rhodes-Kropf et al. (2005) in Columns 2, 4, 6, and 8. Columns 1 and 2 exclude the countries that contribute most observations to our sample. Columns 3 and 4 exclude all financial firms. Columns 5 and 6 only include OECD countries and Columns 7 and 8 only include firms that conduct at least one buyback during the sample period. We include Fama-French 12-industry, year, and country dummies in all models. Variable definitions can be found in Table 1. We present standard errors clustered at the firm-level in parentheses (*$p < .1$. **$p < .05$. ***$p < .01$).

announced at least one buyback over our sample period. As shown in Columns 7 and 8 of Table 8, our main finding is robust to this alteration.

As described in the section "Data and Methodology," we require that buybacks satisfy specific criteria (e.g., regarding their size) to become part of our sample. We exclude buyback-year observations if we could not determine whether the relevant buyback satisfies these criteria. This process could lead to a sample selection bias if the availability of information on buyback announcements is correlated with our variables of interest. One way in which data availability seems to be systematically affected is shown in Table 2. Despite the U.S. contributing 26.7% of all sample observations, only 5.1% of the buyback years are for U.S. firms. Manual inspection of the data suggests that this underrepresentation of U.S. buybacks is due to a lack of data availability regarding buyback announcement details in Refinitiv's corporate action database.

We attempt to remedy any potential sample selection bias using Heckman's two-step approach (Heckman, 1979). Using the probit estimator, the first model predicts $BBSample_{i,t}$, which equals one for all buyback year observations included in our sample and zero for those year observations in which a buyback occurred but which we excluded from our sample because of missing data on the buyback. The second step is an ordinary least squares (OLS) model in which the dependent variable is $UV_{i,t}$. We estimate this second model only for buyback year observations included in our sample.

As independent variables, these two models share all control variables from Model (6), including the industry and year dummies. We add the dispersion of analyst forecasts ($AnalDisp_{i,t}$) and the degree of asset intangibility as regressors ($Intang_{i,t}$) to both models because these variables relate to misvaluation (E. C. Chang et al., 2013). The Heckman approach requires the first-step regression analysis to consider additional selection variables that are not included in the second-step regression analysis. We use our industry and year dummies (π_i and τ_t) as selection variables. Firstly, a firm's industry as well as an observation's year are likely relevant for predicting sample selection, since data coverage probably improves over time and possibly differs among industries. Secondly, since we construct $UV_{i,t}^{(RRV)}$ as residuals from industry-year-wise regressions, the average undervaluation across each industry-year should be close to zero and thus uncorrelated across both industry and time (see S. Chang et al., 2016 for this approach). However, as $UV_{i,t}^{(CG)}$ represents the residuals from a regression estimated on our full sample, it may exhibit non-zero correlation across industries and years. For the purpose of the Heckman correction, we thus modify the estimation of $UV_{i,t}^{(CG)}$ by estimating Model (4) without $indSG_{n,t}$ and $indSG_{n,t-1}$ separately for each

Fama-French 12-industry-year combination with at least 20 observations, similar to our approach for Model (5). The second-step model also includes the so-called "inverse Mills ratio" ($Lambda_{i,t}$) as an independent variable, which controls for a potential sample selection bias.

The Heckman correction cannot be applied to our original approach, with the likelihood of a buyback being the dependent variable in the second step because the inverse Mills ratio would offer a probability of 1 for non-buyback observations and therefore perfectly distinguish between buyback and non-buyback observations, rendering the corresponding regression analyses meaningless. The second-step regression analysis answers the question of whether undervaluation differs across buyback announcements after conditioning on the estimated likelihood of an observation becoming part of our buyback observation sample. Thus, this model provides an additional view on our hypothesis that firms with higher CSR engagement repurchase shares in periods of lower undervaluation. We expect CSR to moderate the effect of undervaluation on the buyback likelihood and that the extent of undervaluation before a buyback is negatively related to CSR. While these two perspectives are closely related, they are not completely equivalent. Therefore, this alternative view could offer additional evidence for the dampening effect of socially responsible firm behavior on the propensity to engage in buybacks during times of undervaluation.

Table 9 presents the regression estimation results. A Wald test confirms the joint significance of the unreported industry and year dummies at confidence levels below 0.01% (Chi-square values of 256.58 and 272.11, respectively) for our two first-step regressions, confirming that trends and industry affiliation indeed strongly relate to sample selection. More importantly, our second-step regression analyses confirm that undervaluation is lower before the buyback announcements of firms with higher CSR engagement, after conditioning on the estimated likelihood of an observation becoming part of our buyback observation sample. This result corroborates that our baseline regression analyses are robust to any observable sample selection bias.

Endogeneity of CSR Engagement: Country-Level Stakeholder Orientation

A common issue in studies of firms' CSR engagement is that CSR engagement might not be exogenous but driven by other firm-specific strategic choices or characteristics. CSR is positively related to, for example, financial performance (Waddock & Graves, 1997), cost of capital (El Ghoul et al., 2018), and firm value (Harjoto & Jo, 2015). Especially the latter relationship

Table 9. Heckman Two-Step Approach for Sample Selection Bias.

	$UV_{i,t}^{(CG)}$ and $GO_{i,t}^{(CG)}$		$UV_{i,t}^{(RRV)}$ and $GO_{i,t}^{(RRV)}$	
	First-step regression	Second-step regression	First-step regression	Second-step regression
	(1)	(2)	(3)	(4)
Indep. Variable	$BBSample_{i,t}$	$UV_{i,t}$	$BBSample_{i,t}$	$UV_{i,t}$
$CSR_{i,t}$	−0.174 (0.178)	−0.184** (0.084)	−0.208 (0.175)	−0.270*** (0.056)
$GO_{i,t}$	0.025 (0.096)	0.499*** (0.045)	0.063 (0.123)	0.254*** (0.043)
$ROA_{i,t}$	0.111 (0.832)	−4.652*** (0.462)	−0.033 (0.722)	−1.919*** (0.277)
$CF_{i,t}$	−0.967 (0.901)	−1.560*** (0.486)	−0.818 (0.836)	−1.041*** (0.316)
$Inv_{i,t}$	−0.269 (1.234)	4.228*** (0.642)	−0.425 (1.190)	1.212*** (0.431)
$Lev_{i,t}$	−0.004 (0.040)	−0.052** (0.020)	0.001 (0.035)	−0.144*** (0.012)
$SG_{i,t}$	−0.031 (0.286)	0.573*** (0.134)	0.014 (0.267)	0.215** (0.087)
$Size_{i,t}$	−0.032 (0.037)	0.089*** (0.020)	−0.026 (0.037)	0.013 (0.014)
$Cash_{i,t}$	0.337 (0.383)	−0.867*** (0.176)	0.423 (0.375)	−0.278** (0.118)
$AnalDisp_{i,t}$	−0.023 (0.290)	0.009 (0.141)	−0.033 (0.293)	0.091 (0.098)
$Intang_{i,t}$	−0.958** (0.468)	0.293 (0.282)	−0.895* (0.460)	−0.119 (0.186)
$GDP_{h,t}$	−0.091 (0.110)	0.162** (0.069)	−0.082 (0.108)	0.024 (0.046)
$GDPgrowth_{h,t}$	−0.027 (0.039)	0.006 (0.012)	−0.015 (0.037)	−0.007 (0.008)
$GDPpc_{h,t}$	0.037** (0.015)	−0.011 (0.008)	0.039*** (0.015)	0.001 (0.005)
$Lambda_{i,t}$		0.007 (0.191)		0.079 (0.137)
Observations	1,634	979	1,680	1,003

Note. This table presents results of Heckman two-step regressions. Columns 1 and 3 display the first-step probit regressions, which estimate the effect of firm characteristics on the likelihood that the buyback observation is included in the sample. Columns 2 and 4 display the second-step OLS regressions, which evaluate the effect of CSR engagement on firms' undervaluation before buyback announcements after controlling for potential sample selection bias. We measure $UV_{i,t}$ and $GO_{i,t}$ based on a modified version of the model of Campello and Graham (2013), which we estimate industry-year-wise, in Columns 1 and 2 or Rhodes-Kropf et al. (2005) in Columns 3 and 4. We include country dummies in all models and additional Fama-French 12-industry and year dummies in Columns 1 and 3. Variable definitions can be found in Table 1 (*$p < .1$. **$p < .05$. ***$p < .01$).

is relevant in the context of this study because it implies a connection between CSR and misvaluation. Bofinger et al. (2022) show in this context that CSR can mitigate undervaluation and increase overvaluation, which can be explained by the "irrationality" of investors paying more attention to improved sustainability scores instead of financial figures. Misvaluation can also affect the level of CSR engagement. For instance, Jin (2022) demonstrates that overvalued firms tend to enhance their CSR engagement, while Benlemlih (2019) reveal that undervalued firms have a higher probability of issuing CSR news.

To address the issue of the potentially endogenous nature of CSR, we employ an exogenous proxy for the relevance of firms' socially responsible

behavior. Specifically, we use a country-specific proxy capturing legal frameworks as well as managers' and societies' values regarding stakeholder orientation. We believe that this addresses endogeneity concerns because country-level stakeholder orientation is most likely uncorrelated with firm-level undervaluation and other strategic choices or characteristics of firms.

We argue that firms from countries with a higher stakeholder orientation are less inclined to take advantage of selling shareholders when making buyback decisions. We follow Dhaliwal et al. (2012) and Cheung et al. (2018) and use an established measure that captures the relevance of certain stakeholder groups as recognized by a country's institutions, and thus, the role of socially responsible behavior in a society. These prior studies rely on a measure derived from four indicators that capture different aspects of a country's stakeholder orientation: labor rights protection, disclosure laws regarding CSR, public awareness regarding CSR issues, and managers' views on CSR issues. Higher values of the principal factor ($Stake_h$) of these four variables indicate higher stakeholder orientation in a country.

Although these aspects do not directly affect the conflicts between ongoing and selling shareholders in the case of buybacks, we argue that they reflect managers' attitudes toward considering stakeholders' interests. As for firms with higher CSR engagement, we expect firms from countries with a higher stakeholder orientation to be less inclined to take advantage of the wealth transfer associated with buybacks in periods of undervaluation. Thus, we estimate the following model:

$$\begin{aligned}\text{probit } BB_{i,t} = {} & \alpha + \beta_1 \times Stake_h \times UV_{i,t} + \beta_2 \times UV_{i,t} + \sum_j \gamma_j \times Control_{j,i,t} \\ & + \sum_k \varphi_k \times Control_{k,h,t} + \pi_i + \tau_t + \delta_h + \varepsilon_{i,t}.\end{aligned} \tag{7}$$

This model does not include $Stake_h$ as a separate variable, because, as a time-invariant, country-level variable, $Stake_h$ is completely absorbed by the model's country fixed effects. Excluding $Stake_h$ is also not problematic since we are not interested in the effect of $Stake_h$ per se, but in its interaction with $BB_{i,t}$ (see, e.g., Column 4 of Table 12 in Chen et al., 2017, for a similar regression model).

Table 10 presents the results of estimating Model (7). Columns 1 and 2 use the different measures of undervaluation. To rule out the possibility that our results are driven by a few large countries, we estimate both models without countries that contribute more than 1,000 observations to our sample; specifically, Japan, the United Kingdom, the United States, Australia, and Canada in Columns 3 and 4. With the same purpose in mind, we also estimate versions

Table 10. Country-Level Stakeholder Orientation.

	Base model		Without large countries	
	$UV_{i,t}^{(CG)}$ and $GO_{i,t}^{(CG)}$	$UV_{i,t}^{(RRV)}$ and $GO_{i,t}^{(RRV)}$	$UV_{i,t}^{(CG)}$ and $GO_{i,t}^{(CG)}$	$UV_{i,t}^{(RRV)}$ and $GO_{i,t}^{(RRV)}$
	(1)	(2)	(3)	(4)
Indep. Variable	$BB_{i,t}$	$BB_{i,t}$	$BB_{i,t}$	$BB_{i,t}$
$UV_{i,t} \times Stake_h$	−0.048*** (0.016)	−0.056* (0.029)	−0.089*** (0.025)	−0.151*** (0.041)
$UV_{i,t}$	0.059** (0.025)	0.147*** (0.043)	0.006 (0.045)	0.007 (0.073)
$GO_{i,t}$	0.072 (0.077)	0.230*** (0.056)	−0.125 (0.151)	0.270*** (0.090)
$ROA_{i,t}$	0.832** (0.406)	0.769*** (0.245)	1.449* (0.751)	0.134 (0.426)
$CF_{i,t}$	0.062 (0.340)	0.347 (0.271)	0.845 (0.615)	0.767* (0.451)
$Inv_{i,t}$	−1.502*** (0.401)	−1.321*** (0.364)	−1.388* (0.781)	−1.405** (0.702)
$Lev_{i,t}$	−0.043** (0.022)	−0.010 (0.019)	−0.045 (0.028)	−0.026 (0.024)
$SG_{i,t}$	−0.402*** (0.091)	−0.318*** (0.088)	−0.056 (0.155)	0.021 (0.144)
$Size_{i,t}$	0.065*** (0.015)	0.096*** (0.014)	0.079*** (0.026)	0.113*** (0.025)
$Cash_{i,t}$	0.584*** (0.148)	0.434*** (0.140)	1.299*** (0.290)	1.009*** (0.276)
$GDP_{h,t}$	−0.430*** (0.049)	−0.411*** (0.048)	0.253 (0.268)	0.393 (0.271)
$GDPgrowth_{h,t}$	0.011 (0.013)	0.018 (0.013)	0.010 (0.020)	0.022 (0.019)
$GDPpc_{h,t}$	0.046*** (0.007)	0.046*** (0.007)	0.004 (0.011)	0.004 (0.010)
Observations	35,175	37,255	8,677	9,165
Pseudo-R^2	0.227	0.231	0.190	0.195
	Weighted least squares		Only OECD countries	
	$UV_{i,t}^{(CG)}$ and $GO_{i,t}^{(CG)}$	$UV_{i,t}^{(RRV)}$ and $GO_{i,t}^{(RRV)}$	$UV_{i,t}^{(CG)}$ and $GO_{i,t}^{(CG)}$	$UV_{i,t}^{(RRV)}$ and $GO_{i,t}^{(RRV)}$
	(5)	(6)	(7)	(8)
Indep. Variable	$BB_{i,t}$	$BB_{i,t}$	$BB_{i,t}$	$BB_{i,t}$
$UV_{i,t} \times Stake_h$	−0.008*** (0.003)	−0.008** (0.004)	−0.038** (0.017)	−0.048 (0.031)
$UV_{i,t}$	−0.002 (0.004)	0.002 (0.005)	0.039 (0.027)	0.137*** (0.047)
$GO_{i,t}$	0.000 (0.011)	0.017** (0.007)	0.136 (0.084)	0.257*** (0.061)
$ROA_{i,t}$	0.050 (0.052)	0.007 (0.031)	0.688 (0.455)	0.914*** (0.276)
$CF_{i,t}$	0.063 (0.049)	0.068* (0.036)	−0.206 (0.385)	0.130 (0.316)
$Inv_{i,t}$	−0.097** (0.038)	−0.098*** (0.030)	−1.714*** (0.451)	−1.466*** (0.413)
$Lev_{i,t}$	−0.005*** (0.002)	−0.001 (0.002)	−0.047* (0.026)	−0.018 (0.023)
$SG_{i,t}$	0.001 (0.013)	0.013 (0.012)	−0.417*** (0.102)	−0.338*** (0.101)
$Size_{i,t}$	0.008*** (0.002)	0.009*** (0.002)	0.069*** (0.016)	0.098*** (0.016)
$Cash_{i,t}$	0.091*** (0.027)	0.066*** (0.022)	0.477*** (0.159)	0.356** (0.150)
$GDP_{h,t}$	−0.016** (0.006)	−0.012** (0.006)	−0.449*** (0.056)	−0.423*** (0.055)
$GDPgrowth_{h,t}$	0.004** (0.002)	0.006*** (0.002)	0.022 (0.015)	0.027* (0.015)
$GDPpc_{h,t}$	0.002** (0.001)	0.002** (0.001)	0.047*** (0.009)	0.046*** (0.008)
Observations	37,076	41,027	27,037	28,526
Pseudo-R^2	0.083	0.085	0.212	0.217

Note. This table presents results of regressions that evaluate the effect of country-level stakeholder orientation on the sensitivity of firms toward undervaluation in their buyback decisions. We measure $UV_{i,t}$ and $GO_{i,t}$ based on the model of Campello and Graham (2013) in Columns 1, 3, 5, and 7 or Rhodes-Kropf et al. (2005) in Columns 2, 4, 6, and 8. We include Fama-French 12-industry, year, and country dummies in all models. Columns 1 and 2 estimate our baseline specification. Columns 3 and 4 exclude countries with the most observations from the sample. Columns 5 and 6 use the weighted least squares estimator, where the weight is the inverse of the number of observations from each country, and reports the regular R-Squared. Columns 7 and 8 only include OECD countries. Columns 1 to 4 as well as 7 and 8 use the probit estimator. Variable definitions can be found in Table 1. We present standard errors clustered at the firm-level in parentheses (*$p < .1$. **$p < .05$. ***$p < .01$).

of Model (7) using the weighted least squares estimator, where the weight is the inverse of the number of observations from each country (see Columns 5 and 6). Finally, we include only firms from OECD countries in our sample (Columns 7 and 8) to ascertain whether the effects of countries with less developed capital markets might produce our results. The results of all the regression analyses confirm that firms from countries with a higher stakeholder orientation buy back shares in periods of lower undervaluation.

To further distinguish the buyback sensitivity of firms toward underinvestment for the most relevant countries in our sample, we estimate regression Model (6) without the interaction term $CSR_{i,t} \times UV_{i,t}$, $CSR_{i,t}$, the country dummies, or the country-level variables $GDPgrowth_{h,t}$, $GDP_{h,t}$, and $GDPpc_{h,t}$ separately for each country with at least 100 firm-year observations. We present the coefficient estimates on $UV_{i,t}^{(CG)}$ and $UV_{i,t}^{(RRV)}$ from these regression analyses in Table 11. These metrics represent the average sensitivity of firms' buybacks to undervaluation within the country.

The coefficient estimates for countries in the top half regarding their level of stakeholder orientation are, on average, noticeably smaller than those in the lower half, typically resulting in a negative coefficient estimate rather than a positive one, as observed in the lower half. This comparison underscores that higher degrees of country-level stakeholder orientation correspond to lower buyback sensitivity toward undervaluation.

Sample Split Over CSR Engagement

One concern of our analyses is that our control variables might not only relate to $BB_{i,t}$ but that $CSR_{i,t}$ might also moderate their effect on $BB_{i,t}$. The baseline regression Model (6) does not control for these potential interaction effects between our control variables and $CSR_{i,t}$. We address this issue by estimating a regression analysis of $BB_{i,t}$ on $UV_{i,t}$, including our set of control variables, separately for observations with values for $CSR_{i,t}$ in the top and bottom thirds of the sample. This approach allows the effects of each control variable on $BB_{i,t}$ to differ between low- and high-CSR engagement observations, and thus mitigates the risk that unobserved interactions between our control variables and $CSR_{i,t}$ drive our results.

For a more meaningful comparison between low- and high-CSR engagement observations, we first match high-CSR to low-CSR observations. Specifically, we conduct one-on-one propensity score nearest-neighbor matching without replacements, requiring common support and a 0.5% caliper. We use all firm- and country-level control variables and industry, year, and country dummies as covariates. This procedure provides subsamples of

Table 11. Buyback Sensitivity Toward Undervaluation and Stakeholder Orientation by Country.

	Models with $UV_{i,t}^{(CG)}$ and $GO_{i,t}^{(CG)}$		Models with $UV_{i,t}^{(RRV)}$ and $GO_{i,t}^{(RRV)}$		
Country	Number of regression observations	Coefficient estimate on $UV_{i,t}^{(CG)}$	Number of regression observations	Coefficient estimate on $UV_{i,t}^{(RRV)}$	$Stake_h$
Denmark	111	−0.329	116	−1.862***	2.95
Finland	138	−0.562	142	−1.171**	1.89
Australia	1,767	0.024	1,982	0.328**	1.58
Netherlands	135	−0.365	142	−0.082	1.52
Switzerland	270	−0.806***	321	−1.072***	1.34
France	608	−0.419**	622	−0.421*	1.12
Germany	394	−0.038	402	−0.213	0.81
Canada	967	0.048	1,029	−0.28	0.56
United Kingdom	1,770	0.129	2,139	0.338***	0.47
Singapore	299	−0.225	307	−0.287	−0.59
Japan	3,418	0.233***	3,471	0.410***	−0.95
Hong Kong	579	0.927***	618	0.855***	−1.11
United States	5,455	0.035	5,667	0.114	−1.55
Korea	509	−0.142	538	−0.255	−1.57

Note. This table evaluates the buyback sensitivity of firms toward undervaluation across countries in relation to their stakeholder orientation. We estimate regression Model (6) without the dependent variables $CSR_{i,t} \times UV_{i,t}$, $CSR_{i,t}$, $GDPgrowth_{h,t}$, $GDP_{h,t}$, and $GDPpc_{h,t}$ or the country dummies for each country with at least 100 firm-year observations. We provide the coefficient estimates on $UV_{i,t}^{(CG)}$ and $UV_{i,t}^{(RRV)}$ from these regressions as well as the number of observations used in the model estimation. We sort countries in descending order based on their values for $Stake_h$. Significance levels are based on standard errors clustered at the firm-level (*$p < .1$. **$p < .05$. ***$p < .01$).

high- and low-CSR observations that are highly comparable with respect to the used covariates (Rosenbaum & Rubin, 1983). This approach at least strongly curbs endogeneity concerns resulting from potential relationships between our co-variates and firms' CSR engagement. We then estimate the effect of $UV_{i,t}$ on $BB_{i,t}$ separately across both subsamples, controlling for the covariates employed in the matching procedure. The results of this seemingly unrelated estimation, with standard errors clustered at the firm level, are displayed in Table 12 for both specifications of $UV_{i,t}$.

The coefficient estimates on $UV_{i,t}$ are positive and significant in the low-CSR group for both specifications (Columns 1 and 3 of Table 12). Thus, firms with low levels of CSR engagement have a strong propensity to announce buybacks during periods of undervaluation. However, we cannot confirm this tendency in firms with high-CSR engagement. The coefficient estimates on $BB_{i,t}$ are clearly insignificant in both specifications (see Columns 2 and 4 of Table 12). Chi-square statistics of 8.26 and 3.17, respectively, reject the hypothesis that the coefficient estimates are equal across the matched high- and low-CSR groups at confidence levels of 0.40% and 7.52%, respectively. Comparing the effect of $UV_{i,t}$ on $BB_{i,t}$ across the entire top and bottom thirds of our sample, not only matched subsamples within these thirds, yields qualitatively similar findings.

These results confirm that the lower buyback sensitivity of high-CSR firms' to undervaluation is not due to a potential moderator effect of $CSR_{i,t}$ on one of our control variables. Since we find no correlation between $UV_{i,t}$ and $BB_{i,t}$ for firms with high-CSR engagement, these firms do not seem to take advantage of the wealth transfer from selling to ongoing shareholders associated with buybacks in times of undervaluation. This practice seems to be limited to firms with low CSR scores, which strongly supports the reasoning underlying our hypothesis.

Corporate Governance

Finally, we rule out the possibility that firm-level governance drives our results. Ample evidence demonstrates the relevance of analysts' and institutional investors' monitoring of firms' buyback decisions (Chen & Wang, 2012; Crane et al., 2016; Fu & Huang, 2016; Louis & White, 2007). Autore et al. (2019) find evidence consistent with activist investor involvement associated with buybacks conducted in times of higher undervaluation.

Thus, we add controls for institutional ownership ($InstOwn_{i,t}$) and analyst coverage ($AnalystCov_{i,t}$) to the baseline model. $InstOwn_{i,t}$ is based on data from Refinitiv's institutional investors database and calculated by adding the percentage share owned by each institutional investor at the end of year t for

Table 12. Sample Split.

	$UV^{(CG)}_{i,t}$ and $GO^{(CG)}_{i,t}$		$UV^{(RRV)}_{i,t}$ and $GO^{(RRV)}_{i,t}$	
	Low $CSR_{i,t}$	High $CSR_{i,t}$	Low $CSR_{i,t}$	High $CSR_{i,t}$
	(1)	(2)	(3)	(4)
Indep. Variable	$BB_{i,t}$	$BB_{i,t}$	$BB_{i,t}$	$BB_{i,t}$
$UV_{i,t}$	0.023*** (0.006)	0.000 (0.005)	0.038*** (0.010)	0.013 (0.010)
$GO_{i,t}$	−0.019 (0.018)	0.005 (0.023)	0.111 (0.081)	0.022 (0.067)
$ROA_{i,t}$	0.146 (0.110)	0.041 (0.099)	0.098 (0.088)	0.038 (0.066)
$CF_{i,t}$	0.036 (0.105)	0.142 (0.097)	−0.031 (0.060)	0.217** (0.105)
$Inv_{i,t}$	−0.049 (0.062)	−0.013 (0.092)	0.002 (0.003)	0.002 (0.003)
$Lev_{i,t}$	−0.003 (0.004)	0.001 (0.003)	−0.051* (0.027)	−0.020 (0.024)
$SG_{i,t}$	−0.055* (0.028)	−0.033 (0.023)	0.013 (0.014)	0.020* (0.011)
$Size_{i,t}$	0.002 (0.006)	0.014** (0.006)	0.005 (0.005)	0.017*** (0.005)
$Cash_{i,t}$	0.154*** (0.050)	0.083** (0.041)	0.113** (0.051)	0.076** (0.035)
$GDP_{h,t}$	−0.033*** (0.010)	−0.022*** (0.008)	−0.033*** (0.010)	−0.014* (0.008)
$GDPgrowth_{h,t}$	0.006 (0.004)	0.002 (0.003)	0.002 (0.003)	0.001 (0.003)
$GDPpc_{h,t}$	0.000 (0.001)	0.006*** (0.001)	0.002* (0.001)	0.005*** (0.001)
Observations	2,566	2,566	2,680	2,680
R^2	0.119	0.119	0.130	0.098

Note. This table presents results of a seemingly unrelated estimation with standard errors clustered at the firm-level evaluating whether the sensitivity of firms toward undervaluation in their buyback decisions differs between high and low CSR engagement firms. We measure $UV_{i,t}$ and $GO_{i,t}$ based on the model of Campello and Graham (2013) in Columns 1 and 2 or Rhodes-Kropf et al. (2005) in Columns 3 and 4. Columns 1 and 3 show the results for observations within the top third of CSR engagement and Columns 2 and 4 for matched observations in the bottom third of CSR engagement, respectively. The matching procedure is described in the corresponding section on the sample split over CSR engagement. We include Fama-French 12-industry, year, and country dummies in all models and report the regular R^2. Variable definitions can be found in Table 1 (*$p < .1$. **$p < .05$. ***$p < .01$).

each firm i. $AnalystCov_{i,t}$ is the average number of analysts following the firm at the end of each month over year t. It is based on data from I/B/E/S, and firm-year observations not covered by I/B/E/S are assumed to have zero analyst coverage, as in previous studies (Biddle et al., 2009; X. Chang et al., 2009).

Internal governance is also linked to stock repurchases. Prior studies demonstrate that board independence (the proportion of non-executive directors) and board size (the number of board members) are associated with increased buyback activity (Grosman & Amore, 2021; Hsu & Huang, 2020). Thus, we include the percentage of non-executive board members ($BoardIndep_{i,t}$) and the number of board members ($BoardSize_{i,t}$) as control variables.

Similar to Hsu and Huang (2020), we consider CEO involvement in the board as a control variable. The dummy variable $CEOBoardMem_{i,t}$ equals

one if the CEO is also a board member. We also consider the degree of managerial entrenchment since prior work underscores the relevance of share repurchases as a takeover deterrent (Bagwell, 1991; Jun et al., 2009). Our measure of the extent of managerial entrenchment is based on the widely used E-index of Bebchuk et al. (2009). We consider five dummy variables from the Refinitiv ASSET4 database in this replication. These variables equal one if the firm's board has (a) a staggered board structure; (b) a supermajority vote requirement or qualified majority for amendments of charters and bylaws or lock-in provisions; (c) limitations to the shareholders' right to approve meaningful company transitions, such as mergers and acquisitions; (d) a golden parachute; and (e) a poison pill in force.[7] We calculate $EIndex_{i,t}$ by adding the five dummy variables and dividing the sum by the number of variables for which the ASSET4 database provides the data. If the ASSET4 database provides data on fewer than three of these dummies, we set $EIndex_{i,t}$ as missing.

We estimate the baseline model, including $InstOwn_{i,t}$ and $AnalystCov_{i,t}$ as additional controls in Columns 1 and 2 of Table 13 and include all six governance variables in Columns 5 and 6 of Table 13. We choose this stepwise inclusion because adding the variables $BoardIndep_{i,t}$, $BoardSize_{i,t}$, $CEOBoardMem_{i,t}$, and $EIndex_{i,t}$ leads to a substantial reduction in our sample, which is why we refrain from adding these governance variables to our baseline model. The effect of $UV_{i,t} \times CSR_{i,t}$ persists in all four models, highlighting that our results are not driven by a potential correlation between a firm's propensity to buy back shares and the control variables considered.

We also estimate versions of these four models, including the interaction terms of $UV_{i,t}$ and the governance variables. These models ensure that our results are not driven by corporate governance affecting firms' sensitivity to undervaluation in buyback decisions. The results in Columns 3, 4, 7, and 8 of Table 13 continue to show a negative effect of $UV_{i,t} \times CSR_{i,t}$. Also note that the extent of institutional ownership moderates the sensitivity of buyback decisions to undervaluation significantly in three of the four models. We take a close look at this effect in the following section "Additional Evidence."

Additional Evidence

An alternative to share repurchases for distributing excess cash is dividend increases, which do not result in a wealth transfer from selling to ongoing shareholders when the firm is undervalued. We thus verify in the following subsection on Alternative Payout Strategies: Buybacks Versus Dividend Increase that higher-CSR firms are more likely to opt for dividend increases rather than share repurchases.

Table 13. Controlling for Corporate Governance.

	$UV^{(CG)}_{i,t}$ and $GO^{(CG)}_{i,t}$	$UV^{(CG)}_{i,t}$ and $GO^{(CG)}_{i,t}$	$UV^{(RRV)}_{i,t}$ and $GO^{(RRV)}_{i,t}$	$UV^{(RRV)}_{i,t}$ and $GO^{(RRV)}_{i,t}$
	(1)	(2)	(3)	(4)
Indep. Variable	$BB_{i,t}$	$BB_{i,t}$	$BB_{i,t}$	$BB_{i,t}$
$UV_{i,t} \times CSR_{i,t}$	−0.271*** (0.089)	−0.351*** (0.135)	−0.198** (0.094)	−0.278* (0.144)
$UV_{i,t}$	0.207*** (0.048)	0.361*** (0.084)	−0.023 (0.091)	0.207 (0.138)
$CSR_{i,t}$	−0.127 (0.097)	−0.120 (0.095)	−0.132 (0.097)	−0.123 (0.095)
$UV_{i,t} \times InstOwn_{i,t}$			0.004*** (0.001)	0.003* (0.002)
$UV_{i,t} \times AnalystCov_{i,t}$			−0.005* (0.003)	−0.006 (0.005)
$InstOwn_{i,t}$	−0.001 (0.001)	−0.001 (0.001)	−0.002 (0.001)	−0.001 (0.001)
$AnalystCov_{i,t}$	0.003 (0.003)	0.003 (0.003)	0.003 (0.003)	0.003 (0.003)
Other controls	Yes	Yes	Yes	Yes
Observations	20,427	21,394	20,427	21,394
Pseudo-R^2	0.184	0.190	0.186	0.191
	$UV^{(CG)}_{i,t}$ and $GO^{(CG)}_{i,t}$	$UV^{(RRV)}_{i,t}$ and $GO^{(RRV)}_{i,t}$	$UV^{(CG)}_{i,t}$ and $GO^{(CG)}_{i,t}$	$UV^{(RRV)}_{i,t}$ and $GO^{(RRV)}_{i,t}$
	(5)	(6)	(7)	(8)
Indep. Variable	$BB_{i,t}$	$BB_{i,t}$	$BB_{i,t}$	$BB_{i,t}$
$UV_{i,t} \times CSR_{i,t}$	−0.557*** (0.124)	−0.559*** (0.195)	−0.384*** (0.145)	−0.542** (0.230)
$UV_{i,t}$	0.301*** (0.075)	0.460*** (0.126)	0.050 (0.269)	0.106 (0.378)
$CSR_{i,t}$	−0.270* (0.161)	−0.280* (0.162)	−0.293* (0.161)	−0.298* (0.163)
$UV_{i,t} \times InstOwn_{i,t}$			0.004*** (0.002)	0.001 (0.002)
$UV_{i,t} \times AnalystCov_{i,t}$			−0.001 (0.004)	0.006 (0.007)
$UV_{i,t} \times BoardSize_{i,t}$			−0.003 (0.012)	−0.002 (0.017)
$UV_{i,t} \times BoardIndep_{i,t}$			−0.232 (0.222)	−0.101 (0.292)
$UV_{i,t} \times CEOBoardMem_{i,t}$			0.177* (0.108)	0.333* (0.182)
$UV_{i,t} \times EIndex_{i,t}$			−0.053 (0.136)	0.033 (0.187)
$InstOwn_{i,t}$	0.001 (0.002)	0.001 (0.002)	0.001 (0.002)	0.001 (0.002)
$AnalystCov_{i,t}$	−0.001 (0.004)	0.001 (0.004)	−0.001 (0.004)	0.001 (0.004)
$BoardSize_{i,t}$	−0.010 (0.012)	−0.012 (0.011)	−0.010 (0.012)	−0.012 (0.011)
$BoardIndep_{i,t}$	−0.019 (0.259)	−0.033 (0.255)	0.028 (0.261)	0.007 (0.257)
$CEOBoardMem_{i,t}$	−0.013 (0.132)	−0.000 (0.132)	−0.018 (0.134)	−0.009 (0.136)
$EIndex_{i,t}$	0.148 (0.114)	0.136 (0.112)	0.147 (0.116)	0.138 (0.112)
Other controls	YES	YES	YES	YES
Observations	8,976	9,378	8,976	9,378
Pseudo-R^2	0.199	0.196	0.203	0.199

Note. This table presents results of probit regressions that evaluate the effect of CSR engagement on the sensitivity of firms toward undervaluation in their buyback decisions after conditioning on the effect of various corporate governance mechanisms. We measure $UV_{i,t}$ and $GO_{i,t}$ based on the model of Campello and Graham (2013) in Columns 1, 3, 5, and 7 or Rhodes-Kropf et al. (2005) in Columns 2, 4, 6, and 8. All models include our full set of control variables utilized in the other models. We include Fama-French 12-industry, year, and country dummies in all models. Variable definitions can be found in Table 1. We present standard errors clustered at the firm-level in parentheses (*$p < .1$. **$p < .05$. ***$p < .01$).

Moreover, and perhaps even more profound, buybacks will be motivated not by undervaluation but by other reasons if firms are devoted to socially responsible behavior. Hence, in the subsection "Alternative Payout Motives: Reduction of Excess Cash Versus Exploitation of Undervaluation", we examine the reduction of excess cash as an important alternative motive for share repurchases.

We also examine the role of institutional ownership as a determinant of the sensitivity of buybacks to undervaluation. Assuming that retail investors are willing to sell their shares back to a company, ongoing investors are typically institutional investors. Firms with more institutional ownership place more weight on the interests of the latter and, thus, should be more sensitive to undervaluation in their buyback decisions. This is examined in more detail in the subsection "Alternative Driver of Buybacks in Times of Undervaluation: Institutional Ownership".

The existing literature indicates that the degree to which CSR is intended to serve stakeholders, rather than being the result of managerial rent extraction, depends on the institutional framework safeguarding investors against managerial misconduct related to CSR. Therefore, we anticipate that our findings will be more pronounced in settings in which investor protection at the country level is stronger. We investigate this issue in the subsection "CSR, Stakeholder Orientation, and Investor Protection".

Alternative Payout Strategies: Buybacks Versus Dividend Increases

Firms generally distribute excess cash through share repurchases or by increasing their dividends. We do not investigate the decision between a share repurchase and a dividend in general because firms usually keep their dividends stable over the years to avoid dividend cuts (Jagannathan, 2000). Hence, shareholders anticipate a certain dividend level, so the distribution of excess cash beyond the amount of the previous dividend raises particular attention. Therefore, firms face a decision between either a share repurchase or a dividend increase rather than a decision for or against a share repurchase.

To analyze this choice between share repurchases and dividend increases, we modify our dependent variable accordingly. The variable $BBvsDiv_{i,t}$ takes the value of one if firm i announced a repurchase of its shares during year t. Contrary to our main regression analysis, the variable only takes the value of zero if the firm increases its dividend per share by at least 25% during the same year (following Gosnell et al., 1996, for the threshold to identify dividend increases). If neither a buyback announcement nor a dividend increase, or both occurr during year t, the firm-year observation is excluded from this

analysis. Table 14 presents the regressions results for both undervaluation measures.

When considering the decision between a share repurchase and a dividend increase instead of the decision between a repurchase and no repurchase, higher-CSR firms time their repurchases in periods of lower undervaluation. This finding confirms that our results are not driven by cash distributions in general but only by share repurchases, as solely they can lead to wealth redistribution among shareholders.

Alternative Payout Motives: Reduction of Excess Cash Versus Exploitation of Undervaluation

Our results show that high-CSR firms avoid buybacks during times of undervaluation. However, these findings do not necessarily mean that buybacks will be completely shunned by managers that act in a socially responsible manner. Instead, other motives for share repurchases may be more relevant. One such motive could be the distribution of excess cash that cannot be invested in profitable projects.

To highlight the increased relevance of excess cash distribution for stakeholder-oriented firms, consider an all-equity-financed firm with cash holdings C from which the amount I can be invested in projects with positive net market value $V_I - I$ while the remaining part $X = C - I$ can only be invested in negative net market value projects ($V_X - X < 0$). An opportunistic firm management striving for empire building would not be concerned about the negative value consequences for the shareholders of $V_X - X$ being realized. Instead, the desire for empire building would prompt managers to invest the entire amount C to increase firm size, leading to an overall market value of the firm of $V_{opp} = V_I + V_X$ (at least eventually, when any problems of asymmetric information regarding management behavior and project quality have been unraveled). Alternatively, the firm management could refrain from investing X and instead payout this amount to shareholders, leading (once again, eventually) to an overall shareholder wealth of $V_I + X > V_{opp}$. Importantly, this behavior is not only in the best interest of shareholders. It also reflects the interests of society as a whole since selling shareholders are offered the opportunity to make better use of these funds by investing them somewhere else. The ongoing shareholders have the advantage of not participating in investment projects with a negative net market value. Thus, distributing excess cash is overall welfare maximizing (Jensen, 1986).

Consequently, we expect firms with a higher stakeholder orientation to be more likely to distribute excess cash via share repurchases. To test this

Table 14. Share Repurchase Versus Dividend Increase.

	$UV_{i,t}^{(CG)}$ and $GO_{i,t}^{(CG)}$	$UV_{i,t}^{(RRV)}$ and $GO_{i,t}^{(RRV)}$
	(1)	(2)
Indep. Variable	$BBvsDiv_{i,t}$	$BBvsDiv_{i,t}$
$UV_{i,t} \times CSR_{i,t}$	−0.416*** (0.129)	−0.799*** (0.208)
$UV_{i,t}$	0.153** (0.069)	0.447*** (0.133)
$CSR_{i,t}$	−0.211 (0.134)	−0.188 (0.133)
$GO_{i,t}$	0.885*** (0.165)	0.092 (0.099)
$ROA_{i,t}$	−4.491*** (0.946)	−0.380 (0.506)
$CF_{i,t}$	−2.720*** (0.659)	−0.733 (0.501)
$Inv_{i,t}$	0.264 (0.593)	0.459 (0.573)
$Lev_{i,t}$	−0.019 (0.028)	−0.003 (0.030)
$SG_{i,t}$	−1.824*** (0.187)	−1.446*** (0.178)
$Size_{i,t}$	0.077** (0.031)	0.069** (0.031)
$Cash_{i,t}$	0.710*** (0.264)	0.925*** (0.258)
$GDP_{h,t}$	−0.214*** (0.074)	−0.216*** (0.072)
$GDPgrowth_{h,t}$	−0.050** (0.023)	−0.041* (0.022)
$GDPpc_{h,t}$	0.068*** (0.012)	0.069*** (0.012)
Observations	4,974	5,207
Pseudo-R^2	0.282	0.274

Note. This table presents results of probit regressions that evaluate the effect of CSR engagement on the sensitivity of firms toward undervaluation in their buyback decisions. We measure $UV_{i,t}$ and $GO_{i,t}$ based on the model of Campello and Graham (2013) in Column 1 or Rhodes-Kropf et al. (2005) in Column 2. Table 4 differs from Table 3 in that we compare buyback years with years in which a dividend increase occurred. We include Fama-French 12-industry, year, and country dummies in both models. Variable definitions can be found in Table 1. We present standard errors clustered at the firm-level in parentheses (*$p < .1$. **$p < .05$. ***$p < .01$).

conjecture, we estimate a firm's level of excess cash following prior studies (Frésard & Salva, 2010; E. Lee & Powell, 2011; Opler et al., 1999). We use the most common predictors from this line of work as independent variables in the following regression model, which we estimate using OLS.

$$\begin{aligned} \text{Cash}_{i,t} = {} & \alpha + \beta_1 \times MTBR_{i,t} + \beta_2 \times Size_{i,t} + \beta_3 \times Leverage_{i,t} \\ & + \beta_4 \times CF_{i,t} + \beta_5 \times NWC_{i,t} + \beta_6 \times Inv_{i,t} + \beta_7 \times SD(CF)_{i,t} \\ & + \beta_8 \times SG_{i,t} + \beta_9 \times R\,\&\,D_{i,t} + \beta_{10} \times Dividend_{i,t} \\ & + \pi_i + \tau_t + \delta_h + \varepsilon_{i,t}, \end{aligned} \tag{8}$$

in which $MTBR_{i,t}$ is based on the average daily market capitalization over the full fiscal year t for all observations, $NWC_{i,t}$ represents net working capital, $SD(CF)_{i,t}$ refers to the firm's standard deviation of cash flows, $R\&D_{i,t}$ represents research intensity, and $Dividend_{i,t}$ represents dividend payments. Table 2 provides detailed definitions of all variables. As in our previous models, we account for year, industry, and country fixed effects. Industry fixed effects at least partly capture the effects of industry-specific regulations (Opler et al., 1999) and country fixed effects account for the fact that cash holdings depend substantially on country-specific factors (Dittmar et al., 2003). We gauge the amount of excess cash a firm holds ($XCash_{i,t}$) as the residual from regression Model (8). We evaluate whether the distribution of excess cash is a more prevalent motive for buybacks among firms with higher social commitment by estimating the following probit regression model:

$$\begin{aligned}\text{probit } BB_{i,t} = {} & \alpha + \beta_1 \times CSR_{i,t} \times XCash_{i,t-1} + \beta_2 \times XCash_{i,t-1} \\ & + \beta_3 \times CSR_{i,t} + \sum_j \gamma_j \times Control_{j,i,t} \\ & + \sum_k \varphi_k \times Control_{k,h,t} + \pi_i + \tau_t + \delta_h + \varepsilon_{i,t}.\end{aligned} \tag{9}$$

The set of controls in this model includes $UV_{i,t}$. However, we do not include $Cash_{i,t}$ to avoid multicollinearity issues. Table 15 presents the results of estimating this regression.

Columns 1 and 2 of Table 15 display the estimation of Model (9) without the interaction term $CSR_{i,t} \times XCash_{i,t}$. Consistent with firms being more likely to announce a buyback when they accumulated a larger amount of excess cash at the end of the previous year, we observe that the coefficient estimate on $XCash_{i,t}$ is positive and significant. The coefficient estimate on the interaction term $CSR_{i,t} \times XCash_{i,t}$ indicates whether a firm's inclination to announce buybacks due to excess cash depends on $CSR_{i,t}$. Consistent with the distribution of excess cash being a more relevant buyback motive for firms with high-CSR engagement, the coefficient estimate on this interaction term is positive and significant in Columns 3 and 4. We confirm this observation even after accounting for the interaction effect $CSR_{i,t} \times UV_{i,t}$ in Columns 5 and 6.

Alternative Driver of Buybacks in Times of Undervaluation: Institutional Ownership

Our hypothesis is based on managers of firms with little stakeholder orientation, acting in the interests of ongoing shareholders and neglecting the

Table 15. Excess Cash.

	$UV_{i,t}^{(CG)}$ and $GO_{i,t}^{(CG)}$	$UV_{i,t}^{(RRV)}$ and $GO_{i,t}^{(RRV)}$	$UV_{i,t}^{(CG)}$ and $GO_{i,t}^{(CG)}$	$UV_{i,t}^{(RRV)}$ and $GO_{i,t}^{(RRV)}$	$UV_{i,t}^{(CG)}$ and $GO_{i,t}^{(CG)}$	$UV_{i,t}^{(RRV)}$ and $GO_{i,t}^{(RRV)}$
	(1)	(2)	(3)	(4)	(5)	(6)
Indep. Variable	$BB_{i,t}$	$BB_{i,t}$	$BB_{i,t}$	$BB_{i,t}$	$BB_{i,t}$	$BB_{i,t}$
$XCash_{i,t} \times CSR_{i,t}$			1.786** (0.772)	1.627** (0.747)	1.710** (0.782)	1.931** (0.759)
$XCash_{i,t}$	0.757** (0.297)	0.595** (0.288)	−0.222 (0.527)	−0.278 (0.507)	−0.174 (0.533)	−0.467 (0.515)
$UV_{i,t} \times CSR_{i,t}$					−0.353*** (0.133)	−0.542** (0.215)
$UV_{i,t}$	0.039 (0.051)	0.026 (0.077)	0.035 (0.050)	0.022 (0.077)	0.225*** (0.078)	0.352** (0.146)
$CSR_{i,t}$	−0.143 (0.137)	−0.149 (0.132)	−0.176 (0.137)	−0.182 (0.133)	−0.132 (0.141)	−0.086 (0.135)
$GO_{i,t}$	0.279* (0.151)	0.328*** (0.090)	0.291* (0.152)	0.324*** (0.090)	0.271* (0.151)	0.318*** (0.088)
$ROA_{i,t}$	−0.798 (0.864)	−0.114 (0.449)	−0.851 (0.859)	−0.094 (0.446)	−0.660 (0.855)	−0.023 (0.444)
$CF_{i,t}$	0.962 (0.613)	1.231** (0.544)	0.982 (0.606)	1.261** (0.542)	1.075* (0.613)	1.350** (0.543)
$Inv_{i,t}$	−1.651** (0.702)	−1.084* (0.638)	−1.680** (0.701)	−1.107* (0.636)	−1.681** (0.699)	−1.101* (0.632)
$Lev_{i,t}$	−0.119** (0.051)	−0.104** (0.045)	−0.118** (0.050)	−0.104** (0.045)	−0.119** (0.049)	−0.106** (0.046)
$SG_{i,t}$	−0.336** (0.160)	−0.328** (0.159)	−0.343** (0.161)	−0.331** (0.160)	−0.359** (0.162)	−0.325** (0.162)
$Size_{i,t}$	0.091*** (0.028)	0.121*** (0.027)	0.091*** (0.028)	0.121*** (0.027)	0.095*** (0.028)	0.115*** (0.027)
$GDP_{h,t}$	−0.139* (0.077)	−0.121 (0.076)	−0.144* (0.077)	−0.125 (0.077)	−0.143* (0.078)	−0.132* (0.078)
$GDPgrowth_{h,t}$	0.039* (0.020)	0.034* (0.020)	0.039* (0.020)	0.034* (0.020)	0.036* (0.020)	0.032 (0.020)
$GDPpc_{h,t}$	0.013 (0.012)	0.015 (0.011)	0.014 (0.012)	0.015 (0.011)	0.014 (0.012)	0.016 (0.012)
Observations	9,621	9,921	9,621	9,921	9,621	9,921
Pseudo-R^2	0.207	0.209	0.208	0.210	0.211	0.212

Note. This table presents results of probit regressions that evaluate the effect of CSR engagement on the propensity of firms to announce buybacks depending on the amount of excess cash they have accumulated. We measure $UV_{i,t}$ and $GO_{i,t}$ based on the model of Campello and Graham (2013) in Columns 1, 3, and 5 or Rhodes-Kropf et al. (2005) in Columns 2, 4, and 6. We include Fama-French 12-industry, year, and country dummies in all models. Variable definitions can be found in Table 1. We present standard errors clustered at the firm-level in parentheses (*$p < .1$. **$p < .05$. ***$p < .01$).

perspective of selling shareholders in their buyback decisions. This premise is based on managerial incentives that are generally aligned with ongoing and not selling shareholders.

This reasoning coincides with DeLisle et al. (2020), who present empirical evidence that buybacks mostly transfer wealth from retail to institutional investors because the former sell proportionately more shares during buybacks than the latter. This could be because institutional investors are better informed about a firm's potential undervaluation (Amihud & Li, 2006; Chakravarty, 2001; Dennis & Weston, 2001; Jiambalvo, 2002) and thus retain their shares or even extend their holdings during buybacks. The benefits of buybacks for institutional investors are highlighted by institutional investors favoring firms with low (positive) dividends and regular share repurchases (Grinstein & Michaely, 2005).

Institutional investors also influence firms' payout policies in this sense. Specifically, Gaspar et al. (2013) find a link between the increasing popularity of share buybacks at the expense of dividend payments and the growing prevalence of institutional ownership over the last decades, which is observed by the literature (Gillan & Starks, 2007; Gompers & Metrick, 2001). Moreover, Crane et al. (2016) show that institutional ownership leads to higher share repurchases as well as higher total payouts. Concerning the timing of share repurchases, Autore et al. (2019) find that shareholder activism can influence firms to announce buybacks during periods of undervaluation.

Given that institutional investors play an important role in firm governance, including effectively influencing executive compensation and turnover (A. K. Banerjee & Mohanty, 2020; A. K. Banerjee et al., 2024; Chen et al., 2019; David et al., 1998; Hartzell & Starks, 2003; Helwege et al., 2012), it is plausible that managers favor institutional investors over retail investors when making buyback decisions. Thus, we argue that firms' buyback decisions are more sensitive to undervaluation when they are owned to a greater degree by institutional investors. Increased institutional ownership implies that this group of investors can exert a more pronounced influence on firm management (Hartzell & Starks, 2003). Therefore, firms are more prone to engage in buybacks that are favorable to institutional investors when this investor type has a stronger influence on firm management.

The results in Columns 3, 4, 7, and 8 of Table 13 support this conjecture. We observe a positive coefficient estimate on $UV_{i,t} \times InstOwn_{i,t}$ in three of the four models. To rule out the possibility that these results are driven by the multicollinearity of the interaction terms of $UV_{i,t}$ with other corporate governance mechanisms, we estimate versions of regression Model (6) that only include $InstOwn_{i,t}$ and its interaction term with $UV_{i,t}$ as additional independent variables. The results of these models are reported in the Online Appendix, and they are consistent with our predictions.

CSR, Stakeholder Orientation, and Investor Protection

In line with the *stakeholder value maximization view* or the *shareholder expense view*, our hypothesis assumes that higher levels of firms' CSR engagement are a result of managers considering the interests of non-investing stakeholders more. However, previous work demonstrates that these qualities of CSR engagement are conditional on the institutional framework that protects investors from opportunistic managerial behavior. The *agency view* on CSR argues that managers overinvest in CSR for their private benefit, specifically for personal reputational gains and a "warm-glow" (Barnea & Rubin, 2010; Baron, 2009). Many studies demonstrate that this view predominates in situations in which corporate governance is poor (Bénabou & Tirole, 2010; Borghesi et al., 2014; Cheng et al., 2023; Ferrell et al., 2016; Masulis & Reza, 2015). Breuer et al. (2018) show that shareholders value CSR engagement only if country-level investor protection is high and that CSR has a negative effect on shareholders' perception of the firm if country-level investor protection is low.

We thus argue that our observed effect is more relevant when country-level investor protection is higher, as it curtails managerial opportunism with respect to CSR, leading to CSR being more likely to be aimed at stakeholder welfare. Therefore, we test our hypothesis separately for countries with high and low investor-protection levels. We conduct sample splits across the median using the anti-self-dealing and public enforcement indices of Djankov et al. (2008), which measure the protection of minority shareholders against expropriation by corporate insiders through private and public enforcement, respectively. Table 16 presents the results of estimating Model (6) for each of the four subsamples. We observe that the coefficient estimate on $CSR_{i,t} \times UV_{i,t}$ is between 3.5 and 1.7 times larger in absolute terms in high-investor-protection countries. It is even insignificant in two of the four models that consider low-investor-protection countries. These results demonstrate that the effect of CSR performance on the relevance of the wealth transfer motive is stronger in institutional environments in which $CSR_{i,t}$ better reflects a firm's stakeholder orientation. Inauthentic CSR, which only serves the personal benefit of managers (Barnea & Rubin, 2010) or is solely intended to influence the perception of the organization (McShane & Cunningham, 2012; Vanhamme & Groben, 2009), does not necessarily relate to the relevance of the wealth transfer motive.

Conclusion

Previous literature shows that firms generally make buybacks during periods of undervaluation. Share repurchases conducted in times of undervaluation

Table 16. Country-Level Investor Protection and Buyback Sensitivity to Undervaluation.

	$UV_{i,t}^{(CG)}$ and $GO_{i,t}^{(CG)}$		$UV_{i,t}^{(RRV)}$ and $GO_{i,t}^{(RRV)}$	
	High anti-self-dealing	Low anti-self-dealing	High anti-self-dealing	Low anti-self-dealing
	(1)	(2)	(3)	(4)
Indep. Variable	$BB_{i,t}$	$BB_{i,t}$	$BB_{i,t}$	$BB_{i,t}$
$UV_{i,t} \times CSR_{i,t}$	−0.581** (0.267)	−0.165* (0.094)	−0.732** (0.288)	−0.249 (0.152)
$UV_{i,t}$	0.317*** (0.092)	0.124** (0.057)	0.646*** (0.143)	0.198* (0.103)
$CSR_{i,t}$	−0.183 (0.210)	−0.094 (0.105)	−0.059 (0.212)	−0.087 (0.102)
$GO_{i,t}$	−0.084 (0.119)	0.164 (0.113)	0.060 (0.105)	0.335*** (0.073)
$ROA_{i,t}$	0.804 (0.621)	0.595 (0.602)	0.713* (0.375)	0.631* (0.356)
$CF_{i,t}$	0.139 (0.510)	0.120 (0.512)	0.245 (0.396)	0.490 (0.417)
$Inv_{i,t}$	−0.414 (0.646)	−2.080*** (0.623)	−0.547 (0.598)	−1.810*** (0.572)
$Lev_{i,t}$	0.001 (0.037)	−0.044 (0.027)	0.045 (0.040)	−0.026 (0.023)
$SG_{i,t}$	−0.575*** (0.165)	−0.239** (0.119)	−0.494*** (0.152)	−0.117 (0.121)
$Size_{i,t}$	0.090** (0.037)	0.080*** (0.024)	0.121*** (0.034)	0.109*** (0.023)
$Cash_{i,t}$	1.078*** (0.296)	0.683*** (0.210)	1.068*** (0.262)	0.442** (0.200)
$GDP_{h,t}$	0.049 (0.080)	−0.640*** (0.076)	0.030 (0.075)	−0.631*** (0.074)
$GDPgrowth_{h,t}$	−0.071*** (0.021)	0.042** (0.017)	−0.070*** (0.021)	0.049*** (0.017)
$GDPpc_{h,t}$	0.001 (0.013)	0.076*** (0.012)	0.002 (0.012)	0.079*** (0.012)
Observations	6,359	16,448	6,807	17,112
R-squared	0.170	0.207	0.173	0.214
	$UV_{i,t}^{(CG)}$ and $GO_{i,t}^{(CG)}$	$UV_{i,t}^{(RRV)}$ and $GO_{i,t}^{(RRV)}$	$UV_{i,t}^{(CG)}$ and $GO_{i,t}^{(CG)}$	$UV_{i,t}^{(RRV)}$ and $GO_{i,t}^{(RRV)}$
	High public enforce	Low public enforce	High public enforce	Low public enforce
	(5)	(6)	(7)	(8)
Indep. Variable	$BB_{i,t}$	$BB_{i,t}$	$BB_{i,t}$	$BB_{i,t}$
$UV_{i,t} \times CSR_{i,t}$	−0.318*** (0.119)	−0.187 (0.121)	−0.577*** (0.197)	−0.297* (0.180)
$UV_{i,t}$	0.123* (0.063)	0.208*** (0.065)	0.316** (0.125)	0.401*** (0.115)
$CSR_{i,t}$	0.040 (0.152)	−0.195* (0.115)	0.018 (0.149)	−0.159 (0.113)
$GO_{i,t}$	−0.026 (0.120)	0.146 (0.119)	0.313*** (0.088)	0.208** (0.084)
$ROA_{i,t}$	0.749 (0.603)	0.751 (0.662)	0.230 (0.366)	1.076*** (0.397)
$CF_{i,t}$	0.721 (0.544)	−0.767 (0.491)	0.556 (0.432)	−0.212 (0.402)
$Inv_{i,t}$	−1.089* (0.602)	−1.097 (0.714)	−1.249** (0.554)	−0.794 (0.672)
$Lev_{i,t}$	−0.021 (0.028)	−0.040 (0.032)	−0.007 (0.031)	−0.002 (0.025)
$SG_{i,t}$	−0.347** (0.143)	−0.363*** (0.137)	−0.226* (0.134)	−0.283** (0.141)
$Size_{i,t}$	0.128*** (0.028)	0.047* (0.027)	0.164*** (0.027)	0.075*** (0.027)
$Cash_{i,t}$	0.976*** (0.274)	0.708*** (0.215)	0.839*** (0.247)	0.496** (0.212)
$GDP_{h,t}$	−0.005 (0.294)	−0.426*** (0.067)	0.077 (0.290)	−0.417*** (0.064)
$GDPgrowth_{h,t}$	0.001 (0.017)	−0.071*** (0.020)	0.010 (0.016)	−0.073*** (0.019)
$GDPpc_{h,t}$	0.012 (0.009)	0.067*** (0.012)	0.015 (0.009)	0.068*** (0.012)
Observations	7,434	16,110	7,961	16,729
R-squared	0.127	0.231	0.136	0.237

Note. This table presents results of probit regressions that evaluate the effect of country-level investor protection on the sensitivity of firms toward undervaluation in their buyback decisions. We measure $UV_{i,t}$ and $GO_{i,t}$ based on the model of Campello and Graham (2013) in Columns 1, 2, 5, and 6 or Rhodes-Kropf et al. (2005) in Columns 3, 4, 7, and 8. We measure country-level investor protection based on the anti-self-dealing index in Colum 1, 2, 3, and 4 or with the public enforcement index in Columns 5, 6, 7, and 8 (Djankov et al., 2008). We include Fama-French 12-industry, year, and country dummies in all models and report the Pseudo-*R*-squared. Variable definitions can be found in Table 1. We present standard errors clustered at the firm-level in parentheses (*$p < .1$. **$p < .05$. ***$p < .01$).

result in wealth transfers from selling to ongoing shareholders. Owing to the informational asymmetry between managers and shareholders, managers of undervalued firms can use share repurchases to exploit undervaluation at the cost of (uninformed) selling shareholders and to the benefit of ongoing shareholders.

This study analyzes whether firms that act in a socially responsible way, proxied by their CSR engagement, have a lower buyback sensitivity to undervaluation. If managers consider the interests of ongoing and selling shareholders equally, they regard the wealth transfer between these two groups as a zero-sum game and view undervaluation as a less relevant buyback motive. Thus, we hypothesize that managers of firms with higher CSR engagement announce buybacks when the firms is less undervalued. Our results support this hypothesis and provide indirect evidence of managers' general awareness of the wealth transfer from selling to ongoing shareholders caused by buybacks during periods of undervaluation.

Supplementary tests investigate the decision between dividend increases and stock repurchases. These tests show that socially responsible firms increase their dividends rather than engage in a repurchasing program in times of undervaluation. We also observe that the distribution of excess cash is a more prevalent motive for buybacks among high-CSR firms. Further, firms with high institutional ownership are particularly prone to buy back shares during undervaluation periods. Finally, a country's investor protection level moderates the effect of CSR on firms' buyback sensitivity to undervaluation, which supports that CSR driven by opportunistic managerial behavior does not lead to the same conclusion about our hypothesis.

Our findings align with agency theory which is extended with stakeholder theory in that this theoretical framework interprets managers as the agents of more than just the shareholders and that non-investing stakeholders are also considered in corporate decision making especially in the timing of buyback decisions.

Paradoxically, our insights warn investors of firms with little stakeholder orientation, which is typically recognizable at low levels of CSR engagement, as shareholders could be exploited at the eventual divestment of such firms. We also caution managers that the continued exploitation of investors through buybacks could undermine financial markets' trust in this instrument ultimately resulting in investors rejecting buybacks and thus leaving firms without an otherwise effective payout policy tool. Regulators should consider ways to mitigate exploitative buyback practices.

We suggest an additional perspective on socially responsible divestment in which firms behave responsibly toward all groups of shareholders when terminating a financing relationship. Firms devoted to socially responsible

behavior, in general, are not only more successful in balancing the interests of shareholders and other stakeholders but also in balancing different classes of shareholders. This paradigm could contribute to trust in capital markets and, thus, their long-term efficiency. Socially responsible divestment considering how firms terminate financing relationships does therefore not seem to be negligible and should be the subject of further research.

Another appeal of our study is that it widens the scope of the analysis of stakeholder conflicts. More attention should be paid to potential "micro-level" conflicts among different shareholders. Other studies could use experimental settings to explore the causal relationship between CSR and buybacks. Such work would further validate this relationship and aid in resolving endogeneity issues, which could be viewed as a limitation of our study.

As most research on CSR, our study is limited by its focus on developed countries owing to data availability issues (Pisani et al., 2017). Another avenue for future research could be the validation of our findings for developing countries where the relationship between CSR and stakeholder orientation may differ from the one in developed countries.

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Supplemental Material

Supplemental material for this article is available online.

Notes

1. Indeed, even only announcing a share buyback may lead to an immediate stock price change. However, due to the costs associated with processing information, we expect some price changes to take place only with delay (Bhattacharya & Jacobsen, 2016), so that even in this case there is a positive difference between V_1 and V_0.
2. Assume a situation with $V_1 = 100$, $V_0 = 60$ and values of r amounting to $r^{(1)} = 20\%$ and $r^{(2)} = 40\%$. For $r^{(1)} = 20\%$, the overall wealth position of the ongoing shareholders is $100 - 0.2 \times 60 = 88$. However, this is distributed among 80 % of all original shareholders. With m as the initial number of shares, the price per share therefore now is $88/(0.8m) = 110/m$. For $r^{(2)} = 40\%$, the same computation gives $100 - 0.4 \times 60 = 76$ and hence $76/(0.6m) = 126.67/m$. Since $110 < 126.67$, the share price is higher in the latter case and thus the *ongoing* shareholders are better off for larger values of r even if the overall market value of the firm is decreasing in r. m can be neglected in (2), as it is simply a positive constant.
3. For our main arguments, it is sufficient to view the maximization of *either* (2) *o*r (3) as alternative goals of firms depending on their stakeholder orientation. However, in reality, we may measure the degree of a firm's stakeholder orientation by its CSR engagement. Thus, a weighted average of (2) and (3) with weights $1 - \lambda(CSR)$ and $\lambda(CSR)$; that is, $(1-\lambda(CSR))\cdot(V_1 - r\cdot V_0)/(1-r) + \lambda(CSR)\cdot V_1$ and $\lambda'(CSR) > 0$, may be more suitable and later on explain why the probability for a buyback in the case of undervaluation is a continuous function of *CSR* in our empirical analysis.
4. Specifically, the following necessary condition for an inner solution for low-CSR firms can be derived: $V_1(r) - V_0 = -V_1'(r)$. This means that the (marginal) decrease in firm value $V_1(r)$ before accounting for the cash outflow $r\cdot V_0$ from the share repurchase is equal to the difference between this revised market value $V_1(r)$ and the market value V_0 underlying the buyback transaction. According to the price-pressure hypothesis (Harris & Gruel, 1986), V_0 may also be dependent on r, rendering the optimum condition for low-CSR firms even more complicated. Typically, we will have $V_0'(r) > 0$, as it becomes even more difficult to find shareholders who are willing to sell back their shares for increasing values of r, reducing further the optimal value of r from the point of view of low-CSR firms. However, our main interest is not the precise solution for r maximizing (2), but simply the insight that there is an incentive for low-CSR-firms to choose $r > 0$ in a case of undervaluation. Therefore, we also refrain from discussing in more detail the possible functions $V_0(r)$ and $V_1(r)$.
5. We may have $V_1'(r) > 0$ for low values of r due to signaling considerations. Then, even high-CSR firms would choose $r > 0$ as a solution, but still low-CSR firms will prefer higher levels of r.

6. Another reason for controlling for capital expenditures can be found in Grullon and Michaely (2004), who demonstrate that announcement effects to share repurchases are stronger for overinvesting firms.
7. Bebchuk et al.'s (2009) E-index is constructed from data from the Investor Responsibility Research Centre that provides two separate items on whether shareholders' rights are restricted on amending either charters or bylaws (see the subsection on corporate governance as part of our section on robustness checks). The ASSET4 database only provides a single item for these two elements.

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