REGULAR ARTICLE

The spirit is willing, but the institutions are weak: disclosure of corporate social responsibility and the financial sector in transition

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Abstract

Evidence exploring the relationship between corporate social responsibility (CSR) disclosure and corporate financial performance (CFP) is consistently inconsistent, if not outright contradictory. We assert that much of this confusion is due to a failure to integrate both firm internal performance and the external environment into theoretical and empirical analyses of the effect of CSR disclosure on firm efficiency. This paper attempts to bring these two facets together in an examination of banking sector efficiency in a situation where the entire external environment is in flux, namely transition. Using a database of 319 banks from 21 transition countries, and using dynamic panel and quantile regressions, we provide empirical evidence that banks in transition countries saw benefits in firm performance only when CSR activities were layered on top of a strategy which already was profitable. Indeed, once profitability was achieved, only then did CSR disclosure begin to confer a competitive edge in developing firm resources. However, the external environment continues to exert an influence, and even where banks met profitability goals, predatory institutions can still make engaging in CSR a detriment to competitive advantage.

Keywords Corporate social responsibility · Financial sector · Institutional environment · Transition

JEL Classification G21 · L21 · M14 · P20

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 Springer

1 Introduction

The relationship between corporate social responsibility (CSR) and corporate financial performance (CFP) in the financial sector (as elsewhere) is a well-studied one in the economics and management literature, but one where there is vehement disagreement on just *what* the relationship should be. Indeed, various theoretical perspectives give substantially different predictions on the effects of CSR on CFP, with trade-off theory (Makni et al., 2009), instrumental stakeholder theory (Jones, 1995), and resource-based views (Branco & Rodrigues, 2006) offering different thoughts on whether or not CSR creates or destroys value for a financial sector firm. Consistent with this theoretical ambiguity, empirical evidence has also been mostly inconclusive and, at times, contradictory (*inter alia* King & Lenox, 2001; Barnett, 2007; Makni et al., 2009; Soana, 2011; and Platonova et al., 2016; Lahouel et al., 2021).

The key relationship in each of these theories is that CSR influences CFP via mediating firm efficiency, either assisting the firm in utilizing their existing resources more productively (Belasri et al., 2020) or by expanding the firm's knowledge about its external environment, allowing it to satisfy its clientele better than rivals in order to expand its competitive advantage (Gangi et al., 2019; Orlitzky et al., 2003; Waddock & Graves, 1997). However, this underlying relationship between CSR and efficiency implicitly assumes a certain market and institutional structure, one where the incentives of and from CSR can actually augment efficiency (Yin & Zhang, 2012). What if, in certain institutional contexts, this relationship between CSR and CFP is exactly backwards?

In particular, the assumptions of how CSR should impact efficiency seem tailor-made for developed and mature markets, where consumers are more demanding of CSR-type activities, but they may be less applicable in an environment where all institutions are in flux (Matuszak et al., 2019), as in the transition economies of Central and Eastern Europe (CEE) or the former Soviet Union (FSU). As Milton Friedman (perhaps correctly) noted, in such an environment, the firm would need to focus on generating shareholder value first and foremost in order to survive the changing external conditions. In this case, efficiency could be attained via other, more "traditional" metrics such as productivity, which could then lead to profitability. It was only once a certain threshold of profitability was attained, then the possible additional benefits of CSR—either the intangible assets internal to the firm or contractual relationships opened up by CSR—could enhance this base level of efficiency, creating synergies with existing processes. Under such a scenario, firms would also find that the incentive to disclose CSR activities would also increase, in order to capture new clients, differentiate themselves from competitors, and attract the best and brightest employees. Like Maslow's hierarchy of needs, however, none of this would be possible unless the firm itself was profitable in the first instance, and thus firms might be reluctant to disclose CSR activities even if they were actually undertaking them, as it would confer no competitive advantage (Lahouel et al., 2021).

To test this hypothesis, this paper uses novel econometric techniques on a new database of 319 banks from 21 transition countries to incorporate the non-linear

effects of institutions on CSR and performance. Using a stochastic frontier approach (SFA) to estimate a bank's efficiency *vis a vis* its competitors (i.e., its competitive advantage) and, combining this with dynamic panel and quantile regressions techniques controlling for a host of other firm-specific and, crucially, institutional factors, we isolate the effects of CSR disclosure on firm performance. When considered in isolation, CSR across the board has a negative impact on bank efficiency, leading to no competitive advantage, but when considered in a firm already achieving its profitability goals, a bank's efficiency and performance improve significantly. Additionally, looking at different aspects of CSR—including environmental protection, community involvement, employee well-being, and social products and service quality (Jizi et al., 2014)—we *should* see a differential impact on firm performance, dependent on the firm, its industry, and its external environment. The results of our analysis show that product/customer service-oriented CSR, community involvement, and environmental CSR seem to benefit firms who have already demonstrated the ability to create shareholder value.

This paper has several theoretical and empirical contributions to the literature. Despite the recent calls for the research investigations of the CSR-performance in emerging countries, studies exploring this nexus in transition countries have been limited (recent exceptions include Orazalin, 2019 and Belasri et al., 2020); it is entirely plausible that CSR-performance may vary in a fluctuating institutional environment, and thus this paper goes beyond the analysis of Belasri et al. (2020) to provide cross-country evidence.[1] More importantly, CSR and its effect on performance is usually considered for developed economies in placid times, i.e., without massive external stresses or crises, putting CSR decisions down to firm-specific attributes. This paper, instead, focuses specifically and on purpose on transition countries, undergoing massive systemic changes, and examines them during a period of massive turbulence (i.e., the pre- and post-global financial crisis years), where they grappled with questions of EU accession, color revolutions in the FSU, global financial crisis, and severe swings in external finance. Finally, our work goes both deeper (in terms of examining four different categories of CSR) and wider (using dynamic and quantile panel regressions to control the endogeneity of CSR disclosure and test for the CSR disclosure-efficiency link at various levels of initial efficiency) to understand the threshold effects which are the foundation of our theoretical framework.

2 Theoretical background and hypotheses

2.1 The CSR-efficiency-CFP nexus

The issue of corporate social responsibility, CSR disclosure, and their effects on firm performance has been debated extensively in the literature. Early conceptions

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[1] Along these lines, we also go beyond Fijałkowska et al. (2018), who examine CSR and bank efficiency in Central and Eastern Europe, as we use a much larger dataset and encompass the global financial crisis years.

of CSR across all sectors were quick to discard the ability of CSR to assist a firm's efficiency: as Brown and Forster (2013) argue, managerial decisions towards CSR and away from profitability creates negative value, making it thus "wiser for the firm to act strategically than to be coerced into making investments in corporate social responsibility" (Husted & de Jesus Salazar, 2006, p.75). However, instrumental stakeholder theory (Jones, 1995; McWilliams & Siegel, 2001) predicts that firms can achieve superior performance by satisfying the needs and preferences of their main stakeholders, creating an intangible asset that then leads to their higher performance via internal efficiencies (Waddock & Graves, 1997; Platonova et al., 2018). In a similar vein, the resource-based view (RBV), as highlighted in Branco and Rodrigues (2006), focuses on the importance of resources and capabilities, noting that social responsibilities will have value added if they help firms to meet their economic profitability requirements. In this manner, CSR blends with existing efficiencies and enhances them, making a firm much more likely to announce this fact to stakeholders (Beck et al., 2018).

Overall, a majority of empirical studies indicate that the relationship between a firm's adoption of CSR and its performance on metrics of success is positive (see, for example, Orlitzky et al., 2003). However, other research has suggested that this relationship may be more complex than a direct and/or linear link between adoption of CSR and firm performance (Hull & Rothenberg, 2008; Kim et al., 2018). In the first instance, the effect of CSR on a firm may be different depending upon a firm's own performance when the adoption of CSR occurs. For a firm struggling to survive, the adoption of CSR may indeed be a diversion of precious resources, as younger firms are more focused on survival than building longer-term capital (Zhao & Xiao, 2019) and higher CSR firms do indeed show lower cash holdings (Hsu, 2018). On the other hands, a more mature firm may have the basis of efficiency and know-how to better incorporate CSR more effectively (Al-Hadi et al., 2019), utilizing any slack capacity and economies of scale to drive CSR as an integrated part of the firm (Hasan et al., 2015).

At the same time, CSR investment and its disclosure need not only be a function of current firm positioning but could be linked to prior firm success. The reality that firms may pursue differently strategies independently of profitability (e.g., "growth" phases need not correlate with outstanding success) means that it is important to examine specifically firm profitability as a determinant of CSR and, by extension, CSR disclosure (Ebiringa et al., 2013). As papers like Reverte (2009) show, profitability also is a driver of CSR investment, with firms having more financial resources at hand more likely to undertake CSR initiatives. Similarly, more profitable firms also may have slack resources (Hasan & Habib, 2017), meaning less constraints in exploring new lines of business, including CSR. Thus, profitable firms also are able to build on existing efficiency with CSR (Zhao & Xiao, 2019), utilizing CSR as a way to retain competitive advantage and exploit additional efficiencies (Hasan & Habib, 2017).

However, what is "efficiency"? A central problem of strategic management is to understand how an organization can outperform its rivals, meaning that efficiency is a relative (rather than absolute) concept, as it confers a comparative advantage. Research has shown that the main source of a firm's competitive

advantage is its ability to transform resources (Chen et al., 2015); in particular, firms which can transform their resources more quickly, at lower cost, or in a better manner than rivals, are able to achieve their strategic objectives and outperform competitors. For our purposes, we conceptualize this efficiency along two dimensions, mainly cost efficiency (producing at a lower cost than rivals) and revenue maximization (garnering more profit per unit than rivals) simultaneously. Indeed, as the concepts of firm efficiency (i.e. profit efficiency) and competitive advantage are significantly linked to each other, we use these concepts interchangeably.

Finally, financial institutions in particular have also been examined in the CSR literature but research investigating the link between CSR and performance in the banking sector is still limited with respect to the various types of CSR which a bank could employ (exceptions include Belasri et al., 2020; Fijałkowska et al., 2018; Platonova et al., 2016; and Wu & Shen, 2013). In general, banks have appeared mainly in single-country studies (Bihari & Pradhan, 2011; Khan, 2010) or in examinations of their CSR practices exclusively (Jain et al., 2015; Fijałkowska et al., 2018). Theoretically, CSR can aid financial institutions in creating competitiveness, but mainly in the area of image and reputation, i.e. as a way to supplement existing deployment of resources (Vilanova et al., 2009). The pervasive issue of "short-termism" in financial markets also suggests that the value of CSR as an end unto itself may not be recognized by banks, a reality which means that, unless CSR is married to other corporate goals, it may not be pursued (Körner, 2005). Indeed, the banking sector has been notorious for taking a narrow view of CSR initiatives (Sigurthorsson, 2012), using CSR as "merely a sales-increase and image-problem-solving orientation" (Pérez & Del Bosque, 2012), a stance may lead to suspicions from the broader public (Arendt & Brettel, 2010). Moreover, given the "special" nature of banks, and how they are implicitly supported by the public at large (i.e. taxpayers), worries about future bailouts may condition perceptions of bank CSR and temper strategies to those closely aligned to profitability. In such an environment, banks would also be reluctant to disclose CSR activities, even if they are pursued, if performance is poor (Chakroun et al., 2017).

This combination of factors leads us to our first hypothesis:

Hypothesis 1 Disclosure of corporate social responsibility negatively affects the efficiency of banks which are not already profitable.

In the first instance, and as in the real economy, if a bank has not achieved the requisite levels of profitability and/or slack resources, it is much more financially constrained; in this instance, CSR—and, by extension, disclosure of CSR activities—are less likely to be effective in creating firm efficiency and hence a competitive advantage.

However, the flip side of this hypothesis is:

Hypothesis 2 Disclosure of corporate social responsibility positively affects the efficiency of banks which are already profitable.

As firms with relatively higher profit efficiency are able to use their resources more efficiently, we conjecture that those banks exhibiting this higher competitive advantage as shown in relative profit efficiency should also enjoy higher profitability and better management when utilizing CSR as well. Therefore, consistent with Flammer (2015), the decision to undertake CSR is highly endogenous, conditioned on firm performance or the demand by consumers and other stakeholders (Wang et al., 2015), which also would have determined if CSR is profitable (and if a firm has the ability to undertake such initiatives). CSR may thus help to both create internal capabilities and forge new contractual relationships with customers. This effect need not be uniform, however:

Hypothesis 3 Specific types of CSR activities and their disclosure will affect the efficiency of banks in different ways.

This leads to an additional point related to the effect of CSR on financial performance, namely the fact that some components of CSR practiced by a firm might be more useful than others in improving firm performance given any point in the firm's profitability space. In fact, to this point, CSR has been addressed either as a monolithic activity undertaken by firms or as an indivisible package of strategies, when the reality is of course much more nuanced: CSR can include various activities spread across a spectrum, including spending on environmental protection and integration of environmentally-friendly production processes, increased community involvement, initiatives focused on employee well-being, and creation of social products and improved service quality (Jizi et al., 2014). Given this variety, the various modes of CSR can either complement each other, such as employee well-being and responsible behavior towards customers, or can inherently be in conflict (e.g., behavior towards customers versus environmental initiatives). Complementary activities, as Cavaco and Crifo (2014) note, are more likely to have a positive effect on firm performance, while conflicting activities would have a much more ambiguous effect on a firm's bottom line. Crifo et al. (2016) prove this point in a sample of over 10,000 French firms and show that firms can improve their performance by adding or removing certain CSR activities (apart from firms which have both responsible HR practices and green production, which they show is the optimal initial CSR strategy in the French context). Thus, as a second-order problem, not only is the effect of undertaking CSR more broadly conditioned on a country institutional structure, the mode of CSR must also be harmonized with institutional exigencies and firm capabilities in order to deliver better firm performance.

2.2 The role of the external environment: transition

However, internal attributes of the firm are not the only determinants of how CSR is utilized within a firm, as the possible efficiency-enhancing effect of CSR would also be predicated on the incentives for CSR in society. Of course, the biggest mediators of incentives in a society are a country's institutions (Gelbuda et al., 2008), as institutions create the conditions for differing returns to different inputs and efforts and,

in a CSR context, a country's institutional make-up may have a profound effect on how CSR is perceived by consumers and especially on how CSR and resource utilization interact for a firm (Husted and Allen, 2006; Matten & Moon, 2008; Rathert, 2016).

Nowhere has the influence of institutions been more important for a firm than in the transition countries of Central and Eastern Europe (CEE) and the former Soviet Union (FSU), as the entire process of transition was based on an institutional revolution (Hartwell, 2013). The problems of institutions in transition have been well-documented (see for example the "institutional voids" of Khanna and Palepu (1997), and the CSR context in transition has also been somewhat explored (Kuznetsov et al., 2009; Preuss & Barkemeyer, 2011; Xie et al., 2017; Fijałkowska et al., 2018). However, there has been less work done on the financial sector in transition, where the biggest challenge faced by banks was survival in an uncertain world. With the entire institutional system in a state of flux, and with each transition economy showing differences in their institutional evolution (Koleva et al., 2010), financial institutions faced long period of unpredictable institutional change (Meyer, 2001). In many instances, institutional voids were filled by rapacious bureaucracy or corruption, having a direct impact on a firm's bottom line and making it even more difficulty for resource-constrained firms to pursue CSR. Intense changes in a firm's management, capabilities, and external environment made resources a premium, forcing financial firms to fight for survival rather than delving into new or existing CSR activities (Stoian & Zaharia, 2012). Indeed, in this environmental, banks may have found it easier to pursue socially irresponsible behavior rather than CSR (Zhang et al., 2010).

The fluctuating institutional environment also meant that CSR activities might not have been desired by consumers (the demand side), even if banks had attained some level of profitability (Tatoglu et al., 2014). This situation was shown in survey evidence by Kuznetsov et al. (2009), as societies in transition have been suspicious of CSR, believing that firms are merely using such feel-good slogans to dupe unwitting customers. This reflects a lingering legacy from pre-socialist times against business in general, seen as the purview of the nobles (Tsalikis & Seaton, 2008), and a hangover from socialism, where business success was treated as being achieved only by exploiting others (Lewicka-Strzalecka, 2006). Business in transition was expected to pursue profitability as its own form of "social responsibility" (Kooskora, 2006) and leave social and environmental progress to the public sector (Kuznetsov et al., 2009).[2]

Given the constrained resources of firms in transition and the challenge of committing resources in an uncertain institutional environment (Meyer & Peng, 2005), coupled with uncertain consumer demand, it was understandable for firms to avoid CSR commitments. However, this does not mean that all CSR activities would have had the same impact on performance, as even "leftover" CSR activities from socialism (Stoian & Zaharia, 2012) might find favor with both consumers and

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[2] On the other hand, CSR seen in the context of a profitable firm may also signal a firm which has a forward-looking strategy rather than a firm which is reactive and undertaking "defensive downsizing" in response to institutional uncertainty (Uhlenbruck et al., 2003).

governments. Put another way, although firms in transition are unlikely to be able to undertake a broad panoply of CSR activities, nor are they likely to have well-developed engagement strategies (Tang et al., 2012), they could choose strategically different components of CSR to implement which *could* bring resource or stakeholder rewards. Such a choice would be conditioned heavily on which aspects of CSR may be perceived as useful in an institutional environment in flux and would, given the resource constraints to transition firms, need to support profitability first and foremost. For example, in an environment where the state is still perceived as a guarantor of social concerns (Kuznetsov et al., 2009), firms dedicating precious resources for environmentally-friendly processes may be perceived as disingenuous or, in the worst case, as simply lying to customers. On the other hand, undertaking a broad-based CSR policy, while having resource consequences in the short-term, may confer a sense of legitimacy on the firm and prove their good intentions; this may be rewarded in the longer-term, if the firm can survive (Mahmood & Humphrey, 2013).

Bringing together these issues related to the external environment, we posit a final hypothesis:

Hypothesis 4 The performance implications of corporate social responsibility disclosure for banks should be different dependent on the particular institutional matrix of a transition country.

3 Method

To investigate the link between CSR and efficiency in a difficult institutional environment, we propose to examine the banking sector in a specific set of transition economies, namely the aforementioned CEE and FSU countries. We employ data on 319 banks from 21 transition countries of Europe and the FSU derived from *Bankscope* to create an unbalanced panel dataset. To mitigate bias, we include only commercial banks whose financial statements are available for at least three years over the period 2002–2014, including both the pre- and post-global financial crisis years. The CSR disclosure variable and its decompositions are measured, as explained below, based on the content of bank annual reports.

3.1 Measures

Dependent variable Following Battese and Coelli (1995), we utilize a stochastic frontier model (SFA) to investigate a measure of efficiency (as this is a relative measure, we can also conceive of it as a bank's competitive advantage vis a vis its competitors). The majority of studies exploring the CSR-performance nexus use a single metric focusing on profitability and financial returns (e.g. Return on Assets (ROA), Return on Equity (ROE), or Tobin's Q) as a firm performance measure (Esteban-Sanchez et al., 2017; Kim et al., 2018; Wu & Shen, 2013). However, in strategic management specifically, a measure of efficiency—i.e., exploring a firm's competitive advantage—comprising various firm-specific capabilities includes more

dimensions of firm performance than simple profitability and financial returns (Chen et al., 2015). Frontier methods, therefore, are better suited to proxy performance comparing individual firm's performance relative to the industry's best performer. Moreover, the main advantage of SFA is that it distinguishes inefficiency from other stochastic shocks (Pasiouras et al., 2009; Semih Yildirim & Philippatos, 2007). Furthermore, SFA calculates inefficiency for banks from the best-practice frontier while incorporating country-, industry- and bank-specific variables.

As banks are financial intermediaries who collect funds (deposits) as inputs and transform them into assets, we follow Gaganis and Pasiouras (2013) and Luo et al. (2016) in selecting input and output prices to determine the profit frontier. To structure and estimate the profit function, we follow the specifications proposed by Djalilov and Piesse (2019).

CSR disclosure As the variable of interest, CSR is the key bank-specific variable, but questions arise as how to measure it. Many previous studies assessing the effects of CSR have used one of two approaches to measure the extent of firm corporate social responsibility: first, using CSR ratings provided by rating agencies, or second, conducting a content analysis of CSR. We do not use the CSR ratings as their coverage of the transition countries under investigation is limited. In addition, they rely on the information by the press and media, which may not always be reliable even in the most institutionally sound environments (and are highly likely to be incorrect in poor institutional environments). Moreover, the content analyses of CSR (word or page counts) say little about the quality and comprehensiveness of the CSR disclosure (Jizi et al., 2014). Indeed, considering the presence of low-quality information in transition countries, content analysis is also of dubious reliability for our study.

To overcome these issues, we measure CSR disclosure following Jizi et al. (2014) and consider the quality of the information published in the annual reports; in particular, we assess the content of an annual report's description of total CSR and four sub-categories, namely community involvement, environment, employee protection, and product or customer service quality. The content of each CSR category is rated from zero to three according to the quality and richness of disclosed information on that particular category, with higher numbers signifying more information/higher quality. An additional point is added to each category if quantitative figures are disclosed and one more point if comparative figures are disclosed. Thus, the scores in each category can range between zero and five, while the total CSR scores vary between zero and twenty. We base this rating on bank annual reports as the content of annual reports tends to be audited and therefore the information contained therein can be thought of as reliable. Additionally, while some banks may release specialized CSR reports, audit capabilities in transition economies for these types of report is limited and thus their content may not be as reliable as that of annual reports (a standardized, legal obligation).[3]

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[3] To ensure the reliability of the scores, the author conducted an inter-coder reliability test. Specifically, the author and an independent coder randomly assessed eleven annual reports to generate scores, which were then used to calculate a correlation between these two scores. The results were satisfactory showing the correlation above 60%.

Other variables As is common in the literature, we flesh out the specification by including several control variables, including a Bank vector to control for bank and cross-country heterogeneity consistent with existing studies (Agoraki et al., 2011; Delis & Kouretas, 2011; Tabak et al., 2012). As profitability is important for the competitive advantage levels of banks, and in line with much of the literature, we use Return on Assets (ROA) as a profitability variable (Wu & Shen, 2013).

Since the scale and liquidity of banks may have different competitive advantage preferences (Børing, 2019), we include Size and Liquidity variables. Additionally, ownership may reflect the behavior of senior management, and we thus generate three dummy variables (Foreign, State and Private) considering the majority of shareholders. Furthermore, we include a bank's capital ratio, as banks may trade-off higher levels of equity capital for risky assets and thus may impact on competitive advantage.

To control for heterogeneity in the industry, we use competition and dynamism variables following the literature (Chen et al., 2017; Goll & Rasheed, 2004; Tabak et al., 2012). Competition is inversely proportional to the Boone indicator, the more competitive the banking sector the more negative the Boone is. Therefore, to make it positively proportional to competition, we use the opposite of Boone, Boone1 = (-Boone), following Tabak et al. (2012). We measure dynamism as the volatility in industry total assets since dynamism refers to the uncertainty and volatility in an industry. We calculated it in two steps. In the first step, we regress the natural logarithm of industry (banking) total assets and an index variable of years (a time variable), where the latter serving as an exogenous variable. In the second step, we antilog the standard error of the slope regression coefficient to capture volatility in overall banking growth.[4]

To account for the macroeconomic environment, we also use GDP growth, domestic credit to private sector, and inflation as macroeconomic conditions effect on bank behavior (Macro). At the same time, as the most highly regulated sector in any economy, regulation is likely to impact all facets of bank performance. We calculate the regulation index (capital requirements) following the studies such as Agoraki et al. (2011) and Kim et al. (2013). Finally, we generate three dummies to control for the very different circumstances faced by banks in transition: pre-crisis (2002–2006), crisis (2007–2009), and post-crisis (2010–2014). Table 1 provides more details on the control variables, how they are constructed, and their provenance.

3.2 Model specification

To estimate the effects of CSR on efficiency metric, we apply system GMM (Arellano & Bover, 1995; Blundell & Bond, 1998) and dynamic panel quantile regression (Galvao, 2011) considering the dynamic nature of bank performance (Athanasoglou et al., 2008; Djalilov & Piesse, 2016; Lahouel et al., 2021). System

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[4] A similar approach was used by Chen et al. (2017) to calculate dynamism in Chinese manufacturing sectors.

Table 1 Description and Source of Data

Variables	Description	Source
A. Main variables		
Competitive advantage	SFA (Battese and Coelli's (1995) model) is used to estimate profit efficiencies	Authors' calculations
CSR	Four *CSR* categories such as (1) community involvement, (2) environment, (3) employees, and (4) product and customer service quality are assessed with scores from zero to five given to each category according to the quality and richness of disclosed information in annual reports. Then, the scores for each category are summed to form total CSR scores, where higher scores indicate more CSR involvement by banks. We follow the categories and sub-categories developed by Jizi et al. (2014)	Banks' websites
Return on Assets	Pre-taxprofit/Total Assets	Bankscope
B. Bank-specific variables		
Size	Natural logarithm of total assets	Bankscope
Liquidity	Gross loans/Total deposits	
Capital Ratio	Equity/Total Assets	
Private	We classify three categories of ownership based on the major shareholders:	Banks' websites
Foreign	(1) *Private*—a dummy takes 1 if the major shareholders are domestic family investors, 0 otherwise; (2) *Foreign*—a dummy takes 1 if the major shareholders are foreign family investors and/or foreign organisations, 0 otherwise;	
State	(3) *State*—a dummy takes 1 if the major shareholders are domestic states or public authorities, 0 otherwise	
C. Bank regulation and competition variables		

Table 1 (continued)

Variables	Description	Source
Capital requirements	We measure *Capital requirements*, where higher scores imply higher capital stringency, considering four versions of the surveys (Versions I (2001) for 2000–2001, II (2003) for 2002–2004, III (2007) for 2005–2007 and IV (2012) for 2008–2014). We use the survey response of the previous draft if some countries are not featured in the current version of the survey. Kim et al.(2013) and Agoraki et al. (2011) take similar approaches	World Bank's surveys on Bank Regulation and Supervision
Boone indicator	Competition is inversely proportional to Boone implying that the more competitive the banking sector, the more negative Boone indicator	World Bank's Global Financial Development
Dynamism	Dynamism shows volatility in industry total assets since it refers to the uncertainty and volatility in an industry	Authors' calculations
D. Institutions and Macroeconomic variables		
Economic freedom	The index of Economic freedom, ranging between 0 and 100, presents a comprehensive view of economic freedom in a country. Higher scores indicate higher economic freedom	The Heritage Foundation
Domestic credit to private sector	Domestic credit to private sector provided by a financial sector (% of GDP)	World Bank's World Development Indicators
GDP per capita	GDP per capita in current US dollars	
GDP growth	Annual percentage changes in GDP	
Inflation	Annual percentage changes in consumer prices	
Control of Corruption	Reflects perceptions of the extent to which public power is exercised for private gain. Ranges between − 2.5 (weak) and 2.5 (strong) governance performance	World Bank's Worldwide Governance Indicators

GMM well addresses the problems of endogeneity by considering the lags of variables as instruments (Roodman, 2009). We specify the estimating equation in the spirit of Djalilov and Piesse (2019) but with key differences:

$$\begin{aligned}
\text{Efficiency}_{i,j,t} = {} & \delta\text{Efficiency}_{i,j,t-1} + b_1\text{Bank}_{i,j,t} + b_2\text{Industry}_{j,t} + b_3\text{Macro}_{j,t} \\
& + b_4\text{Regulation}_{j,t} + b_5\text{CSR}_{i,j,t} + b_6\text{CSR}_{i,j,t}*\text{ROA}_{i,j,t} + \mu_{i,j,t},
\end{aligned} \tag{1}$$

for bank i, in country j and at time t. The coefficient δ shows the speed of adjustment and lies between 0 and 1.

As part of diagnostic testing, we identify weakly exogenous (predetermined) and endogenous variables following Agoraki et al. (2011) and Männasoo and Mayes (2009). Consistent with Louzis et al. (2012), we argue that bank variables are forward-looking as management considers banks' expected and actual performance while making future strategic decisions. Therefore, we assume a weak form of exogeneity (predetermined) for bank variables expecting that current bank performance effects on bank variables in following periods. Over the last three decades, significant political and economic reforms have increased financial turbulence in transition countries. Reacting to instability in the current period, policymakers and regulators repeatedly changed macroeconomic policy and bank regulation to attempt to reduce this turbulence. Following Männasoo and Mayes (2009) and Agoraki et al. (2011), therefore, we consider industry-specific and macroeconomic variables as endogenous, using the Hansen test to check the overall validity of the instruments.

As an additional robustness test, we replicate the system GMM models using a standard fixed-effects model which controls for country fixed effects but may be sensitive to endogeneity. For both models, given the embarrassment of riches with possible control variables, we also apply the "general-to-specific" method when deciding which control variables should be included in the overall model, following Hendry (1995) and, in a bank context, Klomp and De Haan (2012). We initially include control variables only to estimate (1). Next, we remove the least significant variable and re-calculate (1). We continuously repeat this procedure until our model is free from the least significant control variables.

Finally, in addition to the system GMM and fixed-effects models, we perform a quantile regression specification. Most research investigating the impact of CSR on bank performance assumes the effect to be homogenous (Wu & Shen, 2013). However, quantile regressions provide a better description of the heterogeneous effects of CSR on competitive advantage at different locations of the distribution consistent with the heterogeneous nature of banking industries and banks across countries. Moreover, the results from quantile regressions are robust to distributions with heavy tails and outliers. Furthermore, the specification avoids the restrictive assumption that the error terms are identically distributed at the points of the conditional distribution (Klomp & De Haan, 2012).

Table 2 Descriptive statistics and correlation matrix

	Variables	Mean	SD	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1)	Competitive advantage	0.49	0.24												
(2)	ROA	0.01	0.05	0.17											
(3)	Size	6.57	1.87	0.12	0.03										
(4)	Liquidity	1.01	2.56	− 0.03	− 0.22	− 0.07									
(5)	Foreign	0.69	0.46	− 0.02	0.03	0.15	− 0.02								
(6)	State	0.07	0.25	0.01	− 0.06	0.07	0.00	− 0.40							
(7)	Private	0.25	0.43	0.01	0.01	− 0.21	0.02	− 0.84	− 0.15						
(8)	Capital ratio	0.16	0.13	− 0.20	0.12	− 0.50	0.14	− 0.03	− 0.01	0.03					
(9)	Total CSR	0.81	2.46	0.00	0.02	0.31	− 0.01	0.11	− 0.01	− 0.11	− 0.07				
(10)	Community involvement	0.39	1.02	0.02	0.02	0.35	− 0.02	0.11	− 0.02	− 0.11	− 0.10	0.88			
(11)	Environment	0.11	0.51	− 0.00	0.01	0.24	− 0.00	0.10	0.01	− 0.11	− 0.04	0.85	0.64		
(12)	Employees	0.20	0.75	− 0.01	0.01	0.23	− 0.01	0.09	− 0.01	− 0.09	− 0.04	0.89	0.69	0.69	
(13)	Product and customer	0.11	0.56	0.00	0.01	0.20	0.00	0.06	0.01	− 0.07	− 0.03	0.82	0.54	0.73	0.70

The table presents the correlation for the bank-specific variables

Table 3 Country-specific variables

Countries	Inflation (CPI, annual %)	Domestic credit to private sector (% of GDP)	GDP growth (annual %)	Efficiency
EU				
Bulgaria	4.554	52.411	3.608	0.517
Croatia	2.189	60.333	1.493	0.498
Czech Republic	2.143	39.315	2.501	0.574
Estonia	3.686	75.607	3.541	0.467
Hungary	4.486	48.659	1.795	0.400
Latvia	4.579	69.562	3.788	0.515
Lithuania	2.886	47.751	4.341	0.507
Poland	2.407	38.144	3.805	0.520
Romania	7.985	28.692	3.747	0.405
Slovak Republic	3.477	43.699	4.244	0.518
Slovenia	3.065	64.555	1.861	0.430
Average EU	3.769	51.702	3.157	0.486
Non-EU				
Armenia	4.630	22.256	7.097	0.498
Azerbaijan	6.704	15.622	11.773	0.515
Belarus	23.016	23.715	6.118	0.503
Bosnia and Herzegovina	2.392	46.918	3.259	0.472
Georgia	5.210	27.297	6.194	0.476
Kazakhstan	8.046	37.553	7.092	0.445
Macedonia	2.118	35.737	3.203	0.562
Moldova	8.369	31.555	5.100	0.503
Serbia	9.965	35.479	3.144	0.404
Ukraine	9.330	57.650	2.724	0.403
Average non-EU	7.978	33.378	5.570	0.478

The table presents the means for the inflation, domestic credit to private, GDP growth and

SFA-generated efficiency (averaged at a country level) variables over the period 2002–2014

4 Results

4.1 Descriptive statistics

Table 2 reports the summary statistics for all the bank-specific variables included in this study. The standard deviations for Size, Liquidity, and Total CSR (disclosure) are relatively large implying that these variables vary significantly across banks. In addition, Table 2 shows that the two types of ownership, Foreign and Private, are highly correlated so instead we will use the dichotomy of "Foreign" or "State-owned" in the analyses. As the CSR disclosure variables themselves are highly correlated, we will consider only one of them at a time in the analysis.

By contrast, Table 3 presents inflation, domestic credit to the private sector, GDP growth, and the efficiency metrics generated by the SFA (averaged at a country level). The average means of the inflation and GDP growth are lower in EU member states, implying that non-EU member states have experienced higher inflation and economic growth over the period. The average means for the domestic credit to private sector as well as the efficiency are higher in the EU states implying that the latter have relatively better developed financial sectors and more efficient in the use of resources.

4.2 System GMM

We tested our research hypotheses with several regression models and reported the results in Table 4. While Model 1 consists of control variables only, Models 2–6 include the main variables and their interactions. All models satisfy the conditions of System-GMM modeling with regard to the Hansen test and first- and second-order autocorrelation.

The CSR disclosure variables such as *Total CSR*, *Community involvement, Employees,* and *Product and customer service* do not appear to be statistically significant, implying little association with competitive advantage in either a negative or positive manner. However, *Environment* enters Model 4 as significant and negative, implying that a focus on environmental initiatives (such as recycling, protection of natural resources and energy saving) diverts bank energies and hampers competitive advantage. In particular, a one-point increase in the *Environment* indicator leads to a decrease in competitive advantage by -0.038 ($p = 0.048$). As the average competitive advantage is 0.490 (see Table 3), this corresponds to a decrease in competitive advantage of approximately 7.76%.

Models 2 to 4 and 6 of Table 4 extends this analysis to our area of interest, namely how profitability and CSR disclosure interact in transition; importantly, the interaction coefficients between profitability and CSR disclosure are almost uniformly positive and statistically significant, suggesting that profitability-enhancing CSR (i.e., CSR which occurs after a certain level of profitability is achieved) is the only type of CSR which aids competitiveness in transition. In particular, a one unit increase of *Total CSR*, *Community involvement, Environment* and *Product and customer service* improves competitive advantage by 0.386 ($p = 0.099$), 1.032 ($p = 0.082$), 2.547 ($p = 0.021$) and 2.224 ($p = 0.020$) units respectively (with a corresponding one-unit increase in ROA).[5] The only outlier in this examination is the interaction term for *Employees*, which does not appear to be statistically significant, a plausible outcome in an environment where jobs may be scarce (or, alternately, in an industry where jobs are fairly similar across firms). As the category of *Employees* is related to the health and safety policies, employee compensation, equal employment opportunities, and employee welfare, this result could also be due to poorly developed employment laws and conditions in these countries.

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[5] Competitive advantage $= \alpha + \beta_1 * \text{CSR} + \beta_2 * \text{ROA} + \beta_3 * \text{CSR} * \text{ROA} + \varepsilon$; Thus, a unit increase in CSR will produce a ($\beta_1 + \beta_3 * \text{ROA}$) unit increase (or decrease) in competitive advantage.

Table 4 CSR-performance nexus moderated by profitability

Variables	System GMM						Fixed effects					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Competitive advantage$_{t-1}$	0.468***	0.450***	0.445***	0.431***	0.443***	0.451***	0.214***	0.209***	0.208***	0.208***	0.211***	0.212***
	(0.051)	(0.041)	(0.042)	(0.042)	(0.045)	(0.043)	(0.028)	(0.027)	(0.027)	(0.027)	(0.028)	(0.028)
Size	− 0.005	− 0.014*	− 0.014	− 0.012	− 0.010	− 0.012	0.015	0.013	0.013	0.016	0.013	0.015
	(0.008)	(0.008)	(0.008)	(0.009)	(0.009)	(0.009)	(0.012)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)
Liquidity	0.003**	0.004***	0.004***	0.004**	0.004**	0.004**	0.003**	0.004**	0.004**	0.004**	0.003**	0.004**
	(0.001)	(0.002)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
State owner-ship	0.101*	0.116	0.133*	0.116**	0.125**	0.108*	0.079	0.055	0.052	0.062	0.064	0.064
	(0.060)	(0.072)	(0.070)	(0.055)	(0.064)	(0.060)	(0.121)	(0.121)	(0.120)	(0.121)	(0.121)	(0.121)
Capital ratio	− 0.325**	− 0.439***	− 0.409***	− 0.405***	− 0.406***	− 0.429***	− 0.537***	− 0.536***	− 0.540***	− 0.514***	− 0.545***	− 0.533***
	(0.136)	(0.136)	(0.128)	(0.134)	(0.130)	(0.129)	(0.138)	(0.134)	(0.135)	(0.133)	(0.136)	(0.135)
GDP growth	0.006***	0.006***	0.006***	0.006***	0.006***	0.006***	0.007***	0.007***	0.007***	0.007***	0.007***	0.007***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Inflation	− 0.000*	− 0.000	− 0.000	− 0.000	− 0.000	− 0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Crisis (2007–2009)	− 0.021**	− 0.023**	− 0.022**	− 0.022**	− 0.021**	− 0.024**	− 0.006	− 0.005	− 0.005	− 0.006	− 0.004	− 0.005
	(0.011)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)
ROA	0.738*	0.839***	0.749*	0.860*	0.915*	0.997**	1.335***	1.138***	1.125***	1.200***	1.219***	1.218***
	(0.447)	(0.423)	(0.393)	(0.465)	(0.485)	(0.447)	(0.365)	(0.353)	(0.351)	(0.353)	(0.362)	(0.356)
Dynamism		0.170	− 0.092	0.103	0.026	0.513						
		(1.787)	(1.852)	(1.948)	(1.877)	(1.805)						
Capital require-ments	0.007	0.007	0.008	0.006	0.008	0.006		0.006	0.006	0.006	0.006	0.006
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)

Table 4 (continued)

Variables	System GMM						Fixed effects					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Total CSR		− 0.003						− 0.008*				
		(0.004)						(0.004)				
Total CSR * ROA		0.386*						0.502***				
		(0.234)						(0.153)				
Community involvement			− 0.003						− 0.021**			
			(0.011)						(0.010)			
Community involvement * ROA			1.032*						1.247***			
			(0.591)						(0.397)			
Environment				− 0.038**						− 0.046**		
				(0.019)						(0.019)		
Environment * ROA				2.585**						2.878***		
				(1.118)						(1.034)		
Employees					− 0.008						− 0.012	
					(0.014)						(0.011)	
Employees * ROA					0.339						0.972**	
					(0.596)						(0.469)	
Product and customer						− 0.022						− 0.031**
						(0.019)						(0.015)

Table 4 (continued)

Variables	System GMM						Fixed effects					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Product and customer * ROA						2.224**						1.988***
						(0.954)						(0.733)
Number of instruments	166	232	232	224	225	223						
Hansen-test	0.625	0.423	0.516	0.524	0.444	0.549						
AB test AR(1) (p value)	0.000	0.000	0.000	0.000	0.000	0.000						
AB test AR(2) (p value)	0.625	0.581	0.512	0.596	0.590	0.705						
Observations	1960	1960	1960	1960	1960	1960	1960	1960	1960	1960	1960	1960
R-squared							0.156	0.172	0.174	0.171	0.162	0.168

Windmeijer-corrected standard errors are shown in parentheses. The constant term is included, but not reported. We use the variable lags as instruments, consistent with system GMM, and limit their lag range to two

Finally, in general, the control variables in these models behave mostly as expected, with ROA, liquidity, and economic growth showing a strong positive correlation with competitive advantage and the years of the global financial crisis reducing bank competitiveness; interestingly, banks with state ownership experience between a 20.61% ($\beta = 0.101$, $p = 0.094$) and 27.14% ($\beta = 0.133$, $p = 0.057$) higher competitive advantage than their private counterparts (consistent with Haque and Brown (2017)), likely due to their continuing support and first-mover advantages.

Columns 7 through 12 of Table 4 replicate this analysis using a fixed-effects specification as a robustness test and, as can be seen, the same results hold at approximately the same magnitude and precisely the same significance.

Based on the results from the system GMM and the fixed-effects models, we can also see how the slopes of competitive advantage, conditioned on various facets of CSR disclosure, differ depending on the values of the profitability variable (Fig. 1). Restricting ourselves only to the statistically significant variables – i.e., *Total CSR*, *Community Involvement*, *Environment*, and the *Product and customer service*- we trace their effect on competitive advantage in three different subsets of ROA: ROA = 0.06 (one standard deviation above the ROA mean), ROA = 0.01 (at the ROA mean) and ROA = − 0.04 (one standard deviation below the ROA mean). As shown in Fig. 1, *Total CSR*, *Community Involvement*, *Environment*, and *Product and customer service* appear to have a positive relationship with competitive advantage when ROA is high (ROA = 0.06), but the opposite is true when ROA is low (ROA = − 0.04). Furthermore, the link remains positive for *Total CSR*, *Community Involvement* and *Product and customer service* when ROA is at the mean (0.01) although the slope is relatively flat. However, the relationship is still negative for *Environment* when ROA is at the mean. Overall, this gives further evidence that the relationship between competitive advantage and CSR disclosure is dependent upon firm ROA, with CSR disclosure conferring competitive advantages only when ROA is already high.

4.3 Quantile analysis

As a further exploration of the CSR-CFP nexus in the presence of unstable institutions, we also utilize dynamic panel quantile regressions, analyzing and presenting results across lower (0.10 and 0.30), medium (0.50) and higher (0.70 and 0.90) quantiles of competitive advantage. This specification contains the same basic model as Eq. 1, with the inclusion of a lagged dependent variable to control for autoregressive tendencies consistent with the methodology proposed by Galvao (2011). Also, we use clustered standard errors to correct for heteroskedasticity, as diagnostics reject a constant variance estimated at the 0.50 quantile (Machado & Silva, 2000).

The results in Tables 5, 6, 7 indicate that *Total CSR* and *Employees* decrease competitive advantage at poorly performing banks. In particular, a one unit increase in *Total CSR* and *Employees* lowers competitive advantage at the 0.30 conditional quantile by 0.007 ($p = 0.041$) and 0.027 ($p = 0.038$) respectively. Moreover, *Environment* appears to have negative competitive advantage affects across the 0.10, 0.30, and 0.70 quantiles (Table 6), implying that a one unit increase in *Environment*
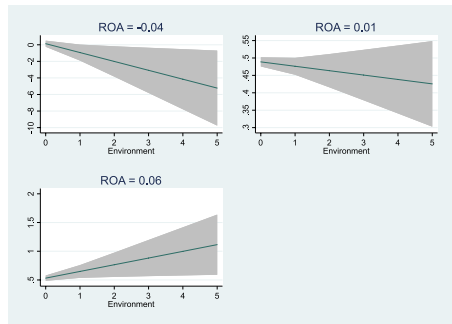
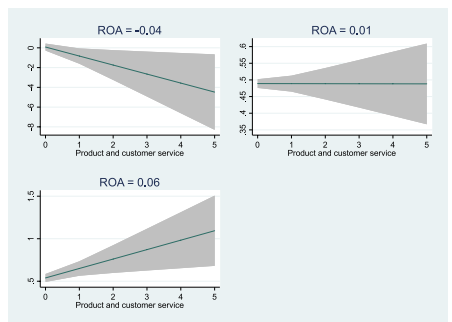**Fig. 1** Effects of CSR on Competitive advantage
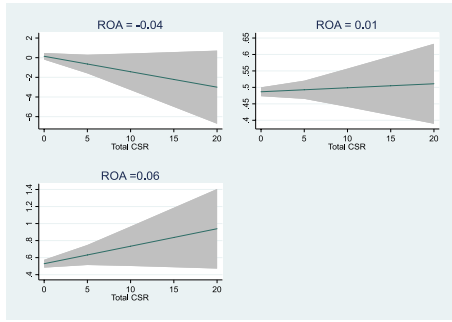
a Effects of Total CSR contingent on ROA
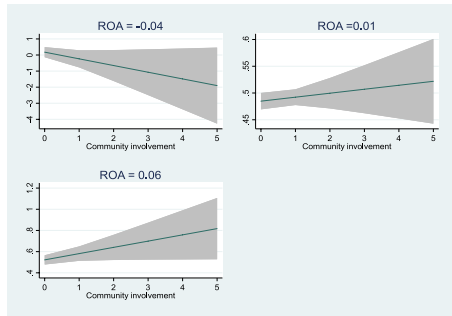
b Effects of Community Involvement contingent on ROA

c Effects of Environment contingent on ROA

d Effects of Product and Customer Service contingent on ROA

Table 5 Total CSR and performance link (dynamic quantile)

Variables	(1) 0.10	(2) 0.30	(3) 0.50	(4) 0.70	(5) 0.90
Competitive advantage$_{t-2}$	0.140***	0.512***	0.499***	0.351***	0.116***
	(0.045)	(0.062)	(0.045)	(0.039)	(0.041)
Size$_{t-1}$	− 0.005	0.006	− 0.012*	− 0.014***	− 0.013***
	(0.007)	(0.009)	(0.006)	(0.005)	(0.005)
Liquidity$_{t-1}$	0.009***	− 0.000	0.002*	0.000	− 0.001*
	(0.002)	(0.106)	(0.001)	(0.001)	(0.001)
State ownership$_{t-1}$	− 0.012	0.017	0.003	0.011	0.034
	(0.077)	(0.051)	(0.031)	(0.039)	(0.033)
Capital ratio$_{t-1}$	− 0.405***	− 0.389*	− 0.557***	− 0.606***	− 0.395**
	(0.091)	(0.201)	(0.090)	(0.112)	(0.197)
GDP growth$_{t-2}$	0.005*	0.003	0.000	− 0.002*	0.000
	(0.003)	(0.002)	(0.002)	(0.001)	(0.001)
Inflation$_{t-2}$	0.000	0.000	− 0.000	0.000	− 0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Dynamism$_{t-2}$	− 2.489	− 1.708	0.386	− 0.118	− 0.038
	(1.810)	(1.948)	(1.100)	(1.099)	(1.397)
Capital requirements$_{t-2}$	− 0.012**	− 0.015***	− 0.011**	− 0.002	− 0.003
	(0.006)	(0.006)	(0.005)	(0.004)	(0.003)
Crisis (2007–2009)	− 0.086***	− 0.106***	− 0.054***	− 0.011	− 0.023**
	(0.026)	(0.021)	(0.019)	(0.012)	(0.010)
ROA$_{t-1}$	1.826***	1.828*	1.286**	0.822*	0.422
	(0.517)	(0.942)	(0.563)	(0.454)	(0.461)
Total CSR$_{t-1}$	− 0.008*	− 0.007**	− 0.009	− 0.005	0.001
	(0.004)	(0.004)	(0.007)	(0.005)	(0.002)
Total CSR$_{t-1}$ * ROA	1.086***	0.577***	0.612**	0.263	− 0.154**
	(0.223)	(0.126)	(0.298)	(0.221)	(0.071)
Constant	2.748	1.944	0.114	0.759	0.896
	(1.833)	(1.952)	(1.143)	(1.122)	(1.411)
Observations	1,638	1,638	1,638	1,638	1,638
R-squared	0.112	0.157	0.164	0.154	0.113
Parente-Santos Silva test (p-value)	0.000	0.000	0.000	0.000	0.000
Machado-Santos Silva test (p-value)			0.000		

Clustered standard errors are shown in parentheses. Constant term included, but not reported. As bank-specific (predetermined) as well as industry-specific and macroeconomic (endogenous) variables are instrumented with their lags in the system GMM, we use their lags in dynamic quantile regressions to make the results comparable across two approaches

decreases competitive advantage by 0.03 ($p=0.019$), 0.037 ($p=0.093$) and 0.041 ($p=0.023$) respectively. However, *Community involvement* and *Product and customer service* do not enter the regressions significantly, indicating the absence of their effects by conditional quantile on competitive advantage.

Table 6 Community involvement, environment and performance (dynamic quantile)

Variables	Community involvement					Environment				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	0.10	0.30	0.50	0.70	0.90	0.10	0.30	0.50	0.70	0.90
Competitive advantage$_{t-2}$	0.143***	0.488***	0.493***	0.339***	0.116***	0.145***	0.506***	0.505***	0.354***	0.114***
	(0.043)	(0.061)	(0.043)	(0.038)	(0.042)	(0.048)	(0.065)	(0.046)	(0.039)	(0.040)
Size$_{t-1}$	− 0.007	0.003	− 0.013**	− 0.015***	− 0.013***	− 0.001	0.005	− 0.011*	− 0.013***	− 0.013***
	(0.007)	(0.009)	(0.006)	(0.004)	(0.005)	(0.008)	(0.008)	(0.006)	(0.005)	(0.005)
Liquidity$_{t-1}$	0.009***	0.004***	0.002*	0.000	− 0.001*	0.009***	0.004***	0.002*	0.000	− 0.001*
	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
State ownership$_{t-1}$	− 0.002	0.022	0.002	0.015	0.035	− 0.015	0.023	− 0.002	0.011	0.033
	(0.063)	(0.046)	(0.031)	(0.040)	(0.033)	(0.075)	(0.044)	(0.035)	(0.041)	(0.034)
Capital ratio$_{t-1}$	− 0.381***	− 0.425***	− 0.558***	− 0.602***	− 0.392*	− 0.389***	− 0.414***	− 0.550***	− 0.602***	− 0.396**
	(0.083)	(0.133)	(0.090)	(0.122)	(0.202)	(0.093)	(0.131)	(0.090)	(0.111)	(0.195)
GDP growth$_{t-2}$	0.004*	0.002	− 0.000	− 0.002*	0.000	0.005	0.002	− 0.000	− 0.002**	0.000
	(0.003)	(0.002)	(0.002)	(0.001)	(0.001)	(0.003)	(0.002)	(0.002)	(0.001)	(0.001)
Inflation$_{t-2}$	− 0.000	0.000	− 0.000	0.000	− 0.000	− 0.000	0.000	− 0.000	0.000	− 0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
l2dynamism	− 3.128*	− 1.651	0.439	− 0.003	− 0.385	− 2.294	− 1.622	0.674	− 0.297	− 0.161
	(1.658)	(2.100)	(1.046)	(1.115)	(1.472)	(1.890)	(1.897)	(1.130)	(1.103)	(1.318)
l2capreq	− 0.012**	− 0.015**	− 0.011**	− 0.003	− 0.003	− 0.014**	− 0.015***	− 0.011**	− 0.002	− 0.003
	(0.006)	(0.006)	(0.005)	(0.004)	(0.003)	(0.006)	(0.005)	(0.005)	(0.004)	(0.003)
Crisis (2007–2009)	− 0.082***	− 0.102***	− 0.052***	− 0.012	− 0.018*	− 0.081***	− 0.112***	− 0.049**	− 0.014	− 0.020**
	(0.026)	(0.021)	(0.019)	(0.012)	(0.010)	(0.028)	(0.020)	(0.020)	(0.013)	(0.010)
ROA$_{t-1}$	1.576***	1.940**	1.206**	0.762	0.391	2.081***	2.130***	1.342**	0.823*	0.431
	(0.406)	(0.780)	(0.568)	(0.478)	(0.476)	(0.518)	(0.764)	(0.568)	(0.444)	(0.453)

Table 6 (continued)

Variables	Community involvement					Environment				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	0.10	0.30	0.50	0.70	0.90	0.10	0.30	0.50	0.70	0.90
Community involvement$_{t-1}$	− 0.015	− 0.013	− 0.011	− 0.010	0.006					
	(0.010)	(0.013)	(0.011)	(0.008)	(0.005)					
Community involvement$_{t-1}$ * ROA	2.926***	1.524***	1.318***	0.749**	− 0.345*					
	(0.844)	(0.380)	(0.434)	(0.311)	(0.195)					
Environment$_{t-1}$						− 0.030**	− 0.037*	− 0.036	− 0.041**	0.003
						(0.013)	(0.022)	(0.042)	(0.018)	(0.008)
Environment$_{t-1}$ * ROA						4.171***	2.660***	2.323	1.845*	− 0.895***
						(0.642)	(0.900)	(1.870)	(0.953)	(0.317)
Observations	1,638	1,638	1,638	1,638	1,638	1,638	1,638	1,638	1,638	1,638
R-squared	0.119	0.160	0.167	0.157	0.113	0.111	0.155	0.162	0.154	0.114
Parente-Santos Silva test (p-value)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Machado-Santos Silva test (p-value)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Notes same as Table 5

Table 7 Employees, product and customer and performance (dynamic quantile)

Variables	Employees					Product and customer				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	0.10	0.30	0.50	0.70	0.90	0.10	0.30	0.50	0.70	0.90
Competitive advantage$_{t-2}$	0.142***	0.506***	0.506***	0.346***	0.116***	0.148***	0.512***	0.511***	0.346***	0.116***
	(0.047)	(0.059)	(0.044)	(0.038)	(0.041)	(0.048)	(0.069)	(0.044)	(0.039)	(0.041)
Size$_{t-1}$	− 0.004	0.006	− 0.012*	− 0.014***	− 0.013***	− 0.002	0.006	− 0.011*	− 0.013***	− 0.013***
	(0.008)	(0.007)	(0.006)	(0.004)	(0.005)	(0.008)	(0.008)	(0.006)	(0.004)	(0.005)
Liquidity$_{t-1}$	0.009***	0.004***	0.002*	0.000	− 0.001*	0.009***	0.004***	0.002	0.000	− 0.001*
	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
State ownership$_{t-1}$	− 0.007	0.019	0.000	0.010	0.034	− 0.011	0.008	− 0.003	0.010	0.035
	(0.064)	(0.047)	(0.036)	(0.039)	(0.034)	(0.064)	(0.062)	(0.032)	(0.037)	(0.033)
Capital ratio$_{t-1}$	− 0.415***	− 0.411***	− 0.551***	− 0.611***	− 0.396**	− 0.400***	− 0.398***	− 0.542***	− 0.597***	− 0.391**
	(0.093)	(0.128)	(0.090)	(0.121)	(0.199)	(0.092)	(0.148)	(0.087)	(0.109)	(0.197)
GDP growth$_{t-2}$	0.005*	0.002	− 0.000	− 0.002	0.000	0.005*	0.002	− 0.000	− 0.002	0.000
	(0.003)	(0.002)	(0.002)	(0.001)	(0.001)	(0.003)	(0.002)	(0.002)	(0.001)	(0.001)
Inflation$_{t-2}$	0.000	0.000	− 0.000	0.000	− 0.000	− 0.000	0.000	− 0.000	0.000	− 0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Crisis (2007–2009)	− 0.074***	− 0.107***	− 0.050***	− 0.013	− 0.022**	− 0.077***	− 0.104***	− 0.047**	− 0.016	− 0.021**
	(0.027)	(0.020)	(0.019)	(0.013)	(0.010)	(0.027)	(0.022)	(0.019)	(0.012)	(0.010)
Dynamism$_{t-2}$	− 2.354	− 1.592	0.565	− 0.142	− 0.106	− 2.403	− 1.807	0.968	− 0.059	− 0.114
	(1.944)	(2.067)	(1.056)	(1.172)	(1.408)	(1.807)	(1.801)	(1.077)	(1.158)	(1.361)
Capital requirements$_{t-2}$	− 0.014**	− 0.014***	− 0.011**	− 0.002	− 0.003	− 0.015***	− 0.015***	− 0.011**	− 0.002	− 0.003
	(0.006)	(0.005)	(0.005)	(0.004)	(0.003)	(0.006)	(0.006)	(0.005)	(0.004)	(0.003)
ROA$_{t-1}$	1.917***	2.048***	1.330**	0.894*	0.421	2.077***	2.097**	1.355**	0.919**	0.415
	(0.497)	(0.737)	(0.565)	(0.476)	(0.459)	(0.480)	(0.856)	(0.554)	(0.455)	(0.460)

Table 7 (continued)

Variables	Employees					Product and customer				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	0.10	0.30	0.50	0.70	0.90	0.10	0.30	0.50	0.70	0.90
Employees$_{t-1}$	− 0.014	− 0.027**	− 0.023	− 0.008	0.006					
	(0.015)	(0.013)	(0.022)	(0.007)	(0.006)					
Employees$_{t-1}$ * ROA	2.769***	2.049***	1.563	0.385	− 0.520*					
	(0.732)	(0.516)	(1.048)	(0.298)	(0.312)					
Product and customer$_{t-1}$						− 0.021	− 0.025	− 0.020	− 0.010	0.005
						(0.016)	(0.038)	(0.022)	(0.009)	(0.009)
Product and customer$_{t-1}$ * ROA						3.837***	1.727	1.272	0.202	− 0.848**
						(0.825)	(1.983)	(1.243)	(0.323)	(0.389)
Observations	1,638	1,638	1,638	1,638	1,638	1,638	1,638	1,638	1,638	1,638
R-squared	0.108	0.152	0.160	0.151	0.116	0.105	0.152	0.159	0.151	0.115
Parente-Santos Silva test (p-value)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Machado-Santos Silva test (p-value)			0.000					0.000		

Notes same as Tables 5

Nevertheless, as in the GMM results, CSR disclosure effects change when combined with profitability. In particular, the moderating effects of *Total CSR* and *Employees* become positive for banks with both medium and lower competitive advantage. Specifically, the effects of *Total CSR* and *Employees* on competitive advantage show an increase by 0.577 ($p=0.000$) and 2.049 ($p=0.000$) respectively when ROA increases by one unit at the 0.30 conditional quantile of competitive advantage (Tables 5 and 7). Similarly, we observe positive impacts of *Community involvement* and *Environment* on competitive advantage for banks with nearly all levels of competitive advantage (Table 6). In particular, the effects of *Community involvement* and *Environment* are an increase of 0.749 ($p=0.016$) and 1.845 ($p=0.053$), respectively, when ROA increases by one unit in at the 0.7 conditional quantile of competitive advantage (Table 9).

Interestingly, however, the effects of CSR disclosure, when combined with profitability, become negative for the banks at 0.90 (highest) quantile. In particular, the impacts of *Total CSR, Community involvement, Environment* and *Employees* in the 0.90 conditional quantile of competitive advantage decrease by 0.154 ($p=0.031$), 0.345 ($p=0.077$), 0.895 ($p=0.005$) and 0.520 ($p=0.095$), respectively, corresponding to a one unit increase in ROA. It is possible that banks already operating close to the frontier cannot sacrifice any resources in an attempt to stay ahead of the pack, and thus CSR is truly a peripheral activity (i.e., if all tangible assets are producing efficiency, the marginal benefit of intangible assets is likely to be very low). The same effect can be seen with *Product and customer service*, as banks located on the tails of the competitive advantage distribution show diametrically different influences (Table 7): specifically, the effects of *Product and customer service* are positive on competitive advantage at the 0.10 conditional quantile by 3.837 ($p=0.000$), while they decrease competitive advantage by 0.848 ($p=0.029$) at the 0.90 conditional quantile.

4.4 Sensitivity and robustness

The system GMM analysis already to some extent incorporates the overall institutional environment of a country, in that institutional exigencies (i.e. EU membership) are built-in to the framework defining bank efficiency. That is, the SFA approach incorporates a country's institutional matrix in fashioning the frontier of bank performance and a bank's own position relative to its frontier. However, it is highly likely that institutional effects go beyond just determining relative bank efficiency within the narrowly circumscribed area of relative position and can, in line with Hypothesis 2, influence absolute competitiveness; moreover, institutional attributes in transition economies diverged widely as the transition progressed, and it is probable that the effects of CSR disclosure, especially if it is profitability enhancing, would be sensitive to a country's institutional development.

To test this relationship, we add a dummy variable for late transition countries (Transition FSU) to our specification (2), with the dummy taking the value of 1 if a bank is in an FSU country (apart from the Baltic States, who are EU members and qualify as "early" transition countries) and 0 otherwise. The results presented in Table 8

in Appendix indicate that only *Environment* remains significant but negative, with a one-point increase in the *Environment* ($p=0.019$) indicator leading to a change in competitive advantage by − 0.045. *Total CSR*, *Community involvement*, *Employees* and *Product and customer* do not appear to be statistically significant in this model. However, consistent with the results of Table 4, the interactions between CSR disclosure and profitability remain significant, confirming our hypothesis that CSR disclosure occurring after profitability is achieved is the only type of CSR contributing to bank competitive advantage in transition countries. But while these results imply that the performance implications of CSR disclosure do not vary across the late and early transition countries, the effects of institutional weakness remain: the impact of CSR disclosure, even after profitability has been achieved, appears negative in the late transition (FSU) economies (the triple interaction term), with *Total CSR* ($p=0.087$), *Community involvement* ($p=0.040$) and *Employees* ($p=0.061$) lowering competitive advantage by − 0.578, − 1.862, and − 2.029 in banks in the FSU. For countries in the most stagnant and/or volatile institutional environments, even profitable banks employing CSR disclosure cannot improve a bank's competitive advantage relative to the frontier.

Given that the institutional matrix captured in our FSU dummy variable still may be obscuring more granular institutional effects, we include an additional institutional variable in Table 9 in Appendix, based on a key institutional malaise faced by transition economies, namely corruption (Cuervo-Cazurra, 2008). Including the "control for corruption" from the World Bank's Worldwide Governance Indicators, with higher values indicating better governance/less corruption, we can see in Table 9 in Appendix that the direct effects of CSR disclosure and their profitability interactions remain similar to those presented in Table 4. While the results suggest that this particular institutional attribute does not impact on the CSR-performance nexus, it appears that the positive effects of CSR disclosure in the presence of profitability are further improved in countries where corruption is better controlled. Specifically, the performance implications of *Total CSR* ($\beta=0\ 0.562$; $p=0.003$), *Community involvement* ($\beta=1.572$; $p=0.002$), *Environment* ($\beta=2.531$; $p=0.002$) and *Employees* ($\beta=1.363$; $p=0.013$) are positive and appear to be much stronger in countries which have better control of corruption.

To further investigate this institutional relationship, we separate out transition countries where the level of control of corruption is low in order to see if there is any variation in the CSR-CFP nexus. Along the lines of Hypothesis 4, we include a dummy which takes the value of 1 for countries where control is low (defined here as located one standard deviation below the mean of corruption for all transition countries in a particular year) and 0 otherwise. The results presented in Table 10 in Appendix indicate that the direct effects of CSR disclosure and their profitability interactions remain similar to those shown in Tables 4, 8 and 9 in Appendix, however, CSR disclosure does not seem to improve the competitive advantage of banks in countries with the highest levels of corruption. In particular, the performance implications of *Total CSR* ($p=0.068$) and *Community involvement* ($p=0.040$) in these countries, even when a bank has attained profitability, are – 0.578 and – 1.624, respectively. Thus, even satisfying one's shareholders in the most corrupt environments is no guarantee that CSR disclosure will enhance competitiveness, especially since CSR in a highly corrupt state could be its own form of corruption (Chen et al.,

2017); conversely, CSR initiatives may also attract the attention of corrupt officials or the predatory state, making such initiatives more costly than beneficial.

5 Conclusion

This paper has taken a novel look at the CSR-efficiency nexus in a particular sector (banking) in a particular institutional environment (transition) and specifically focusing on times of turbulence. Using a broad panoply of econometric techniques to account for endogeneity and the heterogeneity of the effects of CSR—and generating bank efficiency metrics by use of stochastic frontier analysis—we show that the exigencies of transition and the weak and/or fluctuating institutional environment changes the incentive structure for CSR in the financial sector. In particular, our results show that banks benefit from disclosing CSR activities only if they comport with an overall profitability strategy for the firm. This is consistent with other evidence from transition economies (such as Fijałkowska et al., 2018 or), which shows that firms are perceived as being "socially responsible" if they exceed their economic responsibilities rather than merely being focused on social issues (Mahmood & Humphrey, 2013), which is still seen as being mostly the purview of the state. Perhaps somewhat surprisingly, the mode of CSR engagement that a bank chose was irrelevant; whether it was total CSR activity, community involvement, environmental action, or product and customer responsiveness did not matter, so long as the activities were consistent with bank profitability. The main results from dynamic quantile regressions, however, implied that CSR and its relationship with profitability were heterogeneous depending on where the bank was on the frontier of competitive advantage, with both low-performing and the highest-performing banks showing little benefit from CSR.

Several policy implications from this study logically follow for both policymakers and managers. Most obviously, for firms in transition in the financial sector, profitability should remain a key concern and a form of CSR in its own right, in that a successful bank provides financial intermediation (Bod'a & Zimkova, 2021). Our results suggest that managers in a transition context should not lose sight of this basic goal of a bank, even while CSR activities may appear attractive. In line with existing theories and empirical evidence from the real economy (e.g., Lahouel et al., 2021), only when a bank has reached a lack of financial constraints and slack resources, should it look at adding CSR in order to increase its competitive advantage. At the same time, particular care must be taken to avoid the "grabbing hand" of the state in a highly corrupt environment, meaning that even profitable banks may avoid disclosure of CSR activities to stay under the radar of the government. As our results show, the external institutional environment can play an overriding factor in CSR decisions, meaning a manager needs to consider the longer-term consequences to the firm as a result of non-market activities as well as market competitive advantages.

For those banks operating in lower corruption environments, and whose management have decided to move towards CSR, it is crucial to decide which aspect of CSR engagement should then follow. A choice for particular CSR engagement is, much like the decision for overall CSR, likely be moderated by local concerns and perceptions, the external institutional environment, and may be conditioned on which

mode is most appropriate (put in the negative, which CSR strategy will draw the least scrutiny and opprobrium if it is disclosed). Our results have shown that, for banks in transition, disclosure of overall CSR activities, work done in product and customer service, and environmental initiatives can aid already-profitable banks in securing a competitive edge. However, the choice of specific mode of engagement requires an accurate read of external conditions, as corruption or low institutional quality environments can make specific initiatives problematic.

Finally, in terms of the policy implications of this work, we believe it shows that policymakers would be well served by helping to establish an environment which rewards the CSR activities of banks in transition countries. First and foremost, this means completing the transition and building strong institutions which respect property rights and lower corruption. For the most advanced transition economies, the external environment is still important, but it is more "background noise," allowing for a profitable bank to pursue (and disclose) CSR activities without fear of retribution from a rapacious government. Beyond these basic fundaments—which admittedly are the most important part of an economy and remain difficult to build, even 30 years later—additional reforms can be undertaken, including the presence of a supportive CSR framework, as well as the development of institutions supporting social and environmental activities. In this sense, legislatively and legally the support for CSR can be established. However, given the idiosyncrasies of post-communist countries, government should not be leading the CSR charge, as this will only further ossify the association between social responsibility and the government (and dissociate it from business) in the minds of stakeholders. In order to ensure that the incentives for CSR remain aligned, policymakers should ensure that large state-owned and -connected firms remain engaged in CSR, while touting the importance of private sector responsibility in socially responsible practices.

Future research should expand this work and perhaps explore the role of CSR complementarities in transition, to see if there are dominant CSR strategies for the profit-maximizing firm to pursue. Additional work could also explicitly consider the life-cycle effects of the firm beyond merely its profitability, and whether or not this is different for banks and firms in the real economy. As we have focused on specifically turbulent years in transition—a limitation of the study—additional work could focus on more placid waters and see if these relationships continue to hold. Moving beyond the financial sector to manufacturing and services would also be important, as would be separating out the various transition economies into high/medium/low institutional quality. Experimenting with additional metrics of institutional quality would also help us to better pinpoint which institutions help to create incentives for CSR to flourish. In this sense, there remains work to be done.

Appendix: Additional Robustness Tests

See Tables 8, 9, 10 and 11.

Table 8 CSR-performance nexus moderated by profitability and FSU (late transition) group

	(1)	(2)	(3)	(4)	(5)
ROA	0.726	0.697	0.742	0.729	0.715
	(0.454)	(0.461)	(0.470)	(0.470)	(0.484)
Transition (FSU)	− 0.039*	− 0.039*	− 0.041**	− 0.035*	− 0.027
	(0.020)	(0.021)	(0.020)	(0.021)	(0.021)
ROA * Transition (FSU)	0.746	0.774	0.669	0.828	0.784
	(0.659)	(0.675)	(0.638)	(0.697)	(0.658)
Total CSR	− 0.005				
	(0.004)				
Total CSR * ROA	0.562**				
	(0.284)				
Total CSR * Transition (FSU)	0.009				
	(0.006)				
Total CSR * ROA * Transition (FSU)	− 0.578*				
	(0.337)				
Community involvement		− 0.012			
		(0.013)			
Community involvement * ROA		1.985**			
		(0.848)			
Community involvement * Transition (FSU)		0.028			
		(0.017)			
Community involvement * ROA * Transition (FSU)		− 1.863**			
		(0.905)			
Environment			− 0.046**		
			(0.019)		
Environment * ROA			2.960***		
			(1.113)		
Environment * Transition (FSU)			− 0.041		
			(0.074)		
Environment * ROA * Transition (FSU)			3.280		
			(3.659)		
Employees				− 0.015	
				(0.017)	
Employees * ROA				1.797*	
				(1.057)	
Employees * Transition (FSU)				0.027	
				(0.022)	
Employees * ROA * Transition (FSU)				− 2.029*	
				(1.078)	
Product and customer					− 0.014
					(0.019)
Product and customer * ROA					2.234**
					(0.951)

Table 8 (continued)

	(1)	(2)	(3)	(4)	(5)
Product and customer * Transition (FSU)					0.001
					(0.029)
Product and customer * ROA * Transition (FSU)					− 1.311
					(1.293)
Number of instruments	298	298	283	284	276
Hansen-test	0.679	0.725	0.765	0.684	0.558
AB test AR(1) (p value)	0.000	0.000	0.000	0.000	0.000
AB test AR(2) (p value)	0.586	0.515	0.530	0.547	0.643
Observations	1960	1960	1960	1960	1960

Notes same as Table 4. The control variables are included, but not reported

Table 9 CSR-performance nexus moderated by profitability and Control of Corruption

	(1)	(2)	(3)	(4)	(5)
ROA	1.055***	1.044***	1.062***	1.069***	1.082***
	(0.332)	(0.320)	(0.326)	(0.331)	(0.336)
Control of corruption	0.045**	0.040**	0.049***	0.048**	0.044**
	(0.019)	(0.020)	(0.018)	(0.019)	(0.019)
ROA * Control of corruption	− 0.682	− 0.627	− 0.716	− 0.703	− 0.813*
	(0.480)	(0.481)	(0.465)	(0.461)	(0.457)
Total CSR	− 0.006*				
	(0.004)				
Total CSR * ROA	0.562***				
	(0.190)				
Total CSR * Control of corruption	− 0.002				
	(0.005)				
Total CSR * ROA * Control of corruption	0.553***				
	(0.193)				
Community involvement		− 0.017*			
		(0.010)			
Community involvement * ROA		1.572***			
		(0.496)			
Community involvement * Control of corruption		− 0.009			
		(0.012)			
Community involvement * ROA * Control of corruption		1.683***			
		(0.584)			
Environment			− 0.029*		
			(0.015)		
Environment * ROA			2.531***		
			(0.798)		
Environment * Control of corruption			− 0.013		
			(0.026)		
Environment * ROA * Control of corruption			1.638		
			(1.406)		
Employees				− 0.014	
				(0.012)	
Employees * ROA				1.363**	
				(0.545)	
Employees * Control of corruption				− 0.010	
				(0.014)	
Employees * ROA * Control of corruption				1.389**	
				(0.577)	
Product and customer					− 0.027*
					(0.014)
Product and customer * ROA					2.291***

Table 9 (continued)

	(1)	(2)	(3)	(4)	(5)
					(0.762)
Product and customer * Control of corruption					0.005
					(0.017)
Product and customer * ROA * Control of corruption					1.374
					(1.130)
Number of instruments	318	318	302	303	294
Hansen-test	0.847	0.785	0.882	0.727	0.683
AB test AR(1) (p value)	0.000	0.000	0.000	0.000	0.000
AB test AR(2) (p value)	0.647	0.572	0.639	0.609	0.699
Observations	1960	1960	1960	1960	1960

Notes same as Table 4. The control variables are included, but not reported

Table 10 CSR-performance nexus moderated by profitability and Control of Corruption

	(1)	(2)	(3)	(4)	(5)
ROA	0.883*	0.867*	0.787*	0.852*	0.894*
	(0.466)	(0.456)	(0.443)	(0.464)	(0.487)
Low control of corruption	– 0.058***	– 0.055**	– 0.051**	– 0.053**	– 0.036
	(0.022)	(0.022)	(0.022)	(0.023)	(0.023)
ROA * Low control of corruption	0.916	1.044	0.787	0.915	0.652
	(0.642)	(0.647)	(0.629)	(0.641)	(0.644)
Total CSR	– 0.006				
	(0.005)				
Total CSR * ROA	0.554**				
	(0.280)				
Total CSR * Low control of corruption	0.010				
	(0.006)				
Total CSR * ROA * Low control of corruption	– 0.578*				
	(0.315)				
Community involvement		– 0.017			
		(0.014)			
Community involvement * ROA		1.780**			
		(0.722)			
Community involvement * Low control of corruption		0.017			
		(0.023)			
Community involvement * ROA * Low control of corruption		– 1.624**			
		(0.788)			
Environment			– 0.046**		
			(0.020)		
Environment * ROA			2.954**		
			(1.148)		

Table 10 (continued)

	(1)	(2)	(3)	(4)	(5)
Environment * Low control of corruption			− 0.031		
			(0.121)		
Environment * ROA * Low control of corruption			2.561		
			(5.380)		
Employees				− 0.019	
				(0.017)	
Employees * ROA				1.518*	
				(0.894)	
Employees * Low control of corruption				0.041*	
				(0.021)	
Employees * ROA * Low control of corruption				− 1.525	
				(0.963)	
Product and customer					− 0.013
					(0.018)
Product and customer * ROA					1.864**
					(0.868)
Product and customer * Low control of corruption					− 0.033
					(0.031)
Product and customer * ROA * Low control of corruption					1.537
					(1.350)
Number of instruments	303	303	280	285	278
Hansen-test	0.755	0.772	0.643	0.632	0.606
AB test AR(1) (p value)	0.000	0.000	0.000	0.000	0.000
AB test AR(2) (p value)	0.642	0.563	0.626	0.601	0.700

Table 10 (continued)

	(1)	(2)	(3)	(4)	(5)
Observations	1960	1960	1960	1960	1960

Notes same as Table 4. The control variables are included, but not reported

To address the robustness of our results further, we interacted the effects of CSR disclosure with a crisis dummy, taking the value of 1 for the years 2007–2009 (as used in Table 5). As can be seen below, the results of Table 11 are similar to those presented in Table 4 and imply that CSR which occurs after profitability is assured is the only type of CSR contributing to bank competitive advantage in transition countries

Table 11 Robust results for CSR-performance (system GMM)

Variables	(1)	(2)	(3)	(4)	(5)
ROA	1.049**	0.952**	1.031**	1.135**	1.242***
	(0.442)	(0.433)	(0.440)	(0.454)	(0.450)
Crisis (2007–2009)	− 0.023	− 0.021	− 0.025*	− 0.028**	− 0.022
	(0.014)	(0.014)	(0.014)	(0.014)	(0.016)
ROA * Crisis (2007–2009)	0.291	0.208	0.360	0.424	0.296
	(0.686)	(0.670)	(0.724)	(0.700)	(0.761)
Total CSR	− 0.001				
	(0.004)				
Total CSR * ROA	0.279				
	(0.184)				
Total CSR * Crisis (2007–2009)	− 0.015**				
	(0.007)				
Total CSR * ROA * Crisis (2007–2009)	0.877*				
	(0.503)				
Community involvement		− 0.001			
		(0.010)			
Community involvement * ROA		0.839*			
		(0.491)			
Community involvement * Crisis (2007–2009)		− 0.042*			
		(0.022)			
Community involvement * ROA * Crisis (2007–2009)		2.580*			
		(1.476)			
Environment			− 0.031*		
			(0.018)		
Environment * ROA			2.739**		
			(1.095)		
Environment * Crisis (2007–2009)			− 0.064**		
			(0.025)		
Environment * ROA * Crisis (2007–2009)			2.329		
			(1.646)		
Employees				− 0.006	
				(0.013)	
Employees * ROA				0.288	
				(0.530)	
Employees * Crisis (2007–2009)				− 0.010	
				(0.019)	
Employees * ROA * Crisis (2007–2009)				1.274	
				(1.257)	
Product and customer					− 0.010
					(0.019)
Product and customer * ROA					1.709**

Table 11 (continued)

Variables	(1)	(2)	(3)	(4)	(5)
					(0.773)
Product and customer * Crisis (2007–2009)					− 0.076*
					(0.040)
Product and customer * ROA * Crisis (2007–2009)					3.006
					(2.544)
Number of instruments	242	242	234	235	233
Hansen-test	0.308	0.396	0.379	0.294	0.333
AB test AR(1) (p-value)	0.000	0.000	0.000	0.000	0.000
AB test AR(2) (p-value)	0.805	0.751	0.755	0.703	0.842
Observations	1960	1960	1960	1960	1960

Notes same as Table 4

The results additionally show that the effects of CSR disclosure are further improved in the crisis period, suggesting that they could be an effective instrument to sustain and improve the bank performance over crisis periods. Overall, the results presented in Tables 8, 9, 10 and 11 suggest that the findings of this study are not sensitive to any particular time frame

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