# Managerial Overconfidence, Corporate Social Responsibility and Bank Performance: A Cross-Country Analysis

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**Abstract**

Prior literature has neither investigated the relationship between managerial overconfidence and bank performance nor addressed the issue that combines managerial overconfidence and corporate social responsibility (CSR). Therefore, this study examines the impacts of banks engaging in CSR activities on the relationship between managerial overconfidence and bank performance by using ordinary least squares regression model. The sample consists of 136 financial institutions in 23 countries over the period of 2006-2012. The empirical results show that controlling for the bank-specific, country-specific, and time effects, bank performance is negatively affected by managerial overconfidence. There is also an inverted U-shaped relationship between managerial overconfidence and bank market performance. Banks adopting CSR have negative impacts on bank performance. However, engaging in CSR activities by overconfident managers are based on the strategic motives, and thereby enhance bank performance.

*Keywords*: overconfidence, corporate social responsibility, bank performance, financial crisis

*JEL: G02, G28, G21, M14*

## 1. Introduction

During the period of subprime mortgage crisis, the chief financial officer (CFO) of Goldman Sachs, David Viniar, announced in August 2007 that Goldman's flagship GEO hedge fund had lost 27% of its value since the start of the year. As Mr. Viniar explained, "We were seeing things that were 25-standard deviation moves, several days in a row[1]." Bonner (2007) wryly noted that things were only supposed to happen once in every 100,000 years according to Goldman's mathematical models. Maybe Goldman's models were wrong. Afterwards, massive losses were also announced by Bear Stearns, UBS, Merrill Lynch and Citigroup. All of these anecdotal evidence poses an interesting dilemma for investors: were these institutions that experienced such losses unlucky or just incompetent? From another perspective, these cases imply that managers may be so confident about future outcomes that they underestimate the tail risk, and thereby cause some financial institutions that seemed sound and adequately capitalized in the years before 2007 to turned out to be heavily exposed to risky securities and in need of government support. The academics and the practitioners also begin to discuss the relation between managerial overconfidence and financial crisis.

One well-documented fact in the social psychology literature is that people tend to be overconfident (e.g., Moore 1977) and this trait is not easy to be changed (Malmendier and Tate, 2005a). Some corporate finance studies find that overconfidence is positively associated with innovation (Hirshleifer et al., 2012). Overconfident CEOs are more likely to issue more optimistic earnings forecasts (Hribar and Yang, 2011). However, overconfidence may result in inefficient investment (Ben-David et al., 2007; Malmendier and Tate, 2005a; 2005b; 2008), paying too much for the targets (Roll, 1986; Hayward and Hambrick, 1997; Ben-David et al., 2007; Li and Tang, 2010; Kim, 2013; Kolasinski and Li, 2013), issuing more debts (Ben-David et al., 2007; Park and Kim, 2009), lower dividend payouts (Heaton, 2002; Ben-David et al., 2007; Malmendier et al., 2011; Li and Tang, 2010; Deshmukh et al., 2013), more risk-taking (Li and Tang, 2010; Cain and McKeon, 2013) and misstated financial statements (Schrand and Zechman, 2012).

Ben-David et al. (2007) find that overconfidence and optimism are persistent over time. But Billett and Qian (2008) argue that overconfidence can vary over time based upon past experience and performance. Doukas and Petmezas (2007) consider that managerial overconfidence results from a self-attribution bias. That is, good results are attributed to a better self-ability whereas bad outcomes stem from misfortune in overconfident CEOs' views. Therefore, overconfident CEOs feel that they are more

[1] Excerpt from ***Financial Times***, August 13, 2007.

capable than their peers. The presence of these cognitive biases encourages CEOs to emphasize their own judgment in decision-making (Li and Tang, 2010) and engage in highly complex transactions. Overconfidence leads these CEOs to tend to underestimate the risk or overestimate the precision of exogenous noisy signals and their problem-solving capabilities. It may explain why executives are willing to suffer large wealth losses and continue to hold options and shares of their own firms (Fahlenbrach and Stulz, 2011).

Managers tend to be more optimistic and confident (Goel and Thakor, 2008) as well as less risk-averse (Graham et al., 2013) than the lay population. Moderate overconfidence can motivate managers to pursue valuable risky investments, exert effort to learn about projects and produce better outcomes that benefit shareholders in developing new technologies or products (e.g., Simsek et al., 2010; Galasso and Simcoe, 2011; Hirshleifer et al., 2012). However, excessively overconfident managers are inclined to be conceited and arrogant. They not only overestimate the precision of exogenous noisy signals (Goel and Thakor, 2008), but also underestimate the riskiness of future cash flows (Hackbarth, 2008, 2009), resulting in more risk-taking and suboptimal decision-making (Dittrich et al., 2005). Niu (2010) finds that CEO overconfidence is associated with increased bank risk-taking after controlling for a number of CEO- and bank-specific variables. His results imply that, all else equal, banks managed by overconfident CEOs are 6% riskier. Goel and Thakor (2008) and Gervais et al (2011) both build theoretical models and show that the relationship between managerial overconfidence and firm value is inverted U-shape. Is this association also applicable to the banking industry? So far, there is no literature on this issue.

Banks generally accept deposits and make loans to create profit, take risk, facilitate the funds transfer and promote economic growth. Because most of banks' funds sources depend on deposits, significant negative externalities arise when something goes wrong in the banking sector. Although the studies about asset quality, corporate governance, executives compensation or risk taking are related to bank panics, the root of a financial crisis is: banks may not pay enough attention to corporate social responsibility (CSR).

CSR is a form of corporate self-regulation integrated into a business model. It is defined that the goal of a firm is not only to maximize the shareholder wealth, but also to take into account the stakeholder welfare such as improving the employees' working environments and benefits, paying emphasis on human rights, focusing on the quality of products and service in order to promote the interests of consumers, avoiding insider trading or accounting manipulation, sponsoring community activities for public welfare, reducing or avoiding environmental pollution, as well as corporate

governance and compensation policies (Chih and Chen, 2007). Even paying close attention to the above issues become a part of corporate culture. Lin and Peng (2013) argue that the 2007 financial crisis is related to banks' CSR policies. They suggest that the authorities should strengthen banks' CSR practices in addition to close supervision to mitigate the negative impacts of financial storms. Chih and Chen (2007) also declare that banks should encourage enterprises to engage in CSR through providing them with credits, monitoring their contribution to social environments, and helping them reduce the problem of information asymmetry between firms' managers and investors. Hence, it is important for banks to adopt CSR.

A number of studies investigate the association between CSR and financial performance (FP).The theoretical perspectives include agency perspective (e.g. Levitt, 1958; Freidman, 1970), stakeholder perspective (e.g. Donaldson and Preston, 1995; Jones, 1995), resource-based view (e.g. Wernerfelt, 1984; Barney, 1991; Hart, 1995), and slack resources hypothesis (e.g. Waddock and Graves, 1997). Agency perspective argue that good social performance comes at the expense of good FP. On the other hand, the stakeholder perspective and the resource-based view assert that firms adopting CSR can improve FP in the long run. The slack resources hypothesis contends that financially successful companies can afford to spend more money on social issues, but CSR also helps them become financially successful (Waddock and Graves, 1997). In addition, Baron(2001), Dam et al.(2009) and Bénabou and Tirole (2010) discuss the motives of firm engaging in CSR and their impacts on FP.

Just as theoretical predictions on the relation between CSR and FP show lack of consensus, results of the empirical studies on this topic are mixed. Most of the studies show the positive relationship between CSR and FP (e.g., Griffin and Mahon, 1997; Orlitzky et al., 2003; Deckop et al., 2006; Shen and Chang, 2009; El Ghoul et al., 2011; Cheng et al., 2014), however, the review of Margolis and Walsh (2003) of 109 empirical studies reveals mixed results. Barnea and Rubin (2010) find that insiders are likely to overinvest in CSR when the personal benefits are high and the personal costs are low. This would enhance their fame but reduce the firms' value. The relation between CSR and FP in the banking industry has not been examined extensively. Few existing studies also offer conflicting evidence due to different measurement and differences in sample as well as sample period. Scholtens and Dam (2007), Chih et al. (2010) and Sigurthorsson (2012) show a negative relationship between CSR and FP. Ahmed et al. (2012) and Wu and Shen (2013) report that CSR is positively associated with FP. Cornett et al. (2013) find that CSR scores do not appear to affect bank performance measured by industry adjusted ROA. Bolton (2013) suggests that improving the quality of CSR at banks might go a long way towards improving

individual bank performance and reducing the risk.

Consequently, the traits of managers such as overconfidence may have influence on their decisions and bank performance. Similarly, banks engaging in CSR not only are closely related on their culture and motives, but also may affect their performance. For the banks managed by overconfident executives, would adopting CSR help stockholders control managers, enhance shareholder wealth and maintain financial stability? Or is engaging in CSR a façade that leads managers to increase overconfidence, and then results in the deterioration of bank performance, even harms the financial stability? A better understanding of the link among managerial overconfidence, corporate social responsibility, and bank performance would be valuable to the authorities, managers, stockholders, and stakeholders. Nevertheless, no study has analyzed this relation in the banking sector.

Graham et al. (2009) find that the important behavioral characteristics such as optimism and patience differ significantly between U.S. and non-U.S. executives, implying that overconfidence is likely to vary globally and causes different bank performance. Most of the studies use the propensity of managers to hold in-the-money equity options obtained from *Execucomp* database as their measure of managerial overconfidence.Their samples are based on U.S companies or financial institutions. Unfortunately, such option holding data is not available for international executives.

Therefore, to fill this gap in literature, this paper attempts to investigate whether banks adopting CSR have impacts on the relation of managerial overconfidence and performance after controlling for bank-specific, country-specific, and time effects by using the ordinary least squares method. The sample consists of 136 banks in 23 countries over the period of 2006−2012.

The empirical results reveal that controlling for the bank-specific, country-specific, and time effects, bank performance is negatively affected by managerial overconfidence. There is also an inverted U-shaped relationship between managerial overconfidence and bank market performance. Banks adopting CSR have negative impacts on bank performance. However, adopting CSR activities by overconfident managers are based on the strategic motives, and thereby enhance bank performance. Furthermore, a higher bank's overhead ratio and liquidity ratio would decrease bank performance. Banks in countries with higher real GDP growth would also improve bank performance but tighter activity restrictions would harm their performance.

The remainder of this study is organized as follows. Section 2 reviews existing literature and presents hypotheses. Section 3 describes the sample, variables, and regression framework. Section 4 explores and analyzes the empirical results. Section

5 concludes the study.

## 2. Related literature and hypotheses development

### 2.1 Managerial overconfidence and performance

Managerial overconfidence mainly results from a self-attribution bias, that is, good results are attributed to a better self-ability whereas bad outcomes are blamed on misfortune (Doukas and Petmezas; 2007). Hence, overconfident managers feel that they possess superior decision-making abilities and are more capable than their peers. The presence of these cognitive biases encourages managers to emphasize their own information and judgment in decision-making (Li and Tang, 2010) and engage in highly complex transactions. These managers tend to underestimate the risk or overestimate the performance and exaggerate their control abilities under overoptimism. Weinstein (1980) finds that individuals tend to be more optimistic about outcomes to which they are highly committed. Gilson (1989) shows that managers are highly committed to the performance of the firm because their personal wealth, reputation, and employability are highly depending on it. These explanations provide foundations of the impact of managerial overconfidence on corporate decisions.

Fairchild (2005) shows that CEO overconfidence leads to higher leverage, which causes higher financial distress costs and leads to discounts on risky debt and equity. This indicates a negative relationship between overconfidence and firm performance. Fairchild (2005) also demonstrates that CEO overconfidence is not necessarily bad for shareholders. Higher leverage leads to high effort levels, thereby increasing firm performance. Goel and Thakor (2008) find that overconfidence leads risk averse managers to move investment to the optimal level so that the effect of CEO overconfidence on firm performance is positive. Gervais et al. (2002) also show that overconfidence aligns the decisions of managers with the interests of shareholders, and motivates managers to expend more effort. They conclude that overconfidence may induce managers to make decisions to benefit their firm performance, and that shareholders may even prefer overconfident CEOs than rational managers. Hirshleifer et al. (2012) show that overconfident managers are prone to innovation and there is a positive relationship between overconfidence and firm value over the 1993-2003 period. Hence, CEO overconfidence has more advantages than disadvantages for a firm. Mueller and Brettel (2012) empirically tests whether companies under overconfidence CEOs show a more pronounced business cycle sensitivity of investment than rational CEOs. They find a significant and positive relationship between CEO overconfidence and investment in the early expansion phase of the

business cycle, and firm performance is thereby increased, but no effects in later downturn phases.

Based on the outcomes of the studies discussed in the preceding paragraphs, this paper presents the following hypothesis concerning the relationship between managerial overconfidence and bank performance.

***H1: Bank performance is positively influenced by managerial overconfidence.***

Kaniel et al. (2010) show that dispositional optimism dropped as a result of the financial crisis of 2008. They explain that dispositional optimism may largely be a fixed personal trait, but is still subject to situational influence. Billett and Qian (2008) also find that overconfidence can vary over time based upon past experience and performance. Ye and Yuan (2008) provide an evidence that there may be an optimal level of CEO confidence for Chinese firms. When this optimal level is not reached yet, CEO self-confidence brings more benefits. However, beyond this optimal level, overconfidence causes inefficient investments and may harm firm value. Hackbarth (2008) also reveals that overconfidence could not only restrain managers from diverting discretionary funds but also delay irreversible investments though it leads to higher leverage. The former mitigates manager-shareholder conflicts over payout policy and the latter reduces bondholder-shareholder conflict over investment policy. Both of them would increase firm performance but extreme overconfidence are detrimental to the firm. Campbell et al. (2011) show that a moderate level of CEO optimism can lead the CEO to choose a first-best investment level. Optimism below the optimum level leads the risk-averse CEO to underinvest, while optimism above the optimum level leads the CEO to overinvest. Goel and Thakor (2008) conclude that moderate levels of overconfidence could increase firm value. Excessively overconfident CEOs reduce firm value because they overestimate the precision of their information, underinvest in information acquisition and therefore overinvest in projects. Low confident CEOs also reduce firm value because they reject profitable projects that would have increased shareholder wealth. This implies that there would be an optimal amount of overconfidence for CEOs, and that both low and high CEO overconfidence have a negative influence on firm value. Gervais et al. (2011) also propose similar views through theoretical models.

To examine the arguments discussed, the second hypothesis is tested:

***H2:There exists an inverted U-shaped relationship between managerial overconfidence and bank market performance.***

## 2.2 Corporate social responsibility and performance

Agency perspective argues that managers engaging in CSR can opportunistically exploit corporate resources to pursue goals that enhance their own utilities at shareholders' costs because of absent strong control from shareholders (Levitt, 1958; Freidman, 1970). Therefore, good social performance comes at the expense of good FP. On the other hand, the stakeholder perspective asserts that firms have relationships with many constituent groups other than just shareholders, and that these stakeholders both affect and are affected by the actions of the firm (Freeman, 1984). Effective stakeholder management can enhance firms' abilities to achieve long-term value creation. Jensen (2002) also argues that shareholder value maximization is not incompatible with satisfying certain stakeholders. The resource-based view of the firm contends that a firm's ability to perform better than its competition and create value for shareholders depends on the unique interaction of human, organizational, and physical resources over time. Barney (1991) proposes that if these resources meet four criteria that include valuable, rare, inimitable, and non-substitutable, they can be composed of a source of sustainable competitive advantage. The slack resources hypothesis argues that better firm performance results in a surplus of resources that provide firms with opportunities to address social issues. Waddock and Graves (1997) suggest that CSR and FP are synergistic – that financially successful companies can afford to spend more money on social issues, but CSR also helps them become financially successful.

Baron (2001), Dam et al. (2009), and Bénabou and Tirole (2010) explain the impact of the motive of a corporation engaging in CSR on the FP. The altruism motive indicates that companies engage in CSR for their own sake (Baron, 2001), and thereby negatively affecting FP due to high costs. On the contrary, the strategic motive allows firms to differentiate their products to soften the intensity of price competition and to allow a morally managed firm to obtain a price premium for its products (Baron, 2009). Therefore, the strategic motive improves FP through adopting CSR. Greenwashing refers to the disingenuous acts of companies to spin their products and policies as environment-friendly, such as presenting cost cuts as reductions in resource use. The greenwashing motive attempts to enhance the corporate image without significantly changing the essence of business (Frankental, 2001). Greenwashing is comparable to lip service, which induces no cost for charity, as well as no increase in revenues in the long run. Scholtens and Dam (2007) and Dam et al. (2009) suggest that CSR based on the greenwashing motive has no effect on the bank profits.

The findings of Griffin and Mahon (1997), Orlitzky et al. (2003), Deckop et al. (2006), Shen and Chang (2009), El Ghoul et al. (2011) and Cheng et al. (2014)

display a positive relationship between CSR and FP. Strong CSR environments are also associated with greater value enhancement for firms with controversial activities (Cai et al., 2012). However, Margolis and Walsh (2003) review 109 studies and find that 54 showed a positive relationship, 20 showed mixed results, 28 reported non-significant relationship, and 7 reported a negative relationship. They note that possible reasons for the lack of consensus are related to measurement issues and model misspecifications. Barnea and Rubin (2010) also show that insiders are likely to overinvest in CSR when the personal benefits are high and the personal costs are low. This over-investment is beneficial to the individuals but not to the firms.

As for the banking industry, Scholtens and Dam (2007) find that banks adopting the Equator Principles[2] have significantly more CSR policies and lower return on assets (ROA). Chih et al. (2010) observe that financial firms with more assets and worse ROA adopt CSR. Sigurthorsson (2012) report that CSR was little more than public relations and philanthropy in Iceland. The superficial nature of their efforts created a false sense of security and trust in the banks, which led to grossly irresponsible business practices and ultimately to the failure of the banks. On the other hand, Ahmed et al. (2012) show a positive, although insignificant, relationship between operating performance and CSR for a very small sample of banks in Bangladesh. Wu and Shen (2013) find that CSR positively associates with FP in terms of ROA, return on equity, net interest income, and non-interest income, but CSR negatively associates with non-performing loans ratio. Hence, the strategic choice is the primary motive of banks engaging in CSR. Cornett et al. (2013) show that the largest banks consistently have higher CSR scores during the sample period. More profitable banks, banks with higher capital ratios, banks that have lower fees to deposits, and banks with more females and minorities on the board of directors also have significantly higher CSR scores while CSR scores do not appear to affect bank performance. Bolton (2013) further investigates the relationship between corporate social responsibility, financial performance and risk at U.S. banks from 1998-2010. By using *KLD* database[3], he

[2] The Equator Principles (Eps) is a risk management framework, adopted by financial institutions, for determining, assessing and managing environmental and social risk in projects and is primarily intended to provide a minimum standard for due diligence to support responsible risk decision-making. It apply globally to all industry sectors and to four financial products: 1) Project Finance Advisory Services; 2) Project Finance; 3) Project-Related Corporate Loans, and 4) Bridge Loans. Currently 82 Equator Principles Financial Institutions (EPFIs) in 36 countries have officially adopted the EPs, covering over 70 percent of international Project Finance debt in emerging markets. EPFIs commit to implementing the EP in their internal environmental and social policies, procedures and standards for financing projects and will not provide Project Finance or Project-Related Corporate Loans to projects where the client will not, or is unable to, comply with the EP.

[3] It is provided by *KLD Research & Analytics, Inc*. *KLD* currently analyzes approximately 3,100 U.S. firms since 2003 based on more than 80 different qualitative indicators in 7 major categories: Community issues, Governance issues, Diversity issues, Employee Relations, Environmental issues, Human Rights and Product issues. Each of these 7 categories includes indicators with positive and

finds that banks' CSR activities that are related to the core operating activities (e.g. governance and product issues) can enhance FP. The potentially superficial CSR activities (e.g. community relations) do not add value. In addition, there is a negative relationship between CSR and bank risk-taking. It is only driven by those CSR activities most directly related to the banks' core activities, while increased focus on non-core CSR activities is actually associated with banks having greater risk, even these banks are more likely to need government assistance. Therefore, improving the quality of CSR at banks might go a long way towards improving individual bank performance and reducing the risk associated with U.S. financial institutions.

The prior literature regarding CSR and performance motivates the following hypotheses:

***H3a: Banks that adopt CSR would increase their performance.***

***H3b: Banks that adopt CSR would reduce their performance.***

***H3c: Banks that adopt CSR do not affect their performance.***

Harford (1999) find that overconfident managers tend to invest based on their personal benefits if firms have a large amount of internal funds, and then harm the shareholders. Heaton (2002) argues that overconfident CEOs tend to overinvest if they have sufficient internal funds and are not disciplined by capital markets and corporate governance mechanisms. Therefore, the costs and expense derived from engaging in CSR by overconfident managers would aggravate the agency problems between shareholders and managers, negatively affect the bank performance, even thereby hurt financial stability if they adopt CSR for the purpose of enhancing their own ultilities.

Goel and Thakor (2008) and Banerjee et al. (2013) consider that it is necessary to develop corproate governance mechanisms to solve the negative impacts of overconfidence. Banerjee et al. (2013) use the passage of the Sarbanes-Oxley (SOX) Act as an exogenous improvement in governance, disclosure, and monitoring. Their results are strongly supportive: overconfident CEOs reduce investment, improve firm performance and market value, reduce risk exposure, increase dividends and substantially improve long-term performance following acquisitions during post-SOX. These SOX-related benefits are concentrated in the firms that were SOX non-compliant prior to its passage. Accordingly, banks managed by overconfident executives adopting CSR could create the excellent governance environments,

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negative ratings based on perceived strengths and concerns within each major category. Additionally, the database identifies the extent to which the firm does business in each of the 6 following Controversial Business Issues, or vices: alcohol, gambling, tobacco, firearms, military and nuclear.

mitigate the information asymmetry, and monitor the managers' decisions under taking all stakeholders interests into consideration if their CSR are based on the strategic motives. This would lower the probabilites of overestimating future value and underestimating risk, increase operating performance and maintain financial stability.

Based on the above inference, the following hypotheses are presented:

***H4a: Overconfident managers engaging in CSR would worsen bank performance.***

***H4b: Overconfident managers engaging in CSR would enhance bank performance.***

## 3. Data and empirical design

### 3.1 Sample and data source

The sample consists of annual financial statement data and stock price data on all banks[4] covered by *Bankscope* in the 23 countries from 2006−2012. Banks with no commercial real estate, outstanding commercial and industrial loans, or have zero deposits are dropped from the sample. To perform the cross-country analysis and avoid data overlapping, this paper uses consolidated financial statements for parent banks and exclude their subsidiaries from the sample. Finally, the sample contains 136 bank-year observations. Table 1 provides an overview of all the countries included in our sample, specifically the sample distribution by overconfidence, non-overconfidence, and neutral.

Most of the studies use the propensity of managers to hold in-the-money equity options as their primary measure of managerial overconfidence. This method is based on U.S firms or banks because of the data source. However, such option holding data is not available for international executives. Malmendier and Tate (2008) estimate an overconfidence measure based on press releases, which can be utilized for the set of global banks. This paper uses global news sources in the *Factiva* database to construct this press-based measure of overconfidence. According to Sadowski et al. (2010), the Dow Jones Sustainability Index (DJSI) has higher degree of credibility than other CSR ratings. Hence, the lists of bank components of Dow Jones Sustainability World Index (DJSI World), DJSI Emerging Markets or DJSI Regions including Europe, North America and Asia Pacific are used to determine whether a bank engages in CSR. Several control variables related to country characteristics are obtained from La Porta et al. (1999), Demirgüc-Kunt et al. (2005), Kaufmann et al. (2009), the Bank Regulation and Supervision Database provided by World Bank, and *IFS* database reported by the International Monetary Fund.

[4] These banks include bank holding companies, commercial banks, medium- and long-term credit banks, and cooperative or savings banks.

### 3.2 Independent variables

#### (1) Managerial overconfidence (*OC*)

This paper uses global news sources in the *Factiva* database to eliminate any bias that may occur in the nature and extent of coverage with local media and to construct a press-based measure of overconfidence. The analysis is limited to global wires (i.e., *Dow Jones* and *Reuters*) and global business publications (i.e., *Wall Street Journal* (North American, European, and Asian editions), *Financial Times,* and *The Economist*). The number of articles related to the bank in *Factiva* during the period from 2006 to 2012 that refer to the CEO or CFO are recorded using the terms (a) "confident" or "confidence," (b) "optimistic" or "optimism," (c) "not confident," (d) "not optimistic," and (e) "reliable," "cautious," "conservative," "practical," "frugal," or "steady." *TOTAL* is the total number of articles that mentioned the name of the CEO or CFO. This paper then compares the number of articles that portray a CEO as confident and optimistic to the number of articles that portray him or her as not confident, not optimistic, reliable, cautious, conservative, practical, frugal, or steady.

Two methods are developed: one is a dummy variable, ***OC1***, and the other is a continuous variable, ***OC2***. The former means that a CEO or a CFO is classified as overconfident if *OC1* is equal to one when a+b>c+d+e, and zero otherwise. The latter, *OC2*, is calculated as follows:

$$OC2=[(a+b)-(c+d+e)] / TOTAL \qquad (1)$$

and this measure ranges from -1 to 1. That is, a CEO or a CFO is classified as overconfident (non-overconfident) if the value is close to 1 (-1). Observations are assigned a value of 0 when a CEO or a CFO is neutral. These proxies also provides direct insight into the type of person classified as overconfidence for outsiders. A CEO or a CFO is not classified if no any articles mention the executive and the bank that he (or she) managed is dropped from the sample.

To examine the quadratic relationship between managerial overconfidence and bank value, this paper also adds the quadratic term of *OC2* in the empirical model and discusses its impact on bank market performance that indicates bank value. The hypothesis 2 is supported if the coefficient of the quadratic term of *OC2* is significantly negative.

#### (2) Total articles (*TOTAL*)

Following Hribar and Yang (2011), the total number of articles that mentioned the name of the CEO or CFO in *Factiva* during 2006−2012 is employed as a proxy for executive reputation (Francis et al., 2008). This variable can be conciliated the

differences that OC values are the same but their total articles are different. A higher total number of article mentions means the executive of a bank has been given more attention. But the relationship between total articles and bank performance is needed to examine.

### (3) Corporate social responsibility (*CSR*)

In order to avoid too few observations, this paper uses the lists of bank components of Dow Jones Sustainability World Index (DJSI World), DJSI Emerging Markets or DJSI Regions including Europe, North America and Asia Pacific to determine whether a bank engages in CSR. The DJSI World was launched by RobecoSAM and S&P Dow Jones Indices in 1999 as the first global sustainability benchmark. It tracks the stock performance of the top 10% of the 2,500 largest companies in the S&P Global Broad Market Index$^{SM}$ that lead the field in terms of economic, environmental and social criteria[5]. The index serves as a benchmark for investors who integrate sustainability considerations into their portfolios, and provide an effective engagement platform for companies who want to adopt sustainable best practices. In addition to DJSI World, DJSI Regions and DJSI Countries also are developed. All of them form the DJSI benchmark family[6].

Two proxies are used to measure CSR. First, a dummy variable, ***CSR_D***, is to capture if banks adopt CSR. *CSR_D* is equal to one when a bank belongs to the component of DJSI World, DJSI Emerging Markets or DJSI Regions, and zero otherwise. Second, the variable, ***CSR_S***, is to reflect the strength of valuing CSR for a bank. It is measured by the number of times that a bank lists the component of DJSI World, DJSI Emerging Markets or DJSI Regions. More number of times indicates that a bank puts more emphasis on CSR. It is noted that this paper cannot be judged whether the motive of a manager adopting CSR is for his (or her) own interests or is for feedback to society ex ante because the DJSI does not provide any score nor the types or detailed information of CSR activities that banks engage in.

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[5] For the banking industry, the dimension weights in economic, environmental, and social criteria are 38%, 24%, and 38%, respectively. The economic dimension includes anti-crime policy/measures, brand management, codes of conduct/compliance/corruption & bribery, corporate governance, customer relationship management, risk & crisis management, and stakeholder engagement. The environmental dimension includes business opportunities financial services/products, business risks large projects/export finance, climate change governance, environmental footprint, environmental policy/management system, and environmental reporting. The social dimension includes corporate citizenship and philanthropy, controversial issues, dilemmas in lending/financing, financial inclusion/capacity building, human capital development, labor practice indicators, social reporting, standards for suppliers, and talent attraction & retention.

[6] Indices within these geographical divisions use different starting universes and different percentiles to mark the "cut off" point in selecting the most sustainable companies. This means that the emerging markets, country and regional indices are not simply sub-indices of the DJSI World, and there is no "roll up" of indices from country, to region, to world.

### 3.3 Dependent variables

In order to capture bank value, Tobin's q (***Tobin's q***) and the price-to-book ratio ***(P/B ratio***) are used to measure bank (market) performance. Tobin's q indicates the franchise value of a bank. It is calculated by the ratio of the market value of a bank's equity plus book value of the bank's debt to the bank's total assets. Higher Tobin's q represents a bank will incur greater loss when it declares insolvency (Keeley, 1990; Marcus, 1984). The price-to-book ratio could be measured the abilities of creating shareholder wealth by bank managers. Higher P/B ratio means that more shareholder weath will be created by bank managers.

### 3.4 Control variables

This paper also controls for the bank-specific variables (***Bank***), the country-specific variables (***Country***), and annual time fixed effects (***Time effects***) due to cross-country analysis over 2006-2012. The time fixed effects account for features distinct to specific years. The bank-specific variables include the capital ratio [7] (***EA***), non-performing loans ratio[8] (***NPL***), overhead ratio[9] (***Overhead***), liquidity ratio[10] (***LIQ***) and the log of total assets[11] (***LnA***). They reflect the bank structure and bank size. With regard to the country-specific variables, real gross domestic product growth (***RGDPG***) and some regulation indicators are included. The former represents a country's economy and the latter variables are listed as follows:

**(1) Deposit insurance (DI)**

This dummy variable equals one if a country has explicit deposit insurance and zero otherwise (Demirgüc-Kunt et al., 2005). Demirgüc-Kunt and Detragiache (2002) find that explicit deposit insurance tends to increase the likelihood of banking crises. Hence, a bank in a country with explicit deposit insurance is expected to have negative impacts on bank performance.

**(2) Bank activity restrictions (*RESTRICTION*)**

It refers to an index of regulatory restrictions on the activities of banks from Barth et al. (2006). This index measures regulatory impediments to banks engaging in (1) securities market activities, (2) insurance activities, (3) real estate activities, and (4)

[7] More capital impies that banks have low probability of default, and their motives of risk-taking are weak. The capital ratio is defined as the ratio of equity to total assets.
[8] Non-performing loans ratio is the ratio of non-performing loans to total loans. A higher value respects worse asset quality of banks.
[9] The overhead ratio is calculated by dividing overheads by bank operating income. Bank operating income is equal to net interest income plus non-interest income.
[10] The liquidity ratio is defined as the ratio of liquidity assets to deposits and short-term funding.
[11] Since large banks could diversify their risk, they have the motivations to engage in high leverage and high risky activities, and thereby affect their performance.

ownership of non-financial firms. The index ranges from 4 to 16, with higher values indicating more restrictions. Barth et al. (2001) show that the tighter the restrictions placed on this activity, on average, the more inefficient banks are and the greater the likelihood of a banking crisis is. Hence, banks are expected to have worse performance in a country with higher activity restrictions.

**(3) Control of corruption (*CORRUPTION*)**

This variable captures the perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as control of the state exercised by elites and private interests. This index is calculated by Kaufmann et al. (2009). Higher values correspond to the extent of effective corruption control. Gaviria (2002) finds that corruption substantially reduces firm competitiveness and is quite unlikely to have any positive effects. Therefore, banks are expected to have better operating performance in a country with a higher degree of corruption control.

**(4) Shareholder rights (*SR*)**

This paper uses anti-director index that aggregates shareholder rights[12] to measure legal protection of investors (Caprio et al., 2007; Laeven and Levine, 2009), which is calculated by La Porta et al. (1999) and ranges from 0 to 6. Higher values represent stronger shareholder rights. John et al. (2008) show that better investor protection reduces the private benefits and may therefore induce insiders to choose riskier but value-enhancing investment policies. A bank with strong shareholder rights is expected to have better performance.

### 3.5 Empirical model

This study uses the ordinary least square model to investigate the relation among managerial overconfident, CSR and bank performance. It also corrects for heteroskedasticity and autocorrelation. The empirical model is formulated as follows:

$$Performance_{ijt} = \alpha_0 + \alpha_1 OC_{ijt-1} + \alpha_2 CSR_{ijt} + \alpha_3 OC_{ijt-1} \times CSR_{ijt} + \alpha_4 Total_{ijt-1} + \alpha_5 Bank_{ijt-1}$$

$$+ \alpha_6 Country_{ijt-1} + \alpha_7 Time - Dummy_t + \varepsilon_{ijt} \qquad (2)$$

[12] The index is formed by adding 1 when: (1) the country allows shareholders to mail their proxy vote to the firm; (2) shareholders are not required to deposit their shares prior to a general shareholders meeting; (3) cumulative voting or proportional representation of minorities in the board of directors is allowed; (4) an oppressed minorities mechanism is in place; (5) the minimum percentage of share capital that entitles a shareholder to call an extraordinary shareholders meeting is less than or equal to 10%; or (6) shareholders have preemptive rights that can only be waived by a shareholder's vote.

In order to investigate the quadratic association between managerial overconfidence and market performance, only *OC2* is used to be the proxy of managerial overconfidence and the Eq. (2) is extended as follows:

$$Performance_{ijt} = \beta_0 + \beta_1 OC2_{ijt-1} + \beta_2 OC2^2_{ijt-1} + \beta_3 CSR_{ijt} + \beta_4 OC2_{ijt-1} \times CSR_{ijt} + \beta_5 Total_{ijt-1}$$

$$+ \beta_6 Bank_{ijt-1} + \beta_7 Country_{ijt-1} + \beta_8 Time - Dummy_t + \delta_{ijt} \qquad (3)$$

where $Bank_{ijt-1}$ and $Country_{ijt-1}$ are the matrices for bank *i* in country *j* at time t-1, i=1,2,…,n, j=1,2,…,k, t=1,2,…,T, $Time - Dummy_t$ is the dummy variable matrix that control for annual time effects, and $\varepsilon_{ijt}$ and $\delta_{ijt}$ are error terms in Eq. (2) and Eq. (3), respectively. All independent variables except *CSR* are lagged variables measured in the previous period to minimize any unintentional feedback from the endogenous variables.

By observing Eq. (2) where the coefficient of $\alpha_1$ and Eq. (3) where the coefficients of $\beta_1$ and $\beta_2$, the impact of managerial overconfidence on bank performance can be found after controlling for the country-specific, bank-specific, and time factors. If $\beta_2$ is insignificant, it means that there is a linear relationship between managerial overconfidence and bank performance. Managerial overconfidence benefits bank performance and the hypothesis H1 is supported when $\alpha_1$ or $\beta_1$ is also significantly greater than zero. However, if $\beta_2$ is significantly less than zero, it represents that an inverted U-shape exists between managerial overconfidence and performance. In other words, moderate managerial overconfidence could maximize bank market performance, supporting the hypothesis H2. The coefficients of $\alpha_2$ and $\beta_3$ show the effects of bank engaging in CSR on performance. Furthermore, the coefficient of $\alpha_3$ or $\beta_4$ describes the impacts of banks adopting CSR on the relationship of managerial overconfidence and performance. If $\alpha_3$ or $\beta_4$ is significantly greater (less) than zero, it explains that overconfident managers engage in CSR for strategic (altruism) motives and their behaviors would enhance (worsen) bank performance. If $\alpha_3$ or $\beta_4$ is insignificant, it reflects that overconfident managers engaging in CSR would not affect bank performance.

## 4. Empirical Results

### 4.1 Sample description

The descriptive statistics on all observed and analyzed variables for the sample are presented in Table 2. For the full sample, the results of Panel A show the average *CSR_D* and *CSR_S* of approximately 0.169 and 1.485, respectively, indicating that the proportion of sample banks listing in DJSI is very low. The mean of *OC1* and *OC2* are 0.478 and -0.118, respectively, suggesting that sample banks on average tend to non-overconfidence. The average capital ratio (*EA*), NPL ratio (*NPL*), overhead ratio (*Overhead*), and liquidity ratio (*LIQ*) are 0.134, 4.03%, 61.008%, and 43.072%, respectively. A lot of differences exist in liquidity ratio because of large standard deviation. The median of the log of total assets (*LnA*) and real GDP growth (*RGDPG*) are 7.837 and 1.847%, respectively. In terms of the regulation indicators, on average, bank activity restrictions (*RESTRICTION*), control of corruption (*CORRUPTION*), and shareholder rights (*SR*) are 10.507, 1.228, and 3.920, respectively. With respect to bank performance, the average Tobin's q (*Tobin's q*) and the price-to-book ratio (*P/B ratio*) are 1.032 and 1.234, respectively.

This study further divides the full sample into two subsample: banks adopt CSR (23 observations) and those do not adopt CSR (113 observations). The results are reported in Panel B and Panel C, respectively. Comparing with the subsample of banks adopting CSR, banks that do not adopt CSR have smaller *CSR_S*, tend to overconfidence (*OC1* and *OC2*), have fewer article mentions (*TOTAL*), have smaller capital ratio (*EA*), NPL ratio (*NPL*), liquidity ratio (*LIQ*), and total assets (*LnA*), but they have higher overhead ratio (*Overhead*). Most of these banks are located in countries with lower degree of control of corruption (*CORRUPTION*), higher real GDP growth (RGDPG), more bank activity restrictions (RESTRICTION), and stronger shareholder rights (SR). Banks engaging in CSR also have higher Tobin's q (*Tobin's q*) and price-to-book ratio (*P/B ratio*) than those which do not engage in CSR.

The full sample is also classified into banks with managerial overconfidence (64 observations) and banks with managerial nonoverconfidence and neutrality (72 observations). Results (see panel D and panel E) show that overconfident banks do not view CSR (*CSR_D and CSR_S*), have more article mentions (*TOTAL*), have lower capital ratio (*EA*), higher overhead ratio (*Overhead*), better asset quality (*NPL*) and liquidity (*LIQ*), larger total assets (*LnA*) and higher price-to-book ratio (*P/B ratio*) than non overconfident and neutral banks. Their countries have higher real GDP growth (*RGDPG*), tighter bank activity restrictions (*RESTRICTION*), stronger shareholder rights (*SR*), and lower degree of control of corruption (*CORRUPTION*).

The simple correlation matrix for the full sample in Table 3 indicates that *CSR_D*

(or *CSR_S*) and *OC1* (or *OC2*) are negatively correlated, but *CSR_D* (or *CSR_S*) and Tobin's q (or price-to-book ratio) are positively correlated. Because the coefficients of correlation among independent and control variables are -0.149 ~ 0.37, the problem of collinearity would not occur.

### 4.2 The impacts of overconfident managers engaging in CSR on bank performance

This study investigates the relation among managerial overconfidence, corporate social responsibility, and bank perforance after controlling for bank-specific, country-specific, and time effects. Since two proxies are used to measure managerial overconfidence (i.e. *OC1 and OC2*) and CSR (i.e. *CSR_D and CSR_S*), four types of results are listed for each peroformance indicator.

Table 4 shows the relationship among managerial overconfidence, CSR and bank performance. No matter which performance is, both OC1 and OC2 can not significantly affect bank performance. Therefore, the hypothesis H1 does not hold. More total number of article mentions means the executive of a bank has been given more attention. This also brings significantly positive effects on bank performance. It is worthy to note that an inconsistent result arises when banks engage in CSR. Conducting CSR would enhance the price-to-book ratio but reduce Tobin's q. From the view of statistical significance, 10% significant levels are shown only in colume (2) and colume (7). This explains that banks adopting CSR are based mainly on the greenwashing motives. That is, banks attempt to improve banks' image but they do not change the essence of banks (Frankental, 2001; Dam et al., 2009). Only as the strength of valuing CSR for a bank is stronger, it is believed that banks adopting CSR are based on the strategic motives and benefit shareholder wealth. Therefore, the price-to-book ratio would be increased significantly. Furthermore, the effects of adopting CSR by overconfident managers are insignificant except for the column (7), implying that engaging in CSR activities by overconfident managers are mostly based on the greenwashing motives. As a result, banks managed by overconfident executives adopting CSR would not significantly affect bank performance. Similarly, as the strength of conducting CSR by overconfident managers is stronger, bank performance would be worsen instead because of the altruism motives.

Since Goel and Thakor (2008) and Gervais et al. (2011) derive theoretical models and conclude that there is an inverted U-shaped relationship between managerial overconfidence and firm value, this study further examines whether the quardratic relationship exists. Table 5 shows that moderate levels of managerial overconfidence indeed significantly improves bank market performance. However, when the degree

of overconfidence exceeds the optimum level, managerial overconfidence will be detrimental to bank market performance. The hypothesis H2 holds. The results also show that banks adopting CSR would increase their price-to-book ratio at the 5% significant levels, supporting the hypothesis H3a. On the contrary, overconfident managers engaging in CSR would worsen the price-to-book ratio. Hence, the hypothesis 4a holds. These findings explain that engaging in CSR activities by overconfident managers are based on the altruism motives according to the price-to-book ratio. Nevertheless, CSR and the interaction terms have no significant impacts on Tobin's q, implying that greenwashing is the prime motive of banks to engage in CSR. Both of the results conflict unexpectedly.

In addition, a higher bank's overhead ratio and liquidity ratio would decrease bank performance. Their statistical significance levels are at least 10%. Banks in countries with higher real GDP growth would also improve bank performance but tighter activity restrictions would harm their performance, especially the Tobin's q.

### 4.3 Robustness tests

Ex ante, it may be unclear whether CSR drives performance or whether performance drives CSR. It is possible that better performing firms have the resources to invest in CSR-related activities, thus driving up their CSR scores. Hong et al. (2012) argue that only firms that do well do good. If this is the case, the primary model assuming that CSR drives performance will be misspecified, at worst, and subject to endogeneity or reverse causality, causing OLS estimates to be biased and inconsistent, at best. To address the possibility of the primary model in this analysis being biased and inconsistent due to endogeneity, a two-stage least squares (2SLS) instrumental variables approach is used.

Table 6 report the results of robustness tests. It reveals that controlling for the bank-specific, country-specific, and time effects, consistent results for Tobin's q and the price-to-book ratio are obtained. Bank performance would be reduced as bank managers are inclined to be more overconfident. Therefore, the hypothesis H1 does not be confirmed. Banks adopting CSR also have negative impacts on bank performance. Some of them are statistically significant at 5% level, supporting the hypothesis H3b. However, engaging in CSR activities by overconfident managers are based on the strategic motives, and thereby enhance bank performance. The hypothesis H4b holds. In addition, there is an inverted U-shaped relationship between managerial overconfidence and bank market performance, supporting the hypothesis H2.

## 5. Conclusion

This paper investigates whether banks adopting CSR have impacts on the relation of managerial overconfidence and performance after controlling for bank-specific, country-specific, and time effects by using the ordinary least squares method. The sample consists of 136 banks in 23 countries over the period of 2006−2012.

The results show that controlling for the bank-specific, country-specific, and time effects, bank performance is negatively affected by managerial overconfidence. There is also an inverted U-shaped relationship between managerial overconfidence and bank market performance. Banks adopting CSR have negative impacts on bank performance. However, adopting CSR activities by overconfident managers are based on the strategic motives, and thereby enhance bank performance. Furthermore, a higher bank's overhead ratio and liquidity ratio would decrease bank performance. Banks in countries with higher real GDP growth would also improve bank performance but tighter activity restrictions would harm their performance.

Therefore, a moderate level of managerial overconfidence can enhance bank market performance while excessive overconfidence would harm bank performance. The authorities should encourage banks managed by overconfident managers to engage in CSR activities. This would create the excellent governance environments, mitigate the information asymmetry, monitor bank managers' decisions, and thereby increase operating performance and maintain financial stability.

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# Table 1 Sample covered

| | Overconfidence | | | | | | | | Nonoverconfidence | | | | | | | | Neutral | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Country | Whole period | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Whole period | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Whole period | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
| **Full Sample** | **64** | **5** | **2** | **2** | **6** | **17** | **16** | **16** | **70** | **2** | **1** | **1** | **1** | **21** | **26** | **18** | **2** | | | | | **1** | | **1** |
| Australia | 5 | 2 | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | |
| Austria | 1 | | | | | | 1 | | | | | | | | | | | | | | | | | |
| Bulgaria | | | | | | | | | 3 | | | | | 1 | 1 | 1 | | | | | | | | |
| Canada | 5 | | 1 | 1 | | 1 | 1 | 2 | 8 | | | | | 1 | 5 | 2 | 1 | | | | | 1 | | |
| Cyprus | | | | | | | | | 2 | | | | | 1 | 1 | | | | | | | | | |
| Denmark | 1 | | | | | | 1 | | 6 | | | | | 3 | 1 | 2 | | | | | | | | |
| France | 2 | | | | 1 | 1 | | | 2 | | | 1 | 1 | | | | 1 | | | | | | | 1 |
| Germany | 1 | | | | | 1 | | | | | | | | | | | | | | | | | | |
| Greece | 1 | | | | | | 1 | | 3 | | | | | 2 | 1 | | | | | | | | | |
| Hungary | 1 | | | | | 1 | | | | | | | | | | | | | | | | | | |
| India | 4 | | | | | 1 | 2 | 1 | | | | | | | | | | | | | | | | |
| Ireland | 4 | | | | | 2 | 1 | 1 | | | | | | | | | | | | | | | | |
| Italy | | | | | | | | | 1 | | | | | | | 1 | | | | | | | | |
| Japan | 1 | 1 | | | | | | | 2 | | | | | | 2 | | | | | | | | | |
| Korea Rep. of | 1 | | | | | 1 | | | 1 | | | | | 1 | | | | | | | | | | |
| Lithuania | 1 | | | | | 1 | | | | | | | | | | | | | | | | | | |
| Netherlands | | | | | | | | | 1 | | | | | 1 | | | | | | | | | | |
| Saudi Arabia | 1 | | | | | | 1 | | 3 | | | | | 1 | 1 | 1 | | | | | | | | |
| South Africa | 1 | | | | | | | 1 | 3 | | | | | | 2 | 1 | | | | | | | | |
| Spain | | | | | | | | | 3 | | | | | 1 | 1 | 1 | | | | | | | | |
| Taiwan | 1 | | | | | 1 | | | | | | | | | | | | | | | | | | |
| United Kingdom | 1 | | | | | | | 1 | 8 | | | | | 2 | 2 | 4 | | | | | | | | |
| United States | 32 | 2 | | | 4 | 7 | 8 | 10 | 24 | 2 | 1 | | | 7 | 9 | 5 | | | | | | | | |

**Table 2 Descriptive Statistics**

| | Mean | Median | Std. Dev | Max. | Min. |
|---|---|---|---|---|---|
| **Panel A. Full Sample (136 observations)** | | | | | |
| CSR_D | 0.169 | 0.000 | 0.376 | 1.000 | 0.000 |
| CSR_S | 1.485 | 0.000 | 3.425 | 13.000 | 0.000 |
| OC1 | 0.478 | 0.000 | 0.501 | 1.000 | 0.000 |
| OC2 | -0.118 | -0.046 | 0.791 | 1.000 | -1.000 |
| TOTAL | 40.176 | 18.500 | 65.747 | 580.000 | 1.000 |
| EA | 0.134 | 0.095 | 0.142 | 0.712 | 0.013 |
| NPL(%) | 4.030 | 2.630 | 5.064 | 34.060 | 0.150 |
| Overhead(%) | 61.008 | 57.855 | 38.876 | 385.500 | 5.500 |
| LIQ(%) | 43.072 | 16.069 | 101.881 | 842.679 | 2.565 |
| LnA | 7.793 | 7.837 | 0.809 | 9.394 | 5.760 |
| RGDPG(%) | 0.711 | 1.847 | 3.603 | 10.546 | -14.847 |
| DI | 0.904 | 1.000 | 0.295 | 1.000 | 0.000 |
| RESTRICTION | 10.507 | 11.000 | 2.639 | 14.000 | 5.000 |
| CORRUPTION | 1.228 | 1.265 | 0.784 | 2.519 | -1.367 |
| SR | 3.920 | 4.000 | 1.255 | 5.000 | 0.000 |
| Tobin's q | 1.032 | 1.008 | 0.212 | 2.353 | 0.603 |
| P/B ratio | 1.234 | 1.058 | 0.836 | 3.404 | -0.140 |
| **Panel B. Banks adopt CSR (23 observations)** | | | | | |
| CSR_S | 7.783 | 8.000 | 4.295 | 13.000 | 1.000 |
| OC1 | 0.318 | 0.000 | 0.477 | 1.000 | 0.000 |
| OC2 | -0.232 | -0.275 | 0.673 | 1.000 | -1.000 |
| TOTAL | 61.696 | 58.000 | 68.254 | 216.000 | 1.000 |
| EA | 0.235 | 0.108 | 0.246 | 0.712 | 0.032 |
| NPL(%) | 4.483 | 4.730 | 2.690 | 10.670 | 0.670 |
| Overhead(%) | 47.606 | 55.500 | 18.106 | 65.420 | 5.500 |
| LIQ(%) | 68.697 | 46.635 | 80.689 | 336.891 | 15.841 |
| LnA | 8.292 | 8.447 | 0.718 | 9.394 | 6.755 |
| RGDPG(%) | 0.326 | 1.117 | 2.735 | 3.457 | -5.170 |
| DI | 0.826 | 1.000 | 0.388 | 1.000 | 0.000 |
| RESTRICTION | 8.478 | 9.000 | 2.952 | 13.000 | 5.000 |
| CORRUPTION | 1.367 | 1.560 | 0.633 | 2.166 | 0.038 |
| SR | 3.870 | 4.000 | 0.968 | 5.000 | 2.000 |

| | | | | | |
|---|---|---|---|---|---|
| Tobin's q | 1.178 | 1.043 | 0.423 | 2.353 | 0.722 |
| P/B ratio | 1.530 | 1.470 | 0.737 | 3.034 | 0.470 |
| **Panel C. Banks do not adopt CSR (113 observations)** | | | | | |
| CSR_S | 0.204 | 0.000 | 0.847 | 6.000 | 0.000 |
| OC1 | 0.509 | 1.000 | 0.502 | 1.000 | 0.000 |
| OC2 | -0.095 | 0.020 | 0.814 | 1.000 | -1.000 |
| TOTAL | 35.796 | 17.000 | 64.659 | 580.000 | 1.000 |
| EA | 0.113 | 0.090 | 0.099 | 0.526 | 0.013 |
| NPL(%) | 3.968 | 2.415 | 5.317 | 34.060 | 0.150 |
| Overhead(%) | 62.702 | 58.630 | 40.506 | 385.500 | 8.800 |
| LIQ(%) | 39.521 | 13.998 | 104.316 | 842.679 | 2.565 |
| LnA | 7.691 | 7.730 | 0.792 | 9.326 | 5.760 |
| RGDPG(%) | 0.789 | 1.847 | 3.760 | 10.546 | -14.847 |
| DI | 0.920 | 1.000 | 0.272 | 1.000 | 0.000 |
| RESTRICTION | 10.920 | 12.000 | 2.380 | 14.000 | 5.000 |
| CORRUPTION | 1.199 | 1.265 | 0.811 | 2.519 | -1.367 |
| SR | 3.931 | 4.500 | 1.315 | 5.000 | 0.000 |
| Tobin's q | 0.999 | 0.995 | 0.105 | 1.296 | 0.603 |
| P/B ratio | 1.164 | 0.944 | 0.847 | 3.404 | -0.140 |
| **Panel D. Banks with managerial overconfidence (64 observations)** | | | | | |
| CSR_D | 0.109 | 0.000 | 0.315 | 1.000 | 0.000 |
| CSR_S | 1.063 | 0.000 | 2.833 | 13.000 | 0.000 |
| OC2 | 0.612 | 0.779 | 0.409 | 1.000 | 0.020 |
| TOTAL | 45.281 | 18.500 | 83.733 | 580.000 | 1.000 |
| EA | 0.132 | 0.096 | 0.124 | 0.526 | 0.021 |
| NPL(%) | 3.400 | 1.940 | 3.741 | 15.250 | 0.180 |
| Overhead(%) | 64.891 | 58.170 | 54.703 | 385.500 | 8.800 |
| LIQ(%) | 50.467 | 16.069 | 125.200 | 842.679 | 3.951 |
| LnA | 7.884 | 8.004 | 0.895 | 9.326 | 5.760 |
| RGDPG(%) | 0.865 | 1.847 | 4.060 | 10.546 | -14.847 |
| DI | 0.891 | 1.000 | 0.315 | 1.000 | 0.000 |
| RESTRICTION | 11.094 | 13.000 | 2.499 | 14.000 | 5.000 |
| CORRUPTION | 1.210 | 1.265 | 0.751 | 2.414 | -1.367 |
| SR | 4.049 | 5.000 | 1.217 | 5.000 | 1.000 |
| Tobin's q | 0.995 | 0.993 | 0.132 | 1.296 | 0.603 |

| | | | | | |
|---|---|---|---|---|---|
| P/B ratio | 1.272 | 0.929 | 0.940 | 3.404 | -0.140 |
| **Panel E. Banks with managerial nonoverconfidence and neutrality (72 observations)** | | | | | |
| CSR_D | 0.222 | 0.000 | 0.419 | 1.000 | 0.000 |
| CSR_S | 1.861 | 0.000 | 3.858 | 13.000 | 0.000 |
| OC2 | -0.767 | -1.000 | 0.368 | 0.000 | -1.000 |
| TOTAL | 35.639 | 17.000 | 44.198 | 232.000 | 1.000 |
| EA | 0.135 | 0.092 | 0.156 | 0.712 | 0.013 |
| NPL(%) | 4.503 | 2.850 | 5.856 | 34.060 | 0.150 |
| Overhead(%) | 57.844 | 56.440 | 17.766 | 98.670 | 5.500 |
| LIQ(%) | 36.751 | 16.251 | 77.121 | 521.455 | 2.565 |
| LnA | 7.714 | 7.730 | 0.724 | 9.394 | 6.286 |
| RGDPG(%) | 0.574 | 1.660 | 3.164 | 8.570 | -5.666 |
| DI | 0.917 | 1.000 | 0.278 | 1.000 | 0.000 |
| RESTRICTION | 9.986 | 10.000 | 2.667 | 13.000 | 5.000 |
| CORRUPTION | 1.243 | 1.265 | 0.817 | 2.519 | -1.367 |
| SR | 3.797 | 4.000 | 1.287 | 5.000 | 0.000 |
| Tobin's q | 1.063 | 1.011 | 0.259 | 2.353 | 0.722 |
| P/B ratio | 1.200 | 1.102 | 0.735 | 3.183 | 0.000 |

## Table 3 Correlation matrix of variables

| | CSR_D | CSR_S | OC1 | OC2 | TOTAL | EA | NPL | Overhead | LIQ | LnA | RGDPG | DI | RESTRICTION | CORRUPTION | SR | Tobin's q | P/B ratio |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CSR_D | 1.000 | | | | | | | | | | | | | | | | |
| CSR_S | 0.843 | 1.000 | | | | | | | | | | | | | | | |
| OC1 | -0.141 | -0.116 | 1.000 | | | | | | | | | | | | | | |
| OC2 | -0.065 | -0.059 | 0.881 | 1.000 | | | | | | | | | | | | | |
| TOTAL | 0.148 | 0.104 | 0.067 | 0.046 | 1.000 | | | | | | | | | | | | |
| EA | 0.063 | 0.003 | -0.021 | 0.017 | 0.235 | 1.000 | | | | | | | | | | | |
| NPL | -0.066 | -0.066 | -0.112 | -0.149 | -0.034 | 0.090 | 1.000 | | | | | | | | | | |
| Overhead | -0.021 | 0.006 | 0.101 | 0.088 | -0.008 | -0.174 | 0.156 | 1.000 | | | | | | | | | |
| LIQ | 0.088 | 0.112 | 0.073 | 0.015 | 0.130 | 0.185 | 0.125 | 0.219 | 1.000 | | | | | | | | |
| LnA | 0.343 | 0.370 | 0.117 | 0.153 | 0.237 | -0.193 | -0.217 | -0.053 | -0.041 | 1.000 | | | | | | | |
| RGDPG | -0.029 | -0.044 | 0.037 | 0.020 | -0.006 | 0.058 | -0.180 | -0.115 | -0.042 | 0.038 | 1.000 | | | | | | |
| DI | -0.136 | -0.126 | -0.040 | 0.048 | 0.028 | -0.040 | 0.141 | 0.162 | -0.021 | -0.067 | -0.219 | 1.000 | | | | | |
| RESTRICTION | -0.104 | -0.136 | 0.204 | 0.229 | 0.131 | -0.016 | -0.211 | -0.031 | -0.221 | 0.055 | 0.224 | -0.004 | 1.000 | | | | |
| CORRUPTION | 0.100 | 0.110 | -0.011 | -0.015 | 0.114 | 0.004 | -0.095 | 0.077 | 0.025 | -0.038 | -0.236 | 0.030 | -0.169 | 1.000 | | | |
| SR | 0.088 | 0.074 | 0.091 | 0.177 | 0.222 | 0.034 | -0.149 | 0.064 | -0.059 | 0.011 | 0.030 | -0.181 | 0.371 | 0.317 | 1.000 | | |
| Tobin's q | 0.044 | 0.006 | -0.163 | 0.020 | -0.022 | 0.203 | -0.139 | -0.211 | 0.051 | -0.113 | 0.078 | -0.149 | -0.062 | -0.055 | 0.027 | 1.000 | |
| P/B ratio | 0.055 | 0.047 | 0.046 | 0.145 | -0.093 | 0.069 | -0.189 | -0.161 | -0.030 | 0.012 | 0.182 | -0.179 | 0.028 | -0.166 | 0.027 | 0.522 | 1.000 |

**Table 4 The relationship among managerial overconfidence, CSR, and bank performance**

| | Tobin's q | | | | P/B ratio | | | |
|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| Constant | 1.385 *** | 1.368 *** | 1.333 *** | 1.322 *** | 3.054 *** | 3.053 *** | 2.979 *** | 3.028 *** |
| | (13.141) | (15.262) | (14.091) | (16.006) | (3.947) | (4.039) | (3.710) | (3.900) |
| OC1 | -0.0002 | | 0.001 | | 0.055 | | 0.088 | |
| | (-0.013 ) | | (0.041) | | (0.499) | | (0.762) | |
| OC2 | | -0.003 | | -0.003 | | -0.007 | | -0.003 |
| | | (-0.387 ) | | (-0.336 ) | | (-0.084 ) | | (-0.041 ) |
| TOTAL | 0.0004 *** | 0.0004 *** | 0.0004 *** | 0.0004 *** | 0.003 *** | 0.002 *** | 0.003 *** | 0.003 *** |
| | (3.564) | (3.466) | (3.381) | (3.453) | (2.973) | (2.829) | (3.207) | (2.983) |
| CSR_D | -0.073 | -0.055 * | | | 0.347 | 0.114 | | |
| | (-1.474 ) | (-1.685 ) | | | (1.149) | (0.582) | | |
| CSR_S | | | -0.004 | -0.003 | | | 0.064 * | 0.030 |
| | | | (-0.751 ) | (-0.930 ) | | | (1.918) | (1.529) |
| OC1*CSR_D | 0.024 | | | | -0.371 | | | |
| | (0.737) | | | | (-1.320 ) | | | |
| OC2*CSR_D | | 0.016 | | | | -0.190 | | |
| | | (0.854) | | | | (-1.189 ) | | |
| OC1*CSR_S | | | 0.001 | | | | -0.050 * | |
| | | | (0.203) | | | | (-1.797 ) | |
| OC2*CSR_S | | | | 0.001 | | | | -0.022 |
| | | | | (0.620) | | | | (-1.443 ) |
| EA | 0.310 | 0.267 | 0.152 | 0.156 | -4.022 * | -4.158 * | -5.505 ** | -5.449 ** |
| | (0.749) | (0.695) | (0.363) | (0.394) | (-1.748 ) | (-1.937 ) | (-2.301 ) | (-2.448 ) |
| NPL | -0.007 *** | -0.007 *** | -0.007 *** | -0.007 *** | -0.025 | -0.024 | -0.026 | -0.025 |
| | (-3.049 ) | (-3.083 ) | (-2.739 ) | (-2.828 ) | (-1.054 ) | (-1.033 ) | (-1.073 ) | (-1.066 ) |
| Overhead | -0.001 *** | -0.001 *** | -0.001 *** | -0.001 *** | -0.007 ** | -0.007 ** | -0.006 * | -0.007 * |
| | (-3.708 ) | (-3.938 ) | (-3.157 ) | (-3.456 ) | (-1.982 ) | (-2.127 ) | (-1.643 ) | (-1.896 ) |
| LIQ | -0.001 ** | -0.001 * | -0.001 * | -0.001 * | -0.014 *** | -0.013 *** | -0.017 *** | -0.016 *** |
| | (-2.037 ) | (-1.957 ) | (-1.793 ) | (-1.766 ) | (-3.973 ) | (-3.861 ) | (-4.562 ) | (-4.271 ) |
| LnA | 0.007 | 0.008 | 0.008 | 0.009 | 0.083 | 0.094 | 0.061 | 0.074 |
| | (0.902) | (0.960) | (0.856) | (0.896) | (1.004) | (1.055) | (0.729) | (0.826) |
| RGDPG | 0.004 | 0.004 | 0.004 | 0.004 | 0.142 *** | 0.141 *** | 0.136 *** | 0.136 *** |
| | (1.636) | (1.606) | (1.465) | (1.426) | (4.906) | (4.795) | (4.803) | (4.650) |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| DI | -0.022 | -0.019 | -0.005 | -0.003 | -0.133 | -0.198 | -0.208 | -0.257 |
| | (-1.104 ) | (-1.050 ) | (-0.243 ) | (-0.138 ) | (-0.406 ) | (-0.571 ) | (-0.676 ) | (-0.777 ) |
| RESTRICTION | -0.024 ** | -0.023 ** | -0.020 * | -0.019 ** | -0.097 | -0.091 | -0.049 | -0.051 |
| | (-2.377 ) | (-2.434 ) | (-1.943 ) | (-2.049 ) | (-1.388 ) | (-1.266 ) | (-0.618 ) | (-0.628 ) |
| CORRUPTION | -0.033 *** | -0.033 *** | -0.029 *** | -0.028 *** | -0.070 | -0.080 | -0.019 | -0.043 |
| | (-4.446 ) | (-4.471 ) | (-3.464 ) | (-3.565 ) | (-0.651 ) | (-0.771 ) | (-0.177 ) | (-0.407 ) |
| SR | 0.001 | 0.0003 | -0.001 | -0.002 | 0.033 | 0.031 | 0.005 | 0.008 |
| | (0.083) | (0.043) | (-0.127 ) | (-0.212 ) | (0.401) | (0.360) | (0.055) | (0.085) |
| Time Effects | YES | YES | YES | YES | YES | YES | YES | YES |
| Adj. $R^2$ | 0.551 | 0.552 | 0.529 | 0.532 | 0.614 | 0.615 | 0.633 | 0.627 |

Note: t-statistics based on robust standard errors clustered by country are reported in parentheses. ***, **, and * denote significant levels at the 1%, 5%, and 10% levels, respectively.

**Table 5 The quardratic relationship between managerial overconfidence and bank market performance**

| | Tobin's q | | P/B ratio | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Constant | 1.373 *** | 1.345 *** | 3.061 *** | 3.115 *** |
| | (14.287) | (14.780) | (4.298) | (4.264) |
| $OC2^2$ | -0.027 * | -0.031 ** | -0.546 *** | -0.524 *** |
| | (-1.764 ) | (-2.187 ) | (-3.577 ) | (-3.805 ) |
| OC2 | -0.004 | -0.004 | 0.006 | 0.004 |
| | (-0.490 ) | (-0.439 ) | (0.081) | (0.057) |
| TOTAL | 0.0003 ** | 0.0002 ** | 0.0002 | 0.0005 |
| | (2.522) | (2.559) | (0.301) | (0.590) |
| CSR_D | -0.037 | | 0.400 ** | |
| | (-1.085 ) | | (2.057) | |
| CSR_S | | -0.002 | | 0.046 ** |
| | | (-0.646 ) | | (2.480) |
| OC2*CSR_D | 0.017 | | -0.230 * | |
| | (0.942) | | (-1.669 ) | |
| OC2*CSR_S | | 0.001 | | -0.026 * |
| | | (0.641) | | (-1.925 ) |
| EA | 0.356 | 0.306 | -2.741 | -3.667 * |
| | (0.903) | (0.739) | (-1.363 ) | (-1.771 ) |
| NPL | -0.007 *** | -0.007 *** | -0.017 | -0.017 |
| | (-2.887 ) | (-2.721 ) | (-0.771 ) | (-0.795 ) |
| Overhead | -0.001 ** | -0.0005 * | -0.001 | -0.001 |
| | (-2.133 ) | (-1.955 ) | (-0.403 ) | (-0.309 ) |
| LIQ | -0.001 * | -0.001 * | -0.015 *** | -0.017 *** |
| | (-1.956 ) | (-1.748 ) | (-4.245 ) | (-4.500 ) |
| LnA | 0.005 | 0.005 | 0.067 | 0.055 |
| | (0.579) | (0.529) | (0.771) | (0.628) |
| RGDPG | 0.005 ** | 0.005 ** | 0.155 *** | 0.150 *** |
| | (2.073) | (1.969) | (5.877) | (5.660) |
| DI | -0.015 | -0.004 | -0.128 | -0.277 |
| | (-0.912 ) | (-0.225 ) | (-0.517 ) | (-1.229 ) |
| RESTRICTION | -0.021 ** | -0.019 ** | -0.072 | -0.043 |
| | (-2.391 ) | (-2.241 ) | (-1.274 ) | (-0.681 ) |
| CORRUPTION | -0.028 *** | -0.025 *** | 0.013 | 0.027 |
| | (-3.640 ) | (-3.292 ) | (0.131) | (0.278) |
| SR | -0.002 | -0.003 | -0.012 | -0.025 |
| | (-0.245 ) | (-0.420 ) | (-0.160 ) | (-0.341 ) |
| Time Effects | YES | YES | YES | YES |
| Adj $R^2$ | 0.561 | 0.551 | 0.684 | 0.696 |

Note: t-statistics based on robust standard errors clustered by country are reported in parentheses. ***, **, and * denote significant levels at the 1%, 5%, and 10% levels, respectively.

**Table 6 Robustness tests: The relationship among managerial overconfidence, CSR and bank performance**

| | Tobin's q | | | | | | P/B ratio | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (1) | (2) | (3) | (4) | (5) | (6) |
| Constant | 1.297 *** | 1.259 *** | 1.242 *** | 1.200 *** | 1.276 *** | 1.242 *** | 2.653 ** | 2.339 * | 2.186 * | 1.838 | 1.895 * | 1.527 |
| | (5.131) | (4.925) | (5.301) | (5.051) | (5.935) | (6.113) | (2.287) | (1.860) | (1.805) | (1.405) | (1.657) | (1.353) |
| OC1 | -0.093 *** | | -0.109 *** | | | | -0.461 ** | | -0.564 ** | | | |
| | (-3.332 ) | | (-3.394 ) | | | | (-2.526 ) | | (-2.312 ) | | | |
| OC2 | | -0.037 *** | | -0.044 *** | -0.036 *** | -0.044 *** | | -0.268 ** | | -0.314 ** | -0.250 *** | -0.292 *** |
| | | (-2.714 ) | | (-2.883 ) | (-3.016 ) | (-3.272 ) | | (-2.538 ) | | (-2.352 ) | (-3.031 ) | (-2.868 ) |
| $OC2^2$ | | | | | -0.052 *** | -0.053 *** | | | | | -0.506 *** | -0.532 *** |
| | | | | | (-3.384 ) | (-3.564 ) | | | | | (-2.916 ) | (-3.170 ) |
| TOTAL | 0.001 *** | 0.001 *** | 0.001 *** | 0.001 *** | 0.0004 ** | 0.0004 ** | 0.003 *** | 0.003 *** | 0.003 *** | 0.003 *** | 0.0002 | 0.0002 |
| | (3.503) | (2.708) | (3.484) | (2.736) | (2.084) | (2.103) | (3.390) | (2.858) | (3.323) | (2.836) | (0.272) | (0.223) |
| CSR_D | -0.428 *** | -0.204 | | | -0.113 | | -4.001 *** | -3.313 ** | | | -2.371 ** | |
| | (-2.774 ) | (-1.431 ) | | | (-1.068 ) | | (-2.741 ) | (-2.364 ) | | | (-2.169 ) | |
| CSR_S | | | -0.058 *** | -0.024 | | -0.013 | | | -0.496 ** | -0.374 | | -0.265 |
| | | | (-2.631 ) | (-1.209 ) | | (-0.957 ) | | | (-2.175 ) | (-1.638 ) | | (-1.620 ) |
| OC1*CSR_D | 0.358 *** | | | | | | 1.354 | | | | | |
| | (3.379) | | | | | | (1.393) | | | | | |
| OC2*CSR_D | | 0.151 *** | | | 0.149 *** | | | 0.579 | | | 0.470 | |
| | | (2.679) | | | (3.091) | | | (1.211) | | | (1.242) | |
| OC1*CSR_S | | | 0.057 *** | | | | | | 0.260 | | | |
| | | | (3.405) | | | | | | (1.429) | | | |
| OC2*CSR_S | | | | 0.025 *** | | 0.025 *** | | | | 0.112 | | 0.094 |
| | | | | (2.846) | | (3.295) | | | | (1.251) | | (1.337) |
| Control Var. | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES |
| Adj $R^2$ | 0.700 | 0.664 | 0.695 | 0.664 | 0.725 | 0.730 | 0.719 | 0.742 | 0.706 | 0.729 | 0.792 | 0.786 |

Note: t-statistics based on robust standard errors clustered by country are reported in parentheses. ***, **, and * denote significant levels at the 1%, 5%, and 10% levels, respectively.