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Asymmetric Effects of Fair Value Adjustments on Dividend Policy

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Abstract

We examine the effect of unrealized fair value adjustments resulting from derivatives classified as cash flow hedges on the dividend policy of UK firms. We theorise and empirically demonstrate that companies differentiate between positive and negative fair value adjustments. When unrealised gains are recorded under 'Other comprehensive income' firms do not increase dividend payouts; as such it can be argued that legal requirements surpass potential signaling considerations. However, for unrealized losses, firms reduce their dividend payouts, even when regulatory arrangements do not necessarily mandate this. Furthermore, firms adjust their dividends based on unrealized losses under different levels of firm risk, future growth opportunities and financial distress. Overall, our findings suggest that managers display a conservative behavior aiming to safeguard company assets, by effectively treating unrealized gains as 'transitory' and unrealised losses as 'persistent'.

Keywords: *Dividend policy, Fair value accounting, Fair value adjustments, Other Comprehensive Income, Conservativism.*

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1. Introduction

Fair value measurement has become increasingly important for financial reporting (e.g. Ball, 2006; Barth, 2007; Christensen & Nikolaev, 2013; Wallison, 2008). Theoretically motivated by the literature examining the link between earnings and dividends, several prior studies have focused on the role of fair value adjustments for dividend policy (Goncharov and van Triest, 2011; Goncharov and van Triest, 2014; Goncharov and van Triest, 2014; Sikalidis and Leventis, 2017; Chen et al. 2019; Chen et al, 2020). Starting with the Lintner framework (1956) this strand in the literature argues that (i) companies adjust dividends according to earnings, aiming at a target payout ratio (Correia da Silva, Marc, & Renneboog, 2004; DeAngelo and DeAngelo, 1990; Fernau and Hirsch, 2019; Goergen, Renneboog, & Correia da Silva, 2005) and (ii) companies generally refrain from dividend cuts (Brav et al., 2005, DeAngelo, DeAngelo, and Skinner, 1992; Jagannathan, Stephens, & Weisbach, 2000; Skinner & Soltes, 2011). This implies that *only* earnings components which are permanent and persistent can affect dividend distributions, as they can be reliable predictors of future firm performance.

However, specific components of unrealized earnings, (as reported in the Statement of Other Comprehensive Income- OCI) can arguably also have a predictive ability of future firm performance (Bratten et al., 2016). Given this important property, this paper extends our understanding of the impact of these components on dividend policy and their potential use by managers as a signaling mechanism. Our focus is on the impact of one of the most frequently reported OCI components -unrealized fair value adjustments from derivatives classified as cash flow hedges- on the dividend policy of UK firms. Within this context, we also focus on the treatment of downward fair value adjustments for dividend payouts and explore their use as a signal of conservatism from firm managers.

We use the UK as a setting for our analysis since the reporting of Comprehensive Income was first introduced in the UK before being later adopted by the IASB through IAS 1 on the presentation of financial statements for companies adopting IFRS. The main objective of the introduction of OCI was to allow investors to assess the firm's future earnings and fair values more objectively, by incorporating within the financial statements any accounting components which reflect changes in equity not recognized in the profit or loss account and not resulting from transactions with shareholders (Zhang 2014; Pellens 2014). Following Bao et al. (2019) we focus on one of the most frequently reported OCI components, namely unrealized gains and losses related to fair value adjustments on derivative contracts classified as cash flow hedges[2]. The unrealized fair value adjustments are material: in our sample In our sample, the average ratio of adjustments from derivatives classified as cash flow hedges, to the change in return on assets is about 19%.[3] During the period of our study, firms under IAS 39 should report derivative contracts classified as cash flow hedges at fair value on the balance sheet regularly, while the relevant positive or negative unrealized fair value adjustments should be recorded in OCI as unrealized gains or losses respectively. When the hedged transaction takes place, the unrealized fair value adjustments, either positive or negative, are reclassified as a net income item while the underlying hedged component impacts earnings as well. Any unrealized gain (loss) on the derivative contract classified as a cash flow hedge in a particular period implies that the price of the undelying asset has increased (decreased) leading to lower (higher) future profits following the termination of the hedge (Jones and Smith, 2011).

We employ an adjusted version of Lintner's (1956) model with the first differences of the included variables to examine the impact of unrealized fair value adjustments on dividend policy on a sample of 1,958 firm-year observations of UK-listed firms from 2009 to 2017. Our findings are summarized as follows: First, unrealized *upward* fair value adjustments from derivatives classified as cash flow hedges do not affect dividend payouts for UK firms. This suggests that managers treat those components as not suggestive of core firm performance, a finding not in line

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[2] Other OCI components can be unrealized gains and losses on marketable securities categorized as available-for-sale securities, changes in foreign currency translation, postretirement adjustments etc. (Bao et al. 2019; Jones and Smith, 2011).

[3] We use a similar approach to Jones and Smith (2011) for defining the materiality of the OCI component for companies with evidence of an adjustment of derivatives classified as cash flow hedges.

with prior empirical evidence demonstrating the value relevance of those components (e.g. Jones and Smith, 2011; Makar et al., 2013; Campbell, 2015; Siekkinen, 2016[4]; Bratten et al. 2016). This result is also consistent with the UK regulatory framework, indicating that managers indeed consider such items as transitory. Second, and most importantly, we show that *downward* unrealized fair value adjustments from derivatives classified as cash flow hedges have a negative effect on dividend payouts when there are no regulatory considerations[5]. Third, firms choose to deviate from their standard dividend policy, waive regulatory recommendations and decrease their dividends by taking into consideration their unrealized losses, particulalry when their stock performance is strongly related to market movements, when they have significant future growth opportunities and when they are less financially distressed. Given the managerial aversion to dividend pay cuts according to Lintner's framework[6], we interpret this behaviour as a manifestation of managerial conservatism on dividend policy.

We address selection bias concerns by employing a one-to-one without replacement nearest neighbor propensity score matching (PSM) (Shipman et al. 2017) to construct a matched sample of firms. The PSM procedure enables us to mitigate concerns that our findings are driven by self-selection and structural disparities between firms proceeding to revaluations of fair value adjustments on the particular OCI component and those which are not. Also, the use of first

[4] Siekkinen (2016) argues that fair values are value relevant in institutional settings where the investor protection is either strong or (UK is classified as such) medium.

[5] There is no regulatory consideration about negative unrealized income.

[6] The following example can further explain why we view this finding as a sign of managerial conservatism: Firms A and B have the same realized accounting profit, £100 million. They also have a similar dividend policy suggesting that they should distribute a 30% of their realized earnings. In our case, that is £30 million for each of the two companies which leaves them with £70 million undistributed profit. Let's assume that in the next year they have exactly the same performance (£100 million realized profit), but in this case company B has a negative fair value revaluation for its income classified as cash flow hedges of £10 million. For company B the realized profit would be the same (£100 million); based on the Lintner framework and if unrealized income is considered as non-value relevant, it would be expected to distribute at least £30million as dividends. In our paper, we find that the managers of company B would decrease the dividends based on the 10 million negative adjustment and thus distribute less than 30 million, demonstrating a more conservative dividend policy. Moreover, the fact that firms with stronger financial position, higher risk and higher future growth opportunities are more pronounced to adjust their dividends downwards based on the unrealized OCI losses suggests that managers are less reluctant to disregard the unrealized losses and are more inclined to convey a negative signal through dividend cuts (Goncharov & Veenman, 2013).

differences is equivalent to the introduction of firm-level fixed effects further mitigating endogeneity concerns.

Our study contributes to the ongoing debate on the economic impact of FVA. First, in contrast to the advocates of FVA (Barth, 2007; Barth, Beaver, & Landsman, 1996, 2001; Hitz, 2007) and evidence suggesting that unrealized income from derivatives classified as cash flow hedges is value relevant (e.g. Jones and Smith, 2011; Makar et al., 2013; Campbell, 2015; Bratten et al. 2016), we demonstrate that managers do not distribute unrealized gains from fair value adjustments on derivatives classified as cash flow hedges, effectively treating these components as transitory. Thus, our findings are relevant to the concerns of accounting practitioners, corporate regulators as well as market participants contributing to the ongoing debate regarding the contribution of FVA on the procyclicality of the financial system. Second, our study focuses on the impact of fair value adjustments of derivatives classified as cash flow hedges on an important corporate policy (earnings distribution). Hence, we focus on an accounting component that is part of the Other Comprehensive Income (OCI), and not the income statement, which reclassifies to income statement when realized. In contrast, relevant prior studies (Goncharov and van Triest, 2011; Sikalidis and Leventis, 2017; Chen et al. 2020) examine fair value adjustments which appear directly in the income statement. This particular scope of our paper provides further evidence on how managers view fair value revaluations that are not part of the income statement bottom line earnings, where investors mostly fixate on (Sikalidis and Leventis, 2017). Third, we add to the body of literature which explores the unintended consequences of financial reporting on corporate policies (Brüggemann et al., 2013; Fargher and Zhang, 2014; Linnenluecke et al., 2017; Sikalidis and Leventis, 2017; Chen et al. 2020). By doing so, we also bring together two major strands of literature, namely Financial Reporting and Corporate Finance. To this end, we theorise and empirically test how an -otherwise irrelevant for distribution purposes- accounting treatment of unrealized earnings and losses in the statement of Other Comprehensive Income (OCI) affects a major corporate policy. Fourth, we show that under certain circumstances managers decrease dividends based on unrealized losses, effectively treating those differently from unrealized gains. We argue that the fact that unrealized losses affect dividends while gains do not is a sign of managers' conservatism since even if our legal setting excludes unrealized components from the determination of the distributable income, it is very hard to directly detect the impact of unrealized income on dividends when companies distribute less than the maximum distributable income. We add new insights into the research on dividend payout policy that links permanent earnings with dividends (Brav et al., 2005; Skinner, 2008) since we provide empirical evidence that FVA introduces unrealized accounting components not directly included in the income statement which have an *asymmetric effect* on dividend payouts. Fifth, we investigate how firm-specific characteristics associated with a firm's financial health can affect the decision to distribute unrealized fair value income and/or deviate from standard dividend policies. In particular, we provide evidence on the importance of debt contracting and how this might be associated with the managerial decision to distribute fair value income.

2. Accounting regulation and legal framework

Following the introduction of FRS 3 in 1992, the UK became the first country that effectively required the reporting of Comprehensive Income, under the heading "total recognized revenues and expenses". Standard setters intended to include elements in the financial statements that represent changes in equity, but are neither recognized in the profit or loss nor arise from transactions with shareholders (Zhang 2014; Pellens et al. 2014). This UK initiative set an example for international standard-setters to follow. Specifically, comprehensive income under IFRS was the result of the convergence efforts between IASB and FASB. FASB had already required Comprehensive Income to be reported separately since 1997, while the IASB followed with IAS 1 on the presentation of financial statements for companies applying IFRS. In 2007, IAS 1 revision involved different approaches for the definition and report of performance: the two-statement approach -which follows the concept of net income- and the single-statement approach -which follows the concept of Comprehensive Income. According to the two concepts, OCI can either be reported as part of a single statement of Comprehensive Income or as a separate statement[7] where effectively two performance figures are displayed: Net Income and Comprehensive Income. Companies that report under IFRS have to report OCI according to IAS 1 (as revised in 2007) for annual periods beginning from the 1st of January of 2009[8].

The principle behind OCI is that several accounting components should be included in shareholders' equity under OCI and not be transferred through to profit or loss. In this way, investors could form a more informed opinion of the firm's future earnings and fair value, since these components are considered of lower persistence when compared to net income components[9]: As such, the objective of the Conceptual Framework, which is to provide useful information to the users of financial statements that enhances the appraisal of the level, timing, and riskiness of future firm performance, would be well served. As soon as OCI components are realized, they are either suspended via profit and loss or balanced out to retained earnings. Specifically, OCI items from each accounting period initially appear under the accumulated OCI figure. The recycling of the initially recognized OCI from total OCI to profit and loss is adjusted for the proportion of these income components realization on a yearly basis.

According to IFRS 1, items that can be recycled to profit and loss are: foreign currency exchange adjustments (IAS 21); effective portion of gains and losses classified as cash flow hedges (IAS 39.95, for example, derivatives held as cash flow hedges); gains and losses on available-for-sale securities (IAS 39.55), etc. Yet, not all OCI components can be reclassified to profit or loss [e.g. fair value adjustments of tangible (IAS 16.39) and intangible assets (IAS 38.85)]. Proponents of general recycling of all OCI components suggest that the reclassification will enhance the

[7] IAS 1 and SFAS 130.
[8] IFRS as well as US GAAP adopt a similar presentation approach for the statement of the Comprehensive Income and its elements. Except serving the aim to harmonize IFRS with US GAAP, the main purpose of implementing IAS 1 was the enhanced significance for Other Comprehensive Income components (Thinggaard et al, 2006).
[9] Kanageretnam et al. (2009).

usefulness of net income since they capture variations of economic reality more accurately[10]. In contrast, critics argue that untimely recognition of certain income components compromises the utility of accounting information towards a firm's financial performance, while they add to the complexity of the already criticized OCI item recognition[11].

2.1. Regulatory Framework

The treatment of unrealized income components with respect to their distribution differs substantially across countries (KPMG, 2008). The UK does not allow for any degree of flexibility in the distribution of unrealized profits. Specifically, section 830 of the Companies Act (2006) allows the distribution of profits as long as they "are its accumulated, realised profits, so far as not previously utilised by distribution or capitalisation, less its accumulated, realised losses, so far as not previously written off in a reduction or reorganisation of capital duly made". In other words, dividends can only be paid out of realized profits less realized losses. If the difference is positive, then dividend distribution is possible and the company is considered to have passed the realized profit test. Moreover, a UK public company cannot make a distribution if its net assets are less than the aggregate of its called-up shared capital and undistributable reserves. Undistributable reserves include among others the excess amount of unrealized profits over unrealized losses. In general, a public company can distribute dividends from profits that are available for distribution since they derive from the realized profits test, as long as the company passes the net asset test (ICAEW, 2020). These profits define effectively the maximum possible dividend. A profit (loss) is considered realized if it is generally accepted as so for accounting purposes, meaning that it reflects a high probability of a cash transaction. When it comes to fair value accounting, the key consideration is whether upward (downward) fair value adjustments can be considered readily convertible into cash (KPMG, 2008). Profits (losses) originating from adjustments in the fair value

[10] Conceptual Framework IASB (2013b), paragraph 8.24 for arguments in favor of the recycling concept.
[11] Conceptual Framework IASB (2013b, paragraph 8.25 for arguments against the recycling concept.

of the derivative instrument constitute a realized profit (loss) only in cases where the derivative element can be closed so that it satisfies the relevant convertible to cash tests.

In academic literature, the identification of firms distributing dividends based on unrealized earnings assumes that all realized earnings are distributed before any unrealized earnings (Chen and Gavious, 2016; Chen et al 2019). Based on this identification it becomes clear that unless all firms distribute all their realized income first, it is particularly difficult to identify those which may deviate from their standard dividend policy due to unrealized income. Thus, whilst the regulatory framework prescribes the best practice, there is room for non-compliance to the spirit of the regulation, since any deviations from standard dividend policy - driven by unrealized income- may not be detected in practice.

2.2. Income from derivatives classified as cash flow hedges

Bao et al. (2019) provide insights into the importance of different OCI components and find that unrealized gains and losses related to fair value adjustments on derivative contracts classified as cash flow hedges are one of the most frequently reported OCI components. Hedging instruments, such as derivatives, are typical financial instruments. The cash flows of the derivative instrument will normally offset the positive or negative cash flows arising from the FVA of the hedged instrument. According to hedge accounting (IAS 39.86) there are three types of hedges: (a) fair value hedges (IAS 39.89-94), (b) cash flow hedges (IAS 39.95-101), and (c) hedges for investment in foreign operations (IAS 39.102 linked to IAS 21). Gains and losses from such hedging activities can affect the profit and loss statement but also be included in the OCI, as demonstrated by cash flow hedges. While in fair value hedges, the hedged item is recognized in the balance sheet, this is not the case for cash flow hedges, where the hedged item is treated as a future cash flow that hasn't been currently recognized[12]. Specifically, these cash flows have to be attributable to either of the two: 1) a specific risk, which is related to an asset or liability already recognized on the balance

[12] These cash flows are recognized in the future only if they comply with the requirements of IAS 39.86.

sheet, or 2) a most probable and anticipated transaction, which would have an impact on the income statement. The part of the positive or negative fair value adjustment of derivatives from an effective hedge is identified in OCI, while the ineffective part should be instantly recognized in profit of loss. When the expected financial asset or liability affects the income statement, any gains or losses related to derivatives already recognized in the OCI will be reclassified to profit and loss according to IAS 39.97[13].

3. Theoretical background and Hypothesis development

3.1. Earnings and dividend policy

Academic literature examining the link between dividends and earnings dates back to Lintner (1956). Current dividend policy is adjusted according to earnings, while the long-term goal of the firm is to adjust payments to a target payout ratio (Shevlin 1982; DeAngelo et al. 1992; Daniel et al. 2008). In this respect, dividend policy is configured based on the target payout ratio and current earnings. The decision to cut down on dividends is usually affected by reduced net earnings around the period of examination (De Angelo et al., 1992). Brav et al. (2008) argue that earnings appear to be the main determinant of dividend changes in the US institutional setting as they note that management is willing to sell assets, discharge employees, pursue debt, or even forgo positive net present value projects to prevent dividend cuts. Similar results are also reported in Europe (Goergen et al., 2005) while in the UK firms feeling pressured into maintaining dividend coverage ratios, appear to be prone to earnings management when performance is poor (Atieh and Hussain, 2012). Nevertheless, as Chen et al. (2019) argue, dividend studies mostly focus on the level of firms' dividend payouts, rather than the source of dividends (e.g. unrealized earnings), which is directly linked to the nature of earnings components in which dividends are based. Chen et al.

[13] Since 1st of January 2018, IFRS 9 has been implemented replacing IAS 39. The new accounting model aims mostly to improve how companies hedge non-financial risk but at the same times allows for companies to continue applying the hedge accounting requirements of IAS 39 (https://www.iasplus.com/en/news/2013/11/iasb-finalises-ifrs-9-chapter-on-general-hedge-accounting, assessed 8/1/2021).

(2019) also highlight that there's a gap in the literature on the potential drivers and consequences of dividend payments resulting from unrealized earnings.

The notion that companies smooth and adjust dividends, aiming for a target payout ratio[14] along with the evidence that they generally refrain from dividend cuts, suggests that under fair value accounting firms may be tempted to distribute dividends based on both unrealized and realized profits. As fair value accounting permits adjustments that result in unrealized profits or losses, reported income may increase (decrease) in cases of upward (downward) revaluations. Increased dividends based on revaluation gains would indicate that management considers those income components as indicative of future earnings (Michaely et al. 2018) while their distribution would mitigate potential investors' concerns about their volatility. Therefore, management might be tempted to increase dividends due to potential pressure from investors who could fixate on bottom-line earnings, thus expecting a relevant dividend without distinguishing the differences like alternative income components.

The UK regulatory setting specifically requires that only realized earnings are to be included in distributable income; thus unrealized profits should not affect dividend payouts. However, the detection of a dividend driven by unrealized earnings is not always straightforward [e.g. Chen et al. (2019) provide a relevant methodology] rendering a negative market or regulatory reaction less probable. We focus on the effect of a particular unrealized fair value item on a firm's dividend policy, while we explore potential management's deviation from regulatory recommendations, especially under conditions of financial distress, sensitivity to market risk and significant future growth opportunities. In this way, our study advances the examination of the consequences of fair value items on a central corporate policy, aiming to fill a well-documented gap in the literature (Chen et al. 2019).

[14] Firms have an established dividend payout ratio while any departure from that ratio demonstrates alternate executives' views regarding future firm performance (Modigliani and Miller, 1958).

3.2. Prior literature and Hypothesis development

According to prior literature (e.g. DeAngelo, DeAngelo, & Skinner, 2004; Jagannathan et al., 2000; Skinner & Soltes, 2011), firms are inclined to focus specifically on persistent earnings items when defining their distributable income. In this respect, Kormendi and Zarowin (1996) claim that the persistence of earnings positively affects dividend payments. Jagannathan et al. (2000) assert that transitory components of earnings are not distributed, while Skinner and Soltes (2011) posit that the existence of more transitory components in total income results in the relationship between earnings and dividends weakening significantly. The underlying idea is that only permanent and persistent earnings may positively affect dividend distributions since they predict future core firm performance while unrealized transitory income components with little or no predictive ability should have no distribution consequences (Goncharov and Van Triest, 2011, Sikalidis and Leventis, 2017). Therefore, the nature of unrealized earnings and whether they can predict future core performance is particularly salient since their classification as core performance indicators renders them effectively distributable.

Prior evidence suggests that fair-value-related adjustments included in OCI can demonstrate a predictive ability of future firm performance (Bratten et al. 2016). In his theoretical model, Ohlson (1999) demonstrates that while fair value adjustments may not necessarily be persistent as they follow a random walk, they can be relevant for the prediction of future firm performance. In other words, unrealized gains and losses accrued gradually as the firm holds the asset can be related to future firm performance. In line with this theoretical prediction, prior research negatively related to future profitability and cash flows (Makar et al., 2013; Campbell, 2015[15]).

[15] Jones and Smith (2011) use a sample of nonbanks and they also detect a relationship between OCI and 1-year-ahead earnings. They fail to detect an association for a longer-term horizon, while the relationship between OCI and future cash flows is weaker.

Apart from the explicit examination of the relationship between OCI unrealized components and future profitability, there is also empirical evidence from the value relevance literature showing that OCI and its components are value relevant (e.g. Barth 1994). Kanagaretnam et al. (2009) also report a relationship between OCI components and cash flow of one year in the future. However, they also find a stronger association between net income and its future values than the relationship between OCI and future net income, suggesting that the predictive ability of OCI components is weak due to their transitory nature. Dhaliwal et al. (1999) report a strong relationship between net income and stock returns, while they fail to detect a strong lilnk between comprehensive income and future earnings or cash flows[16].

Based on the conflicting results of prior studies, it is challenging to form a clear prediction on how well OCI components can predict future performance. Theory and some empirical findings suggest that unrealized OCI components have some predictive power on firms' future performance and they are value relevant (Ohlson 1999; Bratten et al. 2016). In the same spirit, we expect unrealized earnings from fair value adjustments on derivatives classified as cash flow hedges to be negatively related to firms' future performance. For this reason, they should affect current dividends negatively, assuming that managers can accurately appreciate the nature of these components. However, UK regulation seems to adopt a narrow and conservative approach when considering the distribution of unrealized income, arguably to protect firm liquidity and avoid a procyclicality of the financial system. This approach effectively suggests that all unrealized earnings in OCI should be considered as strictly transitory[17]. However, since we cannot fully rule out the possibility that firms treat unrealized earnings from derivative contracts classified as cash flow

[16] We followed Sloan (1996), Goncharov and van Triest (2011), and Sikalidis and Leventis (2017) and we have assessed the predictive ability of unrealized fair value adjustments of derivatives classified as cash flow hedges as a robustness test and our findings are similar to Dhaliwal et al (1999). Specifically, we do not detect a significant relationship between unrealized gains or losses from derivatives classified as cash flow hedges and one or two years' future net income.

[17] Additional robustness analysis (untabulated) of the unrealized earnings in our sample firms reports findings similar to that of Dhaliwal et al. (1999) whereby we find no strong relationship between unrealized earnings and future firm performance.

hedges as distribution relevant (e.g. income components with a predictive ability of future firm performance) based on prior theretical and empirical evidence, it is worth examining whether firms align their dividend policy with the regulatory requirements. Thus, Hypothesis 1 is as follows:

Hypothesis 1: Upward unrealized fair value adjustments from derivatives classified as cash flow hedges have no effect on dividend payouts.

We further assess if inferences supporting Hypothesis 1 can also be drawn for *downward* fair value adjustments. If managers adopt the transitory nature of unrealized components rationale of regulatory recommendations for both positive and negative unrealized fair value adjustments, then unrealized losses should be excluded from the calculations of profits available for distribution. On the other hand, based on theory and certain empirical studies we would expect that managers would adjust their dividend policy. Specifically, unrealized losses should be expected to affect dividends positively, since they are associated with higher future earnings. It is worth mentioning that while there is a regulatory restriction on unrealized earnings and their effect on dividend policy, this is not the case for losses. However, a higher payout ratio due to unrealized losses might decrease the probability that borrowers will ultimately have the ability to pay back their lenders in the future if the underlying asset is not liquidated efficiently, leading to an increased cost of financing for investment purposes (Shivakumar, 2013). Meanwhile, a higher dividend due to unrealized losses could provide a mixed signal to investors, while this dividend policy will not be in the spirit of the regulatory recommendations prohibiting the distribution of unrealized earnings. Overall, firms distributing dividends below the maximum distributable threshold do not face regulatory restrictions with respect to unrealized losses (unlike in the case of upward unrealized adjustments). We thus argue that their managers choose to decrease dividends in their effort to signal liquidation values of derivative contracts, behave more conservatively and secure their firms' capital maintenance. Thus, we formulate our second Hypothesis as follows:

Hypothesis 2: Downward unrealized fair value adjustments from derivatives classified as cash flow hedges will have a negative effect on dividend payouts.

Finally, we focus on the latent mechanisms affecting the relationship between unrealized fair value adjustments and payout policy. Specifically, our aim is to assess under which circumstances firms might be more likely to deviate from their standard dividend policy taking into consideration two important factors for the design of dividend policy: *financial flexibility* and *growth opportunities*.

The impact of a firm's financing structure on the relationship between agency costs and fair value accounting applications is not straightforward (Christensen & Nikolaev, 2013; Sikalidis and Leventis, 2017). If unrealized losses are considered by management as predictors of a firm's future performance, they should affect dividends conveying a negative (positive) signal to the market if they are associated negatively (positively) with future performance. Specifically, according to the *information content hypothesis*, dividends are thought to convey information about the current and future ability of the firm to produce cash (indicatively in recent studies DeAngelo and DeAngelo 2006; Guttman et al. 2010; Ham et al. 2020; Lambrecht and Myers 2012). As a negative signal of a firm's future performance, a dividend payment based on unrealized losses may increase the cost of debt.

Furthermore, if managers consider unrealized losses based on revaluations of derivatives classified as cash flow hedges a positive signal (Bratten et al., 2016), an increased dividend should be expected, a policy that might not be well received by debtholders if they are able to understand the nature of these income components correctly. In addition, it can be argued that since regulators effectively consider unrealized income as non-distribution relevant[18], only the most solid firms would be willing to voluntarily reject this rationale for losses and refuse their shareholders higher dividends while conveying a negative signal by incorporating paper losses in their dividend policy.

[18] An approach confirmed by our robustness analysis of unrealized income persistence.

These firms are the ones that might be more suitable to absorb any negative market reaction. Moreover, in this way, the decrease of dividend payments based on this kind of losses would assure the debtholders while displaying management as being more conservative and reliable, all else equal. Furthermore, these unrealized losses might be used opportunistically to justify dividend cuts (Goncharov and van Triest, 2011), a strategy that might be easier when transitory income components are involved, especially for firms with a robust financial status (higher borrowing capacity) (Sikalidis and Leventis, 2017). On the other hand, firms that are more risky and have higher future growth opportunities have incentives to hoard cash to create a liquidity safety net and pursue growth through the funding of potential investments (Feito-Ruiz et al. 2020). Thus, firms will most likely cut dividends in light of increasing investment requirements (Ben-David et al. 2007). In this case, they have more incentives to decrease dividend payouts based on unrealized losses and exploit the opportunities to invest in positive NPV projects. Thus, we put forward a third Hypothesis:

Hypothesis 3: The negative relationship between downward fair value adjustments from derivatives classified as cash flow hedges with dividend payouts is more pronounced for firms that are less financially distressed, are riskier and have higher future growth opportunities.

4. Research design

4.1. Sample

We focus on the fair value adjustments from derivatives classified as cash flow hedges, for British listed firms during 2009-2017[19]. We select this time period since companies reporting under IFRS have to prepare their annual consolidated financial statements according to IAS 1 (as revised in

[19] Adding observations beyond 2019 would introduce the effect of COVID-19 on corporate payouts (Cejnek et al. 2021) in our setting,

2007) for the financial year starting after January 1, 2009. IAS 1 aims, among others, to an effective presentation of OCI components. Hence, we can calculate lagged variables and their differences with their subsequent values for the period under examination starting in 2009, in addition to collecting data for the unrealized income from fair value adjustments. We collect the data for fair value adjustment on derivative contracts as well as accounting data from Bloomberg while we also cross-checked the validity of the information from companies' annual reports. We have included 380 different companies listed on the LSE for which there is data on derivatives revaluation during our sample period. The final sample includes 1,958 firm observations and covers a variety of industrial sectors.

4.2. Benchmark model and dividend policy

We conduct a multivariate analysis starting with an extension of Lintner's (1956) model according to which companies adjust their dividend payouts based on their dividend policy as reflected by their dividend payout ratio. Specifically, drawing upon Sikalidis and Leventis (2017) and empirical models of relevant studies (Correia da Silva et al., 2004; Gugler and Yurtoglu, 2003; Harakeh et al. 2019; Kilincarslan, 2021' Sikalidis et al., 2022) we build our benchmark model in which we calculate the first differences for each variable (model 1). In this way, our model effectively estimates fixed firm effects and controls for unobserved firm-level time-invariant variables.

$$\Delta DIV_{it} = a_0 + a_1 DERIV\_REV_{it} + a_2 \Delta ROA_{it} + a_3 \Delta DIV_{it-1} + a_4 \Delta SIZE_{it} + a_5 \Delta DEBT_{it} + a_6 \Delta CASH_{it} + a_7 \Delta GROWTH_{it} + a_8 \Delta \mathrm{MKT\_BOOK}_{it} + a_9 \Delta ASSETGR_{it} + \sum DIndustry + \sum DYear + e \quad (1)$$

In this model, for a given year t and a firm i, *ΔDIV (ΔDIV_{t-1})* as our dependent variable (and its lagged value) is the actual change in dividends over average assets from year t-1 to year t; *DERIV_REV* is the value of unrealized fair value adjustments of derivatives over average assets; *ΔROA* is the difference in return on average assets; $\Delta SIZE$ stands for the difference of natural logarithm of total assets and is a proxy for firm size changes; *$\Delta DEBT$* is defined as the difference in book value of total debt over average assets and is a proxy of financial leverage. We augment the model for *⊿CASH* as a proxy for free cash flow, measured as the difference of cash and cash equivalents scaled by average total assets and for past growth opportunities using the difference in the annual growth rate of sales (*⊿GROWTH).* We further include the change in a firm's book-to-market ratio (*⊿MKT_BOOK)* as a proxy for future growth opportunities. Furthermore, we follow prior literature (Martins and Novaes, 2012) which proposes that high levels of investments imply more investment opportunities and we include Δ*ASSETGR* defined as the difference the in annual growth rate of assets. *⊿ROA,* $⊿DIV_{t-1}$*, ⊿SIZE, ⊿DEBT, ⊿CASH, ⊿GROWTH, ⊿MKT_BOOK, ⊿ASSETGR* are our control variables. Finally, we include industry and year dummies while we winsorize all variables at the 1st and 99th percentiles. Standard errors are clustered at the firm level. All variable definitions are described in the Appendix.

If signaling considerations do not surpass management's reflections on regulatory requirements regarding dividend distribution, we expect that fair value adjustments should not be considered as part of distributable earnings and affect dividend payouts. Therefore, α_1 should not be statistically significant. On the other hand, if managers treat fair value adjustments of derivative contracts classified as cash flow hedges as income with predictive ability on future performance, they might consider it as distribution relevant. In this case, a positive a_1 would indicate that fair value adjustments transmit a positive signal about future firm performance while a negative a_1 would suggest bad news about firm future profitability. If managers disregard legal requirements and consider unrealized income components as persistent or associated with future profits, they should then regard these as core current profitability. In that case, the a_1 should be similar to the coefficient of the core performance variable (a_2).

Following prior literature (e.g. Jensen et al. 1992; Miller and Rock, 1985; Sikalidis and Leventis, 2017) we expect that more profitable firms would pay higher dividends, thus a_2 is expected to be positive while lagged *⊿DIV* are expected to be negatively related to the change of dividends. We have no specific prediction for the coefficient of *⊿SIZE* (a_4) since there is empirical evidence that suggests that larger firms are more pronounced to pay higher dividends (DeAngelo and DeAngelo, 2006) while there is also evidence promoting a negative association between dividends and firm size (Allen and Michaely, 1995). We anticipate a negative coefficient (a_5) for the change of leverage ratio (*⊿DEBT*) since higher leverage implies a decreased flexibility for managers to utilize corporate resources leading to lower agency costs (Jensen and Maeckling, 1976) while there are also stronger dividend payment restrictions due to debt covenants aiming to secure debt-holders investments (Farinha, 2003). We further predict a positive coefficient for the *⊿CASH* coefficient (a_6) because higher levels of cash indicate most probably higher free cash flows which could enhance the firm's ability to pay dividends. Moreover, by paying higher dividends firms would aim to reduce free cash flows and consequently potential agency costs. For the coefficients of past growth (α_7), future growth (α_8) as well as investment opportunities (α_9) a negative relationship with *⊿DIFF* is expected on the grounds that firms reduce dividend payouts in an effort to save internal funds and finance their development and positive NPV investments.

Under UK law, listed companies can distribute their accumulated realized profits minus any realized losses. Therefore, upward unrealized adjustments' association with dividend payouts might differ from the effect of the downward adjustments. This imbalance could be a result of both managers' signaling considerations as well as the lack of legal constraints when it comes to the treatment of unrealized losses. Therefore, in order to assess whether fair value adjustments affect dividend payouts symmetrically and further test Hypotheses 1 and 2, we differentiate between unrealized earnings and losses. Specifically, we decompose *DERIV_REV* into positive (*DERIV_REV*$^+$) and negative (*ABS_DERIV_REV*) adjustments (model 2).

For this reason, we design model 2 as follows:

$$\Delta DIV_{it} = a_0 + a_1 DERIV\_REV^{+}{}_{it} + a_2 ABS\_DERIV\_REV^{-}{}_{it} + a_3 \Delta ROA_{it} + a_4 \Delta DIV_{it-1} + a_5 \Delta SIZE_{it} + a_6 \Delta DEBT_{it} + a_7 \Delta CASH_{it} + a_8 \Delta GROWTH_{it} + a_9 \Delta \mathrm{MKT\_BOOK}_{it} + a_{10} \Delta ASSETGR_{it} + \sum DIndustry + \sum DYear + e \quad (2)$$

In model 2, *DERIV_REV*$^{+}$ (*ABS_DERIV_REV*$^{-}$) is defined as positive (absolute value of negative[20]) fair value adjustments on derivatives over total assets and zero otherwise. We predict that if legal regulation considerations surpass those of signaling, then a_1 should not be statistically significant. On the other hand, a_2 is expected to be negative due to signaling consideration and the absence of general regulatory restrictions. We further examine the effect of unrealized components when firms are profitable, thus they are allowed to distribute dividends. Specifically, we use the same model (model 2) but we keep only the observations where firms are profitable.

To examine Hypothesis 3, we use an alternative form of our benchmark model 2. In particular, we follow Landsman, Peasnell and Shakespeare (2008) as well as Sikalidis and Leventis (2017) in order to interact our main variables of interest (*DERIV_REV*$^{+}$ and *ABS_DERIV_REV*$^{-}$) with conditioning variables which are utilized as proxies of financial distress, firm riskiness and future growth. Specifically, we interact our conditioning variables with the unrealized income variables to assess whether firms with higher levels of financial distress, beta or market-to-book ratio are more pronounced to deviate from their standard dividend policy due to unrealized income. To capture the effect of the specific conditions on the relationship between dividend changes and unrealized income, we modify our benchmark model. Specifically, we interact our unrealized income variables (upward and downward) with proxies *(INT_COV, BETA, MKT_BOOK and ALTMAN_Z)*. Hence, the functional form of our model has the following structure:

$$\Delta DIV_{it} = a_0 + a_1 \begin{bmatrix} Conditioning \\ Variable \end{bmatrix} * DERIV\_REV^{+}{}_{it} + a_2 \begin{bmatrix} Conditioning \\ Variable \end{bmatrix} * ABS\_DERIV\_REV^{-}{}_{it} \\ + a_3 ConditioningVariable + a_4 DERIV\_REV + a_5 \Delta ROA_{it} + a_6 \Delta DIV_{it-1} + a_7 \Delta SIZE_{it} + a_8 \Delta DEBT_{it} + \\ a_9 \Delta CASH_{it} + a_{10} \Delta GROWTH_{it} + a_{11} \Delta MKT\_BOOK_{it} + a_{12} \Delta ASSETGR_{it} + \sum DIndustry + \sum DYear + e_{it} \quad (3)$$

In the above models, the conditioning variable can be one of the following: *INT_COV*, *BETA*, *MKT_BOOK* or ALTMAN_Z. *INT_COV* is a firm's interest coverage ratio. Following

[20] We focus on absolute values of negative fair value adjustments to enhance our results' interpretation.

prior literature (Christensen, Lee, & Walker, 2009; Citron, 1992; Day & Taylor, 1996; Moir & Sudarsanam, 2007) we assume that the financial expenses coverage ratio captures a firm's borrowing capacity, thus the higher the ratio the lower the firm's potential financial adversities. *BETA* captures a firm's beta coefficient in a capital market pricing model, *MKT_BOOK* is defined as the market-to-book value of equity ratio and *ALTMAN_Z* is the Altman's Z- score of each firm. The financial position of the firm is stronger when the Z-score is higher.

In model 3, the coefficients of the interactions of *DERIV_REV*$^+$ (α_1) and *ABS_DERIV_REV*$^-$ (α_2) with the conditioning variables reveal the impact of specific firm characteristics on the association between positive or negative unrealized fair value adjustments on derivatives and dividend policy respectively. According to Hypothesis 3, only the coefficient of interactions with *ABS_DERIV_REV*$^-$ is expected to be statistically significant and negative while *DERIV_REV*$^+$ is not expected to affect dividend policy. Specifically, firms are supposed to be less financially distressed when *INT_COV* and *ALTMAN_Z* are high and be highly risky when *BETA* takes extreme values and have high future growth opportunities when *MKT_BOOK* is high. Therefore, following Hypothesis 3 we expect that there should be a more pronounced negative relationship between dividend changes with interactions of *ABS_DERIV_REV*$^-$ with *INT_COV*, *BETA* , *MKT_BOOK* and *ALTMAN_Z*.

Furthermore, in order to examine Hypothesis 3, we use median split samples following a similar approach to Landsman et al (2008) who use median values to distinguish between high and low levels. Specifically, we use median split variables to distinguish samples in terms of their level of *INT_COV, BETA* and *MKT_BOOK* and *ALTMAN_Z*. Hence, we create 4 pairs of samples. In each pair, the first (second) sample includes firms that have values above (below) the median of one of the conditioning variables. Then, we estimate model 2 and we compare a_2 for the two samples for each pair. We expect, that a_2 should be more negatively pronounced for samples with high levels of *INT_COV, BETA, MKT_BOOK* and *ALTMAN_Z* suggesting that firms with lower financial distress, higher risk and future growth opportunities can afford to signal the negative values of fair value adjustments, be more conservative and save funds in order to exploit potential future growth opportunities.

4.3. Selection bias concerns

To ensure that our results are robust and unrestrained from selection bias concerns, we use a one-to-one nearest-neighbor propensity score matching (PSM) without replacement and perform our analysis on a matched sample of firms. In this way, we aim to remedy potential estimation problems of the treatment effect (i.e., decision to revalue derivatives) for omitted variable bias (Goncharov and van Triest, 2011; Sikalidis and Leventis, 2017).

Initially, we employ a probit model to estimate the propensity scores for firms that revalue derivatives and for firms that do not. In that model, we follow prior literature (Goncharov and van Triest, 2011, Leuz, 2003; Sikalidis and Leventis, 2017) and we control for lagged profitability, leverage, size, sales growth and cash levels. We further include industry and year dummies to control for industry and year effects. The probit model that we run is as follows:

$$DDERIV\_REV_{it} = a_0 + a_1 ROA_{it-1} + a_2 DEBT_{it} + a_3 SIZE_{it} + a_4 GROWTH_{it} + a_5 CASH_{it} + \sum DIndustry + \sum DYear + e_{it} \quad (4)$$

In the above model, *DDERIV_REV* takes the value of 1 when a firm has revalued derivatives classified as cash flow hedges during our sample period, and 0 otherwise. Our independent variables are defined as previously with the only difference in model 4 being that we do not take into consideration their first differences. The results of our probit regression are presented in Table 1.

{Insert Table 1 here}

According to Table 1, larger and more profitable firms are more likely to revalue derivative contracts. On the other hand, sales growth is negatively affecting the probability of revaluation while leverage (*DEBT*) and cash levels (*CASH*) are not significant.

Consequently, we utilize a nearest-neighbor matching procedure without replacement to match firms which have revalued their derivative contracts classified as cash flow hedges at least once in our sample period with those that they haven't done so. The firm matching is dependent on the proximity of the propensity score estimated values from the use of the probit regression after ensuring that the pairs include firms from the same year and industry. The outcome of this process is 979 matching pairs with a total of 1,958 firm-year observations. Table 2 and Figure 1 present the information regarding the covariate balance before and subsequent to propensity score matching for firms that perform fair value revaluations and firms which do not. We observe that after propensity score matching univariate statistics still show significant differences in firm size (*SIZE*), where mean difference (0.282) is significant at 1% and in leverage (*DEBT*), where the mean difference (0.017) is significant at the 10% significance level. Nevertheless, standard differences for both variables are negative and no more than -20%[21]. Lagged profitability (ROA_{t-1}), cash (*CASH*) and growth (*GROWTH*) levels do not demonstrate significant differences across revaluers and non-revaluers subsequent to propensity score matching. Since we observe a significant decrease in the standardized differences we argue that the propensity score matching procedure has been effective. Using the new sample, we perform our analyses for models 1,2 and 3.

{Insert Table 2 here}

{Insert Figure 1 here}

[21] Ferri and Maber (2013) argue that large differences are reflected by standardized differences >20% or < -20% .

5. Empirical findings

5.1. Descriptive statistics

Tables 3 and 4 present the descriptive statistics and correlations of the variables. Specifically, Table 3 summarizes the financial characteristics of the initial sample (Panel A) and the sample of our analysis subsequent to propensity score matching (Panel B). The mean (median) change of dividends (*ΔDIV*) is positive in both panels and close to 0 suggesting that an average firm does not change significantly its payout policy as expected. On the other hand, the mean of change in ROA (*ΔROA*) and the leverage ratio (*ΔDEBT*) is negative in the matched sample while the median is positive, suggesting that there are some firms in the sample with a considerable decrease in their profitability and leverage, having, as a result, a downward shift of the mean value. Concerning *ΔGROWTH*, *ΔMKT_BOOK* and *ΔASSETGR*, considerable differences are reported between their means (-0.033, 0.132, -0.011) and medians (-0.003, 0.069, 0.006) in the matched sample, respectively, implying that the distribution of values of those variables is non-symmetric.

{Insert Table 3 here}

Table 4 shows the correlations between variables. Coefficients in general have the expected sign while there is no pairwise coefficient exceeding 0.6, suggesting that multicollinearity is not a potential problem. In our multivariate analysis, we further report mean-variance inflation factors (VIFs) for each model, which however do not exceed the benchmark value of 10 (e.g., Kutner et al. 2004), implying that multicollinearity is not a serious concern for our analysis.

{Insert Table 4 here}

5.2. *Multivariate analysis: Unrealized fair value adjustments and dividend changes*

In Table 5, estimates in specification 1 suggest that fair value adjustments of derivatives classified as cash flow hedges are positively associated (0.0624) with dividend changes, albeit only at 10%. When we decompose these fair value adjustments into positive and (absolute) negative values, in specification 2 the coefficient of $DERIV\_REV^{+}$ is positive (0.0630) but insignificant, while that of (absolute) negative adjustments ($ABS\_REV\_REV^{-}$) in specification 3 becomes negative (-0.0641) and significant at 5%. When we examine upward and downward fair value adjustments jointly - in specification 4- the results remain unchanged[22]. The coefficients of our control variables carry in general the expected sign when significant.

These results offer empirical support to *Hypotheses 1* and *2*: while upward unrealized fair value adjustments of derivatives classified as cash flow hedges do not affect dividends, negative fair value adjustments -in the absence of direct regulatory restrictions- can indeed have a negative impact on dividend payouts. Since regulatory recommendations discourage dividend payouts from upward fair value adjustments, managers are not keen to revise their dividend policy based on unrealized gains, treating them effectively as transitory. Therefore, the firms in our sample appear to follow regulators' recommendations and do not distribute unrealized profits; however, they do tend to deviate from their standard dividend policy when negative unrealized fair value adjustments are present, even when regulatory restrictions are absent.

{Insert Table 5 here}

We further test the above model in a restricted sample where companies report positive net income. As UK Companies Act only allows distributions to be made out of 'profits available for the purpose' we exclude companies with losses as this is necessary to ensure that any negative values of *DDIFF* are not driven by regulatory restrictions but are expressions of discretionary dividend policy choices. In Table 6 this restricted sample of firms with positive net income yields

[22] As a robustness test we employ the Wald test, which suggests that the difference between the coefficients of $DERIV\_REV^{+}$ and $ABS\_REV\_REV^{-}$ is statistically significant.

1571 observations and the results are qualitatively similar. Therefore, the above conclusions are robust to the exclusion of firms not allowed to distribute dividends in a given year.

{Insert Table 6 here}

In Tables 7 and 8, we assess the impact of firm-specific conditions on the association of dividend changes with unrealized fair value adjustments from derivatives classified as cash flow hedges. Specifically, in Table 7 we focus on the total unrealized fair value adjustments from derivatives classified as cash flow hedges without distinguishing between positive and negative. We report that the coefficients of the interaction terms *DERIV_REV×INT_COV, DERIV_REV×MKT_BOOK* and *DERIV_REV×ALTMAN_Z* from three specifications are positive (0.002, 0.1847 and 0.0223 respectively) and statistically significant at 5%. Moreover, the expected control variables carry the expected signs, when significant.

{Insert Table 7 here}

To further examine whether the significance of the previous interactions is driven by both upward and downward fair value adjustments, we again decompose *DERIV_REV* into positive (*$DERIV\_REV^{+}$*) and absolute values of negative fair value revaluations (*$ABS\_DERIV\_REV^{-}$*) and we interact those values with the indicators of firm riskiness, future growth opportunities and financial distress, according to model 3. Results reported in Table 8 show that the coefficients of interactions *$DERIV\_REV^{+}$×INT_COV* (0.002, specification 1), *$DERIV\_REV^{+}$×BETA* (-0.0185, specification 2), *$DERIV\_REV^{+}$×MKT_BOOK* (0.0204, specification 3) and *$DERIV\_REV^{+}$×ALTMAN_Z* (0.0239, specification 4) are not significant. These results suggest that firms do not depart from the regulatory recommendations, regardless of their financial condition, risk profile or future growth opportunities, since unrealized gains from derivatives contracts do not affect firms' dividend policy. In contrast, we observe statistically significant interactions between negative unrealized adjustments and our conditional proxies. Specifically, across all specifications 1, 2, 3 and 4, the coefficients for *ABS_DERIV_REV*$^{-}$×*INT_COV, ABS_DERIV_REV*$^{-}$×*BETA*, *ABS_DERIV_REV*$^{-}$×*MKT_BOOK* and *ABS_DERIV_REV*$^{-}$ ×*ALTMAN_Z* are all negative (-0.0002, -0.1574, -0.0125 and -0.0234, respectively) and significant. In particular, while coefficients of interactions between *ABS_DERIV_REV*$^{-}$ with *INT_COV, BETA* and *ALTMAN_Z* are significant at 10%, that with variable *MKT_BOOK* is highly significant. These findings offer support to *Hypothesis 3*: the negative association between dividend changes and the relevant absolute values of the unrealized fair value losses is more pronounced for firms facing lower financial constraints or presenting higher growth opportunities.

{Insert Table 8 here}

Similar to Table 5, we repeat the above analysis to the restricted sample where companies report positive net income. In Table 9 which reports the estimates based on this restricted sample the results are qualitatively similar in support of Hypothesis 3

{Insert Table 9 here}

As a further robustness procedure, we examine the effects of the above conditions when using median-split samples of each of the condition variables (*INT_COV*, *BETA*, *MKT_BOOK* and *ALTMAN_Z*). Our findings -presented in Table 10- suggest that upward fair value adjustments still do not affect dividend payouts; the coefficients of *DERIV_REV*$^{+}$ are not significant (specifications 1-8). On the other hand, the coefficients *ABS_DERIV_REV*$^{-}$ are negative (-0.0741, -0.1412 and -0.1469) and significant at 5%, 1% and 1% levels respectively for specifications 1-3, for the subsamples of firms with high levels of *INT_COV*, *BETA* and *MKT_BOOK.* These relationships are not observed for firms that demonstrate low levels for the examining conditions. Therefore, companies are more likely to decrease their dividends based on unrealized losses under specific circumstances. Effectively, companies choose to disregard upward unrealized adjustments while this is not the case for downward adjustments. Thus, the dividend policy of British firms is affected by negative fair value adjustments of derivatives classified as cash flow hedges as included in the OCI and the negative association between dividend changes and the relevant absolute values of the unrealized fair value losses is more pronounced when firms face less financial adversities (less risk or financial distress) or they have higher future growth opportunities.

{Insert Table 10 here}

Finally, we summarize the economic significance of our main results. First, using the estimates in specifications 3 and 4 of Table 5, companies with negative revaluations of derivatives classified as cash flow hedges decrease their dividends since the dividends change is negatively related to absolute negative revaluations of derivatives (-0.0641 and -0.0621 respectively). Using the estimated coefficients in specifications 3 (4) of Table 5, for a firm with average negative derivatives revaluations[23], an increase in $ABS\_DERIV\_REV^{-}$ by 1 standard deviation[24] would decrease the dividend difference by 0.000491[25] according to specification 3 and 0.000476[26] according to specification 4. That is 47.96% (46.47%) of a dividend difference of an average firm[27]. These differences translate to material effects in the absolute value of a firm's average *DDIFF* and thus appear to be economically significant.

6. Conclusions

In this study, we examine the impact of unrealized OCI focusing on a specific component which reclassifies to income statement when realized. Specifically, we focus on the unrealized income deriving from the fair value adjustments of derivatives classified as cash flow hedges.

Based on the Lintner (1956) framework, firms should pay dividends out of their persistent earnings which reflect current firm performance and are predictive of future firm performance. Nevertheless, whether fair values are reflective of a firm's financial prospects and effectively value-

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[23] Derivatives revaluation is measured as the revaluation over average total assets. The average value of $ABS\_DERIV\_REV^{-}$ in the sample is 0.0015908.
[24] The standard deviation of $ABS\_DERIV\_REV^{-}$ is 0.0076603.
[25] -0.0641*0.0076603.
[26] -0.0621*0.0076603.
[27] Since the average dividend difference is 0.0010237 (Table 5), it is 0.000491/0.0010237=47.96% (0.000476/0.0010237=46.47%).

relevant causes concern among academics and market participants (Ball, 2006). In our institutional setting, regulators consider unrealized fair value adjustments effectively as transitory since they require firms to distribute earnings only out of realized income.

Using a sample of 1,958 firm-year observations of UK-listed firms for the period 2011-2017 we find that positive fair value adjustments do not affect dividend payouts following the recommendations of regulators. In addition, we demonstrate that companies that revalue their derivatives classified as cash flow hedges tend to decrease dividends. We further show that under firm-specific conditions – such as financial distress, or higher firm risk and future growth opportunities – the negative impact of unrealized losses is more pronounced on dividend payouts. Hence, we argue that corporate practice is consistent with the regulatory recommendations and the perceived transitory nature of the OCI unrealized components when these are positive. However, we also claim that since firms decrease dividends when there are unrealized losses, they demonstrate conservative behavior. Specifically, we argue that managers treat those losses as predictors of future realized losses which are expected to affect income statement and thus justify a reduction in dividends. In this way, managers demonstrate conservative behavior and signal their perceptions of future realized losses by cutting dividends. Our findings suggest that managers consider signaling outcomes, particulalry when their company is more sensitive to market movements. However, they are more comfortable to risk potential negative market responses to dividend cut policies as they consider their firms more resilient to market pressures. Alternatively, if they wish to exploit future growth opportunities they might expect less of a negative market reaction, as the pursuit of those opportunities can generate higher future returns. Overall, taking into consideration that dividend announcements transmit strong signals in the capital market, UK managers adapt dividend policy in view of signaling considerations, regulatory requirements, and perceptions regarding the effect of fair value adjustments on future performance.

We also identify significant market implications: we demonstrate that the extensive use of fair value results in unrealized OCI components, which may in turn affect important corporate decisions, such as dividend distribution. Specifically, we draw attention to how unrealized losses of fair value adjustments derivatives classified as cash flow hedges decrease dividends to investors, in contrast to unrealized gains which do not affect dividend policy as also required by the regulatory framework. This implies that management demonstrates a conservative approach on unrealized losses, recognizing their future performance predictive ability. Furthermore, we provide evidence on the effect of corporate financial distress, firm riskiness and future growth opportunities on the decision of firms to distribute unrealized income, aiming to improve investors' and market participants' decisions.

The findings of the study offer promising avenues for future work both within the general domain of fair value accounting research and the specific strand of unrealised gains and losses: for instance, the literature can expand to other countries where unrealized income due to fair value accounting affects income statement. There is also scope for future research to address the impact of systemic economic events such as COVID-19 on the relationship between unrealized earnings components and dividend policy. Finally, the effect of other unrealized income components on dividends can be assessed while further distinction between unrealized income components included in OCI versus those directly classified in the income statement is another area worthy of empirical scrutiny.

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Appendix

A1: Variable Definitions

DDERIV_REV	=	1 if a fair value adjustment on derivatives takes place, 0 otherwise
DERIV_REV	=	Earnings/losses from fair value adjustments on derivatives over total assets
$DERIV\_REV^{+}$ ($ABS\_DERIV\_REV^{-}$)	=	Positive (absolute values of negative) fair value adjustments on derivatives over total assets and zero otherwise
INT_COV	=	Interest coverage ratio (operating profit scaled by financial expenses)
BETA	=	Company BETA coefficient as estimated by Bloomberg
MKT_BOOK	=	Market to Book value of equity
ALTMAN_Z	=	Altman's Z score
ΔROA	=	Difference between earnings/losses over total assets and its lagged values
ΔSIZE	=	Difference between natural logarithm of total assets and its lagged values
ΔDEBT	=	Difference between the book value of debt over total assets and its lagged values
ΔCASH	=	Difference between cash and cash equivalents over total assets and its lagged values
ΔGROWTH	=	Difference between the ratio of sales change to sales at the beginning of the year in any current year t and its lagged values
ΔMKT_BOOK	=	Difference between the market-to-book value of equity and its lagged value

Tables

Table 1: Likelihood of fair value revaluation

Dependent Variables	*DDERIV_REV*
Explanatory Variables	Cf.
ROA_{it-1}	0.4905**
	(2.44)
DEBT	0.3226
	(1.15)
SIZE	0.3313***
	(10.88)
GROWTH	-0.2141***
	(-3.64)
CASH	-0.1904
	(-0.56)
Intercept	-2.1721***
	(-8.26)
Industry/Year dummies	Yes
Pseudo-R^2	0.3018
N	5517

Notes: This table presents the probit regression estimates of the first step of the propensity score matching methodology. *DDERIV_REV* is the dependent variable which takes the value of 1 if a firm has revalued derivatives and 0 otherwise for firm-year observations for the years 2009-2017. Robust standard errors clustered by firm are displayed in parentheses. All numbers are rounded up to third decimal place. ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively. Variable definitions are shown in the Appendix.

Table 2: Covariate balance prior and subsequent to propensity score matching between firms based on the decision to make fair value adjustments

Variable	Prior to propensity score matching								Subsequent to propensity score matching							
	1. Revaluers (N = 2,277)			2. Non-Revaluers (N = 3,240)			Standardized differences (%)	Mean difference (2-1)	1. Revaluers (N = 979)			2. Non-Revaluers (N = 979)			Standardized differences (%)	Mean difference (2-1)
	Mean	Median	StDev	Mean	Median	StDev			Mean	Median	StDev	Mean	Median	StDev		
ROA$_{t-1}$	0.049	0.049	0.095	-0.047	0.027	0.253	42.600	-0.096***	0.041	0.049	0.158	0.045	0.047	0.187	-0.600	0.004
DEBT	0.220	0.203	0.174	0.139	0.056	0.194	44.000	-0.081***	0.171	0.147	0.163	0.188	0.123	0.214	-9.000	0.017*
SIZE	6.856	6.828	2.166	3.926	3.688	2.219	133.600	-2.929***	5.473	5.505	1.729	5.755	5.564	2.225	-12.900	0.282***
CASH	0.099	0.065	0.114	0.172	0.111	0.181	-47.900	0.072***	0.124	0.072	0.142	0.117	0.077	0.125	4.700	-0.007
GROWTH	0.064	0.037	0.283	0.156	0.061	0.613	-19.100	0.091***	0.086	0.041	0.353	0.100	0.053	0.420	-2.900	0.014

Notes: This table reports the summary statistics for the samples prior and subsequent to propensity score matching, separated into firms which revalue derivatives and firms which do not. The differences in mean values of each variable across groups and statistical significance of differences reported are based on t-tests. The standardized difference in percent is: $100(\bar{x}_{gr1} - \bar{x}_{gr0}/\sqrt{(s^2_{gr1} - s^2_{gr0})/2}$. Where: $\bar{x}_{gr1}$ and $\bar{x}_{gr0}$ $(s^2_{gr1} - s^2_{gr0})$ are the sample mean (variance) in the group of firms which revalue and the group of firms which do not revalue derivatives. Standardized differences >20 or 1, -20 suggest large differences (Ferri and Maber, 2013).
***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively. Variable definitions are shown in the Appendix.

Table 3: Descriptive characteristics

Panel A: Descriptive characteristics of the initial sample prior to PSM (n=5517)							
Variables	Mean	Median	St. dev	p5	p25	p75	p95
ΔDIV	0.001	0.000	0.014	-0.013	-0.001	0.002	0.015
DERIV_REV	-0.000	0.000	0.008	-0.005	0.000	0.000	0.004
ΔROA	0.002	0.001	0.146	-0.192	-0.027	0.028	0.204
ΔDIV_{t-1}	0.001	0.000	0.015	-0.015	-0.001	0.002	0.017
ΔSIZE	0.053	0.040	0.242	-0.304	-0.039	0.133	0.465
ΔDEBT	-0.002	0.000	0.078	-0.119	-0.026	0.015	0.126
ΔCASH	-0.002	0.000	0.101	-0.155	-0.027	0.026	0.142
ΔGROWTH	-0.041	-0.005	0.780	-0.793	-0.142	0.110	0.631
ΔMKT_BOOK	0.103	0.055	4.304	-3.075	-0.328	0.483	2.962
ΔASSETGR	-0.007	0.002	0.424	-0.596	-0.119	0.122	0.577
Panel B: Descriptive characteristics subsequent to PSM based on the decision to revalue derivatives (n=1958)							
Variables	Mean	Median	St. dev	p5	p25	p75	p95
ΔDIV	0.001	0.000	0.015	-0.015	-0.001	0.022	0.128
DERIV_REV	-0.000	0.000	0.010	-0.008	0.000	0.000	0.006
ΔROA	-0.002	0.001	0.106	-0.148	-0.024	0.022	0.128
ΔDIV_{t-1}	0.001	0.000	0.017	-0.019	-0.001	0.003	0.021
ΔSIZE	0.055	0.047	0.198	-0.218	-0.023	0.124	0.385
ΔDEBT	-0.002	0.000	0.075	-0.114	-0.027	0.018	0.118
ΔCASH	-0.004	-0.001	0.076	-0.121	-0.022	0.022	0.092
ΔGROWTH	-0.033	-0.003	0.595	-0.582	-0.116	0.096	0.465
ΔMKT_BOOK	0.132	0.069	3.984	-2.414	-0.277	0.479	2.335
ΔASSETGR	-0.011	0.006	0.343	-0.479	-0.101	0.105	0.421

Notes: The table shows descriptive statistics for the main variables for firm-year observations from fiscal years 2011-2017. Panel A provides descriptive statistics for the main variables for the initial sample (n=5517) prior to propensity score matching. Panel B provides descriptive statistics for the main variables for the sample (n=1958) subsequent to propensity score matching based on the decision to revalue derivatives. All numbers are rounded up to third decimal place. Variable definitions are shown in the Appendix.

Table 4: Pearson and Spearman Correlations

Panel A: Initial sample prior to PSM										
Variables	*ΔDIV*	*DERIV_REV*	*ΔROA*	*ΔDIV$_{t-1}$*	*ΔSIZE*	*ΔDEBT*	*ΔCASH*	*ΔGROWTH*	*ΔMKT_BOOK*	*ΔASSETGR*
ΔDIV	1	0.034**	0.192***	0.172***	-0.067**	-0.112***	0.109***	0.051***	0.102***	0.069***
DERIV_REV	0.007	1	0.018	-0.002	-0.039***	-0.043***	-0.009	-0.020	0.026*	-0.022*
ΔROA	0.094***	-0.001	1	0.016	0.166***	-0.122***	0.152***	0.194***	0.025*	0.276***
ΔDIV$_{t-1}$	-0.146***	0.012	0.001	1	0.090***	0.088***	-0.012	0.011	0.015	0.112***
ΔSIZE	-0.015	0.004	0.283***	0.045***	1	0.185***	0.187***	0.185***	-0.068***	0.552***
ΔDEBT	-0.047***	-0.014	-0.063***	0.053***	0.194***	1	0.018	0.052***	0.006	0.296***
ΔCASH	0.055***	0.016	0.139***	-0.022	0.237***	-0.036***	1	0.075***	0.014	0.328***
ΔGROWTH	0.013	-0.011	0.086***	-0.010	0.095***	-0.040***	0.019	1	0.062***	0.244***
ΔMKT_BOOK	0.037***	-0.022	0.005	0.023*	-0.064***	-0.001	-0.029	0.010	1	-0.010
ΔASSETGR	0.016	0.012	0.246***	0.033**	0.600***	0.266***	0.433***	-0.032**	-0.032**	1
Panel B: Sample after he PSM based on the decision to revalue derivatives										
Variables	*ΔDIV*	*DERIV_REV*	*ΔROA*	*ΔDIV$_{t-1}$*	*ΔSIZE*	*ΔDEBT*	*ΔCASH*	*ΔGROWTH*	*ΔMKT_BOOK*	*ΔASSETGR*
ΔDIV	1	0.058***	0.217***	0.171	-0.111***	-0.148***	0.114***	0.074***	0.122***	0.065***
DERIV_REV	0.043*	1	0.032	0.004	-0.038*	-0.027	0.031	-0.006	0.021	-0.002
ΔROA	0.140***	-0.001	1	0.013	0.067***	-0.147***	0.142***	0.203***	0.065***	0.233***
ΔDIV$_{t-1}$	-0.141***	0.010	0.011	1	0.094***	0.101***	-0.019	0.010	0.002	0.142***
ΔSIZE	-0.023	0.018	0.153***	0.068***	1	0.227***	0.096***	0.188***	-0.026	0.511***
ΔDEBT	-0.068***	-0.008	-0.061***	0.062***	0.271***	1	-0.007	0.042*	0.031	0.327***
ΔCASH	0.070***	0.068***	0.112***	-0.003	0.054**	-0.078***	1	0.093***	0.053**	0.249***
ΔGROWTH	0.028	-0.014	0.176***	-0.005	0.148***	0.020	0.069***	1	0.069***	0.256***
ΔMKT_BOOK	0.051**	-0.054**	0.068***	-0.017	-0.002	0.024	0.052**	0.036	1	0.058**
ΔASSETGR	0.043*	0.054**	0.222***	0.070***	0.534***	0.333***	0.293***	0.240***	0.040*	1

Notes: The table shows correlations for the main variables for firm-year observations from fiscal years 2009-2017. Panel A provides correlations for the main variables for the initial sample (n=5517) prior to propensity score matching. Panel B provides correlations for the main variables for the sample (n=1958) subsequent to propensity score matching based on the decision to revalue derivatives. Top right shows Spearman and bottom left Pearson correlations. All numbers are rounded up to third decimal place. ***, ** and * indicate significance at the 1%, 5% and 10% levels respectively. Variable definitions are shown in the Appendix.

Table 5. Dividend policy and unrealized income from derivative revaluations

Variables	(1)	(2)	(3)	(4)
	ΔDIV	*ΔDIV*	*ΔDIV*	*ΔDIV*
DERIV_REV	0.0624*	.	.	.
	(1.95)			
DERIV_REV$^+$	.	0.0659	.	0.0630
		(1.18)		(1.14)
ABS_DERIV_REV$^-$	.	.	-0.0641**	-0.0621**
			(-2.12)	(-2.09)
ΔROA	0.0187***	0.0185***	0.0187***	0.0187***
	(3.51)	(3.48)	(3.52)	(3.51)
ΔDIV_{t-1}	-0.1380**	-0.1372**	-0.1382**	-0.1379**
	(-2.13)	(-2.12)	(-2.14)	(-2.13)
ΔSIZE	-0.0029	-0.0030	-0.0029	-0.0029
	(-1.35)	(-1.36)	(-1.33)	(-1.35)
ΔDEBT	-0.0122**	-0.0123**	-0.0122**	-0.0122**
	(-2.46)	(-2.47)	(-2.47)	(-2.46)
ΔCASH	0.0065	0.0067	0.0068	0.0065
	(1.22)	(1.25)	(1.27)	(1.22)
ΔGROWTH	0.0001	0.0001	0.0001	0.0001
	(0.25)	(0.20)	(0.25)	(0.25)
ΔMKT_BOOK	0.0001	0.0001	0.0001	0.0001
	(1.21)	(1.14)	(1.18)	(1.21)
ΔASSETGR	0.0020	0.0020	0.0020	0.0020
	(1.27)	(1.31)	(1.29)	(1.27)
Intercept	0.0119	0.0119	0.0119	0.0119
	(1.18)	(1.18)	(1.18)	(1.18)
Industry Effects	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes
R^2	0.0881	0.0871	0.0874	0.0881
Adj R^2	0.0528	0.0518	0.0521	0.0523
Mean VIF	1.1926	1.1912	1.1923	1.1761
Observations	1,958	1,958	1,958	1,958

Notes: This table examines the effect of unrealized fair value adjustments from derivatives classified as cash flow hedges on the change of dividends over assets (*ΔDIV*) and reports the results of the relevant OLS (specifications 1-4) regressions. The sample includes 1,958 firm-year observations from fiscal years 2009-2017 for specifications 1-4. Robust standard errors are clustered at the firm level and t- statistics are displayed in parentheses. ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively. Variable definitions are shown in the Appendix.

Table 6. Dividend policy and unrealized income from derivative revaluations for firms with positive net income

Variables	(1) *ΔDIV*	(2) *ΔDIV*	(3) *ΔDIV*	(4) *ΔDIV*
DERIV_REV	0.0857*	.	.	.
	(1.96)			
DERIV_REV^{+}	.	0.0875	.	0.0837
		(1.22)		(1.18)
ABS_DERIV_REV^{-}	.	.	-0.0904**	-0.0874**
			(-2.18)	(-2.15)
ΔROA	0.0336***	0.0334***	0.0337***	0.0336***
	(2.72)	(2.69)	(2.73)	(2.72)
ΔDIV$_{t-1}$	-0.1575**	-0.1562**	-0.1580**	-0.1576**
	(-2.33)	(-2.31)	(-2.33)	(-2.32)
ΔSIZE	-0.0065*	-0.0068**	-0.0065*	-0.0065*
	(-1.94)	(-2.03)	(-1.95)	(-1.94)
ΔDEBT	-0.0117	-0.0118	-0.0115	-0.0117
	(-1.48)	(-1.49)	(-1.45)	(-1.48)
ΔCASH	0.0104	0.0107	0.0108	0.0104
	(1.28)	(1.31)	(1.33)	(1.28)
ΔGROWTH	-0.0003	-0.0003	-0.0003	-0.0003
	(-0.44)	(-0.44)	(-0.42)	(-0.44)
ΔMKT_BOOK	0.0002	0.0002	0.0002	0.0002
	(1.48)	(1.40)	(1.47)	(1.48)
ΔASSETGR	0.0034*	0.0036*	0.0034*	0.0034*
	(1.70)	(1.81)	(1.68)	(1.70)
Intercept	0.0157	0.0157	0.0158	0.0157
	(1.26)	(1.26)	(1.27)	(1.26)
Industry Effects	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes
R^2	0.1171	0.1158	0.1161	0.1171
Adj R^2	0.0741	0.0727	0.0730	0.0735
Mean VIF	1.2278	1.2252	1.2295	1.2099
Observations	1,571	1,571	1,571	1,571

Notes: This table examines the effect of unrealized fair value adjustments from derivatives classified as cash flow hedges on the change of dividends over assets (*ΔDIV*) and reports the results of the relevant OLS (specifications 1-4) regressions. The sample includes 1,571 firm-year observations from fiscal years 2009-2017 for firms with positive net income. Robust standard errors are clustered at the firm level and t- statistics are displayed in parentheses. ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively. Variable definitions are shown in the Appendix.

Table 7. Dividend policy analysis and interaction of unrealized income with financial distress proxies

Variables	(1) *⊿DIV*	(2) *⊿DIV*	(3) *⊿DIV*	(4) *⊿DIV*
DERIV_REV × INT_COV	0.0002**	.	.	.
	(2.20)			
DERIV_REV × BETA	.	0.0647	.	.
		(1.03)		
DERIV_REV × MKT_BOOK	.	.	0.1847**	.
			(2.27)	
DERIV_REV × ALTMAN_Z	.	.	.	0.0233**
				(1.97)
INT_COV	0.0000	.	.	.
	(0.87)			
BETA	.	0.0011	.	.
		(1.02)		
MKT_BOOK	.	.	0.0001	.
			(1.42)	
ALTMAN_Z	.	.	.	0.0003**
				(2.46)
DERIV_REV	0.0322	0.0209	0.0263	-0.0209
	(1.22)	(-0.60)	(0.98)	(-0.60)
⊿ROA	0.0120***	0.0188***	0.0191***	0.0184***
	(3.10)	(3.48)	(3.68)	(3.56)
$\varDelta DIV_{t-1}$	-0.1565***	-0.1379**	-0.1392**	-0.1616***
	(-2.68)	(-2.13)	(-2.20)	(-2.62)
⊿SIZE	-0.0025	-0.0028	-0.0032	-0.0044*
	(-1.05)	(-1.30)	(-1.42)	(-1.76)
⊿DEBT	-0.0131**	-0.0121**	-0.0127**	-0.0101*
	(-2.44)	(-2.40)	(-2.53)	(-1.84)
⊿CASH	0.0062	0.0067	0.0054	0.0051
	(1.02)	(1.25)	(1.01)	(0.92)
⊿GROWTH	0.0003	0.0001	0.0001	0.0001
	(0.69)	(0.24)	(0.23)	(0.27)
⊿MKT_BOOK	0.0000	0.0001	0.0001	0.0001
	(0.08)	(1.13)	(0.54)	(0.89)
⊿ASSETGR	0.0022	0.0019	0.0022	0.0024
	(1.27)	(1.25)	(1.42)	(1.52)
Intercept	0.0102	0.0109	0.0115	0.0101
	(0.99)	(1.07)	(1.14)	(1.11)
Industry Effects	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes
R^2	0.0893	0.0889	0.0944	0.1079
Adj R^2	0.0474	0.0525	0.0583	0.0710
Mean VIF	1.1790	1.9875	1.2110	1.3152
Observations	1,705	1,954	1,957	1,886

Notes: This table examines the effect of the interactions of unrealized fair value adjustments from derivatives classified as cash flow hedges with continuous firm characteristics conditional proxies on the change of dividends over assets (*⊿DIV*). The table reports the results of the relevant OLS (specifications 1-4) regressions which use firm-year observations from fiscal years 2009-2017. Robust standard errors are clustered at the firm level and t- statistics are displayed in parentheses. ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively. Variable definitions are shown in the Appendix.

Table 8. Dividend policy analysis and interaction of unrealized upward and downward fair value adjustments with firm characteristics conditional proxies

Variables	(1) ΔDIV	(2) ΔDIV	(3) ΔDIV	(4) ΔDIV
$DERIV\_REV^{+} \times INT\_COV$	0.0002	.	.	.
	(0.93)			
$ABS\_DERIV\_REV^{-} \times INT\_COV$	-0.0002*	.	.	.
	(-1.81)			
$DERIV\_REV^{+} \times BETA$	.	-0.0185	.	.
		(-0.16)		
$ABS\_DERIV\_REV^{-} \times BETA$	.	-0.1574*	.	.
		(-1.72)		
$DERIV\_REV^{+} \times MKT\_BOOK$	.	.	0.0204	.
			(1.09)	
$ABS\_DERIV\_REV^{-} \times MKT\_BOOK$	.	.	-0.0125***	.
			(-2.83)	
$DERIV\_REV^{+} \times ALTMAN\_Z$	.	.	.	0.0239
				(0.94)
$ABS\_DERIV\_REV^{-} \times ALTMAN\_Z$	.	.	.	-0.0234*
				(-1.89)
INT_COV	0.0000	.	.	.
	(0.76)			
$BETA$	.	0.0013	.	.
		(1.17)		
MKT_BOOK			0.0003*	
			(1.68)	
$ALTMAN\_Z$	.	.	.	0.0003**
				(2.40)
$DERIV\_REV^{+}$	0.0302	0.0752	0.0175	-0.0379
	(0.58)	(0.98)	(0.35)	(-0.53)
$ABS\_DERIV\_REV^{-}$	-0.0335	0.0461	-0.0204	0.0118
	(-1.49)	(0.73)	(-0.83)	(0.28)
ΔROA	0.0120***	0.0188***	0.0188***	0.0185***
	(3.10)	(3.47)	(3.61)	(3.57)
ΔDIV_{t-1}	-0.1565***	-0.1377**	-0.1418**	-0.1618***
	(-2.68)	(-2.13)	(-2.26)	(-2.62)
$\Delta SIZE$	-0.0025	-0.0029	-0.0038*	-0.0044*
	(-1.05)	(-1.32)	(-1.68)	(-1.77)
$\Delta DEBT$	-0.0131**	-0.0118**	-0.0122**	-0.0101*
	(-2.44)	(-2.34)	(-2.40)	(-1.84)
$\Delta CASH$	0.0062	0.0068	0.0057	0.0051
	(1.02)	(1.26)	(1.04)	(0.93)
$\Delta GROWTH$	0.0003	0.0001	0.0001	0.0001
	(0.69)	(0.25)	(0.31)	(0.27)
ΔMKT_BOOK	0.0000	0.0001	-0.0000	0.0001
	(0.08)	(1.14)	(-0.37)	(0.89)
$\Delta ASSETGR$	0.0022	0.0019	0.0023	0.0024
	(1.27)	(1.20)	(1.48)	(1.53)
Intercept	0.0102	0.0107	0.0112	0.0101
	(0.99)	(1.05)	(1.11)	(1.11)
Industry Effects	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes
R^2	0.0893	0.0892	0.1004	0.1080
Adj R^2	0.0462	0.0518	0.0636	0.0700
Mean VIF	1.1856	2.6125	1.2500	1.4148
Observations	1,705	1,954	1,958	1,886

Notes: This table examines the effect of the interactions of unrealized fair value adjustments from derivatives classified as cash flow hedges with continuous firm characteristics conditional proxies on the change of dividends over assets (ΔDIV). The table reports the results of the relevant OLS (specifications 1-4) regressions which use firm-year observations from fiscal years 2009-2017. Robust standard errors are clustered at the firm level and t- statistics are displayed in parentheses. ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively. Variable definitions are shown in the Appendix.

Table 9. Dividend policy analysis and interaction of unrealized upward and downward fair value adjustments with financial distress proxies for firms with positive net income

Variables	(1) *ΔDIV*	(2) *ΔDIV*	(3) *ΔDIV*	(4) *ΔDIV*
DERIV_REV^{+} × *INT_COV*	0.0002	.	.	.
	(0.79)			
ABS_DERIV_REV^{-} × *INT_COV*	-0.0002	.	.	.
	(-1.50)			
DERIV_REV^{+} × *BETA*	.	-0.2943*	.	.
		(-1.91)		
ABS_DERIV_REV^{-} × *BETA*	.	-0.4039**	.	.
		(-2.58)		
DERIV_REV^{+} × *MKT_BOOK*	.	.	0.0182	.
			(0.95)	
ABS_DERIV_REV^{-} × *MKT_BOOK*	.	.	-0.0231**	.
			(-1.98)	
DERIV_REV^{+} × *ALTMAN_Z*	.	.	.	0.0225
				(0.79)
ABS_DERIV_REV^{-} × *ALTMAN_Z*	.	.	.	-0.0357*
				(-1.85)
INT_COV	0.0000	.	.	.
	(0.57)			
BETA	.	0.0022	.	.
		(1.60)		
MKT_BOOK			0.0004*	
			(1.70)	
ALTMAN_Z	.	.	.	0.0004**
				(2.17)
DERIV_REV^{+}	0.0473	0.2925*	0.0354	-0.0142
	(0.65)	(1.96)	(0.61)	(-0.16)
ABS_DERIV_REV^{-}	-0.0538*	0.1837**	-0.0144	0.0771
	(-1.66)	(1.99)	(-0.44)	(1.00)
ΔROA	0.0145*	0.0338***	0.0332***	0.0330***
	(1.66)	(2.72)	(2.77)	(2.80)
ΔDIV$_{t-1}$	-0.1975***	-0.1578**	-0.1630**	-0.1848***
	(-3.26)	(-2.33)	(-2.47)	(-2.87)
ΔSIZE	-0.0081**	-0.0063*	-0.0076**	-0.0071**
	(-2.15)	(-1.89)	(-2.20)	(-2.02)
ΔDEBT	-0.0136	-0.0115	-0.0116	-0.0102
	(-1.64)	(-1.46)	(-1.43)	(-1.21)
ΔCASH	0.0080	0.0108	0.0108	0.0097
	(0.92)	(1.32)	(1.31)	(1.14)
ΔGROWTH	-0.0001	-0.0004	-0.0003	-0.0005
	(-0.08)	(-0.57)	(-0.42)	(-0.62)
ΔMKT_BOOK	0.0000	0.0002	-0.0000	0.0001
	(0.17)	(1.48)	(-0.28)	(1.32)
ΔASSETGR	0.0049**	0.0033*	0.0037*	0.0037*
	(2.27)	(1.65)	(1.89)	(1.88)
Intercept	0.0136	0.0140	0.0146	0.0125
	(1.06)	(1.13)	(1.17)	(1.13)
Industry Effects	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes
R^2	0.1200	0.1203	0.1309	0.1385
Adj R^2	0.0676	0.0749	0.0860	0.0920
Mean VIF	1.2249	3.3872	1.2976	1.5957
Observations	1,371	1,569	1,571	1,505

Notes: This table examines the effect of the interactions of unrealized fair value adjustments from derivatives classified as cash flow hedges with firm characteristics conditional proxies on the change of dividends over assets (*ΔDIV*). The table reports the results of the relevant OLS (specifications 1-4) regressions which use firm-year observations with positive income only from fiscal years 2009-2017. Robust standard errors are clustered at the firm level and t- statistics are displayed in parentheses. ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively. Variable definitions are shown in the Appendix.

Table 10. Dividend policy analysis and interaction of unrealized income where samples are median-split based on the financial distress proxies

Variables	HIGH				LOW			
	INT_COV	*BETA*	*MKT_BOOK*	*ALTMAN_Z*	*INT_COV*	*BETA*	*MKT_BOOK*	*ALTMAN_Z*
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	ΔDIV	*ΔDIV*	*ΔDIV*	*ΔDIV*	*ΔDIV*	*ΔDIV*	*ΔDIV*	*ΔDIV*
DERIV_REV⁺	0.0805	0.0923	0.1702	0.1942	0.0292	0.0281	0.0028	0.0179
	(0.76)	(0.90)	(1.16)	(0.90)	(0.81)	(0.51)	(0.13)	(0.94)
ABS_DERIV_REV⁻	-0.0741**	-0.1412***	-0.1469***	-0.1262	-0.0267	0.0151	0.0275*	-0.0208
	(-2.36)	(-2.97)	(-2.74)	(-1.65)	(-0.91)	(0.59)	(1.85)	(-0.68)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.1799	0.1013	0.1557	0.1650	0.1118	0.1802	0.1288	0.1118
Adj R^2	0.1030	0.0317	0.0885	0.0949	0.0310	0.1151	0.0606	0.0394
Mean VIF	1.2679	1.2144	1.2238	1.2241	1.1820	1.2015	1.1813	1.1775
Observations	852	975	978	943	853	979	979	943

Notes: This table examines the effect of positive and absolute values of negative unrealized fair value adjustments from derivatives classified as cash flow hedges on dividend changes on the change of dividends over assets (*ΔDIV*). The table reports the results of the relevant OLS regressions using median split samples. For specifications 1-4 (5-8) firm observations with high (low) values of *INT_COV, BETA, MKT_BOOK* and *ALTMAN_Z* are considered from fiscal years 2009-2017. Robust standard errors are clustered at the firm level and t- statistics are displayed in parentheses. ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively. Variable definitions are shown in the Appendix.

Fig. 1 Standardized (%) bias across covariates of the unmatched and matched sample between firms based on the decision to make fair value adjustments