

Executive alumni and corporate social responsibility in China

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Abstract

Purpose – This study investigates whether corporate executives, who are university alumni, influence each other's firm corporate social responsibility (CSR) performance.

Design/methodology/approach – Drawing on social network theory, the authors hypothesise that a firm's CSR performance is positively associated with its peer firms' average CSR performance when the executives of the firm and its peer firms are university alumni. The study employs data from 1,685 listed firms and 4,906 executives who graduated from 585 different universities in China and runs multivariate regressions.

Findings – The results reveal a sizeable university peer influence on CSR performance. Such influence is even stronger for executives who graduated from elite universities (e.g. 985 or 211 universities), and universities or programmes that provide more opportunities for alumni reunions or networking (e.g. MBAs/EMBA). Executives who are more influential in making firm decisions (e.g. CEOs/CFOs), as well as firms that are more likely to mimic the behaviour of others, also show higher degrees of university peer influence.

Practical implications – The results highlight the role of education in ethical decision-making.

Originality/value – This study documents evidence on a new determinant of firm CSR performance. The study sheds light on the impact of non-institutionalised personal ties, for example, university alumni networks, on CSR performance.

Keywords Alumni effect, Social network, CSR, University peer influence, China, Ethics

Paper type Research paper

1. Introduction

Social networks theory suggests that individual behaviour is influenced by social interactions and this extends to decision-making in a corporate context (Newman, 2010; Godigbe, Chui, & Liu, 2018). A strand of recent research proves that information and beliefs travel through executive social networks, and cause corporate practices to cluster (e.g. Shue, 2013; Fracassi, 2017) [1]. It is particularly interesting to study the influence of executive social networks on firms' corporate social responsibility (CSR) performance, given the more discretionary nature of CSR decisions (Barnett, 2007), meaning that executives could be more likely to mimic the CSR performance of their peer executives. Although there is a burgeoning literature on the impact of executive networks on CSR, it is mostly limited to the studies of institutionalised networks, such as overlapping board memberships, or affiliation with industry associations [2]. Non-institutionalised personal ties among executives, such as

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university alumni networks, are important, but remain a largely unexplored aspect. Aiming to fill this gap, this study investigates whether a firm's CSR performance is correlated with the average CSR performance of its peer firms when its executives are linked to those of peer firms through shared education networks. We find that, indeed, this is the case. Studying executive alumni networks advances our understanding of the determinants of CSR. On a broader basis, the results imply that executive social interactions influence corporate outcomes in a predictable way that can lead to correlated behaviour across firms (Shue, 2013). Regulators should fully exploit the power of education in communicating ethical decisions of executives.

Our study posits that peer influence occurs in executive university alumni networks; executives react to the firm CSR performance of their alumni (who are also executives) by aligning the CSR performance of their own firms. We define executive alumni networks by their tertiary study experience, which is of interest for several reasons. First, people are more likely to choose undergraduate and graduate programs that are relevant to their own interests and abilities, so these university relationships tend to be closer, more persistent and influential; hence, they are more likely to produce higher levels of interaction (McPherson, Smith-Lovin, & Cook, 2001; Cohen, Frazzini, & Malloy, 2008). Second, Kalmijn and Flap (2001) provide evidence that university relationships create more homogeneity than those formed in other settings and that communication is more effective when the parties are more similar (Rogers & Bhowmik, 1970; Cohen *et al.*, 2008). Third, alumni are affected by the values of the universities they attended, and such values developed during university study can influence executive decisions several decades after graduation (Shue, 2013). Moreover, various alumni reunion opportunities can continue to reinforce such influence after graduation. As such, corporate executives who graduate from the same university may hold similar management philosophies and therefore be more susceptible to each other's influence.

China provides an ideal laboratory to study university peer influence. First, *Guanxi* (relationship) is one of the major long-standing dynamics in Chinese society (Luo, 1997). *Guanxi* describes the existence of direct particularistic ties between two or more individuals (Tsui & Farh, 1997), and is vital for executive decision-making and confidence in business dealings. Within *Guanxi*, peer influence between fellow members is inevitable, as indicated by the ancient Confucius saying, "If three people walk together, one can be my teacher". Given the high levels of collectivism in Chinese society, it is easier to stimulate knowledge sharing between the members of in-groups. There are various types of *Guanxi* and the alumni network is one of the most important ones, and it occupies a crucial part of people's social life (Qi, Li, Xie, & Ding, 2020). Anecdotal evidence suggests that educational connections play an important role in the relationship-based business environment in China (Guan, Su, Wu, & Yang, 2016). Second, the impact of social relations is likely to be more pronounced when the market is relatively inefficient and when legal systems and enforcement are weaker (Allen, Qian, & Qian, 2005). The Chinese economy is characterised by lax law enforcement and widespread transactions based on relationships rather than the arm's-length principle (Guan *et al.*, 2016). Third, corporate sustainability is of increasing concern in China, which is one of the fastest-growing economies (Tang & Tang, 2016; Zou, Xie, Qi, & Yang, 2018), especially after its accession to the World Trade Organisation. Although CSR has been widely incorporated into the corporate landscape to achieve sustainability, its practice varies significantly in Chinese firms (Zou, Xie, Meng, & Yang, 2019). Further, there are no institutions between the government and the market to urge firms to fulfil their social responsibilities. This motivates our study to consider the impact of informal institutions, such as university peer influence, on CSR performance.

Using a sample of 1,685 Chinese listed firms (7,658 firm-year observations) in both Shanghai and Shenzhen Stock Exchanges from 2010 to 2017, we document that university peer effects play an important role in explaining firm CSR performance. We first assign each

executive (and the firm he/she manages) in our sample to different university peer groups and then calculate an average CSR score, *UniversityCSR*, for each university peer group on the basis of the CSR scores of the firms in the university peer group. Our sample contains 4,906 executives who graduated from 585 different universities. Next, we examine the extent to which a firm's CSR can be explained by *UniversityCSR* to capture university peer influence. On average, we find that each standard deviation increase in *UniversityCSR* is associated with an approximate 15% increase in firm CSR performance around its mean. Our further analyses find that the university peer influence is stronger for elite university peer groups (e.g. 211, 985 and Double First-Class universities), peer groups with more members (e.g. more graduates become executives), firms with executive qualifications such as MBA/EMBA, firms with male and older executives, large firms, and financially constrained firms (less profitable and highly leveraged). In addition, our main results and conclusion are robust to a batch of sensitivity tests, including an instrumental variable regression and the use of alternative measures for *UniversityCSR*. Last but not least, it is important to note that our results are based on random selection of an executive for each firm (when there is more than one executive in the sample), which should address common statistical concerns like self-selection or reverse causality.

To the best of our knowledge, this study is the first to document the effects of executive alumni on CSR performance. It complements the literature in several ways by presenting evidence from the most important emerging market – China. First, it highlights a new determinant of CSR performance. Other than firm characteristics and executives' attributes (e.g. gender, tenure, age, narcissism, materialism, etc.), we find that CSR is also driven by external factors such as peer practices. Second, this external influence flows through a behavioural channel of top management. The importance of this channel has been largely underestimated in the previous corporate decision-making literature. Many studies in this field assume that top executives make independent and rational decisions. Our study demonstrates that executives are extremely networked and are social agents, likely to be influenced by their social experiences. The university alumni networks of top management provide an important channel to tackle the longstanding problem of ethical executive decision-making and establish normative CSR practices. Third, to explicitly distinguish this study from the previous literature, we focus on the non-institutionalised but potentially strong social ties among executives which were established even before they become top executives. Most existing research (e.g. [Zou et al., 2018](#)) focuses on institutionalised networks, such as overlapping board membership (e.g. board interlocks). Our study extends the understanding to the impact of non-institutionalised networks which encompass not only the board of directors but also the board of supervisors and the executives. It also incorporates the possibility that two individuals may not directly know each other (unlike the board interlocking network, in which access to information strictly depends on the direct connections with other affiliated directors), but can be connected through the alumni network and mutually influenced by the shared beliefs and values of that network.

The rest of the paper proceeds as follows. In the following section, we provide a theoretical framework and then discuss the related literature and the development of the hypothesis. [Section 3](#) describes the research design and variables. [Section 4](#) presents the empirical results. [Section 5](#) provides further analyses. [Section 6](#) sets out the conclusion and the implications of the research.

2. Theory, related literature and hypothesis development

2.1 Social network theory and individual decision-making

This study is motivated by social network theory. Social networks are defined as a set of nodes connected by one or more relations ([Wasserman & Faust, 1994](#)). Nodes, also known as network members, are connected by social relations ranging from casual to close bonds and

can be persons or organisations. Social relations include kinship or other types of commonly defined role relations, for example, classmates, neighbours, friends or people attending the same sports club or church. Flows are relations based on exchange or transfer between nodes that may include the flow of resources, information, or influence through networks (Marin & Wellman, 2014, p. 13). Studying social networks can explain how a large number of people interact to shape one another's actions, rather than people acting similarly because they are similar. For example, financial knowledge or advice can come from network members (Zhang, Fang, Jacobsen, & Marshall, 2018). In this study, we investigate a specific type of social network: the university alumni network, where connections are based on a common educational background. The nodes of our social networks are corporate executives of publicly listed companies.

2.2 Prior studies on executive alumni networks

Directly exploring the role of the alumni effect, a type of non-institutionalised network, in influencing corporate policies is a relatively new development in the accounting and finance literature. Using a random assignment of historical MBA students to sections at Harvard Business School, Shue (2013) finds that corporate policies are significantly more similar among graduates from the same section than among graduates from different sections. Executive compensation and acquisition strategies, among other corporate decisions, are most prone to such peer influence. Using Korean data, Kwon and Yi (2018) find that shared education networks between CEOs and engagement audit departments are associated with high-quality audits and audit fee premiums.

Alumni effects have also been studied in investment fund performance. Focusing on educational connections between mutual fund managers and corporate board members, Cohen *et al.* (2008) demonstrate that portfolio managers invest more in their connected firms and perform significantly better on these holdings relative to their non-connected holdings. Massa and Simonov (2005), using data collected on individual shareholders in Sweden, provide evidence that university-based interaction is the most important factor affecting portfolio choice, compared to professional and geographical interactions. In China, Qi, Li, *et al.* (2020) find that mutual fund managers within shared educational networks have similar portfolio allocations, but this educational connection does not have a positive impact on fund performance. Employing Chinese data, Guan *et al.* (2016) present evidence that audit quality is impaired when auditors and client executives attend the same university.

In addition to executive alumni networks, some studies investigate executive connections based on several widely shared non-institutionalised ties. Hwang and Kim (2009) measure social ties through the mutual affinities of shared educational backgrounds, military service, regional origin, discipline and industry, and show that CEO compensation is higher in firms where directors are more socially connected to CEOs in US firms. Fracassi and Tate (2012) use biographical information from US executives to construct an aggregate social network index on the basis of four types of connections, namely current employment, past employment, education, and other activities. They suggest that network ties between the directors and the CEOs undermine the effectiveness of internal governance. Using social connections as defined by Fracassi and Tate (2012), Fracassia (2017) demonstrates that the more connections shared between two firms, the more similar their capital investments are. Bruynseels and Cardinaels (2014) find that friendship networks established through leisure clubs, societies, charitable organisations, etc., harm the quality of audit committee oversight. Constructing social connections according to elite colleges and civil service between CEOs and directors, Nguyen (2012) provides evidence that social ties influence firm governance in French firms.

Unlike the alumni networks examined above, our alumni networks are all formed on tertiary study experience, including those formed long before individuals become executives

(typical undergraduate and postgraduate studies after one completes high school), and those that may have been formed more recently through executive education (MBA or EMBA).

2.3 CSR performance and executive networks

Over the past two decades, CSR has surged in popularity in academic research. Studies on CSR have mainly focused on its economic consequences and determinants. In terms of economic consequences, firms can benefit significantly from enhancing CSR performance, such as building reputational capital (Godfrey, Merrill, & Hansen, 2009), improving the accuracy of analyst forecasts (e.g. Dhaliwal, Radhakrishnan, Tsang, & Yang, 2012; Muslu, Mutlu, Radhakrishnan, & Tsang, 2019), greater institutional holdings (e.g. Dhaliwal, Li, Tsang, & Yang, 2011), reducing stock price crash risk (Du, 2018), increasing likelihood of raising public debt capital (Tan, Tsang, Wang, & Zhang, 2020), and, more broadly, higher firm value (Tsang, Hu, & Li, 2021; Li, Tsang, Zeng, & Zhou, 2021), and better future financial performance (Lys, Naughton, & Wang, 2015). These benefits eventually result in a higher valuation in equity offerings and a lower cost of debt (Dhaliwal *et al.*, 2011; Dhaliwal, Li, Tsang, & Yang, 2014).

With respect to determinants, corporate characteristics (e.g. size, financial performance, etc.), general contextual factors (e.g. social, political and economic contexts) and internal organisational factors (e.g. the identity of company chair, board gender diversity, corporate governance) are influential in determining the extent of CSR (Adams, 2002). Gao, Dong, Ni, and Fu (2016) find that firms with greater external financial needs and stronger corporate governance provide high-quality CSR disclosures. Chen, Srinidhi, Tsang, and Yu (2016) demonstrate that the voluntary issuance of CSR reports is associated with audit fees. The recent literature documents that executive demographic characteristics can affect CSR performance, including tenure (Chen, Zhou, & Zhu, 2019), gender (Manner, 2010), age (Borghesi, Houston, & Naranjo, 2014), compensation (Deckop, Merriman, & Gupta, 2006), and psychological attributes such as narcissism (Al-Shammari, Rasheed, & Al-Shammari, 2019), hubris (Tang, Mack, & Chen, 2018), opportunism (Jiraporn & Chintrakarn, 2013), confidence (McCarthy, Oliver, & Song, 2017), and materialism (Davidson, Dey, & Smith, 2019).

In this study, we focus on CSR because it is a rather discretionary and less transparent allocation of corporate resources (Barnett, 2007), making it an ideal candidate for testing the impact of university peer effects. Since executives are highly networked and are social agents (Shue, 2013), their CSR decisions are likely to be influenced by other individuals in the network (Clark & Loheac, 2007). Executive peer influence, compared to executive personal attributes, is much less studied and the evidence so far largely concentrates on institutionalised links among executives. Focusing on board interlocks, Zou *et al.* (2018) use Chinese data and find that the CSR engagement of a focal firm is positively related to the CSR of its interlocking firms. Tang *et al.* (2018) investigate how peer influence moderates the relationship between CEO narcissism/hubris and CSR in US firms. They find that the positive relationship between CEO narcissism/hubris and CSR is strengthened (weakened for CEO narcissism-CSR only) when board-interlocked peer firms invest less (more) intensively in CSR than the CEO's own firm. Using data from Chinese listed firms, Qi, Wang, and Li (2020) document that mutual fund network centrality and pressure mechanism have a positive impact on CSR performance. Similarly, Luo and Liu (2020) find that firms with managers professionally connected through industry associations tend to have better CSR disclosure quality.

For the power of the institutionalised links examined above, those studies focus on the direct connection between firms; however, the access to complete information extends beyond the direct connection between firms (Godigbe *et al.*, 2018). For example, two individuals with no direct connection can access their respective information through a third

individual in a network (e.g. alumni networks) with whom they are both connected (Newman, 2010). In addition, prior research on social connections focuses on the board in general, rather than the top management team, which has a stronger explanatory power in organisational outcomes (Hambrick, 2007). Further, in most previous studies, social interactions are measured using a binary variable or the proportion of socially connected board directors to the total number of directors. Our study differs from these studies by focusing on the university alumni network – a non-institutionalised but potentially powerful social bond – to examine the alumni peer effects of the top management team (defined as the board of directors, supervisors and executives) on CSR performance.

2.4 Hypothesis development

Attending the same university engenders proximity among alumni and reflects mutual qualities and experiences, thus facilitating interactions that enhance communication and information sharing (McPherson *et al.*, 2001). The time spent in college may affect executives' decisions as it shapes their way of thinking as well as creating bonds and networks that survive over time. The alumni networks promote the process of knowledge application because of high-level trust among individuals (Fu, Tsui, & Dess, 2006). Executive interactions within this network may induce executives to emulate their peers to match or exceed the CSR performance of their peer firms. Therefore, we hypothesise the following:

- H1.* A firm's CSR performance is positively associated with its peer firms' average CSR performance when the executives of the firm and its peer firms are university alumni.

3. Research design

3.1 Sample and data

Our data can be grouped into three categories: CSR data, firm accounting data, and executives' demographics. We obtain the CSR data from Hexun and the latter two from the China Stock Market and Accounting Research Database (CSMAR). Our sample starts in 2010 since this is the first year the Hexun CSR data becomes available and ends in 2017 as the complete CSR data is currently available until that year. We then map the CSR data to those from CSMAR using the detailed process described in Section 3.3. Our final sample includes all possible observations that pass the criterion below, comprising 7,658 firm-year observations from 1,685 firms, 19 main industries, and 31 provinces of China. They are all A-share Chinese listed firms. A total number of 4,906 executives who graduated from 585 different universities are analysed.

3.2 Dependent variable: CSR performance

We employ data from Hexun (www.hexun.com) to measure CSR performance. Hexun, established in 1996, is a subsidiary of the former China Securities Market Research and Design Centre. Hexun's CSR database is comparable with the majority of CSR databases provided by international independent agencies, for example, KLD (Guo & Lu, 2021). Hexun evaluates CSR performance based on both firms' standalone CSR reports and annual reports; therefore, it is comprehensive and helps address sample selection bias (Tang, Fu, & Yang, 2019). As previous studies such as Clarkson *et al.* (2020) point out, it is important not to solely rely on firms' CSR information in their annual reports or standalone CSR reports. Even the linguistic features of CSR reporting could contain incremental information.

Due to its comprehensiveness, the Hexun CSR data is being used in an increasing number of studies in accounting (e.g. Zhao & Xiao, 2019; Xu, Wei, & Lu, 2019). The Hexun CSR index is a composite index based on the stakeholder theory that evaluates a firm's CSR in five

dimensions: shareholders (30%), employees (30%), suppliers (15%), consumers (15%), and environment and community (10%). Each dimension has 17 secondary and 37 tertiary indicators to comprehensively assess corporate social responsibility [3]. The five dimensions and their indicators are in accordance with the social responsibility guidelines for Chinese listed firms issued by the Shanghai and Shenzhen Stock Exchanges. Further, Hexun makes corresponding adjustments in the weight allocation according to industries since different industries place different importance on each dimension. [Tsang et al. \(2021\)](#) examine five different CSR performance measures on the basis of the KLD database. They find that the positive relation discovered between CSR and firm value is not sensitive to how CSR performance is measured but is affected by the choice of CSR categories and sample period. Our study therefore employs the overall CSR score for all possible sample periods since Hexun's CSR data became available. The maximum overall CSR score is 100 points. A higher CSR score corresponds to more socially responsible corporate decision-making. A firm could obtain a negative score if its CSR concern points are greater than its CSR strength points.

3.3 Executive demographics and formation of university peer groups

For each year in our sample, we collect executive data including name, gender, age and education. Our sample includes all executives from the CSMAR database that have such data, provided that their firms have CSR data available for the year. The executives in our study include the board of directors, the board of supervisors, and the executives.

For the education data, we gather information on all tertiary qualifications (e.g. undergraduate, graduate and executive education such as EMBA) and the institutions granting the qualifications of the executives. Therefore, for any year in the sample, we can assign executives (and their firms) to different university peer groups. Then for each executive (firm), we calculate the university peer group CSR, denoted as *UniversityCSR*, on the basis of the CSR scores of the firms for which the graduates work, excluding the focal firm. To avoid statistical issues, each university peer group must have at least two graduates who work for different firms in our sample in any given year. An executive may belong to two or more university peer groups, as he/she could obtain different qualifications from different universities. This executive will then be counted in multiple university peer groups when calculating *UniversityCSR*. However, if an executive has more than one qualification from the same university, then the executive will only be counted once in the peer group for calculating *UniversityCSR*.

Lastly, executive age, gender and education are included as control variables in our analysis. Previous studies report that CSR is positively associated with female executives (e.g. [Nekhili, Nagati, Chtioui, & Nekhili, 2017](#)) and education ([Lewis, Walls, & Dowell, 2014](#)), but negatively associated with age ([Hegde & Mishra, 2019](#)).

3.4 Firm-level control variables

Following prior studies of CSR, we control for firm characteristics including firm size, ownership structure, ownership concentration, financial performance, and leverage. State-owned enterprises (SOEs) are controlled for because state ownership influences CSR engagement ([Huang, Hu, & Zhu, 2018](#)). Firm size is measured as the logarithm of total assets. Large firms tend to produce better social performance due to their greater visibility ([Chen & Metcalf, 1980](#)). Firm performance (ROA) is measured using net income divided by total assets. [Waddock and Graves \(1997\)](#) find that firm financial performance is positively related to social performance. We then control for leverage, measured as total liability deflated by total assets. Creditors support CSR engagement to protect against irresponsible risk-taking ([Roberts, 1992](#)); however, creditors may discourage over-investment in CSR by insiders ([Barnea & Rubin, 2010](#)). In addition, ownership concentration is controlled for, defined as the sum of squares of shareholdings of the largest shareholder. Most prior studies find that ownership

concentration is negatively associated with CSR performance as a dispersed ownership structure broadens the demand from investors including those concerned with CSR (Ullmann, 1985). However, Li and Zhang (2010) document a positive relationship in Chinese SOEs because they face pressure from state shareholders to improve CSR. We further control for executive specific attributes. A powerful CEO is more likely to pursue a CSR agenda (Adams, Almeida, & Ferreira, 2005); therefore, we control for CEO power by CEO duality, measured as a dummy variable that equals 1 if the CEO of a firm also serves as the chairman of the board of directors.

3.5 Model specification

We test our hypothesis as follows:

$$\begin{aligned}
 FirmCSR_i = & \alpha_i + \beta_1 UniversityCSR_i + \beta_2 Size_i + \beta_3 Ownership_Concentration_i \\
 & + \beta_4 ROA_i + \beta_5 CEO_Duality_i + \beta_6 Leverage_i + \beta_7 SOE_i \\
 & + \beta_8 Executive_Age_i + \beta_9 Executive_Gender_i + \beta_{10} Executive_Education_i \\
 & + Industry\ FE + Year\ FE + Firm\ FE + \varepsilon_i,
 \end{aligned} \tag{1}$$

where $FirmCSR_i$ stands for CSR performance of firm i . $UniversityCSR_i$ measures the alumni peer effect which is the average CSR score of all firms within firm i 's university peer group, excluding the firm i , per Section 3.3. We control for industry, year and firm fixed effects in all regression analyses in this study.

In any given year of the sample, each firm may have multiple executives, and each executive could belong to more than one university peer group. In this case, we randomly select an executive and one of his/her peer groups; in other words, each firm is only counted once in each year [4]. The other variables are as defined in Section 3.4. Detailed definitions of variables are provided in Table A1.

3.6 Summary statistics

Table 1 Panel A provides the summary statistics of our sample. On average, CSR performance is relatively low with a mean score of 25.85 and a standard deviation of 17.82, consistent with previous studies using Hexun CSR data (e.g. Zhao & Xiao, 2019; Xu *et al.*, 2019). The relatively high standard deviation of CSR suggests a large variation in CSR performance across the observations. In addition to CSR, the standard deviation of *SIZE* is also relatively high, reflecting the great difference in firm size in our sample. Our data cover all 19 main industries and 80 sub-industries classified by CSMAR, and the firms are spread across 31 provinces. Our data, therefore, is representative in its coverage.

In terms of executive characteristics, half of the executives in our sample hold a master's degree, and the majority of executives (84.4%) are male. The executives show a wide variation in age, with the oldest being 81 and the youngest being 19. Half of the executives graduated from elite universities (e.g. 211/985/double first-class universities, more details are provided in Section 5.1.1). The university with the largest number of education-linked executives is Tsinghua University, from which 429 executives (5.6%) in our sample graduated, followed by Peking University (361 executives, or 4.71% of the sample), and Renmin University of China (284 executives, or 3.71% of the sample). Table A2 ranks the top 30 universities in our sample by the number of executives they nurtured. This is in line with the "2020 China University Wealthy Alumni Ranking" (Cuaa.net, 2020, the 2020 Ranking hereinafter). The 2020 Ranking shows that elite universities have the most outstanding business alumni and have created many Chinese billionaire entrepreneurs listed on the Forbes China Rich List, the Hurun China Rich List, and the New Fortune 500 Rich List, which

Table 1.
Summary statistics
and correlation matrix

Panel A: Summary statistics						
Variables	(1) N	(2) Mean	(3) SD	(4) Min	(5) Median	(6) Max
<i>CSR variables</i>						
FirmCSR	7,658	25.85	17.82	-18.47	21.93	90
PeerFirmCSR	7,658	30.78	20.80	-18.47	24.30	90
UniversityCSR	7,658	31.10	9.852	-8.440	30.05	85.73
UniversityCSR_Median	7,658	27.31	11.10	-8.440	24.22	85.82
AirushenRanking	6,152	54.44	72.14	1	23	440
ShanghaiRanking	6,097	57.58	79.18	1	26	496
<i>Firm variables</i>						
Number of firms	1,685					
Number of industries (sub-industries)	19(80)					
Size (logasset)	7,658	22.03	1.549	13.08	21.78	30.73
Ownership_Concentration (H_Index)	7,658	0.145	0.124	0.00123	0.106	0.810
CEO_Duality	7,575	0.304	0.460	0	0	1
ROA	7,658	0.0422	0.330	-8.463	0.0387	22.01
Leverage	7,658	0.447	0.705	0.00708	0.399	29.70
SOE	7,658	0.296	0.456	0	0	1
<i>Executive variables</i>						
Number of executives	4,906					
Executive_Age	7,641	47.85	8.984	19	47	81
Executive_Gender	7,646	0.844	0.363	0	1	1
<i>University variables</i>						
Number of universities	585					
Number of executives by university of final sample	7,658	13.09	35.93	1	4	429
Peer group size by year to calculate university CSR	7,658	95.73	107.3	1	56	452

(continued)

Panel B: Correlation matrix

Variables	FirmCSR	UniversityCSR	Size	Ownership concentration	ROA	CEO duality	Leverage	SOE	Executive age	Executive gender
FirmCSR	1									
UniversityCSR	0.155***	1								
Size	0.391***	-0.022**	1							
Ownership_Concentration	0.160***	0.045***	0.210***	1						
ROA	0.081***	0.019*	-0.01	0.012	1					
CEO_Duality	-0.068***	-0.025**	-0.162***	-0.038***	0.017	1				
Leverage	-0.045***	0.031***	0.046***	-0.006	-0.266***	-0.034***	1			
SOE	0.205***	0.053***	0.366***	0.128***	-0.020*	-0.273***	0.087***	1		
Executive_Age	0.070***	0.009	0.166***	0.048***	0.002	-0.063***	0	0.139***	1	
Executive_Gender	0.018*	0.047***	0.015	0.009	0.004	-0.020*	0.016	0.046***	0.103***	1

Note(s): *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$
 This table reports the summary statistics and correlation of the matrix of variables. All variables are defined in [Table A1](#)

Table 1.

are the most influential and authoritative rich lists in China. Tsinghua University topped the 2020 Ranking list with 191 alumni who became billionaire entrepreneurs, followed by Peking University with 169 alumni being billionaires.

The correlations between variables are presented in Panel B of Table 1. Firm size, ownership concentration, firm performance (ROA), and SOEs are all positively correlated with FirmCSR, in line with our expectations. Of particular interest is the correlation between UniversityCSR and FirmCSR, which is positive (0.155, $p < 0.01$) and consistent with our main argument that corporate executives who are university alumni influence each other's company CSR performance. Moreover, the correlation of executive age (CEO duality) and gender (leverage) with FirmCSR is positive (negative). Overall, we find suggestive evidence in favour of our claim of a positive association between executive university alumni effects and corporate social performance.

4. Empirical results

4.1 Main results

Table 2 reports our main regression results. The first column reports our results with all control variables as discussed in Equation (1) in Section 3.5. Columns (2) and (3) report the results with firm-level and executive-level controls, respectively. We find that UniversityCSR significantly explains firm CSR at the 1% significant level for all regressions. The results in column (1) show that each unit increase in UniversityCSR will increase the firm CSR score by

Variables	(1) All controls FirmCSR	(2) Firm controls FirmCSR	(3) Executive controls FirmCSR
UniversityCSR	0.405*** (0.0262)	0.397*** (0.0249)	0.430*** (0.0263)
Size	3.947*** (0.374)	3.931*** (0.357)	
Ownership_Concentration	-0.209 (3.470)	-0.134 (3.326)	
ROA	1.691*** (0.491)	1.788*** (0.489)	
CEO_Duality	-0.454 (0.590)	-0.575 (0.559)	
Leverage	-0.413 (0.272)	-0.458* (0.270)	
SOE	-2.432 (1.498)	-3.143** (1.448)	
Executive_Age	-0.0117 (0.0221)		-0.0129 (0.0223)
Executive_Gender	-0.762 (0.502)		-0.743 (0.505)
Executive_Education = Diploma	-5.961 (6.103)		-6.218 (6.196)
Executive_Education = Bachelor	-6.835 (5.998)		-7.034 (6.091)
Executive_Education = Master	-8.280 (5.996)		-8.390 (6.089)
Executive_Education = PhD	-7.330 (6.011)		-7.545 (6.104)
Executive_Education = Others	-9.515 (6.933)		-9.913 (6.992)
Executive_Education = MBA/EMBA	-8.266 (6.013)		-8.441 (6.105)
Constant	-52.91*** (12.47)	-59.44*** (10.59)	22.63*** (6.250)
Observations	7,093	7,575	7,171
R-squared	0.176	0.173	0.146
Number of firms	1,685	1,738	1,689
Year FE	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes

Note(s): Standard errors in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 2.
Main results:
university peer
influence and CSR

This table reports the university peer influence on CSR. The dependent variable FirmCSR is the overall CSR rated by Hexun. UniversityCSR is calculated as the average CSR score of all firms within the peer group defined by the executives' university study experience. It captures the link between the focal firm and the university peer group on average. All other variables are defined in Table A1

0.405, given that the other explanatory factors remain constant. Alternatively, an increase of one standard deviation in *UniversityCSR* is associated with an approximate 15% increase in firm CSR performance around its mean ($[0.405 * 9.852] / 25.85$). This indicates strong university peer influence both statistically and economically.

The findings on control variables are broadly consistent with our expectations. For firm-level controls, the coefficients for firm size and financial performance (*ROA*) are positive and significant. Other firm-level control variables and executive demographics are insignificantly related to CSR performance.

The baseline results support our conjecture that executive alumni peer effects influence firm CSR performance. In a more general context, this implies that alumni connections, as non-institutionalised personal ties between executives, are an influential channel in the managerial decision-making process and ultimately influence the behaviour of Chinese listed firms. More importantly, this channel continues to affect management decision-making many years after graduation. Alumni connections as a special form of *Guanxi* (e.g. Fu *et al.*, 2006), should not be overlooked when studying corporate decision-making. Executive interactions through the alumni networks facilitate the process of knowledge spillover, which can motivate executives to emulate the social performance of their “model or leader” peer firms. This contributes to the establishment of normative CSR practices that can help to constrain irresponsible corporate behaviour, encourage executives to make ethical decisions, and increase stakeholder trust. Such education-linked peer influence is attributable in part to homogeneity, as these executives may have been taught by the same professors and learned homogeneous values, beliefs, ethics or knowledge at university (Qi, Li, *et al.*, 2020).

4.2 Endogeneity tests – 2SLS

Our main analysis above carefully controls for a wide range of firm characteristics and executive demographics that matter for CSR performance. It is far more likely that *UniversityCSR* affects firm CSR rather than vice versa, particularly given that we randomly select an executive for each firm and exclude the focal firm when calculating *UniversityCSR*. Nevertheless, we cannot rule out the possibility that other unobservable characteristics may drive CSR or have an impact on the firm and *UniversityCSR* simultaneously, e.g. macroeconomic changes, firm risk, etc. To address the possible concern of endogeneity, we employ an instrumental variable for *UniversityCSR* and perform a two-stage least squares (2SLS) test.

Our candidate for an instrumental variable needs to be related to *UniversityCSR* but not to the focal firm’s CSR, except through its association with *UniversityCSR*. Universities should train future business leaders to provide them with the skills they need in the face of changing requirements concerning social responsibility issues (Pesonen, 2003). On the basis of such a rationale, we employ two different university rankings as our instrumental variables (IVs) for *UniversityCSR*, namely the Airuishen Alumni Network Best Chinese Universities Ranking (Airuishen Ranking hereinafter), and the Shanghai Best Chinese Universities Ranking (Shanghai Ranking hereinafter) [5]. Both rankings incorporate indicators that are positively correlated with *UniversityCSR*, such as social impact (e.g. alumni/community giving, international reputation, etc.), distinguished alumni, service to the community, quality of education, and research output, etc. We argue that the higher a university’s ranking is, the more socially responsible the university and its graduates will be. For a given executive, his/her *FirmCSR* and his/her alma mater’s university ranking are unlikely to be correlated, except through *UniversityCSR*; in other words, if we find that an executive’s university ranking predicts his/her *FirmCSR*, then it is likely that the executive’s university ranking is related to *UniversityCSR* and thus influences his/her values, knowledge and ethics in

corporate policies concerning *FirmCSR*. This is exactly the question we want to test in this study.

We report our 2SLS results in Table 3. Panels A and B report the results using the Airuishen Ranking and Shanghai Ranking as instruments. For each panel, we first report the stage 2 results, then the stage 1 results. For both instruments, we confirm the persistence of university peer influence in explaining firm CSR performance in the stage 2 results in columns (1) and (3). In addition, the stage 1 results in columns (2) and (4) show that both instruments significantly predict *UniversityCSR* in a positive way and that stage 1 *F-stats* are significant, confirming the validity of the instruments.

5. Further analyses

Our data allow us to gain further insights by performing additional tests based on university, executive and firm characteristics. First, at the university level, does the strength of the university peer influence differ depending on university reputation? This could be relevant because the alumni of elite universities are more likely to become executives and stay in each other's networks. These universities also provide more opportunities for reunions in general. Second, at the individual executive level, do the executive's gender, age, position within the firm and type of qualification held (e.g. executive qualifications like MBA/EMBA) make the peer influence weaker or stronger? Third, do firm characteristics, e.g. size, state ownership, etc., affect the degree of university peer influence on CSR performance? Many of these factors are related to *UniversityCSR* or *FirmCSR*; therefore, it is important to examine whether they also influence the strength of the association between *UniversityCSR* and *FirmCSR* (i.e. peer influence) by conducting interaction tests.

5.1 University characteristics analysis

5.1.1 *University reputation.* Shue (2013) demonstrates that education-linked peers affect executive decision-making and firm policies several decades after graduation, possibly due to the homogeneous values, beliefs, ethics and knowledge learned at university. It can be argued that the quality or reputation of the university could foster more homogeneity, hence stronger peer influence. We then expect the alumni peer effects to have a greater impact on firm CSR performance if executives attended the elite universities (e.g. 211/985/Double First-Class universities), compared with those executives who went to non-elite universities. The 2018–2019 China Universities Social Impact Ranking (source: edu.people.cn, 2019) shows that top universities have strong alumni influence, with Tsinghua University being ranked first, followed by Peking University and Shanghai Jiao Tong University.

Comparable to the Ivy League in the U.S. or the Group of Eight (Go8) in Australia, the Ministry of Education of China has developed several well-known criteria for classifying China's elite universities. Commencing in the 1990s, a few projects were initiated with the intent of strengthening higher education, cultivating strategies for socio-economic development, and enhancing the international competitiveness of Chinese universities. Project 211 was first introduced in 1995, followed by Project 985 in 1998 and Double First-Class University Project in 2017 [6]. Since the above projects are implemented at different times, a university can belong to one or more of these projects. According to the Academic Ranking of World Universities 2018/19 and the Times Higher Education World University Rankings 2019/20, most of the 985 and the Double First-Class universities are among the world's top 500, and the 211 universities are among the world's top 1,000.

We manually collect the 211/985/Double First-Class universities. Overall, our sample contains 4,289, 3,776 and 3,946 observations generated from 211, 985 and Double First-Class universities, respectively, showing that the majority of our sample hold qualifications from elite

Variables	Panel A: IV = Airuishen ranking		Panel B: IV = Shanghai ranking	
	(1) Stage2 FirmCSR	(2) Stage1 UniversityCSR	(3) Stage2 FirmCSR	(4) Stage1 UniversityCSR
UniversityCSR	1.420*** (0.549)		1.413** (0.557)	
Size	3.919*** (0.480)	0.0542 (0.0482)	3.950*** (0.495)	0.0590 (0.0484)
Ownership_Concentration	-0.414 (4.440)	0.497 (0.458)	-0.770 (4.464)	0.581 (0.459)
ROA	1.785*** (0.650)	0.434*** (0.140)	1.789*** (0.650)	0.424*** (0.140)
CEO_Duality	-0.567 (0.772)	-0.114 (0.119)	-0.602 (0.775)	-0.115 (0.119)
Leverage	0.307 (0.387)	0.0159 (0.0688)	0.349 (0.397)	0.00131 (0.0704)
SOE	-5.182*** (1.989)	-0.0376 (0.138)	-5.262*** (1.997)	-0.0174 (0.138)
Executive_Age	0.0325 (0.0312)	-0.00971 (0.00625)	0.0284 (0.0315)	-0.00940 (0.00625)
Executive_Gender	-1.644** (0.721)	0.224 (0.150)	-1.681** (0.726)	0.202 (0.150)
Executive_Education = Diploma	-2.613 (11.52)	0.334 (2.933)	-2.582 (11.51)	0.307 (2.924)
Executive_Education = Bachelor	-2.534 (11.42)	0.0987 (2.917)	-2.400 (11.41)	0.0797 (2.907)
Executive_Education = Master	-3.685 (11.43)	-0.0250 (2.918)	-3.627 (11.42)	-0.0399 (2.909)
Executive_Education = PhD	-2.536 (11.46)	0.146 (2.920)	-2.454 (11.45)	0.127 (2.910)
Executive_Education = Others	-4.030 (12.28)	0.828 (3.062)	-4.005 (12.27)	0.812 (3.052)
Executive_Education = MBA/EMBA	-2.703 (11.44)	0.0997 (2.922)	-2.572 (11.44)	0.0926 (2.912)
Airuishen ranking		0.123*** (0.0185)		
Shanghai ranking		26.75*** (3.640)		0.160*** (0.0240)
Constant	-111.4*** (32.57)	5.690	-111.7*** (32.54)	25.79*** (3.683)
Observations	5,690	5,690	5,637	5,637
R-squared		0.1754		0.1794
Number of firms	1,544		1,536	
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes

Note(s): Standard errors in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. This table reports the 2SLS regression results. We employ two instrumental variables, namely, Airuishen Ranking and Shanghai Ranking. All other variables are defined in Table A1

Table 3.
Two-stage least
squares (2SLS)
analysis

universities, confirming the importance of university reputation in one's career. To test whether the university peer influence is stronger for elite university peer groups, we expand Equation (1) with *Dummy_UniChar* and the interaction term *Dummy_UniChar*UniversityCSR*. *Dummy_UniChar* is a dummy variable, which is equal to 1 if a firm's executive attended an elite university (e.g. 211/985/Double-First-Class universities) and 0 otherwise. Columns (1)–(3) of Table 4 report the results.

As expected, the results show that the university peer influence is more accentuated in firms whose executives attended elite universities than in firms whose executives graduated from non-elite universities, evidenced by the significantly positive coefficients for *Dummy_UniChar*UniversityCSR* (the coefficients are 0.0836, 0.072, and 0.0898, and the *p*-values are smaller than 0.05, 0.1, and 0.05, respectively).

This finding provides evidence that the role of peer influence on firm CSR performance can be strengthened by the quality of university education. Attending elite universities gives individuals better and more homogeneous views on important topics, such as achieving excellence, social elitism, and worldview philosophies, all of which are related to social responsibility. These views thus transmit to a corporate decision-making context when the individuals become top executives, and positively affect firm CSR performance. More importantly, this homogeneity leads to a higher likelihood of peer interaction and stronger peer influence, especially when the elite universities offer more opportunities for alumni reunions. For example, Tsinghua University has an alumni webpage to post information about regular alumni gatherings. Reunions are a powerful means to capture contemporaneous interactions among executives and reinforce the shared homogeneity in influencing CSR. Overall, the influence of university peers can be very prominent, built on one's time in university and strengthened through constant reunions. This influence lasts a lifetime, especially for those who attended top universities.

5.1.2 University peer group size. The size of a university peer group could matter too. Intuitively, when a university peer group contains more members, the aggregate peer influence becomes stronger through cross-related ties and more opportunities for interaction. On the basis of the median value of all university peer group executives in our sample, we then classify executives (and their firms) as big- and small-peer groups and define *Dummy_UniChar* as 1 and 0, respectively. Next, we perform a similar interaction test as in the previous section and report the results in column (4) of Table 4. We find consistent results to our expectations. The results show that the coefficient for the interaction term *Dummy_UniChar*UniversityCSR* is positive and significant (the coefficient is 0.0721, and the *p*-value is smaller than 0.1), suggesting that the alumni effect is amplified for firms in the large peer group. In other words, peer influence matters, even more, when an executive has more peers to interact with [7].

5.1.3 Overseas university peer group. A strand of literature points out that the executive's overseas experience plays a role in corporate policies, including CSR (e.g. Oxelheim, Gregorič, Randøy, & Thomsen, 2013). We then investigate whether executives attending an overseas university will increase or decrease peer influence by defining the dummy variable *Dummy_UniChar* as 1 if a firm's executives have overseas qualifications and 0 otherwise. We then perform the interaction analysis and report the results in column (5) of Table 4. The coefficient for *Dummy_UniChar*UniversityCSR* is insignificant, suggesting that the effect of university peer influence on firm CSR performance is not conditional on the overseas study experience of corporate executives.

5.2 Executive personal attributes analysis

5.2.1 Executive position. Our analysis is built on the fundamental belief that top executives have the power to influence firm decisions, including those on CSR. Do chief executives have more

Variables	(1) 211 vs Non-211 institutions FirmCSR	(2) 985 vs Non-985 institutions FirmCSR	(3) Double-1st-class vs non- double-1st-class institutions FirmCSR	(4) Big- vs small-peer- group FirmCSR	(5) Overseas vs domestic institutions FirmCSR
UniversityCSR	0.349*** (0.0397)	0.361*** (0.0368)	0.346*** (0.0373)	0.359*** (0.0418)	0.406*** (0.0292)
Dummy_UniChar	-1.865 (1.371)	-1.751 (1.283)	-2.250* (1.279)	-1.862 (1.395)	-0.240 (1.690)
Dummy_UniChar*UnivsercityCSR	0.0836** (0.0414)	0.0720* (0.0390)	0.0898** (0.0391)	0.0721* (0.0427)	-0.00484 (0.0495)
Observations	7,088	7,088	7,551	7,093	7,093
R-squared	0.177	0.177	0.172	0.174	0.176
Number of firms	1,683	1,683	1,734	1,685	1,685
All controls	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes

Note(s): Standard errors in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. This table reports results by university characteristics. The dependent variable is *FirmCSR*. All other variables are defined in [Table A1](#)

Table 4.
Further analysis by
university
characteristics

power and are their university peer influences thus stronger in driving the firm's CSR performance? We answer this question by including *Dummy_ManagerChar* and the interaction term *Dummy_ManagerChar*UniversityCSR* in Equation (1). *Dummy_ManagerChar* is 1 if a firm's executive is a CEO or CFO, and 0 otherwise. The results are presented in column (1) of Panel A in Table 5. As predicted, the impact of university peer influence on a firm's CSR performance is positive, and this impact is pronounced in firms where the executives are CEOs or CFOs (the coefficient of *Dummy_ManagerChar*UniversityCSR* is 0.114, and the *p*-value is smaller than 0.01).

5.2.2 Type of qualification. We find that the average firm CSR score is the highest (being 26.43) when executives have an MBA or EMBA, implying that it is not the level but the type of education that matters for CSR performance. To test our conjecture, we modify our baseline model Equation (1) to include the interaction term between *Dummy_ManagerChar* and *UniversityCSR*. *Dummy_ManagerChar* takes the value of 1 if a firm's executives hold an MBA/EMBA, and 0 otherwise. The results are provided in column (2) of Panel A in Table 5 and show that the coefficient for the interaction term *Dummy_ManagerChar*UniversityCSR* is positive and significant (the coefficient is 0.0759, and the *p*-value is smaller than 0.1), suggesting that the positive effect of university peer influence on CSR performance is more evident in firms with executives holding an MBA/EMBA. This is in line with the fact that one of the special benefits of an MBA or EMBA program is its exceptional networking opportunities (Brocklehurst, Sturdy, Winstanley, & Driver, 2007). One of the goals of executives attending MBA/EMBA programs is to build valuable networks with like-minded peers. With this goal in mind, it is probably not surprising that the influence of MBA/EMBA peers tends to be stronger and long-lasting in driving corporate decisions.

5.2.3 Executive gender and age. Prior literature provides evidence that women exhibit stronger social preference compared to men (e.g. Adams & Funk, 2012; Cabeza-García, Fernández-Gago, & Nieto, 2018), but even with such preference, women are less influential relative to men (Carli, 2001). We therefore examine whether university peer influence exhibits a different impact on female or male executives in their CSR decisions. In addition, executives of different ages may display different degrees of peer influence. For example, younger generations may have easier access to technology-based communications and may use LinkedIn or Facebook to interact more with their peers in their social networks, rather than through alumni networks. Alternatively, university peer influence could be "distracted" by the abundance of news and information available through the Internet. Further, the Chinese culture of seniority is prevalent, as influenced by Confucianism (Tin, 2008). As a result, the alumni peer effects of older executives on CSR performance could be more visible. To test the roles of executives' gender and age in the university peer influence-CSR performance relationship, we perform analyses by employing the interaction term *Dummy_ManagerChar*UniversityCSR*, where *Dummy_ManagerChar* is 1 if the executive is male or is in the group of executives whose age is greater than the median age (47) of executives, and 0 otherwise. The results are presented in columns (3) and (4) of Panel A in Table 5, respectively. As predicted, we find that male, older executives accentuate the impact of university peer influence on CSR performance (coefficients 0.118 and 0.0991, both *p*-values are smaller than 0.05). This is consistent with the gender inequality in influence established by Carli (2001) and Bilimoria (2000), who find that women executives have a limited impact on board decisions. In addition, because China is a relatively male-oriented society, gender stereotyping and social barriers may lead to a general under-appreciation of women, resulting in female executives having less decision-making power than their male counterparts.

5.3 Firm characteristics analysis

We posit that firm size, profitability, leverage and property rights may affect the relationship between university peer influence and CSR performance. To test our predictions, we estimate

Panel A: By executive personal attributes				
Variables	(1) CEO/CFO vs non-CEO/CFO FirmCSR	(2) MBA/EMBA vs non-MBA/EMBA FirmCSR	(3) Male vs female FirmCSR	(4) Older vs younger FirmCSR
UniversityCSR	0.340*** (0.0348)	0.379*** (0.0328)	0.308*** (0.0542)	0.358*** (0.0340)
Dummy_ManagerChar	-3.129*** (1.278)	-1.354 (1.377)	-4.280*** (1.698)	-2.316* (1.308)
Dummy_ManagerChar*UnivsercityCSR	0.114*** (0.0394)	0.0759* (0.0415)	0.118** (0.0544)	0.0991** (0.0386)
Observations	7,093	7,093	7,093	7,093
R-squared	0.178	0.176	0.174	0.174
Number of firms	1,685	1,685	1,685	1,685
All controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes

Panel B: By firm characteristics				
Variables	(1) BigFirm vs SmallFirm FirmCSR	(2) MoreProfitable vs LessProfitable FirmCSR	(3) HighLeverage vs LowLeverage FirmCSR	(4) SOE vs Non-SOE FirmCSR
UniversityCSR	0.168*** (0.0338)	0.432*** (0.0325)	0.288*** (0.0345)	0.260*** (0.0309)
Dummy_FirmChar	-11.58*** (1.393)	8.754*** (1.234)	-8.916*** (1.292)	-15.52*** (1.949)
Dummy_FirmChar*UnivsercityCSR	0.466*** (0.0389)	-0.0754** (0.0374)	0.224*** (0.0384)	0.420*** (0.0404)
Observations	7,093	7,093	7,093	7,093
R-squared	0.198	0.206	0.181	0.189
Number of firms	1,685	1,685	1,685	1,685
All controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes

Note(s): Standard errors in parentheses *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. This table reports the results by executive demographics and firm characteristics. The dependent variable is *FirmCSR*. All other variables are defined in [Table A1](#)

Table 5.
Further analysis by
executive and firm
characteristics

Equation (1) by including the interaction term between *Dummy_FirmChar* and *UniversityCSR*, where *Dummy_FirmChar* equals 1 for big (based on the median value of log total assets), more profitable (based on the median value of ROA), and highly-leveraged firms (based on the median value of leverage), and 0 otherwise. *Dummy_FirmChar* takes the value of 1 for state-owned firms and 0 otherwise. The results are reported in columns (1)–(4) of Panel B in Table 5. Consistent with our expectations, we find stronger university peer influence in large firms (the coefficient is 0.466 with the *p*-value being smaller than 0.01). This could be the case because large firms typically hire executives who hold qualifications from elite universities. The results also suggest that university peer influence is more prominent in firms with lower profitability and greater financial constraints (the coefficients of the interaction terms are -0.0754 and 0.224 , respectively, and *p*-values are smaller than 0.05 and 0.01, respectively). Executives in these firms tend to mimic the CSR performance of alumni firms to minimise the volatility of their relative performance, as managers below a cut-off type can be dismissed (Zwiebel, 1995). Last, a positive association between university alumni effects and CSR performance is pronounced in SOEs (with the coefficient of 0.420 for the interaction term, and the *p*-value smaller than 0.01). Notably, the coefficient for SOEs is negative and significant, indicating that CSR performance is lower compared to non-SOEs, which is consistent with previous studies (e.g. Li, Song, & Wu, 2015; Marquis & Qian, 2014). SOEs have the most political legitimacy and therefore less need to use CSR to seek critical resources associated with the government (Li & Zhang, 2007). However, this negative relationship is mitigated by the university peer influence, suggesting that the magnitude of peer effects are greater in SOEs.

5.4 Alternative measures for university peer influence

We also use two alternative measures to measure university peer influence. The first variable is *PeerFirmCSR*. In our main regressions, *UniversityCSR* is calculated as the average CSR score of all firms within the peer group defined by the executives' university study experience, so it captures the link between the focal firm and the university peer group on average. *PeerFirmCSR*, alternatively, is the CSR score of a randomly selected firm within the focal firm's university peer group (excluding the focal firm itself). It therefore captures the link between two peer firms connected by their executives who are alumni. We replace *UniversityCSR* with *PeerFirmCSR* and keep all the rest the same to rerun Equation (1). The results are reported in column (1) of Table 6.

We document a persistent peer influence by using *PeerFirmCSR*. The coefficient estimate of *PeerFirmCSR* is significant at the 10% level, indicating that each unit increase in the CSR score of a peer firm will result in an increase of 0.0139 in the CSR score of the focal firm. This magnitude of peer influence between two firms is smaller than the peer influence between a firm and a university peer group (the coefficient is 0.405 for *UniversityCSR* per Table 2). It makes sense, considering some peer groups have many members, so the link between two randomly selected firms could be loose on average economically, but still statistically significant.

The second alternative measure is *UniversityCSR_Median*. The definition of this new measure is highly similar to that of *UniversityCSR*, with the only difference being that it measures the median CSR score of university peer groups (rather than the mean). We run the same regression and find similar results in column (2) of Table 6 [8].

6. Conclusion

This study documents evidence on a new determinant of firm CSR performance – the university peer influence between executives. The influence is both statistically and

Variables	(1) FirmCSR	(2) FirmCSR
PeerFirmCSR	0.0139* (0.00796)	
UniversityCSR_Median		0.221*** (0.0183)
Size	4.276*** (0.382)	4.084*** (0.377)
Ownership_Concentration	-0.424 (3.546)	-0.994 (3.500)
ROA	1.860*** (0.502)	1.809*** (0.495)
CEO_Duality	-0.613 (0.603)	-0.490 (0.595)
Leverage	-0.352 (0.278)	-0.366 (0.275)
SOE	-2.607* (1.530)	-2.879* (1.510)
Executive_Age	-0.00815 (0.0225)	-0.0102 (0.0223)
Executive_Gender	-0.619 (0.513)	-0.588 (0.507)
Executive_Education = Diploma	-8.255 (6.234)	-5.329 (6.157)
Executive_Education = Bachelor	-8.970 (6.127)	-5.845 (6.052)
Executive_Education = Master	-9.959 (6.125)	-7.037 (6.050)
Executive_Education = PhD	-9.035 (6.141)	-6.130 (6.065)
Executive_Education = Others	-11.53 (7.085)	-7.723 (6.997)
Executive_Education = MBA/EMBA	-9.693 (6.143)	-6.712 (6.068)
Constant	-44.57*** (12.73)	-48.67*** (12.57)
Observations	7,093	7,093
R-squared	0.140	0.162
Number of firms	1,685	1,685
Year FE	Yes	Yes
Firm FE	Yes	Yes
Industry FE	Yes	Yes

Note(s): Standard errors in parentheses *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

This table reports the results of university peer influence on CSR using alternative measures, *PeerFirmCSR* and *University CSR_Median*. The dependent variable is *FirmCSR*. All other variables are defined in [Table A1](#)

Table 6.
Alternative measures
for university peer
influence

economically significant. Each unit increase in the CSR score of the university peer group is associated with an approximate 0.4 increase in the CSR score of a firm within the peer group because of the university peer influence. Given that the average firm CSR score is only 25.85 across our sample, this influence is sizeable. [Table A3](#) reiterates our main points. We list the top 30 firms in terms of their average *FirmCSR* across the sample period, as well as their corresponding average *UniversityCSR*, and we find the correlation to be 0.273 – even higher than the full sample correlation of 0.155 between the two variables in Panel B of [Table 1](#).

The university peer influence persists in firms with different university, executive and corporate characteristics. We find stronger influence among executives who graduated from elite universities (e.g. 211/985/Double first-class universities) and those universities with more graduates who became executives (e.g. larger university peer group size). The influence is also greater for male and older executives, those in the chief executive positions (i.e. CEO/CFO), and those holding an executive qualification (e.g. MBA/EMBA). Lastly, we find that SOEs, large, less profitable, and highly-leveraged firms are more prone to such university peer influence. In summary, a stronger university peer influence in CSR performance is a result of (1) more opportunities for executives to interact; (2) better values, beliefs, ethics and knowledge gained through university education that advance CSR performance; (3) executives' higher position/influence in firm decision-making; and (4) firm-specific features which result in a higher likelihood of executives mimicking the behaviour of their peers. The results are robust and survive a wide range of additional checks including employing two instrumental variables and alternative measures for university peer influence.

Our findings have several important implications. First, executive social networks are an important channel through which corporate decision-making is influenced. They should not be overlooked. Second, university education is an important and effective means to nurture more socially responsible executives (and firms) in the future, specifically in the context of CSR which has attracted increasing attention from researchers, policymakers and industry insiders worldwide. Third, due to the limitations of data, several interesting questions remain unaddressed for future research. For example, the longitudinal pattern of university peer influence: do more influence occur when executives are studying or when they attend reunions? For those executives who did not undertake tertiary education, it could be interesting to explore their other study experiences. Further, the strength of university peer influence compared to other forms of social network influence would be an interesting area of research to investigate when more data become available.

Notes

1. Prior literature on executive networks document their influence on investment decisions (EI-Khatib, Fogel, & Jandik, 2015), effectiveness of audit committees (Bruynseels & Cardinaels, 2014), audit quality (Guan *et al.*, 2016), corporate policies (Shue, 2013), tax planning (Brown & Drake, 2014), financial restatements (Kuang, Liu, Paruchuri, & Qin, 2020), firm performance and value (Larcker, So, & Wang, 2013; Akbas, Meschke, & Wintoki, 2016), executive compensation (Renneboog & Zhao, 2014), earnings management (Godigbe *et al.*, 2018; Krishnan, Raman, Yang, & Yu, 2011), IPO performance (Chahine & Goergen, 2013), and firm governance (Nguyen, 2012).
2. We discuss more literature in Section 2.
3. For example, to measure a firm's employee performance, Hexun quantifies the performance of compensation, training, safe work environment and employee welfare.
4. This random selection process avoids multiple counting of the same firm in any given year. Our final sample of 7,658 firm-year observations in the main analysis is selected from an initial 55,558 observations that include all executives for the firms. We also replicate the analysis without the random selection with the initial sample, and the results are even stronger.
5. Airuisha Alumni Network (cuaa.net) is an independent university evaluation organisation that has been dedicated to publishing the rankings of Chinese universities since 2003. The Aisuisha Rankings have received widespread attention from China's mainstream media such as People's Daily, CCTV, China Education TV, Reference News, etc, and have become the most influential and credible university ranking brand in China. The Shanghai Ranking, also known as the Academic Ranking of World Universities, is recognised as the precursor of global university rankings and is regarded as one of the three most influential and widely observed university rankings, alongside QS World University Rankings and Times Higher Education World University Rankings. We use the two ranking systems because they cover the broadest range of Chinese universities compared to the other rankings. Both Airuisha and Shanghai ranking data are manually collected.
6. The Double First-Class University project refers to the construction of world first-class universities and first-class disciplines. There are 112 and 39 universities under the 211 and 985 projects, respectively, 42 double first-class universities, and 92 double first-class disciplines universities. Project 211 aims to improve the quality of higher education, while Projects 985 and Double First-Class are intended to create world-class universities. All projects have established national standards for the overall quality for higher education, and some key universities and subject areas have reached international advanced levels.
7. We acknowledge that peer group size could be related to university reputation, but we argue they are different. For example, China Europe International Business School (CEIBS) and Shanxi University of Finance and Economics are in the large group in terms of peer group size, but are not part of the Projects 211 and 985 or among the Double First-Class universities.
8. We further performed several additional robustness checks by re-running our regressions using a winsorized sample at the 1 and 99% levels, subsamples on a three-year basis, a sample excluding the

special treatment firms and financial firms, and subsamples for firms listed on the Shanghai and Shenzhen Stock Exchanges, respectively. Our main results remain qualitatively unchanged in all these redefined samples. The untabulated results are available from the authors upon request.

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Appendix

Variables	Definition
<i>CSR variables</i>	
FirmCSR	The focal firm's overall CSR score from the Hexun database. A firm could get a negative CSR score if its CSR concern points exceed CSR strength points. The maximum score is 100
PeerFirmCSR	It is the CSR score of a randomly selected firm within the focal firm's university peer group (excluding the focal firm itself)
UniversityCSR	Average CSR of all firms within each peer group defined by the executives' university study experience
UniversityCSR_Median	Median CSR of all firms within each peer group defined by the executives' university study experience
Airuishen ranking	Airuishen Alumni Network Best Chinese Universities Ranking. Retrieved from http://www.cuaa.net
Shanghai ranking	Shanghai Best Chinese Universities Ranking. Retrieved from https://www.shanghairanking.cn
<i>Firm variables</i>	
Size (log asset)	Firm size, measured as the natural logarithm of total assets
Ownership_Concentration (H_Index)	Ownership concentration, measured as the sum of squares shareholding by the largest shareholder
CEO_Duality	CEO is the chair of the board taking the value of 1 and 0 otherwise
ROA	Firm performance, measured as net income divided by total assets
Leverage	Measured as total liabilities divided by total assets
SOE	State-owned enterprises, taking the value of 1 if a firm is controlled by the state and 0 otherwise
Dummy_FirmChar	A set of dummy variables to represent firm characteristics in Panel B of Table 5. 1 = big firm, more profitable firm, highly-leveraged firm and SOEs, and 0 otherwise, in columns (1)–(4), respectively

Executive variables

(continued)

Table A1.
Variable definitions

Variables	Definition
Executive_Education	Type of qualification executives hold. A set of dummy variables defined in line with CSMAR. The reference education category is Polytechnic qualification. Executive_Education = Diploma is a dummy variable that equals 1 if the executive holds a diploma, and 0 otherwise. Likewise, Executive_Education = Bachelor equals 1 if the executive holds a bachelor, and 0 otherwise. The definitions of Executive_Education = Master, Executive_Education = PhD, and Executive_Education = MBA/EMBA are similar. Executive_Education = Others is a dummy variable that equals 1 if the executive holds other qualifications like honorary doctorate, distance education, and 0 otherwise
Executive_Age	Executive age
Executive_Gender	Executive gender. Male = 1; Female = 0
Dummy_ManagerChar	A set of dummy variables to represent executive attributes in Panel A of Table 5. 1 = CEO/CFO, MBA/EMBA executives, male executives and older executives, and 0 otherwise, in columns (1)–(4), respectively
<i>University variables</i>	
University peer group	It is defined by the executives' university study experience. The peer group includes firms whose executives graduated from the same university
Peer group size	Peer group size is measured by the number of executives in the university peer group. Big peer group takes the value of 1 containing firms whose executives belong to the university peer group with a value greater than the median value of the peer group, and 0 otherwise
Dummy_UniChar	A set of dummy variables to represent university characteristics in Table 4. 1 = 211 universities, 985 universities, double first-class universities, big peer group and overseas peer group, and 0 otherwise in columns (1)–(5), respectively

Table A1.

Rank	University name	University name in Chinese	(1) Number of alumni	(2) % Of alumni	(3) UniversityCSR	(4) Elite university Status
1	Tsinghua University	清华大学	429	5.6	29.28	985, 211 and Double first-class
2	Peking University	北京大学	361	4.71	30.81	985, 211 and Double first-class
3	Renmin University of China	中国人民大学	284	3.71	32.76	985, 211 and Double first-class
4	Zhejiang University	浙江大学	255	3.33	28.01	985, 211 and Double first-class
5	CEIBS	中欧学院	204	2.66	35.14	None
6	Xiamen University	厦门大学	196	2.56	33.73	985, 211 and Double first-class
7	School of Management, Fudan University	复旦大学管理学院	196	2.56	31.36	985, 211 and Double first-class
8	Wuhan University	武汉大学	162	2.12	30.83	985, 211 and Double first-class
9	Sun Yat-Sen University	中山大学	145	1.89	27.44	985, 211 and Double first-class
10	Shanghai University of Finance and Economics	上海财经大学	138	1.8	31.31	211
11	Shanxi Finance and Economic Institute	山西财经大学	128	1.67	30.80	None
12	Shanghai Jiao Tong University	上海交通大学	113	1.48	28.23	985, 211 and Double first-class
13	Nanjing University	南京大学	111	1.45	31.98	985, 211 and Double first-class
14	Zhongnan University of Economics and Law	中南财经政法大学	108	1.41	33.59	985, 211 and Double first-class
15	Harbin Institute of Technology	哈尔滨工业大学	105	1.37	27.88	985, 211 and Double first-class
16	Nankai University	南开大学	95	1.24	29.47	985, 211 and Double first-class
17	School of Accounting, Southwestern University of Finance and Economics	西南财经大学会计学院	94	1.23	30.52	985, 211 and Double first-class
18	Huazhong University of Science and Technology	华中科技大学	92	1.2	31.04	985, 211 and Double first-class

*(continued)***Table A2.**
Top 30 universities by
number of executive
alumni

Rank	University name	University name in Chinese	(1) Number of alumni	(2) % Of alumni	(3) UniversityCSR	(4) Elite university Status
19	Tongji University	同济大学	83	1.08	35.07	985, 211 and Double first-class
20	Cheung Kong Graduate School of Business	长江商学院	81	1.06	28.90	None
21	China University of Political Science and Law	中国政法大学	76	0.99	29.76	985, 211 and Double first-class
22	Party School of the CPC Central Committee	中共中央党校	75	0.98	40.00	None
23	Central University of Finance and Economics	中央财经大学	67	0.87	32.69	985, 211 and Double first-class
24	Chinese Academy of Social Sciences	中国社会科学院	65	0.85	37.40	None
25	Sichuan University	四川大学	64	0.84	26.66	985, 211 and Double first-class
26	Central South University	中南大学	60	0.78	25.65	985, 211 and Double first-class
27	South China University of Technology	华南理工大学	55	0.72	28.78	985, 211 and Double first-class
28	University of Science and Technology of China	中国科学技术大学	54	0.71	36.20	985, 211 and Double first-class
29	School of Management of Shandong Universities	山东大学管理学院	54	0.71	26.02	985, 211 and Double first-class
30	Southeast University	东南大学	52	0.68	30.51	985, 211 and Double first-class
	Total		4,002	52.26%		
	Average CSR score				31.06	

Table A2.

Rank	Company name (in Chinese)	FirmCSR_Avg	UniversityCSR_Avg
1	Wuchan Zhongda Group Co (物产中大集团)	75.64	29.34
2	Joeone Co., Ltd. (九牧王股份有限公司)	75.08	40.17
3	Vanke Co., Ltd. (万科)	74.80	31.97
4	Hengdian Group DMEGC Magnetics Co., Ltd. (横店东磁)	74.06	22.84
5	Offshore Oil Engineering Co., Ltd (海油工程)	73.97	41.02
6	Lepu Medical Technology Beijing Co., Ltd. (乐普医疗)	72.54	56.65
7	Jiangxi Changyun Co., Ltd. (江西长运)	69.73	37.17
8	China International Marine Containers (中集集团)	69.50	35.77
9	Shanghai Industrial Development Co., Ltd. (上实发展)	68.74	27.47
10	Rainbow Department Store Co., Ltd (天虹股份)	67.97	35.51
11	Dong-E-E-Jiao (东阿阿胶)	67.12	30.20
12	Xinxing Ductile Iron (新兴铸管股份)	67.07	38.12
13	Guangdong Tapai Group Co., Ltd. (塔牌集团)	67.03	23.00
14	Jiangling Motors Corp (江铃汽车)	67.00	30.45
15	Shenwan Hongyuan (申万宏源)	66.89	21.52
16	SIASUN Robot and Automation Co Ltd. (新松机器人自动化)	66.45	22.96
17	Shanghai Stock Exchange Composite Index (上证指数)	66.30	31.85
18	Chuying Agro-Pastoral Group Co., Ltd. (雏鹰农牧集团)	66.28	32.65
19	Qinghai Salt Lake Industry Co., Ltd. (盐湖)	66.04	34.42
20	Zoomlion Heavy Industry Sci and Tech Co., Ltd. (中联重科)	65.73	33.11
21	China Merchants Property Development Co., Ltd. (招商地产)	65.52	35.51
22	Anxin Trust and Investment Co., Ltd. (安信信托)	65.02	37.72
23	China National Accord Medicines Co., Ltd. (国药集团一致药业)	64.75	29.58
24	Weichai Power (潍柴动力)	64.49	33.31
25	Bank of China (中国银行)	63.58	37.32
26	Agricultural Bank of China (中国农业银行)	63.58	24.64
27	Shenzhen Inovance Tech Co., Ltd. (汇川技术)	63.36	30.38
28	Guoyuan Securities Co (国元证券)	63.26	31.55
29	China Merchants Shekou Industrial Zone Holdings (招商蛇口)	63.16	28.71
30	BGRIMM Technology (北矿科技)	62.89	29.38
Average		67.58	32.48
Correlation		0.273	

Table A3.
Top 30 firm CSR and
their university peer
groups

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