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

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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

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1 Introduction

Corporate activities that benefit stakeholders (i.e. suppliers, employers, society, and customers) are frequently referred to as corporate social responsibility. Environmental(E), social(S), and governance (G) are the three pillars through which the firm's sustainability, responsibility, and ethical practices toward stakeholders can be evaluated[1]. Over the last decade, ESG is becoming an increasingly important part of doing business around the world. Companies are allocating significant proportions of their expense budgets to ESG — upwards of $20 billion was spent on ESG by Fortune Global firms in 2018[2]. More than 90% of the 250 largest companies prepare ESG reports every year (KPMG 2017)[3]. Meanwhile, ESG is also increasingly important to investors, with $86 trillion of professionally managed assets related to ESG through socially responsible investing (SRI) in 2019.

With the amount of money and attention that companies are dedicating to ESG, it is important to understand whether and how ESG pays back. The evidence on the relationship between ESG and firm financial performance in the literature is mixed. Some studies view ESG-related expenditure as a waste of valuable resources. They consider that ESG activities reflect managerial agency problems and ESG-related expenditure 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 believe that spending on ESG 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 ESG could be compensated as firms that invest more in ESG (high ESG firms) earn the trust of stakeholders (i.e., employees, capital providers, and authorities) through a strong reputation for honouring implicit contracts[4] (Arouri et al., 2019; Cornell and Shapiro,

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1 Previous literature use ESG score as measure of firm social responsibility performance. For example, Buchanan et al. (2018) use the Bloomberg ESG rating as their measure of a firm's social responsibility attributes.

2 https://www.ictsd.org/how-much-do-uk-companies-spend-on-ESG/

3 https://www.ictsd.org/how-much-do-uk-companies-spend-on-ESG/

4 Corportations are composed of a variety of implicit and explicit contracts between shareholders and stakeholders (Coase, 1937; Fama and Jensen, 1983; Shleifer and Summers, 1988). For implicit contracts, firms can fail to honour a commitment without being sued by other stakeholders. Therefore, the value of implicit contracts depends on trust level of the fims. High-ESG firms tend to have a reputation for being trustworthy and reliable, and have high possibilities to follow thieri promises (Kristoffersen et al., 2005; Liang et al., 2017).

2021), encouraging stakeholders to "purchase" this contract with resources and efforts dedicated to the firms' operation (Bettinazzi and Zollo, 2017; Cornell and Shapiro, 2021; Deng et al., 2013; Lins et al., 2017).

In this paper, we aim to test this "instrumental stakeholder" view in the context of M&A deals in the Chinese market; in doing so, we contribute insights valuable to the existing debate about the financial benefits of ESG. In an important departure from prior studies, we analyse the impact of both ESG standard and its dynamics on acquirers' M&A performance to understand the stakeholders' response to firm's ESG effort[5].

M&As serve as an important context in which to examine the financial benefit of ESG through the "instrumental stakeholders" channel for two reasons. As one of the most important corporate investment decisions, M&As can have a significant impact on the firms' financial performance (Ahern and Weston, 2007). Successful M&As bring synergy while unsuccessful one causes losses. Moreover, stakeholders' action is crucial to M&A success (Anderson et al., 2012; Meglio, 2016). Both the approval process and integration process of M&A is frequently subject to a range of challenges as well as 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). Consistent with this view, reports by A.T. Kearney (Kearney, 1999), KPMG (Kelly, 1999), and Booz Allen Hamilton (Adolph et al., 2001) show that continued customer service and talent retention are important to the success of M&As, highlighting the importance of stakeholders in M&As.

We first propose that high-ESG acquirers will have better post-M&A performance. In accordance with the instrumental stakeholder view, which suggests that firms with high ESG level have competitive advantage from the trust of stakeholders and get support from them Jones (1995), deals announced by high-ESG acquirers are more likely to be supported by stakeholders. With the stakeholders' contribution, the integration process will have less uncertainty (Arouri et al., 2019), higher efficiency (Bettinazzi and Zollo, 2017; Deng et al., 2013; Liang et al., 2017), and thereby higher synergies (i.e., the extra value of the combined firm vis-à-vis the sum of the values of the acquiring and acquired firms independently).

5 ESG variations are related to firms' ESG efforts (Benlemlih et al., 2018). A downgrade for high ESG performance firms is a signal of relaxing of the ESG effors, and an upgrade for low ESG performance firms is an intensification of ESG efforts.

In terms of the dynamics of ESG efforts (ESG upgrade or downgrade) on post-M&A performance, we propose the initial ESG standard dependent view. According to this view, the financial benefit of a marginal increase in ESG score is dependent on the acquirer's initial ESG standard. It implies that high-ESG acquirers with a drop in ESG may underperform, whereas low-ESG acquirers with an increase in ESG may outperform. 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). According to this theory, for a firm with a high standard of stakeholder welfare (a high-ESG-score firm), an increase in ESG score has a limited effect on the utility of its stakeholders, implying a limited increase in stakeholders' trust and contribution to operation, whereas a decrease in ESG score results in a significant decrease in stakeholder utility, implying a decrease in stakeholder contribution to operation. In contrast, for a firm with a low standard of stakeholder trust and welfare (a low-ESG-score firm), an increase in ESG score has a significant effect on the utility of its stakeholders, implying a significant increase in stakeholders' trust and contribution to operation, while a decrease in ESG score results in a limited decrease in stakeholder utility, implying a limited decrease in stakeholder contribution to operation. Similarly, this mechanism could be reflected in the support of stakeholders for a firm's M&A process and on the post-M&A performance. Therefore, we predict that ESG downgrade is negatively related to post-M&A performance for acquirers with a high initial ESG performance level, and that ESG upgrade is positively related to post-M&A performance for acquirers with low initial ESG performance level.

Using a sample of 1,489 completed domestic M&A deals of 847 Chinese firms from 2011 to 2019, we find strong evidence that acquirers' ESG performance ratings have a significant positive effect on their one-year-post-M&A stock returns and operating performance. These results are consistent with our first conjecture. In addition, we find that for firms with high initial ESG rating, a rating upgrade will not lead to better post-M&A performance, but a downgrade will lead to worse post-M&A stock and operating performance. In contrast, for firms with low initial ESG rating, a rating upgrade will lead to better M&A stock and operating performance, but a downgrade has no significant impact on M&A performance. This result is consistent with the initial ESG standard dependent view based on instrumental stakeholder theory and the law of DMU. Our evidence is robust to a battery of tests, including fixing alternative industry effects, regression with more controls, two-stage least squares

(2SLS) with instrumental variables and Heckman two-stage procedure to address potential endogeneity. Furthermore, we show that acquirers who have a high ESG rating or have ESG rating upgrade with low initial ESG are more likely to conduct positive-return deals and to complete the deal. Finally, we find that social and governance components in ESG have significantly positive impact on acquirer's post-M&A performance.

Our study makes contributions to the literature in three dimensions. First, our paper contributes to the literature investigating whether and how firm's ESG investment is paid back. For instance, Lins et al. (2017) focus on the trust level among participants in the financial market and demonstrate that corporate CSR pays off when the overall level of trust in corporations and markets suffers a negative shock (e.g., financial 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 levels of sustainability performance often find it more difficult to capitalise on CSR than their counterparts in countries with relatively low levels of CSR. Our results emphasize the impact of stakeholder's utility and firm's major investment activity.

Second, our research supplements studies on the functions of corporate social capital 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 dynamics of ESG,

which reflects the firm's ESG effort, on stakeholders' utility and their support for firm's operation. 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 dynamics rather than just employee relations.

Finally, our research contributes to the strand of literature considering the role of stakeholders' utility in the ESG value creation process (Garriga, 2014; Harrison et al., 2010). According to Harrison et al. (2010), the stakeholder utility function is an adequate concept to represent stakeholder welfare, and different value expectations included in stakeholder utility functions lead to different opportunities for the firm to create value. We extend this theory by considering the stakeholder marginal utility of firm's ESG activity change.

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 Hypothesis Development

In this section, we first review theories referred to in the paper. In addition, we develop our main hypothesis about the firm's ESG and post-M&A performance.

2.1 Theoretical background

Our theoretical model for the firm's ESG level, ESG dynamics, and its financial benefit in M&A is constructed based on instrumental stakeholder theory (IST) and the law of diminishing marginal utility (DMU).

2.1.1 Instrumental stakeholder theory (IST)

IST models the the relationship between firm, stakeholder, and firm value (see Jones, 1995). It considers the performance consequences for firms considering the interests of stakeholders.

IST hypothesize that stakeholder relatiomships managed by ethics will lead to

imporvd financial performance. The norms of ethics normally are fairness, trustworthiness, loyaty, car, and repsect (Hendry, 2001, 2004). 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 firms' ESG dynamics and its financial benefit in 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 often be diminished (Kauder, 2015). According to the law of DMU, as the stimulus continues, the utility of the new consumption is increasingly trivial (Venaik and Brewer, 2010). In the context of ESG activities, the initial stages of a service enterprise's ESG activities give stakeholders a greater incentive to contribute to the firm, thereby increasing financial performance. Taking one type of stakeholders as an example, firms ESG activities give consumers greater incentive to attach to the brand, along with eliciting positive emotions, and, thus, provide consumers with a perception of the firm's legitimacy, thereby increasing loyalty (Li et al., 2017). However, according to the law of DMU, 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 activities (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 them and earning financial profit through stakeholders' contribution to firms' operation (Bettinazzi and Zollo, 2017; Cornell and Shapiro, 1987; Freeman; Freeman et al., 2004 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 synergy creation (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 an acquirer that is perceived as socially irresponsible (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, which may lead to higher synergies (i.e., the extra value of the combined firm vis-à-vis the sum of the values of the acquiring and acquired firms independently). 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, firms with high ESG performance will have better post-M&A performance.

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

2.3 ESG dynamics and post-M&A performance

Apart from the role of corporate ESG achievement 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 in ESG score is dependent on the acquirers initial ESG standard. It implies that high-ESG acquirers with a drop in ESG may underperform, whereas low-ESG acquirers with an increase in ESG may outperform. 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 a firm with a high standard of stakeholder welfare (a high-ESG-score firm), an increase in ESG score has a limited effect on the utility of its stakeholders, implying a limited increase in stakeholders' trust and contribution to operation, whereas a decrease in ESG score results in a significant decrease in stakeholder utility, implying a decrease in stakeholder contribution to operation. In contrast, for a firm with a low standard of stakeholder trust and welfare (a low-ESG-score firm), an increase in ESG score has a significant effect on the utility of its stakeholders, implying a significant increase in stakeholders' trust and contribution to operation, whereas a decrease in ESG score results in a limited decrease in stakeholder utility, implying a limited decrease in stakeholder contribution to operation. There are good examples in real life to illustrate this point. One example is that of Haidilao (HKG: 6862): this firm, which was once renowned for its excellent customer service and generous employee benefits, experienced a boycott by customers and a significant drop in revenue due to its significant increase in service fee during the COVID-19 epidemic. Another example is Hongxing Erke: despite its subpar profitability and inadequate initial ESG performance, it garnered stakeholder support and sold out of items merely by donating money amid China's devastating

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 predict that ESG downgrade is negatively related to post M&A performance for acquirers with high initial ESG performance level, and that ESG upgrade is positively related to post M&A performance for acquirers with a low initial ESG performance level. The proposed model is shown in Figure 2.

H2a: ESG downgrade is negatively related to post-M&A performance for acquirers with high initial ESG performance level.

H2b: ESG upgrade is positively related to post-M&A performance for acquirers with low initial ESG performance level.

3 Data, summary statistics, and empirical model

In this section, we discuss the variables, data, and sample characteristics. We also outline the regression models used to analyze the impact of acquirer's ESG and its dynamics on post-M&A performance.

3.1 Variables

3.1.1 Measures of post-M&A performance

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. we calculate the BHAR for each acquirer as follows:

$$BHAR_i = \prod_{t=0}^{s+T}(1 + R_{i,t}) - \prod_{t=0}^{s+T}(1 + R_{m,t}) (2)$$

where i , t, and T index acquirer, deal announcement date, 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 one that is based on post-merger and acquisition accounting performance. Several related measures have been used in extant literature (Haleblian and Finkelstein, 1999; Hitt et al., 1998; Papadakis and Thanos, 2010; Schoenberg, 2006; Zollo and Meier, 2008). It is documented that potential synergies by M&As between merging firms will take few years to realize (Thanos and Papadakis, 2012a) and therefore the M&A performance can be evident in accounting-based measures over a period of time. Authors argue the synergy is best observed by some long-term measures such as return on assets (ROA) (Hitt et al., 1998; Papadakis and Thanos, 2010; Thanos and Papadakis, 2012b). Meanwhile, following Bertrand and Betschinger (2012), Papadakis and Thanos (2010), and Zollo and Meier (2008), we calculate alternative measures of post-M&A performance: 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 dynamics tracked bottom-level metrics.

Based on SSI ESG Rating data, we created a measure of firms' ESG achievement: 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 the dynamics of corporate ESG performance overtime. ESG upgrade is a dummy variable that equals 1 if a firm has an ESG rating upgrade from previous year to the current year and 0 otherwise. Similarly, ESG downgrade is a dummy variable which equals to 1 if a firm has ESG rating downgrade from previous year to the current year 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 control variable definitions.

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

[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.

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 (ESGC). 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 (66.96%) and services (8.39%). Panel B of Table 1 presents the distribution of our sample M&As according to acquirer ESG level and year. Most of the acquirers has ESG rating of "BBB" (51%).

[Insert Table 1 here]

Table 2 presents the summary statistics for our acquirers of full sample and subsamples classified according to the sample median of the ESG score. In the full sample, the average acquiring firm in our sample has a ESG rating of 6. About 17.9 percent of acquirers had an ESG upgrade and 10.6 percent acquirers had an ESG downgrade prior to the bid. Average acquirer total assets equal 6,823.563 million yuan. The average deal value is 473.704 million yuan. 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 scores have significantly bigger size and higher leverage. In regard to deal characteristics, we find that compared with firms with low ESG scores, firms with high ESG scores prefer to acquire bigger 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:

$$Acquirers\ performance_{it} = \beta_0 + \beta_1 ESG\ rating_{it-1} + \beta_k \sum acquirer\ Controls_{it-1} + \beta_k \sum Deal\ Controls_{it} + \gamma + \vartheta + \epsilon_{it} \quad (3)$$

where $Acquirers\ performance_{it}$ represents the acquirers' one-year-forward BHARs, ROA, and ROE. The main dependent variable is the acquirers' ESG rating at the end of one year prior to the deal announcement year. In addition to including control variables discussed in Subsection 3.1.3 in the regressions, we control for industry and year fixed effects.

3.3.2 Dynamics of ESG and post-M&A performance

To explore the role of acquirers' ESG rating dynamics in post-M&A performance and test the initial ESG dependent view, we divide our full sample by acquirer's initial ESG performance. Initial ESG performance 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. We split acquirers into high-initial-ESG and low-initial-ESG acquirers by the sample median (6) of ESG rating. Acquirers with ESG rating higher than 6 at the end of two-year prior to the deal announcement were classified as the high-initial-ESG-acquirer sample while acquirers with ESG rating equal or lower than 6 at the end of two years prior to the deal announcement were classified as the low-initial-ESG-acquirer sample.

For each sample, we regress the one-year forward stock market performance and operational performance on the upgrade and downgrade of ESG rating:

$$Acquirers\ performance_{it} = \beta_0 + \beta_1 ESG\ upgrade_{it-2,t-1} + \beta_2 ESG\ downgrade_{it-2,t-1} + \beta_k \sum acquirer\ Controls_{it-1} + \beta_k \sum Deal\ Controls_{it} + \gamma + \vartheta + \epsilon_{it} \quad (4)$$

where $Acquirers\ performance_{it}$ is the same as in Section 3.1.2.$ESG\ upgrade_{it-2,t-1}$ is a dummy variable indicating acquirer's ESG rating

upgrade from yar t-2 to t-1, and $ESG\ downgrade_{it-2,t-1}$ is a dummy variable indicating acquirer's ESG rating downgrade from year t-2 to t-1. Control variables are the same as in Eq. (3).

4 Results

In this section, we provide results of ESG rating and its dynamics for one-year post-M&A stock returns, and one-year post-M&A operating performance.

4.1 ESG rating and post-M&A performance

4.1.1 Univariate analysis

In this section, we test our first hypothesis about the effect of corporate ESG performance on post-M&A performance. We carry out a univariate analysis for our post-M&A performance measurements, including one-year BHAR, post-one-year ROA, and post-one-year ROE of acquirers.

Table 3 provides the mean and median of the post-M&A performance measurements, based on acquirers' ESG performance at the end of the year prior to the M&A. An acquirer is a high-ESG acquirer if its rating is higher than 6, which is the sample median ESG rating, and is classified as an ESG rating leader by the data provider. The empirical results show that acquirers with high-level of ESG performance are inclined to have higher one-year-forward stock returns (0.14) than low-ESG acquirers (0.038). Furthermore, when we look at the measurements of post-M&A operation performance, the results show that acquirers with high level of ESG performance appear to have higher one-year-forward ROA and ROE, implying that stakeholders contribute to the operational activity after M&A.

[Insert Table 3 here]

4.1.2 Cross-sectional regression analysis:

Given that the univariate examination could be confounded by other issues, we perform a cross-sectional regression to further analyze the association between corporate ESG level and post-M&A performance.

The results are reported in Table 4. Columns (1) indicates that the coefficient of the variable $ESG\ rating_{it-1}$ 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 buy and hold return. In terms of economic significance, the estimated coefficient suggests that a one standard deviation increase in acquirer's ESG level increases the average one-year stock performance by 5.8%.[7] Considering that the average BHARs for acquirers in our sample is 7.9%, this increase is economically significant. This finding suggests that investors favor acquirers with a high level of ESG performance, in line with our univariate findings.

[Insert Table 4 here]

Columns (2) and (3) of Table 4 indicate that acquirers' ESG performance positively affects acquiring firms' one-year post-M&A operational performance. In economic terms, a one standard deviation increase in acquirer's ESG level increases the average one-year operational performance 9.4%, as measured by ROA (6.8% measured by ROE).[8] Considering that the average one-year post M&A ROA and ROE for acquirers in our sample is 3.9% and 7.7%, respectively, this increase is economically significant. We find that firms with a high level of ESG performance realize higher long-term post-M&A ROA and ROE.

Overall, the results shown in Table 4 confirm the univariate results reported in Table 2. These results indicate that for acquiring firms, the higher the ESG performance, the better post-M&A performance is, supporting the instrumental stakeholder theory.

4.2 Dynamics of ESG and post-M&A performance:

Prior results demonstrate that acquirers' ESG performance level is positively related to post-M&A performance. We next explore the role of acquirers' ESG rating dynamics on post-M&A performance and test the initial ESG dependent view. Initial ESG performance 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. We divide samples into high-initial-ESG and low-initial-ESG acquirers by the sample median (6) of ESG rating. Acquirers with ESG rating higher than 6 at the

7 The standard deviations (unreported) of BHAR and ESG level are 0.624 and 1.007, respectively. We compute 5.8%: [(0.036× 1.007)/0.624] × 100.

8 The standard deviations (unreported) of ROA and ROE are 0.0959 and 0.1319, respectively. We compute 9.4% [(0.009× 1.007)/0.0959] × 100 and 6.8% [(0.009× 1.007)/0.1319] × 100.

end of two-year prior to the deal announcement are classified into the high-initial-ESG-acquirer sample while acquirers with ESG rating equal or lower than 6 at the end of two-year prior to the deal announcement are classified into the low-initial-ESG-acquirer sample.

Panel A of Table 5 provides the results for the acquirers with high initial ESG rating. 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 performance level.

[Insert Table 5 here]

Panel B of Table 5 presents the results for acquirers with low initial ESG rating. 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 can conclude that, consistent with the prediction of law of diminishing utility of stakeholders, the effect of acquirers' dynamics of ESG on post-M&A performance is asymmetric and dependent on the initial ESG achievement.

5 Robustness checks and further investigation

In this section, we briefly summarize the results of additional tests to check the robustness of our findings and further analyse the possibility of value-enhancing deals and deal completion.

5.1 Industry effect

To ensure that our results are not driven by a specific industry classification used in our analysis, we conduct additional analyses. First, previous studies show that mergers occur in waves and strongly cluster by industry (Harford, 2005; Mitchell and Mulherin, 1996). Therefore, if high-ESG firms are clustered in specific industries that are systematically different from industries in which low-ESG firms are clustered, our

industry control based on ESGC classification in 2012 might not be sufficient. To alleviate the concern that mergers cluster by industry, we experiment with an alternative industry classification based on ESGC classification in 2001. We find that the results in Tables 4 and 5 do not change when we use alternative classification in industry control.

5.2 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 level (ESG level 2) 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. 3 with the new variable. Results are presented in Table 6. We find that the results in Table 4 do not change when we use an alternative ESG level measurement.

[Insert Table 6 here]

5.3 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 regression (3) and (4). 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 and dynamics of ESG remain significant.

[Insert Table 7 here]

5.4 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 value of acquirers' ESG level. In particular, we regress our ESG measure on explanatory variables of acquirers used in Eq. 3 and on two instrumental variables. For the choice of instruments, we base our work on 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 of other firms in the same province over time. We follow Cheng et al. (2014), Arouri and Pijourlet (2017), Gomes and Marsat (2018), and Arouri et al. (2019) in adopting the province-year ESG median rating and the province-industry ESG median rating as instruments. 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 see that our instrument yields statistical significance, which seems to validate its use. In the second-stage regressions, we substitute the predicted values of our ESG measures for the actual ESG scores 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*]

It is 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.

5.5 ESG and value creation deal

In this section, we conduct additional analysis about whether firms' ESG efforts encourages value-enhancing acquisitions. Market participants view some acquisitions as value-creating acquisitions because of the positive returns they yield. Among our sample, 694 deals have positive BHARs, while 795 deals have negative BHARs.

To this end, we split the acquisition into two groups: value-creating acquisitions (those with a positive BHARs) and non-value-creating acquisitions (those with a non-positive BHARs). We then create a dummy variable that is equal to 1 if an acquirer makes value-enhancing acquisitions in a given year (D_BHARs = 1), and equal to 0 otherwise (D_BHARs = 0). We use this indicator variable together as the dependent variable, and we estimate a logistic model that takes the form:

$$PR(D\_BHAR_{it}) = \beta_0 + \beta_1 ESG\ rating_{it-1} + \beta_k \sum acquirer\ Controls_{it-1} + \beta_k \sum Deal\ Controls_{it} + \gamma + \vartheta + \epsilon_{it} \quad (5)$$

The dependent variable D_BHAR_{it} is the indicator variable explained above. Our main explanatory variable includes $ESG\ rating_{it-1}$. Control variables are same as in Eq. (3) and (4). To analyse the dynamics of ESG rating effect, we also include $ESG\ upgrade_{it-2,t-1}$ as well as $ESG\ downgrade_{it-2,t-1}$ as independent variables into Eq.(5) for the subsample of high-initial-ESG acquirers and low-initial-ESG acquirers.

Table 10 reports the regression estimates for Eq. (5). In Column (1), the coefficient of ESG rating is positive and statistically significant at the 1% level. 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 making value-enhancing acquisitions.

[Insert Table 10 here]

5.6 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 11 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 11 here]

5.7 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.(3) with E, S, and G level, and estimate their coefficients. The major findings of this additional tests are summarized in Table 12. 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 12 here]

6 Conclusion

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

In terms of the dynamics of ESG performance, the initial ESG performance 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 stock and operational performance. Meanwhile, low-initial-ESG acquirers with ESG upgrade prior to the M&A have significantly higher post-M&A stock and operational performance, whereas high-initial-ESG acquirers with ESG downgrade prior to the M&A have significantly lower post-M&A stock and operational 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 and conduct positive-return deals.

Overall, these results suggest that firms' ESG effort pays back in firm's M&A process and the influence of the dynamics of 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.

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Appendix

Variable	Definition
BHAR_1year	Acquirer BHARs over the one-year period after the M&A announcement date. Following Bowman et al. (2009), we calculate the buy-and-hold abnormal returns (BHARs) by subtracting buy-and-hold return of reference portfolio from buy-and-hold return of acquirers. The whole reference portfolios include 50 portfolios, classified according to the size (market valuation) and book-to-market ratios.
ROA_1year	Acquirers' return on asset (ROA) over the one- year period after the M&A announcement date.
ROE_1year	Acquirers' return on equity (ROE) over the one- year period after the M&A announcement date.
ESG level	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 level2	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.
Upgrade ESG	Dummy variable that takes the value of 1 if acquirer has ESG rating upgrade one year prior to the M&A deal, and 0 otherwise.
Downgrade ESG	Dummy variable that takes the value of 1 if acquirer has ESG rating downgrade one year prior to the M&A deal, and 0 otherwise.
E level	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 level	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 level	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 ESG rating of other firms within the same industry-country 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 (ESGC). Industry classification is collected from the China Securities Regulatory Commission (ESGS) 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 level 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 and low-ESG 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		Low ESG		High-Low	
	n=1489		n=602		n=887			
Variable	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Total Asset(million yuan)	6823.56	2502.55	11000	3347.109	3834.48	2081.502	7165.514***	1265.607***
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 (millions of yuan)	473.704	114.750	600.82	161.075	387.426	100.600	213.401***	60.475***
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.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 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 (ESGC). Acquirers are divided into high- and low-corporate ESG firms according to the sample median of ESG Level. BHAR_1year is the acquirer BHARs calculated by subtracting buy-and-hold return of reference portfolio from buy-and-hold return of acquirers over the one- year period after the M&A announcement. ROA_1year is the acquirers' return on asset (ROA) over the one-year period after the M&A announcement. ROE_1year is the acquirers' return on equity (ROE) over the one- year periods after the M&A announcement date; *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

	Full Sample n=1489		Subsample of high ESG acquirers (ESG score>6): A n=602		Subsample of low ESG acquirers (ESG score<=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 level and post-M&A performance.

This table presents regression estimates of one-year post-M&A stock and operational performance on ESG level and control variables with the full sample. Column (1) uses one-year forward BHARs, which are calculated by subtracting buy-and-hold return of reference portfolio from buy-and-hold return of acquirers over the one-year period after the M&A announcement date. Column (2) uses ROA_1year, which is the acquirers' return on asset (ROA) over the one-year period after the M&A announcement. Column (3) uses ROE_1year, which is the acquirers' return on equity (ROE) over the one-year period after the M&A announcement. Main independent variable throughout the columns is ESG level 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 level	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. ESG dynamics and Post-M&A performance.

This table presents regression estimates of one-year post-M&A stock and operational performance on ESG level and control variables. We divide our full sample into two subsamples by the median of the initial ESG level, which is the ESG level at the end of two year prior to the M&A. We conduct our regressions with high-initial-ESG acquirers in Panel A, while we conduct our regressions with low-ESG acquirers in Panel B. In both panels, Column (1) uses one-year forward BHARs which are calculated by subtracting buy-and-hold return of reference portfolio from buy-and-hold return of acquirers over the one- year periods after the M&A announcement date. Column (2) uses ROA_1year, which is the acquirers' return on asset (ROA) over the one- year period after the M&A announcement. Colum (3) uses ROE_1year, which is the acquirers' return on equity (ROE) over the one- year periods after the M&A announcement. 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 one year prior to the M&A deal, and 0 otherwise, and ESG downgrade, a dummy variable that takes the value of 1 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: Subsample of high existing ESG				Panel B: Subsample of low existing ESG		
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 3. with an alternative value of ESG rating, ESG level 2, for the full sample. Column (1) uses one-year forward BHARs which are calculated by subtracting buy-and-hold return of reference portfolio from buy-and-hold return of acquirers over the one- year period after the M&A announcement. Colum (2) uses ROA_1year, which is the acquirers' return on asset (ROA) over the one-year period after the M&A announcement date. Colum (3) uses ROE_1year, which is the acquirers' return on equity (ROE) over the one- year period after the M&A announcement. Main independent variable: ESG rating level 2 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 Level2	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. 3 and Eq. 4 with more controls. In Panel A, we rerun Eq. 3 with more controls for the full sample. In panel B, we run Eq.4 in subsamples of high-initial ESG acquirers In panel C, we run Eq.4 in subsamples of low-ESG-rating acquirers. In all panels, Colum (1) uses one-year forward BHARs which are calculated by subtracting buy-and-hold return of reference portfolio from buy-and-hold return of acquirers over the one-year period after the M&A announcement date; Column (2) uses ROA_1year ,which is the acquirers' return on asset (ROA) over the one-year period after the M&A announcement; Column (3) uses ROE_1year, which is the acquirers' return on equity (ROE) over the one-year period after the M&A announcement. Main independent variables include :1) ESG level 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 existing ESG			Panel C: Subsample of low existing ESG		
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 level	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 scores (overall, environment, social, and governance) are regressed on the instrument-province-industry median of ESG level and instrument-province-year median of ESG level. Predicted_ESG level is the predicted value of the overall ESG level. Dependent variables in Column (2), (3), and (4) are one-year forward BHARs which are calculated by subtracting buy-and-hold return of reference portfolio from buy-and-hold return of acquirers over the one-year period after the M&A announcement; ROA_1year ,which is the acquirers' return on asset (ROA) over the one-year period after the M&A announcement; and ROE_1year, which is the acquirers' return on equity (ROE) over the one-year period after the M&A announcement, 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..

VARIABLES	First stage ESG Level	Second stage BHAR_1year	ROA_1year	ROE_1year
	(1)	(2)	(3)	(4)
Predicted ESG level		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.

	(1)	(2)	(3)
VARIABLES	BHAR_1year	ROA_1year	ROE_1year
ESG level	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. ESG and value creation.

This table reports the results for the logistic model estimated from Eq. (5) using ESG level, ESG upgrade, and ESG downgrade. The dependent variable Pr(BHAR_1year) equals 1 if the BHARs of acquirers is positive. In column (1), we use ESG level as independent variable with full sample. In columns (2) and (3), we use ESG upgrade and ESG downgrade as independent variables with high-initial ESG acquirers' sample and 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.

VARIABLES	Pr(BHAR_1year>0)	Pr(BHAR_1year>0)	Pr(BHAR_1year>0)
	(1)	(2)	(3)
ESG level	0.126***		
	(3.13)		
ESG Upgrade		-0.290	0.306***
		(-0.90)	(2.79)
ESG Downgrade		-0.232**	-0.020
		(-1.99)	(-0.11)
Acquirer Size	-0.182***	-0.076	-0.240***
	(-3.85)	(-0.91)	(-3.71)
Acquirer TobinQ	-0.066*	-0.049	-0.073
	(-1.81)	(-0.79)	(-1.51)
Acquirer Cash	0.371	0.740	0.156
	(1.22)	(1.22)	(0.41)
Acquirer Leverage	0.640**	0.361	0.442
	(2.56)	(0.71)	(1.42)
SOE	0.016	0.038	0.011
	(0.62)	(0.76)	(0.31)
Deal Size	0.008	-0.386	0.198
	(0.05)	(-1.30)	(1.08)
Allstock	0.028	0.175	-0.082
	(0.28)	(0.92)	(-0.63)
Diversify	-0.103	-0.100	-0.062
	(-1.01)	(-0.53)	(-0.47)
Allcash	-0.081	0.212	-0.069

	(-0.63)	(0.83)	(-0.43)
Constant	3.113***	-4.247	5.671***
	(2.90)	(-0.01)	(3.69)
Industry FE	YES	YES	YES
Year FE	YES	YES	YES
Observations	1,489	510	979
Pseudo R-squared	0.113	0.193	0.152
Log pseudo likelihood	233.2	136	206.1

Table 11. Likelihood of deal completion.

In this table, we analyze the likelihood of deal completion. In column (1), we use ESG level 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.

VARIABLES	Probability of success	Probability of success for high-initial-ESG acquirers	Probability of success for low-initial-ESG acquirers
	(1)	(2)	(3)
ESG level	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 12. ESG components and post-M&A performance

This table presents regression estimates of one-year post-M&A stock and operational performance on E, S, and G three components and control variables with the full sample. Column (1) uses one-year forward BHARs, which are calculated by subtracting buy-and-hold return of reference portfolio from buy-and-hold return of acquirers over the one-year period after the M&A announcement date. Column (2) uses ROA_1year, which is the acquirers' return on asset (ROA) over the one-year period after the M&A announcement. Column (3) uses ROE_1year, which is the acquirers' return on equity (ROE) over the one-year period after the M&A announcement. Main independent variables throughout the columns are E level, S level, and G level. 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 level	-0.005	-0.002	-0.003
	(-0.44)	(-1.42)	(-1.48)
S level	0.010*	0.005***	0.010***
	(1.76)	(6.50)	(4.50)
G level	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)
Observations	1,489	1,489	1,489
R-squared	0.163	0.394	0.137
Industry FE	YES	YES	YES
Year FE	YES	YES	YES