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Article abstract

This paper investigates the relationship between institutional cross-ownership and corporate social responsibility and whether product market competition moderates this relationship. Based on a sample of French firms over 2001–2015, we found that institutional cross-ownership positively affects corporate social responsibility. Our finding suggests that the monitoring experience gained by institutional cross-owners leads them to increase corporate social responsibility by fostering industry coordination between cross-owned firms. This positive effect is less likely in highly competitive product markets which advocates that competitive pressure may make industry coordination more difficult. Cross-owned firms may then prioritize maintaining a profitable margin over pursuing corporate social responsibility activities.

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ABSTRACT

This paper investigates the relationship between institutional cross-ownership and corporate social responsibility and whether product market competition moderates this relationship. Based on a sample of French firms over 2001–2015, we found that institutional cross-ownership positively affects corporate social responsibility. Our finding suggests that the monitoring experience gained by institutional cross-owners leads them to increase corporate social responsibility by fostering industry coordination between cross-owned firms. This positive effect is less likely in highly competitive product markets which advocates that competitive pressure may make industry coordination more difficult. Cross-owned firms may then prioritize maintaining a profitable margin over pursuing corporate social responsibility activities.

Keywords: Institutional cross-owners, Corporate social responsibility, Product market competition

JEL Classification: G30, G34, G23, M14

Résumé

Cet article étudie l'effet des investisseurs institutionnels à propriété commune sur la responsabilité sociétale des entreprises (RSE) et l'influence de la concurrence sur les marchés de produits. Sur la base d'un échantillon d'entreprises françaises entre 2001 et 2015, nos résultats empiriques montrent que ces investisseurs ont un impact positif sur l'engagement RSE de l'entreprise. L'expérience de contrôle et de monitoring acquises les amènent à favoriser la coordination industrielle entre entreprises à participations communes, accentuant ainsi les initiatives de RSE. Cependant, cet effet est moins prononcé dans les secteurs d'activité très concurrentiels, où la pression rend la coordination industrielle plus difficile. Dans ces conditions, les entreprises à propriété commune sont enclines à privilégier la profitabilité au détriment des initiatives de RSE.

Mots-clés : Investisseurs institutionnels à participation multiple, Responsabilité sociétale des entreprises, Concurrence sur les marchés de produits.

Classement JEL: G30, G34, G23, M14

Resumen

Este artículo analiza el efecto de los inversores institucionales de amplia participación sobre la responsabilidad corporativa y si la competencia en el mercado modera esta relación. Basado en una muestra de empresas francesas entre 2001 y 2015, se descubrió que estos inversores tienen un impacto positivo en la responsabilidad social corporativa. Los resultados sugieren que la experiencia de monitoreo adquirida por estos inversores fomenta la coordinación industrial entre empresas de propiedad común, aumentando la responsabilidad social. Sin embargo, este efecto positivo es menos probable en mercados altamente competitivos, donde la presión dificulta la coordinación. En estos casos, las empresas de amplia participación pueden priorizar mantener un margen de beneficio antes que enfocarse en actividades de responsabilidad social.

Palabras Clave: Inversores institucionales de amplia participación, Responsabilidad social corporativa, Competencia en el mercado de productos

Clasificación JEL: G30, G34, G23, M14

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Corporate social responsibility (CSR), which refers to firm actions that go above and beyond the interests of the firm to further the social good (McWilliams and Siegel, 2001), has become a basic component of the way that firms run their business. According to the KPMG report (2017), 55% of firms around the world look beyond purely financial performance to achieve the long-term success and sustainability of their business[1]. The Bloomberg Intelligence report shows that global social investing assets have risen to $30.6 trillion out of $22.8 trillion over 2016-2018[2]. Existing studies show that CSR offers numerous advantages regardless of size or sector. The benefits of CSR include higher firm valuation (El Ghoul *et al.*, 2017), higher productivity (Hasan *et al.*, 2016), higher competitive advantage (Hillman and Keim, 2001), lower cost of capital (El Ghoul *et al.*, 2011), better credit rating (Attig *et al.*, 2013), and better earning quality (Kim *et al.*, 2012). Given these benefits, institutional investors have progressively included CSR practices into their investment decisions and their firm monitoring (Dyck *et al.*, 2019).

Previous studies on CSR engagement of institutional investors in France (e.g., Ducassy and Montandrau, 2015) have given little consideration to the institutional cross-ownership, a unique type of institutional ownership, and to the interactions within their portfolio of cross-owned rival firms. Firms are assumed to be independent, and their CSR practices are not tied to the conduct of their cross-owned rival firms in the portfolio. According to Park *et al.* (2019), institutional cross-owners (ICOs) are defined as investors holding significant concomitant stakes in firms competing within the same industry, while non-cross-owners hold stakes in a single firm in a given industry. He and Huang (2017) consistently define institutional cross-ownership as the simultaneous holding of stock in two or more same-industry firms by the same institutional investor. For the past few years, ICOs, also known as common owners, have constantly monitored firms both within and outside the US. The average of institutional cross-ownership in France stood at 25% in 2017 (Burnside and Kidane, 2020). In the US, institutional cross-ownership has shifted from 10% in 1980 to 20% in 2014 (He and Huang, 2017). According to the KPMG report (2020), ICOs own 41% of the global market capitalization in 2020, 72% in the US and 63% in the UK. Thus, the institutional cross[3]-ownership' phenomenon is not only a characteristic of the US; it covers European countries as well (Posner *et al.*, 2016; Burnside and Kidane, 2020).

In response to the ongoing growth in popularity of institutional cross-ownership, researches on this topic are gaining more attention. They show that, relative to institutional investors that do not hold rivals, ICOs have greater incentives to monitor management (Kang *et al.*, 2018), reduce competition among rivals in their portfolio (Azar *et al.*, 2018), facilitate industry coordination among rivals (He and Huang, 2017), and internalize negative externalities related to ESG and competitive pressure among peers, to maximize the overall value of their portfolio (He *et al.*, 2019). Despite the ubiquity of ICOs, there has been little discussion thus far on its implications for stakeholders, such as employees, community, and society at large.

The primary objective of this study is to narrow this gap by providing empirical evidence on the relationship between the institutional cross-ownership and CSR policy. Within the framework of ICOs portfolio value maximization, there are two potential perspectives of this relationship. ICOs can have both beneficial and unfavorable effects on CSR. *The anticompetitive perspective* implies that ICOs could lower the CSR investment of cross-owned rival firms in their portfolio via an anti-competitive behavior (Azar *et al.*, 2018). By doing so, they internalize the negative externalities among peers, related to corporate ESG and industry competition (He *et al.*, 2019), thereby maximizing overall portfolio value. Existing studies show that CSR investment is a key differentiation strategy in highly competitive environment (Flammer, 2015). Such competitive advantage is not particularly sought by ICOs as they have the ability to temper competition (Cheng *et al.*, 2021). *The industry coordination perspective,* however, postulates that ICOs may use their industry knowledge and governance expertise in a way that satisfy all stakeholders interests (Fu and Qin, 2022) by facilitating coordination among rival firms in their portfolio. While individual CSR initiatives are costly and may lead to free-rider problems (Serafeim, 2018), cooperation in CSR activities among cross-owned firms can be economically efficient and beneficial for all competing firms (Cheng *et al.*, 2021; Fu and Qin, 2022).

We also investigate the moderating role of product market competition on this relationship. The extant literature emphasizes that competition is a strongly effective external corporate governance device (Tian and Twite, 2011). We choose to focus on this mechanism due to the relative weakness of the institutional and legal environment in France (see world bank report, 2019)[4] from one side; and the potential anticompetitive conduct of ICOs (Azar *et al.*, 2018) on the other side.

Based on a sample of French listed firms operating in various industries (SIC code 1021 to 8742) over 15- years (2001–2015), we found that institutional cross-ownership has a positive effect on CSR. This result suggests that ICOs can potentially leverage their monitoring experience to promote coordination and best practices among their portfolio of companies. This can lead to improved CSR practices across the industry as a whole. The positive effect of ICOs on CSR is less likely in highly competitive product

1. See the report at: https://home.kpmg/xx/en/home/insights/2017/10/the-kpmg-survey-of-corporate-responsibility-reporting-2017.html

2. Please consult: https://www.bloomberg.com/professional/blog/esg-assets-may-hit-53-trillion-by-2025-a-third-of-global-aum/.

3. See the report at: https://assets.kpmg/content/dam/kpmg/uk/pdf/2020/01/common-ownership-and-competition.pdf

4. The World Bank's (2019) "Doing Business" report reveals weaknesses in investor protection in the French context (See the report at: https://www.worldbank.org/content/dam/doingBusiness/media/Annual-Reports/English/DB2019-report_web-version.pdf).

markets. This result indicates that in highly competitive product markets, the industry coordination difficulties and the need to maintain a profitable margin, may act as constraints on the ICOs' incentives to engage in CSR activities.

Our study provides several contributions to the literature. First, our study enriches previous studies on the importance of CSR for listed corporations. For instance, the study conducted by Broji *et al.* (2022) highlights the importance of integrating environmental, social, and governance (ESG) factors into credit risk assessment to foster sustainable growth and align with the growing demands from regulators and investors. Moreover, Liu *et al.* (2021) show that CSR performance helps firms boost the positive image of a "good citizen" and reduce firm financial risk. It also raises the potential for increased financial risk when combined with imitative innovation. We complement these studies by showing that ICOs carry these CSR activities in cross-owned firms through industry coordination, which is an interesting contribution to the field and highlights the role that ICOs can play in promoting sustainable business practices. Second, our findings supplement the literature on the relationship between ICOs and CSR by showing that the effectiveness of ICOs in driving CSR is more pronounced in a context of low degree of competition. In such context, ICOs may find it easier to coordinate actions among cross-owned rival firms to generate better overall value from CSR activities. To the best of our knowledge, this is the first study to examine the moderating effect of industry competition on the relationship between ICOs and CSR, which makes it a timely contribution to this field. Third, we add to previous studies on the relationship between ICOs and CSR (e.g., Cheng *et al.*, 2021) by focusing on the French setting, which constitutes a suitable laboratory for investigating the role of ICOs in CSR policies. The French equity market participants have witnessed the rising power of ICOs over the past three decades (Burnside and Kidane, 2020, Nizar *et al.*, 2023). ICOs with at least 5% stake monitored 30% of French companies in 2016 (European commission, 2020[5]). Besides, institutional cross-ownership is not regulated in France and continues to receive increasing attention from academic and media[6].

The remainder of this study is organized as follows. Section 2 reviews the existing literature on the impact of institutional cross-ownership on CSR in the context of industry competition and develops the research hypotheses. Section 3 describes the data, sample selection, and model specifications. Section 4 presents the empirical evidence. Section 5 concludes the paper.

Literature Review and Hypotheses Development

This literature review addresses two areas of investigation: the power of ICOs to affect managerial policy, particularly in terms of CSR policies, and the role played by the competitive landscape in moderating the ICOs direct and indirect influence process.

Institutional Cross-ownership and Corporate Social Responsibility

The adoption of a CSR approach should become a mainstream cultural aspect of all corporate behavior, which requires socially conscious managers (Carroll, 2021). Within a general framework, the question asked is the integration of societal considerations into business practices. This central issue is a part of the stakeholder theory that covers the key responsibilities of a company. This theory claims that firms should operate in the interest of all stakeholders (Freeman, 1984) and focuses mainly on the value creation for owners, as well as for customers, suppliers, employees, investors, and communities (Hasan *et al.*, 2016). This so-called societal conscious remains however under the influence of shareholders and board of directors (Dyck *et al.*, 2019; Kim *et al.*, 2019). This theory is contrasting with the older theory of Friedman (1970) which argues that socially responsible conduct can be costly for shareholders and beneficial only for public interests.

In a common ownership setting, Lewellen and Lewellen (2022) indicate that ICOs have strong incentives to influence corporate decisions, but the debate on how they affect underlying corporations is still ongoing. Understanding the channels through which ICOs can affect CSR is critical for companies, investors, and other stakeholders seeking to promote sustainable and responsible business practices. Existing research shows that ICOs are good corporate monitors (Edmans *et al.*, 2019), able to influence corporate strategy and decisions (Schmalz, 2018). According to Posner *et al.* (2016), ICOs can directly communicate with CEOs, direct their incentives through their privileged access, review executive compensation and evaluate a company's broad strategic direction, thereby contributing to better management and governance. The authors show that 63% of respondents (ICOs) over 2011-2016 had engaged in direct discussions with management and 45% had private discussions with the corporate board.

Focusing on CSR as a firm strategy, ICOs can have a significant impact on it through a variety of channels, including, the proxy of voting and pressure. First, ICOs can use their cross-ownership to vote in a coordinated way on shareholder proposals related to ESG issues (Eding and Scholtens, 2017). Second, ICOs may be able to leverage the collective power of their positions to exert pressure on companies in order to adopt/or abandon CSR initiatives that align with their values and interests. Specifically, ICOs pursue value maximization strategy of their portfolio composed of industry competitors (Edmans *et al.*, 2019). To this end, and as developed by Cheng *et al.* (2021), ICOs can use a number of levers according to the competitive environment: reducing competition among portfolio of cross-owned firms, or industry coordination strategy, to affect the level of CSR activities within investee firms. From the perspective of maximizing portfolio value, two dominant and contrasting perspectives can explain the effect of ICOs on CSR.

The ***anticompetitive perspective*** advocates a negative effect of ICOs on CSR. ICOs are inclined to adopt an anti-competitive behavior by lessening intra-industry competition, which permits them to decrease CSR engagement of peers' firms in their portfolio (Azar *et al.*, 2018). In doing so, they maximize total portfolio value (Gordon, 2003) by internalizing externalities among peers, related to corporate ESG and industry competition (He *et al.*, 2019). Existing literature considers CSR as a differentiation strategy to achieve competitive advantage over rivals in a highly competitive industry (Flammer, 2015). However, ICOs seek to reduce competition among portfolio of cross-owned firms, so they have fewer incentives to gain competitive advantage through CSR investment (Cheng *et al.*, 2021). Furthermore, it is in the best interest of ICOs to shun CSR activities if they generate negative externalities among cross-owned firms (He *et al.*, 2019). For example, cross-owned firms may imitate a CSR strategy of a leader firm to remain competitive faced with such peers' effects (Cao *et al.*, 2019). While some leaders in terms of CSR strategy may benefit from engaging in CSR activities as a competitive advantage, peers' pressure

5. See the report at: https://publications.jrc.ec.europa.eu/repository/handle/jrc121476.

6 See the report at: http://www.revue-banque.fr/banque-investissement-marches-gestion-actifs/chronique/propriete-commune-des-investisseurs-instituti

may incur negative externalities that can be value-decreasing to imitative firms. Collectively, such peer-driven CSR implementations may have negative effects on the portfolio value of ICOs (Cheng *et al.*, 2021). In this regard, ICOs seek to mitigate such negative externalities resulting in inferior CSR performance of cross-owned firms. This channel of reasoning leads us to formulate our first hypothesis.

H1a: Institutional cross-owners negatively affect corporate social responsibility.

The ***industry coordination perspective*** proposes an opposite direction on the effect of ICOs on CSR. Cross-ownership can lead to a more aligned set of incentives and interests among stakeholders, encouraging companies to prioritize long-term value creation and social responsibility initiatives (Fu and Qin, 2022). When institutional investors have common ownership, they are better able to monitor their companies' behavior and hold them accountable for their CSR practices (Fu *et al.*, 2022). Specifically, cross-ownership provides ICOs information advantages and enables them to accumulate industry specific knowledge as well as collaboration and monitoring experience (Kang *et al.*, 2018). ICOs may use their abilities and governance expertise to foster CSR performance policy through an industry coordination strategy between competing firms in their portfolio (Cheng *et al.*, 2021). In contrast to individual CSR initiatives, which can be costly and result in free-rider problems (Serafeim, 2018), cooperative CSR strategies among cross-owned firms can be economically efficient and advantageous to all businesses in an industry (Cheng *et al.*, 2021; Fu *et al.*, 2022). In this perspective, the industry coordination perspective asserts that ICOs, adopting prosocial behavior, may leverage their abilities and expertise to facilitate coordination across cross-owned firms, satisfying all stakeholders interests (Cheng *et al.*, 2021). Based on the preceding discussion, we propose the following assumption.

H1b: Institutional cross-owners positively affect corporate social responsibility.

The Moderating Effect of Product Market Competition

Introducing industry competitive dimension in the analysis is a part of the contextualization of the role of ICOs in terms of CSR policies. As a strong external market discipline (Flammer, 2015; Tian and Twite, 2011), product market competition can moderate the relationship between ICOs and CSR investment. This analysis is legitimized by two main factors: First, the institutional and legal framework in France is very weak. Second, there may be an anti-competitive behavior by ICOs.

Two arguments can then explain the hypothesis suggesting that industry competition may negatively moderate the relationship between ICOs and CSR. From a market structure and strategic management perspective, firms operating in highly competitive industries have lower profit margin compared to their counterparts (Porter, 2008; Boubaker *et al.*, 2018). Since product market competition puts pressure on firm's profit margins (Flammer, 2015), ICOs may lack the financial slack to engage in CSR activities. According to Cheng *et al.* (2021), firms with low slack in financial resources will have less flexibility to invest in CSR. CSR investment may further lead to financial distress especially in highly competitive environments (Flammer, 2015).

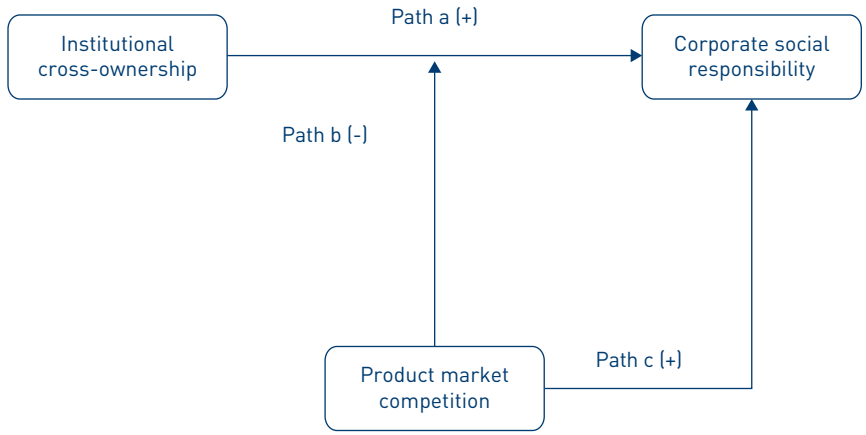
In a common ownership setting and portfolio value maximization strategy, ICOs face significant difficulties in coordinating cross-owned firms' actions within a highly competitive environment. Consequently, they are less willing to invest in CSR (Cheng *et al.*, 2021) and such behavior is consistent with the limited attention argument developed by Kang *et al.* (2018). The latter documented that limited attention reduce ICOs governance expertise and coordination abilities.

The preceding discussion suggests that industry competition is an important factor in explaining firm behavior and may influence the relationship between ICOs and CSR. As a moderating variable, product market competition can change the direction of the relationship between ICOs and CSR from positive to negative. We formally present the following hypothesis.

H2: The effect of institutional cross-owners on corporate social responsibility is negatively affected by industry competition.

FIGURE 1
Path Diagram for Moderation

This figure displays the conceptual model in which the effect of institutional cross-owners on CSR is moderated by product market competition. The conceptual model is in the form of a path (a, b, c) model. CSR is the average of firms' environmental and social performance. Institutional cross-ownership is the percentage of shares held by institutional cross-owners. Product market competition is the moderator, equals one if HHI sales is below the sample median and zero otherwise.



Research Design

Sample and Data

Table 1 (Panel A) reports the sample selection procedure. We began with all French-listed companies that belong to the SBF120 index over the period 2001-2015. The SBF120 (Société des Bourses Françaises 120 Index) is a French stock market index based on the 120 most actively traded stocks listed in Paris. Including such a broad number of the

largest French equities, the performance of this index is an equity portfolio performance benchmark. We restricted our sample to non-financial firms (Standard Industrial Classification (SIC) codes between 6000 and 6999), because financial firms are governed by accounting standards that are totally distinct from non-financial firms. Firms for which information was lacking were withdrawn from the initial sample. This selection procedure resulted in a final sample of 82 French firms. Data was collected from various sources. We obtain the CSR performance from Thomson Reuters Asset 4 database, which provides ESG rating worldwide[7]. Thomson Reuters Asset 4 database contains scores on a wide range of CSR related pillars. The environmental pillar (E) includes the resource use, emissions, and innovation. The social pillar (S) contains the workforce, human rights, community, and product responsibility. The governance pillar (G) comprises the management, shareholders and CSR strategy. We obtain institutional ownership data from the Thomson Reuters 13F database which categorizes institutional investors, both ICOs and non ICOs, according to their distinct business lines and various legal and fiduciary commitments. Lastly, we obtain firm financial data from Compustat database.

Table 1 (Panel B) reports the industry distribution of the selected companies. According to the classification of Campbell (1996), Column 2 of Table 1 (Panel B) shows that the consumer durables industry is the most represented industry in our sample (18.28% of companies) followed by Basic industry (15.85% of companies). The last represented industry is Leisure (3.66% of companies). Column 3 of Table 1 (Panel B) shows that ICOs were the most prominent in the Services sector, with an ownership of 18.8%, followed by the "Food & tobacco" industry with 18.7%. The last was the Transportation industry, with 7.3%.

Table 1 (Panel C) reports the annual average of ICOs over the study period. ICOs increased from 12.8% to 24% (Column 1, Panel C of table 1). The increase of the central variable institutional cross-ownership in our study indicates that the proposed analysis is both timely and of current interest.

Variables Measurement

Dependent Variable

Corporate social responsibility is the average of environmental and social scores. According to El Ghoul *et al.* (2017) and Dyck *et al.* (2019), CSR is more accurate when the governance pillar is removed, leaving only the environmental and social components. The environmental and social scores cover two major issues that are not yet part of financial analysis. Environmental scores are based on the extent to which firms perform as stewards to the nature and the environment. Social scores describe how firms manage bonds with their key stakeholder.

Independent Variable

Institutional cross-ownership is the equity stake held by ICOs in the focal firm (in percentage). Following He and Huang (2017), we define ICOs as institutional investors that simultaneously hold at least two firms operating in the same four-digit SIC industry. This metric helps captures the potential effect of ICOs on corporate decision in the focal firm.

7. Thomson Reuters Asset 4 database is ranked among the most reliable sources for conducting research in the CSR field (El Ghoul *et al.*, 2017).

TABLE 1
Sample Selection Procedure and Industry Distribution (SIC, ICOs)

This table reports the sample selection procedure and the mean of the key regressions' variables per industry and per year. ICO is the percentage of shares held by institutional cross-owners in the focal firm.

Panel A: Sample selection procedure

Sample selection	Number of listed firms	
Initial sample	120	
(-) Financial and insurance companies	18	
(-) Firms with missing data	20	
= Total sample	**82**	

Panel B: Sample distribution per industry

Industry	SIC	Number of listed firms	Frequency %	ICO
Petroleum	13;29	4	4.88	0.149
Consumer durable	25, 30, 36, 37, 50, 55, 57	15	18.28	0.178
Basic industry	10, 12, 14, 24, 26, 28, 33	13	15.85	0.156
Food and tobacco	1, 2, 9, 20, 21, 54	6	7.32	0.187
Construction	15, 16, 17, 32, 52	4	4.88	0.170
Capital goods	34, 35, 38,39	5	6.10	0.245
Transportation	40, 41, 42, 44, 45, 47	8	9.76	0.073
Utilities	46,48,49	9	10.98	0.128
Textile and trade	22, 23, 31, 51, 53, 56, 59	4	4.88	0.138
Services	72, 73, 75, 76, 80, 82, 87, 89	11	13.41	0.188
Leisure	27, 58, 70, 78, 79	3	3.66	0.176
Overallsample		**82**	**100**	**0.167**

Panel C: Sample distribution per year

Years		ICO
2001		0.128
2002		0.120
2003		0.114
2004		0.119
2005		0.118
2006		0.108
2007		0.201
2008		0.183
2009		0.183
2010		0.188
2011		0.172
2012		0.190
2013		0.216
2014		0.229
2015		0.240

Moderator Variable

Product market competition is our proxy for industry competition, calculated through the sales-based Herfindahl-Hirschman index (HHI)[8]. To define industry membership for a firm, we use two-digit SIC classification based on Campbell classification[9]. We perform the calculations for each fiscal year and for each industry using all listed firms available in the COMPUSTAT database[10]. The HHI is calculated as follows:

$$\mathrm{HHI_{jt}} = \sum_{i=1}^{N} \mathrm{MS_{ijt}}^2 \quad (1)$$

Where, $\mathrm{MS_{ijt}}$ refers to the market share of firm i, in industry j, in year t. N is the number of same industry firms. HHI is the sum of the squared market shares of firms competing in each industry using firm sales. A high HHI indicates low product market competition (Flammer, 2015).

Based on the HHI, we calculate the median HHI value per industry. This median will serve as the threshold to determine whether an industry has a lower or higher concentration level. For each industry, we compare its HHI value to the median. If the HHI value is lower than the median, we set the value of HHI_bin to 1; otherwise, we set it to 0.

Control Variables

Return on assets is the ratio of net income to total assets. Profitable firms have more financial slack compared to non-profitable ones, so they are more willing to engage in CSR (Freeman, 1984).

Size is measured by the natural logarithm of total assets. Large companies tend to invest more in CSR than their smaller counterparts. As they increase in size, large firms draw the attention of their stakeholders, which urges them to respond to stakeholders' concerns (Hillman and Keim, 2001).

Leverage is the ratio of total debts to total assets. Consistent with the financial constraint hypothesis, prior literature has shown that highly leveraged firms enroll less in CSR activities compared to lowly leveraged firms (Hamza *et al.*, 2023).

Market to book is the proxy for growth opportunities that allow companies to obtain the required resources to embark upon CSR programs (Kim *et al.*, 2019).

Model Specification

We estimated the following model to examine the impact of ICOs on CSR:

$$CSR_{it} = \beta_0 + \beta_1 ICO_{it} + \sum_{k=2}^{n} \beta_k Control_{it} + \varepsilon_{it} \quad (2)$$

Where, CSR is the firm's average environmental and social performance. ICO is the fraction of shares held by ICOs in the focal firm. Control is a set of control variables shown to affect CSR.

To examine the moderating role of product market competition, we introduced an interaction term between ICOs and product market competition, and tested the following model:

$$CSR_{it} = \beta_0 + \beta_1 ICO_{it} + \beta_2 HHI\_bin_{it} + \beta_3 HHI\_bin_{it} * ICO_{it} + \sum_{k=4}^{n} \beta_k Control_{it} + \varepsilon_{it} \quad (3)$$

Where, HHI_bin is the binary variable that equals 1 if the HHI is lower than the median value, and 0 otherwise. Control is a set of variables shown to affect CSR.

Heteroscedasticity and serial correlation are two main problems in the regression analysis that give inefficient results (Gujarati & Porter, 2003). Therefore, the modified Wald test (Greene, 2003) and Wooldridge (2003) were performed to check for Heteroscedasticity and serial correlation, respectively. All models are suffering from Heteroscedasticity as indicated in Table 5. Therefore, in all regression, we used fixed and random effect regression to analyze our panel data with robust standard errors clustered at the firm level to correct for heteroskedasticity and/or autocorrelation.

The Hausman test is used to choose between fixed effect and random effect models. The Hausman test compares the variance-covariance matrix of the two estimators:

$$W = (\beta f - \beta a)'[(var\_\beta f - var\_\beta a)^{(-1)}](\beta f - \beta a) \quad (4)$$

Where, βf is the fixed effects estimator and βa is the random effects estimator.

In the first and the second model (Column 1 and 2 of Table 5), where the sperate effect of ICOs and competition on CSR was examined, the result of the Hausman test show that the fixed effect model has been retained. Indeed, the asymptotic significance is higher than 5% level. The Lagrangian multiplier (LM) test was also conducted to decide between a random effect and a simple OLS regression. The null hypothesis in the LM test is that variances across entities is zero. Here, we reject the null hypothesis and conclude that random effects are appropriate.

In the third model, however, where the moderating role of competition was included in the relationship between ICOs and CSR, the Hausman test is significant (Column 3 of Table 5) which means that fixed effect model is preferable to the random effect one (Baltagi and Griffin, 1995). The F-test in a fixed-effect regression model was used to test the joint significance of all the individual fixed effects in the model. The null hypothesis in the F-test is that all the coefficients of the fixed effects are equal to zero. Here, we reject the null hypothesis. Therefore, the fixed effects are non-zero and pooled OLS will be biased. This is because pooled OLS assumes that the individual-specific effects are uncorrelated with the independent variables. Since the F-test is significant, the fixed effects are important and should be kept in the model.

8. The HHI can be a helpful tool for assessing market concentration, but it has limitations. The HHI only measures concentration among firms that are currently active in a market, so it may not capture the potential competition from non-listed firms or new entrants. It also assumes that the market is well-defined, which may not be the case in some industries where there are many substitutes or complementary products (Benkraiem *et al.*, 2022). Despite these limitations, we use the HHI as a starting point for understanding market structure, this should make comparison with existing studies easier regarding the role of product market competition (e.g, Flammer, 2015, Tian and Twite, 2011, Do *et al.*, 2022)..

9. As a robustness test, we have also used use three-digit SIC classification.

10. In the robustness section, we also computed product market competition using the sales of all firms in a given industry, both listed (Source, Compustat database) and unlisted (Source, Bureau van Dijk's Amadeus data) to ensure the validity of the competition measure.

TABLE 2

Variables Definitions and Data Sources

Variables	Symbols	Descriptions	Data Sources
Dependent variables			
Corporate Social responsibility	CSR	The average of environmental and social performance.	Thomson Reuters Asset 4
Environmental, Social and Governance	CSR_ESG	The average of environmental social and governance performance.	As above
Environmental	CSR_E	The environmental pillar consists of three category groupings: emission reduction, product innovation, and resource reduction.	As above
Social	CSR_S	The social pillar is the most complex with seven categories: community, diversity, employment quality, health-and-safety, human rights, product responsibility, and training-and-development.	As above
Governance	CSR_G	The governance pillar has five categories: board functions, board structure, compensation policy, shareholders policy, and vision-and-strategy.	As above
Moderator variables			
Herfindahl Hirschman Index	HHI_bin	Takes the value of 1 if the value of the Herfindahl Hirschman index sales of the firm (2-digits) is lower than the median and 0 otherwise. This variable computed on an industry-by-industry basis	Author Calculation
Herfindahl Hirschman Index	THREE-DIGIT_HHI	Takes the value of 1 if the value of the Herfindahl Hirschman index sales of the firm (3-digits) is lower than the median and 0 otherwise. This variable computed on an industry-by-industry basis	As above
Herfindahl Hirschman Index	LISTED-NONLISTED_HHI	Takes the value of 1 if the value of the Herfindahl Hirschman index sales of listed and non-listed firms (3-digits) is lower than the median and 0 otherwise. This variable computed on an industry-by-industry basis	As above
Entry cost	ENTRY_COST	Calculated as the natural log of the sales-weighted average of plant and equipment in each industry ((3-digits).	As above
Import penetration	IMPORT_ PENETRATION	Computed for each industry ((3-digits) as the percentage of total imports on the sum of imports and domestic production.	As above
Independent variables			
Institutional Cross-Owners	ICO	Percentage of shares held by institutional cross-owners in the focal firm	Thomson Reuters 13F
Long-term Institutional Cross-Owners	LT_ICO	Percentage of shares held by long-term institutional cross-owners in the focal firm.	As above
Short-term Institutional Cross-Owners	ST_ICO	Percentage of shares held by short-term institutional cross-owners in the focal firm.	As above
Non-Institutional Cross-Owners	NON_ICO	Percentage of shares held by non institutional cross-owners in the focal firm	As above
Long-term Non-Institutional Cross-Owners	LT_NON_ICO	Percentage of shares held by long-term non institutional cross-owners in the focal firm.	As above
Short-term Non-Institutional Cross-Owners	ST_NON_ICO	Percentage of shares held by short-term non institutional cross-owners in the focal firm.	As above
ICO number	NUMBER_ICO	Natural logarithm of the number of industry peers that share at least one cross-owner with the focal firm.	As above
ICO presence	CROSS_DUMMY	A dummy variable that equals 1 when at least one institutional investor cross holds more than one firm in an industry simultaneously and zero otherwise.	As above
ICO power	CONC_ICO	Takes the value of 1 if the level of ICO is higher than the sample median and 0 otherwise.	Author Calculation
Control variables			
Return on assets	ROA	Net income to total asset.	Compustat
Size	Size	Natural logarithm of total asset.	As above
Leverage	Leverage	Liability to total asset.	As above
Market to book	MTB	Market equity to book equity.	As above

Empirical Results

Descriptive Statistics

Table 3 reports descriptive statistics for the dependent, independent and control variables. First, the mean value of the dependent variable (CSR) is of 77.4%. This emphasizes the prominence of CSR initiatives within the French context. The average score of CSR was similar to the one reported by Dyck *et al.* (2019) within European countries, including France. Second, the central tendency of our key independent variable (institutional cross-ownership) is around a stake of 17% and ranged between a maximum of 36.4% and a minimum of 0%. The average proportion of French institutional cross-ownership is higher than the one identified by He and Huang (2017) in the U.S. context. Third, with respect to the moderator variable (Industry competition), we observed that 56.1% of SBF120 French companies were operating in a competitive environment. This proportion is quite distinct from the one reported by Flammer (2015) in the U.S and almost identical to the proportion reported by Tian and Twite (2011) in the Australian context. Regarding the control variables and during our study period, marked by 3 major crises (Tech Bubble, 2001; Subprime, end of 2007 and Sovereign Debt, 2011), firms in the sample had an average ROA of 4.92%, were of large size (6.3 billion euros), highly leveraged (about 25% of total assets), and with growth profile (average Market To Book was around 2.24). To reduce the effect of extreme outliers, all variables were winsorized at the level of 1st to 99th percentile (Dyck *et al.*, 2019; Boubaker *et al.*, 2018). This procedure was performed since extreme outliers can greatly increase the variance of variables and respectively affect the significance level. Since all variables with outliers are winsorized, the mean values in the descriptive statistics are reliable.

TABLE 3
Descriptive Statistics

This table reports the mean, standard deviation, maximum and minimum values of the regressions' variables. CSR is the average of firms' environmental and social performance. ICO is the percentage of shares held by institutional cross-owners in the focal firm. HHI_bin is the moderator, equals one if HHI sales is below the median and zero otherwise. ROA is the net income to total assets ratio. Size is the total asset (million Euros). Leverage is the liabilities to total asset ratio. MTB is the market equity to book equity ratio.

		Mean	SD	Min	P25	P50	P75	Max
CSR		0.774	0.218	0.227	0.687	0.882	0.931	0.951
ICO		0.167	0.099	0	0.094	0.162	0.238	0.364
ROA (%)		4.920	4.114	-3.56	2.590	4.620	7.05	13.99
Size		6296.335	7300.544	227.490	1393.12	3225.01	7931.68	27319.37
Leverage		0.249	0.129	0.031	0.151	0.237	0.337	0.498
MTB		2.237	1.422	0.500	1.185	1.88	2.965	6.030
		Proportion	SD	Conf-interval				
HHI_bin	0	0.439	0.014	0.411	0.467			
	1	0.561	0.014	0.533	0.589			

Correlation Matrix

Table 4 provides the Pearson correlation matrix between CSR and regression variables, to assess any potential problem of multicollinearity that might cause the estimated coefficient to be unstable and increases the standard deviation. We did not find any high correlation between the explanatory variables, which suggest that multicollinearity is not a serious problem in our regressions. All correlations were below the critical value of 0.8 (Gujarati and Porter, 2003). A second test for multicollinearity has been performed namely, the variance inflation factors (VIF). The VIF for each variable vary between 1.04 and 1.81 far below the critical value of 10 defined by Neter *et al.* (1996).

TABLE 4
Pearson Correlation Matrix

This table reports the correlations of the regression variables. CSR is the average of firms' environmental and social performance. ICO is the percentage of shares held by institutional cross-owners in the focal firm. HHI_bin is the moderator, equals one if HHI sales is below the median and zero otherwise. ROA is the net income to total assets ratio. Size is the log of total asset (million Euros). Leverage is the liabilities to total asset ratio. MTB is the market equity to book equity ratio. ***, ** and * denotes the statistical significance at the 1%, 5% and 10% levels, respectively.

	CSR	ICO	HHI_bin	ROA	Size	Leverage	MTB
CSR	**1.000**						
ICO	0.199*	**1.000**					
HHI_bin	0.232*	0.203*	**1.000**				
ROA	-0.194*	-0.008	0.125*	**1.000**			
Size	0.319*	0.154*	0.096	-0.007	**1.000**		
Leverage	0.100*	0.029	-0.058	-0.138*	0.003	**1.000**	
MTB	-0.159*	-0.072*	0.060*	0.529*	-0.119*	-0.135*	**1.000**
VIF		**1.04**	**1.05**	**1.67**	**1.13**	**1.05**	**1.81**
Mean VIF	**1.29**						

Multivariate Analysis

Panel A Table 5 (Column 1) shows a positive and statistically significant relationship between ICOs and CSR at the level of 1%. This finding provides a strong support to our hypothesis (H1b). ICOs can employ their industry knowledge and governance expertise to mitigate conflicts of interests between various stakeholders through investment in CSR (Fu and Qin, 2022). This result is consistent with the industry coordination perspective. ICOs may drive up CSR performance by fostering industry collaboration between cross-owned firms (Cheng *et al.*, 2021). Such collaboration and synergy on tackling CSR issues, can be economically efficient and benefit all cross-owned firms (Fu *et al.*, 2022). Individual actions are costly and can lead to the free-rider problems (Serafeim, 2018). In terms of economic significance, the result indicates that a one standard deviation increase in the institutional cross-ownership raises the CSR by 19.44%[11]. Policy makers should be aware about the capacity of ICOs to enhance stakeholders' welfare.

11. The economic significance is computed as the standard deviation of independent variable, multiplied by its coefficient, all divided by the average dependent variable (0.099*0.328)/0.167 =0.1944

With respect to the control variables, firm size was positively and significantly related to CSR, suggesting that large firms have sufficient resources to make contributions to CSR to satisfy stakeholders' demands (El Ghoul *et al.*, 2017). As for the MTB, we underline a negative and significant relationship with CSR, suggesting that firms with high MTB favor investing in growth opportunities rather than in CSR (Boubaket *et al.*, 2017). Lastly, a negative and insignificant relationships exist between ROA and firm leverage on the one hand and CSR on the other.

Column 2 of Table 5 (Panel A) shows a positive and highly significant relationship (at a level of 1%) between product market competition and CSR. This result highlights the crucial role of industry competition as an external governance mechanism, as well as the peers' effect, in terms of CSR commitment (Flamer, 2015). Column 3 of Table 5 (Panel A) reports the results of the moderating role of product market competition on the relationship between ICOs and CSR. The coefficient of ICOs increased once the variable relating to competition was introduced. This result suggests that ICOs still play an important role in promoting CSR, even in competitive environments. However, the coefficient of the interaction term (HHI_bin*ICO) is negative and significant at the level of 5%. These results suggest that competitive product markets may make it more difficult for ICOs to coordinate CSR activities between peers' firms held by cross-owners. Because of their limited attention, ICOs may find it difficult to use their abilities and expertise to coordinate cross-owned peers' firms in highly competitive environment (Kempf *et al.*, 2017). Our second hypothesis (H2) is thus accepted. Regarding the economic significance, the result indicates that a one standard deviation increases in the join effect of competition and institutional cross-ownership, reduces the CSR by 16.36%[12]. This finding suggests that the joint effect of competition and institutional cross-ownership can have an unfavorable effect on CSR behavior. It follows that policy makers may need to consider measures that focus on the role of ICOs in competitive industries where CSR is a concern.

Panel B of Table 5 examines the sensitivity of our results to year- firm and industry fixed effects. By including fixed effects, the model can control for any unobserved factors that may be influencing the outcome variable. Panel B of Table 5 (Column 1 and 2) shows that the coefficient on ICOs and product market competition remains positive and significant after controlling for time- year and industry fixed effects. Panel B of Table 5 (Column 3) shows that the coefficient of the interaction term (HHI_bin*ICO) is still negative and significant at the level of 5%. These findings indicate that product market competition may hinder the ability of ICOs to effectively coordinate CSR initiatives among cross-owned companies. All in all, these findings suggest that the relationship between ICOs and the outcome variable (CSR) is robust and not driven by any unobserved factors.

Additional Analysis

The Level of Institutional Cross-Ownership

The level of institutional cross-ownership is an important contextual element that can seriously affect the ability of ICOs to influence firm management and CSR. Prior literature has attributed passive (active) behavior to ICOs with dispersed (concentrated) ownership structure and vice versa. Following Buchanan *et al.* (2018), we splited our sample into

12. The economic significance is computed as the standard deviation of independent variable, multiplied by its coefficient, all divided by the average dependent variable (0.132*-0.207)/0.167 =-0.1636

TABLE 5

Institutional Cross-Ownership and CSR: The Moderating Effect of Product Market Competition

This table reports the panel data regression results regarding the impact of ICOs on CSR and the moderating role of product market competition. CSR is the average of firms' environmental and social performance. ICO is the percentage of shares held by institutional cross-owners in the focal firm. HHI_bin is the moderator, equals one if HHI sales is below the median and zero otherwise ROA is the net income to total assets ratio. Size is the log of total asset (million Euros). Leverage is the liabilities to total asset ratio. MTB is the market equity to book equity ratio. P-values are reported in parentheses with ***, ** and * denotes the statistical significance at the 1%, 5% and 10% levels, respectively.

Panel A.	Random CSR	Random CSR	Random CSR
ICO	0.328***		0.433***
	(0.004)		(0.007)
HHI_bin		0.092***	0.129**
		(0.001)	(0.010)
HHI_bin*ICO			-0.207**
			(0.043)
ROA	-0.004	-0.005**	-0.005**
	(0.224)	(0.032)	(0.031)
Size	0.088***	0.090***	0.086***
	(0.000)	(0.000)	(0.000)
Leverage	-0.029	-0.005	-0.038
	(0.833)	(0.954)	(0.693)
MTB	-0.018*	-0.021***	-0.018**
	(0.073)	(0.004)	(0.017)
Constant	0.050	0.045	0.013
	(0.807)	(0.697)	(0.918)
Observation	**530**	**530**	**530**
R^2	**0.21**	**0.26**	**0.25**
Hausman test	**(0.662)**	**(0.895)**	**(0.108)**
F-test			
Modified Wald test			
Wooldridge test	**(0.000)*** **	**(0.000)**** **	**(0.000)*** **
Breusch Pagan test	**(0.000)*** **	**(0.000)**** **	**(0.000)*** **
Panel B.	**OLS CSR**	**OLS CSR**	**OLS CSR**
ICO	0.437***		0.690***
	(0.000)		(0.001)
HHI_bin		0.111***	0.173***
		(0.003)	(0.003)
HHI_bin*ICO			-0.440*
			(0.059)
ROA	-0.004**	-0.005**	-0.005**
	(0.022)	(0.041)	(0.050)
Size	0.062***	0.096***	0.085***
	(0.000)	(0.000)	(0.000)
Leverage	-0.003	-0.028	-0.005
	(0.153)	(0.785)	(0.968)
MTB	-0.072	-0.022***	-0.020**
	(0.526)	(0.004)	(0.014)
Constant	0.218	0.026	0.052
	(0.131)	(0.864)	(0.767)
Observation	**530**	**530**	**530**
R^2	**0.17**	**0.13**	**0.15**
Year	**YES**	**YES**	**YES**
Industry	**YES**	**YES**	**YES**
Firm	**YES**	**YES**	**YES**

two groups according to the ownership level of ICOs (high 'above median' and low 'below median'). The results in Table 6 show that both dispersed and concentrated ownership positively affected CSR (Column 1, 2 and 3). This result is indicative of effective governance expertise by ICOs in civil law country such as France. Regardless the level of institutional cross-ownership, ICOs have the ability, skills, and power to shape corporate strategy regarding CSR within cross-owned firms (Cheng *et al.*, 2021; Schmalz, 2018). However, the coefficient of ICOs is lower in the case of concentrated ownership compared to dispersed ownership. The difference in coefficients could be explained by the fact that, concentrated ownership structure may be associated with weaker corporate governance practices (expropriation of minority shareholders), which could mitigate the ability of ICOs to engage in CSR issues. In the case of concentrated ownership, the controlling shareholder may have a different set of priorities that do not necessarily align with those of stakeholders including ICOs. This misalignment of interests could lead to lower ICOs coefficients with respect to CSR.

Investor Characteristics

Investment Horizon

Investment horizon preference affects not only ICOs trading strategy but also their incentives and ability to influence managerial decisions. Following prior literature (Attig *et al.*, 2012; Kim *et al.*, 2019; Döring *et al.*, 2021; Allaya *et al.*, 2022), we construct investment horizon by first generating the four-quarter moving average churn ratio (a frequency measure of how often ICOs rotate their equity portfolio positions) for each year. We define ICOs as long-term (short-term) if the churn ratio is in the bottom (top) half. We then divide ICOs into two categories according to investment horizon: long-term (Long-term ICOs) and short-term (Short-term ICOs).

As reported in Table 7, when we considered the heterogeneity of ICOs, those with long-term horizons positively affected CSR (Column 2, Table 7), while a positive and non-significant effect was found for short-sighted ICOs (Column 3, Table 7). Overall, these results provide support for the existing literature, suggesting that long-term ICOs interfere more intensively than short-term ICOs with respect to CSR. Short-sighted ICOs are not committed in CSR strategies since they come at the expense of their firm's short-term value (Boubaker *et al.*, 2017). Specifically, when considering the short-term horizon, CSR initiatives may weigh heavily on firms.

Cross-owners vs. Non-Cross-owners

Non-ICOs refer to a situation where an institution invests in one company within an industry, while ICOs refer to a situation where an institution invests in multiple companies within the same industry. The main difference is that ICOs tend to make investments in multiple companies in the same sector, which gives them better industry insight and monitoring experience relative to Non-ICOs (Cheng *et al.*, 2021; Kang *et al.*, 2018). To further understand the difference between ICOs and non ICOs in terms of CSR engagement, we decompose Non-ICOs into two groups: long-term (Long-term Non-ICOs) and short-term (Short-term Non-ICOs). Then, we regress CSR on the two different types of Non-ICOs, and on all control variables from the main regression (including total institutional ownership). The results are in Columns (1), (4) and (5) of Table 7. The coefficient of long term Non-ICOs is positive and significant at the level of 1 percent. The coefficient of short-term Non-ICOs is positive but not significant. These results connect to prior literature (Gloßner, 2019; Kim *et al.*, 2019) that the positive effect of Non-ICOs on CSR comes from Non-ICOs with long-term horizon. The comparison of the coefficient between cross-ownership vs. non-cross ownership, can provide insights into the impact of institutional ownership typology on CSR. The coefficient is lower in the case of ICOs compared to Non-ICOs. The difference in coefficients could be explained by the monitoring view. Relative to Non-ICOs that invest in a single company within an industry, ICOs can rely on their information advantage, governance expertise, and industry insight to perform effective monitoring, leading to better governance and CSR outcomes.

TABLE 6

Concentrated Institutional Cross-Ownership and CSR

This table reports the panel data regression results regarding the impact of ICOs concentration on CSR. CSR is the average of firms' environmental and social performance. CONC_ICO equals one if institutional cross-ownership is over the sample median and zero otherwise. ROA is the net income to total assets ratio. Size is the log of total asset (million Euros). Leverage is the liabilities to total asset ratio. MTB is the market equity to book equity ratio. P-values are reported in parentheses with ***, ** and * denotes the statistical significance at the 1%, 5% and 10% levels, respectively.

		CSR	
	CSR	Concentrated ownership structure	Dispersed ownership structure
ICO		0.360**	0.799**
		(0.036)	(0.018)
CONC_ICO	0.039**		
	(0.012)		
ROA	-0.004*	0.002	-0.012***
	(0.057)	(0.428)	(0.000)
Size	0 .087***	0.090***	0.078***
	(0.000)	(0.000)	(0.000)
Leverage	0.005	-0.147	-0.074
	(0.950)	(0.237)	(0.596)
MTB	-0.020***	-0.009	-0.028**
	(0.005)	(0.306)	(0.015)
Constant	0.094	-0.001	0.169
	(0.416)	(1.000)	(0.344)
Observation	**530**	**295**	**235**
R^2	**(0.221)**	**(0.181)**	**(0.296)**
Hausman test	**(0.785)**	**(0.238)**	**(0.238)**
Breusch Pagan test	**(0.000)*** **	**(0.000)*** **	**(0.000)*** **
Wooldridge test	**(0.000)*** **	**(0.000)*** **	**(0.000)*** **

Foreign Institutional Cross-Owners

Foreign ICOs (FICOs) are institutional investors from another country who own shares in multiple companies within an industry. FICOs may have different expectations and priorities compared to domestic investors in terms of CSR. This is because FICOs are typically investing in companies that are operating in a foreign country, and therefore, may have different cultural and societal expectations of what constitutes responsible corporate behavior. Dyck *et al.* (2019) showed that foreign institutional investors increase CSR performance when they come from countries with a strong community belief in the importance of environmental and social issues, but not otherwise. As such, this profile of institutional investors transplants their social norms regarding environmental and social issues around the world. Consistent with our prediction, our findings in columns 6 and 7 of Table 7, show that FICOs (as proxied by FICO_OWNERSHP and FICO_DUMMY) positively affect CSR. This result suggests that foreign ICOs can play an important role in encouraging companies to prioritize CSR activities and to take meaningful actions to address social and environmental challenges.

TABLE 7

Institutional Cross-Owners and CSR: Investors' Characteristics

This table reports the panel data regression results regarding the impact of institutional cross-owners heterogeneity on CSR. CSR is the average of firms' environmental and social performance. NON_ICO is the ppercentage of shares held by non institutional cross-owners in the focal firm LT_ICO is the percentage of shares held by long-term institutional cross-owners. ST_ ICO is the percentage of shares held by short-term institutional cross-owners. LT_NON_ICO is the percentage of shares held by long-term non institutional cross-owners in the focal firm. ST_NON_ICO is the percentage of shares held by short-term non institutional cross-owners in the focal firm. FICO_OWNERSHIP is is the percentage of shares held by foreign institutional cross-owners in the focal firm. FICO_DUMMY is a dummy variable that equal 1 if foreign institutional cross-owners is above the median and zero otherwise. ROA is the net income to total assets ratio. Size is the log of total asset (million Euros). Leverage is the liabilities to total asset ratio. MTB is the market equity to book equity ratio. P-values are reported in parentheses with ***, ** and * denotes the statistical significance at the 1%, 5% and 10% levels, respectively.

	ICO Vs. Non-ICO	Investment Horizon		Investment Horizon		Foreign ICO	
	CSR	CSR	CSR	CSR	CSR	CSR	CSR
NON_ICO	0.003***						
	(0.002)						
LT_ICO		0.004***					
		(0.001)					
ST_ICO			0.003				
			(0.497)				
LT_NON_ICO				0.006***			
				(0.001)			
LT_NON_ICO					0.001		
					(0.335)		
FICO_OWNERSHIP						0.005**	
						(0.029)	
FICO_DUMMY							0.039**
							(0.026)
ROA	-0.004	-0.004	-0.004	-0.005	-0.004	-0.004	-0.004*
	(0.198)	(0.221)	(0.214)	(0.165)	(0.244)	(0.271)	(0.060)
Size	0.089***	0.090***	0.096***	0.089***	0.094***	0.087**	0.087***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.042)	(0.000)
Leverage	-0.033	-0.037	-0.022	-0.041	-0.027	-0.013	0.005
	(0.814)	(0.788)	(0.874)	(0.770)	(0.844)	(0.933)	(0.978)
MTB	-0.018*	-0.019*	-0.019*	-0.019*	-0.019*	-0.021*	-0.020***
	(0.078)	(0.072)	(0.069)	(0.069)	(0.065)	(0.079)	(0.005)
Constant	0.037	0.038	0.040	0.060	0.041	0.052	0.094
	(0.856)	(0.851)	(0.842)	(0.765)	(0.839)	(0.877)	(0.430)
Observation	**530**	**530**	**530**	**530**	**530**	**530**	**530**
R^2	**0.22**	**0.21**	**0.22**	**0.21**	**0.22**	**0.13**	**0.22**
Hausman test	**(0.718)**	**(0.612)**	**(0.902)**	**(0.473)**	**(0.897)**	**(0.620)**	**(0.785)**
Breusch Pagan test	**(0.000)*** **	**(0.000)*** **	**(0.000)*** **	**(0.000)*** **	**(0.000)*** **	**(0.000)*** **	**(0.000)*** **
Wooldridge test	**(0.000)*** **	**(0.000)*** **	**(0.000)*** **	**(0.000)*** **	**(0.000)*** **	**(0.000)*** **	**(0.000)*** **

Channel Analysis

Improving governance quality

In this sub-section, we analyze an important mechanism through which institutional cross-owners promote CSR, namely governance quality. As documented before, the information advantage and governance skills of institutional cross-owners can increase their monitoring effectiveness in their portfolio of cross-owned rival firms (Fu *et al.*, 2022; Kang *et al.*, 2018). This monitoring process is essential in holding companies accountable for their social and environmental commitments, as well as for ensuring the alignment of CSR goals with overall business objectives (Cheng *et al.*, 2021). We expect that common institutional ownership would promote better governance quality within investee firms which leads to better CSR. Accordingly, we examine whether ICOs can improve CSR through enhancing firms' governance quality in Table 8. The findings show that ICOs enhance the governance quality of investee firms (Column 1) and the positive effect of ICOs on CSR is more likely in firms with high governance quality (Columns 2 and 3). All in all, these findings are consistent with the coordination and efficient monitoring view and the stakeholder theory

TABLE 8

Testing the Governance Mechanism

This table reports the panel data regression results regarding the impact of ICOs on CSR and the moderating role of governance quality. CSR is the average of firms' environmental and social performance. ICO is the percentage of shares held by institutional cross-owners in the focal firm. Governance quality assessed using the governance pillar (CSR_G) of CSR which has five categories: board functions, board structure, compensation policy, shareholders policy, and vision-and-strategy. High governance quality equals one if the CSR_G index is above the sample median and zero otherwise ROA is the net income to total assets ratio. Size is the log of total asset (million Euros). Leverage is the liabilities to total asset ratio. MTB is the market equity to book equity ratio. P-values are reported in parentheses with ***, ** and * denotes the statistical significance at the 1%, 5% and 10% levels, respectively.

	Governance quality	CSR	
		Low governance quality	High governance quality
ICO	0.871***	0.306	0.176**
	(0.000)	(0.130)	(0.043)
ROA	-0.004	-0.004	-0.003
	(0.352)	(0.364)	(0.130)
Size	0.113***	0.118***	0.027*
	(0.000)	(0.000)	(0.054)
Leverage	0.148	-0.034	0.018
	(0.353)	(0.826)	(0.844)
MTB	-0.009	-0.025*	-0.004
	(0.481)	(0.065)	(0.509)
Constant	-0.601***	-0.206	0.596***
	(0.009)	(0.295)	(0.000)
Observation	530	243	287
R^2	0.25	0.13	0.14
Hausman test	**(0.846)**	**(0.344)**	**(0.767)**
Wooldridge test	**(0.000)*** **	**(0.000)*** **	**(0.000)**** **
Breusch Pagan test	**(0.000)*** **	**(0.000)*** **	**(0.000)**** **

Robustness Checks

Alternative Proxies for Institutional Cross-Ownership

We re-estimate our main regression using alternative proxies for ICOs and report the results in Table 9. We construct two proxies for ICOs: DUMMY_ICO is a dummy variable that equals 1 if at least one institutional investor cross holds more than one firm in an industry simultaneously and zero otherwise. NUMBER_ICO is the natural logarithm of the number of industry peers that share at least one cross-owner with the focal firm. Consistent with our prediction, Table 9 shows that all alternatives' proxies of ICOs exhibit positive and significant relationship. These results further confirm the effectiveness of coordinating strategies of ICOs on CSR.

TABLE 9

Alternative Proxies of Institutional Cross-Ownership and CSR

This table reports the panel data regression results regarding the impact of ICOs on CSR and the moderating role of product market competition. CSR is the average of firms' environmental and social performance. CROSS-DUMMY is a a dummy variable that equals 1 when at least one institutional investor cross holds more than one firm in an industry simultaneously and zero otherwise. NUMBER_ICO is the natural logarithm of the number of industry peers that share at least one cross-owner with the focal firm. Size is the log of total asset (million Euros). Leverage is the liabilities to total asset ratio. MTB is the market equity to book equity ratio. P-values are reported in parentheses with ***, ** and * denotes the statistical significance at the 1%, 5% and 10% levels, respectively.

	CSR	CSR
CROSS_DUMMY	0.053***	
	(0.007)	
NUMBER_ICO		0.037***
		(0.064)
ROA	-0.005**	-0.004**
	(0.031)	(0.039)
Size	0.097***	0.093***
	(0.000)	(0.000)
Leverage	0.028	0.012
	(0.783)	(0.881)
MTB	-0.018**	-0.021***
	(0.018)	(0.003)
Constant	0.016	-0.034
	(0.911)	(0.791)
Observation	**530**	**530**
R^2	**0.20**	**0.24**
Hausman test	**(0.030)** **	**(0.946)**
F-test	**(0.000)*** **	
Modified Wald test	**(0.000)*** **	
Wooldridge test	**(0.000)*** **	**(0.000)*** **
Breusch Pagan test		**(0.000)*** **

Alternative Proxies for CSR

We re-estimate our main regression using alternative proxies for CSR and report the results in Columns (1) and (2) of Table 10. Following Dyck *et al.* (2019), we replace environmental and social scores by the natural logarithm of environmental and social scores[13]. The results in column 1 of table 10 are similar to those reported in the main analysis. The coefficient of ICOs remains positive and significant at the level of 1 percent. Consistent with El Ghoul, (2011) we also consider corporate governance criterion as a part of CSR metric. In previous analysis, we eliminated corporate governance component when creating our CSR measure, because we do not regard good governance practices as an indicator of socially responsible conduct. Then, we regress the overall score of CSR (ESG) on ICOs. The results displayed in column 2 of Table 10 reinforce our previous findings that ICOs positively and significantly affect CSR.

TABLE 10

Institutional Cross-Ownership and Alternative Proxies of CSR

This table reports the panel data regression results regarding the impact of ICOs on alternative metrics of CSR. Log_CSR is the log of average of firms' environmental and social performance. CSR_ESG is the average of firms' environmental, social and corporate governance performance. ICO is the percentage of shares held by institutional cross-owners in the focal firm. ROA is the net income to total assets ratio. Size is the log of total asset (million Euros). Leverage is the liabilities to total asset ratio. MTB is the market equity to book equity ratio. P-values are reported in parentheses with ***, ** and * denotes the statistical significance at the 1%, 5% and 10% levels, respectively.

	Log_CSR	CSR_ESG
ICO	0.575***	0.600***
	(0.005)	(0.000)
ROA	-0.007	-0.004
	(0.359)	(0.248)
Size	0.150***	0.097***
	(0.001)	(0.000)
Leverage	-0.181	0.051
	(0.500)	(0.695)
MTB	-0.036*	-0.014
	(0.066)	(0.147)
Constant	-1.518***	-0.247
	(0.000)	(0.224)
Observation	**530**	**491**
R^2	**0.17**	**0.29**
Hausman test	**(0.663)**	**(0.170)**
Breusch Pagan test	**(0.000)******	**(0.000)******
Wooldridge test	**(0.000)******	**(0.000)******

13. Dyck *et al.* (2019) indicate that this proxy leads to better distributional properties and to minimize the effect of outliers.

Alternative Proxies for product market competition

To further explore the reliability of our results, we re-estimate our original regression using alternative proxies for product market competition. First of all, we used the three-digit SIC classification code instead the two-digit one to define firm industry membership. The three-digit SIC code represents a more specific industry group compared to the two-digit code. The former provides a more detailed categorization of industries within the same broader sector. By narrowing our focus to specific industries where the computation of product market competition holds greater relevance, we continue to find support for the negative effect of competition on the relationship between ICOs and CSR (Table 11, Collum 1)

Second, we assessed the Herfindahl-Hirschman Index (HHI) by considering a thorough coverage of the market landscape. Our HHI computation spanned across both listed firms, utilizing the COMPUSTAT dataset, and non-listed firms, which were included from the Bureau Van Dijk's Amadeus dataset. To construct the non-listed firm dataset, we used the same filters as on the Compustat database for publicly listed firms. We have selected non-listed firms with available data to compute the sales of all companies in a given sector, making the calculation of market shares for the companies in our sample more relevant. By incorporating both listed and non-listed firms and adopting a standardized classification method, our HHI assessment should now provide a more accurate representation of the concentration across various industries. The results in Table 11 (Collum 2) shows that the inclusion of non-listed firms does not affect our main findings.

Third, to capture a different dimension of product market competition other than industry concentration, we used the threats from potential competitors (Contestable markets). Following Karuna (2007), we use the entry cost to proxy for these threats, which is calculated as the natural log of the sales-weighted average of plant and equipment in each industry. Since, higher Entry cost reflect less competitive industry, we multiply all Entry cost observations with minus one (-1) to make a more intuitive interpretation of the results. In column 3 of table 11 we continue to find the positive effect of ICOs on CSR is less likely when faced with potential threats from competitors.

Forth, we consider the multi-dimensional impact of product market competition from foreign countries on CSR. Specifically, we re-estimate our baseline regression using the (industry-level) import penetration index (IMPORT_PENETRATION). Following Boubaker *et al.* (2022), IMPORT_PENETRATION is computed for each industry as the percentage of total imports on the sum of imports and domestic production. Consistent with our main inference, we continue to find that positive effect of ICOs on CSR is less likely in French firms facing higher domestic competition including, foreign competitive pressure. This finding suggests that domestic competition including foreign competitors can lead to CSR cost-cutting measures by French cross-owned firms to maintain profitability (Column 4 of Table 11).

Endogeneity

Endogeneity appears to be a very prevalent problem. Roberts and Whited (2013) argued that no empirical study is completely free of endogeneity issues, especially studies in Accounting, Finance, and Economics. As in the CSR literature, we acknowledge two important sources of endogeneity —namely reverse causality and omitted variables— that could have affected our findings to distinct degrees (Roberts and Whited, 2013).

TABLE 11

Alternative Proxies for Product Market Competition

This table reports the panel data regression results regarding the impact of ICOs on CSR and the moderating role of product market competition. CSR is the average of firms' environmental and social performance. ICO is the percentage of shares held by institutional cross-owners in the focal firm. THREE-DIGIT_HHI is the moderator, equals one if HHI sales (3-digits) per industry and per year is below the median and zero otherwise. LISTED-NONLISTED_HHI takes into consideration both listed and non-listed firm in the computation of HHI sales index. ENTRY_COST calculated as the natural log of the sales-weighted average of plant and equipment in each industry. IMPORT_PENETRATION is computed for each industry as the percentage of total imports on the sum of imports and domestic production. ROA is the net income to total assets ratio. Size is the log of total asset (million Euros). Leverage is the liabilities to total asset ratio. MTB is the market equity to book equity ratio. P-values are reported in parentheses with ***, ** and * denotes the statistical significance at the 1%, 5% and 10% levels, respectively.

	CSR	CSR	CSR	CSR
ICO	0.187**	0.712***	0.397**	0.373**
	(0.042)	(0.000)	(0.020)	(0.018)
THREE-DIGIT_HHI	0.231***			
	(0.001)			
THREE-DIGIT_HHI*ICO	-0.880***			
	(0.010)			
LISTED-NONLISTED_HHI		0.175***		
		(0.003)		
LISTED-NONLISTED_HHI*ICO		-0.477**		
		(0.033)		
ENTRY_ COST			0.047*	
			(0.055)	
ENTRY_COST*ICO			-0.142*	
			(0.075)	
IMPORT PENETRATION				0.133***
				(0.001)
IMPORTPENETRATION*ICO				-0.320*
				(0.063)
ROA	-0.004	-0.005*	-0.004*	-0.004*
	(0.113)	(0.059)	(0.099)	(0.065)
Size	0.082***	0.089***	0.071***	0.078***
	(0.000)	(0.000)	(0.000)	(0.000)
Leverage	-0.055	0.007	-0.071	0.043
	(0.407)	(0.951)	(0.499)	(0.720)
MTB	-0.012	-0.021**	-0.019**	-0.017**
	(0.102)	(0.011)	(0.015)	(0.033)
Constant	0.113	-0.081	-0.154	0.083
	(0.152)	(0.652)	(0.366)	(0.630)
Observation	530	530	530	530
R^2	0.24	0.15	0.22	0.23
Hausman test	(0.270)	(0.556)	(0.348)	(0.964)
F-test				
Modified Wald test				
Wooldridge test	**(0.000)*** **	**(0.000)*** **	**(0.000)*** **	**(0.000)*** **
Breusch Pagan test	**(0.000)*** **	**(0.000)*** **	**(0.000)*** **	**(0.000)*** **

First, reverse causality occurs if CSR affects the investment decisions of ICOs. For instance, ICOs can account for CSR when making their investment decisions (Dyck *et al.*, 2019). Second, we might have overlooked some control variables despite our efforts to embrace all determinants of CSR found in the existing literature. Table 12 reports the results of the various tests that address the endogeneity concerns.

Generalized Method of Moment (GMM)

We used tests that corrected for endogeneity problems (e.g., reverse causality) using the generalized method of moment as an estimation method (Arrelano and Bond, 1991). Column 1 of Table 12 shows that ICOs continued to affect positively and significantly firm CSR at the level of 1 percent, reinforcing our previous findings. This finding suggests that reverse causality is not likely to be the driving force of our core evidence. To check for the over-identifying restriction in a statistical model, we referred to the Sargan test. The results shown in Column 1 of Table 12 provide strong evidence for the null hypothesis that the over-identifying restrictions are valid. The Arrelano–Bond AR (2) test also showed no significant evidence of serial correlation in the first differenced errors at order 2 and therefore presented no evidence of model misspecification.

Granger Causality Test

To draw conclusions on whether ICOs influence CSR or vice versa, we ran the Granger causality test, which is widely employed in economic and financial research (Dyck *et al.*, 2019). Specifically, we estimated two symmetric sets of regressions. First, we regressed CSR scores on lagged ICOs, lagged CSR scores, and lagged control variables. Second, we regressed ICOs on lagged CSR scores, lagged ICOs, and lagged control variables. We added firm fixed effects to exploit only within-firm time-series heterogeneity. The estimation of the parameters was carried out by pooling the data; authorizing for differences in individual effects was done through the inclusion of fixed effects (Dyck *et al.*, 2019). We followed this strategy and included firm fixed effect. Table 12 shows that lagged ICOs influenced CSR even after controlling for lagged CSR (Column 2), while CSR did not influence ICOs (Column 3). These findings are in line with the view that ICOs drive CSR and not the opposite. We reconfirmed that reverse causality was not a concern in our study.

Instrumental Variable Approach (2SLS)

To further address the endogeneity concerns (e.g., omitted-variables bias and reverse causality), we relied on the instrumental variable estimation approach. Consistent with Lin *et al.* (2011) and Laeven and Levine (2008), we employed the average ICOs by industry (ICO_INDU) as an instrument for cross-owned firms. This instrument is likely to be correlated with the independent variable (ICOs) but not with the dependent variable (CSR). The validity of the instrument is confirmed by performing endogeneity (Wu, 1974; Hausman, 1978) and over-identification (Basmann, 1960) tests. The endogeneity test is used to check whether the instrument is correlated with the error term while the over-identification test is used to check whether there are enough instruments to identify the model. In the first stage (Column 4, Table 12), we regressed ICOs on the full set of control variables from our main specification, as well as an instrumental variable. The result shows that there is a positive relationship between the level of institutional cross-ownership in a particular industry and the level of institutional cross-ownership at the firm level within that same industry. This indicates that when there is a high level of institutional cross-ownership within that industry, ICOs are more likely to hold

ownership stakes in multiple companies within the same industry. In the second stage (Column 5, Table 12), we regressed CSR on the predicted ICOs from the second stage and control variables. The results in Table 12 (Column 5) confirm that ICOs is positively and significantly associated with CSR.

Propensity Score Matching (PSM)

Following Cheng *et al.*, (2021), we use the PSM approach to investigate whether our primary findings are subject to sample selection bias. We first estimate a probit model to predict the probability of the presence of institutional cross-owners (CROSS_DUMMY) by including all control variables used in the tests of our hypotheses. The objective of PSM is to generate two statistically similar samples, one with institutional cross-owners and one without. Next, we match without replacement each treatment group (group with cross-ownership) with the control group (group without cross-ownership) that has the closest score. To enhance the precision of our matching process, we eliminated matched peers with propensity score difference that exceeds 1%. Finally, we conduct our regression analysis using the propensity score-matched sample.

Table 13 reports the regression results. Panel A shows the determines of the presence of institutional cross-owners. The result highlights that firms with larger size are more likely to have common institutional ownership. Panel B shows the regression result of the PSM sample. The coefficients of CROSS_DUMMY remain positive and significant at the 5% level. The uneven number of observations in the second equation arise from the matching process. It's common for some observations to be dropped during matching due to an inability to find suitable matches. This could lead to a smaller sample size in the post-matching analysis. The sample has reduced from n = 1230 to n = 227. Panel C reports the comparison of the mean value of the variables considered to determine the presence of CROSS_DUMMY in the matched sample. The differences in means between the covariates of the treated and control groups are all insignificant and exhibit standardized biases lower than 10%, suggesting that our covariates were balanced properly and the PSM procedure is successful.

Entropy Balancing (EB)

Although the PSM approach is widely used, it has some limitations, such as a significant drop in the sample size. To address this limitation, we use an entropy balancing method to eliminate differences in observable covariates between treatment and control groups while retaining valuable information in the processed data. This method achieves a higher level of covariate balance concerning the mean, variance, and skewness compared to PSM and it is becoming increasingly popular in social science and business research (McMullin and Schonberger 2020). We follow Hainmueller (2012) to converge the balanced variables on all three dimensions. The proofs of balance are reported in Table 14 (Panel B). We re-estimate our base-line model using the EB sample (Table 14, Panel A), we continue to find a positive relationship between ICOs and CSR.

TABLE 12

Institutional Cross-Ownership and CSR: Robustness to Endogeneity

This table examines the robustness of our results regarding the impact of ICOs on CSR to endogeneity concerns. CSR is the average of firms' environmental and social performance. ICO is the percentage of shares held by institutional cross-owners in the focal firm. ROA is the net income to total assets ratio. Size is the log of total asset (million Euros). Leverage is the liabilities to total asset ratio. MTB is the market equity to book equity ratio. Consistent with Lin *et al.* (2011) and Laeven and Levine (2008), we employ the average ICO by industry as an instrument for cross-owned firms. P-values are reported in parentheses with ***, ** and * denotes the statistical significance at the 1%, 5% and 10% levels, respectively.

	GMM	Granger Causality Test		2SLS	
				First stage	Second stage
	CSR	CSR	ICO	ICO	CSR
ICO	0.207***	0.177*	0.641***		0.917***
	(0.000)	(0.054)	(0.000)		(0.000)
Instrument				0.008***	
				(0.000)	
CSR		0.528***	0.013		
		(0.000)	(0.186)		
ROA	-0.001	0.001	0.001***	0.001*	-0.004**
	(0.287)	(0.730)	(0.009)	(0.089)	(0.056)
Size	0.068***	0.039***	0.002	0.022***	0.057***
	(0.000)	(0.007)	(0.535)	(0.000)	(0.005)
Leverage	0.018	0.066	-0.033	0.016	-0.043
	(0.152)	(0.465)	(0.199)	(0.581)	(0.715)
MTB	-0.005**	-0.010	0.003	0.002	-0.022***
	(0.018)	(0.100)	(0.110)	(0.304)	(0.005)
Lag_CSR	-0.203***				
	(0.000)				
Constant	0.498***	0.020	0.008	-0.178***	0.158
	(0.000)	(0.886)	(0.833)	(0.000)	(0.328)
Observation	**425**	**530**	**530**	**674**	**530**
R^2		**0.74**	**0.91**	**0.76**	**0.60**
Year					
Basmann_Overid (p-value)		**(0.629)**			
Wu-Hausman (p-value)		**(0.004)*** **			
Sargan test	**(0.997)**				
AR1	**(0.000)*** **				
AR2	**(0.514)**				

TABLE 13

Propensity Score Matching Test

This table reports the regression results using a propensity score matching (PSM) procedure. Panel A shows the determines of common institutional ownership (CROSS_DUMMY). Panel B presents the regression results using the matched sample. Panel C reports the comparison of the mean value of determines of CROSS_DUMMY in the matched sample. CSR is the average of firms' environmental and social performance. ICO is the percentage of shares held by institutional cross-owners in the focal firm. ROA is the net income to total assets ratio. Size is the log of total asset (million Euros). Leverage is the liabilities to total asset ratio. MTB is the market equity to book equity ratio. P-values are reported in parentheses with ***, ** and * denotes the statistical significance at the 1%, 5% and 10% levels, respectively

	PANEL A. Probit	PANEL B. PSM
	CROSS_DUMMY	CSR
ICO		0.293**
		(0.045)
ROA	0.003	-0.006*
	(0.410)	(0.057)
Size	0.064***	0.108***
	(0.008)	(0.000)
Leverage	-0.127	-0.115
	(0.443)	(0.182)
MTB	-0.058***	-0.001
	(0.000)	(0.918)
Constant	-0.199	-0.142
	(0.355)	(0.233)
Observation	**737**	**227**
R^2	**0.25**	**0.34**

PANEL C. Comparing treatment and control firm attributes of PSM sample

Variable	Treated Firm with cross-ownership	Control Firm without cross-ownership	Diff. in mean (t-stat)	Standardized bias%
ROA	5.120	4.915	0.420 (0.675)	5.1
Size	8.803	8.745	0.450 (0.651)	6.1
Leverage	0.218	0.226	-0.400 (0.690)	-5.8
MTB	2.080	2.197	-0.740 (0.459)	-8.7

TABLE 14

Entropy Balancing Test

This table reports the regression results using the Entropy balancing (EB) procedure (Panel A). This table also reports the proof that we achieve convergence in mean variance and skewness (Panel B). CSR is the average of firms' environmental and social performance. ICO is the percentage of shares held by institutional cross-owners in the focal firm. ROA is the net income to total assets ratio. Size is the log of total asset (million Euros). Leverage is the liabilities to total asset ratio. MTB is the market equity to book equity ratio. P-values are reported in parentheses with ***, ** and * denotes the statistical significance at the 1%, 5% and 10% levels, respectively

PANEL A. Entropy balancing		CSR
ICO		0.190**
		(0.045)
ROA		-0.004
		(0.178)
Size		0.111***
		(0.000)
Leverage		-0.090
		(0.302)
MTB		-0.016*
		(0.076)
Constant		-0.133
		(0.148)
Observation		**530**
R^2		**0.35**

PANEL B. Proof that we achieve convergence in mean variance and skewness

Before balancing	Treated			Control		
	mean	variance	skewness	mean	variance	Skewness
ROA	5.529	16.37	0.414	4.935	16.26	0.041
Size	8.57	1.233	-0.188	8.172	1.220	0.047
Leverage	0.224	0.020	0.699	0.252	0.014	0.130
MTB	2.365	2.414	1.119	2.296	1.856	1.141
After balancing	Treated			Control		
	mean	variance	skewness	mean	variance	Skewness
ROA	5.529	16.37	0.414	5.529	16.37	0.414
Size	8.570	1.233	-0.188	8.570	1.233	-0.188
Leverage	0.224	0.020	0.699	0.224	0.020	0.699
MTB	2.365	2.414	1.119	2.365	2.414	1.119

Discussion and Conclusion

This paper examines the relationship between ICOs and CSR in the French context. Furthermore, we considered the moderating role that product market competition plays in this relationship. The specific features of the French context make it an appropriate and suitable field to our study. Our findings show that ICOs are positively and significantly associated with the level of CSR. This result suggests that strengthened abilities and governance expertise of ICOs may drive up CSR performance by fostering industry coordination between cross-owned firms. The collaboration and synergies on tackling CSR issues can benefit all cross-owned firms. Individual actions are costly and lead to the free-rider problem. Our primary finding is robust to several sensitivity and endogeneity tests. Yet our findings also indicate that the influence of ICOs on CSR decreases as industry competition increases. In such context, ICOs' incentives to engage in CSR activities may be constrained by the difficulties of industry coordination and the pressure on firm profit margin. Hence, industry competition acts as a moderator for the relationship between ICOs and CSR. Additional analyses do not capture any difference regarding the influence on CSR, of ICOs with concentrated and dispersed ownership. This finding suggests that regardless the level of institutional cross-ownership, ICOs have the perceived ability to make cross-owned firms engage in CSR. Further analysis on investor characteristics show that our results come mainly from ICOs with long-term investment horizons because CSR requires time to payoff. Moreover, we find that Foreign ICOs positively affect CSR, in that they can transplant their social norms regarding environmental and social issues in cross-owned French firms. Overall, these findings illustrate effective governance expertise by ICOs in civil law country such as France.

These results have practical implications. First, policy makers must be aware that ICOs as a controlling mechanism, help mitigate the risk of stakeholder's expropriation in civil law country such as France. Second, our findings may benefit financial regulators who have not yet reached a consensus on institutional cross-ownership. The direct positive impact of ICOs on CSR should increase financial regulators confidence to foster institutional cross-ownership. Lastly, market investors in search of investment vehicles with a sustainable development and CSR orientation, should select cross-owned firms, particularly in low competition industry.

In line with existing research, our research can be extended to the European context. We propose also to investigate the characteristics and differentiating factors of ICOs compared to non ICOs and their respective impact on ESG strategy. Lastly, which companies benefit most from the ownership mix held by ICOs and if there is a problem of expropriation and tunneling between the held firms.

References

Allaya, M., Hamza, T. & Nizar, H. (2022). Institutional Ownership and Firm Productive Efficiency: Is It All About Time? Evidence from France. *Gestion 2000*, Vol. 39, p. 17-44. https://doi.org/10.3917/g2000.394.0017

Arellano, M., & Bond, S. (1991). «Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations», *The Review of Economic Studies*, Vol. 58, N° 2, p. 277-297. https://doi.org/10.2307/2297968

Attig, N., Cleary, S., El Ghoul, S., & Guedhami, O. (2012). «Institutional investment horizon and investment–cash flow sensitivity», *Journal of Banking & Finance*, Vol. 36, N°4, p. 1164-1180. https://doi.org/10.1016/j.jbankfin.2011.11.015

Attig, N., El Ghoul, S., Guedhami, O., & Suh, J. (2013). «Corporate social responsibility and credit ratings», *Journal of Business Ethics*, Vol. 117, p. 679–694. https://doi.org/10.1007/s10551-013-1714-2

Azar, J., Schmalz, M. C., & Tecu, I. (2018). «Anticompetitive effects of common ownership», *The Journal of Finance*, Vol. 73, N°4, p. 1513-1565. https://doi.org/10.1111/jofi.12698

Baltagi, B. H., & Griffin, J. M. (1995). «A dynamic demand model for liquor: the case for pooling», *The Review of Economics and Statistics*, Vol. 77, N°3, p. 545-554. https://doi.org/10.2307/2109914

Basmann, R. L. (1960). «On finite sample distributions of generalized classical linear identifiability test statistics», *Journal of the American Statistical Association*, Vol. 55, N° 292, p. 650-659. https://doi.org/10.1080/01621459.1960.10483365

Benkraiem, R., Galariotis, E., Guizani, A., & Lakhal, F. (2022). «Product market competition and stock price crash risk: Exploring the role of managerial ownership», *Research in International Business and Finance*, Vol. 63, 101786. https://doi.org/10.1016/j.ribaf.2022.101786

Boubaker, S., Chourou, L., Himick, D., & Saadi, S. (2017). «It's about time! The influence of institutional investment horizon on corporate social responsibility», *Thunderbird International Business Review,* Vol. 59, N°5, p. 571-594. https://doi.org/10.1002/tie.21910

Boubaker, S., Saffar, W., & Sassi, S. (2018). «Product market competition and debt choice», *Journal of Corporate Finance*, Vol. 49, p. 204-224. https://doi.org/10.1016/j.jcorpfin.2018.01.007

Brogi, M., Lagasio, V., & Porretta, P. (2022). «Be good to be wise: Environmental, Social, and Governance awareness as a potential credit risk mitigation factor», *Journal of International Financial Management and Accounting*, Vol. 33, N°3, p.522–547. https://doi.org/10.1111/jifm.12156

Buchanan, B., Cao, C. X., Chen, C. (2018). «Corporate Social Responsibility, firm value, and influential institutional ownership», *Journal of Corporate Finance*, Vol. 52, p. 73–95. https://doi.org/10.1016/j.jcorpfin.2018.07.004

Burnside, A. J., & Kidane, A. (2020). «Common ownership: An EU perspective», *Journal of Antitrust Enforcement,* Vol. 8, N°3, p. 456-510. https://doi.org/ 10.1093/jaenfo/jnz037

Campbell, J. Y. (1996). «Understanding risk and return», *Journal of Political Economy*, Vol.104, N°2, p. 298–345. https://doi.org/10.1086/262026

Cao, J., Liang, H., & Zhan, X. (2019). "Peer effects of corporate social responsibility". Management Science, Vol. 75, N°12, p. 5449-5996. https://doi.org/10.1287/mnsc.2018.3100

Carroll AB. (2021). « Corporate Social Responsibility: Perspectives on the CSR Construct's Development and Future », *Business & Society*. Vol. 60, N°6, p. 1258-1278. https://doi.org/10.1177/00076503211001765

Cheng, X., Wang, H. H., & Wang, X. (2021). «Common institutional ownership and corporate social responsibility», *Journal of Banking & Finance*, Vol. 136, p. 106-218. https://doi.org/10.1016/j.jbankfin.2021.106218

Do, T.K., Huang, H.H., Ouyang, P. (2022). «Product market threats and leverage adjustments», *Journal of Banking and Finance*, Vol.35, 106365. https://doi.org/10.1016/j.jbankfin.2021.106365

Döring, S., Drobetz, W., El Ghoul, S., Guedhami, O., & Schröder, H. (2021). «Cross-country determinants of institutional investors' investment horizons», *Finance Research Letters,* Vol. 39, p. 101-641. https://doi.org/10.1016/j.frl.2020.101641

Ducassy, I., & Montandrau, S. (2015). «Corporate social performance, ownership structure, and corporate governance in France», *Research in International Business and Finance,* Vol. 34, p. 383-396. https://doi.org/10.1016/j.ribaf.2015.02.002

Dyck, A., Lins, K. V., Roth, L., & Wagner, H. F. (2019). «Do institutional investors drive CSR? International Evidence», *Journal of Financial Economics*, Vol. 131, N°3, p. 693-714. https://doi.org/10.1016/j.jfineco.2018.08.013

Eding, E., & Scholtens, B. (2017). «Corporate social responsibility and shareholder proposals», *Corporate Social Responsibility and Environmental Management*, Vol. 24, N°6, p.648-660. https://doi.org/10.1002/csr.1434

Edmans, A., Doron, L., & Devin R. (2019). «Governance under common ownership», *The Review of Financial Studies*, Vol. 32, N°7, p. 2673-2719. https://doi.org/10.1093/rfs/hhy108

El Ghoul, S. E., Guedhami, O., & Kim, Y. (2017). «Country-level institutions, firm value, and the role of corporate social responsibility initiatives», Journal of International Business Studies, Vol. 48, N°3, p. 360-385. https://doi.org/10.1057/jibs.2016.4

El Ghoul, S., Guedhami, O., Kwok, C. C., & Mishra, D. R. (2011). «Does CSR affect the cost of capital?», *Journal of Banking & Finance*, Vol. 35, N° 9, p. 2388-2406. https://doi.org/10.1016/j.jbankfin.2011.02.007

Flammer, C. (2015). «Does product market competition foster CSR? Evidence from trade liberalization», *Strategic Management Journal*, Vol. 36, N°10, p. 1469-1485. https://doi.org/ 10.1002/smj.2307

Freeman R. (1984). «Strategic management: A stakeholder approach», *Pitman Publishing, Boston.* https://doi.org/10.2139/ssrn.263511

Friedman, M. (1970). «The social responsibility of business is to increase its profits», *The New York Times Magazine*. https://doi.org/10.1007/978-3-540-70818-6_14

Fu, Y., Liu, C., Qin, Z., & Zhao, D. (2022). «Institutional cross-ownership and firm social performance», *Corporate Governance: An International Review*, p. 1-27. https://doi.org/10.1111/corg.12447

Gloßner, S. (2019). «Investor horizons, long-term blockholders, and corporate social responsibility», *Journal of Banking & Finance*, Vol. 103, p. 78-97. https://doi.org/10.1016/j.jbankfin.2019.03.020

Greene, W. H. (2003). «Econometric analysis», *India: Pearson Education.* https://doi.org/10.4236/tel.2015.52036

Gujarati, D. N., & Porter, D. C. (2003). «Basic econometrics (4th) », *Prentice Hall*. https://doi.org/10.4236/ojapps.2022.125044.

Hamza, T., Mhadhbi, R. & Barka, Z. (2023). CSR investment and operating and financial leverage under competitive pressure. *International Journal of Business Governance and Ethics*, Vol. 1, N°1. https://doi.org/10.1504/ijbge.2023.10053634

Hasan, I., Kobeissi, N., Liu, L., & Wang, H. (2016). «Corporate social responsibility and firm financial performance: The mediating role of productivity», *Journal of Business Ethics,* Vol. 149, N°3, p. 671-688. https://doi.org/10.1007/s10551-016-3066-1

Hausman, J. (1978). «Specification tests in econometrics», *Econometrica*, Vol. 46, p. 1251-1271. https://doi.org/10.2307/1913827

He, J. J., & Huang, J. (2017). «Product market competition in a world of cross-ownership: Evidence from institutional blockholdings», *The Review of Financial Studies*, Vol. 30, N°8, p. 2674-2718. https://doi.org/10.1093/rfs/hhx028

He, J. J., Huang, J., & Zhao, S. (2019). «Internalizing governance externalities: the role of institutional cross-ownership», *Journal of Financial Economics*, Vol. 134, N°2, p. 400-418. https://doi.org/10.1016/j.jfineco.2018.07.019

Hillman A. J., Keim G. D. (2001). «Shareholder value, stakeholder management, and social issues: What's the bottom line?», *Strategic Management Journal*, Vol. 22, N°2, p. 125-139. https://doi.org/10.1002/1097-0266(200101)22:23.0.CO;2-H

Kang, J.-K., Luo, J., & Na, H. S. (2018). «Are institutional investors with multiple blockholdings effective monitors? », *Journal of Financial Economics*, Vol. 128, N°3, p. 576-602. https://doi.org/10.1016/j.jfineco.2018.03.005

Kempf, E., Manconi, A., & Spalt, O. (2017). «Distracted Shareholders and Corporate Actions», *Review of Financial Studies*, Vol. 30, N°5, p. 1660–1695. https://doi.org/10.1093/rfs/hhw082

Kim, H., Kim, T., Kim, Y., & Park, K. (2019). «Do long-term institutional investors promote CSR activities? », *Journal of Banking & Finance*, Vol. 101, p. 256-269. https://doi.org/10.1016/j.jbankfin.2018.11.015

Kim, Y., Park, M. S., & Wier, B. (2012). «Is earnings quality associated with corporate social responsibility? », *The Accounting Review*, Vol. 87, N°3, p.761-796. https://doi.org/10.2308/accr-10209

Laeven, L., & Levine, R. (2008). «Complex ownership structures and corporate valuations», *The Review of Financial Studies*, Vol. 21, p. 579–604. https://doi.org/10.1093/rfs/hhm068

Lewellen, J., & Lewellen, K. (2022). «Institutional investors and corporate governance: The incentive to be engaged», *The Journal of Finance*, Vol. 77, N°1, p. 213-264. https://doi.org/10.1111/jofi.13085

Lin, C., Ma, Y., Malatesta, P., & Xuan, Y. (2011) «Ownership structure and the cost of corporate borrowing. *Journal of Financial Economics,* Vol. 100, N°1, p. 1-23. https://doi.org/10.1016/j.jfineco.2010.10.012

Liu, B., Ju, T., & Gao, S. S. S. (2021). «The combined effects of innovation and corporate social responsibility on firm financial risk», *Journal of International Financial Management and Accounting*, Vol. 32, N°3, p. 283–310. https://doi.org/10.1111/jifm.12135

Nizar, H., Hamza, T., & Lakhal, F. (2023). How does institutional cross-ownership affect firm productivity? The importance of the corporate social responsibility channel. *International Journal of Finance & Economics*, p. 1–23. https://doi.org/10.1002/ijfe.2773

McWilliams, A., & Siegel, D. (2001). «Profit maximizing corporate social responsibility», *Academy of Management Review*, Vol.26, N°4, p. 504-505. https://doi.org/10.2307/259398

Neter, J. (1996). «Applied Linear regression Models», *Irwin, Homewood IL*.

Park, J., Sani, J., Shroff, N., & White, H. (2019). «Disclosure incentives when competing firms have common ownership», *Journal of Accounting and Economics*, Vol. 67, N°3, p. 387-415. https://doi.org/10.1016/j.jacceco.2019.02.001

Posner, E. A., Morton, F. M. S., & Weyl, E. G. (2016). «A proposal to limit the anti-competitive power of institutional investors», *Antitrust Law Journal,* Vol. 81. N°3, p.669-728. https://doi.org/10.2139/ssrn.2872754

Roberts, M. R., & Whited, T. M. (2013). «Endogeneity in empirical corporate finance», *Handbook of The Economics of Finance, Elsevier.* https://doi.org/10.1016/b978-0-44-453594-8.00007-0

Schmalz, M. C. (2018). «Common-ownership concentration and corporate conduct», *Annual Review of Financial Economics*, Vol. 10, N°1, p. 413-448. https://doi.org/10.1146/annurev-financial-110217-022747

Serafeim, G. (2018). «Investors as Stewards of the Commons? », *Journal of Applied Corporate Finance, Vol.* 30, N°2, p.8-17. https://doi.org/10.1111/jacf.12294

Shleifer, A. (2004). «Does competition destroy ethical behavior? », *American Economic Review*, Vol. 94, N°2, p. 414-418. https://doi.org/10.1257/0002828041301498

Stock JH. & Watson, MW. (2008). «Heteroskedasticity-robust standard errors for fixed-effects panel-data regression», *Econometrica*, Vol. 76, N°1, p. 155-174. https://doi.org/10.1111/j.0012-9682.2008.00821.x

Tian, G. Y., & Twite, G. (2011). «Corporate governance, external market discipline and firm productivity», *Journal of Corporate Finance*, Vol. 17, N°3, p. 403-417. https://doi.org/10.1016/j.jcorpfin.2010.12.004

Wooldridge, J. M. (2003). «Cluster-sample methods in applied econometrics», *The American Economic Review*, Vol. 93, N°2, p. 133–138. https://doi.org/10.1257/000282803321946930

Wu, D. M. (1974). «Alternative tests of independence between stochastic regressors and disturbances: Finite sample results», *Econometrica: Journal of the Econometric Society*, Vol. 42, p. 529-546. https://doi.org/10.2307/1911789