Economics Bulletin

Volume 44, Issue 4

# Social capital, CSR, and stock markets around the world

Soonho Kim
*Pukyong National University Business School*

Haejung Na
*California State University Los Angeles*

## Abstract

This study examines the interaction between social capital and economic progress, both internal and external, in influencing stock market quality on an international scale. We proxy internal economic progress with corporate social responsibility (CSR) and external progress with globalization, utilizing an aggregate CSR score from the World Bank's Sovereign ESG Data Portal and the KOF Globalization Index, respectively. Our results suggest a synergetic effect between social capital and CSR on stock market quality. In specific, we find that social capital and corporate governance jointly improve stock market efficiency. Additionally, our evidence suggests that a more pronounced joint effect between social capital and corporate governance may exist in civil law countries compared to common law countries. Finally, while internal economic progress is found to interact with social capital, there is no evidence to support an interplay between social capital and external progress, or globalization, in the stock market.

This work was supported by a Research Grant of Pukyong National University(2023) Corresponding author: Haejung Na (hna5@calstatela.edu)
**Citation:** Soonho Kim and Haejung Na, (2024) "Social capital, CSR, and stock markets around the world", *Economics Bulletin*, Volume 44, Issue 4, pages 1434-1456
**Contact:** Soonho Kim - kimsoonho@pknu.ac.kr, Haejung Na - hna5@calstatela.edu.
**Submitted:** August 18, 2024. **Published:** December 30, 2024.

## 1. Introduction

Social capital is often conceptualized with three key components: trust, ease of cooperation, and networks (Paldam, 2000). In the literature, as social capital reinforces trust and builds social networks, some argue that it positively impacts the market by facilitating the transmission of information (Dasgupta, 2000) and reducing search and transaction costs (Kranton, 1996). Conversely, a contrary view suggests that social networks, as manifestations of social capital, may be competitively destructive to markets, potentially promoting production and exchange through communitarian arrangements (Dasgupta, 2000). Given these competing perspectives, we focus on social capital to investigate whether it has a positive impact on the stock market. To be specific, our research explores whether social capital interacts with internal and external economic progress, such as corporate social responsibility (CSR) and globalization, to improve stock market efficiency and mitigate risks.

In the literature on CSR, denoting a firm's commitment to promoting social welfare, its close link with social capital has been identified. Companies headquartered in regions with higher social tend to engage more in CSR due to cultural congruence among managers (Jha and Cox, 2015). However, the interaction between social capital and CSR, as well as its implications for the stock market, remains unexplored. Particularly, there is limited investigation into how various dimensions of the financial market are influenced by social capital and CSR, especially on an international scale. This study aims to address this gap by focusing on stock market efficiency and financial risk and examining how social capital and CSR impact those dimensions of the financial market in an international context. Given that social capital is known to mitigate agency problems (Jensen and Meckling, 1976; Gupta et al., 2018), it is anticipated that social capital and CSR would also attenuate information asymmetry, leading to improved market efficiency and reduced financial risks.

Additionally, we pay attention to the interaction between social capital and globalization. Egan and Mody (1992) and Rauch (1996, 1999) observe that trades through networks play an important role in international markets, especially when there is limited information. We seek to investigate the role of social networks in conjunction with globalization. Hence, the interaction between social capital and globalization in the financial market will be examined.

The study has a three-fold focus. First, we employ proxies for CSR and social capital, such as the ESG score developed from the Sovereign ESG Data Portal and Solability's Social Capital Index, to investigate their separate and interactive effects on stock market efficiency and risks on a global scale. Second, the KOF Globalization Index is used to assess its additional role with social capital in improving stock market quality. Third, the sample is divided based on legal systems—common law and civil law countries—to analyze potential differences in the impact of social capital and economic progress in the stock markets.

The study progresses in the following sequence: Section 2 presents the Literature Review and Hypotheses Development, Section 3 explains the Data and Methodology, Section 4 reviews the Empirical Analysis and Results, and Section 5 concludes the manuscript.

## 2. Literature Review & Hypotheses Development

### 2.1 Social Capital and the Stock Market

Social capital is defined as a resource of individuals that emerges from social ties (Coleman, 1990; Guiso et al., 2004). Fukuyama (2002) takes a similar approach, defining social capital to go beyond "people's ability to work together in groups" to include "any instance in which people cooperate

for common ends on the basis of shared informal norms and values." For many years, social capital has received limited attention in the field of finance. Guiso et al. (2004) are among the first to investigate the link between social capital and financial development. They argue that social capital positively affects a country's financial development by promoting trust among people. Jha and Cox (2015) propose that managers in regions with high social capital are more likely to exhibit altruistic behavior, influenced by the local cultural norms. Consequently, these firms are more prone to engage in CSR activities, and stakeholders expect them to make socially responsible decisions. Moreover, such firms are likely to be proactive in providing high-quality information to investors, reducing information asymmetry and financial risks.

With a growing interest in understanding the impact of social capital on finance, researchers have explored the role of social capital in finance. Notably, Huang and Shang (2019) demonstrate a negative association between social capital and corporate borrowing, suggesting that firms with higher social capital are less inclined to rely on borrowing mechanisms to address agency problems. Similarly, Gupta et al. (2018) show that social capital is inversely related to firms' cost of capital, and Hasan and Habib (2019) find a negative relationship between social capital and idiosyncratic risk.

## 2.2 CSR and the Stock Market

### 2.2.1 CSR

On the other hand, Corporate Social Responsibility (CSR) encompasses various definitions. Per the World Bank, CSR entails the "commitment of businesses to contribute to sustainable economic development by collaborating with employees, their families, the local community, and society as a whole to enhance the quality of life, in ways that are mutually beneficial for both business and development" (Halabi and Samy, 2009; Breuer et al., 2018). Numerous studies align with this perspective, asserting that CSR goes beyond legal obligations, benefiting individuals, communities, and the environment (McWilliams and Siegel, 2001; Margolis and Walsh, 2003; Orlitzky et al., 2003; Ioannou and Serafeim, 2015). In essence, CSR represents an extension of a company's endeavors to promote sustainability through ethical business practices.

Despite ongoing debates regarding firms' motives for engaging in CSR, several studies take a managerial approach, contending that managers adopt CSR as a strategy to foster positive relationships with various stakeholders (Deng et al., 2013). According to the managerial view, CSR activities yield diverse benefits for firms, including enhanced financial performance (McWilliams and Siegel, 2001) and increased attention and favorable recommendations from analysts (Hong and Kacperczyk, 2009; Ioannou and Serafeim, 2015). Also, CSR activities contribute to improved communication with shareholders regarding financial matters (Fieseler, 2011), lead to better corporate governance, and elevate firm value (Jo and Harjoto, 2011, 2012). In addition to the emphasis on the role of CSR in enhancing profitability, the literature on CSR also highlights the influence of CSR on the stock market. CSR is known to mitigate financial risks through improved analyst accuracy (Dhaliwal et al., 2012), better credit ratings (Attig et al., 2013), and reduced capital costs (Dhaliwal et al., 2011; El Ghoul et al., 2011). It is also found to improve information asymmetry (Cui et al, 2018).

### 2.2.2 CSR and Stock Market Efficiency

Since Fama's (1970) seminal work, which reported that many studies failed to reject the "efficient market" hypothesis, numerous attempts have been made to assess the efficiency of the stock market. A key component of this discussion is the random walk test, particularly relevant to weak form

efficiency, which posits that stock prices already incorporate all past publicly available information. In a scenario where stock prices follow a random walk, the current stock price becomes the best predictor of the next-period stock price, and stock returns should exhibit serial uncorrelation.

One of the most widely recognized tests in academia related to the random walk hypothesis is the measure introduced by Lo and MacKinlay (1988). Their innovative approach involves the development of a measure known as the variance ratio (VR($q$)), premised on the assumption that the variance of stock price increments should be linear in the observation interval under the random walk hypothesis. According to the authors, VR($q$) is approximately equivalent to a linear combination of $q$-1 autocorrelation coefficient estimators of the first differences with declining weights. The null hypothesis in this context is VR($q$) = 1, and a rejection of this hypothesis for certain stock return series implies a departure from the random walk pattern. Using this methodology, Lo and MacKinlay (1988) conclude that U.S. stock returns do not conform to a random walk.

However, the original Lo and MacKinlay test imposed a condition that variance ratios should be equal to 1.0 across all observation intervals ($q$), a condition later identified as requiring modification. Chow and Denning (1993) address this limitation by adjusting the variance ratio method and introducing multiple variance ratios. Their approach involves a comparative analysis of variance ratios while controlling for the test size, with the null hypothesis considered at each observation interval. Subsequent studies, including those by Karemera et al. (1999) and Griffin et al. (2010), have extended these tests to stock markets worldwide, particularly focusing on emerging economies.

Similar approaches linking market efficiency and the legal or regulatory environment have gained traction in various academic fields. Hail and Leuz (2006) adopt similar methods to examine the connection between investor protection and the cost of equity capital. Griffin et al. (2010) relate market efficiency proxies to measures related to the information environment, but little connection has been identified. Jirasakuldech et al. (2011) partition countries based on disclosure quality, aiming to demonstrate that countries with high disclosure quality tend to exhibit better market efficiency, although their study primarily shows mean differences across country groups.

### 2.2.3 CSR and Stock Market Risk

Firm risk pertains to the inherent risk within a company's operations due to external or internal factors that can impact its profitability. Numerous studies have delved into the influence of CSR on the stock market, with a specific focus on its role in mitigating firm risk. Orlitzky and Benjamin (2001) suggest that CSR, coupled with lower litigation risks and positive stakeholder relations, prompts proactive measures that reduce firm risks. Godfrey (2005) and Godfrey et al. (2009) support a similar viewpoint, contending that CSR generates moral capital or goodwill to place "insurance-like" protection on financial performance. Sharfman and Fernando (2008) assert that CSR-driven risk management can diminish firm risk by lowering the likelihood of financial, social, or environmental crises that may adversely impact cash flows. In addition to firm risks measured with standard deviation, Oikonomou et al. (2010) discover that CSR correlates with lower downside risks, while Boutin-Dufresne and Savaria (2004) and Lee and Faff (2009) demonstrate that CSR contributes to decreased idiosyncratic risks. In an international context, Monti et al. (2022) identify a negative relationship between CSR scores and various risk measures, while Farah et al. (2023) observe a non-linear, inverted-U-shaped pattern in the CSR-risk relationship.

## 2.3 Hypotheses Development: Social Capital, CSR, and Stock Markets Around the World

Despite these insights from the previous literature on the separate effects of social capital and CSR on the stock market, no comprehensive study has thoroughly examined the interplay between social capital and CSR in stock markets around the world. This research seeks to address this gap. Our first hypothesis posits that social capital and CSR will interactively improve stock market efficiency and mitigate risks. In particular, we are interested in investigating whether there is a joint effect between social capital and CSR on various dimensions of the financial markets around the world, such as market efficiency and risks. As social capital is known to strengthen the level of CSR (Jha and Cox, 2015), it is expected that social capital will also bolster the positive effect of CSR in the financial market.

Additionally, we focus on globalization and propose our second hypothesis that globalization may also interact with social capital in enhancing stock market quality and mitigating risks. As Cheng and Mittelhammer (2008) identify that globalization benefits economies via social capital, we seek to investigate whether their finding extends to stock market dimensions.

Our third hypothesis suggests that the degree and significance of the improvement in stock market efficiency and risk reduction may vary between common law and civil law countries. Fukuyama (2002) argues that social capital is rooted in the legal origin of the society, while La Porta et al. (2000, 2002) show the link between legal origin and corporate governance. La Porta et al. (1998, 2008) argue that the legal origin of a country is related to the level of investor protection and accordingly affects its capital market development. Given the relationship between legal origin and our key variables observed in prior studies, we propose that the joint effect of social capital with CSR and globalization may differ among countries of different legal origins.

Through our empirical analysis based on these hypotheses, this research aims to contribute significantly to the literature by exploring the synergetic effect of social capital and CSR on the financial markets around the world. This investigation represents a rare attempt to understand the intricate relationship between social capital, CSR, and multiple dimensions of the stock market in a global context.

## 3. Data & Methodology

Our sample dataset covers a total of 65 countries for the period from 2018 to 2020. The sample countries are categorized into two different groups based on their legal system: 19 are common-law countries, and 46 countries have a civil law system. The international CSR data is obtained from the Sovereign ESG Data Portal of the World Bank.[1] For the level of the sample countries' social capital, we use the sustainability index, which is a sub-score of the Global Sustainability Competitive Index (GSCI) developed by Solability Sustainable Intelligence. To measure the level of globalization, we use the KOF Globalization Index made available by the KOF Swiss Economic Institute (Konjunkturforschungsstelle).[2] Finally, we measure stock market efficiency and risks to capture stock market quality, using the daily stock market index series from Thomson Reuters Eikon. For our risk measure, we estimate the Beta obtained from regressing stock market index returns on the Fama/French Developed 5 Factors. To proxy for stock market efficiency, we first measure the variance ratio (VR($q$)) of Lo and MacKinlay (1988) from the indices, as follows:

$$\mathrm{VR}(q) = \frac{1}{q} \cdot \frac{Var(r_{t-q,t})}{Var(r_{t-1,t})} \quad (1)$$

[1] We aggregate the 72 indicators grouped into 3 pillars, made available by the Sovereign ESG Data Portal based on the min/max scaling method (https://esgdata.worldbank.org/).

[2] The data are available at https://kof.ethz.ch/en/forecasts-and-indicators/indicators/kof-globalisation-index.html. The dataset was first proposed by Dreher (2006) and updated and revised by Dreher et al. (2008) and Gygli et al. (2019).

where $r_{t-q,t}$ represents the stock market return from day *t-q* to day *t*, where $q$ is the order of the observation interval. According to Lo and MacKinlay (1988), Liu and He (1991), and Griffin et al. (2010), if the market is efficient, VR($q$)=1. We adopt the modified variance ratio of Griffin et al. (2010), |VR($q$)-1|, with the observation interval $q$ of 5. The higher |VR($q$)-1|, the more *inefficient* the index series. For the control variables, we use the log of GDP and that of GDP per Capita, obtained from the World Bank. All items are winsorized at the 1 percent level. Table 1 shows the descriptive statistics of our variables. According to our summary statistics, the mean of our variance ratio measure, |VR(5)-1|, is 0.4000, and that of the Beta is 0.573. The means of the social capital and ESG indices are 47.519 and 0.605, respectively.

**Table 1. Descriptive Statistics**

This table reports the descriptive statistics of the variables used in the empirical analysis. $VR$ is the variance ratio measure, |VR(5)-1|, $BETA$ is the Beta from the Fama/French Developed 5 Factors, $SC$ is Solability's Social Capital Index, $ESG$ is the CSR index, and $Global$ is the KOF Globalization Index. The sub-indices of $ESG$ and $Global$ are also presented. Under $ESG$, there are three sub-indices: $ENV$ is the environmental index, $SOC$ is the social index, and $GOV$ is the governance index. Under $Global$, there are three sub-indices: $ECON$ is the economic globalization index, $SG$ is the social globalization index, and POL is the political globalization index. *lnGDP* and *lnGDPpcpt* refer to the log of GDP and GDP per capita.

| Variables | Mean | Std. Dev. | p25 | Median | p75 |
|---|---|---|---|---|---|
| VR | 0.400 | 0.101 | 0.339 | 0.393 | 0.444 |
| BETA | 0.573 | 0.419 | 0.209 | 0.531 | 0.892 |
| SC | 47.519 | 7.580 | 41.553 | 48.151 | 53.328 |
| ESG | 0.605 | 0.071 | 0.545 | 0.617 | 0.662 |
| ENV | 0.584 | 0.060 | 0.554 | 0.596 | 0.626 |
| SOCIAL | 0.690 | 0.088 | 0.643 | 0.700 | 0.748 |
| GOV | 0.539 | 0.126 | 0.432 | 0.548 | 0.646 |
| Global | 75.446 | 9.891 | 67.899 | 76.465 | 83.557 |
| ECON | 68.424 | 15.006 | 58.244 | 70.415 | 80.814 |
| SC | 75.614 | 12.815 | 67.108 | 79.586 | 86.233 |
| POL | 82.376 | 13.332 | 75.519 | 86.289 | 91.471 |
| lnGDP | 26.549 | 1.560 | 25.590 | 26.572 | 27.537 |
| lnGDPpcpt | 9.777 | 1.118 | 8.992 | 9.941 | 10.728 |

## 4. Analysis

### 4.1 Social Capital, CSR, and the Stock Market

To investigate how social capital and CSR affect the stock markets, we use the random-effect model to test the following econometric specifications:[3]

$$\Delta VR_{i,t} = \beta_0 + \beta_1 \Delta SC_{i,t-1} + \beta_2 \Delta ESG_{i,t-1} + \beta_3 \Delta SC_{i,t-1} \Delta ESG_{i,t-1} + Control\ Term + Year\ dummy + \varepsilon_{i,t} \quad (2)$$

[3] To denote CSR in the empirical analysis, we use ESG as these terms are used interchangeably in the literature (Gillian et al., 2021).

$$\Delta BETA_{i,t} = \beta_0 + \beta_1 \Delta SC_{i,t-1} + \beta_2 \Delta ESG_{i,t-1} + \beta_3 \Delta SC_{i,t-1} \Delta ESG_{i,t-1} + Control\ Terms + Year\ dummy + \varepsilon_{i,t} \quad (3)$$

where $\Delta VR$ is the increment of our variance ratio measure, |VR(5)-1|, $\Delta BETA$ is the increment of the Beta from the Fama/French Developed 5 Factors, $\Delta SC$ is the increment of Solability's Social Capital Index, and $\Delta ESG$ is the increment of the CSR index. Also, the sub-indices of $ESG$ are used: $ENV$ is the environmental index, $SOC$ is the social index, and $GOV$ is the governance index. Our control terms are the log of GDP, the log of GDP per capita, and year dummies. Note that a lower value of $BETA$ indicates lower stock market risks and that of $VR$ denotes higher market inefficiency. Accordingly, the coefficient is negative if a variable improves market efficiency and lowers risks.

Table 2 presents the coefficient estimates from Eq. (2), where the dependent variable is the increment in the variance ratio, and the primary variables of interest are $\Delta SC_{i,t-1}$, $\Delta ESG_{i,t-1}$, and $\Delta SC_{i,t-1} * \Delta ESG_{i,t-1}$. Throughout Panel A, the estimated coefficients on social capital and CSR, as well as its sub-indices, are mostly negative despite their statistical insignificance in most models. In the models where $\Delta ENV_{i,t-1}$ and $\Delta SOC_{i,t-1}$ are tested, the coefficients on $\Delta SC_{i,t-1}$ are significant. Meanwhile, for the coefficients on the interaction terms between social capital and CSR and its sub-indices, while we find mostly insignificant coefficients, the interaction between social capital and corporate governance is negative and significant, consistent with our hypothesis. It is notable that the governance dimension of CSR has a synergetic effect with social capital on stock market efficiency. While previous research has found little connection between governance-related proxies and stock market efficiency (Griffin et al., 2010), our findings show that social capital can play a role in augmenting corporate governance and improving stock market efficiency. To further investigate whether the results would be different based on the legal system, we split the sample into two groups: common law and civil law countries. In Panel B, the results for common law countries are presented, where no significant coefficient estimates are found for any of the interaction terms. In Panel C, on the contrary, the interaction between social capital and corporate governance is significantly negative in models without control terms. Such results may suggest that the joint effect between social capital and corporate governance on stock market efficiency may be more pronounced in civil law countries than in common law countries.

Table 3 tests Equation (3), with the dependent variable being $BETA$, and shows slightly different results. In Panels A and B, the coefficient estimates for most of the key variables are insignificant, contrary to our hypotheses. However, in Panel C, the coefficient estimates on $\Delta ENV_{i,t-1}$ are both negative and significant, indicating that the environmental dimension of CSR has a stronger relationship with market risk in civil law countries.

One possible explanation for the contrasting results may be that while civil law countries are known for weaker investor protection or financial institutions (La Porta et al., 1998, 2000, 2002, and 2008), social capital and CSR may complement their legal system by enhancing trust (Guiso et al., 2004) to improve stock market efficiency and reduce risks. Also, according to Rajan and Zingales (2003), there is a difference between civil law and common law countries in that civil law countries have a system led by small elite groups. As such, in those countries, it is easier and more efficient to make policy changes, which in turn are effectively enacted. Thus, an increase in social capital and CSR will be more effectively reflected in improving stock market efficiency in civil law countries than in common law countries.

## Table 2. The Effect of Social Capital and CSR on Stock Market Efficiency

This table presents the coefficient estimates and statistical significances from the following regression:

$$\Delta VR_{i,t} = \beta_0 + \beta_1 \Delta SC_{i,t-1} + \beta_2 \Delta ESG_{i,t-1} + \beta_3 \Delta SC_{i,t-1} \Delta ESG_{i,t-1} + Control\ Term + Year\ dummy + \varepsilon_{i,t}$$

where $\Delta VR$ is the increment of our variance ratio measure, |VR(5)-1|, $\Delta SC$ is the increment of Solability's Social Capital Index, and $ESG$ is the increment of the CSR index. Also, the sub-indices of $ESG$ are used: $ENV$ is the environmental index, $SOC$ is the social index, and G$OV$ is the governance index. Numbers in parentheses are the *t*-statistics, and *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

| | (1) VR | (2) VR | (3) VR | (4) VR | (5) VR | (6) VR | (7) VR | (8) VR | (9) VR | (10) VR |
|---|---|---|---|---|---|---|---|---|---|---|
| Panel A. All Countries | | | | | | | | | | |
| SC | -0.003 | -0.005 | 0.013 | -0.010 | -0.007 | -0.013** | -0.011 | -0.012** | 0.006 | 0.001 |
| | (-0.376) | (-0.868) | (0.909) | (-0.704) | (-1.055) | (-2.062) | (-1.577) | (-1.968) | (0.761) | (0.129) |
| ESG | -0.596 | -0.544 | | | | | | | | |
| | (-1.051) | (-0.891) | | | | | | | | |
| ENV | | | -0.500 | 0.206 | -0.460 | -0.009 | | | | |
| | | | (-1.341) | (0.487) | (-1.364) | (-0.022) | | | | |
| SOC | | | -0.161 | -0.369 | | | -0.385 | -0.293 | | |
| | | | (-0.418) | (-1.083) | | | (-1.046) | (-0.906) | | |
| GOV | | | 0.275 | -0.870 | | | | | 0.089 | -0.718 |
| | | | (0.492) | (-1.521) | | | | | (0.174) | (-1.297) |
| SC*ESG | -0.277 | -0.311 | | | | | | | | |
| | (-0.906) | (-1.147) | | | | | | | | |
| SC*ENV | | | 0.219 | -0.134 | -0.113 | -0.256 | | | | |
| | | | (0.920) | (-0.615) | (-0.654) | (-1.639) | | | | |
| SC*SOC | | | 0.056 | 0.234 | | | 0.291 | 0.277 | | |
| | | | (0.239) | (1.140) | | | (1.408) | (1.528) | | |
| SC*GOV | | | -0.580** | -0.119 | | | | | -0.463** | -0.293* |
| | | | (-2.004) | (-0.451) | | | | | (-2.416) | (-1.695) |
| Constant | 0.011 | -0.065 | -0.006 | 0.007 | -0.005 | -0.089 | 0.011 | -0.021 | 0.006 | -0.019 |
| | (0.862) | (-0.331) | (-0.252) | (0.032) | (-0.345) | (-0.452) | (0.714) | (-0.110) | (0.412) | (-0.097) |
| Control | NO | YES | NO | YES | NO | YES | NO | YES | NO | YES |
| Year Dummies | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES |
| No of countries | 64 | 63 | 64 | 63 | 64 | 63 | 64 | 63 | 64 | 63 |
| $R^2$ | 0.0321 | 0.0745 | 0.0795 | 0.117 | 0.0341 | 0.0747 | 0.0294 | 0.0728 | 0.0558 | 0.101 |

| Panel B. Common Law Countries | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SC | -0.014 | -0.010 | -0.016 | -0.010 | -0.017 | -0.014 | -0.024** | -0.020* | -0.003 | 0.006 |
| | (-1.053) | (-0.640) | (-0.619) | (-0.347) | (-1.607) | (-1.245) | (-2.359) | (-1.716) | (-0.201) | (0.322) |
| ESG | -1.284 | -1.367 | | | | | | | | |
| | (-1.296) | (-1.207) | | | | | | | | |
| ENV | | | -0.424 | -0.134 | -0.559 | -0.483 | | | | |
| | | | (-0.655) | (-0.168) | (-0.969) | (-0.674) | | | | |
| SOC | | | -0.395 | -0.773 | | | -0.437 | -0.656 | | |
| | | | (-0.659) | (-1.143) | | | (-0.787) | (-1.099) | | |
| GOV | | | -0.810 | -1.202 | | | | | -0.878 | -0.833 |
| | | | (-0.729) | (-0.998) | | | | | (-0.880) | (-0.752) |
| SC*ESG | -0.165 | -0.236 | | | | | | | | |
| | (-0.349) | (-0.463) | | | | | | | | |
| SC*ENV | | | -0.145 | -0.201 | -0.256 | -0.326 | | | | |
| | | | (-0.270) | (-0.362) | (-0.828) | (-0.958) | | | | |
| SC*SOC | | | 0.402 | 0.493 | | | 0.413 | 0.509 | | |
| | | | (1.027) | (1.196) | | | (1.355) | (1.577) | | |
| SC*GOV | | | -0.011 | -0.063 | | | | | -0.266 | -0.363 |
| | | | (-0.022) | (-0.120) | | | | | (-1.019) | (-1.267) |
| Constant | 0.045** | 0.116 | 0.054 | 0.261 | 0.028 | 0.030 | 0.048* | 0.232 | 0.053** | 0.156 |
| | (1.966) | (0.271) | (1.339) | (0.572) | (1.067) | (0.069) | (1.828) | (0.557) | (1.964) | (0.368) |
| Control | NO | YES | NO | YES | NO | YES | NO | YES | NO | YES |
| Year Dummies | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES |
| No of countries | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 |
| $R^2$ | 0.161 | 0.180 | 0.221 | 0.273 | 0.161 | 0.174 | 0.161 | 0.204 | 0.167 | 0.201 |

| Panel C. Civil Law Countries | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SC | 0.003 | -0.002 | 0.028 | -0.009 | 0.006 | -0.008 | 0.001 | -0.004 | 0.015 | 0.001 |
| | (0.387) | (-0.259) | (1.530) | (-0.528) | (0.556) | (-0.848) | (0.085) | (-0.397) | (1.460) | (0.152) |
| ESG | -0.436 | -0.187 | | | | | | | | |
| | (-0.626) | (-0.232) | | | | | | | | |
| ENV | | | -0.514 | 0.543 | -0.461 | 0.388 | | | | |
| | | | (-1.111) | (0.990) | (-1.116) | (0.745) | | | | |
| SOC | | | -0.124 | -0.274 | | | -0.500 | -0.201 | | |
| | | | (-0.233) | (-0.603) | | | (-1.010) | (-0.468) | | |
| GOV | | | 0.879 | -0.695 | | | | | 0.681 | -0.599 |
| | | | (1.338) | (-1.011) | | | | | (1.130) | (-0.895) |
| SC*ESG | -0.082 | -0.228 | | | | | | | | |
| | (-0.179) | (-0.589) | | | | | | | | |
| SC*ENV | | | 0.318 | -0.177 | 0.105 | -0.192 | | | | |
| | | | (1.160) | (-0.716) | (0.431) | (-0.899) | | | | |
| SC*SOC | | | -0.014 | 0.173 | | | 0.145 | 0.079 | | |
| | | | (-0.044) | (0.635) | | | (0.464) | (0.304) | | |
| SC*GOV | | | -1.001** | -0.127 | | | | | -0.857** | -0.255 |
| | | | (-2.051) | (-0.291) | | | | | (-2.047) | (-0.675) |
| Constant | -0.006 | -0.120 | -0.032 | -0.062 | -0.022 | -0.120 | -0.001 | -0.098 | -0.018 | -0.075 |
| | (-0.406) | (-0.537) | (-1.109) | (-0.270) | (-1.248) | (-0.542) | (-0.058) | (-0.446) | (-0.954) | (-0.335) |
| Control | NO | YES | NO | YES | NO | YES | NO | YES | NO | YES |
| Year Dummies | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES |
| No of countries | 45 | 44 | 45 | 44 | 45 | 44 | 45 | 44 | 45 | 44 |
| $R^2$ | 0.00766 | 0.0346 | 0.0801 | 0.0664 | 0.0152 | 0.0420 | 0.0132 | 0.0316 | 0.0512 | 0.0487 |

## Table 3. The Effect of Social Capital and CSR on Stock Market Risk

This table presents the coefficient estimates and statistical significances from the following regression:

$$\Delta BETA_{i,t} = \beta_0 + \beta_1 \Delta SC_{i,t-1} + \beta_2 \Delta ESG_{i,t-1} + \beta_3 \Delta SC_{i,t-1} \Delta ESG_{i,t-1} + Control\ Term + Year\ dummy + \varepsilon_{i,t}$$

where $\Delta BETA$ is the increment of the Beta from the Fama/French Developed 5 Factors, $\Delta SC$ is the increment of Solability's Social Capital Index, and $\Delta ESG$ is the increment of the CSR index. Also, the sub-indices of $ESG$ are used: $ENV$ is the environmental index, $SOC$ is the social index, and $GOV$ is the governance index. Numbers in parentheses are the *t*-statistics, and $^{*}$, $^{**}$, and $^{***}$ denote significance at the 10%, 5%, and 1% levels, respectively.

| | (1) BETA | (2) BETA | (3) BETA | (4) BETA | (5) BETA | (6) BETA | (7) BETA | (8) BETA | (9) BETA | (10) BETA |
|---|---|---|---|---|---|---|---|---|---|---|
| Panel A. All Countries | | | | | | | | | | |
| SC | 0.017 | 0.009 | 0.029 | 0.003 | 0.021* | 0.011 | 0.015 | 0.009 | 0.018 | 0.009 |
| | (1.345) | (0.726) | (1.099) | (0.092) | (1.661) | (0.888) | (1.169) | (0.707) | (1.229) | (0.620) |
| ESG | -0.586 | -1.637 | | | | | | | | |
| | (-0.577) | (-1.355) | | | | | | | | |
| ENV | | | -1.041 | -1.128 | -0.697 | -1.244 | | | | |
| | | | (-1.562) | (-1.322) | (-1.158) | (-1.571) | | | | |
| SOC | | | -0.362 | -0.396 | | | -0.726 | -0.674 | | |
| | | | (-0.528) | (-0.576) | | | (-1.109) | (-1.053) | | |
| GOV | | | 2.122** | 0.399 | | | | | 1.600* | 0.324 |
| | | | (2.122) | (0.346) | | | | | (1.737) | (0.289) |
| SC*ESG | | | 0.244 | -0.028 | 0.152 | 0.102 | | | | |
| | | | (0.575) | (-0.064) | (0.495) | (0.332) | | | | |
| SC*ENV | | | -0.036 | 0.117 | | | 0.165 | 0.116 | | |
| | | | (-0.086) | (0.282) | | | (0.446) | (0.322) | | |
| SC*SOC | | | -0.390 | 0.150 | | | | | -0.245 | 0.011 |
| | | | (-0.754) | (0.281) | | | | | (-0.711) | (0.033) |
| SC*GOV | 0.118 | 0.228 | | | | | | | | |
| | (0.217) | (0.425) | | | | | | | | |
| Constant | 0.071*** | 0.381 | 0.013 | 0.259 | 0.051** | 0.279 | 0.084*** | 0.358 | 0.038 | 0.324 |
| | (3.106) | (0.982) | (0.322) | (0.633) | (1.981) | (0.718) | (3.169) | (0.935) | (1.378) | (0.815) |
| Control | NO | YES | NO | YES | NO | YES | NO | YES | NO | YES |
| Year Dummies | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES |
| No of countries | 64 | 63 | 64 | 63 | 64 | 63 | 64 | 63 | 64 | 63 |
| $R^2$ | 0.0193 | 0.0341 | 0.0694 | 0.0442 | 0.0274 | 0.0391 | 0.0266 | 0.0282 | 0.0406 | 0.0200 |

| Panel B. Common Law Countries | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SC | 0.006 | -0.009 | 0.028 | 0.008 | 0.005 | -0.005 | 0.009 | -0.003 | 0.005 | -0.013 |
| | (0.298) | (-0.391) | (0.709) | (0.182) | (0.300) | (-0.304) | (0.572) | (-0.178) | (0.197) | (-0.471) |
| ESG | 0.501 | -0.537 | | | | | | | | |
| | (0.339) | (-0.330) | | | | | | | | |
| ENV | | | 0.700 | -0.121 | 0.626 | -0.263 | | | | |
| | | | (0.718) | (-0.101) | (0.736) | (-0.257) | | | | |
| SOC | | | -0.475 | -0.143 | | | -0.335 | -0.180 | | |
| | | | (-0.526) | (-0.140) | | | (-0.406) | (-0.206) | | |
| GOV | | | 0.071 | -0.252 | | | | | 0.659 | -0.230 |
| | | | (0.042) | (-0.138) | | | | | (0.442) | (-0.143) |
| SC*ESG | | | 0.583 | 0.489 | 0.182 | 0.310 | | | | |
| | | | (0.723) | (0.583) | (0.398) | (0.637) | | | | |
| SC*ENV | | | -0.396 | -0.278 | | | -0.152 | -0.195 | | |
| | | | (-0.672) | (-0.446) | | | (-0.336) | (-0.414) | | |
| SC*SOC | | | -0.513 | -0.226 | | | | | 0.011 | 0.189 |
| | | | (-0.688) | (-0.285) | | | | | (0.029) | (0.452) |
| SC*GOV | 0.070 | 0.279 | | | | | | | | |
| | (0.100) | (0.381) | | | | | | | | |
| Constant | 0.086** | 0.143 | 0.111* | 0.146 | 0.100*** | 0.133 | 0.098** | 0.085 | 0.079* | 0.138 |
| | (2.497) | (0.233) | (1.807) | (0.212) | (2.597) | (0.217) | (2.510) | (0.140) | (1.956) | (0.223) |
| Control | NO | YES | NO | YES | NO | YES | NO | YES | NO | YES |
| Year Dummies | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES |
| No of countries | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 |
| $R^2$ | 0.0143 | 0.106 | 0.0660 | 0.121 | 0.0356 | 0.112 | 0.0192 | 0.108 | 0.0162 | 0.106 |

| Panel C. Civil Law Countries | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SC | 0.023 | 0.014 | 0.027 | -0.004 | 0.031 | 0.016 | 0.015 | 0.007 | 0.029 | 0.011 |
| | (1.457) | (0.900) | (0.781) | (-0.101) | (1.536) | (0.728) | (0.723) | (0.357) | (1.435) | (0.528) |
| ESG | -1.284 | -2.188 | | | | | | | | |
| | (-0.940) | (-1.197) | | | | | | | | |
| ENV | | | -1.962** | -2.069* | -1.409* | -2.175* | | | | |
| | | | (-2.232) | (-1.669) | (-1.779) | (-1.856) | | | | |
| SOC | | | -0.585 | -0.547 | | | -1.257 | -0.841 | | |
| | | | (-0.576) | (-0.532) | | | (-1.316) | (-0.861) | | |
| GOV | | | 3.146** | 1.038 | | | | | 2.186* | 1.013 |
| | | | (2.522) | (0.668) | | | | | (1.863) | (0.659) |
| SC*ESG | | | 0.199 | -0.067 | 0.274 | 0.138 | | | | |
| | | | (0.383) | (-0.121) | (0.589) | (0.286) | | | | |
| SC*ENV | | | 0.261 | 0.285 | | | 0.511 | 0.417 | | |
| | | | (0.431) | (0.464) | | | (0.851) | (0.710) | | |
| SC*SOC | | | -0.406 | 0.547 | | | | | -0.715 | 0.213 |
| | | | (-0.438) | (0.555) | | | | | (-0.877) | (0.245) |
| SC*GOV | 0.452 | 0.590 | | | | | | | | |
| | (0.509) | (0.671) | | | | | | | | |
| Constant | 0.062** | 0.547 | -0.042 | 0.348 | 0.024 | 0.406 | 0.079** | 0.492 | 0.016 | 0.411 |
| | (2.092) | (1.082) | (-0.775) | (0.666) | (0.706) | (0.812) | (2.254) | (0.983) | (0.454) | (0.796) |
| Control | NO | YES | NO | YES | NO | YES | NO | YES | NO | YES |
| Year Dummies | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES |
| No of countries | 45 | 44 | 45 | 44 | 45 | 44 | 45 | 44 | 45 | 44 |
| $R^2$ | 0.0318 | 0.0450 | 0.134 | 0.0826 | 0.0564 | 0.0664 | 0.0439 | 0.0386 | 0.0613 | 0.0342 |

### 4.2 Social Capital, Globalization, and the Stock Market

To find out the interactive effect of social capital and globalization on the stock market side, we run the following regression based on the random-effect model:

$$\Delta VR_{i,t} = \beta_0 + \beta_1 \Delta SC_{i,t-1} + \beta_2 \Delta Global_{i,t-1} + \beta_3 \Delta SC_{i,t-1} \Delta Global_{i,t-1} + Control\ Term + Year\ dummy + \varepsilon_{i,t} \quad (4)$$

$$\Delta BETA_{i,t} = \beta_0 + \beta_1 \Delta SC_{i,t-1} + \beta_2 \Delta Global_{i,t-1} + \beta_3 \Delta SC_{i,t-1} \Delta Global_{i,t-1} + Control\ Terms + Year\ dummy + \varepsilon_{i,t} \quad (5)$$

where $\Delta Global$ is the increment of the KOF Globalization Index, and all other variables are the same as in Equations (2) and (3). Also, the sub-indices of the KOF Globalization Index are used: $ECON$ is the economic globalization index, $SG$ is the social globalization index, and POL is the political globalization index.

Table 4 presents the coefficient estimates on $\Delta SC_{i,t-1}$, $\Delta Global_{i,t-1}$, and $\Delta SC_{i,t-1} * \Delta Global_{i,t-1}$ from Equation (4), where the dependent variable is market efficiency. Panel A shows the regression results across all sample countries, where the estimated coefficients on $\Delta SC_{i,t-1}$ and $\Delta Global_{i,t-1}$ are found to be mostly insignificant. When the sub-indices of the globalization index are used, the coefficient estimates on $\Delta SC_{i,t-1}$ and $\Delta ECON_{i,t-1}$are consistent with our hypothesis when used without control terms. Most importantly, however, the coefficients on the interaction terms are largely contrary to the hypothesis.

The results are then divided into two sample groups: common law and civil law countries. In Panel B, the coefficients on $\Delta SC_{i,t-1}$ show statistical significance for models with the economic and political globalization indices without control terms. In Panel C for civil law countries, social capital and its interaction with globalization are insignificant throughout the panel.

In Table 5, Equation (5), with the dependent variable being market risk, is examined, and the results for $\Delta SC_{i,t-1}$ and $\Delta Global_{i,t-1}$, as well as their interaction terms, are again insignificant, contrary to our hypothesis. The coefficient estimates on the social globalization index, however, are negative and significant in Models (4) and (8), showing that the social dimension of the globalization index is highly related to mitigating stock market risks. In Panel B, the coefficient estimates are mostly insignificant, while the significant coefficient estimates on $\Delta SG_{i,t-1}$ are found again in Panel C. This pattern of significant results repeated or stronger in civil law countries is consistent with the results from Tables 2 and 3.

## Table 4. The Effect of Social Capital and Globalization on Stock Market Efficiency

This table presents the coefficient estimates and statistical significances from the following regression:

$$\Delta VR_{i,t} = \beta_0 + \beta_1 \Delta SC_{i,t-1} + \beta_2 \Delta Global_{i,t-1} + \beta_3 \Delta SC_{i,t-1} \Delta Global_{i,t-1} + Control\ Term + Year\ dummy + \varepsilon_{i,t}$$

where $\Delta VR$ is the increment of our variance ratio measure, |VR(5)-1|, $\Delta SC$ is the increment of Solability's Social Capital Index, and $\Delta Global$ is the increment of the KOF Globalization Index. Also, the sub-indices of the KOF Globalization Index are used: $ECON$ is the economic globalization index, $SG$ is the social globalization index, and POL is the political globalization index. Numbers in parentheses are the *t*-statistics, and $^{*}$, $^{**}$, and $^{***}$ denote significance at the 10%, 5%, and 1% levels, respectively.

| | (1) VR | (2) VR | (3) VR | (4) VR | (5) VR | (6) VR | (7) VR | (8) VR | (9) VR | (10) VR |
|---|---|---|---|---|---|---|---|---|---|---|
| Panel A. All Countries | | | | | | | | | | |
| SC | -0.008 | -0.010 | -0.006 | -0.010 | -0.011$^{*}$ | -0.013$^{**}$ | -0.000 | -0.005 | -0.005 | -0.008 |
| | (-1.100) | (-1.517) | (-0.844) | (-1.400) | (-1.742) | (-2.078) | (-0.056) | (-0.830) | (-0.782) | (-1.398) |
| Global | -0.005 | 0.011 | | | | | | | | |
| | (-0.245) | (0.636) | | | | | | | | |
| ECON | | | -0.032$^{**}$ | 0.002 | -0.028$^{**}$ | 0.005 | | | | |
| | | | (-2.315) | (0.121) | (-2.092) | (0.349) | | | | |
| SG | | | 0.015 | 0.004 | | | 0.012 | 0.004 | | |
| | | | (1.107) | (0.357) | | | (0.843) | (0.344) | | |
| POL | | | 0.008 | 0.007 | | | | | 0.009 | 0.009 |
| | | | (0.707) | (0.691) | | | | | (0.759) | (0.838) |
| SC$^{*}$Global | 0.007 | 0.003 | | | | | | | | |
| | (0.767) | (0.338) | | | | | | | | |
| SC$^{*}$ECON | | | 0.012$^{***}$ | 0.006 | 0.011$^{***}$ | 0.006 | | | | |
| | | | (2.724) | (1.559) | (2.602) | (1.468) | | | | |
| SC$^{*}$SG | | | -0.014$^{*}$ | -0.008 | | | -0.013 | -0.008 | | |
| | | | (-1.673) | (-0.953) | | | (-1.554) | (-0.987) | | |
| SC$^{*}$POL | | | -0.003 | -0.004 | | | | | -0.004 | -0.004 |
| | | | (-0.395) | (-0.557) | | | | | (-0.589) | (-0.683) |
| Constant | 0.005 | -0.023 | 0.007 | -0.050 | 0.009 | -0.017 | 0.001 | -0.044 | 0.004 | -0.047 |
| | (0.383) | (-0.119) | (0.579) | (-0.255) | (0.752) | (-0.087) | (0.076) | (-0.228) | (0.300) | (-0.240) |
| Control | NO | YES | NO | YES | NO | YES | NO | YES | NO | YES |
| Year Dummies | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES |
| No of countries | 65 | 63 | 65 | 63 | 65 | 63 | 65 | 63 | 65 | 63 |
| $R^2$ | 0.0104 | 0.0596 | 0.106 | 0.0895 | 0.0693 | 0.0759 | 0.0309 | 0.0614 | 0.0102 | 0.0580 |

| Panel B. Common Law Countries | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SC | -0.026* | -0.024 | -0.015 | -0.012 | -0.025** | -0.019 | -0.014 | -0.010 | -0.019* | -0.018 |
| | (-1.932) | (-1.621) | (-1.065) | (-0.777) | (-2.302) | (-1.601) | (-1.038) | (-0.665) | (-1.675) | (-1.443) |
| Global | 0.008 | 0.005 | | | | | | | | |
| | (0.246) | (0.140) | | | | | | | | |
| ECON | | | -0.045 | -0.058* | -0.024 | -0.035 | | | | |
| | | | (-1.587) | (-1.834) | (-0.929) | (-1.215) | | | | |
| SG | | | -0.017 | -0.013 | | | -0.019 | -0.020 | | |
| | | | (-0.618) | (-0.465) | | | (-0.706) | (-0.693) | | |
| POL | | | 0.039 | 0.031 | | | | | 0.040 | 0.036 |
| | | | (0.700) | (0.529) | | | | | (0.963) | (0.815) |
| SC*Global | 0.013 | 0.016 | | | | | | | | |
| | (0.573) | (0.689) | | | | | | | | |
| SC*ECON | | | 0.010 | 0.010 | 0.014 | 0.016 | | | | |
| | | | (0.651) | (0.628) | (1.093) | (1.237) | | | | |
| SC*SG | | | -0.010 | -0.010 | | | -0.008 | -0.008 | | |
| | | | (-0.606) | (-0.564) | | | (-0.606) | (-0.567) | | |
| SC*POL | | | -0.003 | 0.009 | | | | | -0.015 | -0.008 |
| | | | (-0.043) | (0.146) | | | | | (-0.364) | (-0.189) |
| Constant | 0.035 | 0.225 | 0.055** | 0.386 | 0.040* | 0.151 | 0.037 | 0.050 | 0.041* | 0.342 |
| | (1.530) | (0.509) | (2.316) | (0.856) | (1.736) | (0.359) | (1.637) | (0.113) | (1.851) | (0.791) |
| Control | NO | YES | NO | YES | NO | YES | NO | YES | NO | YES |
| Year Dummies | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES |
| No of countries | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 |
| $R^2$ | 0.125 | 0.146 | 0.277 | 0.315 | 0.146 | 0.185 | 0.126 | 0.144 | 0.184 | 0.203 |

| Panel C. Civil Law Countries | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SC | 0.002 | -0.003 | -0.001 | -0.008 | -0.002 | -0.008 | 0.007 | -0.002 | 0.004 | -0.003 |
| | (0.259) | (-0.406) | (-0.070) | (-0.985) | (-0.232) | (-0.996) | (0.834) | (-0.339) | (0.550) | (-0.388) |
| Global | -0.014 | 0.012 | | | | | | | | |
| | (-0.584) | (0.609) | | | | | | | | |
| ECON | | | -0.035** | 0.015 | -0.031** | 0.019 | | | | |
| | | | (-2.210) | (0.939) | (-1.989) | (1.205) | | | | |
| SG | | | 0.026* | 0.012 | | | 0.023 | 0.014 | | |
| | | | (1.645) | (0.823) | | | (1.451) | (1.059) | | |
| POL | | | -0.004 | -0.001 | | | | | -0.001 | -0.000 |
| | | | (-0.316) | (-0.103) | | | | | (-0.075) | (-0.033) |
| SC*Global | 0.008 | 0.001 | | | | | | | | |
| | (0.753) | (0.131) | | | | | | | | |
| SC*ECON | | | 0.012** | 0.004 | 0.010** | 0.003 | | | | |
| | | | (2.398) | (0.890) | (2.103) | (0.752) | | | | |
| SC*SG | | | -0.018 | -0.003 | | | -0.012 | -0.001 | | |
| | | | (-1.324) | (-0.247) | | | (-0.865) | (-0.106) | | |
| SC*POL | | | 0.000 | -0.002 | | | | | -0.002 | -0.002 |
| | | | (0.000) | (-0.304) | | | | | (-0.202) | (-0.321) |
| Constant | -0.010 | -0.115 | -0.008 | -0.043 | -0.005 | -0.043 | -0.014 | -0.110 | -0.012 | -0.097 |
| | (-0.665) | (-0.523) | (-0.587) | (-0.186) | (-0.391) | (-0.198) | (-0.971) | (-0.501) | (-0.827) | (-0.430) |
| Control | NO | YES | NO | YES | NO | YES | NO | YES | NO | YES |
| Year Dummies | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES |
| No of countries | 46 | 44 | 46 | 44 | 46 | 44 | 46 | 44 | 46 | 44 |
| $R^2$ | 0.0110 | 0.0357 | 0.123 | 0.0794 | 0.0718 | 0.0656 | 0.0364 | 0.0421 | 0.00575 | 0.0319 |

## Table 5. The Effect of Social Capital and Globalization on Stock Market Risk

This table presents the coefficient estimates and statistical significances from the following regression:

$$\Delta BETA_{i,t} = \beta_0 + \beta_1 \Delta SC_{i,t-1} + \beta_2 \Delta Global_{i,t-1} + \beta_3 \Delta SC_{i,t-1} \Delta Global_{i,t-1} + Control\ Term + Year\ dummy + \varepsilon_{i,t}$$

where $\Delta BETA$ is the increment of the Beta from the Fama/French Developed 5 Factors, $\Delta SC$ is the increment of Solability's Social Capital Index, and $\Delta Global$ is the increment of the KOF Globalization Index. Also, the sub-indices of the KOF Globalization Index are used: $ECON$ is the economic globalization index, $SG$ is the social globalization index, and POL is the political globalization index. Numbers in parentheses are the *t*-statistics, and $^{*}$, $^{**}$, and $^{***}$ denote significance at the 10%, 5%, and 1% levels, respectively.

| | (1) BETA | (2) BETA | (3) BETA | (4) BETA | (5) BETA | (6) BETA | (7) BETA | (8) BETA | (9) BETA | (10) BETA |
|---|---|---|---|---|---|---|---|---|---|---|
| Panel A. All Countries | | | | | | | | | | |
| SC | 0.002 | 0.000 | 0.010 | 0.007 | 0.005 | 0.003 | 0.016 | 0.013 | 0.013 | 0.009 |
| | (0.206) | (0.003) | (0.734) | (0.516) | (0.401) | (0.275) | (1.330) | (1.001) | (1.159) | (0.808) |
| Global | -0.051 | -0.035 | | | | | | | | |
| | (-1.505) | (-1.034) | | | | | | | | |
| ECON | | | -0.028 | 0.019 | -0.031 | 0.009 | | | | |
| | | | (-1.130) | (0.703) | (-1.280) | (0.354) | | | | |
| SG | | | -0.032 | -0.051** | | | -0.035 | -0.049** | | |
| | | | (-1.310) | (-2.094) | | | (-1.411) | (-2.034) | | |
| POL | | | -0.014 | -0.019 | | | | | -0.013 | -0.017 |
| | | | (-0.621) | (-0.894) | | | | | (-0.609) | (-0.808) |
| SC*Global | 0.032* | 0.029* | | | | | | | | |
| | (1.914) | (1.761) | | | | | | | | |
| SC*ECON | | | 0.014* | 0.006 | 0.015* | 0.008 | | | | |
| | | | (1.817) | (0.768) | (1.869) | (0.998) | | | | |
| SC*SG | | | -0.014 | -0.007 | | | -0.009 | -0.003 | | |
| | | | (-0.917) | (-0.445) | | | (-0.597) | (-0.226) | | |
| SC*POL | | | 0.015 | 0.017 | | | | | 0.014 | 0.017 |
| | | | (1.125) | (1.380) | | | | | (1.038) | (1.366) |
| Constant | 0.076*** | 0.385 | 0.079*** | 0.398 | 0.076*** | 0.365 | 0.072*** | 0.324 | 0.071*** | 0.393 |
| | (3.568) | (1.011) | (3.586) | (1.038) | (3.507) | (0.951) | (3.352) | (0.853) | (3.322) | (1.022) |
| Control | NO | YES | NO | YES | NO | YES | NO | YES | NO | YES |
| Year Dummies | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES |
| No of countries | 65 | 63 | 65 | 63 | 65 | 63 | 65 | 63 | 65 | 63 |
| $R^2$ | 0.0422 | 0.0445 | 0.0683 | 0.0829 | 0.0418 | 0.0320 | 0.0285 | 0.0522 | 0.0201 | 0.0353 |

| Panel B. Common Law Countries | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SC | 0.003 | -0.005 | 0.012 | 0.003 | 0.008 | -0.003 | 0.010 | -0.002 | 0.002 | -0.008 |
| | (0.182) | (-0.254) | (0.559) | (0.136) | (0.499) | (-0.190) | (0.498) | (-0.075) | (0.096) | (-0.442) |
| Global | -0.066 | -0.044 | | | | | | | | |
| | (-1.369) | (-0.839) | | | | | | | | |
| ECON | | | -0.016 | 0.004 | -0.030 | -0.006 | | | | |
| | | | (-0.373) | (0.094) | (-0.771) | (-0.132) | | | | |
| SG | | | -0.044 | -0.043 | | | -0.040 | -0.035 | | |
| | | | (-1.056) | (-0.987) | | | (-1.019) | (-0.858) | | |
| POL | | | -0.119 | -0.101 | | | | | -0.073 | -0.058 |
| | | | (-1.398) | (-1.142) | | | | | (-1.192) | (-0.920) |
| SC*Global | 0.015 | 0.010 | | | | | | | | |
| | (0.462) | (0.307) | | | | | | | | |
| SC*ECON | | | -0.014 | -0.014 | 0.004 | 0.000 | | | | |
| | | | (-0.591) | (-0.569) | (0.191) | (0.020) | | | | |
| SC*SG | | | -0.018 | -0.017 | | | -0.001 | -0.001 | | |
| | | | (-0.728) | (-0.641) | | | (-0.048) | (-0.066) | | |
| SC*POL | | | 0.115 | 0.097 | | | | | 0.053 | 0.046 |
| | | | (1.237) | (1.001) | | | | | (0.889) | (0.743) |
| Constant | 0.096*** | 0.019 | 0.092** | -0.079 | 0.097*** | 0.103 | 0.097*** | 0.023 | 0.082** | 0.025 |
| | (2.985) | (0.031) | (2.547) | (-0.116) | (2.889) | (0.171) | (2.954) | (0.037) | (2.537) | (0.040) |
| Control | NO | YES | NO | YES | NO | YES | NO | YES | NO | YES |
| Year Dummies | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES |
| No of countries | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 |
| $R^2$ | 0.0635 | 0.120 | 0.110 | 0.164 | 0.0271 | 0.100 | 0.0395 | 0.121 | 0.0601 | 0.126 |

| Panel C. Civil Law Countries | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SC | 0.006 | 0.004 | 0.008 | 0.008 | 0.004 | 0.004 | 0.018 | 0.017 | 0.017 | 0.014 |
| | (0.361) | (0.241) | (0.455) | (0.481) | (0.240) | (0.237) | (1.195) | (1.087) | (1.151) | (0.939) |
| Global | -0.040 | -0.025 | | | | | | | | |
| | (-0.867) | (-0.544) | | | | | | | | |
| ECON | | | -0.029 | 0.044 | -0.031 | 0.030 | | | | |
| | | | (-0.927) | (1.202) | (-1.003) | (0.838) | | | | |
| SG | | | -0.033 | -0.070** | | | -0.034 | -0.062** | | |
| | | | (-1.077) | (-2.234) | | | (-1.091) | (-2.052) | | |
| POL | | | -0.003 | -0.009 | | | | | 0.002 | -0.007 |
| | | | (-0.105) | (-0.350) | | | | | (0.059) | (-0.248) |
| SC*Global | 0.034* | 0.029 | | | | | | | | |
| | (1.726) | (1.482) | | | | | | | | |
| SC*ECON | | | 0.019** | 0.006 | 0.016* | 0.007 | | | | |
| | | | (1.968) | (0.585) | (1.776) | (0.703) | | | | |
| SC*SG | | | -0.037 | -0.020 | | | -0.021 | -0.013 | | |
| | | | (-1.331) | (-0.716) | | | (-0.778) | (-0.495) | | |
| SC*POL | | | 0.012 | 0.014 | | | | | 0.009 | 0.013 |
| | | | (0.790) | (0.969) | | | | | (0.642) | (0.948) |
| Constant | 0.067** | 0.496 | 0.069** | 0.680 | 0.067** | 0.570 | 0.061** | 0.516 | 0.063** | 0.476 |
| | (2.450) | (0.994) | (2.468) | (1.328) | (2.426) | (1.129) | (2.213) | (1.050) | (2.296) | (0.928) |
| Control | NO | YES | NO | YES | NO | YES | NO | YES | NO | YES |
| Year Dummies | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES |
| No of countries | 46 | 44 | 46 | 44 | 46 | 44 | 46 | 44 | 46 | 44 |
| $R^2$ | 0.0450 | 0.0527 | 0.0896 | 0.126 | 0.0493 | 0.0495 | 0.0317 | 0.0762 | 0.0248 | 0.0434 |

## 5. Conclusion

This study seeks to address a significant gap in the literature by exploring how social capital and economic progress jointly impact stock market quality on an international scale. The first hypothesis suggests that the combined effect of social capital and CSR, our internal progress measure, contributes to enhancing multiple dimensions of the stock markets. We posit that higher social capital and CSR interactively reduce financial risks and improve market efficiency. Our second hypothesis explores an additional role of globalization, together with social capital, in improving stock market efficiency and mitigating risks, considering globalization as a key external economic progress factor. Finally, our third hypothesis proposes that the extent and significance of this improvement may differ between common law and civil law countries. By examining legal systems as a factor influencing the interactive impact between social capital and economic progress, the study aims to provide insights into potential variations across different legal systems.

For a comprehensive empirical examination, this research employs various proxies for CSR, social capital, and globalization, including an aggregate index from the Sovereign ESG Data Portal, Solability's Social Capital Index, and the KOF Globalization Index, respectively. Our empirical analysis finds that there is an interactive effect between social capital and the corporate governance dimension of CSR to improve stock market risk and efficiency. Such a relationship is more pronounced in civil law countries but not in common law countries, suggesting that both social capital and CSR may complement the weak legal system in civil law countries via social trust building or policy changes effectively enabled by small elite groups. While CSR is found to interact with social capital, no evidence is found to confirm an interaction between social capital and globalization in the stock market.

This manuscript contributes to the existing literature by shedding light on the synergies between socially responsible behaviors and social capital, providing valuable insights for academics, practitioners, and policymakers. In particular, this study finds that the governance component of CSR interacts with social capital in improving stock market efficiency. These findings have the potential to inform strategic decision-making in both the private and public sectors, emphasizing the importance of social capital and CSR in shaping the quality of global stock markets.

The interpretation of our results should be approached with caution, as it may be influenced by the duration of the data span, the choice of key variable proxies—such as social capital, globalization index, and CSR—and the methodological robustness of our analysis. Despite such matters related to data and methodology, this study provides valuable insights into the significance of social capital as a crucial form of intangible capital within the socioeconomic context. In future research, we could add greater value to the literature by refining the dataset, proxies, and methodology, as well as by exploring the role of social capital in additional areas of financial markets, including financial market development, credit ratings, cost of capital, and initial public offerings (IPO) and seasoned equity offerings (SEO).

## References


Attig, N., El Ghoul, S., Guedhami, O., and Suh, S. (2013) "Corporate Social Responsibility and Credit Ratings" *Journal of Business Ethics* 117, 679-694.

Baron, D., M. Harjoto and Jo, H. (2011) "The Economics and Politics of Corporate Social Performance" *Business and Politics* 13, 1-46.

Boutin-Dufresne, F., and Savaria, P. (2004) "Corporate Social Responsibility and Financial Risk" *Journal of Investing* 13, 57–66.

Breuer, W., Müller, T., Rosenbach, D., & Salzmann, A. (2018) "Corporate Social Responsibility, Investor Protection, and Cost of Equity: A Cross-country Comparison" *Journal of Banking & Finance* 96, 34-55.

Cheng, M. Y., and Mittelhammer, R. (2008) "Globalization and Economic Development: Impact of Social Capital and Institutional Building" *American Journal of Economics and Sociology* 67, 859–888.

Coleman, James S. (1990) "Foundations of Social Theory" *Cambridge, MA: Harvard University Press*.

Cui, J., Jo, H., and Na, H. (2018) "Does Corporate Social Responsibility Affect Information Asymmetry?" *Journal of Business Ethics* 148, 549-572.

Dasgupta, P. (2000) "Economic Progress and the Idea of Social Capital" *Social capital: A multifaceted perspective* 325-424.

Deng, X., Kang, J. K., and Low, B. S. (2013) "Corporate Social Responsibility and Stakeholder Value Maximization: Evidence from Mergers" *Journal of financial Economics* 110 87-109.

Dhaliwal, D., Oliver, L., Tsang, A., and Yang, Y. (2011) "Voluntary Nonfinancial Disclosure and the Cost of Equity Capital: The Initiation of Corporate Social Responsibility Reporting" *Accounting Review* 86, 59-100.

Dhaliwal, D., Radhakrishnan, S., Tsang, A., and Yang, Y. (2012) "Nonfinancial Disclosure and Analyst Forecast Accuracy: International Evidence on Corporate Social Responsibility (CSR) Disclosure" *Accounting Review* 87(3), 723-759.

Dreher, A., (2006) "Does Globalization Affect Growth? Evidence from a New Index of Globalization" *Applied Economics* 38(10), 1091-1110.

Dreher, A., Gaston, N. and Martens, P. (2008) "Measuring Globalisation. Gauging its consequences" *New York: Springer*.

Egan, M. L., and Mody, A. (1992) "Buyer-seller links in export development" *World development* 20(3), 321-334.

El Ghoul, S., O. Guedhami, C. Kwok, and D. Mishra. (2011) "Does Corporate Social Responsibility Affect the Cost of Capital?" *Journal of Banking and Finance* 35(9), 2388-2406.

Fama, E. F. (1970) "Efficient Capital Markets" *Journal of Finance* 25(2), 383-417.

Farah, T., Li, J., Li, Z., and Shamsuddin, A. (2021) "The Non-linear Effect of CSR on Firms' Systematic Risk: International Evidence" *Journal of International Financial Markets Institutions and Money* 71, 101288.

Fieseler, C. (2011) "On the Corporate Social Responsibility Perceptions of Equity Analysts" *Business Ethics: A European Review* 20(2), 131-147.

Fukuyama, F. (2002) "Social Capital and Development" *SAIS Review* (1989-2003) 22(1), 23-37.

Gillan, S. L., Koch, A., and Starks, L. T. (2021) "Firms and Social Responsibility: A Review of ESG and CSR Research in Corporate Finance" *Journal of Corporate Finance* 66, 101889.

Godfrey, P. C. (2005) "The Relationship Between Corporate Philanthropy and Shareholder Wealth: A Risk Management Perspective" *Academy of Management Review* 30, 777–798.

Godfrey, P. C., Merrill, C., and Hansen, J. (2009) "The Relationship Between Corporate Social Responsibility and Shareholder Value: An Empirical Test of the Risk Management Hypothesis" *Strategic Management Journal* 30(4), 425–445.

Guiso, L., Sapienza, P., and Zingales, L. (2004) "The Role of Social Capital in Financial Development" *American Economic Review* 94(3), 526-556.

Gupta, A., Raman, K., and Shang, C. (2018) "Social Capital and The Cost of Equity" *Journal of Banking & Finance* 87, 102-117.

Gygli, S., Haelg, F., Potrafke, N. and Sturm, J.E., (2019) "The KOF Globalisation Index – Revisited" *The Review of International Organizations* 14(3), 543-574.

Hail, L., and Leuz, C. (2006) "International Differences in The Cost of Equity Capital: Do Legal Institutions and Securities Regulation Matter?" *Journal of accounting research* 44(3), 485-531.

Halabi, A. K., and Samy, M. (2009) "Corporate Social Responsibility (CSR) Reporting: A Study of Selected Banking Companies in Bangladesh" *Social Responsibility Journal* 5(3), 344-357.

Hasan, M. M., and Habib, A. (2019) "Social Capital and Idiosyncratic Return Volatility" *Australian Journal of Management* 44(1), 3-31.

Hong, H., and Kacperczyk, M. (2009) "The Price of Sin: The Effects of Social Norms on Markets" *Journal of Financial Economics* 93, 15-36.

Huang, K., and Shang, C. (2019) "Leverage, Debt Maturity, and Social Capital" *Journal of Corporate Finance* 54, 26-46.

Ioannou, I., and Serafeim, G. (2015) "The Impact of Corporate Social Responsibility on Investment Recommendations: Analysts' Perceptions and Shifting Institutional Logics" *Strategic Management Journal* 36(7), 1053-1081.

Jensen, M. C., and Meckling, W. H. (1976) "Theory of The Firm: Managerial Behavior, Agency Costs and Ownership Structure" *Journal of financial economics* 3(4), 305-360.

Jha, A., and Cox, J. (2015) "Corporate Social Responsibility and Social Capital" *Journal of Banking & Finance* 60, 252-270.

Jirasakuldech, B., Dudney, D. M., Zorn, T. S., and Geppert, J. M. (2011) "Financial Disclosure, Investor Protection and Stock Market Behavior: An International Comparison" *Review of Quantitative Finance and Accounting* 37, 181-205.

Jo, H., and Harjoto, M. (2011) "Corporate Governance and Firm Value: The Impact of Corporate Social Responsibility" *Journal of Business Ethics* 103(3), 351-383.

Jo, H., and Harjoto, M. (2012) "The Causal Effect of Corporate Governance on Corporate Social Responsibility" *Journal of Business Ethics* 106(1), 53-72.

Karemera, D., K. Ojah, and J. Cole. (1999) "Random Walks and Market Efficiency Tests: Evidence from Emerging Equity Markets" *Review of Qualitative Finance and Accounting* 13, 171-188, 1999.

Kranton, R. E. (1996) "Reciprocal Exchange: A Self-Sustaining System" *The American Economic Review*, 830-851.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A. and Vishny, R.W. (1998) "Law and Finance" *Journal of Political Economy* 106(6), 1113-1155.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A. and Vishny, R. (2000) "Investor Protection and Corporate Governance" *Journal of Financial Economics* 58(1-2), 3-27.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A. and Vishny, R. (2002) "Investor Protection and Corporate Valuation" *The Journal of Finance* 57(3), 1147-1170.

La Porta, R., Lopez-de-Silanes, F. and Shleifer, A. (2008) "The Economic Consequences of Legal Origins" *Journal of Economic Literature* 46(2), 285-332.

Lee, D. D., and Faff, R. W. (2009) "Corporate Sustainability Performance and Idiosyncratic Risk: A Global Perspective" *Financial Review* 44, 213–237.

Lo, A. and C. MacKinlay, (1988) "Stock Market Prices Do Not Follow Random Walks: Evidence from A Simple Investigation" *Review of Financial Studies*, 17-45.

Margolis, J., and Walsh, J. (2003) "Misery Loves Companies: Rethinking Social Initiatives by Business" *Administrative Science Quarterly* 48, 268-305.

McWilliams, A., and Siegel, D. (2001) "Corporate Social Responsibility and Firm Financial Performance: Correlation or Misspecification?" *Strategic Management Journal* 21, 603-609.

Monti, A., Pattitoni, P., Petracci, B., and Randl, O. (2022) "Does Corporate Social Responsibility Impact Equity Risk? International Evidence" *Review of Quantitative Finance and Accounting* 59, 825–855.

Oikonomou, I., Brooks, C., and Pavelin, S. (2012) "The Impact of Corporate Social Performance on Financial Risk and Utility: A Longitudinal Analysis" *Financial Management* 41(2), 483-515.

Orlitzky, M., and Benjamin, J. (2001) "Corporate Social Responsibility and Firm Risk: A Meta-Analytic Review" *Business and Society* 40(4), 369–396.

Orlitzky M., Schmidt F., and Rynes S. (2003) "Corporate Social and Financial Performance: A Meta Analysis" *Organizational Studies* 24, 403–441.

Paldam, M. (2000) "Social Capital: One or Many? Definition and Measurement" *Journal of economic surveys* 14(5), 629-653.

Rajan, R.G. and Zingales, L., (2003) "The Great Reversals: The Politics of Financial Development in The Twentieth Century" *Journal of Financial Economics* 69(1), 5-50.

Rauch, J. E. (1996) "Trade and Search: Social Capital, Sogo Shosha, and Spillovers"

Rauch, J. E. (1999) "Networks versus Markets in International Trade" *Journal of international Economics* 48(1), 7-35.

Sharfman, M. P., and Fernando, C. S. (2008) "Environmental Risk Management and The Cost of Capital" *Strategic Management Journal* 29, 569–592.