

RESEARCH ARTICLE

The strategic choice of payment method in takeovers: The role of environmental, social and governance performance

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Abstract

Payment method choice in takeovers is mainly driven by both asymmetric information between the acquirer and the target and the acquirer's financial capability. In this paper, we examine whether increased transparency and better access to finance induced by environmental, social and governance (ESG) performance are associated with the strategic choice of payment method in takeovers. More specifically, we investigate how the acquirer's and the target's ESG coverage and different levels of ESG performance affect the probability of cash offers in a sample of 836 US takeovers from 1992 to 2014. In examining the target, our results suggest that ESG coverage is positively associated with the probability of cash offers, whereas we find a negative relationship for ESG concerns and no effect for ESG strengths. Upon examining the acquirer, ESG coverage and ESG concerns both increase the probability of cash offers; however, we do not find results supporting our prediction regarding the acquirer's ESG strengths. We infer that ESG coverage and level affect strategic considerations in the choice of the payment method in takeovers because they not only reduce information asymmetry, but also enhance financing capability.

KEYWORDS

environmental, social and governance, information asymmetry, payment method, takeovers

1 | INTRODUCTION

Takeovers are one of the most important forms of investment decisions made by a firm to fulfil its strategic goals such as enhanced performance and growth. Within the realm of takeovers, the acquirer's preferences with respect to the choice of payment method is a strategic choice to deal with information asymmetry, retaining control after

the deal and value effect signals to the market. Therefore, the payment method has relevant implications for both the target and acquirer, including the probability of deal completion, deterring rival bidders and allocating gains from the transaction (Berkovitch & Narayanan, 1990; Fishman, 1989; Fu et al., 2013; Travlos, 1987). Whereas prior studies investigated factors affecting the choice of payment method through mechanisms of information asymmetry and the firm's financing capability (see, e.g., Bugeja et al., 2021; Karampatsas et al., 2014; Luybaert & Van Caneghem, 2014; Raman et al., 2013; Renneboog & Zhao, 2014), scant attention has been devoted to understanding how the nonfinancial dimensions of a firm's performance affect strategic considerations about payment method in

Abbreviations: ATT, average treatment effect on the treated; CEO, Chief Executive Officer; CRSP, Center for Research in Security Prices; ESG, environmental, social and governance; KLD, Kinder, Lydenberg, and Domini; KPMG, Klynveld Peat Marwick Goerdeler; M&As, mergers and acquisitions; PE, private equity; PSM, propensity score matching; WRDS, Wharton Research Data Service.

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takeovers (Luypaert & Van Caneghem, 2017). In this study, our research objective is to examine the association between a specific set of nonfinancial performance aspects, that is, environmental, social and governance (ESG) performance, and payment method choice in takeovers.

We focus on ESG factors in takeovers because they play an increasingly decisive role at every step of a takeover process, from target selection (Boone & Uysal, 2020; Gomes, 2019; Krishnamurti et al., 2019), due diligence and valuation (Aktas et al., 2011; Deng et al., 2013; Gomes & Marsat, 2018; Maung et al., 2020), deal completion (Arouri et al., 2019), to post-merger integration (Bereskin et al., 2018). Indeed, a survey conducted by KPMG (2022) revealed that ESG is becoming an influential part of the decision-making process. Most firms are looking at ESG factors early in the deal process and are prepared to walk away if they give cause for concern. Overall, more than 70% of UK private equity (PE) firms have stepped away from a deal due to ESG concerns, while almost half of PE firms in the United States have done the same. Another survey conducted by KPMG (2019) shows that 76% of the 1300 surveyed CEOs flag environmental risks as the biggest threat to business growth. Moreover, the current trend signals a growing pressure from various stakeholders (among them employees who can voice their opinion on a bid and determine deal terms; Dessaint et al., 2017) that emphasizes the importance of carrying out an ESG due diligence as integral part of the takeover process.

From a conceptual point of view, ESG practices are voluntary initiatives that firms take to meet enhanced demands for accountability and transparency towards their stakeholders (Cui et al., 2018; Eccles et al., 2014; Hull & Rothenberg, 2008; Jo & Harjoto, 2011; Malik, 2015). Firms with high ESG performance tend to disclose their social and environmental practices to outsiders, conduct their business based on mutual trust and have a better stakeholder management. (Benlemlih, 2017; Cheng et al., 2014; Dhaliwal et al., 2011; Kim et al., 2012; Wu & Shen, 2013). On a similar vein, from a signalling theory perspective, ESG activities help reducing information asymmetry and signal the quality of a firm (Huang, 2022; Zhang et al., 2022). Accordingly, prior research documents that a firm's ESG profile can have a significant impact on its information environment (Cho et al., 2013; Cui et al., 2018; Lopatta et al., 2016) and financing cost (Cheng et al., 2014; El Ghouli et al., 2011; Ge & Liu, 2015; Goss & Roberts, 2011; Ng & Rezaee, 2015; Oikonomou et al., 2014). In the empirical context of our study, since takeovers can be disruptive for stakeholder practices (Waddock & Graves, 2006), we argue that firms increasingly consider deal features that align well with stakeholder interests when negotiating a takeover transaction (Krishnamurti et al., 2019). By influencing firm's information asymmetry and financing capability, we posit that ESG performances at both the target and acquirer levels are associated with payment method choice in takeovers. As far as we are aware of, this study is the first to investigate such a relationship.

We first examine whether the ESG performance ratings availability (hereafter referred to simply as 'ESG coverage') for both the target and acquirer can affect the probability of cash offers in takeovers. The

availability of such ratings has been shown to lower information asymmetry (Cho et al., 2013; Wong et al., 2020). Further, since different levels of ESG performance imply different consequences and financing capabilities, we investigate the effect of high ESG performance (ESG strengths) and low ESG performance (ESG concerns) on the probability of cash offers in takeovers. We expect that the ESG coverage and ESG strengths (concerns) of both the target and acquirer are positively (negatively) associated with the probability of cash offers. This is consistent with the view that high ESG performance can potentially mean a lower information asymmetry, lower probability of future litigation risks and loss of reputation and better access to finance.

We adopt binary probit regression models and use a sample of 836 completed US takeover transactions that took place from 1992 to 2014. With respect to the target, we find that the target's ESG coverage increases the probability of cash offers while its ESG strengths do not have any effect. Further, our findings indicate that the target's ESG concerns negatively affect the probability of cash offers. With respect to the acquirer, we find that acquirer ESG coverage is positively associated with the probability of cash offers, while we do not find results supporting our prediction regarding acquirer ESG strengths. Furthermore, we find a positive association between acquirer ESG concerns and the probability of cash offers which contradicts our conjecture. This might be because targets are reluctant to accept the stock of an acquirer that has low ESG performance as the acceptance of such acquirer's stocks might end up being a costly option. Overall, our results confirm the stakeholder theory and signalling theory perspectives; that is, ESG-related information is strategic and value relevant for investors in a market with information frictions, more specifically, in a takeover market. In other words, a specific set of nonfinancial performance information, driven by firms' initiatives to meet the transparency requirements of various stakeholders, reduces the adverse selection problem in takeovers and, accordingly, affects the payment method choice. Our results continue to hold after a battery of robustness checks. Additional analyses on the differential effect of the choice of payment method on the association between ESG performance ratings and acquirer return yields no significant results.

Our study contributes to two streams of literature. First, we contribute to studies that focus on the determinants of the strategic choice of payment method in takeovers (see, e.g., Bugeja et al., 2021; Chemmanur et al., 2009; Karampatsas et al., 2014; Luypaert & Van Caneghem, 2014, 2017; Ouyang & Szweczyk, 2019; Raman et al., 2013; Reuer et al., 2004; Reuer & Ragozzino, 2008). We extend this literature documenting that a specific set of nonfinancial aspects, a firm's ESG performance, significantly influences payment method choice in takeovers. We show how the choice of payment method in takeovers is designed to cope with risks and opportunities associated with ESG practices and that is in line with the arguments that corporate buyers increasingly consider deal features in such a way that stakeholder interests are not breached. While some studies have examined the impact of ESG performance on takeover transactions (Aktas et al., 2011; Arouri et al., 2019; Boone & Uysal, 2020; Bose et al., 2021; Deng et al., 2013; Gomes, 2019; Gomes & Marsat, 2018; Gul et al., 2020; Maung et al., 2020; Tampakoudis &

Anagnostopoulou, 2020; Vastola & Russo, 2021), the effect on payment method choice remains unaddressed. Moreover, these studies have typically focused on one side of the transaction, whereas our study considers ESG coverage and performance at both the target and acquirer level.

Second, while the effect of ESG performance on takeover announcement returns conveys information about how the market perceives shareholder value creation (destruction) resulting from a deal (Gomes, 2019; Gomes & Marsat, 2018), ESG performance's effect on payment method choice reflects the value implications of ESG performance for more important and decisive investors, the transaction parties. More specifically, our results establish that the choice of payment method in takeovers is partially designed to cope with risks and opportunities associated with ESG practices that either party may inherit after the deal completion. Accordingly, our study adds to the literature that examines the value relevance of ESG performance through the mechanism of information asymmetry (Attig et al., 2014; Cheng et al., 2014; Cho et al., 2013; Cook et al., 2019; Cui et al., 2018; El Ghoul et al., 2011; Ge & Liu, 2015; Lopatta et al., 2016; Ng & Rezaee, 2015; Oikonomou et al., 2014; Samet & Jarboui, 2017).

Our study also provides important strategic implications for managers, showing that firm ESG strategies are beneficial for both target and acquirer shareholders in takeover transactions. More specifically, higher ESG performance, by reducing information asymmetry and enhancing financing capability, allows managers at the acquirer level to use cash offers, which are on average associated with better deal outcomes, faster completion times and a deterrence of potential rival bidders. However, having low ESG performance and being forced to use cash offers rather than stock swaps might not be an optimal option for the acquirer shareholders. On the target side, the negative effect that ESG concerns have on the probability of cash offers suggests that targets with low ESG performance have less flexibility in offers that they receive from acquirers in terms of payment method, which could be problematic if such targets are included in a financially distressed corporate group. Firms can avoid such hazards by proactively adopting strategies to enhance ESG performance.

The rest of the paper is organized as follows. In Section 2, we review the relevant literature and develop our hypotheses. Section 3 describes our data, variables, and research design. Section 4 presents our findings, and Section 5 concludes the paper.

2 | BACKGROUND AND HYPOTHESIS DEVELOPMENT

2.1 | Payment method choice in takeovers

Choice of payment method in takeovers is mainly driven by both asymmetric information between the acquirer and the target and acquirer financial capability. Information asymmetry on the target side makes the acquirer vulnerable to overpayment for a target that might turn out to be a lemon. In cash offers, acquirers bear all the risk associated with the deal, while in stock swaps, acquirers protect

themselves against this adverse selection problem and share any mispricing in the target value with target shareholders. Accordingly, stock swaps are more probable when buying a target that is subject to high information asymmetry (Bugeja et al., 2021; Eckbo et al., 1990; Fishman, 1989; Hansen, 1987; Raman et al., 2013; Reuer et al., 2004). In contrast, when the target information asymmetry is low, the acquirer is likely to feel less need for such contingent payment (Luypaert & Van Caneghem, 2014; Reuer & Ragozzino, 2008).

When information asymmetry exists between managers and shareholders, managers have a high incentive to issue equity when they believe it is overvalued (Myers & Majluf, 1984). In the context of takeovers, this theory implies that when acquirer information asymmetry is high, it can exploit the market. According to the models of Myers and Majluf (1984), Hansen (1987), Shleifer and Vishny (2003), and Rhodes-Kropf and Viswanathan (2004), stock swaps are more probable in stock overvaluations. In this regard, Shleifer and Vishny (2003) show that both takeover waves in the 1960s and the 1990s occurred during a very high stock market overvaluation and the payment method was mostly stock swaps. Several empirical studies provide supporting evidence for this argument (see, e.g., Chemmanur et al., 2009; Faccio & Masulis, 2005; Luypaert & Van Caneghem, 2017; Ouyang & Szweczyk, 2019). On the other hand, low information asymmetry leaves acquirers fewer incentives for such market-timing behaviour due to less mispricing in their stock prices (Chang et al., 2006).

With regard to acquirer financial capability, acquirers that are financially healthier and have higher debt capacity tend to opt for cash offers, suggesting that their financing capability also plays an important role in determining the choice of payment method (Faccio & Masulis, 2005; Karampatsas et al., 2014; Martynova & Renneboog, 2009).

Although the above-reviewed literature produces valuable insights, few studies have examined the nonfinancial dimensions of a firm's performance and these dimensions' effect on the payment method in takeovers. This study addresses this gap by exploring the effect of firms' ESG performance ratings on payment method choice in takeovers. If left unexamined, acquirers could fail to detect problems related to social and environmental issues, which could lead to negative post-acquisition outcomes for acquirers (Ghosal & Sokol, 2013). Accordingly, in the next section, we discuss and develop our hypotheses regarding such association.

2.2 | Hypothesis development

This study draws on stakeholder theory and signalling theory to explore the potential association between ESG performance ratings and the choice of payment method in takeovers. Stakeholder theory holds that firms should consider not only their shareholders' interests but also of various stakeholders (Freeman, 1984). To meet accountability and transparency requirements for a wider spectrum of stakeholders, firms employ a series of actions that build mutual trust and provide stakeholders with a more comprehensive picture of the firm, which in turn enhance the firm's performance and value (Benlemlih & Bitar, 2018). In this regard, motivated by the stakeholder theory and

aiming to better manage stakeholders, ESG practices are voluntary initiatives that firms take towards various stakeholders, such as customers, suppliers, regulators, employees, investors and communities in order to improve their relationship (Cui et al., 2018; Eccles et al., 2014; Hull & Rothenberg, 2008; Jo & Harjoto, 2011; Malik, 2015).

Signalling theory is fundamentally concerned with reducing information asymmetry between two parties (Spence, 1973). Since corporate insiders often have better access to information regarding firm's value compared to other stakeholders, outsiders are likely to interpret any additional information as signals to markets participants (Wong & Zhang, 2022). Accordingly, firms can utilize a range of potential signals reflective of their quality in various markets subject to information asymmetry. In a market like the one of takeover, which is characterized by information asymmetry and uncertainty, parties in the transaction can use different signals, one of them being ESG performance, in order to reduce the information asymmetry and better evaluate the deal. The premise of our study is that the heterogeneity at the ESG performance level sends different signals with respect to a firm's engagement with its stakeholders. In other words, from the signalling theory perspective, ESG activities help reduce information asymmetry and signal the quality of a firm to its existing and potential stakeholders (Huang, 2022; Zhang et al., 2022).

ESG practices in turn result in different benefits for the focal firm, such as lower information asymmetry and lower cost of capital (Cui et al., 2018; Malik, 2015). Several studies have explained the low information asymmetry and better access to finance of the firms with high ESG performance through the lenses of stakeholder theory and signalling theory. For instance, Cui et al. (2018) study the ESG-information asymmetry nexus based on two conflicting arguments: the agency theory versus the stakeholder theory. According to the agency theory view, ESG practices are a way for managers to build a reputation at shareholders' expense. However, based on the stakeholder theory, ESG practices facilitate better communication between managers and nonfinancial stakeholders. The authors document an inverse association between ESG performance and the level of information asymmetry, which is more consistent with the stakeholder theory's information asymmetry reduction hypothesis than the agency theory explanation. Benlemlih and Bitar (2018) argue that ESG performance is associated with lower information asymmetry and, therefore, leads to investment efficiency. Building on the stakeholder theory, the authors contend that investment efficiency is a channel through which firms with high ESG performance increase their financial performance. In a more related study, Zhang et al. (2022) use signalling theory as a supplement to stakeholder theory and argue that ESG activities are firm's focus on the relationship with existing stakeholders and act as signals to potential stakeholders. Complementing each other, these two theories provide basis for understanding how potential stakeholders would react to a firm's ESG engagement and response of a takeover transaction.

Taken together, stakeholder theory and signalling theory provide a relevant basis for studying the relationship between ESG performance and payment method choice in takeovers. On the one hand, ESG practices are firm's response to its existing shareholders' demand

for accountability and transparency. On the other hand, such practices play a signalling role and reduce firm's information asymmetry for those potential stakeholders. Accordingly, ESG practices could influence the payment method choice in takeovers.

Prior literature points out that stakeholders face a difficult task in comprehending and evaluating ESG performance and disclosure. Therefore, ESG performance rating agencies seek to make ESG performance more understandable and transparent (Chatterji et al., 2009; Wong et al., 2020). Corporations themselves refer to these ratings when they wish to measure their nonfinancial performance (Scalet & Kelly, 2010). While it is the firm's decision and regulatory forces on how much information regarding ESG performance to disclose, ESG performance ratings are initiated by ratings agencies. In most cases, companies are invited to participate in different forms such as updating, verifying and providing additional data. Additionally, sometimes firms are asked to fill out questionnaires on their ESG performance. In each ratings agency, ESG performance is evaluated by several ESG analysts taking into account a wide array of metrics that can differ across rating agencies and is not observable to outside researchers (Christensen et al., 2021).

ESG performance ratings agencies gather information needed to evaluate the ESG performance of firms from different sources, such as financial statements, the media, reports from mainstream surveys, government documents and peer-reviewed legal journals, which expand beyond simple voluntary disclosures. They aim to provide the market with objective and verifiable grounds for evaluating a firm's nonfinancial performance (Scalet & Kelly, 2010). Therefore, ratings given by ESG performance rating agencies can reveal additional information about a firm. If only voluntary disclosures are used, firms can withhold negative information about their ESG performance (Cho et al., 2013). In line with this argument, Cohen et al. (2011) find that retail investors prefer to gather information about a firm's ESG performance from third-party sources such as rating agencies. Cho et al. (2013) rely on ESG performance ratings given by Kinder, Lydenberg and Domini (KLD) and argue that these ratings correspond more closely to actual firm ESG performance and motivate ESG performance disclosure, which in turn reduces information asymmetry. They argue that KLD ESG performance ratings are almost completely comparable to the function of other information intermediaries in the market such as financial analysts. The authors find that irrespective of firm ESG performance levels, the mere availability of ESG performance ratings is associated with lower information asymmetry measured by the bid-ask spread. Wong et al. (2020) argue that ESG coverage sends credible signal regarding firm's ESG performance information to the market participants and potential investors which in turn leads to lower firm's cost of capital and higher firm value.

Given this background, first, we explore the effect of ESG coverage on payment method choice in takeovers. If ESG coverage reduces a target's information asymmetry, an acquirer could more accurately evaluate the target's value and thus feel less need for a contingent payment. If ESG coverage reduces, at least partially, an acquirer's information asymmetry, an acquirer would have fewer incentives for using stock swaps because stock prices are less likely to deviate from true fundamental values due to higher information availability. Based

upon the above listed effects of ESG coverage on information asymmetry, we postulate the following hypothesis:

H1. ESG coverage increases the probability that the acquirer will use cash as the payment method in takeovers.

We then turn our attention to whether different levels of firm ESG performance can affect payment method choice in takeovers. The literature reports that ESG performance mitigates information asymmetry through several channels. First, firms with high ESG performance tend to report their social and environmental performance to outsiders (Dhaliwal et al., 2011). These reports reveal insights to the market regarding firm value beyond just financial information, which in turn improves firm transparency (Cheng et al., 2014; Cui et al., 2018). Therefore, investors obtain a more complete picture of the firm and a sense of trust through ESG disclosures (Benlemlih, 2017; Wu & Shen, 2013). Cho et al. (2013) argue that because ESG-related information affects a firm's equity cost, transparency regarding this information is as important as the financial information that firms disclose. Indeed, prior research documents that ESG encompasses information that is value relevant for investors (Ng & Rezaee, 2015; Nguyen et al., 2020). Second, firms with high ESG performance conduct their businesses based on mutual trust and cooperation with various stakeholders and are committed to ethical behaviour. Thus, they tend to deliver more transparent and reliable financial information to market participants, which in turn reduces information asymmetry (Kim et al., 2012; Wu & Shen, 2013). Finally, firms usually use ESG factors to build a good reputation in the market; hence, they are more likely to produce a high-quality information environment to maintain their good reputation (Cui et al., 2018). Consistent with the above arguments, several studies have documented an inverse relationship between ESG performance and information asymmetry (see, e.g., Cho et al., 2013; Cui et al., 2018; Dhaliwal et al., 2011; Lopatta et al., 2016). These findings suggest that the ESG performance of targets and acquirers may affect payment method choice in takeovers by reducing information asymmetry.

What is the value relevance of a firm's ESG performance in takeover transactions? Investors in general and acquirers in particular increasingly consider ESG performance in their decision making (Bose et al., 2021; Menz, 2010). Ghosal and Sokol (2013) hold that acquirers' failure to detect problems related to social and environmental issues can lead to a negative post-acquisition outcome for acquirers. On the one hand, high ESG performance can create value for firms through attracting more loyal and productive employees, higher customer loyalty and lower litigation costs. On the other hand, low ESG performance can bring about difficulties, including employee strikes, low employee productivity, government sanctions and high litigation risk (Hong & Kacperczyk, 2009; Oikonomou et al., 2014; Waddock & Graves, 1997). In addition, firms' reputations can be destroyed if they ignore their businesses' social and environmental effects (Menz, 2010), which would then create a liquidity problem for the firm (Oikonomou et al., 2014). Therefore, investors tend to incorporate a firm's ESG performance in their decision making and tend to discount the firm's value if presented with low ESG performance levels (Ge & Liu, 2015). More specifically, in the context of takeovers, Gomes and

Marsat (2018) find that acquirers value ESG performance and pay a higher premium for a target with high ESG performance, considering it a channel that reduces information asymmetry, regarding target value. The authors argue that nonfinancial ESG-related information is especially significant in cross-border transactions since they are subject to higher information asymmetry. Arouri et al. (2019) use arbitrage spreads following initial takeover announcements as a measure of transaction uncertainty and find that deals in which acquirers have higher ESG performance are associated with lower completion uncertainty. These findings are consistent with the stakeholder theory and signalling theory. In addition, the market tends to react positively to deals acquirers announce when they have high ESG performance or when they seek to acquire targets that have high ESG performance (Aktas et al., 2011; Deng et al., 2013). Deng et al. (2013) show that takeovers announced by high ESG performing acquirers have a higher completion probability and take less time to complete.

Based upon the above arguments, high ESG performance on the target side is likely to resolve, at least partially, inherent information asymmetry problems. Therefore, acquirers using ESG performance would have more information at their disposal and would in turn value targets more accurately. Furthermore, high ESG performance can potentially mean lower probability of future litigation risks and loss of reputation and, therefore, decreases the need for stock swaps as contingent payment. In contrast, we expect that a target with low ESG performance and, therefore, high information asymmetry, generates the opposite effect. Acquirers are likely to consider target low ESG performance as a source of uncertainty and potential negative outcome in the future and therefore are less willing to use cash offers given that by offering cash, they bear the entire risk associated with the deal. Accordingly, we posit the following two hypotheses on the target side:

H2. A target's high ESG performance (ESG strengths) increases the probability that the acquirer will use cash as the payment method in takeovers.

H3. A target's low ESG performance (ESG concerns) decreases the probability that the acquirer will use cash as the payment method in takeovers.

On the acquirer side, ESG performance is likely to affect the payment method through two channels of information asymmetry and access to finance. Regarding the first channel, if an acquirer's high ESG performance reduces information asymmetry to infer its value, there would be fewer incentives for an acquirer to time the market (Luypaert & Van Caneghem, 2014). This is because the misvaluation in the acquirer stock prices would be lower. Regarding the second channel, the literature indicates that high ESG performance is associated with better capital accessibility. This association is mostly attributed to the effect of ESG performance in mitigating information asymmetry (see, e.g., Benlemlih, 2017). In this regard, Oikonomou et al. (2014) find a negative relationship between high ESG performance and the cost of bonds. They attribute these results to the fact that firms with high ESG performance have better stakeholder engagement and lower

agency cost. They further find that the cost of bonds is higher for firms with low ESG performance because these firms have a higher probability of facing a negative outcome, such as a government sanction, product boycott, lower employee productivity and litigation risks. Ge and Liu (2015) report similar results and argue that having lower information asymmetry and a larger investor base, firms with better ESG performance enjoy higher credit ratings and a lower cost of corporate bonds. Focusing on bank borrowings, Goss and Roberts (2011) show that banks consider ESG concerns as risks and thus provide relatively less attractive loan packages to firms with low ESG performance. However, they do not find any relationship between ESG strengths and the cost of bank loans. Focusing on the equity market, El Ghouli et al. (2011) and Ng and Rezaee (2015) find that firms with high ESG performance bear a lower equity cost. Attig et al. (2014) investigate the relationship between ESG performance and investment-cash-flow sensitivity as a measure of market imperfection and report a negative association. They attribute this result to the greater coverage of high ESG performance firms on Wall Street, which leads to more media attention and a large number of investors that in turn binds such firms to producing higher levels of information. In recent studies, Samet and Jarbouli (2017) and Cook et al. (2019) find that transparency resulting from higher ESG performance leads firms to invest more efficiently.

In the context of takeovers, easier access to finance is likely to cause acquirers with high ESG performance to opt for cash offers rather than stock swaps. Cash offers are associated with several advantages such as non-negative takeover return, low target manager resistance, faster completion and deterrence of rival bidders (Berkovitch & Narayanan, 1990; Fishman, 1989; Fu et al., 2013; Travlos, 1987). In addition, these firms would have lower constraints to raise funds for future investment needs. On the other hand, acquirers with inferior ESG performance may not have easy access to capital and therefore, they are less likely to be able to opt for cash offers.

Taken together, high ESG performance on the acquirer side is likely to leave fewer incentives for an acquirer to time the market and use stock swaps as the payment method. In addition, high ESG performance paves the way for the acquirer to raise funds easier in the event of a need. This condition would lead to a decreased probability of stock swaps as the payment method in takeovers. In contrast, we expect that an acquirer's low ESG performance, by being associated with high information asymmetry and less access to finance generates the opposite effect. Therefore, we posit the following two hypotheses on the acquirer side:

H4. An acquirer's high ESG performance (ESG strengths) increases the probability that it will use cash as the payment method in takeovers.

H5. An acquirer's low ESG performance (ESG concerns) decreases the probability that it will use cash as the payment method in takeovers.

3 | DATA SOURCES, VARIABLES, AND MODEL SPECIFICATIONS

3.1 | Sample

This study covers a sample of the US completed takeover transactions that took place from 1 January 1992 to 31 December 2014. Data on takeovers are collected from Thomson Reuters' EIKON Mergers and Acquisitions (M&As) database. We include transactions that are in the forms of: merger, acquisition of assets, acquisition of major assets and acquisition of certain assets. We further applied the following criteria for a transaction to be included in our sample. (1) Both the target and the acquirer are publicly traded to ensure access to accounting and market data. (2) Acquirers own less than 5% of shares of the target firm before the transaction to ensure that acquirers do not have an information advantage with respect to the target value before the transaction and to capture the fine-grained effect of ESG in reducing information asymmetry. Dionne et al. (2015) argue that acquirers who own at least 5% of target firm shares before transactions are informed bidders and pay a lower premium compared to uninformed bidders. (3) Acquirers own more than 50% of the target firm after the transaction since we need acquirers to take over the control of the target firm after the transaction. Further, following prior studies (Chemmanur et al., 2009; Faccio & Masulis, 2005; Luypaert & Van Caneghem, 2017), we eliminate transactions whose payment method is not available or is not in the form of cash, stock or a combination of cash and stock. We obtained an initial sample of 4521 transactions satisfying these conditions.

Next, we collected accounting data from COMPUSTAT and stock price data from the Center for Research in Security Prices (CRSP) for both the acquirer and the target. After eliminating transactions with missing data, we obtained a final sample of 836 transactions, for which all accounting and market data are available. We then obtained ESG performance rating data from KLD for both targets and acquirers in our final sample of 836 transactions. In our sample, 579 acquirers and 316 targets are covered by KLD, and in 305 of the transactions, both acquirers and targets are covered by KLD. The starting date of our sample is 1991 given that KLD ESG performance ratings are available from that year. In our tests, we use 1-year-lag ESG performance ratings. The end date of 2013 is explained by the availability of aggregate scores up to that point for each ESG performance component.

COMPUSTAT, CRSP and KLD are accessed via Wharton Research Data Service (WRDS).

3.2 | Main variables

3.2.1 | Payment method choice

Our dependent variable is the payment method choice in takeover transactions. We define this variable as a binary variable that takes the value of 1 if the payment method is in cash only form and 0 if the payment method is in the form of stock or combination of cash and stock. A similar approach has been used by several scholars (see,

e.g., Luypaert & Van Caneghem, 2014; Ouyang & Szweczyk, 2019). Based on the data collected from the Thomson Reuters EIKON M&A database, payment methods could be cash, stock or a combination of cash and stock. The percentage of cash and stock used as a payment method is not available in the database. Therefore, we needed to define our dependent variable as a binary variable.

3.2.2 | ESG performance ratings and levels

The main independent variables are ESG coverage and ESG performance levels of both the target and the acquirer. In this study, we use ratings given by KLD. KLD is one of the oldest and most well-known agencies providing firm ESG performance ratings. KLD ratings have been used frequently in the literature (Cui et al., 2018; Dhaliwal et al., 2011; Ge & Liu, 2015; Jo & Harjoto, 2011; Kim et al., 2012), and several scholars have confirmed their credibility (Kim et al., 2012; Mattingly & Berman, 2006; Waddock & Graves, 1997, 2006). ESG coverage is a binary variable that takes the value of 1 if the firm is covered by KLD in the year prior to the deal announcement and 0 otherwise. KLD evaluates the firms' ESG performance in 13 dimensions, seven of which are qualitative issue areas and six are controversial business issues (see KLD, 2010). Qualitative issue areas include the environment, community, employee relations, diversity, product, governance and human rights. KLD provides binary ratings for a set of concerns and strengths indicators in each of these qualitative issue areas, where 1 shows the presence of a specific strength or concern and 0 shows the absence of such a strength or concern. An example of such indicators is the case of Johnson & Johnson's practices towards pollution prevention and usage of clean energy (the presence of two ESG strengths indicators) which yielded the company a high ESG performance rating in the environment category in 2010. However, the company performed poor when it was rated with respect to its retirement benefits (the presence of an ESG concern indicator) under the employee relation category in the same year. A more detailed list of KLD strengths and concerns indicators under each qualitative issue area is illustrated in Appendix A.

Controversial business issues include alcohol, gambling, firearms, military, nuclear power and tobacco. KLD provides a binary rating for the whole of these areas in terms of concerns only, where a value of 1 means that a firm is involved in at least one of these areas and a value of 0 means that the firm is not involved in any of these areas. Because controversial business issue areas are assigned as concerns only and not strengths, and differ from qualitative issue areas, following prior research (Cui et al., 2018; Dhaliwal et al., 2011; Ge & Liu, 2015; Jo & Harjoto, 2011), we only focus on qualitative issue areas. Further, data on human rights are not available for the entire period because human rights data were added in 2002. Moreover, after this year, there are many missing observations; therefore, we exclude human rights from our ESG performance computation in line with previous studies (Cho et al., 2013; Cui et al., 2018; Kim et al., 2012). Consequently, our ESG performance computation is based on the six remaining qualitative issue areas—environment, community, employee relations, diversity, product and governance.

We use target and acquirer ESG performance in the year prior to the deal announcement to ensure that market participants have ESG performance information. Mattingly and Berman (2006) argue that ESG strengths and concerns should not be aggregated to build overall ESG performance because they are two different constructs. Implementing this principle, we compute aggregate ESG strengths and aggregate ESG concerns for each firm separately. To do so, we first sum all ratings for strength or concern indicators in each qualitative issue area and scale them by the maximum possible number of strength or concern indicators in that specific ESG category. Then, to calculate the overall ESG aggregate strengths and concerns, we add all the strength and concern scores across all qualitative issue areas constructed prior and divide it by six, the number of qualitative issue areas. A similar approach to calculate ESG performance has been used by several scholars (see, e.g., Jo & Harjoto, 2011; Kim et al., 2012; Oikonomou et al., 2012, 2014).

3.3 | Model specifications

To examine whether target and acquirer ESG performance ratings coverage and ESG performance levels affect payment choice in takeovers, we conduct two sets of tests. In the first test, we examine the effect of the mere availability of ESG performance ratings for the target and acquirer on the probability of cash offers (H1). In the second test, we examine the effect of target and acquirer ESG strengths and concerns on the probability of cash offers (H2–H5). For both tests, we estimate the following binary probit model:

$$Pr(\text{cash offers} = 1)_i = \alpha + \beta X_i + \gamma Z_i + \delta \text{Year.Index} + \eta \text{Industry.FE} + \varepsilon_i, \quad (1)$$

where the probability of cash offers is a dummy variable that equals 1 when the payment method is cash and 0 otherwise. X_i is a vector of our variables of interest. In the first test, these variables are target ESG performance ratings availability ($T.ESG.Coverage$) and acquirer ESG performance ratings availability ($A.ESG.Coverage$). In the second test, these variables are target ESG strengths ($T.ESG.Strengths$), target ESG concerns ($T.ESG.Concerns$), acquirer ESG strengths ($A.ESG.Strengths$) and acquirer ESG concerns ($A.ESG.Concerns$). Z_i is a vector of control variables motivated by prior studies (Chemmanur et al., 2009; Faccio & Masulis, 2005; Karampatsas et al., 2014; Luypaert & Van Caneghem, 2014, 2017; Martin, 1996) and are acquirer free cash flow ($A.FCF$), acquirer market-to-book ratio ($A.MB$), acquirer size ($A.Size$), acquirer leverage ($A.Leverage$), acquirer analyst coverage ($A.Analyst$), acquirer stock returns ($A.Stock>Returns$), target market-to-book ratio ($T.MB$), relative size ($R.Size$), target leverage ($T.Leverage$), target analyst coverage ($T.Analyst$), target sales growth ($T.Sales.Growth$), target R&D ($T.R\&D$), target in high-tech industry ($T.Hi.Tech$), target and acquirer in the same two-digit SIC industry ($Related$) and target and acquirer in the same US state ($Same.State$). Finally, all models include the year index ($Year.Index$) and industry fixed effect ($Industry.FE$).¹ All

¹We define industries according to Fama-French 12 industry classification codes which are derived from reclassifying four-digit SIC codes and retrieved from the Kenneth French's website: http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/Data_Library/det_12_ind_port.html.

TABLE 1 Variables definitions/measures

Variable	Definition/measure	Expected sign
Cash only	Indicator variable that takes the value of 1 if the payment method is cash only and 0 if the payment method is in the form of stock or combination of cash and stock.	
Stock only	Indicator variable that takes the value of 1 if the payment method is stock only and 0 if the payment method is in the form of cash or combination of cash and stock.	
Target ESG coverage	Indicator variable that takes the value of 1 if the target is covered by KLD.	+
Target ESG strengths	Target firm sum of all strengths score across all six categories of ESG (environment, community, employee relations, diversity, product and governance) divided by 6.	+
Target ESG concerns	Target firm sum of all concerns score across all six categories of ESG (environment, community, employee relations, diversity, product and governance) divided by 6.	-
Acquirer ESG coverage	Indicator variable that takes the value of 1 if the acquirer is covered by KLD.	+
Acquirer ESG strengths	Acquirer firm sum of all strengths score across all six categories of ESG (environment, community, employee relations, diversity, product and governance) divided by 6.	+
Acquirer ESG concerns	Acquirer firm sum of all concerns score across all six categories of ESG (environment, community, employee relations, diversity, product and governance) divided by 6.	-
Acquirer free cash flow	Operating income before depreciation minus interest expenses, taxes, preferred dividend and common dividend divided by book value of total assets.	+
Acquirer market-to-book ratio	Acquirer number of common shares outstanding multiplied by its share price divided by its book value of equity.	-
Acquirer size	Log (total assets).	+
Acquirer leverage	Total long-term debt divided by total assets.	Uncertain
Acquirer analyst coverage	Maximum number of analysts who provide estimation of EPS in any month in the most recent fiscal year prior to the deal announcement. If no forecast is reported by I/B/E/S in the year before the deal announcement for a firm, then analyst coverage is considered as zero.	Uncertain
Acquirer stock returns	Acquirer share price 28 business days before the deal announcement minus acquirer share price 154 business days before the deal announcement divided by acquirer share price 154 business days before the deal announcement.	-
Target market-to-book ratio	Number of common shares outstanding multiplied by share price divided by book value of equity.	-
Relative size	Target total assets divided by acquirer total assets.	-

TABLE 1 (Continued)

Variable	Definition/measure	Expected sign
Target leverage	Total long-term debt divided by total assets.	Uncertain
Target analyst coverage	Maximum number of analysts who provide estimation of EPS in any month in the most recent fiscal year prior to the deal announcement. If no forecast is reported by I/B/E/S in the year before the deal announcement for a firm, then analyst coverage is considered as zero.	Uncertain
Target sales growth	(target sales in year t minus target sales in year $t - 1$)/target sales in year t , where t is the fiscal year prior to the deal announcement.	–
Target R&D	R&D investment divided by total assets.	Uncertain
Target in high tech	Indicator variable that takes the value of 1 if target firm is in high-tech industry.	Uncertain
Related industry	Indicator variable that takes the value of 1 if acquirer firm and target firm share the same two-digit SIC codes.	–
Same state	Indicator variable that takes the value of 1 if the target and acquirer are in the same US state according to Thomson Reuters EIKON M&A database.	Uncertain

TABLE 2 Descriptive statistics

Variable	N	Mean	SD	Min	Pct(25)	Median	Pct(75)	Max
Cash.Only	836	0.46	0.5	0	0	0	1	1
Stock.Only	836	0.31	0.46	0	0	0	1	1
T.ESG.Coverage	836	0.38	0.49	0	0	0	1	1
T.ESG.Strengths	316	0.02	0.04	0	0	0	0.03	0.17
T.ESG.Concerns	316	0.07	0.06	0	0.03	0.06	0.11	0.21
A.ESG.Coverage	836	0.69	0.46	0	0	1	1	1
A.ESG.Strengths	579	0.09	0.11	0	0	0.05	0.11	0.49
A.ESG.Concerns	579	0.09	0.08	0	0.03	0.06	0.12	0.33
A.FCF	836	0.07	0.09	–0.33	0.01	0.07	0.12	0.27
A.MB	836	3.96	4.23	0.43	1.72	2.67	4.26	26.2
A.Size	836	3.51	0.9	1.44	2.86	3.51	4.16	5.44
A.Leverage	836	0.16	0.16	0	0.03	0.13	0.24	0.69
A.Analyst	836	13.88	10.56	0	6	12	21	54
A.Stock>Returns	836	0.1	0.29	–0.54	–0.07	0.05	0.21	1.3
T.MB	836	2.88	3.14	–3.73	1.19	1.99	3.34	18
R.Size	836	0.28	0.42	0	0.03	0.11	0.35	2.44
T.Leverage	836	0.14	0.19	0	0	0.05	0.2	0.9
T.Analyst	836	5.78	6.29	0	1	4	8	42
T.Sales.Growth	836	0.24	0.67	–0.58	–0.01	0.09	0.24	4.77
T.R&D	836	0.07	0.12	0	0	0.004	0.1	0.61
T.Hi.Tech	836	0.24	0.43	0	0	0	0	1
Related	836	0.68	0.47	0	0	1	1	1
Same.State	836	0.24	0.43	0	0	0	0	1

variables' definitions and the hypothesized effect of the explanatory variables on the probability of cash offers in takeovers are summarized in Table 1.

4 | RESULTS

4.1 | Descriptive statistics

Table 2 provides summary statistics for the variables representing acquirer, target and transaction for 836 takeovers during the period of 1992 to 2014. All the continuous variables are winsorized at the 1st and 99th percentiles to reduce the effect of any outliers. Table 2 shows that 46% of the transactions are in the form of cash offers, 31% are stock swaps, and the remaining 23% are a combination of cash and stock. Cash as the dominant payment method in takeovers is reported by previous studies both for US and European deals (see, e.g., Faccio & Masulis, 2005; Luybaert & Van Caneghem, 2017). Further, we can observe that 69% of the acquirers and 38% of the targets in our total sample have ESG performance ratings available. These percentages are in line with the findings of Kim et al. (2012) and Cho et al. (2013), who report that ESG performance rating agencies tend to cover large firms. Regarding ESG performance levels, acquirers

exhibit higher ESG strengths compared to targets. Acquirers have an average (median) ESG strength of 0.09 (0.05), while the average (median) ESG strength of targets is only 0.02 (0). In addition, the average (median) measure of ESG concerns is 0.09 (0.06) for acquirers, and the corresponding measure is 0.07 (0.06) for targets.

Table 3 reports the descriptive statistics of acquirer, target and transaction-related variables for with and without ESG coverage. Panels A presents number of observations, the mean and median for acquirer and deal-specific characteristics for with and without ESG coverage. As exhibited, acquirers with ESG coverage have significantly higher mean and median free cash flow, size and analyst coverage than acquirers without ESG coverage. As for transaction-related variables, we find that compared with acquirers without ESG coverage, acquirers with ESG coverage prefer to acquire targets that are in different industry and different state than their own. Finally, concerning the payment method choice, acquirers with ESG coverage prefer more cash offers and less stock swaps deals than the acquirers without ESG coverage which is consistent with our H1.

Panels B presents number of observations, the mean and median for target and deal-specific characteristics for with and without ESG coverage. Targets with ESG coverage have significantly higher mean and median size, leverage and analyst coverage than targets without ESG coverage. As for transaction-related variables, we find that

TABLE 3 Descriptive statistics by ESG coverage

	With ESG coverage			Without ESG coverage			p value for difference	
	N	Mean	Median	N	Mean	Median	Parametric t test	Wilcoxon rank-sum test
Panel A: Acquirer and deal characteristics								
A.FCF	579	0.074	0.080	257	0.044	0.050	.0001	.0000
A.MB	579	4.034	2.750	257	3.787	2.500	.4262	.2553
A.Size	579	3.857	3.860	257	2.728	2.730	.0000	.0000
A.Leverage	579	0.162	0.100	257	0.162	0.097	.9827	.0496
A.Analyst	579	17.26	16.000	257	6.280	5.000	.0000	.0000
A.Stock>Returns	579	0.070	0.051	257	0.157	0.069	.0018	.2756
Related	579	0.648	1.000	257	0.747	1.000	.0032	.0045
Same.State	579	0.221	0.000	257	0.284	0.000	.0573	.0494
Cash.Only	579	0.560	1.000	257	0.249	0.000	.0000	.0000
Stock.Only	579	0.218	0.000	257	0.51	1.000	.0000	.0000
Panel B: Target and deal characteristics								
T.MB	316	2.950	2.240	520	2.840	1.865	.6260	.0090
T.Size	316	2.938	2.930	520	2.152	2.080	.0000	.0000
T.Leverage	316	0.171	0.090	520	0.117	0.040	.0002	.0029
T.Analyst	316	9.835	8.000	520	3.308	2.000	.0000	.0000
T.Sales.Growth	316	0.166	0.090	520	0.286	0.100	.0043	.6807
T.R&D	316	0.062	0.000	520	0.078	0.000	.0522	.4278
Related	316	0.642	1.000	520	0.700	1.000	.0876	.0841
Same.State	316	0.215	0.000	520	0.256	0.000	.1773	.1834
Cash.Only	316	0.557	1.000	520	0.408	0.000	.0000	.0000
Stock.Only	316	0.168	0.000	520	0.392	0.000	.0000	.0000

TABLE 4 ESG coverage and the payment method choice in takeovers

	Probit regression models			
	Model 1	Model 2	Model 3	Model 4
Constant	−88.3383*** (.0000)	−74.7042*** (.0004)	−63.2080*** (.0047)	−54.8701** (.0147)
T.ESG.Coverage		0.2362* (.0680)		0.1870 (.1496)
A.ESG.Coverage			0.3508** (.0327)	0.3161* (.0570)
A.FCF	4.1560*** (.0000)	4.0917*** (.0000)	4.2063*** (.0000)	4.1521*** (.0000)
A.MB	−0.0278* (.0710)	−0.0267* (.0845)	−0.0296* (.0511)	−0.0286* (.0616)
A.Size	0.4532*** (.0000)	0.4156*** (.0003)	0.3985*** (.0004)	0.3739*** (.0014)
A.Leverage	0.4341 (.3027)	0.4151 (.3268)	0.4909 (.2447)	0.4712 (.2655)
A.Analyst	−0.0067 (.4072)	−0.0053 (.5164)	−0.0112 (.1649)	−0.0096 (.2373)
A.Stock>Returns	−0.3499* (.0573)	−0.3517* (.0598)	−0.3094* (.1000)	−0.3145* (.0982)
T.MB	−0.0451*** (.0089)	−0.0465*** (.0075)	−0.0463*** (.0065)	−0.0473*** (.0059)
R.Size	−1.1308*** (.0005)	−1.1832*** (.0006)	−1.1366*** (.0006)	−1.1785*** (.0008)
T.Leverage	0.2102 (.5210)	0.2113 (.5207)	0.1917 (.5607)	0.1941 (.5568)
T.Analyst	−0.0429*** (.0000)	−0.0499*** (.0000)	−0.0410*** (.0000)	−0.0467*** (.0000)
T.Sales.Growth	−0.2275*** (.0046)	−0.2212*** (.0065)	−0.2176*** (.0051)	−0.2137*** (.0068)
T.R&D	0.8383 (.1118)	0.8564 (.1042)	0.9051* (.0834)	0.9123* (.0808)
T.Hi.Tech	0.1848 (.2418)	0.1916 (.2237)	0.1724 (.2725)	0.1792 (.2525)
Related	−0.1907 (.1039)	−0.1782 (.1296)	−0.1827 (.1217)	−0.1734 (.1424)
Same.State	−0.1787 (.1717)	−0.1669 (.2044)	−0.1697 (.1964)	−0.1609 (.2224)
Year.Index	0.0439*** (.0000)	0.0371*** (.0004)	0.0313*** (.0053)	0.0272** (.0162)
Industry FE	Yes	Yes	Yes	Yes
Observations	836	836	836	836
Pseudo-R ²	.2982	.3005	.3024	.3038
Maximum VIF	3.74	3.93	3.9	4.04

Note: This table reports the results of probit regression models where the dependent variable equals 1 if the payment method is cash and 0 otherwise. Z-statistics are calculated using White heteroscedasticity-consistent standard errors. *p* values are presented in parentheses.

*Significance at the 10% level.

**Significance at the 5% level.

***Significance at the 1% level.

compared with targets without ESG coverage, targets with ESG coverage prefer industry unrelated deals. Finally, concerning the payment method choice, targets with ESG coverage prefer more cash only and less stock swaps deals than the target without ESG coverage which is in line with our H1.

In unreported correlation matrix using a sample of 579 (316) where all acquirers (targets) are covered by KLD, we find that the correlation between acquirer (target) ESG strengths and concerns is 0.4854 (0.1483) which is significant at the 1% level. This result shows that a firm can have both ESG strengths and concerns at the same time and even across the same subcategory (Oikonomou et al., 2012) which is the result of the fact that ESG is a multidimensional factor. This reinforces the fact that ESG strengths and concerns should not be aggregated to build an overall ESG performance rating because they are two different constructs (Mattingly & Berman, 2006).

4.2 | ESG coverage and payment method choice in takeovers

Table 4 reports estimates of four alternative versions of binary probit regression model (Equation 1) to examine the effect of ESG coverage on the probability of cash offers in takeovers. To separately assess the effect of each variable we are interested in, we build a hierarchical regression analysis. Model 1 includes control variables only. In Model 2, we add the targets' ESG coverage variable, and in Model 3, we insert the acquirers' ESG coverage. Finally, to examine the simultaneous effect of target and acquirer ESG coverage on the probability of cash offers in takeovers, in Model 4, we include both variables. The dependent variable in all specifications equals 1 if the payment method is cash and 0 otherwise. Given that both ESG coverage and cash-only offers have increased over our sample period, we control for such a phenomenon by including a year index in our regression models instead of a year dummy. All our regression specifications include industry fixed effects whose coefficient is suppressed. Furthermore, we run all of the regressions in our study using White's (1980) heteroscedasticity-consistent standard errors.

Model 1 provides supporting evidence for several control variables that prior studies have documented to have effect on the probability of cash offers. Consistent with pecking order theory, acquirers are more likely to opt for cash offers when they have high free cash flow. In line with the investment opportunity hypothesis, the acquirer M/B ratio carries a negative and significant coefficient at the 10% level. Moreover, the larger the acquirer size, the higher the probability of a cash offer. Whereas acquirer analyst coverage has no effect on the probability of cash offers, target analyst coverage has a negative and significant effect. The negative and significant coefficient of acquirer stock return supports the market-timing behaviour hypothesis. In addition, the target M/B ratio has a negative effect on the probability of cash offers, which is significant at the 1% level. Consistent with Hansen's (1987) theory, the coefficient of relative size is negative and significant at the 1% level. Finally, we find that target sales

growth is negatively associated with the probability of cash offers, which is significant at the 1% level.

H1 states that ESG coverage is positively related to the probability of cash offers in takeovers. On the target side, as shown in Model 2, the coefficient of target ESG coverage is positive and significant at the 10% level, providing support for H1. This finding is in line with the argument that ratings given by ESG performance rating agencies provide incremental information about the firm (Chatterji et al., 2009; Cho et al., 2013; Cohen et al., 2011; Scalet & Kelly, 2010; Wong et al., 2020) and, therefore, reduce acquirers' information disadvantages regarding target value. If they have a higher level of information about the target, acquirers can evaluate the target more accurately, which creates less need for contingent payment (Luypaert & Van Caneghem, 2014; Reuer & Ragazzino, 2008). Indeed, acquirers are more likely to use cash and enjoy the benefits associated with it: completing the deal more quickly, deterring potential rival bidders and experiencing non-negative abnormal return (Berkovitch & Narayanan, 1990; Fishman, 1989; Fu et al., 2013; Karampatsas et al., 2014; Travlos, 1987). However, these results do not hold when we include both target and acquirer ESG coverage in one model. As Model 4 shows, the coefficient of target ESG coverage is still positive but insignificant.

Furthermore, on the acquirer side, Model 3 indicates that the coefficient of acquirer ESG coverage is positive and significant at the 5% level, providing strong support for H1. Corroborating the effect of ESG coverage in reducing information asymmetry, this finding is consistent with the fact that acquirers find less incentive for market-timing behaviour when they have low information asymmetry (Luypaert & Van Caneghem, 2014). In addition, this result is in line with the argument that acquirer low information asymmetry resulting from ESG coverage leads to low financial constraints and lower capital cost (Wong et al., 2020), which overall makes cash offers more likely in takeovers. The coefficient of acquirer ESG coverage remains positive and significant at the 10% level when we consider the simultaneous effect of target and acquirer ESG coverage in Model 4.

4.3 | ESG performance and payment method choice in takeovers

We document the results of the question of whether ESG performance of acquirers and targets can affect the payment method in takeovers in Table 5, using binary probit models. Model 1 includes control variables only. In Model 2, we examine the effect of target ESG strengths and concerns on the probability of cash offers, and in Model 3, we investigate the effect of acquirer ESG strengths and concerns on the probability of cash offers. We use these different models to examine how ESG strengths and concerns of acquirers and targets separately affect the payment method in takeovers. Finally, in Model 4, we include both target and acquirer ESG strengths and concerns to examine the simultaneous effects of these variables. The dependent variable in all specifications equals 1 if the payment method is cash and 0 otherwise. Given that both ESG coverage and cash-only offers have increased over our sample period, we control for such a phenomenon by including a year index in our regression models instead

TABLE 5 ESG performance and the payment method choice in takeovers

	Probit regression models			
	Model 1	Model 2	Model 3	Model 4
Constant	-61.7773** (.0359)	21.0867 (.7020)	-58.7928** (.0484)	36.9449 (.3776)
T.ESG.Strengths		0.4574 (.8375)		0.5416 (.7262)
T.ESG.Concerns		-3.7705** (.0272)		-3.8477*** (.0054)
A.ESG.Strengths			0.2413 (.7659)	0.0829 (.9139)
A.ESG.Concerns			1.5247 (.1911)	3.0362** (.0252)
A.FCF	6.2968*** (.0000)	8.1609*** (.0003)	6.3289*** (.0000)	8.1962*** (.0000)
A.MB	-0.0337 (.1391)	0.0372 (.3841)	-0.0318 (.1637)	-0.0189 (.4883)
A.Size	0.3336** (.0159)	0.7805*** (.0002)	0.1979 (.2974)	0.3023 (.1832)
A.Leverage	0.9478* (.0972)	0.7709 (.4787)	1.1226* (.0674)	2.0028** (.0103)
A.Analyst	-0.0132 (.2373)	0.0225 (.1903)	-0.0108 (.3514)	0.0380** (.0158)
A.Stock>Returns	-0.2458 (.4893)	0.3817 (.4838)	-0.217 (.5465)	0.0388 (.9218)
T.MB	-0.0259 (.2233)	0.0114 (.6147)	-0.0244 (.2596)	0.0078 (.6155)
R.Size	-2.1497*** (.0000)	-1.9796*** (.0004)	-2.1826*** (.0000)	-1.6008*** (.0000)
T.Leverage	-0.3091 (.4411)	-0.0066 (.9898)	-0.2918 (.4707)	-0.1531 (.6751)
T.Analyst	-0.0357*** (.0016)	-0.0983*** (.0000)	-0.0367*** (.0010)	-0.0909*** (.0000)
T.Sales.Growth	-0.1967* (.0745)	0.2166 (.4189)	-0.2156* (.0627)	-0.0094 (.9612)
T.R&D	1.4752* (.0998)	0.0684 (.9424)	1.3388 (.1475)	-0.08 (.8996)
T.Hi.Tech	0.197 (.4085)	0.4335 (.3063)	0.2065 (.3828)	0.5581* (.0612)
Related	-0.1616 (.3166)	-0.0789 (.7255)	-0.161 (.3168)	0.0525 (.7604)
Same.State	-0.2991* (.0681)	-0.1924 (.4580)	-0.2783* (.0875)	-0.0411 (.8330)
Year.Index	0.0310** (.0347)	-0.0112 (.6846)	0.0297** (.0456)	-0.0187 (.3713)
Industry FE	Yes	Yes	Yes	Yes
Observations	579	316	579	305
Pseudo-R ²	.389	.5216	.3914	.532

(Continues)

TABLE 5 (Continued)

	Probit regression models			
	Model 1	Model 2	Model 3	Model 4
Maximum VIF	3.19	3.71	4.99	5.49

Note: This table reports the results of probit regression models where the dependent variable equals 1 if the payment method is cash and 0 otherwise. Z-statistics are calculated using White heteroscedasticity-consistent standard errors. *p* values are presented in parentheses.

*Significance at the 10% level.

**Significance at the 5% level.

***Significance at the 1% level.

of a year dummy. All our regression specifications include industry fixed effects whose coefficient is suppressed. Furthermore, we run all the regressions in our study using White's (1980) heteroscedasticity-consistent standard errors. As mentioned in the sample formation section, in our sample of 836 takeover transactions, 579 of the acquirers and 316 of the targets have ESG performance ratings available. Moreover, when we consider transactions where both the acquirer and the target have ESG performance ratings available, we get a sample size of 305 deals. The number of observations in regression models changes accordingly.

Model 1 in Table 5 shows that the control variables acquirer free cash flow, acquirer size, acquirer leverage, relative size, target analyst coverage, target sales growth, target R&D and the same US state all carry significant coefficients at conventional levels and are in line with prior M&A literature.

H2 states that target ESG strengths increase the probability that the acquirer will use cash as the payment method in takeovers. Model 2 in Table 5 shows that the coefficient of target ESG strengths is positive, but it is insignificant, failing to support H2. Furthermore, H3 posits that target ESG concerns decrease the probability that the acquirer will use cash as the payment method in takeovers. In Model 2, the coefficient of target ESG concerns is negative and significant at the 5% level, supporting H3. Taken together, these results show that acquirers are more sensitive to target ESG concerns than target ESG strengths. Acquirers seem to consider targets low ESG performance as a source of uncertainty and potential negative outcome in the future such as a government sanction, product boycott, lower employee productivity and litigation risks and therefore are less willing to use cash offers given that by offering cash, they bear the entire risk associated with the deal. These findings are consistent with those reported by previous studies that ESG concerns have been excessively costly for firms while ESG strengths have not been rewarded with the same magnitude by the market participants (see, e.g., Goss & Roberts, 2011; Oikonomou et al., 2012). These results continue to hold when we investigate the simultaneous effect of target and acquirer ESG strengths and concerns in Model 4.

H4 posits that acquirer ESG strengths increase the probability that it will use cash as the payment method in takeovers. Model 3 shows that the coefficient of acquirer ESG strengths is positive and insignificant, failing to support H4. Furthermore, H5 posits that acquirer ESG concerns decrease the probability that it will use cash as the payment method in takeovers. In Model 3, the coefficient of

acquirer ESG concerns is positive and insignificant, which does not support H5. When we include both ESG strengths and ESG concerns for acquirers and targets in Model 4, the coefficient of acquirer ESG concerns is positive and significant at the 5% level, which contradicts H5. A potential explanation for this result is that target shareholders might be reluctant to accept stock swaps as payment method choice from an acquirer that has low ESG performance. It has been evidenced by prior studies that target managers may influence the choice of payment method to protect their shareholders from any risk and future uncertainty inherent into the deal (Huang et al., 2016). In fact, board of directors at the target level has fiduciary responsibility to protect their shareholder interest and therefore must confirm the deal terms including the choice of payment method. In this regard, by accepting stock as the method of payment, target's board not only confirms the offer price but also endorses that being part of the acquirer firm is a desirable outcome. An acquirer with a low ESG performance is perceived as a source of uncertainty and potential negative outcome in the future and is likely to make target shareholders demand for cash offers rather than stocks swaps which might not be a desirable option for the acquirers with low ESG performance. This finding is in line with prior studies. For instance, Faccio and Masulis (2005) find that being in the same industry is negatively associated with the likelihood of cash offers. The authors argue that a target is less risk averse when the acquirer firm is in the same industry as the target and, therefore, more likely to accept acquirer stock as the payment method. Karampatsas et al. (2014) show that target's reluctance to accept stock as a payment method decreases as acquirer information asymmetry decreases due to high analyst coverage.

4.4 | Propensity score matching (PSM) analysis

The results we document in Tables 4 and 5 may be driven by fundamental differences between high ESG and low ESG firms. To mitigate the potential concerns related to the endogenous choice of ESG coverage and performance, following previous studies (see, e.g., Bose et al., 2021), we perform an additional analysis based on the PSM method. More specifically, we estimate the average treatment effect on the treated (ATT) on groups of comparable targets (acquirers). In examining the ESG coverage, targets (acquirers) with ESG coverage are considered as our treatment group and those targets (acquirers) without ESG coverage as our control group. In examining the ESG

TABLE 6 ESG coverage and the payment method choice in takeovers

	Ordered probit regression models		
	Model 1	Model 2	Model 3
1 2	85.9776*** (.0000)	69.0019*** (.0000)	63.5723*** (.0000)
2 3	86.7511*** (.0000)	69.7804*** (.0000)	64.3517*** (.0000)
T.ESG.Coverage	0.2105** (.0456)		0.1349 (.2346)
A.ESG.Coverage		0.4124*** (.0004)	0.3809*** (.0022)
Control variables	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
Observations	836	836	836
Pseudo-R ²	.1778	.1815	.1822

Note: This table reports the results of ordered probit regression models where the dependent variable equals 1 if the payment method is stock, 2 if it is a combination of cash and stock and 3 if it is cash. Z-statistics are calculated using White heteroscedasticity-consistent standard errors. *p* values are presented in parentheses.

- *Significance at the 10% level.
- **Significance at the 5% level.
- ***Significance at the 1% level.

performance, we regard those targets (acquirers) whose ESG strengths (ESG concerns) are above the sample median as our treatment group and those targets (acquirers) whose ESG strengths (ESG concerns) are below the sample median as our control group. Next, employing a logit model, we use observable firm-level characteristics in estimating the probability of a firm having ESG coverage (high ESG performance). We then match firms within a small caliper of 0.01 to allow only for highly similar matches. Matching with replacement is used. The results obtained from the PSM models confirm our main findings reported earlier in Tables 4 and 5.²

4.5 | Robustness checks

In this section, we report several supplemental analyses aimed at assessing the robustness of our earlier findings. In a first set of robustness checks, following previous studies (Chemmanur et al., 2009; Faccio & Masulis, 2005; Luybaert & Van Caneghem, 2017), we estimate ordered probit models for both the effects of ESG coverage and ESG performance levels of targets and acquirers on the probability of cash offers in takeovers. The results of these analyses are reported in Tables 6 and 7. The dependent variable in all specifications equals 1 if the payment method is stock, 2 if it is a combination of cash and stock and 3 if it is a cash offer. As exhibited in Table 6, whereas target ESG coverage is positive and significant at the 5% level in Model 1, it is

TABLE 7 ESG performance and the payment method choice in takeovers

	Ordered probit regression models		
	Model 1	Model 2	Model 3
1 2	-12.2081*** (.0000)	56.6992*** (.0000)	-34.4301*** (.0000)
2 3	-10.9767*** (.0000)	57.5834*** (.0000)	-33.1337*** (.0000)
T.ESG.Strengths	0.3844*** (.0000)		0.5990*** (.0000)
T.ESG.Concerns	-2.9944*** (.0000)		-3.2468*** (.0000)
A.ESG.Strengths		1.2058*** (.0000)	1.4082*** (.0000)
A.ESG.Concerns		0.7123*** (.0000)	0.9404*** (.0000)
Control variables	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
Observations	316	579	305
Pseudo-R ²	.2867	.2286	.3133

Note: This table reports the results of ordered probit regression models where the dependent variable equals 1 if the payment method is stock, 2 if it is a combination of cash and stock and 3 if it is cash. Z-statistics are calculated using White heteroscedasticity-consistent standard errors. *p* values are presented in parentheses.

- *Significance at the 10% level.
- **Significance at the 5% level.
- ***Significance at the 1% level.

positive and insignificant in Model 3. Furthermore, the coefficient of acquirer ESG coverage is positive and significant at the 1% level in both Models 2 and 3, which confirms our findings in Table 4.

Moreover, in Table 7, whereas target ESG strengths have a significant and positive effect on the probability of cash offers, target ESG concerns have negative and significant effect. Both coefficients are significant at the 1% level, thus providing further support for our H2 and H3. Results on the acquirer side show that acquirer ESG strengths and acquirer ESG concerns are both positive and significant at the 1% level. Positive impact of acquirer ESG strengths on the probability of cash offers in takeover is consistent with our H4.

Second, we run all our regressions once more using binary logit models and ordered logit models. The results of these extra analyses confirm our earlier findings. Third, KLD may cover a firm, but ESG performance ratings can be 0, which can mean there is no information (Cho et al., 2013). In our sample, only 6% of acquirers and 10% of targets have ESG performance ratings of 0. We re-estimate our analyses only with non-zero performance ratings in KLD. We find that while target ESG coverage is positive and insignificant, acquirer ESG coverage is positively and significantly related to the probability of cash offers in takeovers. Fourth, we re-estimate our analyses after excluding those deals in which either targets or acquirers are in the financial

²The results of these analyses are untabulated but are available upon request.

industry. Whereas target ESG coverage is positive and insignificant, acquirer ESG coverage is positively and significantly related to the probability of cash offers. Furthermore, while target ESG concerns decrease the probability that acquirer uses cash, other variables carry insignificant coefficients. Finally, alternative measures for firms' size (market value of equity) and target past performance (return on assets) do not alter our results.

In a final set of robustness tests, we control for premiums paid in transactions (Raman et al., 2013). Takeover premium is defined as the final price paid for target shares by an acquirer minus the target share price 4 weeks before the transaction divided by the latter (Jory et al., 2016). The inclusion of premium in our analyses reduces our sample size to 810 deals. Our findings show that premium does not have any effect on the probability of cash offers. More importantly, including the premium in our models does not change our main results.³

4.6 | Further analysis on the interplay between ESG and takeover payment method choice

To provide further insights on the role of ESG performance ratings in takeovers, we examine whether the payment method choice has any differential effect on the association between ESG performance ratings and acquirer return. Motivated by prior studies (see, e.g., Bugeja et al., 2021; Officer et al., 2009), we examine the value effect of ESG coverage and performance for acquirer shareholders when the correct method of payment is chosen in accordance with the ESG coverage and performance. Cash offers (stock swaps) are considered as the correct choice of payment in the case of ESG coverage (lack of ESG coverage) and high ESG performance (low ESG performance). To capture the economic benefit of the takeover to the acquirer's shareholders, we use both short-term return (cumulative abnormal return around the deal announcement) and post-deal long-term return (1–3 year return on assets). The results show that conditioning the association between ESG coverage and performance and acquirer return (both short term and long term) on the selection of the correct or incorrect payment method choice does not yield any significant results.⁴

5 | SUMMARY AND CONCLUSION

In this study, we examine whether increased transparency and better access to finance induced by ESG coverage and high ESG performance are associated with payment method choice in takeovers. Using binary probit and ordered probit regression models, we document that on the target side, ESG coverage has a positive effect on the probability of cash offers. This finding suggests that the availability of ESG performance ratings provides incremental information and reduces information asymmetry regarding target value. Therefore, the

need for acquirers to use contingent payment decreases given that they now have more information about the target and face a lower adverse selection problem. Further, we find that target ESG strengths have no effect on the probability of cash offers, while target ESG concerns reduce such probability. We infer that acquirers are more sensitive to low ESG performance and are less willing to use cash offers given that by offering cash, they bear the entire risk associated with the deal. On the acquirer side, it appears that ESG coverage increases the probability of cash offers, while we do not find results supporting our prediction regarding acquirer ESG strengths. Furthermore, we find a positive association between acquirer ESG concerns and the probability of cash offers which contradicts our conjecture. This might be because targets are reluctant to accept the stock of an acquirer that has low ESG performance. Accordingly, our study adds to previous literature by providing a novel insight into the effect of a specific set of nonfinancial performance aspects, that is, ESG performance, on payment method choice in takeovers. This further reflects the value implications of ESG performance for more important and decisive investors, the transaction parties. Future research in this area may focus on the effect of each component of ESG performance, countries other than the United States and post-acquisition outcomes such as goodwill impairment and CEO and independent directors' careers at the target level.

5.1 | Theoretical and practical implications

We document that nonfinancial ESG-related information is an important determinant of payment method choice in takeovers. Aiming to meet accountability and transparency requirements for a wider spectrum of stakeholders, firms employ a series of strategic actions such as ESG practices. From the signalling theory perspective, ESG activities help reduce information asymmetry and signal the quality of a firm to its existing and potential stakeholders (Huang, 2022; Zhang et al., 2022). Firms with high ESG performance tend to report their social and environmental performance to outsiders, conduct their businesses based on mutual trust and cooperation with various stakeholders and are committed to ethical behaviour; thus, they tend to deliver more transparent and reliable financial information to market participants, all of which in turn reduces information asymmetry. Consistently, the results of our study confirm the stakeholder theory and signalling theory perspectives; that is, ESG-related information is value relevant for investors in a market with information frictions, more specifically, in a takeover market.

There has been a remarkable increase in the importance of ESG factors in takeovers which have been reported to play a decisive role at every step of the transaction process, from target selection, due diligence and valuation, deal completion, to post-merger integration. Indeed, a survey conducted by KPMG (2022) revealed that ESG is becoming an influential part of the decision-making process. Most firms are looking at ESG factors early in the deal process and are prepared to walk away if they give cause for concern. Overall, more than 70% of UK PE firms have stepped away from a deal due to ESG

³The results of these analyses are untabulated but are available upon request.

⁴The results of these analyses are untabulated but are available upon request.

concerns, while almost half of PE firms in the United States have done the same. Another survey conducted by KPMG (KPMG, 2019) shows that 76% of the 1300 surveyed CEOs flag environmental risks as the biggest threat to business growth. Moreover, the current trend signals a growing pressure from various stakeholders (among them employees who can voice their opinion on a bid and determine deal terms; Dessaint et al., 2017) that emphasizes the importance of carrying out an ESG due diligence as integral part of the takeover process. Our study contributes to this setting and establishes that the choice of payment method in takeovers is designed to cope with risks and opportunities associated with ESG practices that either party may inherit after the deal completion.

Firm managers are highly encouraged to improve their ESG strategies. Such improvements are likely to result in mutual trust with various stakeholders and lead to lower information asymmetry. Furthermore, improved ESG strategies convey a positive signal to the market and create a more positive firm image. Indeed, our results show that improving firm ESG performance is beneficial for both target and acquirer shareholders in takeovers. More specifically, improved ESG performance by reducing information asymmetry and enhancing financing capability makes managers at the acquirer level able to strategically use cash offers, which on average are associated with better deal outcomes, faster completion time and deterrence of potential rival bidders. However, having low ESG performance and being forced to use cash offers rather than stock swaps might not be an optimal option for such acquirers. On the target side, the negative effect of ESG concerns on the probability of cash offers suggests that targets with low ESG performance have less flexibility in offers they receive from acquirers in terms of payment method. This lack of flexibility could be problematic, especially if such targets are included in a financially distressed corporate group. Firms can avoid such hazards by proactively adopting strategies that enhance ESG performance.

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CONFLICT OF INTEREST

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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APPENDIX A: QUALITATIVE ISSUE AREAS INDICATORS

Environment strengths

- Beneficial products and services
- Pollution prevention
- Recycling
- Clean energy
- Communications
- Property, plant, and equipment
- Management systems
- Other strength

Environment concerns

- Hazardous waste
- Regulatory problems
- Ozone depleting chemicals
- Substantial emissions
- Agricultural chemicals
- Climate change
- Other concern

Community strengths

- Charitable giving
- Innovative giving
- Non-US charitable giving
- Support for housing
- Support for education
- Indigenous peoples relations
- Volunteer programs
- Other strength

Community concerns

- Investment controversies
- Negative economic impact
- Indigenous peoples relations
- Tax disputes
- Other concern

Employee relations strengths

- Union relations
- No-layoff policy
- Cash profit sharing
- Employee involvement
- Retirement benefits strength
- Health and safety strength
- Other strength

Employee relations concerns

- Union relations
- Health and safety concern
- Workforce reductions
- Retirement benefits concern
- Other concern

Diversity strengths

- CEO
- Promotion
- Board of Directors
- Work/life benefits
- Women and minority contracting
- Employment of the disabled
- Gay and lesbian policies
- Other strength

Diversity concerns

- Controversies
- Non-representation
- Other concern

Product strengths

- Quality
- R&D/innovation
- Benefits to economically disadvantaged
- Other strength

Product concerns

- Product safety
- Marketing/contracting concern
- Antitrust
- Other concern

Governance strengths

- Limited compensation
- Ownership strength
- Transparency strength
- Political accountability strength
- Other strength

Governance concerns

- High compensation
- Ownership concern
- Accounting concern
- Transparency concern
- Political accountability concern
- Other concern

Source: KLD (2010).