Corporate Social Responsibility and bank capital adequacy

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Abstract

We examine the relationship between superior corporate social responsibility (CSR) and firm value, and CSR and capital adequacy for global banking industry firms for the period after the Global Financial Crisis. We find a positive relationship both between CSR and firm value, and between CSR and capital adequacy. Because superior CSR is associated with higher trust, better corporate reputation, and relationships with regulators, investors, and depositors, we ascribe our results to superior CSR banks being able to raise capital more easily, enabling them to maintain appropriate levels of capital that lead to higher firm values. We provide evidence consistent with this channel.

Keywords: Corporate social responsibility; Banking industry; Firm value; Capital adequacy

1. Introduction

> "To prosper over time, every company must not only deliver financial performance, but also show how it makes a positive contribution to society." Fink (2018)[1]
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> "Climate change has become a defining factor in companies' long-term prospects.…… Over time, companies and countries that do not respond to stakeholders and address sustainability risks will encounter growing skepticism from the markets, and in turn, a higher cost of capital. Companies and countries that champion transparency and demonstrate their responsiveness to stakeholders, by contrast, will attract investment more effectively, including higher-quality, more patient capital." Fink (2020)

The importance of corporate social responsibility (CSR)[2] has accelerated since the Global Financial Crisis (GFC). This is partly because investment managers, who are institutional shareholders of large firms, have increasingly embedded CSR in screening firms to be included in their investment portfolios (Jha and Cox, 2015). An interview-based paper in the Harvard Business Review documents that 43 global asset managers, including the world's top three mutual funds and large state pension funds[3] have integrated CSR into their investment strategies (Eccles and Klimenko, 2019). The Global Sustainable Investment Alliance (2018) reported that global sustainable investment grew 34% from 2016 to reach USD30.7 trillion as at end 2018. International organizations have also introduced various initiatives, such as the Equator Principles[4] and Sustainable Banking

[1] Laurence Fink is BlackRock Inc's Chairman and Chief Executive Officer. BlackRock is one of the world's largest money-management firm.
[2] One of the widely accepted definitions for CSR is the one provided by Carroll (1979), who defines CSR in terms of four categories of responsibilities which are expected by stakeholders and society on the firms, namely economic, legal, ethical, and discretionary (or philanthropic).
[3] The interview included the three largest institutional asset management firms in the world, namely BlackRock, Vanguard, and State Street. The large government pension funds include California Public Employees' Retirement System, the California State Teachers' Retirement System, the state pension funds of Japan, Sweden, and the Netherlands.
[4] Equator Principles was introduced in June 2003 (https://equator-principles.com/).

Network[5], to encourage banks to be socially responsible, that is, to consider environmental and social issues in their operations. A number of emerging economies, including China, have, since 2011, introduced regulatory guidance to advance socially responsible finance[6] (Sustainable Banking Network, 2017). As banks can play a significant role in promoting sustainable development through providing funds to firms that care about environment and society, the United Nations Environment Programme (UNEP) established the Principles for Responsible Banking in September 2019 (UNEP Finance Initiative, 2020). Banks are expected to be socially responsible and to contribute to society because they benefit from considerable societal resources (Wu and Shen, 2013). Banks are also motivated to adopt CSR because of the potential benefits, including improved financial performance (Wu and Shen, 2013; Shen et al., 2016).

In line with the growing importance of CSR in the financial and corporate sectors, research on CSR, including its relationship with financial performance, has also increased steadily. Meta-analyses of studies that exclude banks conclude that CSR is positively associated with financial performance (Orlitzky et al., 2003; Margolis et al., 2009). Regarding the banking sector, most of the literature investigate the relationship between CSR and bank profitability, asset quality, and bank stability (Simpson and Kohers, 2002; Wu and Shen, 2013; Shen et al., 2016; Cornett et al., 2016; Esteban-Sanchez et al., 2017; Jin et al., 2017). Although capital is essential for bank survival, to the best of our knowledge, the relationship between CSR and capital adequacy has not been examined. Well-capitalized banks contribute to financial stability as they have low default probability (Laeven et al., 2016), leading to stable economy and society.

[5] International Finance Corporation of the World Bank Group established the Sustainable Banking Network in 2012 (https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/company-resources/sustainable-finance/sbn).

[6] 15 emerging economies have launched regulatory guidance for sustainable finance as at May 2017. The regulations provide a level playing field for banks to effectively manage environmental and social risk in lending as well as support businesses which are climate friendly and socially inclusive (Sustainable Banking Network, 2017).

Motivated by the growing importance of socially responsible finance[7], and the importance of capital for banks, we investigate the relationship between CSR and firm value, and CSR and capital adequacy. We extend Wu and Shen (2013), who examine the relationship between CSR, profitability, and asset quality, by analyzing whether CSR enhances a bank's value through improving its capability in raising capital. Regulators, such as the Federal Deposit Insurance Corporation (FDIC), use the CAMELS[8] rating system to assess a bank's overall risk and identify problem banks (Jin et al, 2013; Kerstein and Kozberg, 2013). Our research focuses on capital adequacy, i.e. the CAMELS rating system's category of capital.

Our main analyses are based on a two-stage least squares approach with instrumental variables to address possible concerns regarding endogeneity, specifically reverse causality and unobservable factors. Using a sample of banks from 39 countries, we find that CSR has a positive relationship with capital adequacy, i.e. banks with superior CSR are likely to have higher capital adequacy ratios. Our findings are economically significant, i.e. a one-standard deviation increase in CSR is associated with a 0.08 and 0.10 improvement in Total Capital ratio and Tier 1 Capital ratio, respectively. We ascribe these results to the fact that banks with superior CSR are able to more readily raise capital than those with poor CSR performance. If CSR enhances banks' capability to raise capital, then the link between CSR and capital adequacy ratios should be stronger for banks with superior CSR than those with weak CSR performance. Subsample analyses confirm that high CSR banks have enhanced firm value and stronger capital adequacy ratios. We also test robustness by using an alternative measure of CSR and excess capital ratios, which have subtracted Basel III's minimum capital ratios requirement from each bank's Total Capital ratio and Tier 1 Capital ratio. We also perform additional test to explore

[7] The assets under management of socially responsible investment funds grew from USD12 billion in 1995 to USD1,013 billion in 2012 and market share increased from less than 1% to nearly 8% over the same period (El Ghoul and Karoui, 2017).

[8] The US regulators introduced the CAMEL rating system (renamed to the Uniform Financial Rating System) in November 1979 to assess health of banks and identify problem banks. In 1996, the sixth component, sensitivity to market risk was added to CAMEL rating. Regulators will assign a score on a scale of one (best) to five (worst) for each CAMELS component, as well as assign a composite rating that summarises a bank's risks.

whether the stronger capital adequacy ratios are due to banks' ability to raise additional capital or due to lower risk assets. Our findings are consistent with this explanation.

Our study contributes to the literature examining CSR and bank performance in several ways. First, this research advances the field by providing the first evidence of a positive association between CSR and capital adequacy ratio, through the channel that superior CSR is associated with good corporate reputation and relationships with stakeholders, including investors and depositors, therefore banks with superior CSR have better access to capital, and are able to attract investors and raise capital, including high quality Tier 1 capital (Lins et al., 2017).

Second, our paper complements the prior research by simultaneously examining the links between CSR and firm value, and CSR and capital adequacy. Our results provide evidence that banks with superior CSR have higher firm value, despite the view that CSR activities may increase costs (Wu and Shen, 2013). We use firm value, because this is an aggregate measure that incorporates market expectation of firms' future cash flows and a risk-adjusted discount rate. The findings will be useful for bank CEOs to understand these dynamic relationships (Bosch-Badia et al., 2013) and to decide on resource allocation, as well as for investors to determine how they should view and respond to resources being spent on CSR (Wu and Shen, 2013; Shen et al, 2016; Cornett et al., 2016).

Our findings have implications for bank regulators, investors, and shareholders of public firms. Institutional investors and shareholders in the US and Europe are forcing banks to address environmental and climate-related risks[9] (Ackerman, 2014; Flood, 2017). Our findings enable bank managers and shareholders to better understand whether resources allocated for socially responsible programs are consistent with shareholder value maximization (Jiao, 2010). Our analyses will also be useful for policy makers and regulators in devising regulatory guidance to encourage financial institutions to practice CSR, which could potentially play a role in improving soundness of the banking system.

[9] Institutional investors and shareholders in the US and Europe have pushed the banks through resolutions to develop strategies to tackle environmental risks as well as to improve disclosure on their exposures to climate-related risks and firms whose businesses may harm the environment (Ackerman, 2014; Flood, 2017).

The rest of this paper is organized as follows: Section 2 provides the literature review and hypothesis development. Section 3 and 4 describe the research design and regression models, while section 5 presents the empirical results, before detailing robustness tests using an alternative CSR measure, subsample analysis, and capital ratios in excess of Basel III's capital ratios requirement, as well as an analysis on capital growth. Section 6 concludes.

2. Related literature and hypothesis development

Although empirical research on the relationship between CSR and bank financial performance has increased in recent years, the relevant literature on how CSR relates to bank capital and risk is still sparse (Wu and Shen, 2013; Shen et al., 2016; Cornett et al., 2016).

Examining the link between CSR and financial performance of the United States (US) banks, Simpson and Kohers (2002) suggest that CSR improves earnings and asset quality. In contrast, Scholtens and Dam (2007) conclude that banks practicing the Equator Principles reported lower profitability than those banks not adopting the Equator Principles. Chih et al. (2010), who examine the determinants of CSR programs, show that CSR and profit has no relationship. However, only 162 of the samples used by Chih et al. (2010) are US financial institutions, of which only eight have CSR scores.

The recent literature, which mostly has treated endogeneity issues, has suggested positive CSR-profitability relationship (Wu and Shen, 2013; Shen et al., 2016; Cornett et al., 2016; Esteban-Sanchez et al., 2017). Wu and Shen (2013) find that firms in the global banking industry which conduct CSR to strategically improve financial performance show improvement in profitability and asset quality. They also find that while banks adopting CSR for altruistic reasons report increases in net interest income and non-interest income, the net effect on return on asset is uncertain due to increases in costs. Their findings are supported by Shen et al. (2016) who conclude that banks conduct CSR as a long-term strategy to survive. Cornett et al. (2016) highlight that large US commercial banks, which have received the most intense criticism on their lack of social conscience in management decisions, have

significantly improved their CSR initiatives after the GFC, resulting in better return on equity. These US banks show improved profitability despite charging low deposit fees and increasing services to low income communities. Nonetheless, Cornett et al. (2016) have not investigated the mechanisms which transform the CSR into improved earnings. Examining the impact of four CSR dimensions on bank financial performance, Esteban-Sanchez et al. (2017) show that employee relationship and corporate governance dimensions have positive relationships with financial performance, whereas product responsibility dimension has no impact on financial performance. They also find that community relationship dimension has positive effects on financial performance during crises.

Measuring the relationship between bank failure and social capital, Jin et al. (2017)[10] find that banks located in the US counties with high social capital[11] have fewer bank failures and financial problems during the GFC than those in counties with low social capital. They conclude that social capital can mitigate a bank's risk-taking behavior and functions as an informal monitoring mechanism before and during crises.

2.1 CSR and firm value

The link between CSR and firm value can be explained through the shareholder value theory which posits that the ultimate objective of corporate is to maximize shareholders' value. Banks, functioning as financial intermediaries, have the advantages of accessing private information on their customers and other counterparties. Banks can use this advantage to maximize earnings. Banks' privilege in getting government deposit insurance and other protections may also increase incentives for aggressive risk-taking behavior or negligent in risk management (Berger and Patti, 2006). Hence, banks may encounter relatively large agency costs (Berger and Patti, 2006), consequently reducing firm value. In addition, bank managers may overinvest in socially responsible initiatives for their own benefits, such as to establish political network or improve personal reputations, which could be

[10] Jin et al. (2017) measure bank insolvency risk in the aspects of bank closure by FDIC or bank in financial problems. These financial problems refer to either a low level of Tier 1 capital, a high ratio of loan loss provisions to total loans, a low ROA or listing by the FDIC as a failed bank during the GFC.

[11] Jin et al. (2017) describe social capital as the customs and links that govern a society's performance. Generally, societies with high social capital encounter less risk-taking behavior.

detrimental to shareholders. Nonetheless, banks are heavily regulated. That is, regulators regularly perform examinations and take actions to minimize default probability. Hence, banking supervision reduces agency costs (Berger and Patti, 2006) and indirectly enhances firm value.

On the other hand, stakeholder maximization theory suggests that managers use CSR as a strategic tool to manage relationships with stakeholders, which in turn benefitted the firm (Jha and Cox, 2015). Linking CSR to the effect of reputation, Wu and Shen (2013) suggest that banks with better reputation have more rigorous credit evaluation than those with lower reputation (Bronn and Vrioni, 2001; Chemmanur and Fulghieri, 1994). Fombrun and Shanley (1990) highlight that the higher a firm's investment in CSR activities, the better its reputation. Reputation leads to brand awareness and differentiation, which indirectly improves competitive advantage (Kay, 1993). Firms use CSR as a strategy to achieve product differentiation and charge a premium price for its products. Wu and Shen (2013) suggest that banks practicing CSR for strategic motives can attract more businesses, in terms of loans and deposits.

The extant research on non-banking firms posits that CSR is a tool to enhance firm competitiveness and create value (Porter and Kramer, 2003), which include strengthening employees' commitment (Kim et al., 2010), reducing cost of bank debt (Goss and Roberts, 2011), and enhancing stakeholders' trust (Lin et al., 2017). Cahan et al. (2015) show that non-banking firms with superior CSR receive more favorable media coverage and the interaction between CSR and favorable media coverage results in higher firm value and lower cost of capital. Hence, CSR can improve a firm's long-term expected value, increase market expectations of future cash flows (Cahan et al., 2015), and enhance competitive advantage (Saeidi et al., 2015). In their robustness tests, Cornett et al. (2016) show that CSR is positively linked with firm value for the US banks in the pre-crises period. Thus, our hypothesis for firm value is as follows:

Hypothesis 1: Banks with superior CSR performance are associated with higher firm values.

2.2 CSR and capital adequacy

FDIC (2018) suggests that bank capital has at least four important functions, namely absorbs losses, maintains public confidence, restrains excessive asset expansion, as well as protects depositors and deposit insurance funds. Generally, banks encounter capital adequacy risk when they fail to meet minimum requirements for capital adequacy ratios.

Banks are financial intermediaries and important fund providers in an economy. Hence, their survival and sustainability has significant effects on economic stability, especially the community they served. Capital is essential for bank survival, especially in ensuring banks' resiliency to default risk (Garel and Petit-Romec, 2017; IMF et al., 2005). Well-capitalized banks have low probability of failure, hence, low systemic risk (Laeven et al., 2016). This implies that banks with strong capital contribute to societal stability through providing employment, as well as funds and capital to business and household, which can be considered the social aspect of CSR performance.

Stakeholder maximization theory posits that bank managers use CSR as strategic tools to satisfy stakeholders' expectations, which enhances reputation (Maden et al., 2012) and shareholders' wealth (Wu and Shen, 2013). Superior CSR performance also safeguards firms' reputational value against adverse events (Minor and Morgan, 2011). As capital is relatively expensive compared to that of debt, bank managers will generally maintain capital level appropriate for their operations rather than keeping a high level of capital (Reserve Bank of New Zealand, 2017). The capital level serves to ensure trusts and confidence from stakeholders, including shareholders, investors, depositors, and regulators, in the solvency and soundness of the bank. By maintaining an appropriate capital adequacy level, banks can use the resources to enhance firm value.

On the other hand, bank managers can invest excessively in CSR to pursue their private benefits rather than enhancing shareholders' and other stakeholders' value. Conflicting interests between bank managers and shareholders increases agency costs and risks. Consequently, banks may keep high level of capital to signal to investors and regulators that they are stable. Nonetheless, banks are heavily regulated and supervised by banking regulators to minimize risks and default probability.

As the sample banks are complying with regulatory requirements[12] of the respective countries, including capital adequacy requirements, we hypothesize that superior CSR enables banks to establish good reputations and relationships with stakeholders, which enable these banks to attract capital and maintain an appropriate level of capital adequacy which enhances firm value. As such, our hypothesis is as below.

Hypothesis 2: Banks with superior CSR are associated with higher capital adequacy ratios, reflecting lower capital adequacy risk.

3. Research design

3.1 Sample construction and data

The dataset consists of an unbalanced panel[13] of 1,410 bank-year observations, including 235 unique banks from 39 countries, covering both developed and emerging economies, of which most of them are major economies. The sample banks are relatively large listed banks, which are significant to the respective economies. As shown in Table 1 (Panel A), banks from Asia-Pacific region accounts for 40.9% (576) of bank year observations, followed by banks in Europe (31.5% or 444), and North America (19.1% or 270). In view of the GFC which lasted from 2007 to 2009[14], we collected data for the period from 2012 to 2017 to minimize the effect of crisis on bank indicators which could introduce biases.

[12] Following the GFC, the Basel Committee on Banking Supervision introduced the Basel III accord in October 2010 to strengthen banks' ability to withstand financial shocks and improve their risk management practices. One of the reforms was to increase the quality and strength of capital. Hence, following the implementation of Basel III, banks are required to maintain a minimum Tier 1 capital ratio of 6% (previously 4%). Banks, generally, maintain different levels of capital adequacy ratios based on risk appetite and central banks' requirements, including Pillar II requirements (Bank for International Settlements, 2010).

[13] Two variables, namely Total Capital ratio and Tier 1 Capital ratio have fewer than 1,410 bank-year observations.

[14] The National Bureau of Economic Research identifies the Global Financial Crisis period as from December 2007 to June 2009. Since we use annual data and some of the variables require three years of rolling data for computation, our sample period ranges from 2012 to 2017.

We apply two major selection criteria to construct the sample. First, we obtain banks' CSR data known as ESG[15] score (was formerly Asset4 data) from the Refinitiv (was formerly Thomson Reuters Datastream). We exclude banks which do not have the ESG score. Second, as some of our measures are calculated over rolling windows of three years, we exclude banks that report for fewer than three consecutive years. As Refinitiv updates the ESG score on an annual basis to align with corporate reporting practices, our data frequency is yearly.

We collect information on balance sheet and income statement of banks from Fundamental Financial Data provided by the Fitch Solutions as the data and ratios are comparable across all countries, taking into account differences in accounting standards. We supplement this data with Orbis BankFocus database. Both databases are compiled based on publicly available information. We use data reported at the consolidated level. We retrieve data for country level metrics from Barth et al. (2008, 2013) and World Bank's database, namely Worldwide Governance Indicators[16], Global Financial Development[17], and World Development Indicators[18].

3.2 Measurement of variables

3.2.1 CSR performance

Following Esteban-Sanchez et al (2017), we use Refinitiv's ESG score as a measure of CSR performance[19]. ESG score measures environmental, social, and governance performance of large publicly listed firms, and has been used in studies analyzing the link between CSR and financial performance (Esteban-Sanchez et al., 2017; Miras-Rodriguez et al., 2015; Cheng et al., 2014; Ioannou

[15] Refinitiv's ESG score measures a firm's environmental, social, and governance performance transparently and objectively across 10 major themes, namely resource use, emissions, environmental product innovation, workforce, human rights, community, product responsibility, management, shareholders, and CSR strategy. The ESG score is based on publicly available information and company-reported information (Refinitiv, 2019).

[16] The Worldwide Governance Indicators is available at http://info.worldbank.org/governance/wgi/index.aspx#doc-sources

[17] The Global Financial Development database is accessible at https://databank.worldbank.org/data/databases/page/1?qterm=global%20financial%20development

[18] The World Development Indicators database is available at https://databank.worldbank.org/reports.aspx?Code=NY.GDP.MKTP.KD.ZG&id=1ff4a498&report_name=Popular-Indicators&populartype=series&ispopular=y#

[19] Thomson Reuters Datastream has provided Asset4 data since 2002. The Asset4 data was replaced by the ESG score in 2017.

and Serafeim, 2012; Rees, 2011; Dyck et al, 2019). Accordingly, we define CSR as banks' initiatives aiming to have positive impacts on environment, social, and governance. The ESG score offers an independent, objective, and systematic assessment of environmental, social, and governance information of firms using publicly available data sources (Esteban-Sanchez et al, 2017). The data is based on 178 environmental, social, and governance measures, deriving from more than 400 data points and is comparable across different firms and regions. Apart from an overall ESG score, Refinitiv also offers data for environmental, social, and governance (Refinitiv, 2019) respectively. Prior studies have used various CSR measures, such as MSCI ESG ratings[20] (Cornett et al., 2016), FTSE4Good indices (Shen et al., 2016), Ethical Investment Research Service (EIRIS) survey (Wu and Shen, 2013) and Community Reinvestment Act ratings (Simpson and Kohers, 2002)[21]. Nonetheless, Simpson and Kohers (2002) suggest that a perfect measure of CSR performance does not exist.

Unlike manufacturing, and oil and gas industries, banking business is generally perceived as having less impact on environment but more on society. Apart from direct impact, banks as financial intermediary and capital provider can contribute to society and environment through their funding decisions, that is, whether they reduce, or even refuse, funding and capital to polluting firms (International Finance Corporation, 2020). Hence, we compute an alternative CSR measure, named as CSR_ES, using the Refinitiv's social and environmental component data, wherein we exclude the governance component (Lins et al., 2017[22]). Because banks generally have more societal effect than environmental, we assign a higher weightage on social component (83%) than that on environmental component (17%) (Charterji, et al., 2014). We use the CSR_ES for robustness analysis in section 5.3.

[20] MSCI ESG data was formerly known as KLD data. KLD Research and Analytics Inc. became part of RiskMetrics Group in 2009, which was acquired by MSCI Inc. in 2000.
[21] The other CSR databases include the RepRisk provided by Bloomberg.
[22] In Lins et al. (2017), the CSR measure (MSCI ESG Stats) comprises only environmental and social ratings. Lins et al. (2017, p.1793) exclude the corporate governance category from the CSR measure because "governance is generally not part of a firm's CSR remit."

3.2.2 Firm value

We measure bank performance using firm value, a market-based approach. Based on Cahan et al. (2015) who analyze the effects of CSR on firm value and Cahan et al. (2016) who examine the relationship between CSR disclosure and firm value, we measure firm value by Tobin's Q. Cahan et al. (2015) and Cahan et al. (2016) highlight that Tobin's Q is a market-based performance measure that assesses a firm's long-term expected value in terms of future cash flows and riskiness. They assert that this measure is appropriate in view of the long-term nature of CSR benefits. Jiao (2010) suggests that Tobin's Q measures the expected valuation effects of both tangible and intangible aspects of the effects of CSR.

3.2.3 Capital adequacy

Capital adequacy of banks refers to the capital adequacy ratios that is a ratio of bank capital to risk weighted assets. Capital adequacy ratios are generally the minimum acceptable standards for well-managed banks and banks with fundamentally sound financial conditions (FDIC, 2018).

In analyzing the effect of bank risk profiles on CSR disclosure, Gambetta et al. (2017) use Tier 1 Capital ratio to measure capital adequacy. Kerstein and Kozberg (2013) employ the ratio of equity to total assets as a capital adequacy measure to predict default probability. As capital adequacy ratios are the barometers used by regulators in assessing banks and are required by the Basel Accords, we employ Tier 1 Capital ratio and Total Capital ratio to measure capital adequacy (FDIC, 2018). Tier 1 Capital refers to the highest quality of capital, such as retained earnings and shareholder equity, whereas Total Capital refers to a broad capital measure which includes items with less protection against potential losses, such as subordinated debt, and unrealized capital gains (IMF et al., 2005).

3.2.4 Control variables

Our control variables comprise bank level and country level variables.

(1) Bank level control variables

Following Wu and Shen (2013) and Beck et al. (2013), the bank level control variables are mainly financial characteristics, namely bank size (natural logarithmic of total assets), annual total assets growth, leverage ratio, loans to deposits ratio, cost to income ratio, coverage ratio, return on average assets ratio, liquidity ratio, and non-performing loans (NPL) ratio. We introduced these variables to control for factors which can potentially affect a bank's value and risk. Size is commonly included as a control variable in prior studies (Delis and Kouretas, 2011; Jin et al., 2017; Wu and Shen, 2013; Shen et al., 2016; Esteban-Sanchez et al., 2017) because small firms have fewer resources for CSR initiatives and do not aggressively exhibit CSR behavior (Chih et al., 2010). Jin et al. (2017) suggest that small banks are more stable or less risk-taking when they are located in regions with high social capital. We include annual total assets growth to account for effect of firm expansion as banks can encounter increased risks if they expand too aggressively (Altunbas et al., 2017). Leverage ratio measures banks' capacity to expand business (Delis and Kouretas, 2011). Both the coverage ratio, which refers to loan loss reserves as a percentage of NPL, and NPL ratio measure credit risk management of banks. Loans to deposits ratio refers to banks' ability to transform deposits into revenue generating loans. Cost to income ratio is an indicator for cost efficiency. Efficient banks are able to manage risks better than those less efficient ones (Delis and Kouretas, 2011). We also include return on average ratio as profitable firms have more resources to invest in socially responsible initiatives (Waddock and Graves, 1997; Simpson and Kohers, 2002).

(2) Country level control variables

Since our empirical analysis is performed across nations, we include country level control variables, which affect bank performance and risk (Shen and Lin, 2012; Wu and Shen, 2013; Soedarmono et al., 2013; Beck et al., 2013, Cahan et al., 2015). We control for country governance using voice and accountability, government effectiveness, regulatory quality, and control of

corruption (Cahan et al., 2015). We control for banking sector concentration, which is closely related to competition, using a three-bank concentration ratio (Wu and Shen, 2013; Beck et al., 2013). Extant cross-country literature suggests that concentrated banking industries are less likely to experience a systemic crisis (Beck et al., 2006; Schaeck et al., 2009). To account for availability of bank credit as well as structure and maturity of financial market, we include domestic credit to private sector as a percentage of gross domestic product (GDP), bank credit to private sector as a percentage of GDP, and stock market capitalization to GDP (Wu and Shen, 2013; Beck et al., 2013). We control for systemic stability of the banking sector using banking sector Z-score at the nation level (Beck et al., 2013). To measure the degree of restrictions imposed by national regulatory authorities in the respective countries, we include three regulatory variables, namely restriction on banking activities in securities, insurance, and real estate (Wu and Shen, 2013; Beck et al., 2013). These restrictions affect bank performance because they define the range of fee-based or non-interest income activities banks can engage in (Barth et al., 2006; Shen and Chang, 2006; Wu and Shen, 2013). Barth et al. (2006) highlight that since these restrictions regulate banks' engagement in fee-based activities, some countries may use them as tools to control bank risk-taking.

Prior studies also show that country of origin impact corporate behavior (Buhr and Freedman, 2001; Holland and Foo, 2003; Williams, 1999). Wu and Shen (2013) and Shen et al. (2016) employ GDP growth rate and GDP per capita as control variables because economic performance and development in a country impact banks' revenue growth, which in turn influences investments in socially responsible activities. Hence, we include GDP growth rate and GDP per capita as the country control variables. During favorable economic conditions, firms will likely repay borrowings, resulting in better asset quality or low credit risk for banks. Banks tend to grow credit and search for better yield during good times, which means we expect a positive relationship between GDP growth and bank assets (Delis and Kouretas, 2011). Jimenez et al. (2013) include GDP growth rate to control for business cycle. The list of dependent and independent variables, their respective descriptions, measurement and sources are presented in Appendix 1.

Because most of the nation level variables are highly correlated (as presented in Table 2 (Panel B)), we use a principal component analysis of the 14 individual country level measures to extract four country level variables for regression analysis. This analysis shows four factors with an eigenvalue more than 1 (eigenvalues are 5.65, 2.91, 1.52, and 1.25 respectively), accounting for about 80.9% of the variance in the 14 control variables. All four factors, namely country governance, market restrictions, capital market maturity, and availability of credit and insurance have all the 14 variables load onto them, with different factor loading. For the country governance variable, the first factor, four individual governance measures (voice and accountability, government effectiveness, regulatory quality, and control of corruption) and log of GDP per capita have large factor loadings ranging between 0.33 and 0.39. In the second factor, market restrictions, banking sector concentration measure, as well as restriction on banking activities in securities and real estate metrics have large factor loadings ranging from -0.45 to 0.52. For the third factor, capital market maturity, three factors, namely domestic credit to private sector as a percentage of GDP, bank credit to private sector as a percentage of GDP, and stock market capitalization to GDP have heavy factor loadings ranging from -0.35 to -0.47. For the fourth factor, availability of bank credit and insurance, two factors have large loadings, namely bank credit to private sector as a percentage of GDP (0.61) and restriction on banking activities in insurance (0.59).

4. Construction of the empirical model

Garcia-Castro et al. (2010) suggest that a firm's decision to conduct CSR is not random as this decision could be made based on expectations of effects on future financial performance. The strategic decisions to improve CSR performance, such as environmental and social activities, could also be correlated with firm specific variables which are not observable, such as company culture and management's ethical values (Simpson and Kohers, 2002; Wu and Shen, 2013). Hence, we have to account for endogeneity issues and omitted variable bias in our analysis.

To address endogeneity and unobserved variable bias, we modify Wu and Shen (2013) and Jha and Cox (2015) approaches, and use the two-stage least squares (2SLS) approach with fixed effects that employs instruments for the endogenous variable, CSR. Our approach has the advantage of addressing biases caused by reverse causality and omitted variables. We use environmental performance index (EPI)[23] and rule of law (Law) as instruments, which are national-scale indicators. The EPI is an environmental performance indicator developed by the Yale Center for Environmental Law and Policy and the Center for International Earth Science Information Network at Columbia University. The EPI's values range between 0 (weak) and 100 (strong), with countries with high values show strong environmental policy initiatives and ecosystem health (Wendling et al., 2018). Rule of law, which is provided by the World Bank, measures the extent of confidence in and adherence to the society's norms and country governance. This indicator ranges from approximately -2.5 (weak governance performance) to 2.5 (strong governance performance) (Kaufmann et al., 2011).

Our selection of instrumental variables is theoretically sensible. An eligible instrument has to satisfy two conditions, namely relevance and exclusion. A relevant instrument is required to correlate with the endogenous variable, CSR. As for the exclusion condition, the instrumental variables are required to have no correlation with the error term. In my setting, the exclusion condition requires that the instrumental variables (EPI and Law) influence financial performance and risk only through its effect on the endogenous variable, CSR (Roberts and Whited, 2013). As EPI measures the environmental health and policies of countries, we reasonably expect EPI to correlate with CSR, of which one of its components is firms' environmental performance. Similarly, for Law which measures confidence in and adherence to social norms and rules in a country, we believe that Law variable is associated with social performance measured by CSR. Since our sample comprises banks

[23] The EPI is a project led by the Yale Center for Environmental Law and Policy (YCELP) and Yale Data-Driven Environmental Solutions Group at Yale University (Data-Driven Yale), the Center for International Earth Science Information Network (CIESIN) at Columbia University, in collaboration with the Samuel Family Foundation, McCall MacBain Foundation, and the World Economic Forum. The project has started since 1998 and the EPI is provided every two years.

from different countries, norms and values of banks and their managers in the same country might be similar. For example, if a bank is located in a country with strong conviction in good environmental and social performance, a bank will sensibly improve its social and environmental performance to align with the community's expectations to avoid unnecessary social sanctions, and improve its overall economic performance. Dyck et al. (2019) find that the environmental and social norms and values of a community that an investment manager lives in effect the manager's economic decisions, which impact on environment and social performance. Hence, EPI and Law satisfy the relevance condition.

We also expect the error term of the regression model to have zero correlation with EPI and Law. The CSR score measures environmental and social performance of banks from different countries. Because firms generally align their social and environmental practices with community expectations (Dyck et al., 2019), the environmental and social dimensions of the CSR score would have captured the effects of a community's expectations for environment and adherence to norms. Hence, theoretically, the regression error term is not expected to reflect the country level environmental and social performance, which is measured by the instrumental variables. Also, because the instruments are national-level indicators, they are unlikely to affect individual bank's performance and risks directly. So, we can reasonably expect EPI and Law to fulfill the exclusion condition[24]. Although banks will generally align their practices with the expectations and norms of community in which they are located, other unobservable factors, such as manager's values, still play a role in deciding the level of investments in CSR. Hence, we expect the country level's environmental (EPI) and social (Law) measures to influence the financial performance and risks of banks indirectly through the endogenous variable, CSR.

Our regression models are summarized as below. To account for White's heteroscedasticity in computing standard errors, we specify that the robust standard errors are clustered at bank level.

[24] Fulfilling the exclusion condition means that the instrumental variables are not influenced by the dependent variables, the instruments should effect the dependent variables indirectly through the endogenous variable, and the instruments are not correlated with unobservable variables in the model (Jha and Cox, 2015).

$$Firm\ Value\ Measure_{ijt} = \beta_0 + \beta_1\, CSR_{ijt} + \gamma\, Bank\ Specific\ Control\ Variables_{ijt} + \delta\ Country\ Specific\ Control\ Variables_{jt} + \varepsilon_{ijt} \quad (1)$$

$$Capital\ Adequacy\ Measures_{ijt} = \beta_0 + \beta_1\, CSR_{ijt} + \gamma\, Bank\ Specific\ Control\ Variables_{ijt} + \delta\ Country\ Specific\ Control\ Variables_{jt} + \varepsilon_{ijt} \quad (2)$$

where,

Firm value measure = Tobin's Q

Capital adequacy measures = Total Capital ratio and Tier 1 Capital ratio

CSR = the CSR score in our main analysis (section 5.2) and CSR_ES score in our robustness test (section 5.3)

Bank specific control variables = natural logarithmic of total asset, annual growth of total asset, leverage ratio, loan to deposit ratio, cost to income ratio, coverage ratio, return on average asset ratio, liquidity ratio, and non-performing loan ratio

Country specific control variables = country governance, market restrictions, capital market maturity, and availability of bank credit and insurance

β, γ, and δ = vectors of coefficient estimates

ε = error term

Subscript i, j and t = the i^{th} bank in the j^{th} country at time t, respectively

We examine the relationship between CSR and firm value, and CSR and capital adequacy using Equation (1) and (2) for the period between 2012 and 2017. For robustness analysis, we repeat Equation (1) and (2) using CSR_ES, which is an alternative CSR measure developed using environmental and social data. We also perform subsample tests by splitting the sample using the median level of CSR Score. In addition, we perform additional analyses using excess capital ratios, of which we subtract Basel III's minimum capital ratios requirement of 10.5%[25] from Total Capital ratio and 8.5% from Tier 1 Capital ratio.

[25] Basel III capital ratio requirements for Total Capital ratio and Tier 1 Capital ratio are 10.5% and 8.5% respectively, which include conservation buffer of 2.5%.

5. Empirical results and discussion

5.1 Descriptive statistics and univariate results

Table 1 (Panel B) summarizes the descriptive statistics for all the variables used in regression analysis for the period from 2012 to 2017. We winsorize all the relevant variables at the 5% and 95% level to mitigate outliers' impact. The mean (median) for the CSR measure is 57.60 (60.30), on a scale from 0 to 100. The mean (median) CSR score of above 50 indicates that on average, the sample banks have relatively good CSR performance. Among the bank level control variables, the size, leverage ratio, loan to deposit ratio, cost to income ratio, and return on average asset of our sample banks are higher than those of Wu and Shen (2013). This could be because after the crisis period, banks tend to report better returns and expand during relatively good times. On the other hand, the NPL ratio and coverage ratio are similar with those of Wu and Shen (2013).

Using median level of CSR to divide the banks into subsample with high and low CSR groups (as shown in Table 1 (Panel C)), we find that the mean (median) of Tobin's Q for banks with high CSR are 0.10 (0.08), slightly lower than the mean (median) of 0.12 (0.10) for banks with low CSR performance. On the other hand, the mean (median) of Total Capital and Tier 1 Capital ratios for banks with high CSR are 15.69% (15.14%) and 13.30% (12.77%) respectively, while banks with low CSR performance register mean (median) ratios of 14.82% (14.37%) and 12.58% (12.12%) respectively, which is consistent with our hypothesis. Analysis using the Student-t test for differences in mean and Wilcoxon test for differences in median show that the difference between these two subsample groups are significant at 1% level for Tobin's Q, Total Capital ratio, and Tier 1 Capital ratio respectively.

Table 2 (Panel A) reports the matrix of correlations among the independent variables used in regression analyses. The Pearson correlation shows very weak negative association between CSR and Tobin's Q (-0.08), and positive links between CSR and the capital adequacy ratios (Total Capital ratio (0.162) and Tier 1 Capital ratio (0.136)), with both significant at the 1% level. Among the independent variables, all of the correlation coefficients are less than 0.60, except for the correlation between

return on average asset and leverage ratio (0.619). We use return on average asset to analyze firm value, and leverage ratio for capital adequacy. This indicates very little multicollinearity risk between the independent variables.

5.2 Multivariate analysis

Firm value

Table 3 reports estimated results for the relationship between CSR and firm value, and CSR and capital adequacy. Column (1) to (4) indicate that the coefficient for CSR are significantly positive for Tobin's Q at the 5% level. This shows that banks with high CSR achieve higher firm value, which is consistent with the prior studies for non-banking firms (Cahan et al., 2015; Cahan, et al., 2016). Hence, hypothesis 1 is supported. Our analysis indicates that a one-standard deviation increase in CSR is associated with a 0.2 improvement in Tobin's Q (i.e., (0.0012*19.16)/0.11). As for control variables, we find that banks with high profitability (return on average asset) have better firm value. Banks in countries which have good governance (country governance, 0.03), and less availability of bank credit and insurance (availability of bank credit and insurance, -0.02) achieve higher firm value. The instruments, EPI and Law, pass the statistical tests for relevance, strength, and suitability. First, the endogeneity test shows that the null hypothesis that the specified endogenous variable (CSR) is exogenous is rejected at the 1% level. Second, the null that the instruments are not correlated with the CSR under the Kleibergen-Paap rK LM test is rejected. Third, the Cragg-Donald Wald F statistics for Tobin's Q exceed the critical values at the 10% level, showing that both instruments are strong. Lastly, the Hansen J-statistic suggests that our instruments are not correlated with the error term.

Capital adequacy

Column (5) to (12) show that the estimated coefficient for CSR are statistically significant and positively related to Total Capital ratio and Tier 1 Capital ratio, both at the 1% level. As both capital adequacy ratios measure strength of capital positions of banks, our results indicate that the better the CSR performance, the higher the capital adequacy ratios. Hence, hypothesis 2 is supported. In our findings, the economic significance is substantial. A one-standard deviation increase in CSR is

associated with a 0.08 and 0.10 improvement in Total Capital and Tier 1 Capital ratios, respectively (i.e., (0.0637 *19.16)/ 15.26 and (0.0711*19.16)/12.96, respectively). The endogeneity test significantly rejects the null hypothesis that the endogenous variable (CSR) is exogenous. The instruments, EPI and Law, fulfill the statistical tests for relevance. For both capital adequacy ratios, the null that the instruments are not correlated with the CSR under the Kleibergen-Paap rK LM test is rejected at the 1% level. The Cragg-Donald Wald F statistics for both capital ratios exceed the critical values at the 10% level, showing that both instruments are strong. Hansen J-statistic shows that both instruments are not correlated with the error term.

Our analyses indicate that banks with higher CSR have stronger capital adequacy ratios. We attribute this relationship to good reputations and trusts brought by superior CSR performance. Our findings are in line with the literature for non-banking firms. Dhaliwal et al. (2011) and El Ghoul et al. (2011) find that CSR initiatives benefitted non-banking firms through lowering cost of equity financing and enhancing their abilities to raise higher amount of capital. Cheng et al. (2014) conclude that non-banking firms with superior CSR have better access to capital than firms with weak CSR.

In terms of control variables, the coefficient of leverage ratio (expansion capacity) is significantly positive for Total Capital ratio and Tier 1 Capital ratio, while the coefficient of country governance is negatively linked with Total Capital ratio and Tier 1 Capital ratio. Also, banks with lower liquidity exposure (loan to deposit ratio, -0.0131) and loan loss reserve (coverage ratio, -0.004) have higher Tier 1 Capital ratio. These results are consistent with our expectations because banks will require more capital when they expand business (leverage ratio), while a reduction in loan loss reserve (coverage ratio) and liquidity exposure (loan to deposit ratio) suggest that banks have a better risk profile, which enhance their ability to attract capital (FDIC, 2018).

5.3 Robustness tests

We perform three robustness tests. The first analysis uses an alternative CSR data, namely CSR_ES, which comprises environmental and social performance and excludes corporate governance component. The second robustness analysis is based on a subsample test which splits sample based

on the median level of CSR. The last test employs capital ratios in excess of Basel III's minimum capital ratios requirement.

5.3.1 CSR_ES (alternative CSR measure)

Following Lins et al. (2017) who exclude governance category in constructing the CSR measure, we construct CSR_ES score using the social and environment data of Refinitiv's ESG score. The weightage for social (83%) and environment (17%) categories is based on Chatterji, et al. (2014). We use the CSR_ES data to test robustness of our analysis.

Our robustness analysis confirms the main findings which use Refinitiv's CSR Score as presented in Table 3. Table 4 (Panel A) presents the robustness test results using the CSR_ES data. As shown in Column (3) and Column (4), the estimated coefficient for CSR_ES is significantly positive at the 5% level for Tobin's Q. In terms of economic magnitude, a one-standard deviation improvement in CSR_ES is associated with a 0.3 increase in firm value, consistent with the 0.2 rise using the CSR Score (Column (3) and (4) of Table 3). For Total Capital and Tier 1 Capital ratios, Column (8) and Column (12) indicate that the estimated coefficient for CSR_ES is positively significant at the 1% level. In terms of economic significance, a one-standard deviation increase in CSR is related to a 0.09 and 0.11 improvement in Total Capital and Tier 1 Capital ratios respectively, in line with the increase of 0.08 and 0.10 using CSR Score (Column (5) to (12) of Table 3). Both EPI and Law are relevant and eligible instruments for Tobin's Q and capital adequacy analyses since these instrumental variables pass the statistical tests as shown in Table 4 (Panel A).

5.3.2 Subsample analysis

In this section, we re-estimate our main models, but instead of including linear measure of CSR as an explanatory variable, we divide firms into high and low CSR firms, based on the median value of CSR. This approach allows us to assess whether the effect of CSR on bank value and capital adequacy ratio is more pronounced for high CSR firms or low CSR firms. Panel B of Table 4 shows that good socially responsible performance have a positive association with higher bank value, and

stronger capital adequacy ratios. The results for low CSR firms suggest that the impact of CSR is not monotonic and indicate that investors have more trust in banks with high CSR ratings.

5.3.3 Excess Capital Ratios (Above Basel III's Capital Ratio Requirements)

We perform additional test to validate our claim that banks with superior CSR have access to more capital. To derive the excess capital ratios, we subtract 10.5% from each bank's Total Capital ratio and 8.5% from Tier 1 Capital ratio. Based on Basel III, the minimum capital ratio requirements are 8.0% for Total Capital ratio and 6.0% for Tier 1 Capital ratio. In addition to the minimum requirements, we deduct the 2.5% conservation buffer from the Total Capital and Tier 1 Capital ratios in our database. Column (4) and (8) of Table 4 (Panel C) show that the estimated coefficients for CSR are statistically significant and positively related to Excess Total Capital ratio and Excess Tier 1 Capital ratio, both at the 1% level. Our findings suggest that the better the CSR performance, the higher the capital ratios above Basel III's capital ratio requirements (including the conservation buffer). The effect of CSR on banks' ability to attract capital is significant as a one standard deviation increase in CSR leads to 0.08 and 0.10 improvement in Total Capital and Tier 1 Capital ratios respectively.

5.4 Analysis on Capital Growth

Our main findings indicate that high CSR banks have higher firm value and strong capital adequacy ratios. In our hypothesis, we theorize that socially responsible performance could enhance reputation and strengthen stakeholder trust, leading to stronger capital adequacy. The increase in capital adequacy ratios could be due to higher capital amounts, lower risk weighted assets, or a combination of both these explanations. We analyze the relationships between CSR and annual growth of both Total Capital and Tier 1 Capital. Following our hypothesis, we expect positive links between CSR and annual capital growth, i.e., socially responsible banks are able to attract capital. We use a fixed effects model to address omitted variable concerns.

As shown in Table 5, the results confirm our hypothesis and support the main findings in Table 3. The estimated coefficients for CSR is significantly positive at the 1% level for Total Capital growth

and 5% level for Tier 1 Capital growth. Translating to economic magnitude, a one standard deviation improvement in CSR leads to 0.18% and 0.15% annual increase in Total Capital and Tier 1 Capital respectively. Among the control variables, total asset growth and leverage ratio are significantly and positively associated with both Total Capital growth and Tier 1 Capital growth. The results are consistent with expectations as banks will require more capital when they grow in size (total asset growth) and expand their business (leverage ratio).

6. Conclusion

This study examines the relationship between CSR and firm value, and CSR and capital adequacy for firms in the global banking industry for the period from 2012 to 2017. We theorize that CSR could enhance bank reputation, strengthen stakeholders' trust, and sharpen competitive advantage, which lead to improved firm value and capital adequacy. We use two-stage least squares approach with instrumental variables to analyze these relationships. To assess the robustness of our findings, we use an alternative CSR measure, subsample test, and excess capital ratios. We also examine the link between CSR and annual capital growth.

We find that banks with superior CSR exhibit enhanced firm value and strong capital adequacy ratios. This suggests that banks with superior CSR are able to raise more capital than those with relatively weak CSR performance. Our findings also indicate that banks with good CSR are able to attract Tier 1 capital, that is, high quality capital. These results support the prior literature for non-banking firms, which suggests that non-banking firms with superior CSR are able to lower cost of equity financing and enhance their abilities to raise higher amount of capital (Dhaliwal et al., 2011; El Ghoul et al., 2011; Cheng et al., 2014).

We acknowledge that the sample banks are complying with the respective country's capital adequacy regulatory requirements. Hence, superior CSR may enable banks to have the flexibilities to maintain an appropriate level of capital because of good reputations and trusts from stakeholders, which enhances their firm value. Hence, based on our findings, we would suggest that policy makers

and bank regulators should encourage banks to practice superior CSR as this could lead to strong capital adequacy ratios, leading to improved firm value for shareholders.

This paper has two possible limitations. First, although we have included many control variables, we acknowledge that unobserved firm specific variables could still explain our findings. Using instrumental variable analysis and fixed effect corrections, which addresses both omitted variable and reverse causality biases, we believe that our findings are robust. Second, our study relies on Refinitiv's ESG data as a measure for CSR. Because Refinitiv assigns ESG data to large and listed banks, our sample comprises mostly large and listed banks in a country rather than all banks in a country regardless of its size. Future research on the possible channels which lead to the results for capital adequacy may be interesting and will be helpful in advancing our understanding of the issue.

Appendix 1 Variable definitions, measurement, and sources

Variable	Description	Measurement/ Formula	Source
Dependent variables			
TQ	Tobin's Q ratio	$\frac{Market\ value\ of\ asset}{Book\ value\ of\ total\ asset}$	Authors' own computation
TC	Total Capital ratio	$\frac{Total\ Capital}{Risk-weighted\ asset}$	Fitch Solutions
Tier1	Tier 1 Capital ratio	$\frac{Tier\ 1\ Capital}{Risk-weighted\ asset}$	Fitch Solutions
TC Growth	Annual Total Capital Growth	$\frac{Total\ Capital\ at\ t1-Total\ Capital\ at\ t0}{Total\ Capital\ at\ t0}$	Authors' own computation
Tier 1 Growth	Annual Tier 1 Capital Growth	$\frac{Tier\ 1\ Capital\ at\ t1-Tier\ 1\ Capital\ at\ t0}{Tier\ 1\ Capital\ at\ t0}$	Authors' own computation
Excess TC ratio	Excess Total Capital ratio	Excess Total Capital ratio = Total Capital ratio – 10.5%	Authors' own computation
Excess Tier 1 ratio	Excess Tier 1 Capital ratio	Excess Tier 1 Capital ratio = Tier 1 Capital ratio – 8.5%	Authors' own computation
Independent variables			
CSR	ESG score	A composite score measures environmental, social, and governance performance. The scores ranges from 0 (weak) to 100 (strong).	Refinitiv
CSR_ES	Environmental and social score	An alternative CSR measure computed using Refinitiv's environmental and social scores, with weightage of 17% and 83% respectively.	Refinitiv's environmental and social data.
LogTA	Log of total asset	Size of a bank.	Fitch Solutions
TAGrowth	Total assets growth	Annual percentage growth of total assets. $\frac{\text{Total asset at t1} - \text{Total asset at t0}}{Total\ asset\ at\ t0}$	Fitch Solutions
CostInc	Cost to income ratio	Cost efficiency of a bank. $\frac{Interest + Non\ interest\ expense}{Net\ income}$	Fitch Solutions

Variable	Description	Measurement/ Formula	Source
Leverage	Equity to total asset	$\frac{Equity}{Total\ assets}$	Fitch Solutions
Coverage	Loan loss reserve to non-performing loan	$\frac{Loan\ loss\ reserves}{Impaired\ loans}$	Fitch Solutions
LD	Loan to deposit ratio	$\frac{Customer\ loans}{Customer\ deposits}$	Fitch Solutions
ROA	Return on average asset	$\frac{\text{Pretax profit}}{Average\ total\ assets}$	Fitch Solutions
Liquidity	Liquidity ratio	$\frac{Liquid\ assets}{Total\ assets}$	Fitch Solutions
NPL	Non-performing loan ratio	$\frac{Impaired\ loans}{Gross\ loans}$	Fitch Solutions
CG	Country governance	We derive this factor using Principal Component Analysis. Four individual governance measures (voice and accountability, government effectiveness, regulatory quality, and control of corruption) and log of GDP per capita have large factor loadings ranging between 0.33 and 0.39.	Authors' own computation
MR	Market restrictions	We obtain this factor using Principal Component Analysis. Banking sector concentration measure, as well as restriction on banking activities in securities and real estate metrics have large factor loadings ranging from -0.45 to 0.52.	Authors' own computation
CMM	Capital market maturity	Derived from Principal Component Analysis, domestic credit to private sector as a percentage of GDP, bank credit to private sector as a percentage of GDP, and stock market capitalization to GDP have heavy factor loadings ranging from -0.35 to -0.47.	Authors' own computation
BCI	Availability of bank credit and insurance	Principal Component Analysis shows that two factors have large loadings, namely bank credit to private sector as a percentage of GDP (0.61) and restriction on banking activities in insurance (0.59).	Authors' own computation
Instrumental variables			
EPI	Environmental Performance Index	Ranking for countries' performance on highly important environmental issues in two areas, namely human health and ecosystems.	Yale Law School

Variable	Description	Measurement/ Formula	Source
Law	Rule of law	"Perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence." (Source: World Bank- http://info.worldbank.org/governance/wgi/Home/Documents)	World Bank's World Governance Indicators database
Individual country level measures included in Principal Component Analysis			
Voa	Voice and accountability	"Reflects perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media." (Source: World Bank- http://info.worldbank.org/governance/wgi/Home/Documents)	World Bank's World Governance Indicators database
Gef	Government effectiveness	"Reflects perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies." (Source: World Bank- http://info.worldbank.org/governance/wgi/Home/Documents)	World Bank's World Governance Indicators database
Req	Regulatory quality	"Reflects perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development." (Source: World Bank- http://info.worldbank.org/governance/wgi/Home/Documents)	World Bank's World Governance Indicators database
Corrupt	Control of corruption	"Reflects perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests." (Source: World Bank- http://info.worldbank.org/governance/wgi/Home/Documents)	World Bank's World Governance Indicators database
Concentration	Three-bank concentration ratio	"Total assets of the three largest commercial banks as a share of total commercial banking assets. Total assets include total earning assets, cash and due from banks, foreclosed real estate, fixed assets, goodwill, other intangibles, current tax assets, deferred tax assets, discontinued operations and other assets." (Source: World Bank -	World Bank's Global Financial Development database

Variable	Description	Measurement/ Formula	Source
		https://www.worldbank.org/en/publication/gfdr/data/global-financial-development-database)	
Creditgdp	Domestic credit to private sector as a percentage of GDP	Refers to "financial resources provided to the private sector by financial corporations, such as through loans, purchases of non-equity securities, and trade credits and other accounts receivable, that establish a claim for repayment. For some countries these claims include credit to public enterprises. The financial corporations include monetary authorities and deposit money banks, as well as other financial corporations where data are available (including corporations that do not accept transferable deposits but do incur such liabilities as time and savings deposits)." (Source: World Bank - https://databank.worldbank.org/source/world-development-indicators)	World Bank's World Development Indicators database
Bkcredit	Bank credit to private sector as a percentage of GDP	Refers to "financial resources provided to the private sector by other depository corporations (deposit taking corporations except central banks), such as through loans, purchases of non-equity securities, and trade credits and other accounts receivable, that establish a claim for repayment. For some countries these claims include credit to public enterprises." (Source: World Bank)	World Bank's World Development Indicators database
Smkttogdp	Stock market capitalization to GDP	Total value of all listed shares in a stock market as a percentage of GDP. (Source: World Bank)	World Bank's Global Financial Development database
Bkzscore	Bank Z-score	"It captures the probability of default of a country's commercial banking system. Z-score compares the buffer of a country's commercial banking system (capitalization and returns) with the volatility of those returns." (Source: World Bank)	World Bank's Global Financial Development database
Res_s	Restriction on banking activities in securities	The degree of restrictions to engage in securities business, ranging from 1 (unrestricted) to 4 (prohibited).	Barth et al. (2008, 2013)
Res_i	Restriction on banking activities in insurance	The degree of restrictions to engage in insurance underwriting and selling, ranging from 1 (unrestricted) to 4 (prohibited).	Barth et al. (2008, 2013)
Res_e	Restriction on banking activities in real estate	The degree of restrictions to engage in real estate business, ranging from 1 (unrestricted) to 4 (prohibited).	Barth et al. (2008, 2013)
GDP	Gross domestic product	"Annual percentage growth rate of GDP at market prices based on constant local currency. Aggregates are based on constant 2010 U.S. dollars. GDP	World Bank's

Variable	Description	Measurement/ Formula	Source
		is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources." (Source: World Bank)	World Development Indicators database
Gdppercap	Gross domestic product per capita	"GDP per capita is gross domestic product divided by mid-year population. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in current U.S. dollars." (Source: World Bank)	World Bank's World Development Indicators database

References

Ackerman, A. (2014, February 5). Banks feel heat on climate-change issue. *The Wall Street Journal*. Retrieved from: https://www.wsj.com/articles/banks-feel-heat-on-climatechange-issue-1391640572. Accessed on 11 February 2019.

Altunbas, Y., Manganelli, S., and Marques-Ibanez, D. (2017). Realized bank risk during the great recession. *Journal of Financial Intermediation, 32*, 29-44.

Barth, J. R., Caprio, G., and Levine, R. (Eds.). (2006). *Rethinking bank supervision and regulation: until angels govern.* Cambridge, UK: Cambridge University Press.

Barth, J. R., Caprio, G. J., and Levine, R. (2008). Bank regulations are changing: for better or worse? *Comparative Economic Studies, 50*, 537-563.

Barth, James R., Caprio, Gerard, Jr., and Ross Levine. (2013). "Bank Regulation and Supervision in 180 Countries from 1999 to 2011." National Bureau of Economic Research Working Paper 18733

Beck, T., Demirguc-Kunt, A., Leven, R. (2006). Bank concentration, competition, and crises: First results. *Journal of Banking and Finance, 30*(5), 1581-1603.

Beck, T., De Jonghe, O., and Schepens, G. (2013). Bank competition and stability: cross-country heterogeneity. *Journal of Financial Intermediation, 22*(2), 218-244.

Berger, A. N., and Di Patti, E. B. (2006). Capital structure and firm performance: A new approach to testing agency theory and an application to the banking industry. *Journal of Banking and Finance, 30*(4), 1065-1102. doi:10.1016/j.jbankfin.2005.05.015

Bosch-Badia, M. T., Montillor-Serrats, J., and Tarrazon, M. A. (2013). Corporate social responsibility from Friedman to Porter and Kramer. *Theoretical Economics Letters, 3*(03), 11-15.

Buhr, N. and Freedman, M. (2001). Culture, institutional factors and differences in environmental disclosure between Canada and the United States. *Critical Perspectives on Accounting*, 12, 293-322.

Cahan, S. F., Chen, C., Chen, L., and Nguyen, N. H. (2015). Corporate social responsibility and media coverage. *Journal of Banking & Finance, 59*, 409-422. doi:https://doi-org.ezproxy.auckland.ac.nz/10.1016/j.jbankfin.2015.07.004

Cahan, S. F., De Villiers, C., Jeter, D. C., Naiker, V., and Van Staden, C. J. (2016). Are CSR disclosures value relevant? Cross-country evidence. *The European Accounting Review, 25*(3), 579-611. doi:10.1080/09638180.2015.1064009

Carroll, A. B. (1979). A three-dimensional conceptual model of corporate social performance. *Academy of Management Review,* 4, 497-505.

Chatterji, A., Durand, A., Levine, D., & Touboul, S. (2014). Do ratings of firms converge? Implications for strategy research-IRLE Working Paper No. 107–14. *National Bureau of Economic Research.*

Chih, H., Chih, H., and Chen, T. (2010). On the determinants of corporate social responsibility: International evidence on the financial industry. *Journal of Business Ethics, 93*(1), 115-135. doi:10.1007/s10551-009-0186-x

Chemmanur, T. J., and Fulghieri, P. (1994). Investment bank reputation, information production, and financial intermediation. *The Journal of Finance, 49*(1), 57-79. doi:10.1111/j.1540-6261.1994.tb04420.x

Cheng, B., Ioannou, I., and Serafeim, G. (2014). Corporate social responsibility and access to finance. *Strategic Management Journal, 35*(1), 1-23. doi:10.1002/smj.2131

Cornett, M. M., Erhemjamts, O., and Tehranian, H. (2016). Greed or good deeds: An examination of the relation between corporate social responsibility and the financial performance of U.S. commercial banks around the financial crisis. *Journal of Banking and Finance, 70*, 137-159. doi:https://doi-org.ezproxy.auckland.ac.nz/10.1016/j.jbankfin.2016.04.024

Delis, M. D., and Kouretas, G. P. (2011). Interest rates and bank risk-taking. *Journal of Banking and Finance, 35*(4), 840-855. doi:10.1016/j.jbankfin.2010.09.032

Dhaliwal, D. S., Li, O. Z., Tsang, A., and Yang, Y. G. (2011). Voluntary nonfinancial disclosure and the cost of equity capital: The initiation of corporate social responsibility reporting. *The Accounting Review, 86*(1), 59-100. doi:10.2308/accr.00000005

Dyck, A., Lins, K.V., Roth, L., and Wagner, H.F. (2019). Do institutional investors drive corporate social responsibility? International evidence. *Journal of Financial Economics*, 11, 693-714.

Eccles, R.G. and Klimenko, S. (2019). The investor revolution. Harvard Business Review. https://hbr.org/2019/05/the-investor-revolution

El Ghoul, S., Guedhami, O., Kwok, C. C. Y., and Mishra, D. R. (2011). Does corporate social responsibility affect the cost of capital? *Journal of Banking and Finance, 35*(9), 2388-2406. doi:https://doi-org.ezproxy.auckland.ac.nz/10.1016/j.jbankfin.2011.02.007

El Ghoul, S., and Karoui, A. (2017). Does corporate social responsibility affect mutual fund performance and flows? *Journal of Banking and Finance, 77*, 53-63. doi:https://doi-org.ezproxy.auckland.ac.nz/10.1016/j.jbankfin.2016.10.009

Esteban-Sanchez, P., de la Cuesta-Gonzalez, M., and Paredes-Gazquez, J. D. (2017). Corporate social performance and its relation with corporate financial performance: International evidence in the banking industry. *Journal of Cleaner Production, 162*, 1102-1110. doi:https://doi-org.ezproxy.auckland.ac.nz/10.1016/j.jclepro.2017.06.127

Federal Deposit Insurance Corporation. (2018). Risk management manual of examination policies. Retrieved on 7 February 2018 from https://www.fdic.gov/regulations/safety/manual/

Fink, L. (2018). BlackRock. Larry Fink's 2018 letter to CEOs. A sense of purpose. Retrieved from https://www.blackrock.com/corporate/investor-relations/2018-larry-fink-ceo-letter

Fink, L. (2020). BlackRock. Larry Fink's 2020 letter to CEOs. A Fundamental Reshaping of Finance. Retrieved from https://www.blackrock.com/corporate/investor-relations/larry-fink-ceo-letter

Flood, C. (2017, September 14). Big investors take aim at banks over climate change risk. *The Financial Times*. Retrieved from: https://www.ft.com/content/a2616a52-988b-11e7-a652-cde3f882dd7b. Accessed on 11 February 2019.

Fombrun, C., and Shanley, M. (1990). What's in a Name? Reputation Building and Corporate Strategy. *Academy of Management Journal, 33*(2), 233-258. doi:10.5465/256324

Gambetta, N., Garcia-Benau, M. A., and Zorio-Grima, A. (2017). Corporate social responsibility and bank risk profile: evidence from Europe. *Service Business, 11*(3), 517-542. doi:10.1007/s11628-016-0318-1; info:doi/10.1007/s11628-016-0318-1

Garcia-Castro, R., Arino, M. A. and Canela, M. A. (2010). Does social performance really lead to financial performance? Accounting for endogeneity. *Journal of Business Ethics*, 92(1), 107-126.

Garel, A., and Petit-Romec, A. (2017). Bank capital in the crisis: It's not just how much you have but who provides it. *Journal of Banking and Finance, 75*, 152-166.

Goss, A., and Roberts, G. S. (2011). The impact of corporate social responsibility on the cost of bank loans. *Journal of Banking and Finance, 35*(7), 1794-1810. doi:https://doi-org.ezproxy.auckland.ac.nz/10.1016/j.jbankfin.2010.12.002

Holland, L. and Foo, Y.B. (2003). Differences in environmental reporting practices in the UK and the US: The legal and regulatory context. *The British Accounting Review*, 35, 1-18.

IMF (International Monetary Fund), World Bank, and International Bank for Reconstruction and Development. (2005). Indicators of financial structure, development and soundness. In *Financial sector assessment: A handbook.* (pp. 15-33). Washington: World Bank Institute. https://www.imf.org/external/pubs/ft/fsa/eng/pdf/ch02.pdf

International Finance Corporation. (2020). Sustainable banking network. Sustainable banking policies, guidelines, and principles. Retrieved from https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/company-resources/sustainable-finance/sbn

Ioannou, I., and Serafeim, G. (2012). What drives corporate social performance? The role of nation-level institutions. *Journal of International Business Studies, 43*(9), 834-864.

Jha, A. and Cox, J. (2015). Corporate social responsibility and social capital. *Journal of Banking and Finance*, 60, 252-270.

Jimenez, G., Lopez, J.A. and Saurina, J. (2013). How does competition affect bank risk-taking? *Journal of Financial Stability*, 9(2), 185 – 195.

Jin, J. Y., Kanagaretnam, K., Lobo, G. J., and Mathieu, R. (2013). Impact of FDICIA internal controls on bank risk taking. *Journal of Banking and Finance, 37*(2), 614-624. doi:https://doi-org.ezproxy.auckland.ac.nz/10.1016/j.jbankfin.2012.09.013

Jin, J. Y., Kanagaretnam, K., Lobo, G. J., and Mathieu, R. (2017). Social capital and bank stability. *Journal of Financial Stability, 32*, 99-114. doi:https://doi-org.ezproxy.auckland.ac.nz/10.1016/j.jfs.2017.08.001

Jiao, Y. (2010). Stakeholder welfare and firm value. *Journal of Banking and Finance, 34*(10), 2549-2561. doi:https://doi-org.ezproxy.auckland.ac.nz/10.1016/j.jbankfin.2010.04.013

Kaufmann, D., Kraay, A., & Mastruzzi, M. (2011). The worldwide governance indicators: methodology and analytical issues. *Hague Journal on the Rule of Law*, *3*(2), 220-246.

Kay, J. (1993). *Foundations of corporate success: How business strategies add value*. Oxford: Oxford University Press.

Kerstein, J., and Kozberg, A. (2013). Using accounting proxies of proprietary FDIC ratings to predict bank failures and enforcement actions during the recent financial crisis. *Journal of Accounting, Auditing and Finance, 28*(2), 128-151. doi:10.1177/2150129713478846

Kim, H., Lee, M., Lee, H., and Kim, N. (2010). Corporate social responsibility and employee–company identification. *Journal of Business Ethics*, *95*(4), 557-569.

Laeven, L., Ratnovski, L., and Tong, H. (2016). Bank size, capital, and systemic risk: Some international evidence. *Journal of Banking and Finance, 69*, S25-S34. doi:https://doi-org.ezproxy.auckland.ac.nz/10.1016/j.jbankfin.2015.06.022

Lins, K. V., Servaes, H., and Tamayo, A. (2017). Social capital, trust, and firm performance: The value of corporate social responsibility during the financial crisis. *The Journal of Finance, 72*(4), 1785-1824. doi:10.1111/jofi.12505

Maden, C., Arıkan, E., Telci, E. E., and Kantur, D. (2012). Linking corporate social responsibility to corporate reputation: a study on understanding behavioral consequences. *Procedia-Social and Behavioral Sciences*, *58*, 655-664.

Margolis, J. D., Elfenbein, H. A., and Walsh, J. P. (2009). Does it pay to be good... and does it matter? A meta-analysis of the relationship between corporate social and financial performance. *SSRN Working Paper*, doi:http://dx.doi.org/10.2139/ssrn.1866371

Minor, D., and Morgan, J. (2011). CSR as Reputation Insurance: Primum Non Nocere. *California Management Review*, *53*(3), 40-59. doi:10.1525/cmr.2011.53.3.40

Miras-Rodríguez, M., Carrasco-Gallego, A., and Escobar-Pérez, B. (2015). Has the CSR engagement of electrical companies had an effect on their performance? A closer look at the environment. *Business Strategy and the Environment, 24*(8), 819-835. doi:10.1002/bse.1848

National Bureau of Economic Research. (2020). *US business cycle expansions and contractions.* Retrieved from https://www.nber.org/cycles/cyclesmain.html

Orlitzky, M., and Benjamin, J. D. (2001). Corporate social performance and firm risk: A meta-analytic review. *Business and Society*, *40*(4), 369-396. doi:10.1177/000765030104000402

Orlitzky, M., Schmidt, F. L., and Rynes, S. L. (2003). Corporate social and financial performance: A meta-analysis. *Organization Studies*, *24*(3), 403-441.

Porter, M. E., and Kramer, M. R. (2003). The competitive advantage of corporate philanthropy. *Harvard Business Review*, *80*(12), 56-68.

Rees, W. (2011). Investor influence on firms' environmental, social and governance performance. http://dx.doi.org/10.2139/ssrn.1973724

Refinitiv. (2019). Environmental, social and governance scores from Refinitiv. Retrieved from https://www.refinitiv.com/content/dam/marketing/en_us/documents/methodology/esg-scores-methodology.pdf

Reserve Bank of New Zealand (2017). Review of bank capital requirements. **Retrieved from** https://www.rbnz.govt.nz/research-and-publications/speeches/2017/speech-2017-03-07

Roberts, M. R., and Whited, T. M. (2013). Chapter 7 - Endogeneity in Empirical Corporate Finance. In G. M. Constantinides, M. Harris and R. M. Stulz (Eds.), *Handbook of the Economics of Finance* (pp. 493-572) Elsevier. doi:https://doi-org.ezproxy.auckland.ac.nz/10.1016/B978-0-44-453594-8.00007-0

Saeidi, S. P., Sofian, S., Saeidi, P., Saeidi, S. P., and Saaeidi, S. A. (2015). How does corporate social responsibility contribute to firm financial performance? The mediating role of competitive advantage, reputation, and customer satisfaction. *Journal of Business Research, 68*(2), 341-350. doi:https://doi-org.ezproxy.auckland.ac.nz/10.1016/j.jbusres.2014.06.024

Schaeck, K., Cihak, M., Wolfe, S. (2009). Are competitive banking systems more stable? Journal of Money, Credit and Banking, 41(4), 711-734.

Scholtens, B. and Dam, L. (2007). Banking on the equator: Are banks that adopted the equator principles different from non-adopters? *World Development*, 35(8), 1307-1328.

Shen, C., Wu, M., Chen, T., and Fang, H. (2016). To engage or not to engage in corporate social responsibility: Empirical evidence from global banking sector. *Economic Modelling, 55*(Supplement C), 207-225. doi:https://doi-org.ezproxy.auckland.ac.nz/10.1016/j.econmod.2016.02.007

Simpson, W. G., and Kohers, T. (2002). The link between corporate social and financial performance: Evidence from the banking industry. *Journal of Business Ethics, 35*(2), 97-109.

Soedarmono, W., Machrouh, F., and Tarazi, A. (2013). Bank competition, crisis and risk taking: Evidence from emerging markets in Asia. *Journal of International Financial Markets, Institutions and Money, 23*, 196-221. doi:https://doi-org.ezproxy.auckland.ac.nz/10.1016/j.intfin.2012.09.009

Sustainable Banking Network. (2017). Briefing. Retrieved from https://www.ifc.org/wps/wcm/connect/061695f3-43f1-4a71-8b25-02d3a8bd79ca/SBN_briefing+February+2017+%281%29.pdf?MOD=AJPERES

The Global Sustainable Investment Alliance. (2018). 2018 Global sustainable investment review. Retrieved from http://www.gsi-alliance.org/wp-content/uploads/2019/03/GSIR_Review2018.3.28.pdf

UNEP Finance Initiative. (2020). Principles for responsible banking. Retrieved from https://www.unepfi.org/banking/bankingprinciples/

Waddock, S. A., and Graves, S. B. (1997). The corporate social performance-financial performance link. *Strategic Management Journal, 18*(4), 303-319.

Williams, S.M. (1999). Voluntary environmental and social accounting disclosure practices in the Asia-Pacific region: An international empirical test of political economy theory. *The International Journal of Accounting*, 34(2), 209-238.

Wendling, Z. A., Emerson, J. W., Esty, D. C., Levy, M. A., de Sherbinin, A., *et al*. (2018). *2018 Environmental Performance Index*. New Haven, CT: Yale Center for Environmental Law and Policy. https://epi.yale.edu/

Wikipedia. (2020). Principal component analysis. Retrieved from https://en.wikipedia.org/wiki/Principal_component_analysis#cite_note-29

Wu, M-W. and Shen, C-H. (2013). Corporate social responsibility in the banking industry: Motives and financial performance. *Journal of Banking and Finance*, 37, 3529-3547.

Table 1: Descriptive statistics

Panel A: The number of bank year observations based on country

Country	Number of Banks (%)	Bank-year Observations	
		Number	%
North America			
Canada	8	48	3.4
United States	37	222	15.7
South America			
Brazil	5	30	2.1
Chile	4	24	1.7
Mexico	4	24	1.7
Europe			
Austria	2	12	0.9
Belgium	3	18	1.3
Denmark	3	18	1.3
Finland	1	6	0.4
France	4	24	1.7
Germany	3	18	1.3
Greece	4	24	1.7
Ireland	3	18	1.3
Italy	8	48	3.4
Netherlands	1	6	0.4
Norway	1	6	0.4
Poland	10	60	4.3
Portugal	1	6	0.4
Spain	6	36	2.6
Sweden	3	18	1.3
Switzerland	6	36	2.6
Turkey	6	36	2.6
United Kingdom	6	36	2.6
Russia	3	18	1.3
Asia Pacific			
Australia	6	36	2.6
China	10	60	4.3
Hong Kong	3	18	1.3
India	10	60	4.3
Indonesia	5	30	2.1
Israel	4	24	1.7
Japan	21	126	8.9
Malaysia	7	42	3.0
Philippines	4	24	1.7
Singapore	3	18	1.3
South Korea	6	36	2.6
Taiwan	10	60	4.3
Thailand	7	42	3.0
Middle East and Africa			
Egypt	2	12	0.9
South Africa	5	30	2.1
Total	**235**	**1410**	**100**

Table 1: Descriptive statistics

Panel B: Summary statistics						
Variable	**Obs.**	**Mean**	**Median**	**Std. dev.**	**Min**	**Max**
Dependent variables						
Tobin's Q	1410	0.11	0.09	0.08	0.02	0.30
Total Capital ratio (%)	1389	15.26	14.80	2.66	11.28	21.40
Tier 1 Capital ratio (%)	1302	12.96	12.50	2.76	8.99	19.32
CSR variables						
CSR	1410	57.60	60.30	19.16	23.73	85.84
CSR_ES	1410	57.43	58.72	20.85	20.05	90.28
Control variables						
Total asset (USD bil)	1410	310	85	480	12	1800
(log of Total asset)	1410	25.44	25.16	1.41	23.25	28.20
Total asset growth (%)	1410	6.31	5.48	8.27	-8.08	24.91
Leverage ratio (%)	1410	8.33	7.94	2.78	4.21	14.19
Loan to deposit ratio (%)	1410	102.79	94.22	31.77	63.85	187.25
Cost to income ratio (%)	1410	55.16	55.20	11.85	32.26	77.42
Coverage ratio (%)	1410	88.44	70.09	49.03	33.96	213.65
Return on average asset (%)	1410	1.17	1.12	0.80	-0.23	2.90
Liquidity ratio (%)	1410	13.86	12.04	8.82	2.36	33.44
NPL ratio (%)	1410	3.61	2.25	3.73	0.41	14.70
Country governance	1410	0.00*	1.18	2.38	-4.83	4.28
Market restrictions	1410	0.00*	0.15	1.70	-3.17	2.75
Capital market maturity	1410	0.00*	0.16	1.23	-3.68	2.98
Availability of bank credit and insurance	1410	0.00*	-0.04	1.12	-2.18	2.45
Instruments						
EPI	1410	76.74	79.72	9.77	53.98	88.54
Rules of law	1410	0.95	1.19	0.82	-0.52	1.91

*Note: Because we derive the four nation-level control variables using principal component analysis, the mean of these variables are zero[26] (Wikipedia, 2020).

[26] Principal Components Analysis is a technique to reduce dimensionality, i.e. to reduce a large number of factors to a smaller number. One of its basic steps is to perform data centering, which is to subtract a dimension's mean from itself so that each of the dimension in the dataset has zero mean (Wikipedia, 2020).

Table 1: Descriptive statistics

Panel C: High versus Low CSR								
Variable	**High CSR Banks**			**Low CSR Banks**			**Diff in means**	**Diff in median**
	Obs.	**Mean**	**Median**	**Obs.**	**Mean**	**Median**		
Dependent variables								
Tobin's Q	706	0.10	0.08	704	0.12	0.10	3.254***	3.603***
Total Capital ratio	704	15.69	15.14	685	14.82	14.37	-6.154***	-6.539***
Tier 1 Capital ratio	684	13.30	12.77	618	12.58	12.12	-4.709***	-5.540***
Bank control variables								
Log of total asset	706	26.14	26.11	704	24.74	24.66	-21.659***	-18.913***
Total asset growth	706	5.30	5.00	704	7.32	5.86	4.609***	3.879***
Leverage ratio	706	7.89	7.45	704	8.78	8.52	6.034***	5.867***
Loan to deposit ratio	706	107.78	98.31	704	97.80	90.58	-5.971***	-5.985***
Cost to income ratio	706	55.31	55.33	704	55.02	54.98	-0.460	-0.372
Coverage ratio	706	86.08	69.91	704	90.80	70.48	1.811*	0.468
Return on average asset	706	1.14	1.03	704	1.20	1.23	1.524	1.929*
Liquidity ratio	706	16.34	14.60	704	11.37	9.91	-11.016***	-10.171***
NPL ratio	706	3.69	2.20	704	3.53	2.30	-0.805	0.208
Country control variables								
Country governance	706	0.17	0.86	704	-0.17	1.22	-2.647***	-3.307***
Market restrictions	706	-0.51	-1.03	704	0.51	0.52	11.698***	11.491***
Capital market maturity	706	-0.03	0.04	704	0.03	0.17	0.946	1.321
Availability of bank credit and insurance	706	0.05	-0.01	704	-0.05	-0.13	-1.826*	-1.898*

Notes: All variables are defined in Appendix 1; ***, **, and * denote significance at the 1%, 5% and, 10% respectively.

Table 2: Correlation matrix

Panel A: This table presents Pearson (bottom of diagonal) and Spearman (top of diagonal) Correlations for the variables used in regression analysis. Text in bold denotes significance at the 5% level.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
(1) Tobin's Q		**0.221**	**0.251**	-0.051	**-0.056**	**-0.084**	**-0.394**	**0.316**	**0.706**	0.001	**-0.392**	**0.362**	**0.784**	**-0.125**	**-0.151**	**-0.194**	**0.224**	**-0.060**	**-0.354**
(2) Total capital ratio	**0.224**		**0.863**	**0.197**	**0.199**	**0.176**	**0.053**	**-0.159**	**0.219**	**0.091**	-0.036	-0.049	**0.122**	**0.308**	**0.113**	**0.071**	**-0.334**	-0.049	-0.193
(3) Tier 1 capital ratio	**0.285**	**0.893**		**0.157**	**0.123**	**0.154**	-0.028	**-0.174**	**0.275**	**0.089**	0.033	**-0.126**	**0.115**	**0.214**	**0.090**	**0.166**	**-0.286**	0.012	**-0.159**
(4) CSR	-0.082	**0.157**	**0.131**		**0.925**	**0.866**	**0.581**	**-0.121**	**-0.161**	**0.194**	0.035	0.020	-0.043	**0.333**	-0.030	**0.129**	**-0.349**	**-0.063**	0.010
(5) CSR_ES	**-0.090**	**0.144**	**0.094**	**0.921**		**0.804**	**0.555**	**-0.095**	**-0.139**	**0.200**	0.041	0.030	-0.029	**0.297**	0.014	**0.059**	**-0.318**	-0.048	**-0.080**
(6) CSR Dummy	**-0.102**	**0.144**	**0.130**	**0.857**	**0.788**		**0.504**	**-0.103**	**-0.155**	**0.160**	0.010	-0.013	-0.051	**0.271**	-0.006	**0.088**	**-0.306**	-0.035	0.050
(7) Log of total asset	**-0.402**	**0.040**	-0.038	**0.576**	**0.539**	**0.495**		**-0.156**	**-0.492**	0.005	0.028	**-0.082**	**-0.276**	**0.412**	-0.016	**0.194**	**-0.241**	**-0.095**	**0.114**
(8) Total asset growth	**0.311**	**-0.177**	**-0.169**	**-0.145**	**-0.120**	**-0.143**	**-0.188**		**0.190**	**-0.126**	**-0.340**	**0.309**	**0.508**	**-0.078**	**-0.190**	**-0.387**	**0.183**	**-0.122**	**-0.084**
(9) Leverage	**0.689**	**0.198**	**0.294**	**-0.161**	**-0.143**	**-0.172**	**-0.490**	**0.171**		0.034	**-0.218**	**0.290**	**0.635**	**-0.329**	**0.071**	**-0.302**	**0.311**	0.015	**-0.250**
(10) Loan to deposit	-0.089	**0.151**	**0.185**	**0.224**	**0.205**	**0.193**	0.047	**-0.160**	-0.056		**-0.062**	**-0.189**	**-0.084**	**-0.072**	**0.314**	-0.032	**-0.461**	**0.222**	**0.083**
(11) Cost to income	**-0.327**	0.002	0.031	0.057	0.079	0.040	0.022	**-0.333**	**-0.189**	-0.012		**-0.347**	**-0.557**	-0.001	**0.112**	**0.410**	-0.048	**0.249**	**-0.167**
(12) Coverage	**0.256**	**-0.123**	**-0.119**	-0.029	-0.046	-0.067	-0.051	**0.276**	**0.199**	**-0.246**	**-0.386**		**0.445**	0.048	**-0.459**	**-0.213**	**0.254**	**-0.184**	-0.027
(13) Return on average asset	**0.780**	**0.105**	**0.126**	-0.047	-0.044	-0.064	**-0.278**	**0.510**	**0.619**	**-0.164**	**-0.535**	**0.385**		**-0.103**	**-0.161**	**-0.397**	**0.280**	**-0.093**	**-0.241**
(14) Liquidity	**-0.155**	**0.301**	**0.209**	**0.340**	**0.316**	**0.279**	**0.464**	**-0.121**	**-0.354**	0.005	**0.108**	-0.007	**-0.125**		-0.016	**0.148**	**-0.402**	**-0.173**	0.033
(15) NPL ratio	**-0.177**	**0.035**	0.053	-0.001	0.031	0.025	-0.0003	**-0.242**	-0.033	**0.370**	**0.170**	**-0.387**	**-0.312**	-0.033		**-0.372**	**-0.365**	**0.239**	**0.110**
(16) Country governance	**-0.290**	**0.108**	**0.146**	**0.089**	0.035	**0.084**	**0.174**	**-0.429**	**-0.308**	0.022	**0.484**	**-0.248**	**-0.464**	**0.181**	**-0.204**		-0.033	0.028	-0.006
(17) Market restrictions	**0.203**	**-0.321**	**-0.292**	**-0.348**	**-0.303**	**-0.314**	**-0.238**	**0.188**	**0.332**	**-0.454**	**-0.077**	**0.295**	**0.256**	**-0.415**	**-0.461**	-0.008		-0.004	-0.034
(18) Capital market maturity	-0.048	**-0.080**	-0.015	**-0.027**	**0.006**	0.016	**-0.047**	**-0.113**	**0.010**	**0.206**	**0.281**	**-0.238**	**-0.122**	**-0.126**	**0.264**	0.030	0.002		**-0.056**
(19) Availability of bank credit and insurance	**-0.400**	**-0.167**	**-0.161**	0.028	**-0.064**	0.078	**0.151**	**-0.087**	**-0.311**	**0.117**	**-0.190**	0.050	**-0.283**	0.024	**0.076**	-0.001	-0.012	-0.065	

Table 2: Correlation matrix

Panel B: This table presents Pearson (bottom of diagonal) and Spearman (top of diagonal) Correlations for the 14 variables in Principal Component Analysis. Text in bold denotes significance at the 5% level.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1) Voice and accountability		**0.748**	**0.779**	**0.833**	**0.206**	**0.225**	-0.011	**0.291**	**0.113**	**-0.184**	**-0.226**	**-0.233**	**-0.443**	**0.737**
(2) Government effectiveness	**0.711**		**0.908**	**0.949**	**0.221**	**0.474**	**0.244**	**0.553**	**0.230**	**-0.142**	**-0.297**	**-0.097**	**-0.365**	**0.782**
(3) Regulatory quality	**0.775**	**0.941**		**0.912**	**0.228**	**0.404**	**0.205**	**0.557**	**0.152**	**-0.143**	**-0.207**	**-0.189**	**-0.313**	**0.836**
(4) Control of corruption	**0.775**	**0.961**	**0.938**		**0.285**	**0.359**	**0.223**	**0.464**	**0.124**	**-0.214**	**-0.252**	**-0.174**	**-0.361**	**0.770**
(5) Bank concentration	**0.200**	**0.181**	**0.248**	**0.247**		**-0.293**	**0.316**	**-0.136**	**-0.272**	**-0.716**	0.007	**-0.694**	**-0.247**	-0.013
(6) Domestic credit to private sector as a percentage of GDP	**0.214**	**0.536**	**0.424**	**0.424**	**-0.195**		**0.433**	**0.685**	**0.427**	**0.305**	**-0.260**	**0.339**	**-0.231**	**0.609**
(7) Bank credit to private sector as a percentage of GDP	-0.005	**0.281**	**0.233**	**0.194**	**0.244**	**0.506**		**0.217**	**-0.167**	**-0.242**	**0.104**	**-0.154**	**-0.112**	**0.203**
(8) Stock market capitalization to GDP	**0.258**	**0.536**	**0.494**	**0.463**	0.019	**0.643**	**0.315**		**0.394**	**0.204**	**-0.425**	**0.073**	-0.048	**0.558**
(9) Bank Z-score	**0.146**	**0.332**	**0.216**	**0.258**	**-0.225**	**0.454**	**-0.206**	**0.360**		**0.379**	**-0.159**	**0.284**	**0.095**	**0.326**
(10) Restriction on banking activities in securities	**-0.135**	**-0.056**	**-0.116**	**-0.134**	**-0.676**	**0.274**	**-0.203**	**0.125**	**0.416**		**0.146**	**0.758**	**0.354**	0.036
(11) Restriction on banking activities in insurance	**-0.128**	**-0.228**	**-0.124**	**-0.209**	-0.035	**-0.289**	0.0004	**-0.429**	**-0.208**	**0.160**		**0.272**	**0.081**	**-0.158**
(12) Restriction on banking activities in real estate	**-0.223**	**-0.079**	**-0.178**	**-0.156**	**-0.641**	**0.271**	**-0.158**	-0.035	**0.291**	**0.742**	**0.345**		**0.221**	-0.008
(13) GDP growth	**-0.580**	**-0.470**	**-0.513**	**-0.476**	**-0.263**	**-0.284**	**-0.089**	**-0.149**	-0.003	**0.313**	**0.062**	**0.234**		**-0.365**
(14) Log of GDP per capita	**0.710**	**0.875**	**0.884**	**0.845**	**0.162**	**0.568**	**0.309**	**0.428**	**0.334**	**-0.066**	**-0.120**	**-0.095**	**-0.598**	

Table 3

Two-stage Least Squares with Instrumental Variables Approach

This table presents the results of the two-stage least squares test to examine the relationship between CSR and firm value, as well as between CSR and capital adequacy (column (5) to column (12)). We use robust standard errors clustered at the firm level to compute t-statistics.
The ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Banks with high CSR_ES show better firm value and stronger capital adequacy ratios												
Variables	**CSR**		**Tobin's Q**		**CSR**		**Total Capital Ratio**		**CSR**		**Tier 1 Capital Ratio**	
	First Stage		**Second Stage**		**First Stage**		**Second Stage**		**First Stage**		**Second Stage**	
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**	**(11)**	**(12)**
	Coeff.	**Std. err.**	**Coeff.**	**Std. err.**	**Coeff.**	**Std. err.**	**Coeff.**	**Std. err.**	**Coeff.**	**Std. err.**	**Coeff.**	**Std. err.**
EPI	-0.2755	(0.0562)***			-0.4038	(0.0534)***			-0.4011	(0.0578)***		
Law	-5.8220	(3.6591)			-1.3592	(3.8832)			0.8240	(4.3366)		
Instrumented CSR			**0.0012**	**(0.0005)****			**0.0637**	**(0.0203)*****			**0.0711**	**(0.0204)*****
Log of total asset	15.8873	(2.7332)***	-0.0103	(0.0132)								
Total asset growth					-0.0893	(0.0381)**	-0.0093	(0.0072)	-0.0926	(0.0395)**	-0.0015	(0.0072)
Leverage	1.4018	(0.4173)***	0.0008	(0.0023)	0.7495	(0.3993)*	0.6883	(0.0857)***	1.0796	(0.4194)**	0.8639	(0.0881)***
Loan to deposit	0.0413	(0.0358)	0.0001	(0.0001)	0.0695	(0.0430)	-0.0094	(0.0065)	0.0592	(0.0438)	-0.0131	(0.0069)**
Cost to income	-0.0277	(0.0617)	-0.0001	(0.0002)	0.0583	(0.0621)	0.0008	(0.0123)	0.0997	(0.0664)	0.0087	(0.0117)
Coverage	0.0269	(0.0205)	-0.00002	(0.0001)	0.0275	(0.0224)	-0.0047	(0.0031)	0.0247	(0.0228)	-0.0040	(0.0024)*
Return on average asset	-2.5491	(0.8006)***	0.0281	(0.0044)***								
Liquidity	-0.0797	(0.0935)	0.0006	(0.0003)*								
NPL ratio	-0.5840	(0.2729)**	0.0015	(0.0008)*	-0.4585	(0.2724)*	-0.0620	(0.0421)	-0.5210	(0.2584)**	-0.0662	(0.0396)*
Country governance	3.8956	(1.4951)***	0.0314	(0.0060)***	4.9718	(1.7301)***	-0.7978	(0.2391)***	5.9809	(1.8358)***	-0.4418	(0.2507)*
Market restrictions	-0.1861	(1.6837)	0.0006	(0.0052)	1.1405	(1.7340)	0.3659	(0.2598)	0.7649	(1.7264)	0.1792	(0.2712)
Capital market maturity	-4.2345	(1.7357)**	0.0009	(0.0085)	-4.3819	(1.9053)**	0.5954	(0.3779)	-4.5175	(1.888)**	-0.0795	(0.3840)
Availability of bank credit and insurance	-6.9782	(2.5124)***	-0.0210	(0.0089)**	-4.1009	(2.8622)	-0.1201	(0.4176)	-6.0721	(2.8804)**	-0.0183	(0.4190)
Country, Year, and Firm Fixed effects		Yes		Yes		Yes		Yes		Yes		Yes
Kleibergen-Paap rK LM statistic (p-value)		23.547 (0.0000)				42.227 (0.0000)				34.592 (0.0000)		
Cragg-Donald Wald F statistic (% of maximal IV size critical values)		23.179 (10%)				37.235 (10%)				31.962 (10%)		
Hansen J test (p-value)				0.3524				0.7572				0.7474
Endogeneity test (p-value)				0.0015				0.0028				0.0014
Cluster by bank		Yes		Yes		Yes		Yes		Yes		Yes
(no of cluster)		(235)		(235)		(233)		(233)		(229)		(229)
R-square				0.0829				0.2320				0.3474
Observations		1,410		1,410		1,388		1,388		1,301		1,301
Robust to Heteroskedasticity		Yes		Yes		Yes		Yes		Yes		Yes

Table 4

Robustness analysis – Use CSR_ES as an alternative CSR measure

This table presents the results for our analyses using CSR_ES, an alternative CSR measure, to examine the relationship between CSR_ES and firm value, as well as between CSR_ES and capital adequacy.

The ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Banks with high CSR_ES show better firm value and stronger capital adequacy ratios

Variables	CSR_ES First Stage		Tobin's Q Second Stage		CSR_ES First Stage		Total Capital Ratio Second Stage		CSR_ES First Stage		Tier 1 Capital Ratio Second Stage	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.	Coeff.	Std. err.
EPI	-0.2378	(0.0594)***			-0.3799	(0.0551)***			-0.4047	(0.0584)***		
Law	-2.4397	(4.2134)			2.3194	(4.4385)			3.4869	(4.999)		
Instrumented CSR_ES			0.0016	(0.0007)**			0.0675	(0.0218)***			0.0712	(0.0202)***
Log of total asset	16.9648	(2.9377)***	-0.0186	(0.0174)								
Total asset growth					-0.0943	(0.0452)**	-0.0091	(0.0075)	-0.0908	(0.0466)*	-0.0019	(0.0075)
Leverage	1.4483	(0.4878)***	0.0002	(0.0026)	0.7728	(0.4484)*	0.6850	(0.0857)***	1.171	(0.4735)**	0.8575	(0.0879)***
Loan to deposit	0.0342	(0.0373)	0.0001	(0.0001)	0.0636	(0.0418)	-0.0093	(0.0066)	0.0557	(0.0417)	-0.0129	(0.0072)*
Cost to income	-0.0718	(0.0650)	-0.00003	(0.0003)	(0.0151)	(0.0630)	0.0034	(0.0123)	0.0646	(0.0690)	0.0111	(0.0114)
Coverage	0.0324	(0.0220)	-0.00004	(0.0001)	0.0335	(0.0242)	-0.0051	(0.0032)	0.0325	(0.0247)	-0.0045	(0.0025)*
Return on average asset	-2.5120	(0.9233)***	0.0290	(0.0048)***								
Liquidity	-0.0679	(0.1006)	0.0006	(0.0003)*								
NPL ratio	-0.6175	(0.3270)*	0.0018	(0.0009)*	-0.4972	(0.3393)	-0.0580	(0.0446)	-0.5256	(0.3299)	-0.0658	(0.0445)
Country governance	2.2373	(1.7287)	0.0320	(0.0064)***	3.1263	(2.0307)	-0.7421	(0.2370)***	4.0436	(2.1633)*	-0.3416	(0.2410)
Market restrictions	0.6108	(1.7451)	-0.0007	(0.0056)	2.0742	(1.8624)	0.2893	(0.2649)	1.7597	(1.8410)	0.0961	(0.2764)
Capital market maturity	-4.5565	(1.9854)**	0.0035	(0.0092)	-4.6217	(2.1586)**	0.6269	(0.3943)	-4.4371	(2.1232)**	-0.0842	(0.3918)
Availability of bank credit and insurance	-7.1680	(2.4698)***	-0.0177	(0.0097)*	-3.8534	(2.8547)	-0.1126	(0.4216)	-5.2832	(2.9183)*	-0.0713	(0.4156)
Country, Year, and Firm Fixed effects		Yes		Yes		Yes		Yes		Yes		Yes
Kleibergen-Paap rK LM statistic		15.731				36.596				33.884		
(p-value)		(0.0004)				(0.0000)				(0.0000)		
Cragg-Donald Wald F statistic (%		12.367				26.152				26.515		
of maximal IV size critical values)		(15%)				(10%)				(10%)		
Hansen J test (p-value)				0.5669				0.4753				0.9818
Endogeneity test (p-value)				0.0014				0.0037				0.0016
Cluster by bank		Yes		Yes		Yes		Yes		Yes		Yes
(no of cluster)		(235)		(235)		(233)		(233)		(229)		(229)
R-square				0.0558				0.2083				0.3361
Observations				1410		1388		1388		1301		1301
Robust to Heteroskedasticity		Yes		Yes		Yes		Yes		Yes		Yes

Table 4

Robustness analysis – Subsample analysis using CSR Score

This table presents the second stage results for the subsample analyses to examine the relationship between CSR and firm value, as well as between CSR and capital adequacy. The ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Panel B: Banks with superior CSR show better firm value and capital adequacy ratios

Variables	High CSR (same or above median level)						Low CSR (below median level)					
	Tobin's Q		Total Capital Ratio		Tier 1 Capital Ratio		Tobin's Q		Total Capital Ratio		Tier 1 Capital Ratio	
	(1) Coeff.	(2) Std. err.	(3) Coeff.	(4) Std. err.	(5) Coeff.	(6) Std. err.	(1) Coeff.	(2) Std. err.	(3) Coeff.	(4) Std. err.	(5) Coeff.	(6) Std. err.
Instrumented CSR	**0.0027**	**(0.0010)****	**0.1215**	**(0.0484)****	**0.1765**	**(0.0494)*****	**0.0010**	**(0.0010)**	**0.0679**	**(0.0440)**	**0.0367**	**(0.0419)**
Log of total asset	-0.0065	(0.0129)					-0.0064	(0.0189)				
Total asset growth			-0.0015	(0.0102)	0.0040	(0.0089)			-0.0116	(0.0106)	-0.0014	(0.0112)
Leverage	-0.0005	(0.0018)	0.8175	(0.0807)***	0.9150	(0.1198)***	0.0041	(0.0035)	0.5991	(0.1465)***	0.8312	(0.1256)***
Loan to deposit	-0.0001	(0.0002)	-0.0061	(0.0099)	-0.0118	(0.0089)	0.0004	(0.0002)	-0.0134	(0.0090)	-0.0100	(0.0111)
Cost to income	0.0001	(0.0003)	0.0262	(0.0160)	0.0405	(0.0147)***	-0.0002	(0.0003)	-0.0133	(0.0143)	-0.0062	(0.0146)
Coverage	-0.0001	(0.0001)	-0.0055	(0.0047)	-0.0044	(0.0038)	0.00003	(0.0001)	-0.0069	(0.0046)	-0.0044	(0.0031)
Return on average asset	0.0305	(0.0055)***					0.0191	(0.0048)***				
Liquidity	0.0005	(0.0005)					0.0005	(0.0005)				
NPL ratio	0.0031	(0.0012)**	-0.1494	(0.0952)	-0.1419	(0.0889)	-0.0003	(0.0011)	-0.0477	(0.0440)	-0.0308	(0.0357)
Country governance	0.0259	(0.0083)***	-0.4909	(0.3557)	0.0531	(0.3650)	0.0346	(0.0088)***	-0.9135	(0.3492)**	-0.6534	(0.4267)
Market restrictions	0.0084	(0.0055)	0.4922	(0.3975)	0.3914	(0.4030)	0.0079	(0.0072)	0.0452	(0.3104)	0.0240	(0.3414)
Capital market maturity	-0.0019	(0.0077)	-0.3205	(0.6000)	-0.6084	(0.5589)	0.0135	(0.0158)	1.0738	(0.5238)**	0.0260	(0.6028)
Availability of bank credit and insurance	-0.0114	(0.0122)	-0.2505	(0.6408)	0.1572	(0.5349)	-0.0245	(0.0209)	-0.0825	(0.6143)	-0.1634	(0.7124)
Country, Year, and Firm Fixed effects		Yes		Yes		Yes		Yes		Yes		Yes
Kleibergen-Paap rK LM statistic (p-value)		22.023 (0.0000)		25.735 (0.0000)		24.705 (0.0000)		7.107 (0.0286)		16.443 (0.0000)		14.645 (0.0007)
Cragg-Donald Wald F statistic (% of maximal IV size critical values)		13.168 (15%)		17.174 (15%)		16.916 (15%)		7.866 (25%)		12.456 (15%)		8.726 (25%)
Hansen J test (p-value)		0.3266		0.4069		0.8394		0.6827		0.3900		0.3539
Endogeneity test (p-value)		0.0010		0.0152		0.0013		0.1607		0.2327		0.4805
Cluster by bank (no of cluster)		Yes (142)		Yes (142)		Yes (138)		Yes (143)		Yes (141)		Yes (138)
R-square		0.0697		0.2982		0.3661		0.1666		0.1753		0.2999
Observations		690		688		667		693		673		606
Robust to Heteroskedasticity		Yes		Yes		Yes		Yes		Yes		Yes

Table 4

Robustness analysis – Use Capital Ratios in Excess of Basel III Minimum Capital Ratios Requirement

This table presents results for the relationship between CSR and excess capital ratios which are the capital ratios in excess of minimum capital ratios required by Basel III.

Excess Total Capital ratio = Total Capital ratio - 10.5%

Excess Tier 1 Capital ratio = Tier 1 Capital ratio - 8.5%

The ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Panel C: Banks with superior CSR show higher excess capital adequacy ratios

Variables	CSR First Stage		Excess Total Capital ratio Second Stage		CSR First Stage		Excess Tier 1 Capital ratio Second Stage	
	(1) Coeff.	(2) Std. err.	(3) Coeff.	(4) Std. err.	(5) Coeff.	(6) Std. err.	(7) Coeff.	(8) Std. err.
EPI	-0.4038	(0.0534)***			-0.4011	(0.0578)***		
Law	-1.3592	(3.8832)			0.8240	(4.3366)		
Instrumented CSR			**0.0637**	**(0.0203)*** **			**0.0711**	**(0.0204)*** **
Total asset growth	-0.0893	(0.0381)**	-0.0093	(0.0072)	-0.0926	(0.0395)**	-0.0015	(0.0072)
Leverage	0.7495	(0.3993)*	0.6883	(0.0857)***	1.0796	(0.4194)**	0.8639	(0.0881)***
Loan to deposit	0.0695	(0.0430)	-0.0094	(0.0065)	0.0592	(0.0438)	-0.0131	(0.0069)*
Cost to income	0.0583	(0.0621)	0.0008	(0.0123)	0.0997	(0.0664)	0.0087	(0.0117)
Coverage	0.0275	(0.0224)	-0.0047	(0.0031)	0.0247	(0.0228)	-0.0040	(0.0024)*
NPL ratio	-0.4585	(0.2724)*	-0.0620	(0.0421)	-0.5210	(0.2584)**	-0.0662	(0.0396)*
Country governance	4.9718	(1.7301)***	-0.7978	(0.2391)***	5.9809	(1.8358)***	-0.4418	(0.2507)
Market restrictions	1.1405	(1.7340)	0.3659	(0.2598)	0.7649	(1.7264)	0.1752	(0.2712)
Capital market maturity	-4.3819	(1.9053)**	0.5954	(0.3779)	-4.5175	(1.8884)**	-0.0795	(0.3840)
Availability of bank credit and insurance	-4.1009	(2.8622)	-0.1201	(0.4176)	-6.0721	(2.8804)**	-0.0183	(0.4190)
Country, Year, and Firm Fixed effects		Yes		Yes		Yes		Yes
Kleibergen-Paap rK LM statistic (p-value)		42.227 (0.0000)				34.592 (0.0000)		
Cragg-Donald Wald F statistic (% of maximal IV size critical values)		37.235 (10%)				31.962 (10%)		
Hansen J test (p-value)				0.7572				0.7474
Endogeneity test (p-value)				0.0028				0.0014
Cluster by bank (no of cluster)		Yes (233)		Yes (233)		Yes (229)		Yes (229)
R-square				0.2320				0.3474
Observations		1388		1388		1301		1301
Robust to Heteroskedasticity		Yes		Yes		Yes		Yes

Table 5

Analyses on Capital Growth

This table presents the results of the fixed effects model to examine the relationship between CSR and annual capital growth. The ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Variables	Total Capital Growth		Tier 1 Capital Growth	
	(1)	(2)	(3)	(4)
	Coeff.	Std. err.	Coeff.	Std. err.
CSR	**0.0014**	**(0.0004)*** **	**0.0010**	**(0.0005)** **
Total asset growth	0.0030	(0.0007)***	0.0028	(0.0007)***
Leverage	0.0266	(0.0063)***	0.0294	(0.0070)***
Loan to deposit	-0.0006	(0.0004)	-0.0005	(0.0004)
Cost to income	0.0002	(0.0010)	-0.0007	(0.0011)
Coverage	0.0001	(0.0001)	-0.00001	(0.0001)
NPL ratio	0.0002	(0.0022)	-0.0036	(0.0023)
Country governance	0.0459	(0.0143)***	0.0572	(0.0151)***
Market restrictions	-0.0737	(0.0140)***	-0.0726	(0.0148)***
Capital market maturity	-0.0735	(0.0214)***	-0.0550	(0.0231)**
Availability of bank credit and insurance	-0.1128	(0.0235)***	-0.1072	(0.0264)***
Constant	-0.1669	(0.1045)	-0.1180	(0.1086)
Time fixed effects		Yes (annual)		Yes (annual)
Firm and Country fixed effects		Yes		Yes
Clustered by bank		Yes		Yes
(no of cluster)		(233)		(229)
R-square		0.2607		0.2363
Observations		1348		1256