



Article

The Determinants of Implementing and Completing Share Repurchases

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Abstract: Open-market repurchase is a popular corporate payout method that public limited company (PLCs) use, and once they have made this decision an announcement is made. However, the announcement does not necessarily mean that the firm will implement the payout, or if it is initiated that they will buy back the entire announced volume of shares. Thus, using a sample of firms listed on the London Stock Exchange that announced an open-market repurchase between 1993 and 2014, we test the determinants of repurchase implementation using probit regressions, and if their influence also extends to the payout's completion using Tobit regressions. The results are not identical in nature, but largely indicate a consistency between the influence patterns. Positive influences are exhibited by firm leverage, the balance sheet's asset base, independent directors and the repurchase's tax efficiency over dividends. Additionally, the volume of shares announced for repurchasing has a positive influence on the payout's implementation, but not its completion, while market capitalisation has a positive influence on the payout's completion, but not its implementation. The findings are most useful for financial practitioners to optimise their portfolio following a repurchase announcement.

Keywords: repurchases; implementation; completion

JEL Classification: G34; G35



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1. Introduction

The United Kingdom (UK) has primarily preferred dividends over repurchases; however, in the past three decades repurchases have steadily grown to become a vital component of corporate payout policy (Armitage and Gallagher 2020). In 1992, 4% of British firms undertook repurchases, and this number steadily increased to 15% in 2004 (Renneboog and Trojanowski 2011). Further, in 2004 the European Union (EU) Market Abuse Directive removed the regulatory requirement of cancelling shares that were repurchased, hence permitting their storage in the treasury. The effect of this relaxation was visible in future studies that documented a positive relationship between the level of outstanding employee stock options and repurchase undertaking (Burns et al. 2015; Cesari and Ozkan 2015). Thus, the deregulation gave firms the liberty of repurchasing shares for employee stock option financing, and relieved firms from either diluting the firm or substituting stock options as a channel for executive compensation with cash payments, straining solvency. Consistent with the presupposition of the deregulations' positive impact, between the years 2004 and 2008 the level of annual repurchases kept increasing. Despite a drop during the great recession of 2008, the pre-crisis level reappeared from 2012 onwards (Cornish 2018). The annual repurchase value peaked in 2006 at GBP 33bn, which was seen again in 2018, and in 2022 a record GBP 55bn was reached (Msika 2022), but dividends continue to dominate as their value is estimated to be GBP 83bn in 2023. This increase in repurchases is consistent with the increasing cash hoarding over the same period. The corporate reserves increased by 50% between 1994 and 2013 (Ferreira da Cruz et al. 2019), with the value in recent times increasing from GBP 20bn in March 2020 to GBP 109bn by June 2021 (Willems 2021).

Another strong proponent of the rising popularity of repurchases is the evolving fiscal framework, which ensures repurchases are tax-friendlier than dividends. Successive governments have continually increased the taxation on dividends while simultaneously reducing that on capital gains¹, which is the effective tax on the gains made by shareholders from having their shares repurchased. The UK fully legalised repurchases in 1981 (Rau and Vermaelen 2002), and at the time the tax rate on dividends was 15% while that on capital gains was 30%, thus making dividends twice more tax-efficient than repurchases. Due to consistent two-way changes, in 2008 repurchases became more tax-efficient than dividends for the first time. The effective tax rate on dividends was 30.60% and that on capital gains was 18%, thus making repurchases 70% more tax-efficient than dividends. This tax efficiency kept on increasing, and for the tax year 2021/22 the higher tax rate on dividends was 39.35%, while that on capital gains was 20%. Hence, in the current tax climate a repurchase is nearly twice more tax-efficient than dividends are, which is the inverse of the tax scenario witnessed in 1981, potentially deviating the UK's primary preference towards repurchases.

Thus, given the large increases in repurchases, which could continue due to repurchases being a popular tool to dislodge surplus cash in the UK (Dhanani 2016), we must address the influences that compel a firm to implement and complete an announced repurchase. The reason for a two-pronged investigation is the regulations mandating shareholder approval for undertaking an open-market repurchase (Dhanani and Roberts 2009), and the lack of restrictions imposed on firms to conceptualise or complete a payout. It is possible that they make the announcement, the market reacts negatively, and they do not carry out any transaction, or obtain shareholder approval for a higher volume² of implementation flexibility contingent upon market reception. Thus, if the market reacts negatively after a certain number of transactions, then the payout will be suspended, and if its reaction is abnormally positive then the firm may repurchase more than they intended. It is also possible that the goal is to signal a stock undervaluation and not buyback any shares, or even pseudo-signal an undervaluation for an unfair stock price rise.

The key distinction of our paper is that we combine both aspects, repurchase implementation and completion, for an extended period of 1993–2014. The primary reason for this is to check the consistency between the influence of the determinants, as the reason for undertaking repurchases are diverse and can range from signalling stock undervaluation to artificially window-dressing operating financials. It is also presumable that during the period following the announcement of a firm's intentions and the market's reaction can alter the course of action.

Only open-market repurchases are considered, as they represent the majority of all repurchases undertaken in the UK (Rau and Vermaelen 2002; Oswald and Young 2004). The empirical investigations reveal a strong consistency between the determinants' influence on the implementation of a repurchase, and on its completion. The novelty of our study is the inclusion of the testing of taxation and board independence, and controlling for firm type, non-financial and the AIM (alternative investment market) listed, for a UK-specific study with a timeline spanning over 22 years. The key findings of the investigations reveal that repurchase implementation and completion are positively influenced by the tax efficiency of repurchases over dividends (immediate-term³) and the firm's debt exposure (longer-term⁴). The volume of share intended for repurchasing positively influences a payout's implementation, but not its completion; contrastingly, market capitalisation positively influences completion, but not implementation. Furthermore, firms listed on the AIM show tendencies of delaying payout implementation.

2. Literature Review

Repurchases and dividends are corporate payouts with different functions of returning cash to shareholders, as the former relinquishes shareholders of their investment while the latter is an income supplement. Since income-based contributions require consistency, repurchases are free from such ratchets and thus provide greater flexibil-

ity than do dividends due to the absence of precommitments (Fenn and Liang 2001; Brav et al. 2005). However, within the corporate structure their preferences are not binary. Shareholders with block ownership deter the management from undertaking any of these payouts (Renneboog and Trojanowski 2011), while Chief Executives demonstrate aversion from dividends only (Chintrakarn et al. 2018), despite dividends showing the ability to curtail agency conflicts (Tekin and Polat 2021). Contrastingly, dividends are highly preferred as fixed-income streams by institutional investors such as pension funds (Kilincarslan and Ozdemir 2018). On the other hand, a young PLC prefers repurchases to dividends to inaugurate its payout policy (Jain et al. 2009). Thus, the two payouts are diverse, yet unique in the UK due to being complementary rather than substitutes (Ferris et al. 2006; Burns et al. 2015).

Most repurchase studies are United States (US)-centric due to the country leading the world in repurchases; however, the UK remains the second largest behind it (Sonika et al. 2014). Interestingly, the repurchase completion rates of the countries has become similar over time (Manconi et al. 2019). However, this difference in the value of repurchases is consistent with their respective market reactions to repurchase announcements, as the US historically received a positive reception (Peyer and Vermaelen 2005; Chang et al. 2009), even when the announcing firm is undergoing financial distress (Chen and Wang 2012). In the UK, however, the market reaction saw a relative lag until 2000 (Rees 1996; Oswald and Young 2004), but there is evidence of this lag having disappeared since then (Lee et al. 2010; Crawford and Wang 2012; Andriosopoulos and Lasfer 2015). Within the current literature, there are only few studies that separately investigate repurchase implementation and completion for the UK. The most recent studies find that the implementation is more likely due to factors such as a firm's positive earnings and larger asset base (Sonika et al. 2014), while the completion of repurchases is more likely due to factors such as market capitalisation and increased leverage (Andriosopoulos et al. 2013). There was a recent study that focused on the completion period only (Kulchania and Sonika 2023), and that found that adjusting the earnings ratio and debt exposure is influential.

Upon looking at countries with similar repurchase-specific regulatory frameworks, we find similarities in terms of the significance of repurchase completion. In Japan, the past track record of repurchase completion is a key factor in the success of subsequent repurchases (Ota et al. 2019), which complements firms prioritising long-term investing in corporate growth over diverting cash to fund repurchases (Apergis et al. 2021). Similarly, in Australia we see that if firms drag a payout's completion to spread their announcement's commitment over lengthy periods, the market penalises its stock price (Gould 2019). The further significance of repurchase implementation and completion is visible through the exploration of an information asymmetry bias, which increases in the firm's favour under conditions of macroeconomic uncertainty (Nagar et al. 2019). Repurchases theoretically help reduce this bias (Ikenberry et al. 1995), while shareholders do not expect a payout during macroeconomic distress (Iyer and Rao 2017; Pirgaip and Dincergok 2019). Evidence from cross-country testing across Europe (Austria, France, Germany, Greece, Italy, Netherlands, Spain, Sweden, and the UK) indicates that repurchasing under conditions of such uncertainty maximises shareholder wealth (Anolick et al. 2021). Hence, if an announcement is made during uncertain times, it could have an abnormally strong positive reaction, even if the firm does not intend to implement or fully complete the payout. Thus, if a firm announces pseudo-repurchases, it could cause an adverse impact in the long-term, especially since there is evidence that CEO overconfidence during a repurchase payout is observed by the market, which then responds by penalising the stock price (Banerjee et al. 2018).

3. Data, Hypotheses and Methodology

3.1. Data

The data for the open-market repurchases were purchased via Alacra Inc., the official data vendor of Thomson Reuters. The data are for firms listed on the London Stock Exchange, and only the initial repurchase announcements are collated due to their information

richness over that of future transaction announcements (Andriosopoulos and Lasfer 2015). The timeframe starts from 1985 and extends to 2014, and during this period 419 repurchase announcements in total were witnessed that have a total cumulative nominal value of GBP 352bn. The average announcement represents a repurchase of 11% of the outstanding stock market volume and holds a nominal market value of GBP 840mn.

Further, we apply two constraints on this dataset. The first constraint is that the announcing firm should be an active PLC, as the stock data of de-listed firms in the UK are inaccessible, which are essential for the construction of the independent variables. Moreover, if a firm is a non-existent PLC, then there are three main reasons for it being so, and in each of these scenarios (a) repurchase(s) may be announced for extreme reasons. This taints the true nature of the repurchase being a corporate payout instead of being a corporate tool for realising ulterior motives and causes abnormal influences on the firm's operating financials. The first reason is the decision of reverting back to a private status, whereby firms begin undertaking large volumes of repurchases to test the market's appetite, and if this is positive, they would effectively commence the delisting process. The second reason is that the firm has been merged or acquired, either consensually or through hostility. If this is consensual, then a repurchase could have been devised by the target firm to extend stock price support (Li and Swanson 2016), which would strengthen their bargaining position. In the event of hostility, then repurchases may have been unwillingly undertaken to push away the acquirer (Lee et al. 2010). Finally, the third reason is that the firm has become insolvent, leading to bankruptcy. As this only happens after prolonged efforts of a firm to regain financial strength, a repurchase can be undertaken to regain investor confidence via pseudo-signalling, which would extend stock price support.

Thus, the restriction reduces the sample to 126 announcements. Then, the second constraint is applied; the firm must be listed as a PLC for at least five years prior to the repurchase announcement, the reason being that firms which undertake repurchases within three years of being publicly listed witness abnormally low operating and stock performances (Chang et al. 2009), and this can have a residual impact on the following two years. This is also supported by the rationale that if a firm repurchases in the immediate years after the initial public offering (IPO), then they are effectively signalling that the stock's issuance is no longer considered sacrosanct. This constraint reduces the sample to 82 announcements. Thus, the final sample consists of firms that were active PLCs at the time of empirical testing and that undertook repurchases after having a stable presence in the stock market. The total nominal value of the final sample is GBP 87bn, with the average announcement representing a repurchase of 10% of the outstanding stock volume and a value of GBP 1.06bn.

Furthermore, the regulatory-mandated shareholder approval for a repurchase expires in 18 months (Dhanani and Roberts 2009). Thus, if the firm does not fulfil the payout within this period a reauthorisation is mandated. Considering this, our investigation does not account for reauthorisations to ensure consistency among the sample firms. To maintain analytical consistency, the time periods are defined based on the annual filings since regulations require absolute repurchase disclosures in the end-of-year accounts. Thus, if the time of a repurchase announcement is y , then $y - 1$ is the period represented in the most recent annual accounts filed prior to the announcement, $y + 1$ is the period represented in the first annual accounts filed after the announcement, categorised as the immediate term post-announcement, and $y + 2$ is the period represented in the second annual accounts filed after the announcement, categorised as the longer term post-announcement.

The data required for constructing the firm-level independent variables were obtained from the firms' annual filings, which were sourced from Companies House. Given the mandatory regulatory directives of the UK, the repurchase completion rates are computed using disclosures from these accounts. Stock price data are obtained from Morningstar and Yahoo! Finance, and the reason for using multiple sources is to offset gaps in historical data. This information will be used to compute the stock performance proxy. The data required for constructing the taxation proxy are obtained from His Majesty's Revenue and Customs

(HMRC) and government publications. Thus, these will be collectively used to compute 14 independent variables, which are broadly classified into five groups.

The first group consists of three variables that revolve around proxying size-related information: the AV/MC ratio, which is the ratio of the repurchase announcement value to the firm's market capitalisation value; the market cap, which is the firm's market capitalisation value in bn GBP; and firm size, which is the natural logarithm of the total pound value of assets. For each of these variables, we expect a positive influence, the reasons being that a firm is expected to behave prudently and only announce a repurchase for a size that they can truly complete, and the larger the asset base and market value of the firm the better they are equipped to undertake the payout.

The second group consists of four variables that proxy the general firm-specific characteristics: dividends, which are the proportion of net income distributed as ordinary dividends, and a positive influence is expected due to the payouts being complementary in the UK (Burns et al. 2015); the debt ratio, which is the ratio of the total value of debt to the total value of assets, and a negative influence is expected due to the presence of the capital restructuring hypothesis in the UK (Lee and Suh 2011); the M/B ratio, which is the ratio of the firm's market value to the book value, and a negative influence is expected in line with the signalling undervaluation hypothesis (Dhanani 2016); board, which is the ratio of the independent board members to the total board size, and a positive influence is expected. This is due to the regulations requiring shareholder approval for a repurchase (Dhanani and Roberts 2009), and it is expected that the management will follow their duties as the agent and only call for a vote if the payout is in the principal's (shareholder's) best interest, which independent directors are then expected to support.

The third group consists of two variables that proxy the firm's financial performance: the P/E ratio, which is the ratio of the price per share to the earnings per share; and earnings, which is a binary variable and takes the value '1' if the net profit is positive. For both variables, we expect positive influences. When the P/E ratio is high, it is indicative of a growth in earnings, which the firm can cement by announcing repurchases, while if the firm has positive post-tax profits, they are more financially equipped to undertake the payout.

The fourth group consists of three variables that proxy the external factors that are significantly influential on the firm's payout-specific decision-making: SP1, which is the average monthly geometric stock performance in the 12 months preceding the repurchase announcement and it is expected to have a negative influence, this being consistent with the signalling undervaluation motive seen in the UK (Dhanani 2016); SP2, which is the average monthly geometric stock performance in the 12 months after the repurchase announcement, and it is expected to have a positive influence due to the assumption that managers intend for the payout to be successful; the tax ratio, which is the ratio of the higher dividend tax rate to the higher capital gains tax rate, and it is expected to have a positive influence since a ratio over 1 indicates that repurchases are more tax-efficient than dividends.

Finally, the fifth group consists of two variables that proxy the type of firms, as their operational structure may impact their decision-making: AIM, which is binary and takes the value '1' if the firm is listed on the alternative investment market, and we expect it to have a negative influence, the reason being that the lesser resources of smaller cap companies can hinder their ability to implement or complete a payout; financial, which is binary and takes the value '1' if the firm is listed as a financial institution. Due to the overall higher regulatory standards applicable to such firms they are more likely to implement and complete a payout, and we expect a positive influence. We considered splitting the sample between financial and non-financial firms; however, given that financial firms make up a small size of the announcements (26 out of 82) this could lead to unreliable results.

3.2. Hypothesis 1: Determinants of Repurchase Implementation

In order to initiate the announced repurchase payout, we assume that a combination of internal and external factors are influential. Thus, we test the following hypotheses:

H1₀. Repurchases are not implemented due to a combination of internal and external payout-related influences.

H1₁. Repurchases are implemented due to a combination of internal and external payout-related influences.

Thus, to test H1, we employ probit regression for periods $y + 1$ and $y + 2$ (Equations (1) and (2)). It must be noted that if a firm fully completes a payout during the period $y + 1$, then it is excluded from the testing of the $y + 2$ period, and there are 11 such firms.

$$\Pr(\text{Initiated1}_{i,y+1} = 1) = \delta_{y+1} \left(\text{AV/MC Ratio}_{i,y} + \text{Market Cap}_{i,y-1} + \text{Firm Size}_{i,y-1} + \text{Dividends}_{i,y-1} - \text{Debt Ratio}_{i,y-1} - \text{M/B Ratio}_{i,y-1} + \text{Board}_{i,y-1} + \text{P/E Ratio}_{i,y-1} + \text{Earnings}_{i,y-1} - \text{SP1}_i + \text{Tax Ratio}_{i,y-1} - \text{AIM}_i + \text{Financial}_i \right) \quad (1)$$

where $\Pr(\text{Initiated1}_{i,y+1} = 1)$ is the binary variable that takes the value ‘1’ if share(s) are repurchased by firm $i = 1, 2, 3 \dots 82$, $y + 1$ is the period represented in the first annual accounts filing after the announcement, and δ_{y+1} is the standard cumulative normal. The independent variables lag one annual account filing, and their descriptions are available in Table 1.

Table 1. Definitions of independent variables.

Variable	Description	Expected Influence
AV/MC Ratio	The ratio of the repurchase announcement value to the firm’s market capitalisation	Positive
Market Cap	The firm’s GBP bn market capitalisation	Positive
Firm Size	The natural logarithm of the total pound value of assets	Positive
Dividends	The proportion of net income distributed as ordinary dividends	Positive
Debt Ratio	The ratio of the total value of debt to the total value of assets	Negative
M/B Ratio	The ratio of the firm’s market value to the book value	Negative
Board	The ratio of independent board members to the total board size	Positive
P/E Ratio	The ratio of the price per share to the earnings per share	Positive
Earnings	A binary variable, which takes the value ‘1’ if the net profit is positive	Positive
SP1	The average monthly geometric stock performance in the 12 months preceding the repurchase announcement (12th month, 11th month. . . announcement)	Negative
SP2	The average monthly geometric stock performance in the 12 months after the repurchase announcement (announcement, 1st month, 2nd month. . . 12th month)	Positive
Tax Ratio	The ratio of the higher dividend tax rate to the higher capital gains tax rate	Positive
AIM	A binary variable, which takes the value ‘1’ if the firm is listed on the alternative market	Negative
Financial	A binary variable, which takes the value ‘1’ if the firm is a financial institution	Positive

$$\Pr(\text{Initiated2}_{i,y+2} = 1) = \delta_{y+2} \left(\text{AV/MC Ratio}_{i,y} + \text{Market Cap}_{i,y+1} + \text{Firm Size}_{i,y+1} + \text{Dividends}_{i,y+1} - \text{Debt Ratio}_{i,y+1} - \text{M/B Ratio}_{i,y+1} + \text{Board}_{i,y+1} + \text{P/E Ratio}_{i,y+1} + \text{Earnings}_{i,y+1} - \text{SP1}_i + \text{SP2}_i + \text{Tax Ratio}_{i,y+1} - \text{AIM}_i + \text{Financial}_i \right) \quad (2)$$

where, $\Pr(\text{Initiated1}_{i,y+2} = 1)$ is the binary variable that takes the value ‘1’ if share(s) have been repurchased by firm $i = 1, 2, 3 \dots 71$ in the period $y + 2$, which is the period represented in the second annual accounts filing after the announcement, and δ_{y+2} is the standard cumulative normal. The independent variables lag one annual account filing, and their descriptions are available in Table 1.

3.3. Hypothesis 2: Determinants of Repurchase Completion

If a repurchase is announced and the firm implements the buyback transactions, it does not guarantee that they payout will also be completed. However, it is assumable that the factors leading to the payout’s implementation must also be responsible for the payout’s completion. Hence, we test this using the following hypotheses:

H2₀. *The determinants of repurchase completion are not identical to those that led to the payout's implementation.*

H2₁. *The determinants of repurchase completion are identical to those that led to the payout's implementation.*

We test the hypotheses using tobit regression (Equations (3) and (4)) as it allows for a censoring condition, which is essential for reliability. The dependent variable is the completion rate, which is the ratio of shares repurchased in the given period to the total number of shares announced for repurchasing, and we left-censor the regressions at 1%. Even if a firm announces a repurchase of the maximum possible limit of 15%, then a 1% completion rate means a repurchase of 0.15% of the outstanding stock volume. This figure represents a value too miniscule to have any substantial impact given the financial position of the sample firms. Furthermore, censoring helps exclude pseudo-repurchasers who are not committed to the payout, and only undertake a small non-impacting transaction to signal a false sense of payout commitment. This helps maintain their repurchase reputation, which is highly important for the payout's overall success (Bonaimé 2012; Andriosopoulos et al. 2013). Further, if a firm has completed the repurchase payout in period $y + 1$, then it is excluded from the testing of period $y + 2$.

$$\begin{aligned} \text{CompRate1}_{i,y+1} &= \text{AV/MC Ratio}_{i,y} + \text{Market Cap}_{i,y-1} + \text{Firm Size}_{i,y-1} + \text{Dividends}_{i,y-1} - \text{Debt Ratio}_{i,y-1} \\ &- \text{M/B Ratio}_{i,y-1} + \text{Board}_{i,y-1} + \text{P/E Ratio}_{i,y-1} + \text{Earnings}_{i,y-1} - \text{SP1}_i + \text{Tax Ratio}_{i,y-1} \\ &- \text{AIM}_i + \text{Financial}_i + \epsilon_{y+1} \end{aligned} \quad (3)$$

where CompRate1_{y+1} is the ratio of the number of shares repurchased to the total number of shares announced for repurchase by firm $i = 1, 2, 3, \dots, 82$, in the period $y + 1$, which is the period represented in the first annual accounts filing after the announcement, and ϵ_{y+1} is the error term. The independent variables lag one annual account filing, and their descriptions are available in Table 1.

$$\begin{aligned} \text{CompRate2}_{i,y+2} &= \text{AV/MC Ratio}_{i,y} + \text{Market Cap}_{i,y+1} + \text{Firm Size}_{i,y+1} + \text{Dividends}_{i,y+1} + \text{Debt Ratio}_{i,y+1} \\ &+ \text{M/B Ratio}_{i,y+1} + \text{Board}_{i,y+1} + \text{P/E Ratio}_{i,y+1} + \text{Earnings}_{i,y+1} + \text{SP1}_i + \text{SP2}_i \\ &+ \text{Tax Ratio}_{i,y+1} + \text{AIM}_i + \text{Financial}_i + \epsilon_{y+2} \end{aligned} \quad (4)$$

where CompRate2_{y+2} is the ratio of the number of shares repurchased to the total number of shares announced for repurchasing by firm $i = 1, 2, 3, \dots, 71$, in the period $y + 2$, which is the period represented in the second annual accounts filing after the announcement, and ϵ_{y+2} is the error term. The independent variables lag one annual account filing, and their descriptions are available in Table 1.

4. Results

4.1. Univariate Discussions

This section discusses the key univariate characteristics (Table 2) of the sample's completion rates and independent variables, which are produced using two grouping techniques. The first grouping is conducted on a yearly basis, thus providing statistics for the independent variables used for the testing of period $y + 1$, which constitutes the entire sample of 82 repurchases, and then for the independent variables used for testing of period $y + 2$, which constitutes 71 repurchases; 11 repurchases were fully completed in period $y + 1$. Of these 71 repurchases, 9 were fully completed during the $y + 2$ period, which included 1 payout that was not implemented in period $y + 1$. Thus, the eight repurchase payouts that were fully completed over the two periods had an announcement to repurchase 10% of the outstanding stock volume, and the average completion in period $y + 1$ is 58%, while the remaining 42% was repurchased during period $y + 2$. The second grouping is based on the repurchases' completion rate over the combined periods of $y + 1$ and $y + 2$, dividing them into four categories. The first category consists of repurchases that have a completion rate of 100%, the second category consists of repurchases with a completion rate⁵ greater than 50% but less than 100%, the third category consists of repurchases with a completion rate⁶

greater than 0% but up to and equal to 50%, and the fourth category consists of repurchases with a completion rate of 0%, thus comprising the pseudo-repurchasers. Further, the groupings reveal a near-equivalent proportional split of repurchases between the four categories⁷.

Table 2. Univariate statistics.

	N (%)	Average	Minimum	Maximum
For period y + 1	82 (100)	0.357	0.000	1.000
For period y + 2	71 (87)	0.161	0.000	1.000
For 2-year period	82 (100)	0.497	0.000	1.000
Completion rate > 0%	64 (78)	0.637	0.008	1.000
	N (%)	Average	Minimum	Maximum
AV/MC Ratio				
Yearly:				
For period y + 1	82 (100)	0.104	0.001	0.149
For period y + 2	71 (87)	0.107	0.001	0.149
Completion rate:				
100%	20 (24)	0.092	0.020	0.149
Greater than 50% but less than 100%	23 (28)	0.116	0.060	0.149
Greater than 0% but up to and equal to 50%	21 (26)	0.114	0.050	0.149
0%	18 (22)	0.091	0.001	0.149
Market Cap				
Yearly:				
For period y + 1	82 (100)	10.143	0.003	92.511
For period y + 2	71 (87)	8.240	0.003	61.581
Completion rate:				
100%	20 (24)	22.741	0.046	100.054
Greater than 50% but less than 100%	23 (28)	7.363	0.007	40.905
Greater than 0% but up to and equal to 50%	21 (26)	9.382	0.003	32.633
0%	18 (22)	5.000	0.004	48.247
Firm Size				
Yearly:				
For period y + 1	82 (100)	21.407	15.051	26.929
For period y + 2	71 (87)	21.427	15.100	26.181
Completion Rate:				
100%	20 (24)	22.054	17.089	26.930
Greater than 50% but less than 100%	23 (28)	21.623	15.354	25.900
Greater than 0% but up to and equal to 50%	21 (26)	21.468	15.712	26.147
0%	18 (22)	20.566	15.076	25.660
Dividends				
Yearly:				
For period y + 1	82 (100)	0.207	−16.273	9.112
	81 (98)	0.410	−4.176	9.112
For period y + 2	71 (87)	4.230	−0.821	257.515
	70 (86)	0.611	−0.821	9.657
Completion rate:				
100%	20 (24)	0.272	−1.738	1.107
Greater than 50% but less than 100%	23 (28)	0.794	−1.264	6.115
Greater than 0% but up to and equal to 50%	21 (26)	−0.220	−8.547	0.684
	20 (24)	0.195	−0.926	0.684
0%	18 (22)	7.862	−0.006	128.799
	17 (21)	0.748	−0.006	5.188

Table 2. Cont.

	N (%)	Average	Minimum	Maximum
Debt Ratio				
Yearly:				
For period y + 1	82 (100)	0.458	0.012	0.958
For period y + 2	71 (87)	0.575	0.002	1.317
Completion rate:				
100%	20 (24)	0.472	0.043	0.794
100%	23 (28)	0.562	0.010	0.932
Greater than 50% but less than 100%	21 (26)	0.467	0.023	1.042
Greater than 0% but up to and equal to 50%	18 (22)	0.332	0.016	0.962
M/B Ratio				
Yearly:				
For period y + 1	82 (100)	2.693	0.072	27.790
For period y + 2	71 (87)	2.491	−9.534	20.736
Completion rate:				
100%	20 (24)	2.558	0.484	8.113
Greater than 50% but less than 100%	23 (28)	3.158	0.116	11.894
Greater than 0% but up to and equal to 50%	21 (26)	1.931	0.209	9.127
0%	18 (22)	3.069	0.520	14.559
Board				
Yearly:				
For period y + 1	82 (100)	0.601	0.200	1.000
For period y + 2	71 (87)	0.587	0.200	1.000
Completion rate:				
100%	20 (24)	0.673	0.250	1.000
Greater than 50% but less than 100%	23 (28)	0.574	0.250	1.000
Greater than 0% but up to and equal to 50%	21 (26)	0.573	0.333	1.000
0%	18 (22)	0.587	0.200	1.000
P/E Ratio				
Yearly:				
For period y + 1	82 (100)	12.178	−27.826	68.000
For period y + 2	71 (87)	13.466	−232.307	110.000
Completion rate:				
100%	20 (24)	9.897	−5.114	33.822
Greater than 50% but less than 100%	23 (28)	12.856	−5.554	29.085
Greater than 0% but up to and equal to 50%	21 (26)	9.090	−107.663	51.496
0%	18 (22)	18.325	1.012	61.996
Earnings				
Yearly:				
For period y + 1	82 (100)	0.853	0.000	1.000
For period y + 2	71 (87)	0.943	0.000	1.000
Completion rate:				
100%	20 (24)	0.825	0.000	1.000
Greater than 50% but less than 100%	23 (28)	0.934	0.500	1.000
Greater than 0% but up to and equal to 50%	21 (26)	0.857	0.500	1.000
0%	18 (22)	0.972	0.500	1.000
SP1				
Yearly:				
For period y + 1	82 (100)	0.167	−0.778	9.491
For period y + 2	71 (87)	0.061	−0.740	3.289
Completion rate:				
100%	20 (24)	0.502	−0.778	9.491
Greater than 50% but less than 100%	23 (28)	0.103	−0.645	3.289
Greater than 0% but up to and equal to 50%	21 (26)	−0.048	−0.740	0.469

Table 2. Cont.

	N (%)	Average	Minimum	Maximum
0%	18 (22)	0.129	−0.396	1.369
SP2				
Yearly:				
For period y + 2	71 (87)	−0.073	−3.951	0.904
Completion rate:				
100%	20 (24)	0.427	−0.521	4.833
Greater than 50% but less than 100%	23 (28)	−0.008	−0.982	0.616
Greater than 0% but up to and equal to 50%	21 (26)	−0.206	−3.951	0.904
0%	18 (22)	−0.053	−0.648	0.425
Tax Ratio				
Yearly:				
For period y + 1	82 (100)	0.853	0.625	1.700
For period y + 2	71 (87)	0.827	0.625	1.700
Completion rate:				
100%	20 (24)	1.043	0.625	1.700
Greater than 50% but less than 100%	23 (28)	0.862	0.625	1.700
Greater than 0% but up to and equal to 50%	21 (26)	0.771	0.625	1.700
0%	18 (22)	0.710	0.625	1.700
AIM				
Yearly:				
For period y + 1	82 (100)	0.048	0.000	1.000
For period y + 2	71 (87)	0.056	0.000	1.000
Completion rate:				
100%	20 (24)	0.000	0.000	0.000
Greater than 50% but less than 100%	23 (28)	0.086	0.000	1.000
Greater than 0% but up to and equal to 50%	21 (26)	0.047	0.000	1.000
0%	18 (22)	0.055	0.000	1.000
Financial				
Yearly:				
For period y + 1	82 (100)	0.317	0.000	1.000
For period y + 2	71 (87)	0.323	0.000	1.000
Completion rate:				
100%	20 (24)	0.250	0.000	1.000
Greater than 50% but less than 100%	23 (28)	0.347	0.000	1.000
Greater than 0% but up to and equal to 50%	21 (26)	0.333	0.000	1.000
0%	18 (22)	0.333	0.000	1.000

A series of pairwise *t*-tests were performed for the two groups, and the results are available in Appendix A. For the first grouping (on a yearly basis), the results indicate no significant difference except in the case of earnings. For the second group (completion rate basis), board shows complete insignificance, while sporadic significances are seen across all other variables, with the strongest levels witnessed for SP2 and the tax ratio.

It is first seen that the average completion rate over the combined periods of y + 1 and y + 2 is about 50% of the announced stock volume, with the y + 1 average being 36% and y + 2 average being 16%. This is a logical pattern as firms are generally expected to announce a repurchase when they are ready for conceptualising the payout. The aggregate completion rate increases from 50% to 64% upon excluding firms that are pseudo-repurchasers, i.e., firms that announced a repurchase but did not buy back any shares, thus having a 0% completion rate. In the UK, between 1997 and 2006, it was seen that the aggregate completion rate was 31%, which increased to 69% upon excluding pseudo-repurchasers (Andriosopoulos et al. 2013). However, the magnitude of increase in the completion rate upon excluding pseudo-repurchasers is lower in our study, which is attributable to the

difference in the implementation rates. In our sample, the implementation rate is 78% while in that of [Andriosopoulos et al. \(2013\)](#) it is 45%. However, this paper's completion rate of 64% is slightly lower than that of 73% seen in the US ([Bonaime 2012](#)).

From the AV/MC ratio, it is revealed that the averages for the periods $y + 1$ and $y + 2$ are equivalent, at 10.40% and 10.70%, respectively, but clear differences are seen amongst firms based on their completion rates. Those with completion rates of either 0% (9.20%) or 100% (9.10%) announce a repurchase below the sample's average (10%), while those with completion rates greater than 0% (11.60%) but below 100% (11.40%) announce a repurchase above the sample's average. Thus, it is indicative that above-average-sized repurchases are less prone to seeing the absolute ends of either full incompleteness or completion. The average market cap of the firms for the period $y + 1$ (GBP 10.14bn) reduces in the period $y + 2$ (GBP 8.24bn), thus indicating that larger-valued firms tend to complete the repurchase in the immediate term after the announcement. This is consistent with firms holding a 100% completion rate with an average market capitalisation value of GBP 22.74bn, which is more than four times that of those holding a completion rate of 0% (GBP 5bn), and the majority of the full completions were realised during the period $y + 1$ (11 of the 20), while for the eight full completions that spanned over the two periods the majority portion of the shares (58%) were also repurchased during period $y + 1$. The computation of firm size involved using a scaling technique to offset the differences caused by the diversity of firm types in the sample⁸, which helped reveal differences across the sample. The averages for periods $y + 1$ and $y + 2$ are equivalent; however, the average firm size shows a positive relationship with the completion rate, which is aligned with pattern seen with the market cap.

In the case of dividends, careful consideration has been given to individual firms who have undertaken unprecedented levels of distribution, which could mean that excluding a single outlier can drastically change the findings. Upon removing the outlier for period $y + 1$, who has undertaken a large-valued dividend distribution despite suffering a net loss, or perhaps because of it, and also removing the outlier for period $y + 2$, who has also undertaken a large-valued dividend distribution due to excess cash accumulation, it is seen that the average dividend distribution in period $y + 2$ (GBP 0.61bn) is 50% more than that for period $y + 1$ (GBP 0.41bn). This reveals that by increasing the dividend distribution, firms signal that repurchases are not being used for dividend substitution, but rather that the two payouts are complementary, which is consistent with the existing UK literature ([Burns et al. 2015](#)). The signalling process is aligned with that of countries other than the US (Australia, Canada, France, Germany, Japan, and the UK) generally being relatively less-inclined towards repurchases than dividends ([Lee and Suh 2011](#)). The average debt ratio for period $y + 2$ (0.57) is higher than the average seen for period $y + 1$ (0.45), indicating that lesser-leveraged firms are more prone to fully completing a repurchase in the immediate term after the announcement. Looking at the firms based on their completion rate, the only distinctive aspect uncovered is the fact that firms holding a 0% completion rate are the least leveraged (0.33).

Further, no strong connection is seen between the M/B ratio and repurchase undertaking, as the averages for the periods $y + 1$ (2.69) and $y + 2$ (2.49) are equivalent, while no clear pattern is seen via grouping the firms based on their completion rate. However, the sample's aggregate average is near-identical to that seen with repurchasing firms of the UK in the period 1997–2006 ([Andriosopoulos et al. 2013](#)), and similar to the repurchasing firms of the US ([Cook et al. 2004](#); [Grullon and Michaely 2004](#)). The similarities are insightful from a domestic and international viewpoint. Domestically, it is clear that despite the varying samples and timeframes, firms that undertake repurchases have similar stock valuations, while the international similarity with the US sheds light on the decision-making of British managers. A cohort of 44 directors that served on the board of 95 US firms with a combined market capitalisation value in excess of USD 2.5trn stated that stock undervaluation is an absolute prerequisite for undertaking a repurchase, irrelevant of the presence of any other motive(s) ([Fields 2016](#)). On the other hand, British managers

have stated that stock undervaluation is among the leading three reasons for undertaking repurchases (Dhanani 2016). Thus, upon combining this with the erstwhile discussions of rising repurchase popularity in the UK, and the potential for a further rise due to the announced changes in the tax framework, there is strong evidence of a convergence in repurchase attitudes across the UK and US. This argument is supported by evidence of the two countries witnessing stock market cointegration (Berger and Pozzi 2013), the US being the largest host country of the record-level rising FDI in the UK (ONS 2017, 2018), which causes an inflow of corporate culture, and a historical macroeconomic contagion between the countries (Ductor and Leiva-Leon 2016; Magkonis and Tsopanakis 2016).

For board, the average proportions of independent directors constituting the firm's board for the periods $y + 1$ (60%) and $y + 2$ (58%) are equivalent, and the only noticeable aspect is that firms with a completion rate of 100% (67%) have the highest average across the remaining three categories, which amongst them have equivalent levels of board independence (57%, 57%, and 58%). In terms of the average P/E ratio, a slight increase is seen for the period $y + 2$ (13.46) compared to the period $y + 1$ (12.17), indicative of the market considering the repurchase a signal of a prosperous future. This is consistent with firms with a 0% completion rate (18.32) having the highest average ratio, which is almost twice than that of firms holding a 100% completion rate (9.89). Thus, when the market has a bearish projection of the firm's future it is more likely that a repurchase payout will be fully completed. This is supported by the pattern seen with earnings, as there is a rise in the proportion of firms witnessing positive earnings for the period $y + 2$ (94%) compared to that in the period $y + 1$ (85%), while firms holding a 100% completion rate see the lowest proportion of positive earners (82%) and firms holding a 0% completion rate see the highest proportion (97%). This pattern of negative earners being more prone to undertaking and fully completing repurchases is consistent with the findings of Dhanani (2016)'s survey, in which British managers stated that adjusting the reported EPS was amongst the leading three motives for repurchasing shares. Furthermore, the mobilising of repurchases for such a motive is considered persistent in the UK. In 2018, the government commissioned PwC (Department for Business, Energy and Industrial Strategy 2018) to investigate the use of repurchases to unethically enhance the reported EPS, with the objective of meeting the criterion required by executives for realising performance-related bonuses.

With SP1, it is seen that the average for the period $y + 2$ (6.10%) is lower than that for the period $y + 1$ (16.70%); thus, firms with a positive stock performance are prone to fully completing a repurchase in the immediate term after the announcement. This is consistent with the pattern of firms holding a 100% completion rate witnessing the highest average pre-announcement stock performance (50.20% v/s 10.30%, -4.80%, and 12.90%), which also indicates that firms expect a stock price decline following the repurchase announcement, and thus capitalise on the situation. This is further consistent with the patterns of SP2, as in the 12 months after the announcement the aggregate average stock performance is negative (-7.30%), with only firms holding a 100% completion rate realising positive performance (42.70% v/s -0.80%, -20.60%, and -5.30%). The negative performance seen over longer periods following a repurchase announcement is somewhat common in the UK (Rees 1996). The sample statistics thus reveal that the key to offsetting this stock price downfall is a firm committing fully to the repurchase announcement by ensuring absolute completion, preferably in the immediate term, or as an alternative delaying the repurchase announcement until it is ready to ensure a 100% completion rate.

With the average tax ratio being higher for the period $y + 1$ (0.85) than that for the period $y + 2$ (0.82), if the firms want to ensure maximum tax efficiency, they should complete the payout in the immediate period following the announcement. Upon looking at AIM, their proportion marginally rises for the period $y + 2$ (5.60%) compared to the period $y + 1$ (4.80%), which is consistent with none of these firms holding a 100% completion rate, and with their relatively smaller market presence and reduced access to financing options. With financial, a similar marginal increase is seen from the period $y + 1$ (31%) to $y + 2$ (32%). However, they have the lowest proportion amongst firms holding a com-

pletion rate of 100%, with equivalent proportionality seen with the remainder categories. Thus, financial institutions are less propended than are non-financial firms towards fully completing repurchase.

Overall, the sample’s completion rates are encouraging, as they are consistent with existing the UK literature and reveal that firms with a substantial presence in the stock market are less propended towards pseudo-announcements. The most pronounced univariate associations seen with repurchase completion rates are a firm’s asset base, market capitalisation value, earnings position, and repurchase’s tax efficiency over dividends

4.2. Determinants of Repurchase Implementation

The probit regression results for the determinants of repurchase implementation in the periods $y + 1$ and $y + 2$, as defined in Equations (1) and (2), respectively, are produced in multiple tables. Since the regression coefficients (fixed effects) are not readily interpretable unlike those in other regression models, we compute the marginal effects. The coefficients of marginal effects quantify the increased (+) or decreased (–) probability of the binary dependent variable turning from 0 to 1 due to a one-unit change in the predictor variable. Thus, the marginal effects for the periods $y + 1$ and $y + 2$ are available in Tables 3 and 4, respectively, and the fixed effects are available in Appendix A. Testing is carried out using a combination of the 14 independent variables over 11 models. We use the first group that proxies size-related information (the AV/MC ratio, market cap, and firm Size) as the base, and in Model I we test it alongside the second group that proxies general firm-specific characteristics (dividends, the debt ratio, M/B ratio, and board); we then test the first group with the remaining groups individually in Models II, III and IV, while the third group proxies financial performance (P/E ratio and earnings), the fourth group proxies external factors (SP1, SP2 for $y + 2$ only, and the tax ratio), and the fifth group proxies the firm type (AIM and Ffinancial). From Models V through X, combinations of these groups are tested, and in Model XI they are tested collectively.

Table 3. Determinants of repurchase implementation in the period $y + 1$; marginal effects.

	I	II	III	IV	V	VI	VII	VIII	IX	X	XI
AV/MC Ratio	3.273 *** (3.16)	2.515 ** (2.21)	2.503 ** (2.29)	2.475 ** (2.25)							3.475 *** (3.09)
Market Cap	0.006 (1.43)	0.005 (1.33)	0.003 (0.70)	0.006 (1.30)							0.004 (0.99)
Firm Size	–0.032 (–1.38)	0.027 (1.31)	0.015 (0.77)	0.011 (0.51)							–0.025 (–1.04)
Dividends	–0.040 (–1.38)				–0.027 (–0.85)	–0.054 (–1.55)	–0.052 (–1.44)				–0.038 (–1.32)
Debt Ratio	0.833 *** (3.57)				0.670 *** (4.12)	0.498 *** (2.88)	0.551 *** (3.07)				0.862 *** (3.88)
M/B Ratio	–0.011 (–0.99)				–0.008 (–0.72)	–0.001 (–0.08)	–0.005 (–0.44)				–0.014 (–1.33)
Board	0.472 ** (2.35)				0.016 (0.08)	0.086 (0.42)	0.297 (1.21)				0.263 (1.00)
P/E Ratio		0.006 * (1.71)			0.003 (1.03)			0.002 (0.61)	0.001 (0.48)		0.005 (1.46)
Earnings		–0.492 *** (–2.70)			–0.533 *** (–2.71)			–0.350 (–1.62)	–0.493 ** (–2.18)		–0.462 (–1.60)
SP1			–0.001 (–0.03)			0.017 (0.42)		–0.016 (–0.34)		0.013 (0.29)	–0.038 (–0.87)
Tax Ratio			0.325 ** (2.08)			0.347 ** (2.32)		0.351 ** (2.19)		0.371 ** (2.49)	0.240 (1.33)
AIM				–0.161 (–0.78)			–0.246 (–1.15)		–0.334 (–1.49)	–0.197 (–0.90)	–0.419 * (–1.73)
Financial				0.031 (0.29)			–0.019 (–0.15)		–0.082 (–0.77)	–0.023 (–0.22)	0.046 (0.32)
Obs.	82	82	82	82	82	82	82	82	82	82	82

Superscripts indicate statistical significance at the 1% (***), 5% (**) and 10% (*) level. The parentheses contain the z-statistics.

The strongest determinant compellingly showing that a repurchase must be implemented in the periods $y + 1$ and $y + 2$ is the AV/MC ratio, which has a positive influence during both periods. Thus, the higher the volume of shares intended for a repurchase, the greater are the firms inclined towards a quick commencement. Early implementation catalyses a systematically driven and effective transactionary pattern. This attitude provides two key corporate benefits, the first being that the firm has enough time for utilising its cash resources in a disciplined fashion and the second benefit being complementary to the regulatory directive regarding the offered repurchase price per share (Dhanani and Roberts 2009), which cannot exceed 105% of the average over the preceding five trading days. If the onset of the buyback is not well received the stock price will fall, and regulations restrict the firms from paying an abnormally high purchase price to offset market discontent. Instead, they would have to pause the payout’s undertaking until the market sentiment is conducive. This could be detrimental, as after 18 months the firm would have to acquire reauthorisation from the shareholders, which could raise concerns surrounding the firm’s decision-making and market timing abilities. This approach in turn minimises the probability of payout suspension, which is important as repurchase reputation is crucial (Andriosopoulos et al. 2013). These benefits are also consistent with the existing evidence that repurchase timing is a crucial determinant for ensuring a payout’s success (Chan et al. 2007; Cesari et al. 2012), which should be more pronounced in the UK since repurchases have only become popularised in the recent past.

Table 4. Determinants of repurchase implementation in the period $y + 2$; marginal effects.

	I	II	III	IV	V	VI	VII	VIII	IX	X	XI
AV/MC Ratio	2.670 ** (2.10)	2.489 * (1.81)	2.526 ** (1.98)	2.766 ** (2.11)							2.619 ** (2.05)
Market Cap Firm Size	0.001 (0.29)	0.001 (0.26)	0.002 (0.34)	0.003 (0.53)							−0.001 (−0.31)
Dividends	−0.002 (−0.69)				−0.002 (−0.50)	−0.001 (−0.49)	−0.002 (−0.53)				−0.002 (−0.60)
Debt Ratio	0.451 (1.62)				0.711 *** (3.66)	0.674 *** (3.18)	0.618 *** (3.13)				0.822 *** (2.82)
M/B Ratio	−0.032 * (−1.83)				−0.038 ** (−2.20)	−0.047 ** (−2.37)	−0.043 ** (−2.36)				−0.044 ** (−2.49)
Board P/E Ratio	0.296 (1.26)				0.387 * (1.69)	0.216 (0.91)	0.278 (0.99)				0.600 ** (1.98)
Earnings		−0.002 (−0.92)			−0.004 (−1.45)			−0.004 (−1.31)	−0.003 (−1.19)		−0.003 * (−1.71)
SP1		0.003 (0.01)			0.428 (1.53)			−0.006 (−0.02)	−0.038 (−0.13)		0.652 ** (2.16)
SP2			0.078 (0.73)			0.155 (1.47)		0.137 (1.07)		0.114 (0.89)	0.229 * (1.70)
Tax Ratio			−0.036 (−0.38)			0.023 (0.24)		−0.029 (−0.29)		−0.058 (−0.52)	0.021 (0.22)
AIM			0.110 (0.75)			−0.011 (−0.07)		0.131 (0.83)		0.147 (0.94)	0.007 (0.05)
Financial				0.005 (0.02)			−0.107 (−0.46)		−0.007 (−0.03)	−0.128 (−0.50)	−0.143 (−0.59)
Financial				0.069 (0.55)			−0.014 (−0.09)		0.065 (0.52)	0.044 (0.34)	−0.093 (−0.54)
Obs.	71	71	71	71	71	71	71	71	71	71	71

Superscripts indicate statistical significance at the 1% (***) , 5% (**) and 10% (*) levels. The parentheses contain the z-statistics.

The positive influence of the debt ratio is strongly prevalent during both time periods, which may go against the fundamental tenets of the capital restructuring hypothesis (Dittmar 2000), but reveals a distinct country-specific pattern, especially since the UK market’s reaction to repurchase announcements has shown a positive relationship with a firm’s leverage (Andriosopoulos and Lasfer 2015). Given the greater dominance of dividends over repurchases in the UK (Denis and Osobov 2008), aligned with evidence of the country’s financing preference being equity-preferential rather than debt-incurring (Dang 2013), it is inferable that when shareholders are content with the capital structure being highly leveraged, the firms use this satisfaction to accelerate repurchase implementation. Given

the absence of perfect market conditions, and the market's affinity to repurchases and macro-institutional conditions, there is no guarantee that a repurchase will cause a proportionate rise in the stock price for maintaining market capitalisation and operating ratios. Thus, the reduction in the outstanding stock volume may also cause a rise in the ratio of total debt to the market value of equity, which will be dissatisfactory if the shareholders prefer the firm to follow an overall low-leverage policy.

The influence of the M/B ratio is absent in the period $y + 1$, but it has a consistent negative influence in the period $y + 2$. The fluctuation indicates that in the immediate-term after announcing a repurchase, the stock valuation does not influence repurchase implementation; however, in the following period stock undervaluation plays a key role in ensuring the continuation of repurchase undertaking. This is consistent with the existing literature's contradictions of stock valuation having an insignificant (Geiler and Renneboog 2015) to negative relationship (Sonika et al. 2014) with repurchases and with post-announcement stock performance, which itself ranges from negative (Rees 1996) to positive (Oswald and Young 2004; Crawford and Wang 2012). Thus, firms consider this negative stock performance an unnecessary penalisation, which they tackle by continuing with the repurchase payout. This may seem counterproductive since it is the repurchase that causes the undervaluation in the first place; however, there are two opposing potential benefits.

The first benefit is that the market may agree with the firm's judgement of stock undervaluation given the payout's continuation despite the stock price's fall. This is supported by earnings having a negative (positive) influence while the P/E ratio has a mild positive (negative) influence in the period $y + 1$ ($y + 2$). British managers state that adjusting the EPS is amongst the top three reasons for repurchasing shares (Dhanani 2016), which is evident in the post-announcement immediate term. Thus, once this is achieved in the period $y + 1$, which witnesses the majority of the aggregate completions, in the period $y + 2$ firms revert back to adhering corporate ethics, consistent with the extant literature (Sonika et al. 2014). This is further supported by the insignificant influence of SP1 in the period $y + 1$ but a mild positive influence for the period $y + 2$, as firms with stronger pre-announcement stock performances find that it will be more likely for the market to believe the undervaluation. The second benefit is that if the market does not consider the stock to be overvalued and continues with price penalisation, the reduction in outstanding stock volume due to repurchasing will cause a theoretically swifter recovery of the operating financials/ratios.

There is evidence of the board having a positive influence in both the periods, which is slightly stronger in the period $y + 2$, indicating that independent directors monitor repurchases and ensure their commencement if they are not completed in the immediate term. This is a crucial finding since independent directors in the UK consider their roles to be more advisory than monitory (Franks et al. 2001; Ozkan 2007). This is attributable to the UK's governance structure being a 'comply or explain' framework that vests firms with discretionary powers regarding governance mechanisms (ecoDa 2015). Hence, the independent directors are committed in ensuring that the managers go through with the corporate action for which they obtained special consent from shareholders. This diligence is most beneficial to retail shareholders given their greater principal-agent proximity.

The influence of firm size remains insignificant for the period $y + 1$, which is inconsistent with the extant literature finding a positive relationship with repurchases (Sonika et al. 2014; Burns et al. 2015; Cesari and Ozkan 2015); however, this phenomenon is seen for the period $y + 2$ as the influence is mildly positive. Thus, the findings reveal that the positive association seen in the UK is influential in ensuring that if a firm does not complete the announced repurchase in the immediate term, then it certainly moves closer towards the 100% completion rate in the longer term. The influence of tax ratio is positive for the period $y + 1$ but remains insignificant for the period $y + 2$, and the fluctuating influence is consistent with the existing literature finding the positive (Oswald and Young 2008) to insignificant relationship (Geiler and Renneboog 2015) of repurchases with their tax efficiency. However, with this paper's results the literary contradictions can be untangled.

The positive influence is logical from a financial viewpoint; however, the tax efficiency of repurchases remains only relevant in the immediate term following the announcement, which is indicative of a two-pronged managerial trait. Firms that undertake repurchases due to tax efficiency as one of the primary reasons, fully complete the payout in the immediate term to avoid any changes in fiscal policy. There is further evidence that since the remainder of non-completing firms repurchase the majority of aggregate completion in the period $y + 1$, their affinity towards the tax efficiency thereof diminishes in the longer term.

There is weak evidence of AIM having a negative influence in the period $y + 1$, which becomes insignificant for the period $y + 2$, thus indicating that firms listed on the alternative market mostly have a similar repurchase implementation strategy to that of those listed on the main market, with the minor discrepancies revealing their aversion to immediately commencing with a repurchase following its announcement. This is consistent with their size restricting them from larger cash resources, thus causing a lag in gauging the market's reception of the repurchase announcement, following which they can proceed with the implementation more effectively. Any misspent cash flow on a payout that may not be welcomed by the market may result in a reduction in free cash and a potential drop in the stock price, which will be relatively harder to offset. Regarding the remaining four independent variables, market cap, dividends, SP2 and financial, the influences have remained consistently insignificant. This reveals that, a firm's market capitalisation does not influence repurchase implementation, the disconnection between dividend distribution and repurchase implementation is consistent with the extant literature establishing that the two payouts are not treated as interchangeable (Ferris et al. 2006; Burns et al. 2015), there is no distinction in the repurchase implementation attitude of financial institutions, and the post-announcement stock performance over the immediate-term does not lead to the continuation of repurchase undertaking in the longer term.

Thus, we accept alternative hypothesis H1₁, which is that repurchases are implemented due to a combination of internal and external payout-related influences.

4.3. Determinants of Repurchase Completion

The tobit regression results for the determinants of repurchase completion in the periods $y + 1$ and $y + 2$, as defined in Equations (3) and (4), respectively, are given in Tables 5 and 6, respectively. The models are arranged in an identical manner to that of the testing of repurchase implementation in Section 4.2. We will also assess the results against the determinants of repurchase implementation, as the consistency between these two sets of findings will provide a better understanding of how the management approaches the implementation and completion of repurchases. From an overall perspective, the results reveal a strong level of consistency between the determinants' influences on the repurchase completion rate and the implementation of the payout. However, there are determinants with influence patterns that are partially inconsistent, while there are also determinants that have a contradictory influence on the repurchase completion rate to their influence on the payout's implementation.

The influence of the AV/MC ratio on repurchase completion remains insignificant for the periods $y + 1$ and $y + 2$; however, the influence of market cap is positive for the period $y + 1$, which is consistent with the findings of Andriosopoulos et al. (2013); however, the influence turns insignificant for the period $y + 2$. This indicates that a firm's market capitalisation plays a key role in facilitating the repurchase's completion, but only in the immediate term after the announcement, following which the determinants cease to have a significant impact. This pattern strongly contrasts the repurchase implementation influences, as the AV/MC ratio positively influences both time periods while the market cap does not have any significant influence. The combination of patterns establishes that the volume of shares intended for repurchasing only compels a firm to commence the announced payout, regardless of the number of shares repurchased. This will thus provide the market with a false sense of corporate commitment towards the repurchase; however, the falsehood diminishes only if the firm has a larger market capitalisation value.

This is consistent with its prominent market presence making it more concerned with its commercial reputation. Also, since regulations require shareholder consent for undertaking an open market repurchase, it may be harder for the firm to obtain future approvals if there is no payout commencement, especially with large firms, which is an added strain to the general ownership structure of British firms being more fragmented than those seen in other countries like the US (Sun et al. 2016).

There is mild evidence of firm size having a negative influence for the period $y + 1$, which is consistent with the information asymmetry hypothesis (Ikenberry et al. 1995) but not with the influence on the period's repurchase implementation. However, the influence turns positive for the period $y + 2$, which indicates that over the longer term larger-sized firms are more propended towards repurchase completion, which is consistent with the variable's influence seen on repurchase implementation for the period. Similarly, the P/E ratio has a mild positive influence on repurchase completion for the period $y + 1$, which is similar to its influence on repurchase implementation; however, for the period $y + 2$ its influence on the completion rate is insignificant whereas in the case of repurchase implementation the influence is mildly negative. Further, SP1 has a mild positive influence on repurchase completion for both periods; however, its influence on repurchase implementation is insignificant for the period $y + 1$ and positive for the period $y + 2$. Contradictions amongst influencing patterns are assumable, especially with a diverse sample set; however, these inconsistencies are not absolute, have a lower impact due to the relative lower economic value of coefficients, and the depth of the statistical significance is not too high. Thus, the firm's size in terms of its asset value, its stock's growth prospects and post-announcement stock performance are important influencers, though they may slightly differ in their abilities of compelling the management to implement a repurchase, from their abilities to influence its completion.

Table 5. Determinants of repurchase completion in the period $y + 1$.

	I	II	III	IV	V	VI	VII	VIII	IX	X	XI
AV/MC Ratio	1.167 (0.85)	0.799 (0.58)	0.533 (0.41)	0.828 (0.62)							0.581 (0.40)
Market Cap Firm Size	0.014 *** (2.87)	0.010 *** (2.81)	0.008 ** (2.23)	0.010 ** (2.60)							0.009 ** (2.50)
Dividends	−0.054 * (−1.77)	0.004 (0.21)	−0.014 (−0.68)	−0.021 (−0.95)	0.010 (0.46)	−0.001 (−0.03)	0.004 (0.19)				−0.035 (−1.12)
Debt Ratio	0.004 (0.21)				0.522 ** (2.24)	0.283 (1.33)	0.344 (1.58)				0.014 (0.69)
M/B Ratio	0.526 * (1.69)				−0.015 (−0.95)	−0.006 (−0.39)	−0.015 (−0.91)				0.565 * (1.90)
Board	−0.020 (−1.13)				0.126 (0.47)	0.018 (0.07)	0.645 ** (2.17)				−0.019 (−1.22)
P/E Ratio	0.423 (1.60)	0.008 * (1.80)			0.006 (1.49)			0.005 (1.22)	0.005 (1.17)		0.089 (0.26)
Earnings		−0.607 *** (−3.10)			−0.577 ** (−2.57)			−0.270 (−1.40)	−0.536 *** (−2.72)		0.007 (1.57)
SP1			0.061 (1.46)			0.069 (1.50)		0.049 (1.07)		0.074 * (1.67)	0.039 (0.88)
Tax Ratio			0.346 ** (2.51)			0.413 *** (2.67)		0.376 ** (2.61)		0.433 *** (3.12)	0.238 (1.63)
AIM				−0.339 (−1.29)			−0.496 * (−1.76)		−0.466 * (−1.73)	−0.380 (−1.46)	−0.519 * (−1.94)
Financial				0.040 (0.34)			−0.184 (−1.32)		−0.145 (−1.20)	−0.120 (−1.02)	−0.093 (−0.67)
Constant	0.749 (1.26)	0.386 (0.78)	0.134 (0.27)	0.545 (1.08)	0.388 (1.37)	−0.228 (−1.03)	−0.164 (−0.73)	0.102 (0.47)	0.726 *** (4.37)	−0.060 (0.45)	0.848 (1.34)
LR Chi ²	11.92	16.94	15.36	9.16	10.42	11.81	8.61	12.09	9.62	13.40	28.64
Pseudo R ²	0.095	0.135	0.122	0.102	0.107	0.094	0.196	0.096	0.077	0.107	0.229
Obs.	82	82	82	82	82	82	82	82	82	82	82

Superscripts indicate statistical significance at the 1% (***), 5% (**) and 10% (*) level. The parentheses contain the t-statistics.

Finally, the influences of dividends, the debt ratio, M/B ratio, board, earnings, SP2, tax ratio, AIM and and financial on the repurchase completion rate over the periods $y + 1$ and $y + 2$ are identical to those seen on repurchase implementation for the respective periods. Thus, it is seen that repurchases and dividends are independent of each other, highly leveraged firms have a positive relationship with repurchases, stock valuation has no impact in the immediate term but undervaluation plays a key role in the longer term, independent directors continually persuade the management to fully act on is repurchase commitment, the management uses repurchases for adjusting the reported EPS but only in the immediate term while in the longer term positive earners are more keen on following through with the repurchase, post-announcement stock performance has no influence on the managerial repurchase attitude in the longer term, the repurchase’s tax friendliness compels the management to follow through with the repurchase but only in the immediate term with no influence whatsoever in the longer term, firms listed on the alternative market have an aversion to the repurchase in the immediate term while their behavior is not influenced by their market listing in the longer term, and finally the repurchase behavior of financial firms is consistently independent of that of non-financial firms.

Thus, we accept the null hypothesis $H2_0$, which is that the determinants of repurchase completion are not identical to those that lead to the payout’s implementation.

Table 6. Determinants of repurchase completion in the period $y + 2$.

	I	II	III	IV	V	VI	VII	VIII	IX	X	XI
AV/MC Ratio	1.781 (1.36)	1.850 (1.43)	1.601 (1.22)	1.864 (1.40)							1.862 (1.48)
Market Cap Firm Size	-0.001 (-0.22)	-0.001 (-0.31)	-0.001 (-0.24)	-0.001 (-0.29)							-0.004 (-1.00)
Dividends	0.024 (0.90)	0.037* (1.71)	0.037* (1.71)	0.031* (1.81)							0.010 (0.41)
Debt Ratio	-0.003 (-0.69)				-0.002 (-0.53)	-0.002 (-0.52)	-0.002 (-0.57)				-0.002 (-0.62)
M/B Ratio	0.222 (0.95)				0.547*** (2.92)	0.380** (2.11)	0.356** (1.99)				0.653** (2.48)
Board P/E Ratio	-0.015 (-1.05)				-0.030* (-1.91)	-0.019 (-1.32)	0.019 (-1.32)				-0.036** (-2.12)
Earnings	0.156 (0.66)				0.332 (1.50)	0.090 (0.39)	0.220 (0.84)				0.542* (1.81)
SP1		-0.001 (-0.60)			-0.002 (-1.22)			-0.001 (-0.81)	-0.001 (-0.82)		-0.002 (-1.44)
SP2		0.405 (1.47)			0.733*** (2.71)			0.462 (1.58)	0.415 (1.42)		0.834*** (2.90)
Tax Ratio			0.073 (0.85)			0.110 (1.29)		0.098 (1.13)		0.084 (0.93)	0.166* (1.95)
AIM			-0.033 (-0.43)			-0.001 (-0.02)		-0.030 (-0.39)		-0.013 (-0.17)	0.043 (0.58)
Financial			0.131 (1.00)			0.095 (0.71)		0.140 (1.05)		0.131 (0.99)	0.024 (0.19)
Constant				0.216 (1.03)			0.107 (0.52)		0.136 (0.64)	0.120 (0.56)	0.072 (0.37)
LR Chi ²				-0.048 (-0.44)			-0.054 (-0.43)		0.025 (0.24)	-0.029 (-0.27)	-0.222 (-1.54)
Pseudo R ²	-0.833 (-1.58)	-1.349** (-2.38)	-1.080** (-2.12)	-1.056** (-2.09)	-1.018*** (-2.80)	-0.247 (-1.17)	-0.215 (-1.07)	-0.522* (-1.72)	-0.366 (-1.30)	-0.091 (-0.70)	-1.618*** (-2.85)
Obs.	9.22	7.93	7.62	6.71	14.21	8.77	6.88	4.93	2.65	2.49	22.21
	0.112	0.096	0.092	0.081	0.172	0.106	0.083	0.059	0.032	0.030	0.269
	71	71	71	71	71	71	71	71	71	71	71

Superscripts indicate statistical significance at the 1% (***), 5% (**) and 10% (*) level. The parentheses contain the t-statistics.

5. Conclusions

We see that repurchases in the UK are seeing a steady rise in popularity over the past decades, thus being indicative of payouts becoming a permanent component of annual payout policy rather than a frequent guest. This is evident with recent repurchases being valued at 66% of the total dividends distributed, and these are being largely financed via new cash being funneled into the reserves, rather than only the diversion of money away from dividends. With the current literature dominantly focusing on the determinants of

repurchases, odds of repurchases being witnessed against dividends, and the payout's reception across countries, very few researchers have asked the question of if the firms announcing such highly significant repurchases even go through with it. We devise the theme by testing the factors that drive the implementation of the announced repurchase, followed by checking if these factors also drive the payout's completion.

Initially, the univariate analysis revealed that the aggregate completion rate within the sample was 50%, and this increased to 64% upon removing pseudo-repurchasers (firms with a 0% completion rate). It is seen that the determinants of implementing a repurchase largely maintain their influence on a payout's completion, but these are not identical. Within this consistency, we initially support the extant literature's assertion that repurchases in the UK are independent of dividend distribution. Further, the key new contribution to the knowledge is related to the repurchase–taxation relationship, due to the evolving tax framework making repurchases more efficient than dividends and the current literature denoting a positive or insignificant relationship. We conclude that both these patterns are true, but circumstantial to the post-announcement period. Firms that undertake repurchases with tax efficiency in consideration, either fully complete the payout in the immediate term, or complete a majority of their real intended volume.

The remainder of the contributions are that firms with negative earnings follow through with their repurchase immediately after its announcement to adjust the financial ratios while in the longer term positive earners are compelled towards the payout, high leverage has a positive influence, as do independent directors, firms listed on the alternative market show an aversion from immediately following through with the repurchase while no such behavioral differences are seen with financial institutions, and in the longer term stock undervaluation and a larger asset base are positively influential. Finally, upon looking at the discrepancies in the findings, the contribution to the literature is the distinction of pseudo-repurchasers. A large-volume repurchase announcement does not guarantee that the firm will fully complete the repurchase, even if it periodically implements the payout. However, there is respite if the firm is large in terms of market capitalisation, since this does facilitate the payout's completion in the immediate term.

Our investigation has a key limitation of being UK-centric, and thus future researchers can extend the knowledge by undertaking parallel investigations for the US, Germany, and France to understand the differences in repurchase attitudes across major markets. Nonetheless, our findings are most useful to academics who can capitalise on the length of the period covered to obtain an idea of corporate payout attitudes and formulate investigations accordingly. Further, practitioners can optimise their performance by applying these findings to assess firms in the investment portfolio that announces repurchases.

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Appendix A

Table A1. Determinants of repurchase implementation in the period $y + 1$, coefficients.

	I	II	III	IV	V	VI	VII	VIII	IX	X	XI
AV/MC Ratio	12.409 *** (2.71)	8.609 ** (2.06)	8.327 ** (2.10)	7.887 ** (2.08)							15.589 *** (2.66)
Market Cap Firm Size	0.023 (1.37)	0.019 (1.29)	0.010 (0.70)	0.020 (1.27)							0.018 (0.97)
Dividends	-0.124 (-1.32)	0.095 (1.28)	0.053 (0.76)	0.035 (0.51)							-0.114 (-1.01)
Debt Ratio	-0.151 (-1.33)				-0.100 (-0.84)	-0.193 (-1.48)	-0.177 (-1.39)				-0.174 (-1.28)
M/B Ratio	3.157 *** (2.96)				2.427 *** (3.30)	1.752 *** (2.56)	1.850 *** (2.70)				3.870 *** (3.07)
Board P/E Ratio	-0.440 (-0.97)				-0.031 (-0.72)	-0.003 (-0.08)	-0.018 (-0.44)				-0.066 (-1.28)
Earnings	1.801 ** (2.14)				0.061 (0.08)	0.304 (0.42)	0.998 (1.18)				1.183 (0.97)
SP1		0.023 (1.63)			0.013 (1.01)			0.007 (0.60)	0.006 (0.48)		0.026 (1.41)
Tax Ratio		-1.687 ** (-2.44)			-1.930 ** (-2.42)			-1.121 (-1.56)	-1.533 ** (-2.03)		-3.074 (-1.54)
AIM			-0.003 (-0.03)			0.060 (0.42)		-0.052 (-0.34)		0.041 (0.29)	-0.173 (-0.86)
Financial			1.083 ** (1.97)	-0.513 (-0.77)		1.220 ** (2.18)	-0.826 (-1.12)	1.126 ** (2.06)		1.162 ** (2.31)	1.079 (1.29)
Constant	-0.499 (-0.28)	-1.337 (-0.81)	1.083 (-1.50)	-1.195 (-0.80)	1.141 (1.20)	-1.287 * (-1.93)	-0.653 (-1.11)	0.562 (0.75)	2.006 *** (2.79)	-0.342 (-0.79)	-0.104 (-0.04)
LR Chi ²	21.81	14.73	12.44	8.35	18.65	17.09	12.81	9.13	6.87	7.17	34.25
Pseudo R ²	0.220	0.148	0.125	0.084	0.188	0.172	0.129	0.092	0.069	0.072	0.345
Pearson Chi ²	70.60	84.79	84.38	80.84	79.80	85.24	83.06	79.84	75.79	83.10	65.64
Prob > Chi ²	0.590	0.229	0.238	0.330	0.330	0.196	0.245	0.390	0.517	0.174	0.559

Superscripts indicate statistical significance at the 1% (***), 5% (**) and 10% (*) level. The parentheses contain the z-statistics.

Table A2. Determinants of repurchase implementation in the period $y + 2$, coefficients.

	I	II	III	IV	V	VI	VII	VIII	IX	X	XI
AV/MC Ratio	8.310 * (1.93)	7.136 * (1.69)	7.517 * (1.83)	7.824 * (1.94)							9.163 * (1.90)
Market Cap Firm Size	0.005 (0.29)	0.004 (0.26)	0.006 (0.34)	0.009 (0.52)							-0.006 (-0.31)
Dividends	0.049 (0.54)	0.115 (1.57)	0.113 (1.57)	0.106 (1.42)							-0.004 (-0.04)
Debt Ratio	-0.008 (-0.68)				-0.006 (-0.50)	-0.005 (-0.49)	-0.006 (-0.53)				-0.007 (-0.59)
M/B Ratio	1.403 (1.55)				2.225 *** (2.91)	2.055 *** (2.67)	1.831 *** (2.65)				2.877 ** (2.44)
Board P/E Ratio	-0.100 * (-1.72)				-0.121 ** (-2.00)	-0.146 ** (-2.13)	-0.130 ** (-2.12)				-0.154 ** (-2.21)
Earnings	0.923 (1.23)				1.211 (1.60)	0.660 (0.89)	0.823 (0.97)				2.099 ** (1.83)
SP1		-0.007 (-0.90)			-0.013 (-1.39)			-0.010 (-1.26)	-0.010 (-11.16)		-0.012 (-1.61)
SP2		0.009 (0.01)			1.338 (1.45)			-0.018 (-0.02)	-0.100 (-0.13)		2.284 ** (1.97)
Tax Ratio			0.223 (0.72)			0.475 (1.41)		0.369 (1.05)		0.297 (0.87)	0.801 (1.60)
AIM			-0.105 (-0.38)			0.072 (0.24)		-0.078 (-0.29)		-0.153 (-0.52)	0.075 (0.22)
			0.317 (0.75)			-0.034 (-0.07)		0.352 (0.82)		0.385 (0.92)	0.027 (0.05)
				0.016 (0.02)			-0.318 (-0.46)		-0.020 (-0.03)	-0.335 (-0.50)	-0.502 (-0.59)

Table A3. *Cont.*

T Statistic	Yearly			Completion Rates			
M/B Ratio	0.6079	1.3459	0.4136	0.2301	−0.6538	−1.1103	0.0371
Mean Diff < 0	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant
Mean Diff ≠ 0	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant
Mean Diff > 0	Insignificant	*	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant
Board	0.1746	−0.2496	0.6131	1.1934	0.8378	1.2692	0.5003
Mean Diff < 0	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant
Mean Diff ≠ 0	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant
Mean Diff > 0	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant
P/E Ratio	−0.2786	0.6226	−0.4645	0.9742	−1.2999	0.2344	1.1238
Mean Diff < 0	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant
Mean Diff ≠ 0	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant
Mean Diff > 0	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant
Earnings	−2.1647	−0.8094	−0.6980	−1.7195	0.000	−1.000	−1.000
Mean Diff < 0	**	Insignificant	Insignificant	*	Insignificant	Insignificant	Insignificant
Mean Diff ≠ 0	*	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant
Mean Diff > 0	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant
SP1	0.7485	0.7383	1.0142	0.7020	1.2916	0.1439	−1.8200
Mean Diff < 0	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	**
Mean Diff ≠ 0	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	*
Mean Diff > 0	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant
SP2	n/a	1.0984	1.9495	2.2885	1.3620	2.3510	−0.4719
Mean Diff < 0	n/a	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant
Mean Diff ≠ 0	n/a	Insignificant	*	*	Insignificant	**	Insignificant
Mean Diff > 0	n/a	Insignificant	**	**	*	*	Insignificant
Tax Ratio	−0.3561	−1.0420	1.8856	1.7059	2.5832	2.9294	0.000
Mean Diff < 0	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant
Mean Diff ≠ 0	Insignificant	Insignificant	*	Insignificant	**	***	Insignificant
Mean Diff > 0	Insignificant	Insignificant	**	*	***	***	Insignificant
AIM	0.0000	−1.0000	−1.0000	−1.4577	0.0000	−0.5664	−0.5664
Mean Diff < 0	Insignificant	Insignificant	Insignificant	*	Insignificant	Insignificant	Insignificant
Mean Diff ≠ 0	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant
Mean Diff > 0	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant
Financial	0.0000	0.4381	−1.0000	0.3249	−1.4510	0.0000	1.1435
Mean Diff < 0	Insignificant	Insignificant	Insignificant	Insignificant	*	Insignificant	Insignificant
Mean Diff ≠ 0	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant
Mean Diff > 0	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant	Insignificant

Statistical significance at 1% is represented by ***, 5% by ** and 10% by *.

Notes

- 1 The discussed tax rates are sourced from the archives of HMRC and general government reports.
- 2 The volume of shares that can be repurchased via the open-market route are capped at 15% of the outstanding capital.
- 3 The period represented in the post-announcement first annual accounts filing.
- 4 The period represented in the post-announcement second annual accounts filing.
- 5 The average completion rate is 72%.
- 6 The average completion rate is 26%.
- 7 Completion Rate = 100% represents 24% of the tested sample, Completion Rate = 50% <, <100% represents 28% of the tested sample, Completion Rate = 0% <, ≤50% represents 26% of the tested sample, and Completion Rate = 0% represents 22% of the tested sample.
- 8 The lowest and highest total book value of assets are GBP 3.40mn and GBP 504.38bn, respectively. After scaling, the lowest and highest values are 15.05 and 26.93, thus showing a less-than-two-fold difference.

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