Share Repurchases and Board Independence

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19 September 2021

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This version: 19 September 2021

Acknowledgments

For useful comments and suggestions, we thank Gilles Chemla, Douglas Cumming, Jeff Downing, Ciaran Driver, Julia Varesko, Alessandro Zattoni, and participants at the LUISS Business School seminar and the International Corporate Governance Society Conferences in Rome, Italy and Colchester, UK. Vladimir Yashin provided excellent research assistance.

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Abstract

Share repurchases have come under criticism as they may be used for earnings management and take capital away from productive investment. However, share repurchases can also reduce the agency costs of free cash flow and offset the dilution of current shareholders. Whether firms engage in good or manipulative share repurchases can crucially hinge on the quality of corporate governance. Using UK firm panel data, we study the effect of independent directors on repurchase policies. Our results indicate that board independence increases the propensity to engage in share repurchases. Moreover, board independence attenuates the harmful effect of manipulative share repurchases on employment growth. Our approach exploits the passage of a corporate governance reform which provided a unique opportunity to tease out the causal impact of independent directors on share repurchases. Our findings advocate in favor of more active involvement of independent directors in payout policies.

Keywords: share repurchases; independent directors; employment; earnings management; UK

"Discussion on share buybacks has gotten much more sophisticated in the last decade. I do not think that boards were all asking the right questions about buybacks 10 years ago – more could have been asked about alternative investment opportunities, effects on rating agencies, investor preferences, compensation implications. But in my experience, across industries, boards and management teams are more sophisticated than they once were."

The Investor Responsibility Research Center Institute (2016)

1. Introduction

A voluminous strand of research has been devoted to understanding the roles and functioning of the board of directors (Merendino et al., 2018; Merendino & Sarens, 2020). It is now recognized that the board of directors provides a fundamental service for the prosperity of the company (Adams, Hermalin, & Weisbach, 2010). To try to ensure objectivity in board decisions, it is important that a firm grants representation to a sufficient number of (non-executive) independent directors, where independence is determined by the absence of relationships or circumstances that may affect the director's judgment.

If board oversight is relevant for a firm's prospects, then *a question arises as to which domain of corporate policies would independent directors influence and how*. Existing studies have mostly investigated the impact of independent boards on issues related to accounting transparency (Armstrong, Core, & Guay, 2014), strategic decisions such as M&As (Dahya, Golubov, Petmezas, & Travlos, 2016), innovation (Balsmeier, Fleming, & Manso, 2017), executive pay (Conyon & Peck, 1998) and to the ultimate implications for shareholder value (e.g. B. D. Nguyen & Nielsen, 2010).

The role of independent directors in determining a firm's payout policies remains far less explored. Yet, it is estimated that the US corporate boards have authorized $1 trillion in share repurchases in 2018, underscoring the importance of boards in driving share repurchases to such a record peak level.[2] Current debates amongst academics and practitioners have thus

[2] See "US boards to authorise $1tn in stock buybacks in 2018", *The Financial Times*.

begun to explore the potential role of independent directors surrounding capital allocation decisions such as those regarding share repurchases.

Some of the literature takes a negative view on share repurchases, asserting that they provide a way of distorting information flows (Brockman, Khurana, & Martin, 2008) or boosting the firm's share price to mislead investors (Chan, Ikenberry, Lee, & Wang, 2010). Moreover, share repurchases are more likely when executives are overconfident and own a large number of options outstanding (Banerjee, Humphery-Jenner, & Nanda, 2018; Kahle, 2002). Relatedly, there is evidence that managers engage in share repurchases for earnings management purposes (Hribar, Jenkins, & Johnson, 2006), which in turn harms employment and investment (Almeida, Fos, & Kronlund, 2016). Collectively, these findings suggest that share repurchases generate temporary benefits for self-interested executives (e.g., by improving the conditions of equity sales) at the expense of long-term investors (Cheng, Harford, & Zhang, 2015; Lazonick, 2014). Even in times of economic downturns, like the crisis related to the COVID-19 pandemic, companies are seeking ways to pay back shares and maintain the existing dividend payout policy by borrowing (Raval, 2020).

Other streams of literature take a positive view, suggesting that share repurchases grant firms with greater financial flexibility (Jagannathan, Stephens, & Weisbach, 2000), reduce the agency cost of free cash flow (Nohel & Tarhan, 1998), and offset the dilutive effect of employee stock options (Bens, Nagar, Skinner, & Wong, 2003). Accordingly, share repurchases have been linked to both short-term and long-term excess returns (Chang & Puthenpurackal, 2014; Manconi, Peyer, & Vermaelen, 2019). Interestingly, survey evidence highlights that US board directors have a positive view on share repurchases, suggesting that they do not jeopardize growth and do not drive excessive CEO compensation at the expense of shareholders (The Investor Responsibility Research Center Institute, 2016).

A natural question is thus whether *independent directors can curb share repurchases that are harmful to the firm's long-term prospects while promoting those repurchases that are appropriate to the firm's investment opportunities and valuation*. Or, by contrast, whether independent directors would be unable to achieve these goals, due e.g. to problems of collusion with the management team (Cohen, Frazzini, & Malloy, 2012) or lack of influence or knowledge and expertise in the matter. Unfortunately, the literature on this question is still inconclusive. Further, establishing the direction of causality between board independence and share repurchases is complicated by the well-known problem that corporate governance mechanisms are endogenously determined institutions (Hermalin & Weisbach, 1998). Indeed, a given level of board independence is likely to be an equilibrium point reflecting a firm's complexity, monitoring, and advising needs (Linck, Netter, & Yang, 2008), which may, in turn, correlate with corporate policies.

Establishing the causal influence of independent directors on share repurchases is one of the goals of our study. To this end, drawing on Dahya et al. (2016), we use as identification strategy an exogenous event provided by a corporate governance reform (the Higgs Report issued in the UK in January 2003), which decreed that corporate boards of UK listed firms comprise a majority of independent non-executive directors. This exogenous influx of independent directors on the boards of UK companies allows us to estimate difference-in-differences and two-stage least square regressions that tease out the effect of board independence on share repurchases.

Using a panel dataset of UK-listed firms from 2000 to 2007, we first establish the direct effect of independent directors on the total amount of share repurchases (and dividends). Our results, robust to a variety of empirical specifications, indicate that an increase in board independence positively affects the propensity of firms to engage in share repurchases. This finding may seem puzzling since, as argued above, share repurchases can occasionally harm

long-term growth (Almeida et al., 2016; Hribar et al., 2006; Lazonick, 2014). To probe into this issue, we investigate how the effect of independent directors varies depending on the motives behind share repurchases. We then explore how board independence influences the real effects of share repurchases. Separating accretive firms (i.e. those firms that undertake share repurchases for manipulative purposes) from non-accretive firms, we find that independent directors significantly attenuate the negative effects of accretive share repurchases on firm employment.

Our contribution to the literature is threefold. First, we study the underexplored relationship between board independence and both the level and quality of share repurchases by using a methodology which deals with the well-known problem of endogeneity in corporate governance, according to which board structures and payout decisions are jointly determined (and likely affected by unobservables). Several scholars have used corporate governance reforms as a source of exogenous variations in board characteristics (Ahern & Dittmar, 2012). Our approach exploits the passage of a reform which, by spurring board independence in UK listed firms during the mid-2000s, provided a unique opportunity to tease out the causal impact of independent directors on share repurchases.

Second, while we are proposing a robust identification strategy, we are also focusing on share repurchases from a novel angle. Oswald and Young (2008) explore how firms can minimize the agency cost of free cash flow and argue that share repurchases represent a double-edged sword. By being more flexible and less sticky than dividends, share repurchases can be effectively used to disgorge random cash shocks. However, in the absence of mechanisms that align shareholder and executive interests, the high flexibility of share repurchases may increase managerial discretion on the commitment to deploy or retain excess cash. While there is a rich literature on the firm- or executive-level determinants of share repurchases (e.g. Barth & Kasznik, 1999; Boudry, Kallberg, & Liu, 2013; Dittmar, 2000), we lack a systematic

assessment of the role played by corporate governance mechanisms. A notable exception is Sharma (2011) which, however, is mostly focused on dividends and does not document significant effects of independent directorship on the level of share repurchases. Dividends and share repurchases have been proven different payout mechanisms (De Cesari, 2012) – they exist for different reasons and have different effects, and hence they may be influenced differently by board independence. While dividends are 'sticky' and more frequent, share repurchases are irregular, more significant, and more prone to manipulation. In view of these arguments, it is reasonable to examine dividend behavior independently of repurchases. We address this gap by focusing on independent directors and document the positive effect of independent directors in spurring a firm's share repurchase activities.

Third, we address the important question of whether independent directors shape the real effects of share repurchases by examining whether their impact stems from a reallocation of funds away from valuable projects or an attentive decision to return funds to shareholders, e.g. due to the lack of investment opportunities or excess cash (Boudry et al., 2013). The existing literature documents that repurchases motivated by earnings-per-share concerns are detrimental to firm employment and investment (Almeida et al., 2016). However, no studies to our knowledge have analyzed how the real effects of repurchases vary as a function of exogenous variations in board independence. This omission is particularly important in light of the evidence suggesting that firms with strong and weak corporate governance tend to experience different patterns of performance following share repurchase plans (Caton, Goh, Lee, & Linn, 2016; Manconi et al., 2019). Our study fills this gap by showing that an influx of independent directors can significantly mitigate the harmful consequences of accretive repurchases on firm employment.

2. Literature and hypotheses

2.1. Independent directors – what are they for?

Corporate governance reforms around the world, from the Sarbanes-Oxley Act to the more recent experiences of the "codes of good governance" (Aguilera & Cuervo-Cazurra, 2009), have placed a great deal of emphasis on the value of board independence and the role of independent directors for firms' decision-making. Independent directors provide key support to monitoring activities and advising about complex decisions such as those related to capital allocation. Despite the relevance of independent directors for a firm's performance, testing the impact of independent directors has proven challenging. First, ascertaining the true degree of independence is a complicated task (Adams, 2017). Second, the level of independence in a firm's board is an endogenous outcome shaped by past performance as well as unobservable factors that, in turn, confound the estimation of independent directors on firm outcomes (Hermalin and Weisbach, 1998). As a result, the evidence on the corporate value of independent directors has been inconclusive for a long time. More recent studies based on exogenous events (e.g., Nguyen and Nielsen, 2010), however, have detected a positive impact consistent with the idea that independent directors are value-enhancing.

2.2. Independent directors and share repurchases

Share repurchases, also commonly known as share buybacks, represent the re-acquisition by a company of its stock. A repurchase plan often referred to as a buyback program, is a written policy approved by the board of directors (Grullon & Ikenberry, 2000). Share repurchases represent a growing practice, also due to pressure from external constituents (Westphal & Zajac, 2001). Von Eije and Megginson (2008) observe that in Europe the total value of share repurchases in 2005 accounted for over 50 percent of the total value of cash dividends. Young and Yang (2011) report that in the UK share repurchase activity rose from an amount of £636

million in 1998 to nearly £28 billion in 2006. Driver, Grosman, and Scaramozzino (2020) report that the number of dividend payers in the UK fell almost monotonically from a peak of 1,266 in 1998 to 743 in 2012, while the total increase in payout over time was accounted for by growing share repurchases and a smaller number of dividend-paying firms. Extant literature found that repurchases were generally insignificant of dividends (Bhargava, 2010). Driver et al. (2020) found little evidence of substitution between dividends and repurchases in the UK, except perhaps for the post-financial crisis period (outside of our study period), when repurchases continued with an upward trend while dividends retreated. Benhamouda (2007) suggests only weak substitutability in the UK, at least up until the early 2000s or imperfect substitutability constrained by regulation. Several tax and governance-based reasons for limited substitutability are reviewed in the literature (Hu & Kumar, 2004).

Share repurchases have been surrounded by heated controversies. Some studies, for instance, have suggested that a firm's effort to repurchase its shares may be detrimental to capital expenditures and employment growth (The Investor Responsibility Research Center Institute, 2016). Other studies suggested that share repurchases increase with the level of CEOs overconfidence, especially when entrenchment increases their discretion over corporate policies, and are financed with reductions in productive investments (Banerjee et al., 2018). Moreover, share repurchases provide opportunistic managers with a tool to increase the firm's share price to mislead investors (Chan et al., 2010) and manage earnings per share (Hribar et al., 2006). In turn, they generate temporary benefits for executives e.g., by improving the conditions of equity-linked compensation (Geiler & Renneboog, 2016; Petrou & Procopiou, 2016), while sacrificing resources that could have been channeled to productive investments in assets, R&D or labor (Almeida et al., 2016). It is that tension between the possible destruction of real outcomes and employment growth on the one hand, and the redistribution of value to shareholders, on the other hand, that makes this a worthwhile exploration. Further, employment

growth is a leading metric of firm productivity and its importance to the UK economy has been emphasized by the government through recent employment law reviews as a way to support economic growth (Pickard & Foster, 2021), making it worthwhile for scholarly attention.

Boards can play a central role in capital return decisions. The relationship between a company's strategy, its desired capital structure, and financial strength demands robust board oversight. Since independent directors must represent the interests of all the shareholders, they would be more unbiased when it comes to decisions about share repurchases relative to board members representing particular shareholders with a marked preference for capital return. Hence, the role of independent directors is to restrain executives' tendency to engage in payout actions that generate private benefits and impartially ensure that a company returns funds to shareholders through share repurchases only when there is no other valuable use for these cash funds in the foreseeable future. The presence of independent directors and the space that they take in the board discussion decrease the ability of insiders to opportunistically engage in share repurchases for private benefit motives. Even if independent directors are passive on the board, they are indirectly reducing the influence of the insiders on the propensity of share repurchases. Building on these arguments, we suggest that:

H1a. *A greater share of independent directors has a negative effect on share repurchases under the assumption that share repurchases are bad.*

Jagannathan et al. (2000) suggest that a primary reason why share repurchases have become more appealing lies in that they are more flexible than dividends. During periods of low-growth and low-interest rates, companies may struggle to find enough good opportunities and may have no better option than to return excess capital to shareholders (Brav et al., 2015). The greater flexibility of share repurchases enables firms to time the payout decision to the availability of investment opportunities and the market valuation of their equity (Brav et al., 2005). Share repurchases may be better tailored to random cash shocks than dividends, which

are "sticky" payout commitments, and thus repurchases can be used to alleviate the agency cost of free cash flow (Nohel & Tarhan, 1998). Another important advantage of share repurchases is that they help to offset the dilutive effect of employee stock options and thus bolster earnings per share (Bens et al., 2003).

Several studies have documented a bifurcation in the value implications of share repurchases depending on the quality of a firm's corporate governance. Caton et al. (2016) show that the post-announcement returns to repurchase plans are significantly greater for well-governed firms as compared to firms with weak governance. They define well-governed firms as those with a low score for the Bebchuk, Cohen, and Ferrell (2009) anti-takeover provisions index.[3] Manconi et al. (2019) document that share repurchases are, on average, associated with positive short-term and long-term returns, but that these effects are significantly larger for companies subject to better country-level and firm-level governance mechanisms.

A wealth of research has probed into various types of complementarities between governance mechanisms and share repurchases that may alleviate agency problems within the firm. For instance, Banerjee et al. (2018) document that institutional investors promote firms' repurchase decisions to avoid value-destroying overinvestment. Oswald and Young (2008) show that the likelihood to engage in share repurchases to distribute excess cash increases with boards' equity incentives. Drawing on the idea that board independence may make companies adopt share repurchases to improve its governance oversight vis-à-vis self-interested managers, we posit that:

H1b. *A greater share of independent directors has a positive effect on share repurchases under the assumption that share repurchases are good.*

[3] A count from 0 to 6 of six antitakeover provisions found most associated with performance, including staggered boards, golden parachutes, poison pills, etc.

2.3. Independent directors and the real effects of share repurchases

Earnings pressure is the heart of the popular debate about share repurchases, which has suggested that EPS management is a controversial motive that makes firms embark on share repurchases. For instance, the existing literature has shown that EPS-accretive share repurchases have negative consequences on real firm outcomes, such as employment and research and development (Almeida et al., 2016). Growing inequality, stagnation in employment numbers and workers' compensation have also been linked to increased share repurchases (Tung & Milani, 2018).

Boards are argued to be more effective in their advisory and oversight roles when the share of independent directors is higher (Adams et al., 2010; Driver & Guedes, 2012; Sharma, 2011). As a result, independent directors have been shown to have sufficient technical knowledge or incentives to identify the right opportunities in R&D investment and innovation activities (Balsmeier et al., 2017). Through their expertise and experience, independent directors also assist the firm with capital allocation and the right investment opportunity identification (Chen & Chen, 2012). By aligning the incentives of executives and shareholders, independent directors will make the firm benefit from the financial flexibility of share repurchases to disgorge excess cash while mitigating the harmful effect of EPS-accretive share repurchases stemming from managerial opportunism on real outcomes such as employment. Based on these insights, we argue that:

H2. *A greater share of independent directors attenuates the negative effect of manipulative share repurchases on firm employment.*

3. Data and variables

3.1. Data sources

To build our dataset of UK-listed firms, we gather information from six different sources: Boardex, Compustat Global, Datastream, Zephyr, Fame, and I/B/E/S. From the Compustat Global database we extract financial and accounting data on FTSE All-Share companies, using active as well as inactive and suspended listings to avoid survivors' bias. We complement this database with market data and dividend data from Datastream. We include share repurchasing data from Bureau van Dijk's Zephyr, a database of deal information, used in prior studies on share repurchases (Choi, Huh, & Park, 2009); share ownership data from Bureau van Dijk's Fame, a database of companies in the UK and Ireland; analysts' forecasts of earnings per share from I/B/E/S; and board directors' data, including compensation, from Boardex. We match each of these data sources and, in line with previous studies, exclude firms in the financial and utilities sectors. The final sample contains 236 unique firms for a total of 1,555 observations from 2000 to 2007.[4]

3.2. Variables

The key dependent variable for our analysis is the amount of open market share repurchases in the UK, in natural logarithms (L. Nguyen, Vu, & Yin, 2020). Repurchase announcements that are rumored, withdrawn or waiting for shareholders' approval are removed. Throughout our study (2000-2007), we observe 77 repurchases (4.86% of the sample), with most of them happening in 2004 (15), 2005 (23) and 2006 (19). Some companies went through an increase of independent directors and did share repurchases in the Higgs period, and others did not,

[4] When we combine different databases, we lose some observations, especially due to limitations of the Boardex data. For example, when reconciling the Boardex dataset to the FTSE250 index, we obtain 56 firms in 2000, 61 in 2001, 59 in 2002, 60 in 2003, 57 in 2004, 55 in 2005, 52 in 2006, and 51 in 2007, which is about a fifth of the index. However, we still believe that our sample is representative of the entire population of the UK firms that do share repurchases, as we capture firms of varying size and profitability.

which allows us to test the effect of independent directors on share repurchases with a robust empirical method.

The main explanatory variable for our analysis is the number of independent directors scaled by the total number of board directors (Farinha, 2003; Sharma, 2011). During our sample period, UK boards feature an average of around one-third of independent directors, where, by independent we mean outside *and* non-affiliated directors, which should thus be independent of the firm in their judgment and action and equally represent the interests of all the shareholders.

We then move to the description of a specific set of control variables that are taken from the payout literature (Sharma, 2011; Von Eije & Megginson, 2008). First, in order to capture differences in a firm's size and stage of development, we compute the logarithm of the book value of total assets, and the logarithm of firm age expressed in years (Denis & Osobov, 2008). Second, to control for differences in firm profitability, we compute the ratio of earnings before interest, tax, and depreciation to total assets (ROA) (DeAngelo, DeAngelo, & Stulz, 2006). Moreover, we control for a firm's investment opportunities and undervaluation by using the ratio of the market value of equity divided by the book value of assets (Fama & French, 2001; Von Eije & Megginson, 2008). We then account for the role of a firm's capital structure by computing a leverage ratio defined as the book value of debt divided by the book value of assets. In order to capture relative differences in CEO power across firms, we control for the ratio of CEO compensation, including options to control for the motivation to mitigate the dilution effect from option exercise, scaled by the average compensation of all board directors in a given firm and year (Petrou & Procopiou, 2016).[5] The inclusion of investment opportunities, leverage, and CEO compensation also helps to control for potential mechanisms through which

[5] Investors may prefer share repurchases to dividends because of tax advantages. In fact, while in most countries, dividends are taxed in their totality, share repurchases are taxed on the capital gain, permitting a higher net income to the investor. However, tax effects in our sample should be minor as there were no major UK tax changes to dividends and share repurchases in the time-period covered by our analysis.

independent directors could influence dividend policy (Cuny, Martin, & Puthenpurackal, 2009; Fenn & Liang, 2001; Sharma, 2011). Finally, depending on the specification, we control for industry dummies, to account for constant heterogeneity across sectors, firm fixed effects, to further remove all the sources of constant heterogeneity at the firm level, and year dummies to account for shocks common to our sample firms. We do not control for dividends as there is little evidence of substitution between dividends and repurchases in the UK (Driver et al., 2020). In the second part of the analysis, we will study the real effects of share repurchases by using as dependent variables the annual growth in the number of employees, and the number of employees scaled by total assets.

Descriptive statistics of the main variables are provided in Table 1, Panel A and B, while the complete definition of each variable is provided in Table A1 of the Appendices. To clarify whether share repurchases were impacted by an increase in independent directors, a decrease in insiders, or board size, we provide more evidence on the total number of independent directors, insiders and the total board size in Table 1 Panel A. Over the studied period, the average board size remained stable, while the average number of independent directors increased from 1.77 in 2000 to 2.20 in 2007. The average number of inside and affiliated directors has decreased from 5.88 in 2000 to 5.46 in 2007 (with a median of 6 in 2000 and 5 in 2007). In other words, the increase in the share of independent directors resulted from a substitution of insiders by independent directors.

Insert Table 1 here

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4. Empirical design and results

4.1. Effect of board independence on share repurchases: Difference-in-differences estimation

To alleviate problems of endogeneity in the representation of independent directors, we follow the approach proposed in Dahya et al. (2016) which uses the passage of the Higgs report in the UK to build a quasi-natural experiment.[6] The Higgs report was issued in January 2003 and contained several corporate governance recommendations for UK listed firms (Aguilera, 2005). The report explicitly advocated in favor of having the majority of the board formed by independent non-executive directors. As Dahya et al. (2016) discuss, this recommendation triggered a shock to the corporate governance equilibrium of firms, which were exogenously encouraged to increase the number of independent members in their boards of directors. The remainder of the Higgs Report was dedicated to further issues on the role and effectiveness of independent directors, including recommendations on how to improve their independence, how to appoint a senior independent director, and how to establish procedures for hiring, training, and remunerating of independent directors. The report contained other board-related recommendations, such as the separation of Chairman and CEO roles.

Although the recommendations in the report were not compulsory, many firms followed them strictly by increasing the quota of independent directors (Dahya et al., 2016). Whether an event is mandatory or voluntary, what matters for the identification is that it was exogenous to firm conditions. In the aftermath of the passage of the Higgs report, companies experienced a marked increase in the fraction of independent directors, which gives support for our identification strategy. The fiscal years of the UK publicly listed firms are mostly aligned with the passage of the Higgs report in January 2003, as about three-quarters of the UK listed firms have their financial year ends in December (over 60%), June or September[7], meaning that if the

[6] A more radical change in the corporate governance of UK listed firms is provided by the issuance of the Cadbury report in 1992. Unfortunately, our data do not date back that far, and thus we are bound to only use the Higgs report for our identification strategy.

[7] We are grateful for this insight from Julia Varesko, Vice President, JP Morgan Equity Research.

increase of independent directors' ratio has taken place in 2003, it would be likely related to the Higgs effect and reflected in the annual report of that year.

We provide results from an estimation strategy that takes advantage of the passage of the Higgs report as a quasi-natural experiment. To this end, we construct a variable $Treatment_i$ measuring for each firm the exposure to the Higgs report, i.e. the change in the representation of independent directors from its average ratio computed in the pre-Higgs period (up until the year 2003). A greater (positive) value means that, relative to its historical average, the firm has increased to a larger extent the share of independent directors after the implementation of the Higgs report. We then interact this variable with the post-Higgs dummy variable $Post_t$, as previously defined. The resulting model can be seen as a difference-in-differences specification in which the post-Higgs dummy $Post_t$ gives the longitudinal variation around the reform, and the change in board independence $Treatment_i$ provides a continuous treatment. $Treatment_i$ does not change over time, but the $Post_t \times Treatment_i$ should change with time. The model, reported in equation (1), is estimated using clustered standard errors by firm.

$$\ln share\,repurchases_{it} = \alpha + \beta_1 Post_t \times Treatment_i + \beta_2 Post_t + \\ + \beta_3 Treatment_i + + \beta_4 X_{it} + \delta_i + \theta_t + \epsilon_{it} \quad (1)$$

Panel A of Table 2 presents the results obtained using, alternatively, the logarithm of share repurchases or the repurchase dummy as the dependent variable. Our findings indicate that the post-Higgs dummy is positive and statistically significant. In other words, the later years in our sample were associated with an increase in repurchases common to all firms. However, the interaction between the post-Higgs dummy and the treatment variable indicates that firms exposed to a greater increase in the share of independent directors also exhibited a greater increase in both the amount and the likelihood of share repurchases.[8] In Panel B, we

[8] In untabulated tests we verify again that our finding holds controlling for CEO duality.

augment the specification of Panel A with the host of firm-level controls. Confirming our previous insights, the interaction between the post-Higgs dummy and the treatment variable is positive and statistically significant at conventional levels. These results provide evidence for hypothesis H1b.

Our results are robust to excluding the year 2000 from the analysis as well as to including cash (in logarithm) as an additional control variable.

Insert Table 2 here

While no identification strategy is without flaws, we conduct several robustness tests to remediate possible issues. The key assumption for the validity of our differences-in-differences estimates is that firms with different levels of independent directors before the passage of the Higgs report did not display diverging trends in share repurchases before the recommendations of the report went into effect. To verify that this condition holds, we construct a dummy that simulates a placebo passage of the Higgs report in 2002 (and thus taking the value of one from 2002 onward, and zero before 2002). We then interact this dummy with our treatment variable introduced above and include in the regression the controls of the previous analyses. As shown in Table 3 Panel A, the interaction between the placebo passage of the Higgs report and the treatment dummy does not have any significant effect on share repurchases. This evidence is useful to validate the causal interpretation of our findings: share repurchases increase *after* the implementation of the Higgs report (and the related increase in board independence).

Higgs published a consultation document on June 7th, 2002, which outlined proposals regarding board composition. This document creates the possibility that firms with fiscal year-end between June 2002 and 31 December 2002 may have taken the opportunity to adopt the

(expected) proposals early and, as a result, the post-Higgs dummy variable used in the DID model may not yield a clean break in board composition. We partly addressed this anticipation concern above, where we show that no change in share repurchase occurs prior to or in 2003. To further address this issue, we calibrate the post-Higgs dummy with different beginning years for the post-Higgs period, from 2002 to 2006. As illustrated in Table 3 Panel B, results indicate that the coefficient of the interaction between the post-Higgs dummy and the treatment variable is statistically insignificant if the beginning of the treatment is moved to the year 2002 or 2003 (i.e., including the effect of the consultation report). Conversely, the interaction is significant and positive in 2004 and 2005 (at $p<0.05$ and $p<0.01$ levels), and then becomes insignificant in 2006. Collectively, these findings lend additional support for our initial identification strategy.

A final concern is about confounding policies passed in the same timeframe as the Higgs report. Specifically, the Higgs report overlaps with a change in UK Company Law that allowed firms to treat share repurchases as treasury stock: prior to 1 December 2003 firms had to cancel all repurchased shares, which limited management's ability to use repurchases to offset the dilutive impact of option plans. The change in regulation was motivated by a desire to increase repurchase flexibility. It is plausible that this structural change may have impacted on the role of repurchases and the link with board composition. However, this is a common shock to all firms in our sample, which we control for in the following ways. First, our specification contains year effects – aimed at capturing time events common to all firms. Second, our specification captures the effect that the Higgs passage triggered on the share of independent directors, which varies across firms for a given year. Because the increase in flexibility from the treasury stock reform affected all firms with no exemptions, our result is unlikely to suffer from bias coming from such simultaneous policy passage. There is a possibility that board independence could have an interactive effect with the propensity to use the treasury option (via an increase in the degree that independent boards exploit the new financial management flexibility to deliver

shareholder value), in which case both effects lead to an increase in share repurchases via an increase in board independence, and since both laws are taking place at the same period, it is rather irrelevant of how this exogenous event is labeled. The primary purpose of our paper is to use an exogenous shock to treat the endogeneity of board independence, and not to study what effect Higgs Report (or other regulation) had on repurchases *per se*.

Insert Table 3 here

4.2. Independent directors and the real effect of share repurchases

Our results so far have shown that an exogenous influx of independent directors in UK corporate boards increased the propensity of firms to engage in share repurchases. This section is devoted to understanding the real effects of such changes in payout policy. On the one hand, if independent directors are ineffective at avoiding problems of short-termism or at removing distortions in the allocation of resources within the company, then firms with more independent directors may engage in share buybacks at the expense of long-term growth. The short-termism of independent directors may be induced by an increased reliance on equity-based compensation where they are incentivized not to challenge or even push for decisions such as share repurchases which improve their own personal wealth due to their pay being linked to the current share price (Brochet, Loumioti, & Serafeim, 2015; Dhanani & Roberts, 2009). The issue of short-termism induced by equity-based pay may be further exacerbated by the lack of understanding independent directors may have of complex internal issues that executives alone possess (Deakin, 2018; Driver et al., 2020). This may lead executive directors to exploit the allocations of capital to share repurchases to fit their own benefits at the expense of real outcomes. On the other hand, if independent directors can influence payout policies to benefit

from its flexibility and timing advantages, then firms with greater board independence will display a lower tendency to trade off real growth with share repurchases.

We conduct this analysis, following Almeida et al. (2016), by using (1) the annual growth in a firm's employees, and (2) the number of employees scaled by assets as dependent variables in our 2SLS specification. The key explanatory variables are the share of independent directors, the likelihood of accretive share repurchases, and the interaction between these two terms.

$$\begin{aligned} &Employee\ growth_{it} \\ &= \alpha + \beta_1 accretive\ \widehat{repurchases}_{it} \\ &+ \beta_2 share\ independent\ directors_{it} \times accretive\ \widehat{repurchases}_{it} \\ &+ \beta_3 Share\ independent\ directors_{it} + \beta_4 X_{it} + \delta_i + \theta_t + \epsilon_{it} \end{aligned} \quad (2)$$

To better evaluate the impact of independent directors on share repurchases, we separate the effects on accretive firms (i.e., those firms that do share repurchases for earnings management purposes which we consider manipulative)[9] and non-accretive firms. While we do not have private information on the motives of share repurchases, using the I/B/E/S databank, we can record the extent to which a firm's results consistently differed from the forecasts made by equity analysts, and this approach has been used in prior finance and accounting literature such as (Almeida et al., 2016; Farrell, Yu, & Zhang, 2013). In line with Almeida et al. (2016), we

[9] There is also evidence that managers manipulate reported earnings using discretionary accruals (Bergstresser & Philippon, 2006; Farrell, Unlu, & Yu, 2014), i.e. components of earnings that are not reflected in current cash flows. One method of manipulating earnings is to take operating expenses that are not reasonably expected to generate future cash flows and to capitalize them as capital expenditures. Deciding on the value of credit sales involves managerial discretion as to making assumptions about the speed with which customers pay and the proportion of customer default rate. Existing studies find that both superior stock performance and improvement in operating performance following share repurchases are driven by pre-repurchase downward earnings management through accruals rather than genuine growth in profitability (Gong et al., 2008). Further, AGM resolutions granting management power to repurchase shares often stipulate that the impact can be EPS accretive. Hence, accretiveness may be a necessary condition to establish manipulative intent but it may not be sufficient. Therefore, accretiveness is a proxy for manipulative intent of share repurchases, rather than a unique condition.

propose that persistent underestimation of future EPS by analysts increases a firm's incentives to engage in earnings management through share repurchases.[10]

Following the existing literature (Driver et al., 2020; Farrell et al., 2013), we classify firms as accretive when the year ahead actual EPS exceeds the average EPS forecast for that year reported in the I/B/E/S database (and non-accretive otherwise). The surprise in analysts' estimates measured by this proxy is indicative of a firm's likelihood of engaging in share repurchasing behavior that is reflected in higher EPS than forecasted by analysts (cf. Table A1 for further definition).

We conduct univariate *t*-tests comparing accretive share repurchase firms and non-accretive firms (Table A2 of the Appendices). Accretive firms are, on average, more likely to conduct share repurchases, they repurchase higher amounts and have higher director equity-linked compensation. They are also larger, more profitable, have lower leverage and higher market-to-book ratio. These results provide some indirect evidence suggesting that accretive firms are more likely to engage in share repurchases for earnings management purposes.

As shown in Table 4, accretive share repurchases have a direct negative effect on both employee growth and employees to assets ratio. In other words, this form of share repurchases is negatively associated with employment, as evidenced by Almeida et al. (2016). However, confirming hypothesis 2, the analysis shows that the share of independent directors attenuates the negative effect of accretive repurchases on employment, as the interaction term between the two variables is positive and statistically significant. Taken together, these results rule out the view that board independence increases share repurchases at the expense of a firm's employment. Rather, it appears that independent directors are effective at mitigating the negative real effects of accretive repurchases on firm employment.[11]

[10] The current value of cumulative EPS surprise becomes public information in the current year.
[11] We have also analysed the effects of share repurchases on sales growth. Results go in the expected direction (i.e. independent directors attenuate the negative effect of repurchases on sales growth) but are not precisely estimated.

Insert Table 4 here

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5. Conclusion

In this paper, we used a panel of UK listed firms to investigate the novel question of how board independence affects share repurchases. To alleviate endogeneity issues, we have employed a quasi-natural experiment taking advantage of exogenous corporate governance reform in the UK in 2003. As we argued, the relationship between board independence and share repurchases is theoretically ambiguous. Some works suggest that the relationship should be negative, due to the ability of independent directors to restrain opportunistically motivated share repurchases by executives. Other works advocate more in favor of a positive effect, according to which independent directors will take advantage of the greater flexibility of share repurchases to reduce the agency cost of free cash flow and return profits.

Our findings indicated that an increase in the ratio of independent directors is *positively* associated with both the amount and the likelihood of share repurchases. Going beyond this average effect, we explored the implications of the nexus between independent directors and share repurchases for the ability of firms to grow. Our analysis indicated that while accretive share repurchases (i.e., those done for earnings management purposes) harm firm employment, this effect is attenuated by having a greater share of independent members on the board of directors. These findings suggest that independent directors were efficient at monitoring and advising against share repurchases that would destroy long-term shareholder value.

Several policymakers and practitioners have recently advocated in favor of share repurchases. Our results suggest that careful consideration should be made as to which reasons push companies to buy back their shares. Greater involvement of independent directors in capital allocation processes and payout decisions would help firms and shareholders to engage in payout policies while preserving long-term employment prospects.

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Tables

Table 1.
Descriptive statistics

Panel A: Board Characteristics

	Year = 2000		Year = 2001		Year = 2002		Year = 2003		Year = 2004		Year = 2005		Year = 2006		Year = 2007	
Variable	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Number Independent directors	1.77	2.00	1.93	2.00	1.92	2.00	1.92	2.00	1.96	2.00	2.06	2.00	2.13	2.00	2.20	2.00
Share independent directors	22.7%	22.2%	24.8%	25.0%	24.9%	25.0%	24.7%	25.0%	25.3%	25.0%	26.2%	25.0%	27.5%	28.6%	28.5%	28.6%
Number non-independent directors	5.88	6.00	5.82	5.00	5.61	5.00	5.72	6.00	5.68	5.00	5.64	5.50	5.51	5.00	5.46	5.00
Total Board	7.65	7.00	7.75	8.00	7.53	7.00	7.64	7.00	7.64	7.00	7.70	8.00	7.65	7.00	7.67	7.00
CEO Duality	0.22	0.00	0.17	0.00	0.14	0.00	0.16	0.00	0.14	0.00	0.15	0.00	0.11	0.00	0.11	0.00

Table 1.
Descriptive Statistics

Panel B: Main Variables

Variable	Obs.	Mean	s.d.	Median
Ln repurchases	1,555	-6.487	1.931	-6.908
Repurchase dummy	1,555	0.047	0.212	0.000
Repurchases (in million GBP)	1,555	1.401	13.719	0.000
Ln dividends	1,505	-0.062	3.586	1.411
Ln total assets	1,555	250.994	186.797	185.527
Ln firm age	1,555	2.683	0.857	2.773
ROA	1,555	0.066	0.203	0.085
Market to book	1,555	4.519	32.015	0.969
Leverage	1,555	0.174	0.197	0.142
Share independent directors	1,555	0.255	0.123	0.250
CEO compensation ratio	1,555	1.951	0.840	1.875
Cum. EPS surprise	1,555	-0.077	4.891	0.000

The table presents the summary statistics for the main variables employed in the empirical analysis. Ln repurchases is the logarithm of the amount of share repurchases. The repurchase dummy is an indicator variable equal to one if the firm undertakes share repurchases and zero otherwise. Ln dividends is the logarithm of the amount of dividend payments. Ln total assets is the logarithm of the book value of total assets. Ln firm age is the logarithm of a firm's age expressed in years. ROA is the ratio between a firm's earnings before interest, taxes, depreciation, and amortization scaled by total assets. Market to book is a ratio between the market value of equity and book value of assets. CEO compensation ratio is the Total compensation of the CEO relative to the average total compensation of all board directors. Cum. EPS surprise is a cumulative difference between the actual earnings per share for the current year and the one-step, two-step and three-step ahead forecasts previously made for current earnings per share. A complete definition of variables is provided in Table A1.

Table 2.

Difference-in-differences Estimates

Panel A. Dependent variable:	Ln share repurchases	Repurchase dummy
	(1)	(2)
Post × Treatment	1.933**	0.216**
	(0.936)	(0.097)
Post	0.392***	0.045***
	(0.096)	(0.011)
Treatment	0.203	0.004
	(0.457)	(0.049)
Firm fixed effects	No	No
Year fixed effects	No	No
Observations	1,555	1,555

Panel B. Dependent variable:	Ln share repurchases	Repurchase dummy
	(1)	(2)
Post × Treatment	1.394*	0.174**
	(0.775)	(0.086)
Post	0.374***	0.043***
	(0.115)	(0.013)
Ln total assets	-0.001*	-0.000*
	(0.001)	(0.000)
Ln firm age	0.133	0.016
	(0.191)	(0.022)
ROA	0.473	0.048
	(0.298)	(0.034)
Market to book	0.004	0.000
	(0.003)	(0.000)
Leverage	0.34	0.018
	(0.359)	(0.033)
CEO compensation ratio	0.060	0.005
	(0.058)	(0.007)
Firm fixed effects	Yes	Yes
Year fixed effects	Yes	Yes
Observations	1,555	1,555

This table provides results from a set of difference-in-differences regressions in which the dependent variable is the share of independent directors (in column 1) or the repurchase dummy (in column 2). The key explanatory variables are: (1) a dummy equal to one for the post-Higgs years of 2004 onward, and zero for the years from 2000 to 2003, (2) a continuous variable indicating the difference between the share of independent directors in the years of the post-Higgs period and a firm's historical average of board independence computed from 2000 to 2003, and (3) the interaction between these two variables. Panel A shows the results obtained only using these explanatory variables, whereas Panel B further includes the set of firm-level controls described in Table 1, firm fixed effects and year dummies. Firm-clustered standard errors are presented in parenthesis. Treatment variable is omitted from Panel B because it is time-invariant and fixed effects difference it out. * p<0.10, ** p<0.05, *** p<0.01.

Table 3.
Robustness Tests

Panel A: Testing the Parallel Trend Assumption

Dependent variable:	Ln share repurchases	Repurchase dummy
	(1)	(2)
Placebo×Treatment	0.502	0.078
	(0.952)	(0.100)
Ln total assets	-0.001	0.000
	(0.000)	(0.000)
Ln firm age	0.485**	0.056**
	(0.204)	(0.023)
ROA	0.477	0.048
	(0.305)	(0.035)
Market to book	0.005	0.001
	(0.003)	0.000
Leverage	0.305	0.014
	(0.356)	(0.032)
CEO compensation ratio	0.062	0.006
	(0.059)	(0.007)
Firm fixed effects	Yes	Yes
Year fixed effects	Yes	Yes
Observations	1,555	1,555

This table provides results from a set of difference-in-differences regressions in which the dependent variable is the share of independent directors (in column 1) or the repurchase dummy (in column 2). The key explanatory variable is the interaction between a dummy equal to one for the placebo post-Higgs period set from 2002 onward, and zero for the years 2000 and 2001, and a continuous variable indicating the difference between the share of independent directors in the years of the post-Higgs period and a firm's historical average of board independence computed from 2000 to 2003. Each regression further includes the set of firm-level controls described in Table 1, firm fixed effects and year dummies. Firm-clustered standard errors are presented in parenthesis. * p<0.10, ** p<0.05, *** p<0.01.

Panel B: Sensitivities to the Start Year of Post-Treatment Period (Difference-in-difference Estimates)

DV=Ln repurchases	**Coef. of Post*Treatment**	**Std. Errors (robust)**	***t*-value**	**2-tailed *p*-value**	**95% confidence interval**	
Year=2002	0.020	0.125	0.16	0.871	-0.225	0.266
Year=2003	0.106	0.171	0.62	0.535	-0.231	0.443
Year=2004	0.358	0.174	2.05	0.041	0.014	0.701
Year=2005	0.697	0.210	3.32	0.001	0.283	1.110
Year=2006	0.278	0.173	1.61	0.109	-0.062	0.619

This table provides the sensitivities of the coefficient of Post*Treatment variable (as per Table 4) to Ln repurchases, robust standard errors, t-values, p-values, and the confidence intervals, depending on the beginning year for the post-treatment period.

Table 4.

Real Effects of Board Independence and Accretive Repurchases

Dependent variable:	Employee growth	Employee to assets
	(1)	(2)
Accretive repurchase	-0.447*	-0.018**
	(0.263)	(0.007)
Share independent directors × Accretive repurchases	1.720*	0.066**
	(1.005)	(0.027)
Share independent directors	-0.595	-0.077***
	(1.343)	(0.024)
Ln total assets	0.001***	-0.000***
	(0.000)	(0.000)
Ln firm age	-0.131*	0.002*
	(0.077)	(0.001)
ROA	0.089	-0.002
	(0.060)	(0.001)
Market to book	0.002	0.000*
	(0.001)	(0.000)
Leverage	-0.014	0.003**
	(0.059)	(0.002)
CEO compensation ratio	0.001	0.000
	(0.016)	(0.000)
Fixed effects	Yes	Yes
Observations	958	1,355

This table provides results of the second stage from a 2SLS regression. The dependent variable is the annual growth in employee numbers from the previous period (in column 1) or the ratio of employees to total assets (in column 2). The key explanatory variable in the first stage regression (not reported) is a dummy equal to one for the post-Higgs years of 2004 onward, and zero for the years from 2000 to 2003. The key explanatory variable in the second stage is the instrumented share of independent directors from the first stage. It is interacted with another explanatory variable, accretive repurchase, a binary variable (1/0) taking 1 if a firm is doing share repurchases and if it engages in earnings management through EPS manipulation, and 0 otherwise. A set of firm-level controls described in Table 1 and firm fixed effects are included. Firm-clustered standard errors are presented in parenthesis. * p<0.10, ** p<0.05, *** p<0.01.

Appendices

Table A1.

Variables' Description

Variables	Source	Description
Ln repurchases	Zephyr	Share repurchases, in nominal values and in millions of GBP, in natural logarithms, and transformed (we add 0.001 to the share repurchase values expressed in GBP millions before logging them)
Repurchase dummy	Zephyr	A binary variable (1/0) taking 1 if a firm is doing share repurchases in a given year, and 0 otherwise
Cash dividends	Datastream	Amounts paid by cash dividend payers, in nominal values and in millions of GBP, in natural logarithms, and transformed (we add 0.001 to these values before logging them).
Dividends to repurchases	Datastream and Zephyr	Ratio of total cash dividends to share repurchases, both in nominal values and in millions of GBP
Employee growth	Compustat	Annual employee growth
Employee/ assets	Compustat	Number of employees divided by total assets
Share of independent directors	Boardex	Percentage of independent directors, calculated as the number of independent directors divided by the total number of directors on a firm's board
CEO compensation ratio	Boardex	Total compensation of CEO relative to average total compensation of all board directors for a given firm
Post	n.a.	A binary variable (1/0) equal to one for the years from 2004 to 2007 (with the Higgs corporate governance reform in place) and zero for the pre-reform years of 2000-2003
Treatment	n.a.	A variable measuring for each firm the exposure to the Higgs report, i.e. the change in the representation of independent directors from its average ratio computed in the pre-Higgs period
Placebo	n.a.	A binary variable (1/0) taking the value of one from 2002 onward, and zero before 2002
Ln firm age	Compustat Global	The logarithm of the age of the firm expressed in years
ROA	Compustat Global	The earnings ratio of a company defined as the earnings before interest, taxes, depreciation, and amortization divided by total assets
CEO duality	Boardex	A binary variable (1/0) taking 1 if a CEO also assumes the role of Chairman, and 0 otherwise
Leverage	Compustat Global	[(total long-term debt) + (total debt in current liabilities)] / (total assets)
Cum. EPS surprise	I/B/E/S	The cumulative difference between the actual earnings per share for the current year *t* and the one-year ahead estimate for the current year *(FY1*), two-year (*FY2*) and three-year ahead (*FY3*) forecasts previously made for current earnings per share for a firm *i*: $\sum_i^t[(EPS(FY1)_t - EPSActual_t) + (EPS(FY2)_t - EPSActual_t) + (EPS(FY3)_t - EPSActual_t)]$
FY1 EPS surprise	I/B/E/S	The excess one year ahead EPS over that forecast a year earlier, not lagged
Accretive repurchases	Zephyr, I/B/E/S	A binary variable (1/0) taking 1 if a firm is doing share repurchases and if it engages in earnings management through

Variables	Source	Description
		EPS manipulation (positive *FY1 EPS surprise* as described above), and 0 otherwise

Table A2.

t-Tests Comparison of Accretive Share Repurchase Firms and Non-accretive Share Repurchase Firms

	Accretive share repurchase firms	Matching non-accretive share repurchase firms	Difference	t-value
	(1)	(2)	(3)	(4)
Repurchase dummy	0.05	0.03	0.02	-1.97***
	(0.05)	(0.03)	(0.02)	(-2.13**)
Ln repurchase	-6.41	-6.61	0.21	-1.89*
	(-6.41)	(-6.65)	(0.24)	(-2.34*)
Ln total assets	247.7	241.6	6.07	-0.56
	(244.0)	(265.9)	(-21.86)	(2.15**)
Ln firm age	2.64	2.65	-0.01	0.19
	(2.64)	(2.77)	(-0.13)	(0.22**)
ROA	0.09	0.06	0.03	-3.86***
	(0.07)	(0.06)	(0.01)	(-0.54)
Market to book	1.48	1.27	0.21	-2.28**
	(6.07)	(1.21)	(4.86)	(-2.79**)
Leverage	0.16	0.18	-0.03	3.06**
	(0.17)	(0.19)	(0.03)	(2.42*)
CEO compensation ratio	1.94	1.97	0.03	0.66
	(1.95)	(1.94)	(0.01)	(-0.25)
CEO duality	0.14	0.14	0.00	0.23
	(0.16)	(0.12)	(0.04)	(-2.14*)

This table reports the mean values, differences and t-test values of the differences between values of variables for accretive share repurchase firms with earnings management motives and the matching non-accretive share repurchase firms. The firms are included in the 'accretive' group if the year ahead actual EPS exceeds the average EPS forecast for that year reported in the I/B/E/S database (the values in parentheses are calculated based on the split of sample between accretive and non-accretive firms according to the cumulative difference between the actual earnings per share for the current year and the one-step, two-step and three-step ahead forecasts previously made for current earnings per share: if the difference is over 1, firms are included in the accretive group, and non-accretive otherwise).

*p<0.10, ** p<0.05, *** p<0.01