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RESEARCH ARTICLE

Firm performance in challenging business climates: does managerial work engagement make a difference?

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Abstract Do more highly work-engaged managers contribute to firm performance? Leaning on the resource-based view, we propose managerial work engagement as a resource relevant to firm performance. Data from a representative survey of managers in Bangladesh support this and illuminate the role of the wider context in predicting work engagement. In less-corrupt environments with a more humane leadership culture, work engagement is more prevalent. In addition, individual work engagement is driven by firm-level factors and contributes independently to firm performance. This illustrates the mutual dependency between an individual manager's work engagement and microeconomic determinants of firm performance.

Keywords Productivity · Firm performance · Work engagement · Corruption · Manager · Bangladesh

Why are some firms more productive than others? While the industrial economic literature describes factors at market and organizational levels (Bloom and Van Reenen 2007; Ployhart and Moliterno 2011; Syverson 2011), the HR literature increasingly acknowledges the role of work engagement for individual and group performance (Harter et al. 2002; Rich et al. 2010; Saks 2006; Xanthopoulou et al. 2009). A meta-study conducted by Harter et al. (2013) reports positive correlations between-firm performance and constructs of work engagement. However, it remains unclear how individual perspective interacts with the firm level, and if the positive relationship holds once the firm-specific setting and the wider context are taken into account. Particularly in challenging business climates, which are often signified by

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high levels of corruption and other regional constraints, it is questionable whether the psychological make-up of individual managers will still have an impact on the competitiveness of individual firms.

The main objective of this paper is to provide systemic evidence of how a manager's work engagement can positively affect firm performance, and to investigate the role of organizational and regional factors in that relationship. Our focus lies on Bangladesh, as a business environment marked by high growth but also by high levels of corruption (World Bank 2008). Theoretically, we draw on the resource-based view of the firm (Barney 1991; Barney et al. 2001, 2011; Bhatnagar and Biswas 2010) and the managerial rents model (Castanias and Helfat 1991, 2001) to argue that the work engagement of the manager (Christian et al. 2011; Kahn 1990) is a specific resource that matters for firm performance. Thus, we offer a novel way to bring together two strands of the literature. On the one hand, microeconomic literature discusses factors at the market and firm levels that shape firm performance (Bloom and Van Reenen 2007; Ployhart and Moliterno 2011; Syverson 2011). On the other hand, industrial and organizational psychologists take a different perspective, and typically stress employees' knowledge, skills, and abilities as key factors (Crook et al. 2011), which links to the growing literature about managerial characteristics and firm performance (Bertrand and Schoar 2003; Lin and Wu 2014). This study acknowledges that both firm-level factors and individual attributes drive firm performance. In addition, we connect managerial attitudes with firm-level resources, and investigate the influences of regional- and industry-context variables commonly found in developing economies.

The contribution of this paper to the literature is threefold. We offer evidence on the contribution of managerial work engagement to firm performance. By exploring how work engagement is influenced by firm-level factors, we contribute to the growing field of studies that connect managerial capabilities with performance differences between firms (e.g., Kor and Mesko 2013). We introduce a psychological variable, managerial work engagement, which is in part an individual resource and partly context dependent, and has been related to individual and group performance (Christian et al. 2011; Karatepe 2013; Mäkikangas et al. 2016; Salanova et al. 2005; Rich et al. 2010). Theoretically, we conceive managerial work engagement as a firm-capital variable, and investigate its effect on between-firm performance. There are few studies reporting positive correlations and descriptive statistics between engagement and firm-performance indicators (Harter et al. 2006, 2013), and practitioners widely assume a positive relationship. However, to the best of the authors' knowledge, there is a dearth of systematic between-firm evidence confirming this link. In addition, we control for possible statistical issues such as endogeneity or common method variance.

Second, this study investigates to what degree regional characteristics influence the relationship between managerial attitudes and firm performance. This is especially important when it comes to the generalizability of our findings: by making the influence of the context explicit, our results are better transferable to other contexts (for a discussion transferring research findings across cultures, see Bosch et al. 2013). Specifically, we argue that two regional characteristics—the perception of corruption as an obstacle and the presence of a humane leadership

culture—affect managerial engagement, which in turn contributes to performance. Connecting regional characteristics, firm-level variables, and individual managerial characteristics in this way is new to the literature and has important implications. We consider the local context of Bangladesh as a factor mediating a conjecture derived from general theory. In other words, we show the limits of the general mechanism by making it dependent on a context typical for an Asian developing country. These findings, over and above the descriptive statistics we provide, are relevant to practitioners in Asia, such as policy-makers at the country level or in international institutions.

Third, seen from a theoretical perspective, this study illustrates how economic concepts of firm performance and psychological mechanisms can be combined. It aligns itself thereby with a very select number of studies that connect economic and organizational behavior perspectives to explain economic outcomes and individual attitudes in firms. Due to its interdisciplinary nature, the study may be of interest to a variety of research disciplines, such as management studies, business economics, and economic development.

Why is work engagement relevant for firm performance? In psychological terms, work engagement is generally understood as a motivational concept that describes a rather stable individual willingness to invest personal resources at and into one's work (Christian et al. 2011; Schaufeli et al. 2002). Work-engaged persons are typically described as being highly vigorous and energetic while working, dedicated to and enthusiastic about their job, and completely absorbed in their tasks while working (Bakker and Demerouti 2008). Work engagement concerns the individual work experience itself, signified by a state of enjoyment and optimal functioning when at work, pleasurable in its own end. This happens when people are emotionally connected and also cognitively vigilant while working (Harter et al. 2002, p. 269).

This view is slightly different from practitioners' understanding of work engagement, where the term is often used synonymously with job satisfaction or job involvement (Wefald and Downey 2009; see Hallberg and Schaufeli 2006, for a discussion of the discriminant validity of work engagement). In line with Rich et al. (2010) and Kahn (1990), we understand work engagement as the underlying fundamental mechanism behind these factors. Through the "behavioral investment of personal physical, cognitive, and emotional energy into work roles" (Rich et al. 2010, p. 619), work engagement is connected to better individual performance. Seen through the lens of the resource-based view of the firm, work engagement of key employees could be seen as one of the unique difficult-to-imitate resources of a firm that can potentially create competitive advantage (Castanias and Helfat 1991, 2001).

Work engagement, contextual factors, and firm performance

We depart from the resource-based view of the firm (Barney 1991; Barney et al. 2001, 2011), which argues that human resource systems contribute to performance differences through facilitating the development of competencies that are firm-specific. This notion can conceptually be extended to accommodate work engagement as a factor shaping competitiveness (Bhatnagar and Biswas 2010).

Another strand of the literature relevant in this context is the managerial-rents model (Castanias and Helfat 1991, 2001), in which the work engagement of a manager constitutes a valuable, unique and scarce resource for the competitive advantage of the firm. Work engagement can be understood as a form of 'managerial cognition' (Adner and Helfat 2003) that is needed to make successful decisions. Certainly not all psychological variables qualify as managerial cognition, but we believe that there is strong evidence for managerial work engagement to fulfill this purpose. Work engagement signifies the individual's willingness to invest physical, cognitive and emotional resources into work (Christian et al. 2011), and is therefore likely to affect a great variety of work behaviors. There is ample empirical evidence showing that work engagement enhances job performance, despite that not being its main goal. For example, Christian et al. (2011) showed in a meta-analysis that work engagement correlates on average $r = 0.43$ with self-rated and $r = 0.39$ with other-rated task performance on an individual level. Studies also show that work engagement is related to daily financial returns (Xanthopoulou et al. 2009) and intra- and extra-role performance (Rich et al. 2010). Managerial work engagement has been found to inspire other employees in an organization and thereby affect their behavior (Schaufeli and Salanova 2008; Xanthopoulou et al. 2009) and to act as a mediator in the relationship between HRM practices and employee performance (Christian et al. 2011).

Hence, a manager's work engagement may not only affect their own performance or that of their immediate subordinates, but might also be noticeable in firm outcomes at the firm level. Furthermore, there is considerable variation in individual work engagement and although there might be daily variations, work engagement as a trait is thought to be stable over time. In this regard, work engagement might be considered as a valuable, rare, and inimitable resource that can generate rents (Castanis and Helfat 2001).

It is yet unknown to what degree work engagement can explain performance differences between firms. If work engagement can be understood as an individual specific and rather stable characteristic that is related to performance outcomes on an individual and group level, it is likely that firms with more engaged and dedicated managers will out-perform others. Rare studies about work engagement and firm performance report positive correlations, but remain, as far as we are aware, descriptive, controlling neither for context nor for issues such as reverse causality and common method variance (e.g., Harter et al. 2006, 2013).

Hypothesis 1 Higher levels of work engagement of the plant manager are systematically related to better firm performance.

Furthermore, little is known about contextual influences on work engagement. Like most individual attitudes, work engagement does not occur in a vacuum, but is embedded in a wider occupational, organizational and societal context. On an occupational level, work engagement is affected by the demands and resources a person is confronted with at work (Crawford et al. 2010). In the work-engagement literature, job resources are seen as those "…physical, social, or organizational aspects of the job that may reduce job demands and the associated physiological and psychological costs; be functional in achieving work goals; and stimulate personal

growth, learning, and development" (Bakker and Demerouti 2008, p. 211). Job demands are generally regarded as a hindrance for work engagement, unless they are perceived as challenging by the individual. While there is widespread research on various types of demands and resources as drivers of work engagement (e.g., Christian et al. 2011), much less attention has been paid to contextual factors of influence.

Work engagement is likely to be affected by the organization's societal, historical and cultural context. Managerial decision-making on an organization's capabilities and resources is assumed to be influenced by business-context factors such as (juridical and other) uncertainties and complexities (Amit and Schoemaker 1993). Moreover, broader influences may indirectly affect individual work engagement, which has been argued to thrive in challenging but humane work environments (Cartwright and Holmes 2006). These types of work environment are more likely to occur under certain societal and cultural conditions. Humane work environments might be fostered by certain jurisdictions, but may also reflect the endorsement of certain humanistic values by leaders and followers. Indeed, humane leadership orientation has been found to be culturally bound, more prevalent in some cultures and regions than in others (House et al. 2004). Recent evidence indicates that cultural aspects, such as high levels of collectivism, are an important contextual factor supporting the positive effects of organizational support on individual engagement and performance (Zhong et al. 2015). This is broadly in line with Kabasakal and Bodur (2004), who found that a humane orientation is strongly and positively related to institutional and in-group collectivism, and negatively related to willingness to justify unethical behavior (Parboteeah et al. 2005).

Societal contextual conditions also affect the variety of challenges present in daily work environments, ranging from the availability and reliability of infrastructure to the presence of an impartial judiciary system (for evidence on Bangladesh, see World Bank 2012). One typical obstacle to business operations in developing countries is the typically widespread corruption. Although corruption rates vary across administrative boroughs, they will most likely affect individual work engagement in a negative way. Aside from creating additional demand, unethical work behaviors (which entail giving into corrupt requests) have been found to be negatively related to satisfying, engaging jobs (Kish-Gephart et al. 2010). A culture of bribery and corruption is therefore likely to be perceived as an obstacle, and affect work engagement.

The next hypothesis argues that contextual factors matter indirectly for firm performance through the work-engagement channel. First, we consider societal values, which reflect Bangladesh's specific attitudes toward humane leadership. Second, we consider corruption, which is a challenge shared by many Asian developing countries.

Hypothesis 2 A business environment that is perceived as more corrupt lowers the work engagement of the manager. A wider context in which humane leadership attitudes are more prevalent increases managerial work engagement.

Next, we explore possible organizational and industry-associated factors that matter for work engagement. Evidence from multi-level studies shows that employee work engagement can be fostered by firm-internal characteristics (Bal

et al. 2013). We estimate a variant of a neo-classical economic model of firm performance that includes a firm's capital intensity. This is defined as stock (machinery and equipment) divided by labor (the number of employees in full-time equivalents, which also serves as a proxy for firm size). In addition, we include sector-specific effects (see Bloom and Van Reenen 2007) in the prediction. It is highly plausible that these firm-level drivers of firm performance might create a climate that fosters individual work engagement.

Firms with a higher capital intensity on average have higher job security and pay more financial revenues and bonuses (Wagner 1997). Reduced job insecurity has been related to higher work engagement (Mauno et al. 2007), as has better salary (Christian et al. 2011). In addition, firms that have more sophisticated machinery and better equipment are likely to offer better tools to achieve individual work goals, resulting also in fewer health and stress hazards; they thereby reduce work demands and enhance work engagement (Christian et al. 2011). In addition, more capital-intensive firms might offer more systematic human resource management, regular feedback or the introduction of task variety, which fosters work engagement (Christian et al. 2011; Bal et al. 2013).

Industry affiliation may also play a role. Certain industries (e.g., innovation-intensive industries like software) might offer more complex and challenging jobs that require managers to have a more varied skill-set and knowledge. For example, managers of software firms, compared to more established sectors such as food processing or assembly, operate in a rather young industry with short product cycles and thus a more dynamic environment. Challenging demands, such as high workload, increased responsibility, or time pressure, have been found to have a positive effect on work engagement (Crawford et al. 2010). Industry affiliation also seems to influence the availability of resources (Datta et al. 2005), which in turn has been related to increased work engagement.

Certainly, not all factors that shape an organization's performance are equally relevant for the work engagement of individual employees. Also, their influence is likely to be indirect, through the creation of certain job characteristics or work environments. Firms with more (financial) resources tend to invest more into their management of human capital (Jackson and Schuler 1995; Huselid 1995), resulting in greater job satisfaction and work engagement on the side of the employees (Takeuchi et al. 2007). Still, even should the direct relationship between-firm performance and work engagement be small, this would add to the economic understanding of performance-enhancing processes.

In sum, we argue that firm-specific factors explaining performance differences between firms may also act as inner-organizational influences on a manager's work engagement. In other words, firm-level variables, such as capital stock or industry affiliation, might capture the resources necessary to stay engaged in the job. If a manager's work engagement is contingent on the firm's economic environment and contributes to its performance, we can expect a mediation effect. Put differently, more firm-level resources, measured by a firm's capital intensity and its industry affiliation, will create a more favorable environment for individual work engagement. This in turn will lead to better performance at the firm level. Hypothesis 3 therefore proposes:

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Hypothesis 3 The effect of a firm's economic factors influencing firm performance will be mediated by the amount of individual-level work engagement.

Country and study background

To analyze the hypotheses, we use data from a representative survey conducted in Bangladesh, where the business environment exemplifies the issues faced by many firms in developing countries. The World Bank 'Ease of doing business' ranking of 2012 reported data from the survey year 2011, placing Bangladesh 122nd out of 183. Obstacles such as getting electricity (180) and enforcing contracts (180) ranked among the worst worldwidw, and most severely hampered business activities. In addition, considerable geographical differences in the investment climate have been documented, with Dhaka, Bangladesh's capital, being substantially different from other districts (World Bank 2008). Similarly, Transparency International, together with the Asian Development Bank, reported ill-functioning institutions and corruption as the country's main challenge (Zaman 2011). In 2010, the year of the data we are using, Transparency International's Corruption Index ranked Bangladesh 134th out of 179 countries. These corruption issues have been associated with Bangladesh's workplace environment. On Hofstede's classic cultural dimensions, the country exhibits a relatively high level of uncertainty avoidance and collectivism. Such factors contribute to the emergence of corruption embedded in the administrative culture, in particular the adherence to hierarchy, centralization, or the abuse of discretionary power (Haque and Mohammed 2013). Individual experiences such as prior exposure to corrupt behavior, as well as contextual factors, have been found to affect how harmful corruption is perceived (Friesenbichler et al. 2015).

Translating the theoretical insights and empirical findings from developed countries directly into a developing-country environment (and vice versa) is not without challenges, as the context might act as a moderator of postulated processes (Pieper 1990; Miah and Bird 2007). A major difference between developed countries and Bangladesh is the legislative framework, which ensures that certain HR practices are automatically in place. Bangladesh's work environment is regarded as considerably worse than that of industrialized countries, where labor standards are not only statutory, but also effectively implemented. Even if regulations are in place, the lacking *de facto* implementation of *de jure* human resource practices is an issue repeatedly mentioned in the literature on Bangladesh (Karim 2007; Siddiquee 2003). In an environment in which human-resource practices are not yet embedded in social norms, where rules and regulations are poorly implemented and the business climate suffers severely from corruption (World Bank 2008), a manager's work engagement is likely to make a considerable difference to the performance of a firm (Castanias and Helfat 2001). In the present study, we make these contextual assumptions explicit, by including corruption and social norms regarding humane-leadership orientation (both assessed at the regional level) into our analysis. We thereby illustrate a way to integrate contextual effects,

while preserving the cross-cultural validity of the underlying theoretical mechanisms.

A measure of work engagement was embedded in a representative survey conducted by the World Bank, which was geared at understanding within-firm differences across sectors. The authors of the present study were involved in the design, set-up and management of this survey. All data associated with this survey are publicly available.

Method

Sampling and procedure

The authors had the opportunity to collaborate with the World Bank for the collection of data. Specifically, the World Bank agreed to include a measure of work engagement in a survey of plant managers of a representative sample of 1001 firms in Bangladesh, which was fielded in May and June 2011. The current authors oversaw the design of the questionnaire as well as the data collection, which was conducted by a third party.

The aim of the World Bank survey was to gather descriptive data on the situation of businesses in Bangladesh and the internal and external constraints on their performance. The industries included in the sampling reflected policy efforts to facilitate industrial diversification. Like many other Asian countries, Bangladesh has been following an export-led growth path (Sattar 2015). In order to ensure future economic growth, a diversification of the industrial portfolio is required, according to recent economic-network literature (Hidalgo et al. 2007). Hence, the survey focused on potential growth industries that might be appropriate for diversification (Sattar 2015), and not on ready-made garments, Bangladesh's main export industry. The participating firms were selected using a stratified random-sampling technique. The final sample was representative for firms in Bangladesh according to (1) establishment size, in number of full-time employees, (2) region at the district level, and (3) industry classification according to the International Standard Industry Classification of all Economic Activities, (ISIC, Revision 3.1, United Nations Statistics Division 2011) at the two-digit level (see "Industry affiliation" in the variable-description section below).

The sampling universe was provided by the survey-implementing consultant, and was subject to approval by the World Bet al.ank, which drew up the final sample. Each organization was approached in person by a team of professional interviewers who were employees of the survey firm. These teams completed the questionnaire in face-to-face interviews at the firm's location.

Quality control

The questionnaire was constructed in English and then translated into Bangla, the local language, in which it was also implemented. Back-translations into English verified the accuracy of the wording. After the survey completion, a series of *ex post*

assessments of the survey and data quality were conducted, including follow-up calls, on-site visits, and internal-consistency checks of the data.

Respondents and data cleaning

Plant managers can be seen as key representatives of the firm. They are seniors that have an overview of management practices, and are involved in day-to-day operations (Bloom and Van Reenen 2007). Hence, we decided to exclude plant owners from the sample ($n = 250$). Firms with fewer than ten employees ($n = 331$ in the total sample) were also excluded from the analysis. In lengthy economic surveys on firmwide aspects, it is common practice that several people will reply to the questions, to obtain the most accurate responses; however, since this would bias psychological measures, it was agreed that questions on work engagement would be answered by a single person, the plant manager only. Questionnaires where that could not be ensured were excluded ($n = 19$). Finally, all questionnaires with missing values on the variables of interest ($n = 102$) were excluded.

The final sample consists of 413 respondents, mostly male (97.3%). A total of 410 respondents provided information about relevant experience in the respective sector, ranging from 1 to 40 years ($M = 10.3$, SD $= 6.4$). 412 respondents provided information on their education: 2.9% reported secondary school or less, 10.0% reported higher secondary school, 4.8% had vocational training, 37.4% reported a graduate degree, 27.2% reported an MBA degree, and 17.7% held another postgraduate degree as their highest level of education.

Statistical analysis

Different types of regression models are used to test the proposed hypotheses. Hypothesis 1 is tested using hierarchical regression analysis. As a measure of firm performance, we use labor productivity as the dependent variable. The estimation approach draws on a standard microeconomic estimation of labor productivity. The main independent variable is work engagement, and in a stepwise approach we add variables about firm context, which are industry-specific effects and the location of the firm. Next, firm-specific characteristics enter the equation, including capital intensity, ownership structures, export activities, firm location and average schooling among staff (Bloom and Van Reenen 2007; Syverson 2011).

To test Hypothesis 2, we conduct a two-stage least-squares (2SLS) instrumental variable estimation, which allows us to consider contextual factors affecting work engagement. The method addresses possible common method bias and reverse-causality (endogeneity) issues arising from the study design. This procedure is understood as a statistical method that can recover causal parameters. It thus functions to validate the results of the previous regression analysis and strengthens the causal argument (Antonakis et al. 2010; Greene 2003). While being common practice in economics, it has only rarely been used in other social sciences.

We investigate Hypothesis 3 by employing a mediation analysis. Following Hayes and Preacher (2013), we estimate the indirect effect of firm-specific variables via individual work engagement on firm performance. The firm-specific variables used in

the analysis have been derived from the literature presented above. We conducted a boot-strapped mediation analysis to test the supposed indirect effect. Mediation effects in social sciences have long been tested by the causal steps approach derived from Baron and Kenny (1986), and supplemented by a Sobel test of indirect effect. These procedures have been criticized profoundly for being insensitive to indirect effects and for presuming that the sampling distribution of indirect effects will be normal (Hayes 2009). In line with current estimation standards, we adopt the more prominent bootstrapping procedure of Hayes and Preacher (2013).

Variables

Work engagement

This study operationalizes work engagement by dimension dedication, as measured by dedication, a sub-scale of the Utrecht Work Engagement Scale (Schaufeli et al. 2006). Dedication informs about a person's involvement in his or her work, and the positive feelings and pride they obtain from their work. Positive work engagement has been related to better performance across several life domains (Lyubomirski et al. 2005).

Respondents were asked to answer how often they experience a given state, on a Likert-scale ranging from 1 (never) to 7 (always). A typical example of this five-item scale might be 'I find the work I do full of meaning and purpose.' The internal consistency of this scale is good, with a Cronbach's alpha of 0.78.

Firm performance

We measure firm performance by labor productivity. This is a widely used performance measure which is firm-size adjusted, and is also relatively objective because it is accounting-based (Syverson 2011; Bloom and Van Reenen 2007). The variable is defined as value-added divided by firm size (i.e. number of full-time employees). Value-added is defined as total annual revenues minus total annual production costs. Production costs are the sum of the annual costs of raw materials and intermediate inputs, fuel, electricity and other materials. This sum is then deducted from total revenues. All monetary values were converted to US$ using the average annual exchange rate of the survey year (74.04 Taka = US$1). Firm performance amounted to an average of US$31,739 ($SD = 184,603$), ranging from $11 to $3482,633. For further analysis, the natural logarithm of firm performance is used (see Table 1).

Resources at the firm level

Capital intensity

This variable is computed as capital stock divided by firm size. Capital stock is defined as the net book value (the nominal value after depreciation and

Table 1 Descriptive statistics and pearson correlation of work engagement, economic indicators (2–7), control variables (8–11) and instrumental variables (12–13)

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12
Work engagement	5.22	1.03	1											
Firm performance[a]	8.48	1.78	0.22**	1										
Capital intensity[b]	7.69	1.70	0.08	0.45**	1									
Food industry	0.27	0.44	−0.08	−0.26**	−0.32**	1								
Light manuf. Ind.	0.16	0.37	−0.22**	−0.17**	−0.05	−0.25**	1							
Electronics Ind.	0.22	0.42	−0.08	0.13**	0.22**	−0.33**	−0.24**	1						
Software industry	0.34	0.48	0.30**	0.25**	0.13**	−0.44**	−0.32**	−0.40**	1					
Export	0.25	0.43	0.01	0.15**	0.11*	−0.01	−0.02	−0.07	0.08†	1				
Proprietorship	0.80	0.40	−0.1*	−0.16**	−0.09†	0.10*	0.10*	0.05	−0.22**	−0.13**	1			
Capital city	0.67	0.47	0.21**	0.24**	0.04	−0.21**	−0.24**	−0.03	0.4**	0.09†	−0.09†	1		
Education of staff	2.21	0.46	0.13**	0.13**	0.15**	−0.30**	−0.17**	0.14*	0.28**	0.07	−0.14**	0.14**	1	
Humane leadership	2.94	0.12	0.17**	0.11*	−0.10†	−0.08	−0.14**	−0.03	0.20**	−0.15**	−0.01	0.52**	0.00	1
Corruption	2.52	0.21	0.16**	0.11*	−0.08	−0.13*	−0.13**	0.00	0.22**	−0.18**	0.01	0.54**	0.01	0.99**

All industry variables (4–7) were coded 1 (yes), 0 (no, education = average years of education of full-time staff; exporting firms, proprietorships and firms located in capital areas were dummy-coded, taking the value of one if the characteristic applied, and zero otherwise

[a] Firm performance measured as the natural logarithm of labor productivity, defined as total revenues minus the costs of inputs and divided by full-time equivalents

[b] Natural logarithm of net book value of machinery, vehicles and equipment, divided by full-time equivalents

** $p < 0.01$, * $p < 0.05$, † $p < 0.1$

amortization) of machinery, vehicles and equipment. Firms' capital stock averaged out at US\$10,791 (SD = US\$40,878), ranging from a mere \$4 to \$545,731. The natural logarithm of capital stock was taken for further analysis.

Industry affiliation

The firms in the sample are affiliated to several industries which could be assigned to the UN International Standard Industrial Classification of All Economic Activities Rev. 3.1 (United Nations Statistics Division 2011). The sample is representative at the sector level, and was randomly drawn from the pool of all formally registered firms assigned to the respective sector. Firms assigned to the food industry (ISIC 15: Manufacture of food products and beverages) make up 25.5% of the sample; 13.5% are in light manufacturing (ISIC 27: Manufacture of basic metals; 28: Manufacture of fabricated metal products, except machinery and equipment; 29: Manufacture of machinery and equipment not elsewhere classified); 23.7% the electronics industry (ISIC 30: Manufacture of office, accounting and computing machinery; 31: Manufacture of electrical machinery and apparatus not exactly classified; 32: Manufacture of radio, television and communication equipment and apparatus); and 37.3% the software industry (ISIC 72: Computer and related activities). For further analysis, the four industries are coded into three dummy variables. These industry-specific effects capture unobserved characteristics, such as demand conditions or sector-specific regulations.

Years of education of staff

To measure the level of education among the staff we use the average years of education of employees. The mean is 10.2 years (SD = 3.51).

Proprietorship

This dummy variable captures the ownership structure. It assigns 1 to sole proprietorships, and 0 otherwise. Proprietorships made up 79.2% of the sample. Other answer options referred to types of corporation—stock corporations, partnerships and limited partnerships.

Export orientation

A dummy variable controls for direct and indirect exporting activities. 24.8% of the firms in the sample were exporting.

Capital city

A dummy is set for firms located in Dhaka, the capital of Bangladesh, assigning 1 to firms located in the capital, and 0 otherwise. 70.5% of the firms surveyed were located in Dhaka.

Context-specific instrumental variables

We implement a 2SLS instrumental-variable estimation. Instrumental variables are external predictors of work engagement which on one hand control for statistical issues, and on the other allow us to test Hypothesis 2, that the wider context affects individual work engagement. We constructed two context-specific variables to control for bias in the coefficient for work engagement: (1) the reported severity of corruption as an obstacle to business operations (coded 0–4; $0 = corruption\ is\ no\ obstacle$, $4 = corruption\ is\ a\ major\ obstacle$), (2) the endorsement of a humane-oriented leadership style by the respondent, as indicated by their agreement with the following item, 'A manager has to be willing to give time, money, resources, and help to their employees.' ($0 = I\ strongly\ disagree$, $4 = I\ strongly\ agree$). This indicator is based on the GLOBE study (House et al. 2004; Javidan et al. 2006), and captures an in-group aspect of humane leadership (Schlösser et al. 2013).

Since instrumental variables need to be exogenous by definition, an issue might arise from the self-reported nature of the data. To avoid this problem and to strengthen the contextual character of the instruments, we computed leave-out averages at the regional level. We calculated the average value for either indicator for each of the four regions, but leave out the present observation. These leave-one-out averages inform about what other people in the same region on average think about corruption and humane work values. It also follows that each respondent was subject to slightly different contextual influences. The mean of the instrumental variable measuring 'corruption at the regional level' is 2.52; the standard deviation of 0.21. The mean of the instrument 'humane leadership' is 2.94; its standard deviation is 0.12.

Results

Our statistical analysis is structured into four parts. First, descriptive statistics and correlation coefficients explore unconditional relationships between the key variables. Second, a regression analysis tests the first hypothesis by estimating the influence of managerial work engagement, among other exploratory factors, on firm performance. Third, we conduct a 2SLS instrumental variable estimation. This allows us to test the second hypothesis, that the wider Asian context affects work engagement. The method strengthens the causal argument, and addresses concerns about common method bias. Fourth, a mediation analysis tests the third hypothesis by exploring whether drivers of firm performance are mediated through work engagement.

Descriptive statistics

Firm performance is significantly correlated with work engagement and several firm-level variables. Positive correlation coefficients are found for capital intensity, education of the staff, the software and electronics industries, being an exporting firm, and location in the capital city. The data reveal negative correlations for being

assigned to the food or light manufacturing industry, as well as for proprietorships. Managers in proprietorships as well as managers of light-manufacturing firms report lower work engagement levels compared to other firms. Respondents working for firms in the capital city, managers of firms where staff have on average more years of schooling, and managers of software firms are more work-engaged (see Table 1).

Regression analysis and instrumental-variable estimation

We next conduct a regression analysis to explore the impact of work engagement on firm performance (see Table 2). The first three regressions add explanatory variables of firm performance in a stepwise manner. The results for the first regression (1) show the baseline regression, which regresses firm performance (measured by labor productivity). The second column includes effects stemming from environmental factors such as industry affiliation and location in the capital. The third regression includes control variables that are firm-specific.

The findings confirm Hypothesis 1, that work engagement positively and significantly contributes to firm performance. Work engagement explains 5% of the variance in the baseline regression, increasing to 16% in the estimation that includes control variables of the firm environment, and to 31% in the estimation considering firm-specific control variables. A hierarchical regression analysis found these increases to be statistically significant (p value: 0.00; see Table 2). We also conduct these regressions using the explanatory variables with and without work engagement. These results suggest that managerial engagement explained, on average, 1.3% of annual firm performance.

However, we cannot draw conclusions about causality in a straightforward manner. Even if a manager's individual work engagement is found to relate positively to firm performance, the direction of causality could still be reverse. Firms might be performing better not because their manager is more work-engaged, but because better-performing firms attract more work-engaged managers. Such instantaneous causation imposes an endogeneity problem for which we control in a two-stage least-squares (2SLS) instrumental-variable estimator (see Antonakis et al. 2010; Bascle 2008; Greene 2003).

In the first stage, the endogenous regressor 'work engagement' is regressed on the two instruments over and above the other independent variables, i.e. industry effects, location in the capital city and the firm-level controls. The objective of the first stage is to isolate the variation in the independent variables that are not correlated with the error term of the baseline regression. In other words, we 'purge' the coefficient of work engagement from possible bias due to reverse causality. In the second stage, the equation of interest is re-estimated with the same variables, except that the predicted values of the first stage replace the endogenous variable. We estimate robust variances to control for heterogeneity of standard errors.

The results confirm Hypothesis 2, that a more corrupt business environment lowers (p value 0.05), and more humane leadership attitudes increase, individual work engagement (p value 0.03). In the first-stage regression (see column number 4, Table 2), both instruments are statistically significant, and predict work engagement in the manager. Managers operating in a corrupt environment are, on average, less

Table 2 Impact of managerial work engagement (WE) on firm performance (FP)

Dependent variable	(1) OLS FP	(2) OLS FP	(3) OLS FP	(4) IV WE	(5) FP
Work engagement	0.39**	0.21**	0.21**		1.81*
	(0.082)	(0.075)	(0.075)		(0.767)
Food Ind.		−0.56**	−0.57**	−0.51**	−0.03
		(0.214)	(0.217)	(0.153)	(0.475)
Light Manuf. Ind.		−0.63**	−0.62*	−0.81**	0.53
		(0.240)	(0.246)	(0.155)	(0.725)
Electronics Ind.		−0.10	−0.02	−0.52***	0.75
		(0.193)	(0.194)	(0.131)	(0.502)
Capital city		0.53**	0.50**		
		(0.174)	(0.174)		
Capital intensity[a,b]		0.41**	0.40**	0.04	0.34**
		(0.056)	(0.057)	(0.033)	(0.078)
Education of staff[a]			−0.14	0.09	−0.28
			(0.151)	(0.114)	(0.241)
Export			0.35[†]	−0.07	0.48[†]
			(0.198)	(0.113)	(0.263)
Proprietorship			−0.29	−0.04	−0.17
			(0.218)	(0.120)	(0.283)
IV 1: Humane leadership				8.07*	
				(3.712)	
IV 2: Corruption				−4.17[†]	
				(2.141)	
Constant	6.56**	4.18**	4.75**	−8.08	−3.22
	(0.427)	(0.627)	(0.784)	(5.567)	(4.050)
Observations	413	413	413	413	413
R^2	0.050	0.291	0.305		

Robust standard errors in parentheses; industry affiliation, export activity and proprietorship dummy-coded 0–1

[a] Natural logarithm

[b] Natural logarithm of net book value of machinery, vehicles and equipment, divided by full-time equivalents

** $p < 0.01$, * $p < 0.05$, [†] $p < 0.1$

work-engaged. In contrast, managers are more work-engaged in regions where other managers pursue a more humane-oriented leadership style (Table 2).

A viable instrument must be unrelated with firm performance, but significantly predict individual work engagement. Also, it must be exogenous and independent of other variables in the estimated equation. To test for the validity of the instrumental-variable estimation, we conduct a series of post-estimation tests (Greene 2003), indicating that the instruments are strong and relevant. First, we

perform an endogeneity test. We reject the null hypothesis that the specified endogenous regressors can actually be treated as exogenous (p value 0.01). We use a Hansen-J test to examine if the applied instruments are appropriately independent of the error term of the prediction of firm performance. The Hansen-J test cannot be rejected (p value 0.97), which confirms that the instruments are exogenous. In addition, we run a test based on a Kleibergen and Paap (2006) rk LM statistic. The null hypothesis ($\chi^2 = 7.10$, p value: 0. 0.03), under which the instruments are weak and the model is under-identified, could be rejected at the 5% level of significance.

The second-stage results also validate the findings on Hypothesis 1 by making a causal argument (Antonakis et al. 2010; Greene 2003). The coefficients are consistent with the coefficients obtained from the OLS regressions (Table 2). We found a positive and statistically significant coefficient for work engagement, our main variable of interest (see Table 2).

Mediation analysis

Hypothesis 3 proposes that (part of) the effect of firm-level factors (capital intensity, industry affiliation) on firm performance might be due to enhanced work engagement on the part of the manager. To test this hypothesis, we conduct a mediation analysis, using Hayes' MEDIATE macro (Hayes and Preacher 2013). This procedure uses a Monte-Carlo bootstrapping technique with 10,000 re-samples and a 95% confidence interval to estimate the indirect effects. The mediation builds on the same model specification as illustrated in Column 3 of Table 2, but also estimates the indirect effect of capital intensity and industry affiliation via work engagement on firm performance. We use several covariates. These include information about the type of firm (i.e. if the firm is a proprietorship), whether it is located in the capital or not, its export orientation, and the average years of schooling of the staff. Only the indirect-effect estimates are reported.

The results from the mediation analysis partly support Hypothesis 3. The coefficients show a statistically insignificant total indirect effect of organizational-level (firm-level) indicators on firm performance (see Table 3). While there is no specific indirect effect of capital intensity, it appears that industry affiliation plays a significant role. In comparison to firms in the software industry, firms in the food industry, light manufacturing and electronics reported lower performance levels. This is partly explained by less managerial work engagement. Since the software industry is used as the comparison industry, this indicates that managers in the software industry are more work-engaged, which partly explains why they had better average firm performance.

Eventually, the bootstrapping procedure supports the indirect effect: part of the organizational-level effects on firm performance is due to more managerial engagement. Specifically, the software industry's greater performance seems to be partly due to managers' higher work engagement. The effect of the firm's capital intensity was not mediated by work engagement.

Table 3 Bootstrapping estimates of indirect effects of capital intensity and industry affiliation on firm performance through managerial work engagement

	B	SE B	95% CI	
			Lower bound	Upper bound
Capital intensity	0.01	0.008	−0.006	0.026
Food industry	−0.08	0.046	−0.206	−0.016
Light manufacturing industry	−0.16	0.067	−0.323	−0.055
Electronics industry	−0.11	0.048	−0.227	−0.034
Total indirect effect	0.01	0.007	0.002	0.026

Bias-corrected and accelerated bootstrap confidence interval estimates, based on 10,000 re-samples

Discussion

The present study sets out to investigate the role of a specific managerial variable, work engagement, and its relationship to organizational and business-context factors. We seek to gain new answers to the classic question of firm performance. Leaning on the managerial rents model (Adner and Helfat 2003; Castanias and Helfat 1991, 2001) and the resource-based view of the firm (Barney 1991; Barney et al. 2001, 2011), we argue that managerial work engagement can act as one of the firm-specific resources that can contribute to competitive advantage and performance. At the same time, we acknowledge that firms' capabilities and resources, as well as the managerial decisions concerned with them, are affected by the organizational and wider firm context. Managerial work engagement may be influenced by the available organizational resources (for example, capital intensity), other firm-specific factors (for example, industry affiliation and locality), and by the wider context in which a firm is embedded. This refers to the regional context, such as the prevalence of corruption as a measure for the business climate, or the local leadership culture. Data from a large-scale representative survey of Bangladeshi business leaders provide evidence for the proposed hypotheses. There are several substantial contributions in this study.

First, we find that managerial engagement explained, on average, 1.3% of firm performance. The manager's work engagement can be understood as a firm resource that enhances overall firm performance. A manager's psychological make-up helps explain differences in firm performance, which substantially adds to the descriptive statistics (Harter et al. 2006) on which the firm-performance and engagement link is based. This study substantially expands previous knowledge concerning the relationship between work engagement and performance (Harter et al. 2006, 2013; Karatepe 2013; Rich et al. 2010; Xanthopoulou et al. 2009) by showing that the impact of work engagement on firm performance still holds, even if firm-level variables such as industry affiliation, ownership structures, exporting activities or location are considered. Theoretically, this finding is in line with the managerial rents model (Castanias and Helfat 1991, 2001), which proposes that a manager's skills, expertise and knowledge contribute to firm performance. Work

engagement is less a skill or expertise, but rather a motivational dimension which is to a certain degree modifiable and under the influence of job and personal resources. It forms part of a manager's mindset that contributes independently to firm resources (Adner and Helfat 2003; Castanias and Helfat 2001).

Second, the positive effect of managerial work engagement on firm performance is confirmed in an instrumental-variable model. Over and above the causal argument that the instrumental-variable regression makes (Antonakis et al. 2010; Greene 2003), the method allows us to test and confirm our second hypothesis, that a more corrupt business environment lowers, and a context of more humane leadership attitudes increases, individual work engagement. This is in line with conceptual work that argues that individual work engagement is shaped by firm-specific factors along with social cues from the wider environment (Bhatnagar and Biswas 2010). The finding that there is a negative relationship between a corrupt environment and work engagement seems to indicate that these types of environments are taxing for an individual's work attitudes, as has been suggested previously (Kish-Gephart et al. 2010).

Hence, work engagement hinges on wider contextual factors, such as the business climate and cultural characteristics on a regional level. Both factors indicate how the regional environment in which the firm is embedded affects work engagement and eventually performance differences. This is especially relevant for the development literature, which widely acknowledges corruption to impede econo-mywide development, but struggles to identify mechanisms through which corruption negatively affects performance at the firm level (Cuervo-Cazurra 2016; Jain 2002; Galtung et al. 2013).

By making the context explicit, we show the limits of a mechanism that is derived from general theory, as well as its potential applicability to other environments, especially in Asian developing countries. Conceptually, this provides an impetus to multi-level theory-building by suggesting that managerial attitudes like work engagement are not only subject to personal, job-specific and organiza-tional influences, but also depend on the wider cultural context as well as the business climate.

Third, the results of the mediation analysis indicate that work engagement also explains part of the effect of industry affiliation and capital intensity on firm performance. In particular, we find that managers of firms in the software industry show more work engagement, thereby confirming the notion that a more productive environment, as previously established, leads to higher job satisfaction (Takeuchi et al. 2007). These businesses report better performance, suggesting that managers with higher work engagement use available capital more productively, which explains performance differences between firms (Syverson 2011).

This falls well within the findings of multi-level studies (e.g., Takeuchi et al. 2007) suggesting that economic factors create a climate that fosters specific individual-level behaviors, which in turn might be beneficial for firm performance. It is likely that firms in the software sector will, by definition, offer jobs with lower physical demands and better tools for employees to fulfill their duties, which can facilitate a manager's work engagement (Christian et al. 2011). Also, managers in the software industry are likely to face higher job complexity and perhaps more

managerial challenges by being a relatively young industry with short product-cycles, more so than managers in more established manufacturing industries such as food, light manufacturing and electronics. Furthermore, the IT industry demands higher educational and skill levels than other industries (Maudgalya et al. 2006), which is also reflected in the higher educational level of managers of these firms in our data. The average number of years of schooling of employees in the software industry is 11.8, statistically significantly higher than the average of 9.0 years for the rest of the sample (p value 0.00).

Further findings

We include a set of control variables in the assessment of the effect of work engagement on firm performance. The coefficients for firm-specific characteristics largely point in the expected directions (Syverson 2011). In particular, capital intensity and exports are positively associated with firm performance. In addition, there are performance differences across industries. The data show that firms in the software industry out-perform others, which supports previous findings for Bangladesh (Shinkai and Hossain 2011). This performance difference is explained by differences in the level of managerial work engagement. The results from the first stage of the 2SLS regression indicate that managers of software firms, which serve as the reference group, are more work-engaged than managers in other industries. The sector effects on performance turn statistically insignificant in the second stage. In other words, once the selection of more work-engaged managers in the software industry is considered, performance differences between firms in the software industry and other industries disappear. Hence, work engagement seems to be a channel that helps to explain firm performance differences across industries. This has implications for industry-specific economic development policies.

Common method variance

Both the dependent and independent variables are self-reported and collected through the same survey. Hence, one concern is common method variance (CMV), i.e. variance attributable to the measurement method rather than the construct of interest. This could cause a systematic measurement error and thus bias the estimates (Antonakis et al. 2010; Podsakoff et al. 2003, 2012; Richardson et al. 2009; Spector 2006). We believe that our results are not biased by CMV. The questionnaire is rather long, which renders recall effects unlikely (see Podsakoff et al. 2003 for an overview of possible sources of CMV). It is hence unlikely that the relationship between work engagement and the accounting-based variables is due to CMV. This is further confirmed by Harman's single-factor test, which we conducted post hoc and which does not indicate the presence of CMV. Finally, we control for possible CMV by through instrumental regressions (see Antonakis et al. 2010; Podsakoff et al. 2012).

Limitations

Certainly, this study is not without limitations. First, we use cross-sectional data, and offer an instrumental-variable approach to make a causal claim. Future studies may use longitudinal data to strengthen the causal argument. In addition, although the mechanisms proposed in the present paper are theoretically plausible and empirically supported, we test for them only indirectly by observing their cornerstones. To shed more light on the processes in the 'black box' (Guest 2011) between resources at the firm level, managerial engagement and firm performance, future studies might seek to further explore underlying mechanisms at both firm and individual levels. Another limitation is the use of key-informants as representatives of firms. Although common practice in many studies (e.g., Peng and Luo 2000), this approach has been criticized for providing a potentially biased picture of a firm (Kumar et al. 1993). Including more respondents at several levels of the organizational hierarchy would allow for a more detailed analysis.

There is an unavoidable gender bias in the sample; only eleven of the respondents were female. This seems to be reflective of the general situation in Bangladesh, for which Zafarullah (2000) suggests that there are widespread stereotypes concerning women which also affect labor-market aspects, including employment and promotion processes. It would be interesting to explore more gender-balanced data to analyze if and how gender influences managerial work engagement.

Conclusions

Our work provides an empirical investigation of how the work engagement of a manager affects their firm performance. The results indicate that managerial work engagement explains a small yet statistically significant part of differences in performance between firms. From a managerial perspective, this indicates that work engagement can be understood as an important human capital resource, relevant to both the individual and the organization. This has practical implications at the firm level, since the findings imply that a firm is well advised to invest in resources which have been found to be drivers of managerial work engagement. We then link this finding to both regional and firm-specific contexts.

We show how regional factors, especially corruption and cultural leadership values, and firm-specific factors such as industry affiliation matter for individual work engagement, and thereby indirectly affect firm performance. Hence, we propose a channel though which regional contextual characteristics and firm-specific aspects affect firm performance through individual managers, who have to navigate within those specific contexts. We find widespread corruption to have a negative, and humane leadership as well as software sector to have a positive, effect on firm performance through work engagement. This is a substantial contribution to the literature on work engagement, its relevance to firm performance and its dependence on contextual characteristics.

This study contributes to research on corruption, which generally struggles to empirically identify and explain the effect of corruption on performance at the firm level. In particular, we suggest that corruption has an indirect effect on business performance through managerial work engagement. The proposed mechanism therefore adds to the limited number of theoretical links that seek to explain corruption and performance (Cuervo-Cazurra 2016 provides an overview). In addition, the positive effect of humane leadership at the regional level on firm performance supports the idea of local embeddedness of a firm into its social environment (Johannisson et al. 2002; Han and Chuang 2015). Considering the context shows how a mechanism that has been derived from general theory can be transferred into an Asian developing-country context.

On a conceptual level, we illustrate how economic and organizational behavioral approaches can be combined to explain individual and economic outcomes. Economic papers that include individual-level variables and organizational-behavior papers that include economic-context variables are very hard to find, even though both are relevant for the shared dependent variables. We show a way to combine these different approaches and the usefulness of doing so, even without multilevel data.

Finally, the results have practical implications. Given that there is little empirical evidence about the situation of firms in Bangladesh, the descriptive information provided might be of interest to policy-makers. In addition, the finding that corruption negatively affects work engagement and consequently firm performance could be used to reinforce anti-corruption agendas in development policies, a point also relevant for other Asian catching-up countries.

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