Does corporate ESG create value? New evidence from M&As in China

Does Corporate ESG Create Value? New evidence from M&As in China

Zhigang Zheng[1], Jiarong Li[2], Xingzi Ren[3], Jie Michael Guo[4]

Abstract

Using a large sample of Chinese companies' domestic M&A, this study provides new evidence on the financial payback of corporate ESG and its dynamics. We find that acquirers' ESG rating is positively correlated to post-M&A performance and deal completion likelihood. Additionally, we find the relationship between acquirer's ESG dynamic and post-M&A performance is contingent on the firm's previous ESG standards. Overall, these findings are in line with the instrumental stakeholders' view that high ESG performance could earn support from stakeholders for post-M&A synergy creation and emphasize the asymmetric marginal outcome of firms' ESG efforts as a result of diminishing marginal utility of stakeholders.

Keywords: ESG, Merger and Acquisition, Firm Value, Stakeholder Utility

JEL classification
G32, G34, M14

[1] Zhigang Zheng is with Renmin University, School of Finance, Beijing, China. Email: zhengzhigang@ruc.edu.cn
[2] Jiarong is with University of Reading, Reading RG6 6AH Email: jiarong.li@reading.ac.uk (Correspondent Author)
[3] Xingzi Ren is with Durham University Business School Email: xingzi.ren@durham.ac.uk
[4] Jie Michael Guo is currently a visiting research professor at Renmin University, Beijing, China. He is with Durham University Business School, Email: jie.guo@durham.ac.uk

Does Corporate ESG Create Value? New evidence from M&As in China

Abstract

Using a sample of Chinese domestic M&A deals, this study provides new evidence on how corporate ESG activities impact firm perfromance. We find acquirers' ESG rating is positively correlated to post-M&As performance as well as deal completion likelihood. Additionally, we find the relationship between firm's ESG variation and post-M&As performance is contingent on the firm's previous ESG standards. Overall, these findings are in line with the instrumental stakeholders view that acquirers with high ESG level earn support from stakeholders therefore have better post-M&A performance.

Keywords: ESG, Merger and Acquisition, Firm Value, Stakeholder Utility

JEL classification
G32, G34, M14

1 Introduction

Corporate activities that benefit stakeholders (i.e. suppliers, employers, society, and customers) are frequently referred to as corporate social responsibility (CSR). Environmental, social, and governance (ESG) aspects are main demensions of corporate responsibility practices and efforts (Alareeni and Hamdan, 2020). Over the last decade, ESG has become an increasingly important part of doing business around the world. Companies are allocating significant portions of their expense budgets to ESG – indeed, upwards of $20 billion was spent on ESG by Fortune Global firms in 2018[1]. Furthermore, in 2020, more than 90% of the S&P 500 largest companies make ESG reports[2].

With the amount of money and attention that companies are dedicating to ESG, it is important to understand whether and how ESG practice pays back. The evidence on the relationship between ESG and firm financial performance in the literature is mixed. Some studies argue that ESG engagement reflects agency problems and results in benefits enjoyed by non-financial stakeholders at the expense of shareholders (Buchanan et al., 2018; Masulis and Reza, 2015; Servaes and Tamayo, 2013). Others state that ESG practice may be financially profitable in certain situations (Flammer, 2015; Lins et al., 2017; Xiao et al., 2018). In line with the instrumental stakeholder theory, this body of literature demonstrates that socially responsible practice could be compensated because high ESG firms earn the trust of stakeholders (i.e., employees, capital providers, and authorities) through a strong reputation for honouring implicit contracts[3] (Arouri et al., 2019; Cornell and Shapiro, 2021). Stakeholders "purchase" this contract with resources and efforts dedicated to the firms' operation (Bettinazzi and Zollo, 2017; Cornell and Shapiro, 2021; Deng et

[1] See the article on Harvard Business Review. https://hbr.org/2018/01/stop-talking-about-how-csr-helps-your-bottom-line.

[2] See 2021 sustainability reporting in focus, G&A Institute. https://www.ga-institute.com/2021-sustainability-reporting-in-focus.html

[3] Corporations represent a nexus of implicit and explicit contracts between shareholders and stakeholders (Coase, 1937; Fama and Jensen, 1983; Shleifer and Summers, 1988). Explicit contracts refer to those that have legal binding, whereas implicit contracts have no legal binding. For implicit contracts, firms can fail to fulfil their promises without being sued by other stakeholders. The value of implicit contracts depends on trust. High-ESG firms tend to have a reputation for being trustworthy and reliable, and are therefore expected to commit to implicit contracts (Kristoffersen et al., 2005; Liang et al., 2017).

al., 2013; Lins et al., 2017), leading to better firm performance.

In this paper, we aim to test this "instrumental stakeholder" view in the context of M&A in Chinese market. In doing so, we shed light on the existing debate around the financial benefit of ESG practice. In an important departure from prior studies, we analyse the impact of both ESG level and ESG variation of acquirers on post-M&A performance, which reflects stakeholders' response to firm's ESG effort[4].

Firm's M&A activity serves as an important context to examine the 'instrumental stakeholders' channel through which ESG practice is paid back. As one of the most important corporate investment decisions, M&A activity have a substantial impact on a company's financial performance (Ahern and Weston, 2007). Successful M&As create synergy, whereas unsuccessful ones result in losses. Moreover, given that both the approval process and integration process of M&A are frequently subject to a variety of challenges and support from various stakeholders (Arouri et al., 2019; Dessaint et al., 2017; Masulis et al., 2020; Rhodes- Kropf and Robinson, 2008; Shleifer and Summers, 1988), stakeholders' action is crucial to M&A success (Anderson et al., 2012; Meglio, 2016). Therefore, we focus on M&A transactions to evaluate the financial value of the firm's ESG practice.

We first propose that acquirers with high ESG level will have better post-M&A performance than acquirers with low ESG level. The instrumental stakeholder view suggest that firms with a high ESG level earn the trust and support from stakeholders. It implies that deals announced by high ESG acquirers are more likely to be supported by stakeholders. With the support of stakeholders, the integration process will be subject to less uncertainty (Arouri et al., 2019) and operate at higher efficiency (Bettinazzi and Zollo, 2017; Deng et al., 2013; Liang et al., 2017), thereby leading to higher post-M&A firm performance.

In terms of the impact of the changes in ESG level on post-M&A performance, we propose the initial ESG standard dependent view. According to this view, the

[4] ESG variations are related to firms' ESG efforts (Benlemlih et al., 2018). For firms with high ESG scores, a downgrade in their ESG ratings may signal a relaxation of their ESG efforts and, consequently, a deterioration in their ESG legitimacy. By contrast, for firms characterized by low ESG scores, an upgrade in their ESG ratings may be viewed as an intensification of their ESG efforts and an attempt to restore their ESG legitimacy.

financial benefit of a marginal improvement or deterioration in ESG prior to the M&A is dependent on the acquirer's initial ESG standard[5]. This view is in line with the law of diminishing marginal utility (DMU) which indicates that stakeholders' satisfaction and trust in firms decrease with a marginal increase in welfare (Kauder, 2015). It implies that with low (high) initial standard of ESG, an increase (decrease) in ESG gives stakeholders a greater incentive to (not) support the firm. In the context of M&A, for acquirers with high initial ESG level, ESG downgrade prior to the M&A is negatively related to post-M&A performance whereas ESG upgrade has insignificant impact on post-M&A performance; for acquirers with low initial ESG level, ESG upgrade prior to the M&A is positively related to post-M&A performance whereas ESG downgrade has insignificant impact on post-M&A performance.

Using a sample of 1,489 completed domestic M&A deals of 847 Chinese firms from 2011 to 2019, we find evidence that acquirers' ESG pracrice have a significant positive impact on their post-M&A performance. These results are consistent with our first conjecture. In addition, we find that for acquirers with high initial ESG rating, a rating upgrade prior to M&A will not lead to better post-M&A performance, but a downgrade prior to M&A will lead to worse post-M&A performance. In contrast, for acquirers with low initial ESG rating, a rating upgrade prior to M&A will lead to better post-M&A performance, but a downgrade prior to M&A has no significant impact on post-M&A performance. This result is consistent with the initial ESG standard dependent view based on the law of DMU. Our results are robust to a battery of tests. We also use two-stage least squares (2SLS) with instrumental variables and Heckman two-stage procedure to address concnerns about endogeneity. Furthermore, we show that acquirers who have a high ESG rating or have ESG rating upgrade from low initial ESG standard are more likely to complete the deal. Finally, we find that social (S) and governance (G) components have significantly positive impact on acquirer's post-M&A performance.

Our study contribute to the literature in two dimensions. First, our paper contributes to the literature investigating whether and how firm's responsible practice is paid back. For instance, Lins et al. (2017) focus on the trust level among participants in the financial market and demonstrate that corporate ESG pays off when the overall level of trust in corporations and markets suffers a negative shock (e.g., financial

[5] Initial ESG standard refers to the firm's ESG level before change (ESG upgrade or downgrade).

crisis). Additionally, Ding et al. (2021) provides evidence, based on firms in 61 economies, that ESG paid off during the COVID-19 pandemic. Finally, Xiao et al. (2018) highlights the sustainability performance of the countries and discover that enterprises in countries with higher country-level sustainability performance often find it more difficult to capitalise on corporate sustainability performance than their counterparts in countries with relatively low levels of country-level sustainability performance. Our results emphasize that the financial benefit of ESG practice can be realized in firm M&A activity and that stakeholders' utility plays an important role in the realization.

Second, our research supplements studies on the functions of corporate social responsible activity and post-M&A performance. The paper most similar to ours is Deng et al. (2013), who study a sample of US merger deals and find that M&A operations by high-CSR acquirers take less time to complete, are less likely to fail than M&A operations by low-CSR acquirers, and realize higher merger announcement returns and higher post-merger long-term operating and stock performance. We advance this strand of the literature in two ways. First, we provide evidence in the context of a developing country. In particular, we analyse M&A deals in the world's largest developing country (i.e., China). This developing-country perspective is particularly important for three reasons: 1) China has a high potential for and determination to undertake ESG performance but receives less attention; 2) Scholars have already devoted much attention to unpacking the financial benefit of ESG in the U.S. context (Deng et al., 2013; Lins et al., 2017), but we know less about it in other contexts. Studying the financial benefit of ESG in the Chinese M&A market, therefore, adds to the empirical body of work on the rationale for firm's ESG activity; and 3) China constitutes the world's second largest economy, so it seems reasonable to extend research on firm's ESG activity in this country. Second, we consider the impact of the changes in ESG level on firm's performance. Additionally, another work related to our study is Liang et al. (2017) who investigate the impact of acquirers' engagement in employee issues in the M&A context. Our study differs from theirs in that we analyse all aspects of ESG (i.e., environment, social, and governance) and its change rather than just employee relations.

The paper proceeds as follows. Section 2 introduces related theories and builds our main hypothesis. Section 3 describes the data and provides summary statistics for the variables of interest. In Section 4, we outline the empirical methodology and discuss our empirical results. The final section summarizes and concludes the paper.

2 Theoretical Foundation and Hypothesis Development

2.1 Theoretical Foundation

2.1.1 Instrumental stakeholder theory

IST models the the relationship between firm's responsible activity, stakeholders, and firm performance (see Jones, 1995). It considers the performance consequences for firm's relation with stakeholders. The core hypothesis of IST is that developing firm-stakeholder relationships governed by the norms of ethics—for example, fairness, trustworthiness, loyalty, care, and respect (Hendry, 2001, 2004)—will lead to improved financial performance. As summarized by Jones (1995), IST holds that "firms that contract (through their managers) with their stakeholders on the basis of mutual trust and cooperation will have a competitive advantage over those that do not" (1995: 422).

IST is in line with the contract theory, which views a firm as a nexus of contracts between shareholders and other stakeholders. Each group of stakeholders supplies the firm with critical resources or effort in exchange for claims outlined in explicit contracts (e.g. wage contracts and product warranties) or suggested in implicit contracts (e.g. promises of job security to employees and continued service to customers) (Coase, 1937; Fama and Jensen, 1983; Shleifer and Summers, 1988). Firms developing good relationship with stakeholders show their commitment to the implicit contract and stakeholders in turn contribute to the firm in exchange of this implicit contract.

Previous literature shows that high ESG/CSR firms tend to have a stronger reputation for keeping their commitments associated with implicit contracts (Deng et al., 2013; Kristoffersen et al., 2005; Liang and Renneboog, 2017), increasing the value of the implicit contract (Cornell and Shapiro, 1987). To "purchase" this implicit contract, stakeholders are likely to contribute more resources and effort to the firm. Thus, these theories suggest that firms' ESG effort is likely to yield financial payback through stakeholders' support.

2.1.2 Law of Diminishing Marginal Utility

In terms of the model for changes in ESG level and its impact on M&A, we apply the law of diminishing marginal utility (DMU). The law of DMU indicates that when consumers acquire more units of a good, the marginal utility of the last unit acquired will be diminished (Kauder, 2015). In accordance with the DMU law, as the stimulus persists, the utility of new consumption becomes progressively insignificant (Venaik and Brewer, 2010). In the context of ESG, the begaining of enterprise's ESG activities gives stakeholders a greater incentive to contribute to the firm, thereby increasing financial performance. However, over time, as stakeholders face continued increase in firms' ESG activities, their positive psychological emotions will inevitably decrease, leading to a decline in the effectiveness of ESG effort (Li, 2019). Therefore, the ESG activities that promote organizational financial benefit are gradually weakened.

2.2 ESG and post-M&A performance

According to instrumental stakeholder theory, good ESG performance is indicative of a strong reputation for honouring implicit contract to stakeholders, thus increasing the trust from stakeholders and earning financial profit through their contribution to firms' operation (Bettinazzi and Zollo, 2017; Cornell and Shapiro, 1987; Freeman, 1999; Freeman et al., 2004 ; Jawahar and McLaughlin, 2001; Jensen, 2001; Jones et al., 2018; Lins et al., 2017).

In the context of unsettling events such M&A, stakeholders (e.g., employees, customers, suppliers, and the community at large) matter (Clark and Geppert, 2011). Given that the process of M&A is frequently subject to a range of challenges, support from various stakeholders is important to M&A success and post-M&A performance (Arouri et al., 2019; Dessaint et al., 2017; Masulis et al., 2020; Rhodes- Kropf and Robinson, 2008; Shleifer and Summers, 1988).

First, in the approval stage, deals announced by firms with high ESG are less likely to receive opposition from stakeholders, reducing M&A uncertainty and thereby the cost of the uncertainty (Arouri et al., 2019). The target's stakeholders may protest and lobby against a takeover conducted by low-ESG acquirer because of the acquirer's negative reputation, potentially convincing the board to consider alternatives to the takeover (Liang et al., 2017). In addition, high-ESG acquirers may also enjoy a better reputation among regulators (Hong and Liskovich, 2015), reducing the risk and the cost of regulatory intervention during the M&A process.

Second, in the integration process of the M&A, the deal announced by high-ESG acquirers will have higher efficiency, leading to higher performance. The McKinsey report (Bekier et al., 2001) shows that, during a M&A's transition period, key employees or customers from both acquirers and targets could leave if the management team fails to effectively handle stakeholder relations. As such, after the transaction, low-ESG acquirers could suffer a reduction in firm value. In contrast, high-ESG acquirers are less likely to experience such loss of key employees and customers because they have trust and loyalty from these stakeholders.

Therefore, we hypothesize that corporate ESG level is positively related to acquirer's post-M&A performance.

H1: Corporate ESG level is positively related to acquirer's post-M&A performance.

2.3 Change in ESG level and post-M&A performance

Apart from the role of corporate ESG practice in corporate value creation during M&A, we also study the impact of ESG update or downgrade prior to M&A on post-M&A performance. The initial ESG standard dependent view is proposed. According to this view, the financial benefit of a marginal increase (decrease) in ESG score is dependent on the acquirers initial ESG standard. This view is in line with the law of DMU which indicates that stakeholders' satisfaction and trust in firms decreases with marginal increase in welfare (Kauder, 2015).

According to the DMU, for acquirers with high initial ESG standard, an increase in ESG has a limited impact on the stakeholders' utility and their trust and contribution to firm, whereas a decrease in ESG results in a significant decrease in stakeholder utility and their contribution to operation. In contrast, for acquirers with high initial ESG standard, an increase in ESG score has a significantly positive impact on the stakeholders' utility and stakeholders' trust and contribution to firm, whereas a decrease in ESG results in a limited decrease in stakeholder utility and contribution to firm's operation. There are useful real-world examples to illustrate this point, such as Haidilao (HKG: 6862). This firm was once renowned for its excellent customer service and generous employee benefits, but it experienced a boycott by customers and a significant drop in revenue due to its decision to significantly increase service

fees during the COVID-19 pandemic. Another example is Hongxing Erke. Despite its subpar profitability and inadequate initial ESG performance, it was able to garner stakeholder support and sell out its product in stock merely by donating money to help mitigate the devastating impact of floods.

Similarly, this mechanism could be reflected in the support of stakeholders for the firm's M&A process and therefore the post-M&A performance. Therefore, we propose the following hypothesis:

H2a: For acquirers with high initial ESG level, ESG downgrade is negatively related to post-M&A performance whereas ESG upgrade has insignificant impact on post-M&A performance.

H2b: For acquirers with low initial ESG level, ESG upgrade is positively related to post-M&A performance whereas ESG downgrade has insignificant impact on post-M&A performance.

3 Data, summary statistics, and empirical model

3.1 Variables

3.1.1 Measures of post-M&A performance

In this paper, we use two types of measures to capture post-M&A performance. One is the post-M&A stock performance, proxied by one year buy-and-hold abnormal returns (BHARs). The BHAR essentially indicates the excess return over the market that an investor buying the shares of the acquiring company will be enjoying if he or she made the purchase in the month of the acquisition. We use the value-weighted market indices as the reference market portfolio and calculate the BHARs as follows:

$$BHAR_i = \prod_{t=0}^{s+T}(1 + R_{i,t}) - \prod_{t=0}^{s+T}(1 + R_{m,t})(1)$$

where i , t, and T index acquirer, deal announcement month, and holding period, respectively. $R_{i,t}$ is simple return of acquirer i and $R_{m,t}$ is the return of market portfolio. The event window is 12 months after the M&A announcement.

Another kind of metric is related to post-M&A accounting-based performance.

Following Bertrand and Betschinger (2012) and Li et al. (2020), we calculate two measures: the one-year post-M&A return on assets (ROA) and the one-year post-M&A return on equity (ROE), measuring the acquiring firms' profitability. To construct post-M&A return on assets (ROA) and post-M&A return on equity (ROE), we utilize net profit scaled by the book value of assets for ROA and equity for ROE.

3.1.2 Corporate ESG measurements

To proxy Chinese acquirers' ESG performance, we utilise the Sino-Securities Index (SSI) ESG Rating Database. The evaluation methods used by SSI ESG database outperform other publicly available ESG data for Chinese firms for three reasons. First, they are tailored for Chinese listed firms' ESG efforts. The creation of SSI ESG Ratings is based on the international mainstream ESG system and integrates metrics representing Chinese characteristics such as poverty alleviation, social responsibility reporting, and fines. Additionally, the SSI ESG ratings covers all A-share listed companies dating all the way back to 2009, with a significant breadth and depth of data. The SSI database collects over 130 bottom-level variables for each firm and synthesises them into 26 indicators for three-dimensional performance, covering the environment, society, and governance. The final ESG score represents this performance across three dimensions. Finally, SSI ESG Rating accurately reflects the ESG performance of publicly traded firms as it is calculated with dynamic tracked bottom-level metrics.

Based on SSI ESG Rating data, we created a measure of firms' ESG level: ESG rating, spanning from 1 to 9. Given that the SSI ESG rating is ranked from C to AAA, we grant the SSI ESG rating C a value of 1, CC a value of 2, CCC a value of 3, and so on, until AAA a value of 9. Throughout our study, we refer to firms with an ESG rating of greater than 6 (A) as high-ESG firms because they are recognised as leaders by SSI's ESG evaluation system[6].

We also construct two main variables: ESG upgrade and ESG downgrade, to capture

[6] This classification criterion is in accordance with the guideline of SSI ESG database, which identifies firms with ESG rating equal or higher than A (6) as "Leader" and others as "average" or "Laggard". Detailed information could be found through https://www.chindices.com/files/%E4%B8%8A%E6%B5%B7%E5%8D%8E%E8%AF%81%E6%8C%87%E6%95%B0ESG%E8%AF%84%E4%BB%B7%E4%BB%8B%E7%BB%8D.pdf.

the change of corporate ESG level. ESG upgrade is a dummy variable that equals 1 if a firm has an ESG rating upgrade in the year prior to M&A and 0 otherwise. Similarly, ESG downgrade is a dummy variable which equals to 1 if a firm has ESG rating downgrade in the year prior to M&A and 0 otherwise.

3.1.3 Control variables

Control variables in our baseline analysis include firm- and industry-specific characteristics derived from the literature (Deng et al., 2013; Masulis et al., 2007), such as firm size (firm size, the natural logarithm of total assets), market-to-book ratio, leverage, cash holdings, and state-owned enterprise (SOE) dummy, all of which have been shown to affect corporate ESG and post-M&A performance. Additionally, we include transaction-specific control variables such as the mode of payment, the deal size (the natural logarithm of the deal value), and a diversification dummy indicating the acquisition's industry relatedness. These variables have been utilised to examine the relationship between ESG and post-M&A synergy in the literature (Arouri et al., 2019; Deng et al., 2013; Doukas and Zhang, 2021). The Appendix provides the definition of control variables.

3.2 Sample selection and summary statistics

Our sample consists of 1489 Chinese M&A deals between 2011 and 2019. The initial sample of mergers comes from the China Stock Market & Accounting Research (CSMAR) database. Our final sample includes all completed domestic M&As that meet the following five selection criteria: (1) the deal value disclosed is greater than ¥5 million yuan, (2) targets of the deal are not classified as the plant or the right to use land, (3) the deal is completed by the end of 2019,(4) the acquirer is publicly traded and has stock return and financial data available from the CSMAR, (5) the acquirer is in the SSI ESG rating database, and (6) neither acquirer nor target is in the financial industries, which is classified by China Securities Regulatory Commission (CSRC). These criteria resulted in a final sample of 1,489 successful M&As made by 847 firms.

In Panel A of Table 1, we present the distribution of our sample M&As according to acquirer industry and year. Most of the acquirers are in manufacturing industry (66.96%). Panel B of Table 1 presents the distribution of our sample M&As according to acquirer ESG rating and year. Most of the acquirers has ESG rating of

"BBB" (51%).

[Insert Table 1 here]

Table 2 presents the summary statistics for acquirers of full sample and subsamples. We refer to firms with an ESG rating of greater than 6 (A) as high-ESG firms and others as low ESG firms because they are recognised as leaders by SSI's ESG evaluation system. In the full sample, the median ESG score is 6. About 17.9 percent of acquirers have an ESG upgrade and 10.6 percent acquirers have an ESG downgrade prior to the bid. Most of the deals are classified as diversification deal (85.4 percent) and are paid by cash (71.6 percent).

[Insert Table 2 here]

In terms of the subsample difference, several features are worth noting. Firms with high ESG rating have significantly bigger size and higher leverage. In regard to deal characteristics, we find that compared with firms with low ESG ratings, firms with high ESG rating prefer to acquire larger targets and less likely to pay with cash.

3.3 Methodology

3.3.1 ESG and post-M&A performance

We apply both univariate and multi-variate analysis to examine the association between corporate ESG level and post-M&A performance. For multivariate analysis, we perform a cross-sectional regression by estimating the following equation:

$$\begin{aligned} Acquirers\ post-M\&A\ performance_{it} \\ &= \beta_0 + \beta_1 ESG\ rating_{it-1} \\ &+ \beta_k \sum acquirer\ Controls_{it-1} + \beta_k \sum Deal\ Controls_{it} + \gamma + \vartheta \\ &+ \epsilon_{it} \quad (2) \end{aligned}$$

where i and t index acquirer and deal announcement year, respectively. $Acquirers\ performance_{it}$ represents the acquirers' one-year-forward BHARs, ROA, and ROE. The main dependent variable is the acquirers' ESG rating at the end of year t-1. In addition, we include control variables discussed in Subsection 3.1.3 in

the regressions as well as industry and year fixed effects.

3.3.2 Changes in ESG level and post-M&A performance

To explore the role of changes in acquirers' ESG level in post-M&A performance and test the initial ESG dependent view, we divide our full sample by acquirer's initial ESG level. Initial ESG level is proxied by the acquirers' ESG rating at the end of two year prior to the bid (t-2) to better capture the variation of ESG rating one year prior to the deal announcement. Acquirers with ESG rating higher than 6 (A) (ESG Rating_{t-2}>6) were classified as the high-initial-ESG-acquirer sample while acquirers with ESG rating equal or lower than the 6 (A) (ESG Rating_{t-2}<=6) were classified as the low-initial-ESG-acquirer sample.

For each sample, we regress the one-year post-M&A performance on the upgrade and downgrade of ESG rating:

$$Acquirers\ \text{post}-\text{M\&A}\ performance_{it} = \beta_0 + \beta_1 ESG\ upgrade_{it-2,t-1} + \beta_2 ESG\ downgrade_{it-2,t-1} + \beta_k \sum acquirer\ Controls_{it-1} + \beta_k \sum Deal\ Controls_{it} + \gamma + \vartheta + \epsilon_{it} \quad (3)$$

where i and t index acquirer and deal announcement year, respectively. $Acquirers\ performance_{it}$ is the same as in Eq. (2). $ESG\ upgrade_{it-2,t-1}$ is a dummy variable indicating acquirer's ESG rating upgrade from the end of year t-2 to the end of year t-1, and $ESG\ downgrade_{it-2,t-1}$ is a dummy variable indicating acquirer's ESG rating downgrade from the end of year t-2 to the end of year t-1. Control variables are the same as in Eq. (2).

4 Results

4.1 ESG rating and post-M&A performance

4.1.1 Univariate analysis

Table 3 provides the mean and median of the post-M&A performance measurements, based on acquirers' ESG level at the end of the year prior to the M&A. We refer to firms with an ESG rating of greater than 6 (A) as high-ESG firms and others as low ESG firms. The empirical results show that high-ESG acquirers are inclined to have higher

one-year-forward BHARs (0.14) than low-ESG acquirers (0.038). Furthermore, the results show that high-ESG acquirers appear to have higher ROA and ROE one year after M&A year.

[Insert Table 3 here]

4.1.2 Multivariate analysis

Table 4 reports the results of multivariate regression of ESG level on post-M&A BHARs, ROA, and ROE. Columns (1) indicates that the coefficient of the variable ESG Rating is positive and significant at the 5% level, and an increase of one score in ESG performance elicits an increase of 3.6% in the acquiring firm's one-year-forward BHARs. This finding suggests that investors favor acquirers with a high level of ESG.

[Insert Table 4 here]

Columns (2) and (3) of Table 4 indicate that firms with a high level of ESG performance realize higher one-year post-M&A ROA and ROE.

Overall, the results shown in Table 4 confirm the univariate results reported in Table 3. In accordance with the instrumental stakeholder theory, these results indicate that corporate ESG level is positively related to acquirer's post-M&A performance.

4.2 Change in ESG level and post-M&A performance:

Panel A of Table 5 provides the results of multivariate regression of changes in ESG level on post-M&A BHARs, ROA, and ROE in high-initial-ESG subsample. Column (1) indicates a negative and statistically significant relationship between the ESG downgrade and one-year-forward BHARs, and an insignificant relationship between ESG upgrade and one-year-forward BHARs. Furthermore, Column (2) and Column (3) show a similar relationship between ESG change and post-M&A ROA and ROE. These empirical findings support our conjecture that ESG downgrade is negatively related to post M&A performance for acquirers with high initial ESG level.

[Insert Table 5 here]

Panel B of Table 5 presents the results of multivariate regression of changes in ESG level on post-M&A BHARs, ROA, and ROE for low-initial ESG sample. From Column (1) through Column (3), the empirical results show a mirror image of the results for the high-initial-ESG-rating sample. Acquirers with low initial ESG performance will receive higher post-M&A performance.

Taken together, we conclude that, consistent with the prediction of law of diminishing utility of stakeholders, the effect of the change in acquirers ESG level on post-M&A performance is asymmetric and dependent on the initial ESG standard.

5 Robustness checks and further investigation

5.1 Alternative measure of ESG rating

To reflect that the difference between categories (i.e., A vs. B, and C ratings) may be greater than the gap within groups, we reassign our ESG level measurement. Specifically, we create ESG rating II such that the new variable equals 1 if the ESG rating is "C", 2 if the ESG rating is “CC”, 3 if the ESG rating is CCC, 5 if the ESG rating is B,6 if the ESG rating is “BB” ,7 if the ESG rating is BB,9 if the ESG rating is A,10 if the ESG rating is AA, and 11 if the ESG rating is “AAA”. We then rerun Eq. (2) with the new variable. Results are presented in Table 6. We find that the results in Table 4 are robust when we use an alternative ESG level measurement.

[Insert Table 6 here]

5.2 More controls

Another potential concern would be that of ESG being a proxy for other known factors that affect merger performance. For example, firms could invest in ESG activities as a result of pressure from activist shareholders, in which case the positive relationship between the ESG measure and M&A performance could simply reflect the value-enhancing role of blockholders in M&A (Chen et al., 2007). To address this concern, we control for various measures of an acquirer's ownership concentration in our multi-variate regression. In particular, we include controls that measure the extent of acquiring firms' institutional investor portion, individual investors’ portion, and the block holder indicator that takes the value of 1 if at least one investor holds more than 5% of the firm's outstanding shares and 0 otherwise. The results are presented in Table 7. We find that the coefficient estimates on ESG level and change in ESG level remain.

[Insert Table 7 here]

5.3 Endogeneity problems

Although the use of multiple control variables lagged by a year could mitigate the omitted variables bias and reverse causality concerns, the regression results may still suffer from endogeneity issues caused by unobservable omitted variables and selection bias. To address such endogeneity problems caused by omitted variables, we estimate instrumental variable regressions (two-stage-least-squares or 2SLS). In the first stage, we estimate ordinary least square regressions to predict the acquirers' ESG rating. In the second stage, we regress our ESG measure on explanatory variables of acquirers used in Eq. (2) and on two instrumental variables. For instruments variables, we follow Ioannou and Serafeim (2012) who show that ESG is determined by both location (i.e., province) and industry characteristics. More precisely, a firm's ESG is impacted by the ESG level of other firms within the same industry-location pair and by the ESG level of other firms in the same province over time. We adopt the province-year ESG median rating and the province-industry ESG median rating as instruments (Arouri et al., 2019; Arouri and Pijourlet, 2017; Cheng et al., 2014; Gomes and Marsat, 2018). To further substantiate our instrument selection, we conduct two tests in each 2SLS regression: (1) a Cragg and Donald (1993) instrument relevance test to ensure the instruments' relevance (i.e., high correlations between the instruments and adjusted ESG), and (2) a Sargan (1958) overidentification test to investigate the instruments' exogeneity (i.e., no significant correlation between the instruments and the residuals in the arbitrage spread regressions). Results are presented in Table 8.

[Insert Table 8 here]

In the first-stage regressions reported in column (1), we show that our instrument yields statistical significance, which validates its use. In the second-stage regressions, we substitute the predicted values of our ESG measures for the actual ESG rating and report results in columns (2), (3), and (4). These results confirm our previous findings in that the predicted values of our ESG measures are positively associated with acquirers' post-M&A BHARs, ROA, and ROE.

In addition, to account for selection bias, we employ Heckman's (1976, 1979) two-step regression and provide the results in Table 9. In the first stage, we estimate a selection

(probit) model for each acquirer's likelihood of completing a deal. The inverse Mills ratio is then calculated for each observation. In the second stage, we include the inverse Mills ratio in the second-step equation in order to correct for a potential sample selection issue.

[*Insert Table 9 here*]

In Table 9. our results remain. It is also important to note that the variable Inverse Mills Ratio is insignificant in all model variants in Table 9, indicating there was no significant sample selection bias caused by using observations from acquirers that complete the deal.

5.4 ESG and likelihood of deal completion

According to the instrumental stakeholder view, M&As announced by high-ESG acquirers have a higher likelihood of being completed. In this section, we provide additional analysis on this prediction with a sample of 1,794 successful and unsuccessful Chinese domestic M&As.

Table 10 presents the results of a probit regression in which the dependent variable is a dummy variable that equals 1 if the deal is completed and 0 otherwise. In Column (1), regression results show that the probability of deal completion increases with an acquirer's ESG score. Column (2) displays the results for high-initial-ESG acquirers while the results for low-initial-ESG acquirers are shown in Column (3). We find that the coefficient of ESG downgrade is significantly negative for the high-initial-ESG sample and the coefficient of ESG upgrade is significantly positive for the low-initial-ESG sample. Clearly, high ESG levels for all acquirers and ESG upgrade for low-initial-ESG acquirers lead to a significantly higher probability of deal completion. These results are consistent with the instrumental stakeholder view and law of diminishing marginal utility.

[Insert Table 10 here]

5.5 ESG components and post-M&A performance

We perform additional tests to examine the differential influences of ESG components-Environmental, Social, Governance on acquirer’s post-M&A performance. In particular,

we substitute the variable ESG level in Eq.(2) with E, S, and G level, and estimate their coefficients. The major findings of this additional tests are summarized in Table 11. The estimates of the coefficients for our variables of interest, S level, and G level are positive and significant whereas the estimates of coefficients for E level is insignificant in all model variants. This result suggests that acquirer's social and governance performance may be main drivers for positive impact of ESG performance on post-M&A performance.

[Insert Table 11 here]

6 Conclusion

In this paper, we examine whether ESG pays back in the context of M&A activity. We focus on both ESG level and its change and propose two hypotheses. First, based on instrumental stakeholder theory, our first hypothesis suggests that high-ESG-acquirers get greater stakeholders' trust and encourage contribution from stakeholders to firms' operation, predicting that high-ESG-acquirers will achieve better post-M&A performance.

In terms of the change ESG level, the initial ESG standard dependent view suggests that the utility of stakeholders of the same firm diminishes with the increase of ESG effort, thus leading to high contribution from stakeholders of low-ESG firms but a lower contribution from stakeholders of high-ESG firm, implying that low-ESG acquirers will have better post-M&A performance while high-ESG acquirers will have worse post-M&A performance.

After correcting for endogeneity bias, we find that compared with M&As by low-ESG acquirers, those by high-ESG acquirers lead to higher post-M&A performance. Meanwhile, low-initial-ESG acquirers with ESG upgrade prior to the M&A have significantly higher post-M&A performance, whereas high-initial-ESG acquirers with ESG downgrade prior to the M&A have significantly lower post-M&A performance. These results are robust to a variety of alternative model specifications. We also show that better acquirers' ESG rating or ESG rating upgrade for firms with low initial ESG help acquirers to successfully complete the deal. Finally, we find social (S) and governance (G) are two components that have significantly positive impact on acquirer's post-M&A performance.

Overall, these results suggest that firms' ESG effort is paid back in firm's M&A activity and the influence of the change in ESG prior to M&A on post-M&A performance is dependent on acquirers' initial ESG level. As such, instrumental stakeholder theory and the law of diminishing marginal utility are supported.

References

Ahern, K.R., Weston, J.F., 2007. M&As: The good, the bad, and the ugly. Journal of Applied Finance 17, 5-20.

Alareeni, B.A., Hamdan, A., 2020. ESG impact on performance of US S&P 500-listed firms. Corporate Governance: The International Journal of Business in Society.

Anderson, H., Havila, V., Nilsson, F., 2012. A stakeholder approach to mergers and acquisitions, Mergers and Acquisitions. Routledge, pp. 11-24.

Arouri, M., Gomes, M., Pukthuanthong, K., 2019. Corporate social responsibility and M&A uncertainty. Journal of Corporate Finance 56, 176-198.

Arouri, M., Pijourlet, G., 2017. CSR performance and the value of cash holdings: International evidence. Journal of Business Ethics 140, 263-284.

Bekier, M.M., Bogardus, A.J., Oldham, T., 2001. Why mergers fail. McKinsey Quarterly 4, 6-9.

Benlemlih, M., Jaballah, J., Peillex, J., 2018. Does it really pay to do better? Exploring the financial effects of changes in CSR ratings. Applied Economics 50, 5464-5482.

Bertrand, O., Betschinger, M.-A., 2012. Performance of domestic and cross-border acquisitions: Empirical evidence from Russian acquirers. Journal of comparative economics 40, 413-437.

Bettinazzi, E.L., Zollo, M., 2017. Stakeholder orientation and acquisition performance. Strategic Management Journal 38, 2465-2485.

Buchanan, B., Cao, C.X., Chen, C., 2018. Corporate social responsibility, firm value, and influential institutional ownership. Journal of Corporate Finance 52, 73-95.

Chen, X., Harford, J., Li, K., 2007. Monitoring: Which institutions matter? Journal of financial Economics 86, 279-305.

Cheng, B., Ioannou, I., Serafeim, G., 2014. Corporate social responsibility and access to finance. Strategic management journal 35, 1-23.

Clark, E., Geppert, M., 2011. Subsidiary integration as identity construction and institution building: A political sensemaking approach. Journal of Management Studies 48, 395-416.

Coase, R.H., 1937. The nature of the firm. economica 4, 386-405.

Cornell, B., Shapiro, A.C., 1987. Corporate stakeholders and corporate finance. Financial management, 5-14.

Cornell, B., Shapiro, A.C., 2021. Corporate stakeholders, corporate valuation and ESG. European Financial Management 27, 196-207.

Cragg, J.G., Donald, S.G., 1993. Testing identifiability and specification in instrumental variable models. Econometric Theory 9, 222-240.

Deng, X., Kang, J.-k., Low, B.S., 2013. Corporate social responsibility and stakeholder value maximization: Evidence from mergers. Journal of financial Economics 110, 87-109.

Dessaint, O., Golubov, A., Volpin, P., 2017. Employment protection and takeovers. Journal of Financial Economics 125, 369-388.

Ding, W., Levine, R., Lin, C., Xie, W., 2021. Corporate immunity to the COVID-19 pandemic. Journal of Financial Economics 141, 802-830.
Doukas, J.A., Zhang, R., 2021. Managerial ability, corporate social culture, and M&As. Journal of Corporate Finance 68, 101942.
Fama, E.F., Jensen, M.C., 1983. Separation of ownership and control. The journal of law and Economics 26, 301-325.
Flammer, C., 2015. Does corporate social responsibility lead to superior financial performance? A regression discontinuity approach. Management Science 61, 2549-2568.
Freeman, R.E., 1999. Divergent stakeholder theory. Academy of management review 24, 233-236.
Freeman, R.E., Wicks, A.C., Parmar, B., 2004. Stakeholder theory and "the corporate objective revisited". Organization science 15, 364-369.
Gomes, M., Marsat, S., 2018. Does CSR impact premiums in M&A transactions? Finance Research Letters 26, 71-80.
Heckman, J.J., 1976. The common structure of statistical models of truncation, sample selection and limited dependent variables and a simple estimator for such models, Annals of economic and social measurement, volume 5, number 4. NBER, pp. 475-492.
Heckman, J.J., 1979. Sample selection bias as a specification error. Econometrica: Journal of the econometric society, 153-161.
Hendry, J., 2001. Economic contracts versus social relationships as a foundation for normative stakeholder theory. Business Ethics: A European Review 10, 223-232.
Hendry, J., 2004. Between enterprise and ethics: Business and management in a bimoral society. OUP Oxford.
Hong, H., Liskovich, I., 2015. Crime, punishment and the halo effect of corporate social responsibility. National Bureau of Economic Research.
Ioannou, I., Serafeim, G., 2012. What drives corporate social performance? The role of nation-level institutions. Journal of International Business Studies 43, 834-864.
Jawahar, I., McLaughlin, G.L., 2001. Toward a descriptive stakeholder theory: An organizational life cycle approach. Academy of management review 26, 397-414.
Jensen, M., 2001. Value maximisation, stakeholder theory, and the corporate objective function. European financial management 7, 297-317.
Jones, T.M., 1995. Instrumental stakeholder theory: A synthesis of ethics and economics. Academy of management review 20, 404-437.
Jones, T.M., Harrison, J.S., Felps, W., 2018. How applying instrumental stakeholder theory can provide sustainable competitive advantage. Academy of Management Review 43, 371-391.
Kauder, E., 2015. History of marginal utility theory. Princeton University Press.
Kristoffersen, I., Gerrans, P., Clark-Murphy, M., 2005. The corporate social responsibility and the theory of the firm. School of Acc., Finance and Economics,..., Edith Cowan Univ.

Li, C.-Y., 2019. How social commerce constructs influence customers' social shopping intention? An empirical study of a social commerce website. Technological Forecasting and Social Change 144, 282-294.

Li, W., Wang, C., Ren, Q., Zhao, D., 2020. Institutional distance and cross-border M&A performance: A dynamic perspective. Journal of International Financial Markets, Institutions and Money 66, 101207.

Liang, H., Renneboog, L., 2017. Corporate donations and shareholder value. Oxford Review of Economic Policy 33, 278-316.

Liang, H., Renneboog, L., Vansteenkiste, C., 2017. Corporate employee-engagement and merger outcomes.

Lins, K.V., Servaes, H., Tamayo, A., 2017. Social capital, trust, and firm performance: The value of corporate social responsibility during the financial crisis. the Journal of Finance 72, 1785-1824.

Masulis, R.W., Reza, S.W., 2015. Agency problems of corporate philanthropy. The Review of Financial Studies 28, 592-636.

Masulis, R.W., Wang, C., Xie, F., 2007. Corporate governance and acquirer returns. The Journal of Finance 62, 1851-1889.

Masulis, R.W., Wang, C., Xie, F., 2020. Employee-manager alliances and shareholder returns from acquisitions. Journal of Financial and Quantitative Analysis 55, 473-516.

Meglio, O., 2016. Are mergers and acquisitions socially responsible? Evidence from the banking industry, Advances in mergers and acquisitions. Emerald Group Publishing Limited.

Rhodes-Kropf, M., Robinson, D.T., 2008. The market for mergers and the boundaries of the firm. The Journal of Finance 63, 1169-1211.

Sargan, J.D., 1958. The estimation of economic relationships using instrumental variables. Econometrica: Journal of the econometric society, 393-415.

Servaes, H., Tamayo, A., 2013. The impact of corporate social responsibility on firm value: The role of customer awareness. Management science 59, 1045-1061.

Shleifer, A., Summers, L.H., 1988. Breach of trust in hostile takeovers. Corporate takeovers: Causes and consequences 1, 33-68.

Venaik, S., Brewer, P., 2010. Avoiding uncertainty in Hofstede and GLOBE. Journal of international business studies 41, 1294-1315.

Xiao, C., Wang, Q., van der Vaart, T., van Donk, D.P., 2018. When does corporate sustainability performance pay off? The impact of country-level sustainability performance. Ecological Economics 146, 325-333.

Appendix

Variable	Definition
BHAR_1year	Buy-and-hold abnormal returns are excess returns over the value-weighted market portfolio. The BHAR is measured over the one-year period following the month of announcement.
ROA_1year	Acquirers' return on asset (ROA) in one year later than the year of M&A.
ROE_1year	Acquirers' return on equity (ROE) in one year later than the year of M&A.
ESG Rating	Value equals 1 if SSI ESG rating is C, 2 if rating is CC, 3 if rating is CCC, 4 if rating is B, 5 if rating is BB, 6 if rating is BBB, 7 if rating is A, 8 if rating is AA, and 9 if rating is AAA.
ESG Rating II	Value equals 1 if SSI ESG rating is C, 2 if rating is CC,3 if rating is CCC, 5 if rating is B, 6 if rating is BB, 7 if rating is BBB, 9 if rating is A, 10 if rating is AA, and 11 if rating is AAA.
ESG Upgrade	Dummy variable that takes the value of 1 if acquirer has ESG rating upgrade in the year prior to the M&A announcement year and 0 otherwise.
ESG Downgrade	Dummy variable that takes the value of 1 if acquirer has ESG rating downgrade in the year prior to the M&A announcement year and 0 otherwise.
E Rating	Value equals 1 if SSI Environmental rating is C, 2 if rating is CC, 3 if rating is CCC, 4 if rating is B, 5 if rating is BB, 6 if rating is BBB, 7 if rating is A, 8 if rating is AA, and 9 if rating is AAA.
S Rating	Value equals 1 if SSI Social rating is C, 2 if rating is CC, 3 if rating is CCC, 4 if rating is B, 5 if rating is BB, 6 if rating is BBB, 7 if rating is A, 8 if rating is AA, and 9 if rating is AAA.
G Rating	Value equals 1 if SSI Governance rating is C, 2 if rating is CC, 3 if rating is CCC, 4 if rating is B, 5 if rating is BB, 6 if rating is BBB, 7 if rating is A, 8 if rating is AA, and 9 if rating is AAA.
Province-industry ESG	Median of the ESG rating of other firms within the same province-industry pair.
Province-year ESG	Median of the ESG rating of other firms within the same province-year pair.

Acquirer Size	Natural logarithm of acquirer's book value of asset.
Acquirer TobinQ	The market value of equity divided by total asset.
Acquirer Cash	Ratio of corporate cash to total asset.
Acquirer leverage	Ratio of total debt to total asset.
Acquirer SOE	Dummy variable that takes the value of 1 when ultimate controller is state or government.
Deal Size	Natural logarithm of the expense value of the deal.
Allstock	Dummy variable that takes the value of 1 when the form of payment is stock-only, and 0 otherwise.
Diversify	Dummy variable that takes the value of 1 when the deal is classified as horizontal and conglomerate M&A, and 0 otherwise.
Allcash	Dummy variable that takes the value of 1 when the form of payment is cash-only, and 0 otherwise.
Institutional Investor	The percentage of shares held by institutional investors to total shares.
BIND	The percentage of independent members on a board.
Blockholder	Dummy variable that takes the value of 1 if at least one investor holds more than 5% of the firm's outstanding shares and 0 otherwise.

Table 1. Sample Distribution.

This table presents acquisition sample distributions by year and industry (in panel A), and by year and ESG (Panel B). The sample consists of 1,489 completed Chinese domestic M&A between 2011 and 2019.The initial sample of mergers comes from the China Stock Market & Accounting Research (CSMAR) database. Our final sample includes all completed domestic M&As that meet the following five selection criteria: (1) the deal value disclosed is greater than ¥5 million yuan, (2) targets of the deal are not classified as plant or the right to use land, (3) the deal is completed by the end of 2019, (4) the acquirer is publicly traded and has stock return and financial data available from the CSMAR, (5) the acquirer is in the SSI ESG rating database, and (6) neither acquirer nor target is in the financial industries, as classified by the China Securities Regulatory Commission (CSRC). Industry classification is collected from the China Securities Regulatory Commission (CSRC) classification 2012.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total
Total	73	138	339	180	126	114	141	158	220	1489
Panel A: Sample distribution by industry and year										
Agriculture, forestry, animal husbandry, and fisheries	2	4	13	2	1	0	1	2	3	28
Mining	3	13	4	8	0	1	5	4	2	40
Manufacturing	46	85	232	102	95	78	104	97	158	997
Electric power, heat, gas and water production and supply	7	3	8	5	3	5	8	5	6	50
Construction	1	1	7	14	1	6	4	9	2	45

Wholesale and retail	2	5	9	8	8	0	2	14	6	54
Transport post and telecommunication services	0	5	2	4	2	2	6	0	5	26
Accommodation and catering industry	0	0	0	0	0	1	0	0	0	1
Information transfer computer services and software	2	7	35	21	12	11	4	17	16	125
Real estate	4	3	7	1	1	4	3	2	4	29
Leasing and commercial services	3	2	7	0	1	1	1	1	8	24
Scientific research polytechnic services and geological prospecting	0	2	1	9	0	1	2	5	7	27
Administration of water environment and public facilities	1	3	4	1	0	0	0	1	1	11
Industry of resident service, repair, and other services	1	0	0	0	0	0	0	0	0	1
Education	0	0	1	0	0	0	0	0	1	2
Health care social insurance/welfare	0	0	0	0	0	2	0	0	0	2
Culture sports and entertainment	1	5	8	5	1	1	1	1	1	24
Diversified industries	0	0	1	0	1	1	0	0	0	3
Panel B: Sample distribution by ESG Rating and year										
AAA (Value=9)	0	0	4	0	7	0	6	5	7	29
AA (Value=8)	12	25	78	39	19	23	23	19	23	261

A (Value=7)	9	20	54	43	38	27	34	34	53	312
BBB (Value=6)	52	85	186	86	56	49	59	75	116	764
BB (Value=5)	0	6	13	10	5	11	15	16	12	88
B (Value=4)	0	2	1	2	0	4	4	9	4	26
CCC (Value=3)	0	0	3	0	1	0	0	0	5	9

Table 2. Descriptive statistics.

The table presents descriptive statistics for a sample of 1,489 completed Chinese domestic M&As between 2011 and 2019. This table describes the mean and median of observations for bidder- and deal-specific characteristics, respectively, both for the whole sample as well as for high-ESG (ESG Rating$_{t-1}$>6)and low-ESG (ESG Rating$_{t-1}$<=6) acquirers. All variables are defined in Appendix A. Statistical tests for differences in means and equality of medians for each characteristic for high ESG versus low ESG are also presented. All continued variables are winsorized at the 1st and 99th percentiles.

	Full sample		High ESG (ESG Rating$_{t-1}$>6)		Low ESG (ESG Rating$_{t-1}$<=6)		High-Low	
	n=1489		n=602		n=887			
Variable	Mean	Median	Mean	Median	Mean	Median	Mean	Median
ESG Rating	6.506	6						
ESG Upgrade	0.179	0						
ESG Downgrade	0.106	0						
Firm Size	21.8	21.64	22.19	21.93	21.53	21.46	0.066***	0.47***
Acquirer Tobin Q	2.098	1.676	2.002	1.633	2.163	1.688	-0.161*	-0.055
Acquirer Cash	0.21	0.171	0.216	0.184	0.205	0.161	0.011	0.023**
Acquirer Leverage	0.377	0.353	0.398	0.391	0.362	0.333	0.036***	0.058***
Acquirer SOE	0.291	0	0.422	0.000	0.202	0	0.22***	0***
Deal Value	18.64	18.56	18.87	18.90	18.48	18.43	0.39***	0.47***
Allstock	0.152	0	0.169	0.000	0.140	0	0.029	0

Diversify	0.854	1	0.846	1.000	0.859	1	-0.013	0
Allcash	0.716	1	0.683	1.000	0.738	1	-0.055**	0

Table 3. Univariate analysis.

The sample consists of 1,489 completed Chinese domestic M&A between 2011 and 2019. Acquirers are divided into high- and low-corporate ESG firms according to the sample median of ESG Rating at the end of one year prior to M&A announcement. BHAR_1year is the acquirer's buy-and-hold abnormal returns which is the excess return over the value-weighted market portfolio over the one-year period following the month of announcement. ROA_1year is the aquirers' return on asset (ROA) in one year later than the year of M&A. ROE_1year is the acquirers' return on equity (ROE) in one year later than the year of M&A. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

	Full Sample n=1489		Subsample of high ESG acquirers (ESG Rating$_{t-1}$>6): A n=602		Subsample of low ESG acquirers (ESG Rating$_{t-1}$<=6): B n=887		Test of difference: A-B	
Variable	Mean	Median	Mean	Median	Mean	Median	Mean	Median
BHAR_1year	0.079	-0.024	0.14	-0.005	0.038	-0.04	0.102***	0.035
ROA_1year	0.039	0.043	0.044	0.042	0.035	0.043	0.009*	-0.001
ROE_1year	0.077	0.082	0.088	0.089	0.07	0.078	0.018***	0.011***

Table 4. ESG Rating and post-M&A performance.

This table presents regression estimates of one-year post-M&A stock and operational performance on ESG Rating and control variables with the full sample. Column (1) uses the acquirer's buy-and-hold abnormal returns over the value-weighted market portfolio over the one-year period following the month of announcement. Column (2) uses ROA_1year, which is the acquirers' return on asset (ROA) in one year later than the year of M&A. Column (3) uses ROE_1year, which is the acquirers' return on equity (ROE) in one year later than the year of M&A. Main independent variable throughout the columns is ESG Rating which equals 1 if SSI ESG rating is C, 2 if rating is CC,3 if rating is CCC, 4 if rating is B,5 if rating is BB,6 if rating is BBB, 7 if rating is A,8 if rating is AA, and 9 if rating is AAA. Detailed definitions of all variables are provided in Appendix A. Regressions include industry and year fixed effects. The t-statistics are reported in parentheses; ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

VARIABLES	BHAR_1year	ROA_1year	ROE_1year
	(1)	(2)	(3)
ESG Rating	0.036**	0.009***	0.011***
	(1.98)	(3.13)	(2.82)
Acquirer Size	-0.047**	0.004	0.011**
	(-2.19)	(1.28)	(2.32)
Acquirer TobinQ	-0.014	0.008***	0.015***
	(-0.84)	(3.24)	(4.29)
Acquirer Cash	0.147	0.097***	0.095***
	(1.04)	(4.44)	(3.18)
Acquirer Leverage	0.059	0.025	0.047*
	(0.51)	(1.41)	(1.93)
SOE	-0.009	-0.012*	-0.021**
	(-0.20)	(-1.75)	(-2.14)
Deal Size	-0.009	-0.000	0.002
	(-0.74)	(-0.01)	(0.93)
Allstock	0.252***	0.002	0.003
	(3.95)	(0.16)	(0.21)
Diversify	0.008	-0.011	-0.024**
	(0.17)	(-1.50)	(-2.35)
Allcash	0.027	-0.011	-0.018
	(0.47)	(-1.22)	(-1.46)

Constant	0.946**	-0.117*	-0.291***
	(2.09)	(-1.70)	(-2.75)
Industry FE	YES	YES	YES
Year FE	YES	YES	YES
Observations	1,489	1,489	1,489
R-squared	0.121	0.107	0.115

Table 5. Change in ESG level and Post-M&A performance.

This table presents regression estimates of ESG rating on one-year post-M&A performance. We divide our full sample into two subsamples by the median of the ESG rating of all acquirers. Acquierers with ESG higher than 6 at the initial stage (the end of year t-2) are classified into the subsample of high initial ESG acquirers and others are classified into the subsample of low initial ESG acquirers. We conduct our regressions with high initial ESG acquirer sample in Panel A, while we conduct our regressions with low initial ESG acquierer sample in Panel B. In both panels, column (1) uses the acquirer's buy-and-hold abnormal returns over the value-weighted market portfolio over the one-year period following the month of announcement. Column (2) uses ROA_1year, which is the acquirers' return on asset (ROA) in one year later than the year of M&A. Column (3) uses ROE_1year, which is the acquirers' return on equity (ROE) in one year later than the year of M&A. Main independent variables throughout the columns are ESG upgrade, a dummy variable that takes the value of 1 if the acquirer has an ESG rating upgrade in the year prior to the M&A announcement year, and 0 otherwise, and ESG downgrade, a dummy variable that takes the value of 1 if acquirer has ESG rating downgrade in the year prior to the M&A announcement year, and 0 otherwise. Detailed definitions of all variables are provided in Appendix A. Regressions include industry and year fixed effects. The t-statistics are reported in parentheses; ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Subsample of high initial ESG acqurierers ($ESG\ Raing_{t-2}>6$)				Panel B: Subsample of low initial ESG acquirers ($ESG\ Rating_{t-2}<=6$)		
VARIABLES	BHAR_1year	ROA_1year	ROE_1year	BHAR_1year	ROA_1year	ROE_1year
	(1)	(2)	(3)	(1)	(2)	(3)
ESG Upgrade	-0.021	-0.002	-0.021	0.088***	0.052**	0.011**
	(-0.10)	(-0.18)	(-0.76)	(2.72)	(1.98)	(2.12)
ESG Downgrade	-0.259**	-0.025***	-0.045***	0.061	-0.003	-0.002
	(-2.16)	(-3.24)	(-2.87)	(1.09)	(-0.17)	(-0.10)
Acquirer Size	0.013	0.012***	0.026***	-0.064***	0.004	0.012*

	(0.23)	(3.27)	(3.67)	(-3.37)	(0.74)	(1.93)
Acquirer TobinQ	0.004	0.011***	0.017***	-0.030**	0.005	0.014***
	(0.11)	(4.33)	(3.24)	(-2.04)	(1.37)	(2.76)
Acquirer Cash	0.858**	0.020	0.034	0.014	0.137***	0.124***
	(2.18)	(0.77)	(0.67)	(0.13)	(4.43)	(3.24)
Acquirer Leverage	-0.504	-0.057***	-0.022	0.187**	0.052**	0.051
	(-1.52)	(-2.62)	(-0.52)	(2.02)	(2.06)	(1.65)
SOE	-0.161	-0.011	-0.021	-0.001	-0.005	-0.016
	(-1.31)	(-1.41)	(-1.30)	(-0.04)	(-0.52)	(-1.27)
Deal Size	-0.027	-0.001	0.000	-0.006	-0.001	0.001
	(-0.85)	(-0.51)	(0.10)	(-0.65)	(-0.41)	(0.18)
Allstock	0.576***	0.008	0.024	0.078	-0.001	0.002
	(3.24)	(0.70)	(1.05)	(1.49)	(-0.04)	(0.12)
Diversify	0.032	-0.009	-0.016	-0.018	-0.014	-0.029**
	(0.26)	(-1.09)	(-0.98)	(-0.45)	(-1.33)	(-2.20)
Allcash	-0.039	-0.002	0.006	0.017	-0.016	-0.025
	(-0.24)	(-0.22)	(0.27)	(0.36)	(-1.25)	(-1.54)
Constant	0.394	-0.185**	-0.512***	1.516***	-0.057	-0.23
	(0.34)	(-2.46)	(-3.42)	(-3.51)	(-0.49)	(-1.58)
Industry FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES

Observations	510	510	510	979	979	979
R-squared	0.213	0.328	0.316	0.160	0.126	0.129

Table 6. Robustness check: Alternative value to ESG rating.

In this table, we rerun Eq (2). with an alternative value of ESG rating, ESG Raing II. Column (1) uses the acquirer's buy-and-hold abnormal returns over the value-weighted market portfolio over the one-year period following the month of announcement. Column (2) uses ROA_1year, which is the acquirers' return on asset (ROA) in one year later than the year of M&A. Column (3) uses ROE_1year, which is the acquirers' return on equity (ROE) in one year later than the year of M&A. Main independent variable: ESG Raing II equals to 1 if SSI ESG rating is C, 2 if rating is CC, 3 if rating is CCC, 5 if rating is B, 6 if rating is BB, 7 if rating is BBB, 9 if rating is A, 10 if rating is AA, and 11 if rating is AAA. Detailed definitions of all variables are provided in Appendix A. Regressions include industry and year fixed effects. The t-statistics are reported in parentheses; ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

VARIABLES	BHAR_1year	ROA_1year	ROE_1year
	(1)	(2)	(3)
ESG Rating II	0.029**	0.005***	0.007***
	(2.30)	(2.79)	(2.63)
Acquirer Size	-0.048**	0.005	0.011**
	(-2.27)	(1.41)	(2.42)
Acquirer TobinQ	-0.014	0.008***	0.015***
	(-0.86)	(3.25)	(4.29)
Acquirer Cash	0.141	0.096***	0.094***
	(1.00)	(4.38)	(3.13)
Acquirer Leverage	0.059	0.024	0.046*
	(0.51)	(1.32)	(1.87)
SOE	-0.011	-0.012*	-0.020**
	(-0.25)	(-1.68)	(-2.10)
Deal Size	-0.009	0.000	0.002
	(-0.73)	(0.00)	(0.94)
Allstock	0.252***	0.001	0.003
	(3.95)	(0.15)	(0.20)
Diversify	0.008	-0.011	-0.024**
	(0.17)	(-1.51)	(-2.36)
Allcash	0.029	-0.011	-0.018
	(0.50)	(-1.19)	(-1.44)
Constant	0.983**	-0.132*	-0.292***

	(2.17)	(-1.88)	(-3.04)
Industry FE	YES	YES	YES
Year FE	YES	YES	YES
Observations	1,489	1,489	1,489
R-squared	0.122	0.107	0.114

Table 7. Robustness: More controls.

In this table, we rerun Eq. (2) and Eq. (3) with more controls. In Panel A, we rerun Eq. (2) with more controls for the full sample. In panel B, we run Eq.(3) in subsamples of high-initial ESG acquirers. In panel C, we run Eq.(3) in subsamples of low-ESG-rating acquirers. In all panels, column (1) uses the acquirer's buy-and-hold abnormal returns over the value-weighted market portfolio over the one-year period following the month of announcement. Column (2) uses ROA_1year, which is the acquirers' return on asset (ROA) in one year later than the year of M&A. Column (3) uses ROE_1year, which is the acquirers' return on equity (ROE) in one year later than the year of M&A. Main independent variables include :1) ESG Rating which equals to 1 if SSI ESG rating is C, 2 if rating is CC, 3 if rating is CCC, 4 if rating is B,5 if rating is BB,6 if rating is BBB, 7 if rating is A, 8 if rating is AA, and 9 if rating is AAA in panel A; 2) ESG upgrade, a dummy variable that takes the value of one if acquirer has ESG rating upgrade one year prior to the M&A deal and 0 otherwise; and 3) ESG downgrade, a dummy variable that takes the value of one if acquirer has ESG rating downgrade one year prior to the M&A deal and 0 otherwise. Detailed definitions of all variables are provided in Appendix A. Regressions include industry and year fixed effects. The t-statistics are reported in parentheses; ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Full Sample				Panel B: Subsample of high initial ESG (ESG Raing$_{t-2}$>6)			Panel C: Subsample of low initial ESG (ESG Rating$_{t-2}$<=6)		
VARIABLES	BHAR_1year	ROA_1year	ROE_1year	BHAR_1year	ROA_1year	ROE_1year	BHAR_1year	ROA_1year	ROE_1year
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
ESG Rating	0.038**	0.009***	0.011***						
	(2.05)	(3.09)	(2.72)						
ESG Upgrade				-0.017	-0.002	-0.020	0.087**	0.051**	0.010**

							*		
				(-0.08)	(-0.17)	(-0.73)	(2.70)	(1.97)	(2.10)
ESG Downgrade				-0.262**	-0.025***	-0.043***	0.059	-0.002	-0.000
				(-2.16)	(-3.15)	(-2.77)	(1.05)	(-0.14)	(-0.02)
Acquirer Size	-0.042*	0.004	0.009**	0.017	0.011***	0.024***	-0.056***	0.005	0.012*
	(-1.86)	(1.24)	(1.97)	(0.29)	(2.93)	(3.21)	(-2.80)	(0.90)	(1.84)
Acquirer TobinA	-0.014	0.009***	0.015***	0.005	0.012***	0.017***	-0.028*	0.006	0.014***
	(-0.85)	(3.38)	(4.26)	(0.11)	(4.23)	(3.11)	(-1.89)	(1.54)	(2.85)
Acquirer Cash	0.162	0.096***	0.093***	0.865**	0.018	0.031	0.030	0.134***	0.118***
	(1.14)	(4.39)	(3.11)	(2.18)	(0.71)	(0.61)	(0.26)	(4.31)	(3.07)
Acquirer Leverage	0.056	0.026	0.049**	-0.502	-0.058***	-0.027	0.188**	0.049*	0.050
	(0.48)	(1.48)	(2.02)	(-1.48)	(-2.62)	(-0.62)	(2.02)	(1.94)	(1.58)
SOE	0.002	-0.011	-0.023**	-0.148	-0.015*	-0.030*	0.009	-0.003	-0.015
	(0.05)	(-1.49)	(-2.24)	(-1.13)	(-1.80)	(-1.79)	(0.23)	(-0.26)	(-1.15)

Deal Size	-0.009	0.000	0.002	-0.027	-0.001	0.001	-0.007	-0.001	0.001
	(-0.77)	(0.05)	(0.96)	(-0.86)	(-0.42)	(0.18)	(-0.69)	(-0.27)	(0.27)
Allstock	0.251***	-0.000	0.002	0.570***	0.010	0.028	0.074	-0.002	0.000
	(3.91)	(-0.03)	(0.12)	(3.18)	(0.83)	(1.22)	(1.41)	(-0.16)	(0.02)
Diversify	0.005	-0.010	-0.023**	0.032	-0.008	-0.015	-0.023	-0.014	-0.028**
	(0.10)	(-1.38)	(-2.24)	(0.26)	(-1.03)	(-0.94)	(-0.59)	(-1.28)	(-2.14)
Allcash	0.031	-0.013	-0.020	-0.042	-0.001	0.009	0.023	-0.017	-0.027*
	(0.53)	(-1.40)	(-1.59)	(-0.26)	(-0.10)	(0.41)	(0.48)	(-1.34)	(-1.66)
Institutional investor	-0.000	-0.000	0.000	-0.000	0.000	0.000	-0.001	-0.000	-0.000
	(-0.23)	(-0.91)	(0.06)	(-0.18)	(0.46)	(0.84)	(-0.88)	(-1.05)	(-0.77)
BIND	0.057	0.043	0.011	0.064	-0.039	-0.086	-0.140	0.019	-0.015
	(0.25)	(1.22)	(0.22)	(0.11)	(-1.00)	(-1.12)	(-0.72)	(0.36)	(-0.22)
Blockholder	-0.001	0.000**	0.000*	-0.001	0.000	0.000	-0.001	0.000	0.001**
	(-1.10)	(2.06)	(1.77)	(-0.17)	(0.80)	(0.65)	(-1.09)	(1.63)	(2.03)
Constant	0.866*	-0.169**	-0.296***	0.323	-0.172**	-0.469***	1.456***	-0.104	-0.247
	(1.81)	(-2.28)	(-2.92)	(0.26)	(-2.18)	(-2.97)	(3.15)	(-0.82)	(-1.58)
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES	YES

Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	1,489	1,489	1,489	510	510	510	979	979	979
R-squared	0.122	0.112	0.117	0.214	0.334	0.321	0.163	0.129	0.133

Table 8. Instrumental Variable Estimations.

In this table, we present our two-stage least square estimations. In the first stage, ESG rating are regressed on the instrument-province-industry median of ESG rating and instrument-province-year median of ESG rating. Predicted_ESG Rating is the predicted value of the ESG rating. Dependent variables in Column (2), (3), and (4) are BHAR_1year, which is the acquirer's buy-and-hold abnormal returns over the value-weighted market portfolio over the one-year period following the month of announcemen; ROA_1year, which is the acquirers' return on asset (ROA) in one year later than the year of M&A; and ROE_1year, which is the acquirers' return on equity (ROE) in one year later than the year of M&A, respectively. Detailed definitions of all variables are provided in Appendix A. Regressions include industry and year fixed effects. The t-statistics are reported in parentheses; ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively..

	First stage	Second stage		
VARIABLES	ESG Rating	BHAR_1year	ROA_1year	ROE_1year
	(1)	(2)	(3)	(4)
Predicted ESG Raing		0.076**	0.011**	0.019*
		(2.00)	(1.97)	(1.67)
Instrumental variable				
Province-industry ESG	0.452***			
	(8.49)			
Province-year ESG	0.432***			
	(4.04)			
Acquirer Size	0.311***	-0.079***	-0.002	0.002
	(9.55)	(-4.13)	(-0.59)	(0.38)
Acquirer TobinQ	0.020	-0.026**	0.003***	0.005**
	(0.89)	(-2.55)	(3.01)	(2.55)
Acquirer Cash	-0.073	-0.011	0.081***	0.109**
	(-0.37)	(-0.13)	(3.62)	(2.33)
Acquirer Leverage	-0.635***	0.236***	0.004	0.067

	(-4.01)	(3.14)	(0.16)	(1.52)
SOE	0.408***	0.004	-0.014**	-0.021**
	(6.45)	(0.12)	(-2.55)	(-2.00)
Deal Size	0.006	-0.004	0.002	0.004
	(0.38)	(-0.60)	(1.33)	(1.54)
Allstock	-0.031	0.064	0.005	0.010
	(-0.35)	(1.64)	(0.70)	(0.84)
Diversify	-0.065	-0.021	-0.010**	-0.020**
	(-0.98)	(-0.71)	(-2.12)	(-2.22)
Allcash	-0.008	-0.013	-0.010*	-0.018
	(-0.09)	(-0.35)	(-1.68)	(-1.62)
Constant	-7.028***	1.310***	0.007	-0.160
	(-7.33)	(3.85)	(0.10)	(-1.24)
First stage Cragg and Donald test	(P-value<0.001)			
Overidentification test		(P-Value=0.84)	(P-Value=0.11)	(P-Value=0.11)
Industry FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Observations	1,489	1,489	1,489	1,489
R-squared	0.338	0.156	0.155	0.111

Table 9 Heckman Two Stage OLS Regressions

In this table, we present result of the Heckman's second-stage OLS regression. We obtain the value of the Inverse Mills Ratio through the probit model in the first stage. In the second stage, we include the inverse Mills ratio in the second-step equation in order to correct for a potential sample selection issue. Detailed definitions of all variables are provided in Appendix A. Regressions include industry and year fixed effects. The t-statistics are reported in parentheses; ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

VARIABLES	BHAR_1year	ROA_1year	ROE_1year
	(1)	(2)	(3)
ESG Rating	0.056**	0.012***	0.016***
	(2.50)	(3.41)	(3.27)
Acquirer Size	-0.024	0.007*	0.010**
	(-0.94)	(1.76)	(1.98)
Acquirer TobinQ	-0.007	0.009***	0.006***
	(-0.43)	(3.41)	(3.14)
Acquirer Cash	0.383*	0.133***	0.145***
	(1.83)	(4.12)	(3.28)
Acquirer Leverage	-0.030	0.019	0.039
	(-0.24)	(0.96)	(1.46)
SOE	-0.047*	-0.005	-0.004
	(-1.71)	(-1.25)	(-0.73)
Deal Size	0.457***	0.029	0.041
	(3.10)	(1.30)	(1.32)
Allstock	-0.012	-0.013*	-0.021**
	(-0.26)	(-1.84)	(-2.13)
Diversify	-0.053	-0.017*	-0.029**
	(-0.86)	(-1.77)	(-2.24)
Allcash	0.147	0.005	0.004
	(1.51)	(0.35)	(0.18)
Inverse Mills Ratio	1.060	0.145	0.184
	(1.54)	(1.38)	(1.29)
Constant	0.746	-0.163**	-0.242**
	(1.59)	(-2.24)	(-2.56)
Industry FE	YES	YES	YES

Year FE	YES	YES	YES
Observations	1,489	1,489	1,489
R-squared	0.123	0.109	0.110

Table 10. Likelihood of deal completion.

In this table, we analyze the likelihood of deal completion. In column (1), we use ESG Rating as the independent variable with the full sample. In column (2) and (3) we use ESG upgrade and ESG downgrade as independent variables with the high-initial ESG acquirers' sample and the low-initial ESG acquirers' sample, respectively. Detailed definitions of all variables are provided in Appendix A. Regressions include industry and year fixed effects. The t-statistics are reported in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	Dependent variable: Probability of success		
VARIABLES	Full Sample	Subsample of high-initial-ESG acquirers (ESG Raing$_{t-2}$>6)	Subsample of low-initial-ESG acquirers (ESG Raing$_{t-2}$<=6)
	(1)	(2)	(3)
ESG Rating	0.161**		
	(1.99)		
ESG Upgrade		-0.668	0.822***
		(-0.90)	(2.75)
ESG Downgrade		-0.034**	-0.139
		(-1.91)	(-0.37)
Acquirer Size	0.059	0.422	-0.026
	(0.49)	(1.61)	(-0.17)
Acquirer TobinQ	-0.013	0.658**	-0.034
	(-0.32)	(2.38)	(-0.87)
Acquirer Cash	2.801***	6.759***	1.962**
	(3.45)	(3.46)	(2.08)

Acquirer Leverage	0.139	-0.449	0.285
	(0.29)	(-0.35)	(0.53)
SOE	-0.222***	-0.135	-0.302***
	(-3.30)	(-1.04)	(-3.43)
Deal Size	1.013***	0.429	1.214***
	(3.14)	(0.60)	(3.08)
Allstock	0.053	0.327	-0.149
	(0.21)	(0.63)	(-0.49)
Diversify	-0.674**	-0.489	-0.887**
	(-2.20)	(-0.91)	(-2.16)
Allcash	0.856***	0.111	1.040***
	(3.27)	(0.18)	(3.25)
Constant	3.427	-7.477	7.850**
	(1.20)	(-1.32)	(2.10)
Industry FE	YES	YES	YES
Year FE	YES	YES	YES
Observations	1,794	638	1,156
R-squared	0.125	0.192	0.165
Log pseudo likelihood	146.7	60.83	134.1

Table 11. ESG components and post-M&A performance

This table presents regression estimates of E, S, and G components on one-year post-M&A performance for the full sample. Column (1) uses the acquirer's buy-and-hold abnormal returns over the value-weighted market portfolio over the one-year period following the month of announcement. Column (2) uses ROA_1year, which is the acquirers' return on asset (ROA) in one year later than the year of M&A. Column (3) uses ROE_1year, which is the acquirers' return on equity (ROE) in one year later than the year of M&A. Main independent variables throughout the columns are E Rating, S Rating, and G Rating. Detailed definitions of all variables are provided in Appendix A. Regressions include industry and year fixed effects. The t-statistics are reported in parentheses; ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)
VARIABLES	BHAR_1year	ROA_1year	ROE_1year
E Rating	-0.005	-0.002	-0.003
	(-0.44)	(-1.42)	(-1.48)
S Rating	0.010*	0.005***	0.010***
	(1.76)	(6.50)	(4.50)
G Rating	0.024***	0.010***	0.013***
	(2.77)	(9.37)	(4.41)
Acquirer Size	-0.060***	0.015***	0.010**
	(-3.93)	(9.64)	(2.32)
Acquirer TobinQ	-0.022***	0.009***	0.015***
	(-2.88)	(7.10)	(4.29)
Acquirer Cash	-0.058	0.022**	0.080***
	(-0.65)	(2.05)	(2.68)
Acquirer Leverage	0.132**	-0.092***	0.070***
	(2.18)	(-10.45)	(2.81)
SOE	0.034	-0.003***	0.002
	(1.20)	(-3.76)	(0.95)
Deal Size	0.064	-0.006	0.004
	(1.58)	(-1.34)	(0.27)
Allstock	0.034	-0.021***	-0.017*
	(1.20)	(-6.21)	(-1.78)
Diversify	-0.023	-0.005	-0.020**
	(-0.77)	(-1.39)	(-1.97)
Allcash	-0.017	-0.006	-0.023*

	(-0.46)	(-1.28)	(-1.83)
Constant	1.300***	-0.273***	-0.319***
	(3.94)	(-8.03)	(-3.34)
Industry FE	YES	YES	YES
Year FE	YES	YES	YES
Observations	1,489	1,489	1,489
R-squared	0.163	0.394	0.137

Author statement

Zhigang Zheng: Writing- Reviewing and Editing
Jiarong LI: Conceptualization, Data curation, Writing- Original draft preparation.
Xingzi Ren: Methodology, Writing - Review & Editing
Jie Michael Guo*:* Supervision

Does Corporate ESG Create Value? New evidence from M&As in China

Abstract

Using a sample of Chinese domestic M&A deals, this study provides new evidence on how corporate ESG activities impact firm perfromance. We find acquirers' ESG rating is positively correlated to post-M&As performance as well as deal completion likelihood. Additionally, we find the relationship between firm's ESG variation and post-M&As performance is contingent on the firm's previous ESG standards. Overall, these findings are in line with the instrumental stakeholders view that acquirers with high ESG level earn support from stakeholders therefore have better post-M&A performance.

Keywords: ESG, Merger and Acquisition, Firm Value, Stakeholder Utility

JEL classification
G32, G34, M14

1 Introduction

Corporate activities that benefit stakeholders (i.e. suppliers, employers, society, and customers) are frequently referred to as corporate social responsibility (CSR). Environmental, social, and governance (ESG) aspects are main demensions of corporate responsibility practices and efforts (Alareeni and Hamdan, 2020). Over the last decade, ESG has become an increasingly important part of doing business around the world. Companies are allocating significant portions of their expense budgets to ESG – indeed, upwards of $20 billion was spent on ESG by Fortune Global firms in 2018[1]. Furthermore, in 2020, more than 90% of the S&P 500 largest companies make ESG reports[2].

With the amount of money and attention that companies are dedicating to ESG, it is important to understand whether and how ESG practice pays back. The evidence on the relationship between ESG and firm financial performance in the literature is mixed. Some studies argue that ESG engagement reflects agency problems and results in benefits enjoyed by non-financial stakeholders at the expense of shareholders (Buchanan et al., 2018; Masulis and Reza, 2015; Servaes and Tamayo, 2013). Others state that ESG practice may be financially profitable in certain situations (Flammer, 2015; Lins et al., 2017; Xiao et al., 2018). In line with the instrumental stakeholder theory, this body of literature demonstrates that socially responsible practice could be compensated because high ESG firms earn the trust of stakeholders (i.e., employees, capital providers, and authorities) through a strong reputation for honouring implicit contracts[3] (Arouri et al., 2019; Cornell and Shapiro, 2021). Stakeholders "purchase" this contract with resources and efforts dedicated to the firms' operation (Bettinazzi and Zollo, 2017; Cornell and Shapiro, 2021; Deng et

[1] See the article on Harvard Business Review. https://hbr.org/2018/01/stop-talking-about-how-csr-helps-your-bottom-line.

[2] See 2021 sustainability reporting in focus, G&A Institute. https://www.ga-institute.com/2021-sustainability-reporting-in-focus.html

[3] Corporations represent a nexus of implicit and explicit contracts between shareholders and stakeholders (Coase, 1937; Fama and Jensen, 1983; Shleifer and Summers, 1988). Explicit contracts refer to those that have legal binding, whereas implicit contracts have no legal binding. For implicit contracts, firms can fail to fulfil their promises without being sued by other stakeholders. The value of implicit contracts depends on trust. High-ESG firms tend to have a reputation for being trustworthy and reliable, and are therefore expected to commit to implicit contracts (Kristoffersen et al., 2005; Liang et al., 2017).

al., 2013; Lins et al., 2017), leading to better firm performance.

In this paper, we aim to test this "instrumental stakeholder" view in the context of M&A in Chinese market. In doing so, we shed light on the existing debate around the financial benefit of ESG practice. In an important departure from prior studies, we analyse the impact of both ESG level and ESG variation of acquirers on post-M&A performance, which reflects stakeholders' response to firm's ESG effort[4].

Firm's M&A activity serves as an important context to examine the 'instrumental stakeholders' channel through which ESG practice is paid back. As one of the most important corporate investment decisions, M&A activity have a substantial impact on a company's financial performance (Ahern and Weston, 2007). Successful M&As create synergy, whereas unsuccessful ones result in losses. Moreover, given that both the approval process and integration process of M&A are frequently subject to a variety of challenges and support from various stakeholders (Arouri et al., 2019; Dessaint et al., 2017; Masulis et al., 2020; Rhodes- Kropf and Robinson, 2008; Shleifer and Summers, 1988), stakeholders' action is crucial to M&A success (Anderson et al., 2012; Meglio, 2016). Therefore, we focus on M&A transactions to evaluate the financial value of the firm's ESG practice.

We first propose that acquirers with high ESG level will have better post-M&A performance than acquirers with low ESG level. The instrumental stakeholder view suggest that firms with a high ESG level earn the trust and support from stakeholders. It implies that deals announced by high ESG acquirers are more likely to be supported by stakeholders. With the support of stakeholders, the integration process will be subject to less uncertainty (Arouri et al., 2019) and operate at higher efficiency (Bettinazzi and Zollo, 2017; Deng et al., 2013; Liang et al., 2017), thereby leading to higher post-M&A firm performance.

In terms of the impact of the changes in ESG level on post-M&A performance, we propose the initial ESG standard dependent view. According to this view, the

[4] ESG variations are related to firms' ESG efforts (Benlemlih et al., 2018). For firms with high ESG scores, a downgrade in their ESG ratings may signal a relaxation of their ESG efforts and, consequently, a deterioration in their ESG legitimacy. By contrast, for firms characterized by low ESG scores, an upgrade in their ESG ratings may be viewed as an intensification of their ESG efforts and an attempt to restore their ESG legitimacy.

financial benefit of a marginal improvement or deterioration in ESG prior to the M&A is dependent on the acquirer's initial ESG standard[5]. This view is in line with the law of diminishing marginal utility (DMU) which indicates that stakeholders' satisfaction and trust in firms decrease with a marginal increase in welfare (Kauder, 2015). It implies that with low (high) initial standard of ESG, an increase (decrease) in ESG gives stakeholders a greater incentive to (not) support the firm. In the context of M&A, for acquirers with high initial ESG level, ESG downgrade prior to the M&A is negatively related to post-M&A performance whereas ESG upgrade has insignificant impact on post-M&A performance; for acquirers with low initial ESG level, ESG upgrade prior to the M&A is positively related to post-M&A performance whereas ESG downgrade has insignificant impact on post-M&A performance.

Using a sample of 1,489 completed domestic M&A deals of 847 Chinese firms from 2011 to 2019, we find evidence that acquirers' ESG pracrice have a significant positive impact on their post-M&A performance. These results are consistent with our first conjecture. In addition, we find that for acquirers with high initial ESG rating, a rating upgrade prior to M&A will not lead to better post-M&A performance, but a downgrade prior to M&A will lead to worse post-M&A performance. In contrast, for acquirers with low initial ESG rating, a rating upgrade prior to M&A will lead to better post-M&A performance, but a downgrade prior to M&A has no significant impact on post-M&A performance. This result is consistent with the initial ESG standard dependent view based on the law of DMU. Our results are robust to a battery of tests. We also use two-stage least squares (2SLS) with instrumental variables and Heckman two-stage procedure to address concnerns about endogeneity. Furthermore, we show that acquirers who have a high ESG rating or have ESG rating upgrade from low initial ESG standard are more likely to complete the deal. Finally, we find that social (S) and governance (G) components have significantly positive impact on acquirer's post-M&A performance.

Our study contribute to the literature in two dimensions. First, our paper contributes to the literature investigating whether and how firm's responsible practice is paid back. For instance, Lins et al. (2017) focus on the trust level among participants in the financial market and demonstrate that corporate ESG pays off when the overall level of trust in corporations and markets suffers a negative shock (e.g., financial

[5] Initial ESG standard refers to the firm's ESG level before change (ESG upgrade or downgrade).

crisis). Additionally, Ding et al. (2021) provides evidence, based on firms in 61 economies, that ESG paid off during the COVID-19 pandemic. Finally, Xiao et al. (2018) highlights the sustainability performance of the countries and discover that enterprises in countries with higher country-level sustainability performance often find it more difficult to capitalise on corporate sustainability performance than their counterparts in countries with relatively low levels of country-level sustainability performance. Our results emphasize that the financial benefit of ESG practice can be realized in firm M&A activity and that stakeholders' utility plays an important role in the realization.

Second, our research supplements studies on the functions of corporate social responsible activity and post-M&A performance. The paper most similar to ours is Deng et al. (2013), who study a sample of US merger deals and find that M&A operations by high-CSR acquirers take less time to complete, are less likely to fail than M&A operations by low-CSR acquirers, and realize higher merger announcement returns and higher post-merger long-term operating and stock performance. We advance this strand of the literature in two ways. First, we provide evidence in the context of a developing country. In particular, we analyse M&A deals in the world's largest developing country (i.e., China). This developing-country perspective is particularly important for three reasons: 1) China has a high potential for and determination to undertake ESG performance but receives less attention; 2) Scholars have already devoted much attention to unpacking the financial benefit of ESG in the U.S. context (Deng et al., 2013; Lins et al., 2017), but we know less about it in other contexts. Studying the financial benefit of ESG in the Chinese M&A market, therefore, adds to the empirical body of work on the rationale for firm's ESG activity; and 3) China constitutes the world's second largest economy, so it seems reasonable to extend research on firm's ESG activity in this country. Second, we consider the impact of the changes in ESG level on firm's performance. Additionally, another work related to our study is Liang et al. (2017) who investigate the impact of acquirers' engagement in employee issues in the M&A context. Our study differs from theirs in that we analyse all aspects of ESG (i.e., environment, social, and governance) and its change rather than just employee relations.

The paper proceeds as follows. Section 2 introduces related theories and builds our main hypothesis. Section 3 describes the data and provides summary statistics for the variables of interest. In Section 4, we outline the empirical methodology and discuss our empirical results. The final section summarizes and concludes the paper.

2 Theoretical Foundation and Hypothesis Development

2.1 Theoretical Foundation

2.1.1 Instrumental stakeholder theory

IST models the the relationship between firm's responsible activity, stakeholders, and firm performance (see Jones, 1995). It considers the performance consequences for firm's relation with stakeholders. The core hypothesis of IST is that developing firm-stakeholder relationships governed by the norms of ethics—for example, fairness, trustworthiness, loyalty, care, and respect (Hendry, 2001, 2004)—will lead to improved financial performance. As summarized by Jones (1995), IST holds that "firms that contract (through their managers) with their stakeholders on the basis of mutual trust and cooperation will have a competitive advantage over those that do not" (1995: 422).

IST is in line with the contract theory, which views a firm as a nexus of contracts between shareholders and other stakeholders. Each group of stakeholders supplies the firm with critical resources or effort in exchange for claims outlined in explicit contracts (e.g. wage contracts and product warranties) or suggested in implicit contracts (e.g. promises of job security to employees and continued service to customers) (Coase, 1937; Fama and Jensen, 1983; Shleifer and Summers, 1988). Firms developing good relationship with stakeholders show their commitment to the implicit contract and stakeholders in turn contribute to the firm in exchange of this implicit contract.

Previous literature shows that high ESG/CSR firms tend to have a stronger reputation for keeping their commitments associated with implicit contracts (Deng et al., 2013; Kristoffersen et al., 2005; Liang and Renneboog, 2017), increasing the value of the implicit contract (Cornell and Shapiro, 1987). To "purchase" this implicit contract, stakeholders are likely to contribute more resources and effort to the firm. Thus, these theories suggest that firms' ESG effort is likely to yield financial payback through stakeholders' support.

2.1.2 Law of Diminishing Marginal Utility

In terms of the model for changes in ESG level and its impact on M&A, we apply the law of diminishing marginal utility (DMU). The law of DMU indicates that when consumers acquire more units of a good, the marginal utility of the last unit acquired will be diminished (Kauder, 2015). In accordance with the DMU law, as the stimulus persists, the utility of new consumption becomes progressively insignificant (Venaik and Brewer, 2010). In the context of ESG, the begaining of enterprise's ESG activities gives stakeholders a greater incentive to contribute to the firm, thereby increasing financial performance. However, over time, as stakeholders face continued increase in firms' ESG activities, their positive psychological emotions will inevitably decrease, leading to a decline in the effectiveness of ESG effort (Li, 2019). Therefore, the ESG activities that promote organizational financial benefit are gradually weakened.

2.2 ESG and post-M&A performance

According to instrumental stakeholder theory, good ESG performance is indicative of a strong reputation for honouring implicit contract to stakeholders, thus increasing the trust from stakeholders and earning financial profit through their contribution to firms' operation (Bettinazzi and Zollo, 2017; Cornell and Shapiro, 1987; Freeman, 1999; Freeman et al., 2004 ; Jawahar and McLaughlin, 2001; Jensen, 2001; Jones et al., 2018; Lins et al., 2017).

In the context of unsettling events such M&A, stakeholders (e.g., employees, customers, suppliers, and the community at large) matter (Clark and Geppert, 2011). Given that the process of M&A is frequently subject to a range of challenges, support from various stakeholders is important to M&A success and post-M&A performance (Arouri et al., 2019; Dessaint et al., 2017; Masulis et al., 2020; Rhodes- Kropf and Robinson, 2008; Shleifer and Summers, 1988).

First, in the approval stage, deals announced by firms with high ESG are less likely to receive opposition from stakeholders, reducing M&A uncertainty and thereby the cost of the uncertainty (Arouri et al., 2019). The target's stakeholders may protest and lobby against a takeover conducted by low-ESG acquirer because of the acquirer's negative reputation, potentially convincing the board to consider alternatives to the takeover (Liang et al., 2017). In addition, high-ESG acquirers may also enjoy a better reputation among regulators (Hong and Liskovich, 2015), reducing the risk and the cost of regulatory intervention during the M&A process.

Second, in the integration process of the M&A, the deal announced by high-ESG acquirers will have higher efficiency, leading to higher performance. The McKinsey report (Bekier et al., 2001) shows that, during a M&A's transition period, key employees or customers from both acquirers and targets could leave if the management team fails to effectively handle stakeholder relations. As such, after the transaction, low-ESG acquirers could suffer a reduction in firm value. In contrast, high-ESG acquirers are less likely to experience such loss of key employees and customers because they have trust and loyalty from these stakeholders.

Therefore, we hypothesize that corporate ESG level is positively related to acquirer's post-M&A performance.

H1: Corporate ESG level is positively related to acquirer's post-M&A performance.

2.3 Change in ESG level and post-M&A performance

Apart from the role of corporate ESG practice in corporate value creation during M&A, we also study the impact of ESG update or downgrade prior to M&A on post-M&A performance. The initial ESG standard dependent view is proposed. According to this view, the financial benefit of a marginal increase (decrease) in ESG score is dependent on the acquirers initial ESG standard. This view is in line with the law of DMU which indicates that stakeholders' satisfaction and trust in firms decreases with marginal increase in welfare (Kauder, 2015).

According to the DMU, for acquirers with high initial ESG standard, an increase in ESG has a limited impact on the stakeholders' utility and their trust and contribution to firm, whereas a decrease in ESG results in a significant decrease in stakeholder utility and their contribution to operation. In contrast, for acquirers with high initial ESG standard, an increase in ESG score has a significantly positive impact on the stakeholders' utility and stakeholders' trust and contribution to firm, whereas a decrease in ESG results in a limited decrease in stakeholder utility and contribution to firm's operation. There are useful real-world examples to illustrate this point, such as Haidilao (HKG: 6862). This firm was once renowned for its excellent customer service and generous employee benefits, but it experienced a boycott by customers and a significant drop in revenue due to its decision to significantly increase service

fees during the COVID-19 pandemic. Another example is Hongxing Erke. Despite its subpar profitability and inadequate initial ESG performance, it was able to garner stakeholder support and sell out its product in stock merely by donating money to help mitigate the devastating impact of floods.

Similarly, this mechanism could be reflected in the support of stakeholders for the firm's M&A process and therefore the post-M&A performance. Therefore, we propose the following hypothesis:

H2a: For acquirers with high initial ESG level, ESG downgrade is negatively related to post-M&A performance whereas ESG upgrade has insignificant impact on post-M&A performance.

H2b: For acquirers with low initial ESG level, ESG upgrade is positively related to post-M&A performance whereas ESG downgrade has insignificant impact on post-M&A performance.

3 Data, summary statistics, and empirical model

3.1 Variables

3.1.1 Measures of post-M&A performance

In this paper, we use two types of measures to capture post-M&A performance. One is the post-M&A stock performance, proxied by one year buy-and-hold abnormal returns (BHARs). The BHAR essentially indicates the excess return over the market that an investor buying the shares of the acquiring company will be enjoying if he or she made the purchase in the month of the acquisition. We use the value-weighted market indices as the reference market portfolio and calculate the BHARs as follows:

$$BHAR_i = \prod_{t=0}^{s+T}(1 + R_{i,t}) - \prod_{t=0}^{s+T}(1 + R_{m,t})(1)$$

where i , t, and T index acquirer, deal announcement month, and holding period, respectively. $R_{i,t}$ is simple return of acquirer i and $R_{m,t}$ is the return of market portfolio. The event window is 12 months after the M&A announcement.

Another kind of metric is related to post-M&A accounting-based performance.

Following Bertrand and Betschinger (2012) and Li et al. (2020), we calculate two measures: the one-year post-M&A return on assets (ROA) and the one-year post-M&A return on equity (ROE), measuring the acquiring firms' profitability. To construct post-M&A return on assets (ROA) and post-M&A return on equity (ROE), we utilize net profit scaled by the book value of assets for ROA and equity for ROE.

3.1.2 Corporate ESG measurements

To proxy Chinese acquirers' ESG performance, we utilise the Sino-Securities Index (SSI) ESG Rating Database. The evaluation methods used by SSI ESG database outperform other publicly available ESG data for Chinese firms for three reasons. First, they are tailored for Chinese listed firms' ESG efforts. The creation of SSI ESG Ratings is based on the international mainstream ESG system and integrates metrics representing Chinese characteristics such as poverty alleviation, social responsibility reporting, and fines. Additionally, the SSI ESG ratings covers all A-share listed companies dating all the way back to 2009, with a significant breadth and depth of data. The SSI database collects over 130 bottom-level variables for each firm and synthesises them into 26 indicators for three-dimensional performance, covering the environment, society, and governance. The final ESG score represents this performance across three dimensions. Finally, SSI ESG Rating accurately reflects the ESG performance of publicly traded firms as it is calculated with dynamic tracked bottom-level metrics.

Based on SSI ESG Rating data, we created a measure of firms' ESG level: ESG rating, spanning from 1 to 9. Given that the SSI ESG rating is ranked from C to AAA, we grant the SSI ESG rating C a value of 1, CC a value of 2, CCC a value of 3, and so on, until AAA a value of 9. Throughout our study, we refer to firms with an ESG rating of greater than 6 (A) as high-ESG firms because they are recognised as leaders by SSI's ESG evaluation system[6].

We also construct two main variables: ESG upgrade and ESG downgrade, to capture

[6] This classification criterion is in accordance with the guideline of SSI ESG database, which identifies firms with ESG rating equal or higher than A (6) as "Leader" and others as "average" or "Laggard". Detailed information could be found through https://www.chindices.com/files/%E4%B8%8A%E6%B5%B7%E5%8D%8E%E8%AF%81%E6%8C%87%E6%95%B0ESG%E8%AF%84%E4%BB%B7%E4%BB%8B%E7%BB%8D.pdf.

the change of corporate ESG level. ESG upgrade is a dummy variable that equals 1 if a firm has an ESG rating upgrade in the year prior to M&A and 0 otherwise. Similarly, ESG downgrade is a dummy variable which equals to 1 if a firm has ESG rating downgrade in the year prior to M&A and 0 otherwise.

3.1.3 Control variables

Control variables in our baseline analysis include firm- and industry-specific characteristics derived from the literature (Deng et al., 2013; Masulis et al., 2007), such as firm size (firm size, the natural logarithm of total assets), market-to-book ratio, leverage, cash holdings, and state-owned enterprise (SOE) dummy, all of which have been shown to affect corporate ESG and post-M&A performance. Additionally, we include transaction-specific control variables such as the mode of payment, the deal size (the natural logarithm of the deal value), and a diversification dummy indicating the acquisition's industry relatedness. These variables have been utilised to examine the relationship between ESG and post-M&A synergy in the literature (Arouri et al., 2019; Deng et al., 2013; Doukas and Zhang, 2021). The Appendix provides the definition of control variables.

3.2 Sample selection and summary statistics

Our sample consists of 1489 Chinese M&A deals between 2011 and 2019. The initial sample of mergers comes from the China Stock Market & Accounting Research (CSMAR) database. Our final sample includes all completed domestic M&As that meet the following five selection criteria: (1) the deal value disclosed is greater than ¥5 million yuan, (2) targets of the deal are not classified as the plant or the right to use land, (3) the deal is completed by the end of 2019,(4) the acquirer is publicly traded and has stock return and financial data available from the CSMAR, (5) the acquirer is in the SSI ESG rating database, and (6) neither acquirer nor target is in the financial industries, which is classified by China Securities Regulatory Commission (CSRC). These criteria resulted in a final sample of 1,489 successful M&As made by 847 firms.

In Panel A of Table 1, we present the distribution of our sample M&As according to acquirer industry and year. Most of the acquirers are in manufacturing industry (66.96%). Panel B of Table 1 presents the distribution of our sample M&As according to acquirer ESG rating and year. Most of the acquirers has ESG rating of

"BBB" (51%).

[Insert Table 1 here]

Table 2 presents the summary statistics for acquirers of full sample and subsamples. We refer to firms with an ESG rating of greater than 6 (A) as high-ESG firms and others as low ESG firms because they are recognised as leaders by SSI's ESG evaluation system. In the full sample, the median ESG score is 6. About 17.9 percent of acquirers have an ESG upgrade and 10.6 percent acquirers have an ESG downgrade prior to the bid. Most of the deals are classified as diversification deal (85.4 percent) and are paid by cash (71.6 percent).

[Insert Table 2 here]

In terms of the subsample difference, several features are worth noting. Firms with high ESG rating have significantly bigger size and higher leverage. In regard to deal characteristics, we find that compared with firms with low ESG ratings, firms with high ESG rating prefer to acquire larger targets and less likely to pay with cash.

3.3 Methodology

3.3.1 ESG and post-M&A performance

We apply both univariate and multi-variate analysis to examine the association between corporate ESG level and post-M&A performance. For multivariate analysis, we perform a cross-sectional regression by estimating the following equation:

$$\begin{aligned} Acquirers\ post-M\&A\ performance_{it} \\ &= \beta_0 + \beta_1 ESG\ rating_{it-1} \\ &+ \beta_k \sum acquirer\ Controls_{it-1} + \beta_k \sum Deal\ Controls_{it} + \gamma + \vartheta \\ &+ \epsilon_{it} \quad (2) \end{aligned}$$

where i and t index acquirer and deal announcement year, respectively. $Acquirers\ performance_{it}$ represents the acquirers' one-year-forward BHARs, ROA, and ROE. The main dependent variable is the acquirers' ESG rating at the end of year t-1. In addition, we include control variables discussed in Subsection 3.1.3 in

the regressions as well as industry and year fixed effects.

3.3.2 Changes in ESG level and post-M&A performance

To explore the role of changes in acquirers' ESG level in post-M&A performance and test the initial ESG dependent view, we divide our full sample by acquirer's initial ESG level. Initial ESG level is proxied by the acquirers' ESG rating at the end of two year prior to the bid (t-2) to better capture the variation of ESG rating one year prior to the deal announcement. Acquirers with ESG rating higher than 6 (A) (ESG Rating_{t-2}>6) were classified as the high-initial-ESG-acquirer sample while acquirers with ESG rating equal or lower than the 6 (A) (ESG Rating_{t-2}<=6) were classified as the low-initial-ESG-acquirer sample.

For each sample, we regress the one-year post-M&A performance on the upgrade and downgrade of ESG rating:

$$Acquirers\ \text{post}-\text{M\&A}\ performance_{it} = \beta_0 + \beta_1 ESG\ upgrade_{it-2,t-1} + \beta_2 ESG\ downgrade_{it-2,t-1} + \beta_k \sum acquirer\ Controls_{it-1} + \beta_k \sum Deal\ Controls_{it} + \gamma + \vartheta + \epsilon_{it} \quad (3)$$

where i and t index acquirer and deal announcement year, respectively. $Acquirers\ performance_{it}$ is the same as in Eq. (2). $ESG\ upgrade_{it-2,t-1}$ is a dummy variable indicating acquirer's ESG rating upgrade from the end of year t-2 to the end of year t-1, and $ESG\ downgrade_{it-2,t-1}$ is a dummy variable indicating acquirer's ESG rating downgrade from the end of year t-2 to the end of year t-1. Control variables are the same as in Eq. (2).

4 Results

4.1 ESG rating and post-M&A performance

4.1.1 Univariate analysis

Table 3 provides the mean and median of the post-M&A performance measurements, based on acquirers' ESG level at the end of the year prior to the M&A. We refer to firms with an ESG rating of greater than 6 (A) as high-ESG firms and others as low ESG firms. The empirical results show that high-ESG acquirers are inclined to have higher

one-year-forward BHARs (0.14) than low-ESG acquirers (0.038). Furthermore, the results show that high-ESG acquirers appear to have higher ROA and ROE one year after M&A year.

[Insert Table 3 here]

4.1.2 Multivariate analysis

Table 4 reports the results of multivariate regression of ESG level on post-M&A BHARs, ROA, and ROE. Columns (1) indicates that the coefficient of the variable ESG Rating is positive and significant at the 5% level, and an increase of one score in ESG performance elicits an increase of 3.6% in the acquiring firm's one-year-forward BHARs. This finding suggests that investors favor acquirers with a high level of ESG.

[Insert Table 4 here]

Columns (2) and (3) of Table 4 indicate that firms with a high level of ESG performance realize higher one-year post-M&A ROA and ROE.

Overall, the results shown in Table 4 confirm the univariate results reported in Table 3. In accordance with the instrumental stakeholder theory, these results indicate that corporate ESG level is positively related to acquirer's post-M&A performance.

4.2 Change in ESG level and post-M&A performance:

Panel A of Table 5 provides the results of multivariate regression of changes in ESG level on post-M&A BHARs, ROA, and ROE in high-initial-ESG subsample. Column (1) indicates a negative and statistically significant relationship between the ESG downgrade and one-year-forward BHARs, and an insignificant relationship between ESG upgrade and one-year-forward BHARs. Furthermore, Column (2) and Column (3) show a similar relationship between ESG change and post-M&A ROA and ROE. These empirical findings support our conjecture that ESG downgrade is negatively related to post M&A performance for acquirers with high initial ESG level.

[Insert Table 5 here]

Panel B of Table 5 presents the results of multivariate regression of changes in ESG level on post-M&A BHARs, ROA, and ROE for low-initial ESG sample. From Column (1) through Column (3), the empirical results show a mirror image of the results for the high-initial-ESG-rating sample. Acquirers with low initial ESG performance will receive higher post-M&A performance.

Taken together, we conclude that, consistent with the prediction of law of diminishing utility of stakeholders, the effect of the change in acquirers ESG level on post-M&A performance is asymmetric and dependent on the initial ESG standard.

5 Robustness checks and further investigation

5.1 Alternative measure of ESG rating

To reflect that the difference between categories (i.e., A vs. B, and C ratings) may be greater than the gap within groups, we reassign our ESG level measurement. Specifically, we create ESG rating II such that the new variable equals 1 if the ESG rating is "C", 2 if the ESG rating is “CC”, 3 if the ESG rating is CCC, 5 if the ESG rating is B,6 if the ESG rating is “BB” ,7 if the ESG rating is BB,9 if the ESG rating is A,10 if the ESG rating is AA, and 11 if the ESG rating is “AAA”. We then rerun Eq. (2) with the new variable. Results are presented in Table 6. We find that the results in Table 4 are robust when we use an alternative ESG level measurement.

[Insert Table 6 here]

5.2 More controls

Another potential concern would be that of ESG being a proxy for other known factors that affect merger performance. For example, firms could invest in ESG activities as a result of pressure from activist shareholders, in which case the positive relationship between the ESG measure and M&A performance could simply reflect the value-enhancing role of blockholders in M&A (Chen et al., 2007). To address this concern, we control for various measures of an acquirer's ownership concentration in our multi-variate regression. In particular, we include controls that measure the extent of acquiring firms' institutional investor portion, individual investors’ portion, and the block holder indicator that takes the value of 1 if at least one investor holds more than 5% of the firm's outstanding shares and 0 otherwise. The results are presented in Table 7. We find that the coefficient estimates on ESG level and change in ESG level remain.

[Insert Table 7 here]

5.3 Endogeneity problems

Although the use of multiple control variables lagged by a year could mitigate the omitted variables bias and reverse causality concerns, the regression results may still suffer from endogeneity issues caused by unobservable omitted variables and selection bias. To address such endogeneity problems caused by omitted variables, we estimate instrumental variable regressions (two-stage-least-squares or 2SLS). In the first stage, we estimate ordinary least square regressions to predict the acquirers' ESG rating. In the second stage, we regress our ESG measure on explanatory variables of acquirers used in Eq. (2) and on two instrumental variables. For instruments variables, we follow Ioannou and Serafeim (2012) who show that ESG is determined by both location (i.e., province) and industry characteristics. More precisely, a firm's ESG is impacted by the ESG level of other firms within the same industry-location pair and by the ESG level of other firms in the same province over time. We adopt the province-year ESG median rating and the province-industry ESG median rating as instruments (Arouri et al., 2019; Arouri and Pijourlet, 2017; Cheng et al., 2014; Gomes and Marsat, 2018). To further substantiate our instrument selection, we conduct two tests in each 2SLS regression: (1) a Cragg and Donald (1993) instrument relevance test to ensure the instruments' relevance (i.e., high correlations between the instruments and adjusted ESG), and (2) a Sargan (1958) overidentification test to investigate the instruments' exogeneity (i.e., no significant correlation between the instruments and the residuals in the arbitrage spread regressions). Results are presented in Table 8.

[Insert Table 8 here]

In the first-stage regressions reported in column (1), we show that our instrument yields statistical significance, which validates its use. In the second-stage regressions, we substitute the predicted values of our ESG measures for the actual ESG rating and report results in columns (2), (3), and (4). These results confirm our previous findings in that the predicted values of our ESG measures are positively associated with acquirers' post-M&A BHARs, ROA, and ROE.

In addition, to account for selection bias, we employ Heckman's (1976, 1979) two-step regression and provide the results in Table 9. In the first stage, we estimate a selection

(probit) model for each acquirer's likelihood of completing a deal. The inverse Mills ratio is then calculated for each observation. In the second stage, we include the inverse Mills ratio in the second-step equation in order to correct for a potential sample selection issue.

[*Insert Table 9 here*]

In Table 9. our results remain. It is also important to note that the variable Inverse Mills Ratio is insignificant in all model variants in Table 9, indicating there was no significant sample selection bias caused by using observations from acquirers that complete the deal.

5.4 ESG and likelihood of deal completion

According to the instrumental stakeholder view, M&As announced by high-ESG acquirers have a higher likelihood of being completed. In this section, we provide additional analysis on this prediction with a sample of 1,794 successful and unsuccessful Chinese domestic M&As.

Table 10 presents the results of a probit regression in which the dependent variable is a dummy variable that equals 1 if the deal is completed and 0 otherwise. In Column (1), regression results show that the probability of deal completion increases with an acquirer's ESG score. Column (2) displays the results for high-initial-ESG acquirers while the results for low-initial-ESG acquirers are shown in Column (3). We find that the coefficient of ESG downgrade is significantly negative for the high-initial-ESG sample and the coefficient of ESG upgrade is significantly positive for the low-initial-ESG sample. Clearly, high ESG levels for all acquirers and ESG upgrade for low-initial-ESG acquirers lead to a significantly higher probability of deal completion. These results are consistent with the instrumental stakeholder view and law of diminishing marginal utility.

[Insert Table 10 here]

5.5 ESG components and post-M&A performance

We perform additional tests to examine the differential influences of ESG components-Environmental, Social, Governance on acquirer’s post-M&A performance. In particular,

we substitute the variable ESG level in Eq.(2) with E, S, and G level, and estimate their coefficients. The major findings of this additional tests are summarized in Table 11. The estimates of the coefficients for our variables of interest, S level, and G level are positive and significant whereas the estimates of coefficients for E level is insignificant in all model variants. This result suggests that acquirer's social and governance performance may be main drivers for positive impact of ESG performance on post-M&A performance.

[Insert Table 11 here]

6 Conclusion

In this paper, we examine whether ESG pays back in the context of M&A activity. We focus on both ESG level and its change and propose two hypotheses. First, based on instrumental stakeholder theory, our first hypothesis suggests that high-ESG-acquirers get greater stakeholders' trust and encourage contribution from stakeholders to firms' operation, predicting that high-ESG-acquirers will achieve better post-M&A performance.

In terms of the change ESG level, the initial ESG standard dependent view suggests that the utility of stakeholders of the same firm diminishes with the increase of ESG effort, thus leading to high contribution from stakeholders of low-ESG firms but a lower contribution from stakeholders of high-ESG firm, implying that low-ESG acquirers will have better post-M&A performance while high-ESG acquirers will have worse post-M&A performance.

After correcting for endogeneity bias, we find that compared with M&As by low-ESG acquirers, those by high-ESG acquirers lead to higher post-M&A performance. Meanwhile, low-initial-ESG acquirers with ESG upgrade prior to the M&A have significantly higher post-M&A performance, whereas high-initial-ESG acquirers with ESG downgrade prior to the M&A have significantly lower post-M&A performance. These results are robust to a variety of alternative model specifications. We also show that better acquirers' ESG rating or ESG rating upgrade for firms with low initial ESG help acquirers to successfully complete the deal. Finally, we find social (S) and governance (G) are two components that have significantly positive impact on acquirer's post-M&A performance.

Overall, these results suggest that firms' ESG effort is paid back in firm's M&A activity and the influence of the change in ESG prior to M&A on post-M&A performance is dependent on acquirers' initial ESG level. As such, instrumental stakeholder theory and the law of diminishing marginal utility are supported.

References

Ahern, K.R., Weston, J.F., 2007. M&As: The good, the bad, and the ugly. Journal of Applied Finance 17, 5-20.

Alareeni, B.A., Hamdan, A., 2020. ESG impact on performance of US S&P 500-listed firms. Corporate Governance: The International Journal of Business in Society.

Anderson, H., Havila, V., Nilsson, F., 2012. A stakeholder approach to mergers and acquisitions, Mergers and Acquisitions. Routledge, pp. 11-24.

Arouri, M., Gomes, M., Pukthuanthong, K., 2019. Corporate social responsibility and M&A uncertainty. Journal of Corporate Finance 56, 176-198.

Arouri, M., Pijourlet, G., 2017. CSR performance and the value of cash holdings: International evidence. Journal of Business Ethics 140, 263-284.

Bekier, M.M., Bogardus, A.J., Oldham, T., 2001. Why mergers fail. McKinsey Quarterly 4, 6-9.

Benlemlih, M., Jaballah, J., Peillex, J., 2018. Does it really pay to do better? Exploring the financial effects of changes in CSR ratings. Applied Economics 50, 5464-5482.

Bertrand, O., Betschinger, M.-A., 2012. Performance of domestic and cross-border acquisitions: Empirical evidence from Russian acquirers. Journal of comparative economics 40, 413-437.

Bettinazzi, E.L., Zollo, M., 2017. Stakeholder orientation and acquisition performance. Strategic Management Journal 38, 2465-2485.

Buchanan, B., Cao, C.X., Chen, C., 2018. Corporate social responsibility, firm value, and influential institutional ownership. Journal of Corporate Finance 52, 73-95.

Chen, X., Harford, J., Li, K., 2007. Monitoring: Which institutions matter? Journal of financial Economics 86, 279-305.

Cheng, B., Ioannou, I., Serafeim, G., 2014. Corporate social responsibility and access to finance. Strategic management journal 35, 1-23.

Clark, E., Geppert, M., 2011. Subsidiary integration as identity construction and institution building: A political sensemaking approach. Journal of Management Studies 48, 395-416.

Coase, R.H., 1937. The nature of the firm. economica 4, 386-405.

Cornell, B., Shapiro, A.C., 1987. Corporate stakeholders and corporate finance. Financial management, 5-14.

Cornell, B., Shapiro, A.C., 2021. Corporate stakeholders, corporate valuation and ESG. European Financial Management 27, 196-207.

Cragg, J.G., Donald, S.G., 1993. Testing identifiability and specification in instrumental variable models. Econometric Theory 9, 222-240.

Deng, X., Kang, J.-k., Low, B.S., 2013. Corporate social responsibility and stakeholder value maximization: Evidence from mergers. Journal of financial Economics 110, 87-109.

Dessaint, O., Golubov, A., Volpin, P., 2017. Employment protection and takeovers. Journal of Financial Economics 125, 369-388.

Ding, W., Levine, R., Lin, C., Xie, W., 2021. Corporate immunity to the COVID-19 pandemic. Journal of Financial Economics 141, 802-830.
Doukas, J.A., Zhang, R., 2021. Managerial ability, corporate social culture, and M&As. Journal of Corporate Finance 68, 101942.
Fama, E.F., Jensen, M.C., 1983. Separation of ownership and control. The journal of law and Economics 26, 301-325.
Flammer, C., 2015. Does corporate social responsibility lead to superior financial performance? A regression discontinuity approach. Management Science 61, 2549-2568.
Freeman, R.E., 1999. Divergent stakeholder theory. Academy of management review 24, 233-236.
Freeman, R.E., Wicks, A.C., Parmar, B., 2004. Stakeholder theory and "the corporate objective revisited". Organization science 15, 364-369.
Gomes, M., Marsat, S., 2018. Does CSR impact premiums in M&A transactions? Finance Research Letters 26, 71-80.
Heckman, J.J., 1976. The common structure of statistical models of truncation, sample selection and limited dependent variables and a simple estimator for such models, Annals of economic and social measurement, volume 5, number 4. NBER, pp. 475-492.
Heckman, J.J., 1979. Sample selection bias as a specification error. Econometrica: Journal of the econometric society, 153-161.
Hendry, J., 2001. Economic contracts versus social relationships as a foundation for normative stakeholder theory. Business Ethics: A European Review 10, 223-232.
Hendry, J., 2004. Between enterprise and ethics: Business and management in a bimoral society. OUP Oxford.
Hong, H., Liskovich, I., 2015. Crime, punishment and the halo effect of corporate social responsibility. National Bureau of Economic Research.
Ioannou, I., Serafeim, G., 2012. What drives corporate social performance? The role of nation-level institutions. Journal of International Business Studies 43, 834-864.
Jawahar, I., McLaughlin, G.L., 2001. Toward a descriptive stakeholder theory: An organizational life cycle approach. Academy of management review 26, 397-414.
Jensen, M., 2001. Value maximisation, stakeholder theory, and the corporate objective function. European financial management 7, 297-317.
Jones, T.M., 1995. Instrumental stakeholder theory: A synthesis of ethics and economics. Academy of management review 20, 404-437.
Jones, T.M., Harrison, J.S., Felps, W., 2018. How applying instrumental stakeholder theory can provide sustainable competitive advantage. Academy of Management Review 43, 371-391.
Kauder, E., 2015. History of marginal utility theory. Princeton University Press.
Kristoffersen, I., Gerrans, P., Clark-Murphy, M., 2005. The corporate social responsibility and the theory of the firm. School of Acc., Finance and Economics,..., Edith Cowan Univ.

Li, C.-Y., 2019. How social commerce constructs influence customers' social shopping intention? An empirical study of a social commerce website. Technological Forecasting and Social Change 144, 282-294.

Li, W., Wang, C., Ren, Q., Zhao, D., 2020. Institutional distance and cross-border M&A performance: A dynamic perspective. Journal of International Financial Markets, Institutions and Money 66, 101207.

Liang, H., Renneboog, L., 2017. Corporate donations and shareholder value. Oxford Review of Economic Policy 33, 278-316.

Liang, H., Renneboog, L., Vansteenkiste, C., 2017. Corporate employee-engagement and merger outcomes.

Lins, K.V., Servaes, H., Tamayo, A., 2017. Social capital, trust, and firm performance: The value of corporate social responsibility during the financial crisis. the Journal of Finance 72, 1785-1824.

Masulis, R.W., Reza, S.W., 2015. Agency problems of corporate philanthropy. The Review of Financial Studies 28, 592-636.

Masulis, R.W., Wang, C., Xie, F., 2007. Corporate governance and acquirer returns. The Journal of Finance 62, 1851-1889.

Masulis, R.W., Wang, C., Xie, F., 2020. Employee-manager alliances and shareholder returns from acquisitions. Journal of Financial and Quantitative Analysis 55, 473-516.

Meglio, O., 2016. Are mergers and acquisitions socially responsible? Evidence from the banking industry, Advances in mergers and acquisitions. Emerald Group Publishing Limited.

Rhodes-Kropf, M., Robinson, D.T., 2008. The market for mergers and the boundaries of the firm. The Journal of Finance 63, 1169-1211.

Sargan, J.D., 1958. The estimation of economic relationships using instrumental variables. Econometrica: Journal of the econometric society, 393-415.

Servaes, H., Tamayo, A., 2013. The impact of corporate social responsibility on firm value: The role of customer awareness. Management science 59, 1045-1061.

Shleifer, A., Summers, L.H., 1988. Breach of trust in hostile takeovers. Corporate takeovers: Causes and consequences 1, 33-68.

Venaik, S., Brewer, P., 2010. Avoiding uncertainty in Hofstede and GLOBE. Journal of international business studies 41, 1294-1315.

Xiao, C., Wang, Q., van der Vaart, T., van Donk, D.P., 2018. When does corporate sustainability performance pay off? The impact of country-level sustainability performance. Ecological Economics 146, 325-333.

Appendix

Variable	Definition
BHAR_1year	Buy-and-hold abnormal returns are excess returns over the value-weighted market portfolio. The BHAR is measured over the one-year period following the month of announcement.
ROA_1year	Acquirers' return on asset (ROA) in one year later than the year of M&A.
ROE_1year	Acquirers' return on equity (ROE) in one year later than the year of M&A.
ESG Rating	Value equals 1 if SSI ESG rating is C, 2 if rating is CC, 3 if rating is CCC, 4 if rating is B, 5 if rating is BB, 6 if rating is BBB, 7 if rating is A, 8 if rating is AA, and 9 if rating is AAA.
ESG Rating II	Value equals 1 if SSI ESG rating is C, 2 if rating is CC,3 if rating is CCC, 5 if rating is B, 6 if rating is BB, 7 if rating is BBB, 9 if rating is A, 10 if rating is AA, and 11 if rating is AAA.
ESG Upgrade	Dummy variable that takes the value of 1 if acquirer has ESG rating upgrade in the year prior to the M&A announcement year and 0 otherwise.
ESG Downgrade	Dummy variable that takes the value of 1 if acquirer has ESG rating downgrade in the year prior to the M&A announcement year and 0 otherwise.
E Rating	Value equals 1 if SSI Environmental rating is C, 2 if rating is CC, 3 if rating is CCC, 4 if rating is B, 5 if rating is BB, 6 if rating is BBB, 7 if rating is A, 8 if rating is AA, and 9 if rating is AAA.
S Rating	Value equals 1 if SSI Social rating is C, 2 if rating is CC, 3 if rating is CCC, 4 if rating is B, 5 if rating is BB, 6 if rating is BBB, 7 if rating is A, 8 if rating is AA, and 9 if rating is AAA.
G Rating	Value equals 1 if SSI Governance rating is C, 2 if rating is CC, 3 if rating is CCC, 4 if rating is B, 5 if rating is BB, 6 if rating is BBB, 7 if rating is A, 8 if rating is AA, and 9 if rating is AAA.
Province-industry ESG	Median of the ESG rating of other firms within the same province-industry pair.
Province-year ESG	Median of the ESG rating of other firms within the same province-year pair.

Acquirer Size	Natural logarithm of acquirer's book value of asset.
Acquirer TobinQ	The market value of equity divided by total asset.
Acquirer Cash	Ratio of corporate cash to total asset.
Acquirer leverage	Ratio of total debt to total asset.
Acquirer SOE	Dummy variable that takes the value of 1 when ultimate controller is state or government.
Deal Size	Natural logarithm of the expense value of the deal.
Allstock	Dummy variable that takes the value of 1 when the form of payment is stock-only, and 0 otherwise.
Diversify	Dummy variable that takes the value of 1 when the deal is classified as horizontal and conglomerate M&A, and 0 otherwise.
Allcash	Dummy variable that takes the value of 1 when the form of payment is cash-only, and 0 otherwise.
Institutional Investor	The percentage of shares held by institutional investors to total shares.
BIND	The percentage of independent members on a board.
Blockholder	Dummy variable that takes the value of 1 if at least one investor holds more than 5% of the firm's outstanding shares and 0 otherwise.

Table 1. Sample Distribution.

This table presents acquisition sample distributions by year and industry (in panel A), and by year and ESG (Panel B). The sample consists of 1,489 completed Chinese domestic M&A between 2011 and 2019.The initial sample of mergers comes from the China Stock Market & Accounting Research (CSMAR) database. Our final sample includes all completed domestic M&As that meet the following five selection criteria: (1) the deal value disclosed is greater than ¥5 million yuan, (2) targets of the deal are not classified as plant or the right to use land, (3) the deal is completed by the end of 2019, (4) the acquirer is publicly traded and has stock return and financial data available from the CSMAR, (5) the acquirer is in the SSI ESG rating database, and (6) neither acquirer nor target is in the financial industries, as classified by the China Securities Regulatory Commission (CSRC). Industry classification is collected from the China Securities Regulatory Commission (CSRC) classification 2012.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total
Total	73	138	339	180	126	114	141	158	220	1489
Panel A: Sample distribution by industry and year										
Agriculture, forestry, animal husbandry, and fisheries	2	4	13	2	1	0	1	2	3	28
Mining	3	13	4	8	0	1	5	4	2	40
Manufacturing	46	85	232	102	95	78	104	97	158	997
Electric power, heat, gas and water production and supply	7	3	8	5	3	5	8	5	6	50
Construction	1	1	7	14	1	6	4	9	2	45

Wholesale and retail	2	5	9	8	8	0	2	14	6	54
Transport post and telecommunication services	0	5	2	4	2	2	6	0	5	26
Accommodation and catering industry	0	0	0	0	0	1	0	0	0	1
Information transfer computer services and software	2	7	35	21	12	11	4	17	16	125
Real estate	4	3	7	1	1	4	3	2	4	29
Leasing and commercial services	3	2	7	0	1	1	1	1	8	24
Scientific research polytechnic services and geological prospecting	0	2	1	9	0	1	2	5	7	27
Administration of water environment and public facilities	1	3	4	1	0	0	0	1	1	11
Industry of resident service, repair, and other services	1	0	0	0	0	0	0	0	0	1
Education	0	0	1	0	0	0	0	0	1	2
Health care social insurance/welfare	0	0	0	0	0	2	0	0	0	2
Culture sports and entertainment	1	5	8	5	1	1	1	1	1	24
Diversified industries	0	0	1	0	1	1	0	0	0	3
Panel B: Sample distribution by ESG Rating and year										
AAA (Value=9)	0	0	4	0	7	0	6	5	7	29
AA (Value=8)	12	25	78	39	19	23	23	19	23	261

A (Value=7)	9	20	54	43	38	27	34	34	53	312
BBB (Value=6)	52	85	186	86	56	49	59	75	116	764
BB (Value=5)	0	6	13	10	5	11	15	16	12	88
B (Value=4)	0	2	1	2	0	4	4	9	4	26
CCC (Value=3)	0	0	3	0	1	0	0	0	5	9

Table 2. Descriptive statistics.

The table presents descriptive statistics for a sample of 1,489 completed Chinese domestic M&As between 2011 and 2019. This table describes the mean and median of observations for bidder- and deal-specific characteristics, respectively, both for the whole sample as well as for high-ESG (ESG Rating$_{t-1}$>6)and low-ESG (ESG Rating$_{t-1}$<=6) acquirers. All variables are defined in Appendix A. Statistical tests for differences in means and equality of medians for each characteristic for high ESG versus low ESG are also presented. All continued variables are winsorized at the 1st and 99th percentiles.

	Full sample		High ESG (ESG Rating$_{t-1}$>6)		Low ESG (ESG Rating$_{t-1}$<=6)		High-Low	
	n=1489		n=602		n=887			
Variable	Mean	Median	Mean	Median	Mean	Median	Mean	Median
ESG Rating	6.506	6						
ESG Upgrade	0.179	0						
ESG Downgrade	0.106	0						
Firm Size	21.8	21.64	22.19	21.93	21.53	21.46	0.066***	0.47***
Acquirer Tobin Q	2.098	1.676	2.002	1.633	2.163	1.688	-0.161*	-0.055
Acquirer Cash	0.21	0.171	0.216	0.184	0.205	0.161	0.011	0.023**
Acquirer Leverage	0.377	0.353	0.398	0.391	0.362	0.333	0.036***	0.058***
Acquirer SOE	0.291	0	0.422	0.000	0.202	0	0.22***	0***
Deal Value	18.64	18.56	18.87	18.90	18.48	18.43	0.39***	0.47***
Allstock	0.152	0	0.169	0.000	0.140	0	0.029	0

Diversify	0.854	1	0.846	1.000	0.859	1	-0.013	0
Allcash	0.716	1	0.683	1.000	0.738	1	-0.055**	0

Table 3. Univariate analysis.

The sample consists of 1,489 completed Chinese domestic M&A between 2011 and 2019. Acquirers are divided into high- and low-corporate ESG firms according to the sample median of ESG Rating at the end of one year prior to M&A announcement. BHAR_1year is the acquirer's buy-and-hold abnormal returns which is the excess return over the value-weighted market portfolio over the one-year period following the month of announcement. ROA_1year is the aquirers' return on asset (ROA) in one year later than the year of M&A. ROE_1year is the acquirers' return on equity (ROE) in one year later than the year of M&A. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

	Full Sample n=1489		Subsample of high ESG acquirers (ESG Rating$_{t-1}$>6): A n=602		Subsample of low ESG acquirers (ESG Rating$_{t-1}$<=6): B n=887		Test of difference: A-B	
Variable	Mean	Median	Mean	Median	Mean	Median	Mean	Median
BHAR_1year	0.079	-0.024	0.14	-0.005	0.038	-0.04	0.102***	0.035
ROA_1year	0.039	0.043	0.044	0.042	0.035	0.043	0.009*	-0.001
ROE_1year	0.077	0.082	0.088	0.089	0.07	0.078	0.018***	0.011***

Table 4. ESG Rating and post-M&A performance.

This table presents regression estimates of one-year post-M&A stock and operational performance on ESG Rating and control variables with the full sample. Column (1) uses the acquirer's buy-and-hold abnormal returns over the value-weighted market portfolio over the one-year period following the month of announcement. Column (2) uses ROA_1year, which is the acquirers' return on asset (ROA) in one year later than the year of M&A. Column (3) uses ROE_1year, which is the acquirers' return on equity (ROE) in one year later than the year of M&A. Main independent variable throughout the columns is ESG Rating which equals 1 if SSI ESG rating is C, 2 if rating is CC,3 if rating is CCC, 4 if rating is B,5 if rating is BB,6 if rating is BBB, 7 if rating is A,8 if rating is AA, and 9 if rating is AAA. Detailed definitions of all variables are provided in Appendix A. Regressions include industry and year fixed effects. The t-statistics are reported in parentheses; ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

VARIABLES	BHAR_1year	ROA_1year	ROE_1year
	(1)	(2)	(3)
ESG Rating	0.036**	0.009***	0.011***
	(1.98)	(3.13)	(2.82)
Acquirer Size	-0.047**	0.004	0.011**
	(-2.19)	(1.28)	(2.32)
Acquirer TobinQ	-0.014	0.008***	0.015***
	(-0.84)	(3.24)	(4.29)
Acquirer Cash	0.147	0.097***	0.095***
	(1.04)	(4.44)	(3.18)
Acquirer Leverage	0.059	0.025	0.047*
	(0.51)	(1.41)	(1.93)
SOE	-0.009	-0.012*	-0.021**
	(-0.20)	(-1.75)	(-2.14)
Deal Size	-0.009	-0.000	0.002
	(-0.74)	(-0.01)	(0.93)
Allstock	0.252***	0.002	0.003
	(3.95)	(0.16)	(0.21)
Diversify	0.008	-0.011	-0.024**
	(0.17)	(-1.50)	(-2.35)
Allcash	0.027	-0.011	-0.018
	(0.47)	(-1.22)	(-1.46)

Constant	0.946**	-0.117*	-0.291***
	(2.09)	(-1.70)	(-2.75)
Industry FE	YES	YES	YES
Year FE	YES	YES	YES
Observations	1,489	1,489	1,489
R-squared	0.121	0.107	0.115

Table 5. Change in ESG level and Post-M&A performance.

This table presents regression estimates of ESG rating on one-year post-M&A performance. We divide our full sample into two subsamples by the median of the ESG rating of all acquirers. Acquierers with ESG higher than 6 at the initial stage (the end of year t-2) are classified into the subsample of high initial ESG acquirers and others are classified into the subsample of low initial ESG acquirers. We conduct our regressions with high initial ESG acquirer sample in Panel A, while we conduct our regressions with low initial ESG acquierer sample in Panel B. In both panels, column (1) uses the acquirer's buy-and-hold abnormal returns over the value-weighted market portfolio over the one-year period following the month of announcement. Column (2) uses ROA_1year, which is the acquirers' return on asset (ROA) in one year later than the year of M&A. Column (3) uses ROE_1year, which is the acquirers' return on equity (ROE) in one year later than the year of M&A. Main independent variables throughout the columns are ESG upgrade, a dummy variable that takes the value of 1 if the acquirer has an ESG rating upgrade in the year prior to the M&A announcement year, and 0 otherwise, and ESG downgrade, a dummy variable that takes the value of 1 if acquirer has ESG rating downgrade in the year prior to the M&A announcement year, and 0 otherwise. Detailed definitions of all variables are provided in Appendix A. Regressions include industry and year fixed effects. The t-statistics are reported in parentheses; ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Subsample of high initial ESG acqurierers ($ESG\ Raing_{t-2}>6$)				Panel B: Subsample of low initial ESG acquirers ($ESG\ Rating_{t-2}<=6$)		
VARIABLES	BHAR_1year	ROA_1year	ROE_1year	BHAR_1year	ROA_1year	ROE_1year
	(1)	(2)	(3)	(1)	(2)	(3)
ESG Upgrade	-0.021	-0.002	-0.021	0.088***	0.052**	0.011**
	(-0.10)	(-0.18)	(-0.76)	(2.72)	(1.98)	(2.12)
ESG Downgrade	-0.259**	-0.025***	-0.045***	0.061	-0.003	-0.002
	(-2.16)	(-3.24)	(-2.87)	(1.09)	(-0.17)	(-0.10)
Acquirer Size	0.013	0.012***	0.026***	-0.064***	0.004	0.012*

	(0.23)	(3.27)	(3.67)	(-3.37)	(0.74)	(1.93)
Acquirer TobinQ	0.004	0.011***	0.017***	-0.030**	0.005	0.014***
	(0.11)	(4.33)	(3.24)	(-2.04)	(1.37)	(2.76)
Acquirer Cash	0.858**	0.020	0.034	0.014	0.137***	0.124***
	(2.18)	(0.77)	(0.67)	(0.13)	(4.43)	(3.24)
Acquirer Leverage	-0.504	-0.057***	-0.022	0.187**	0.052**	0.051
	(-1.52)	(-2.62)	(-0.52)	(2.02)	(2.06)	(1.65)
SOE	-0.161	-0.011	-0.021	-0.001	-0.005	-0.016
	(-1.31)	(-1.41)	(-1.30)	(-0.04)	(-0.52)	(-1.27)
Deal Size	-0.027	-0.001	0.000	-0.006	-0.001	0.001
	(-0.85)	(-0.51)	(0.10)	(-0.65)	(-0.41)	(0.18)
Allstock	0.576***	0.008	0.024	0.078	-0.001	0.002
	(3.24)	(0.70)	(1.05)	(1.49)	(-0.04)	(0.12)
Diversify	0.032	-0.009	-0.016	-0.018	-0.014	-0.029**
	(0.26)	(-1.09)	(-0.98)	(-0.45)	(-1.33)	(-2.20)
Allcash	-0.039	-0.002	0.006	0.017	-0.016	-0.025
	(-0.24)	(-0.22)	(0.27)	(0.36)	(-1.25)	(-1.54)
Constant	0.394	-0.185**	-0.512***	1.516***	-0.057	-0.23
	(0.34)	(-2.46)	(-3.42)	(-3.51)	(-0.49)	(-1.58)
Industry FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES

Observations	510	510	510	979	979	979
R-squared	0.213	0.328	0.316	0.160	0.126	0.129

Table 6. Robustness check: Alternative value to ESG rating.

In this table, we rerun Eq (2). with an alternative value of ESG rating, ESG Raing II. Column (1) uses the acquirer's buy-and-hold abnormal returns over the value-weighted market portfolio over the one-year period following the month of announcement. Column (2) uses ROA_1year, which is the acquirers' return on asset (ROA) in one year later than the year of M&A. Column (3) uses ROE_1year, which is the acquirers' return on equity (ROE) in one year later than the year of M&A. Main independent variable: ESG Raing II equals to 1 if SSI ESG rating is C, 2 if rating is CC, 3 if rating is CCC, 5 if rating is B, 6 if rating is BB, 7 if rating is BBB, 9 if rating is A, 10 if rating is AA, and 11 if rating is AAA. Detailed definitions of all variables are provided in Appendix A. Regressions include industry and year fixed effects. The t-statistics are reported in parentheses; ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

VARIABLES	BHAR_1year	ROA_1year	ROE_1year
	(1)	(2)	(3)
ESG Rating II	0.029**	0.005***	0.007***
	(2.30)	(2.79)	(2.63)
Acquirer Size	-0.048**	0.005	0.011**
	(-2.27)	(1.41)	(2.42)
Acquirer TobinQ	-0.014	0.008***	0.015***
	(-0.86)	(3.25)	(4.29)
Acquirer Cash	0.141	0.096***	0.094***
	(1.00)	(4.38)	(3.13)
Acquirer Leverage	0.059	0.024	0.046*
	(0.51)	(1.32)	(1.87)
SOE	-0.011	-0.012*	-0.020**
	(-0.25)	(-1.68)	(-2.10)
Deal Size	-0.009	0.000	0.002
	(-0.73)	(0.00)	(0.94)
Allstock	0.252***	0.001	0.003
	(3.95)	(0.15)	(0.20)
Diversify	0.008	-0.011	-0.024**
	(0.17)	(-1.51)	(-2.36)
Allcash	0.029	-0.011	-0.018
	(0.50)	(-1.19)	(-1.44)
Constant	0.983**	-0.132*	-0.292***

	(2.17)	(-1.88)	(-3.04)
Industry FE	YES	YES	YES
Year FE	YES	YES	YES
Observations	1,489	1,489	1,489
R-squared	0.122	0.107	0.114

Table 7. Robustness: More controls.

In this table, we rerun Eq. (2) and Eq. (3) with more controls. In Panel A, we rerun Eq. (2) with more controls for the full sample. In panel B, we run Eq.(3) in subsamples of high-initial ESG acquirers. In panel C, we run Eq.(3) in subsamples of low-ESG-rating acquirers. In all panels, column (1) uses the acquirer's buy-and-hold abnormal returns over the value-weighted market portfolio over the one-year period following the month of announcement. Column (2) uses ROA_1year, which is the acquirers' return on asset (ROA) in one year later than the year of M&A. Column (3) uses ROE_1year, which is the acquirers' return on equity (ROE) in one year later than the year of M&A. Main independent variables include :1) ESG Rating which equals to 1 if SSI ESG rating is C, 2 if rating is CC, 3 if rating is CCC, 4 if rating is B,5 if rating is BB,6 if rating is BBB, 7 if rating is A, 8 if rating is AA, and 9 if rating is AAA in panel A; 2) ESG upgrade, a dummy variable that takes the value of one if acquirer has ESG rating upgrade one year prior to the M&A deal and 0 otherwise; and 3) ESG downgrade, a dummy variable that takes the value of one if acquirer has ESG rating downgrade one year prior to the M&A deal and 0 otherwise. Detailed definitions of all variables are provided in Appendix A. Regressions include industry and year fixed effects. The t-statistics are reported in parentheses; ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Full Sample				Panel B: Subsample of high initial ESG (ESG Raing$_{t-2}$>6)			Panel C: Subsample of low initial ESG (ESG Rating$_{t-2}$<=6)		
VARIABLES	BHAR_1year	ROA_1year	ROE_1year	BHAR_1year	ROA_1year	ROE_1year	BHAR_1year	ROA_1year	ROE_1year
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
ESG Rating	0.038**	0.009***	0.011***						
	(2.05)	(3.09)	(2.72)						
ESG Upgrade				-0.017	-0.002	-0.020	0.087**	0.051**	0.010**

							*		
				(-0.08)	(-0.17)	(-0.73)	(2.70)	(1.97)	(2.10)
ESG Downgrade				-0.262**	-0.025***	-0.043***	0.059	-0.002	-0.000
				(-2.16)	(-3.15)	(-2.77)	(1.05)	(-0.14)	(-0.02)
Acquirer Size	-0.042*	0.004	0.009**	0.017	0.011***	0.024***	-0.056***	0.005	0.012*
	(-1.86)	(1.24)	(1.97)	(0.29)	(2.93)	(3.21)	(-2.80)	(0.90)	(1.84)
Acquirer TobinA	-0.014	0.009***	0.015***	0.005	0.012***	0.017***	-0.028*	0.006	0.014***
	(-0.85)	(3.38)	(4.26)	(0.11)	(4.23)	(3.11)	(-1.89)	(1.54)	(2.85)
Acquirer Cash	0.162	0.096***	0.093***	0.865**	0.018	0.031	0.030	0.134***	0.118***
	(1.14)	(4.39)	(3.11)	(2.18)	(0.71)	(0.61)	(0.26)	(4.31)	(3.07)
Acquirer Leverage	0.056	0.026	0.049**	-0.502	-0.058***	-0.027	0.188**	0.049*	0.050
	(0.48)	(1.48)	(2.02)	(-1.48)	(-2.62)	(-0.62)	(2.02)	(1.94)	(1.58)
SOE	0.002	-0.011	-0.023**	-0.148	-0.015*	-0.030*	0.009	-0.003	-0.015
	(0.05)	(-1.49)	(-2.24)	(-1.13)	(-1.80)	(-1.79)	(0.23)	(-0.26)	(-1.15)

Deal Size	-0.009	0.000	0.002	-0.027	-0.001	0.001	-0.007	-0.001	0.001
	(-0.77)	(0.05)	(0.96)	(-0.86)	(-0.42)	(0.18)	(-0.69)	(-0.27)	(0.27)
Allstock	0.251***	-0.000	0.002	0.570***	0.010	0.028	0.074	-0.002	0.000
	(3.91)	(-0.03)	(0.12)	(3.18)	(0.83)	(1.22)	(1.41)	(-0.16)	(0.02)
Diversify	0.005	-0.010	-0.023**	0.032	-0.008	-0.015	-0.023	-0.014	-0.028**
	(0.10)	(-1.38)	(-2.24)	(0.26)	(-1.03)	(-0.94)	(-0.59)	(-1.28)	(-2.14)
Allcash	0.031	-0.013	-0.020	-0.042	-0.001	0.009	0.023	-0.017	-0.027*
	(0.53)	(-1.40)	(-1.59)	(-0.26)	(-0.10)	(0.41)	(0.48)	(-1.34)	(-1.66)
Institutional investor	-0.000	-0.000	0.000	-0.000	0.000	0.000	-0.001	-0.000	-0.000
	(-0.23)	(-0.91)	(0.06)	(-0.18)	(0.46)	(0.84)	(-0.88)	(-1.05)	(-0.77)
BIND	0.057	0.043	0.011	0.064	-0.039	-0.086	-0.140	0.019	-0.015
	(0.25)	(1.22)	(0.22)	(0.11)	(-1.00)	(-1.12)	(-0.72)	(0.36)	(-0.22)
Blockholder	-0.001	0.000**	0.000*	-0.001	0.000	0.000	-0.001	0.000	0.001**
	(-1.10)	(2.06)	(1.77)	(-0.17)	(0.80)	(0.65)	(-1.09)	(1.63)	(2.03)
Constant	0.866*	-0.169**	-0.296***	0.323	-0.172**	-0.469***	1.456***	-0.104	-0.247
	(1.81)	(-2.28)	(-2.92)	(0.26)	(-2.18)	(-2.97)	(3.15)	(-0.82)	(-1.58)
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES	YES

Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	1,489	1,489	1,489	510	510	510	979	979	979
R-squared	0.122	0.112	0.117	0.214	0.334	0.321	0.163	0.129	0.133

Table 8. Instrumental Variable Estimations.

In this table, we present our two-stage least square estimations. In the first stage, ESG rating are regressed on the instrument-province-industry median of ESG rating and instrument-province-year median of ESG rating. Predicted_ESG Rating is the predicted value of the ESG rating. Dependent variables in Column (2), (3), and (4) are BHAR_1year, which is the acquirer's buy-and-hold abnormal returns over the value-weighted market portfolio over the one-year period following the month of announcemen; ROA_1year, which is the acquirers' return on asset (ROA) in one year later than the year of M&A; and ROE_1year, which is the acquirers' return on equity (ROE) in one year later than the year of M&A, respectively. Detailed definitions of all variables are provided in Appendix A. Regressions include industry and year fixed effects. The t-statistics are reported in parentheses; ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively..

	First stage	Second stage		
VARIABLES	ESG Rating	BHAR_1year	ROA_1year	ROE_1year
	(1)	(2)	(3)	(4)
Predicted ESG Raing		0.076**	0.011**	0.019*
		(2.00)	(1.97)	(1.67)
Instrumental variable				
Province-industry ESG	0.452***			
	(8.49)			
Province-year ESG	0.432***			
	(4.04)			
Acquirer Size	0.311***	-0.079***	-0.002	0.002
	(9.55)	(-4.13)	(-0.59)	(0.38)
Acquirer TobinQ	0.020	-0.026**	0.003***	0.005**
	(0.89)	(-2.55)	(3.01)	(2.55)
Acquirer Cash	-0.073	-0.011	0.081***	0.109**
	(-0.37)	(-0.13)	(3.62)	(2.33)
Acquirer Leverage	-0.635***	0.236***	0.004	0.067

	(-4.01)	(3.14)	(0.16)	(1.52)
SOE	0.408***	0.004	-0.014**	-0.021**
	(6.45)	(0.12)	(-2.55)	(-2.00)
Deal Size	0.006	-0.004	0.002	0.004
	(0.38)	(-0.60)	(1.33)	(1.54)
Allstock	-0.031	0.064	0.005	0.010
	(-0.35)	(1.64)	(0.70)	(0.84)
Diversify	-0.065	-0.021	-0.010**	-0.020**
	(-0.98)	(-0.71)	(-2.12)	(-2.22)
Allcash	-0.008	-0.013	-0.010*	-0.018
	(-0.09)	(-0.35)	(-1.68)	(-1.62)
Constant	-7.028***	1.310***	0.007	-0.160
	(-7.33)	(3.85)	(0.10)	(-1.24)
First stage Cragg and Donald test	(P-value<0.001)			
Overidentification test		(P-Value=0.84)	(P-Value=0.11)	(P-Value=0.11)
Industry FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Observations	1,489	1,489	1,489	1,489
R-squared	0.338	0.156	0.155	0.111

Table 9 Heckman Two Stage OLS Regressions

In this table, we present result of the Heckman's second-stage OLS regression. We obtain the value of the Inverse Mills Ratio through the probit model in the first stage. In the second stage, we include the inverse Mills ratio in the second-step equation in order to correct for a potential sample selection issue. Detailed definitions of all variables are provided in Appendix A. Regressions include industry and year fixed effects. The t-statistics are reported in parentheses; ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

VARIABLES	BHAR_1year	ROA_1year	ROE_1year
	(1)	(2)	(3)
ESG Rating	0.056**	0.012***	0.016***
	(2.50)	(3.41)	(3.27)
Acquirer Size	-0.024	0.007*	0.010**
	(-0.94)	(1.76)	(1.98)
Acquirer TobinQ	-0.007	0.009***	0.006***
	(-0.43)	(3.41)	(3.14)
Acquirer Cash	0.383*	0.133***	0.145***
	(1.83)	(4.12)	(3.28)
Acquirer Leverage	-0.030	0.019	0.039
	(-0.24)	(0.96)	(1.46)
SOE	-0.047*	-0.005	-0.004
	(-1.71)	(-1.25)	(-0.73)
Deal Size	0.457***	0.029	0.041
	(3.10)	(1.30)	(1.32)
Allstock	-0.012	-0.013*	-0.021**
	(-0.26)	(-1.84)	(-2.13)
Diversify	-0.053	-0.017*	-0.029**
	(-0.86)	(-1.77)	(-2.24)
Allcash	0.147	0.005	0.004
	(1.51)	(0.35)	(0.18)
Inverse Mills Ratio	1.060	0.145	0.184
	(1.54)	(1.38)	(1.29)
Constant	0.746	-0.163**	-0.242**
	(1.59)	(-2.24)	(-2.56)
Industry FE	YES	YES	YES

Year FE	YES	YES	YES
Observations	1,489	1,489	1,489
R-squared	0.123	0.109	0.110

Table 10. Likelihood of deal completion.

In this table, we analyze the likelihood of deal completion. In column (1), we use ESG Rating as the independent variable with the full sample. In column (2) and (3) we use ESG upgrade and ESG downgrade as independent variables with the high-initial ESG acquirers' sample and the low-initial ESG acquirers' sample, respectively. Detailed definitions of all variables are provided in Appendix A. Regressions include industry and year fixed effects. The t-statistics are reported in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	Dependent variable: Probability of success		
VARIABLES	Full Sample	Subsample of high-initial-ESG acquirers (ESG Raing$_{t-2}$>6)	Subsample of low-initial-ESG acquirers (ESG Raing$_{t-2}$<=6)
	(1)	(2)	(3)
ESG Rating	0.161**		
	(1.99)		
ESG Upgrade		-0.668	0.822***
		(-0.90)	(2.75)
ESG Downgrade		-0.034**	-0.139
		(-1.91)	(-0.37)
Acquirer Size	0.059	0.422	-0.026
	(0.49)	(1.61)	(-0.17)
Acquirer TobinQ	-0.013	0.658**	-0.034
	(-0.32)	(2.38)	(-0.87)
Acquirer Cash	2.801***	6.759***	1.962**
	(3.45)	(3.46)	(2.08)

Acquirer Leverage	0.139	-0.449	0.285
	(0.29)	(-0.35)	(0.53)
SOE	-0.222***	-0.135	-0.302***
	(-3.30)	(-1.04)	(-3.43)
Deal Size	1.013***	0.429	1.214***
	(3.14)	(0.60)	(3.08)
Allstock	0.053	0.327	-0.149
	(0.21)	(0.63)	(-0.49)
Diversify	-0.674**	-0.489	-0.887**
	(-2.20)	(-0.91)	(-2.16)
Allcash	0.856***	0.111	1.040***
	(3.27)	(0.18)	(3.25)
Constant	3.427	-7.477	7.850**
	(1.20)	(-1.32)	(2.10)
Industry FE	YES	YES	YES
Year FE	YES	YES	YES
Observations	1,794	638	1,156
R-squared	0.125	0.192	0.165
Log pseudo likelihood	146.7	60.83	134.1

Table 11. ESG components and post-M&A performance

This table presents regression estimates of E, S, and G components on one-year post-M&A performance for the full sample. Column (1) uses the acquirer's buy-and-hold abnormal returns over the value-weighted market portfolio over the one-year period following the month of announcement. Column (2) uses ROA_1year, which is the acquirers' return on asset (ROA) in one year later than the year of M&A. Column (3) uses ROE_1year, which is the acquirers' return on equity (ROE) in one year later than the year of M&A. Main independent variables throughout the columns are E Rating, S Rating, and G Rating. Detailed definitions of all variables are provided in Appendix A. Regressions include industry and year fixed effects. The t-statistics are reported in parentheses; ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)
VARIABLES	BHAR_1year	ROA_1year	ROE_1year
E Rating	-0.005	-0.002	-0.003
	(-0.44)	(-1.42)	(-1.48)
S Rating	0.010*	0.005***	0.010***
	(1.76)	(6.50)	(4.50)
G Rating	0.024***	0.010***	0.013***
	(2.77)	(9.37)	(4.41)
Acquirer Size	-0.060***	0.015***	0.010**
	(-3.93)	(9.64)	(2.32)
Acquirer TobinQ	-0.022***	0.009***	0.015***
	(-2.88)	(7.10)	(4.29)
Acquirer Cash	-0.058	0.022**	0.080***
	(-0.65)	(2.05)	(2.68)
Acquirer Leverage	0.132**	-0.092***	0.070***
	(2.18)	(-10.45)	(2.81)
SOE	0.034	-0.003***	0.002
	(1.20)	(-3.76)	(0.95)
Deal Size	0.064	-0.006	0.004
	(1.58)	(-1.34)	(0.27)
Allstock	0.034	-0.021***	-0.017*
	(1.20)	(-6.21)	(-1.78)
Diversify	-0.023	-0.005	-0.020**
	(-0.77)	(-1.39)	(-1.97)
Allcash	-0.017	-0.006	-0.023*

	(-0.46)	(-1.28)	(-1.83)
Constant	1.300***	-0.273***	-0.319***
	(3.94)	(-8.03)	(-3.34)
Industry FE	YES	YES	YES
Year FE	YES	YES	YES
Observations	1,489	1,489	1,489
R-squared	0.163	0.394	0.137