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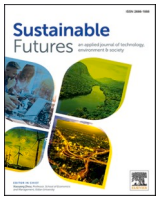

Toward sustainability: ESG bridging socioemotional wealth and sustainable financial in family firms☆,☆☆

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ABSTRACT

The socioemotional wealth of family businesses fosters long-term orientation, aligning with the environmental, social, and governance (ESG) principles essential for sustainable value creation. This study utilised panel data from 1,181 Chinese-listed family firms between 2016 and 2020. It employed multiple regression and mediation analysis to examine how ESG engagement mediates the relationship between family control and the firms' financial outcomes. The findings revealed that proactive ESG strategies enhance the positive effects of family control on financial outcomes, though the degree of mediation varied across performance indicators. These results highlight the strategic importance of integrating ESG considerations into financial planning for family businesses, offering valuable insights for managers and investors seeking to drive sustainable development through informed capital allocation and targeted governance structures. From a policy perspective, these results suggest the need for government incentives and enhanced disclosure standards to encourage broader ESG adoption among family firms in emerging markets.

1. Introduction

Fueled by commitments to sustainable development, corporate engagement with sustainability initiatives has risen sharply [1]. However, most existing research focuses on developed economies [2], leaving emerging markets understudied. Without sustainable practices, these rapidly expanding regions risk structural problems, political conflicts, and environmental damage [3]. In this context, environmental, social, and governance (ESG) engagement is a crucial strategy for improving corporate reputation [4], performance [5], productivity [6], and alignment with societal values [7].

Family firms (FFs), a significant economic force in many emerging markets, are often guided by socioemotional wealth (SEW), which encourages long-term, responsible strategies [8,9]. Viewing their businesses as extensions of themselves [10], family members naturally align their long-horizon goals with ESG commitments [11,12], fulfilling ethical responsibilities in the process [13]. By enhancing governance, transparency, and management efficiency, ESG initiatives strengthen investor confidence and improve firm profitability [14,15].

Family control often grants owners greater influence over strategic decisions [16]. This control enables them to safeguard SEW by ensuring stability [17,18], preserving legacy, and maintaining competitive strength in unpredictable environments [19]. Research indicates that FFs' environmental and social initiatives are less volatile [7]. Nevertheless, the relationship between family control and financial performance (FP) is complex [20] and influenced by many factors [21]. Previous studies have identified several mediators in this relationship. These include R&D investment [22], heir control [23], corporate diversification [24], and internationalisation [25]. Despite this progress, comprehensive analysis of ESG engagement as a mediator remains limited [26].

Research on family control and ESG preferences remains limited [27]. ESG is vital for FFs, as it is associated with lower systemic risk [28], broader investor bases, reduced capital costs [29,30], and the protection of SEW from financial and non-financial threats [18]. Additionally, ESG practices can strengthen family influence within firms [31]. However, much of the literature focuses on North American and European contexts [32,33,34], with less attention given to emerging markets [35,36].

As the world's second-largest economy and rapidly evolving emerging market, China provides a particularly relevant setting for this

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study. The absence of a standardised ESG framework raises concerns about the authenticity and effectiveness of ESG practices [37]. Moreover, the Chinese private sector, especially FFs, plays a significant role in GDP and employment [38], making their ESG participation critical for sustainable development. However, despite the acknowledged importance of SEW-driven governance, the relationship between ESG engagement and FF value in China remains unclear [26].

This study investigates how family control influences the FP of FFs in China through their engagement with ESG practices. This research examines how ESG practices shape corporate financial outcomes by viewing family governance through the SEW lens.

This study presents three primary contributions: First, it demonstrates that family control, guided by SEW, strategically aligns with ESG engagement. Chinese FFs, reflecting broader trends in emerging markets, actively integrate ESG principles into their strategic frameworks to balance traditional values with contemporary sustainability needs.

Second, this research identifies that combining family control and ESG engagement significantly enhances FP. This insight highlights how sustainable practices tailored to local familial contexts strengthen FF performance in emerging markets.

Third, the findings reveal that ESG engagement is a crucial mediator between family control and firm FP, with its effects varying across different financial indicators. These findings enhance the theoretical understanding of the relationship between family governance and sustainability.

This study is structured as follows: Section 2 reviews relevant literature and presents the developed hypotheses. Section 3 outlines the sample and variables and explains the methodology employed. Section 4 analyses the data and presents the empirical results, along with model assessments and robustness tests. Section 5 discusses the findings, and the final section provides a conclusion.

2. Literature review

2.1. SEW and ESG

The concept of SEW is vital to understanding the unique dynamics of FFs. Gómez-Mejía et al. [10] and Miller Le Breton-Miller [17] define SEW as the non-economic goals and emotional benefits that family members derive from their business. These goals include preserving the family's identity, reputation, and influence within the firm [39] and striving to create social capital [40,41]. Furthermore, SEW emphasises the interplay between family-driven emotional priorities and strategic choices [42], illustrating how affective endowments shape governance, decision-making, and resource allocation in a way that differs from non-family counterparts.

In line with the SEW perspective, FFs view environmental and social strategies as tools to retain market share and as opportunities to protect the environment [16], support future generations, and create sustained competitive advantages [43]. Recent studies demonstrate that FFs invest more heavily in innovative solutions to environmental challenges than non-FFs, reflecting their desire to safeguard their emotional legacy and long-term impact [12]. By integrating ESG initiatives with their core values, family owners and managers enhance the family's image and reputation while building social capital [44]. In this context, SEW-driven objectives act as a catalyst for ESG adoption, as family owners often perceive socially and environmentally responsible practices not merely as compliance efforts [45], but as an extension of the family's own identity and heritage [8].

FFs often adopt conservative strategic approaches and avoid risks [46]. This cautious mindset guides their careful consideration of new practices, including those related to ESG criteria [47]. However, this aversion to risk does not preclude their willingness to engage in sustainability efforts [48]. Instead, they actively align their ESG initiatives with long-term family values and ethical business practices, prioritising lasting benefits over immediate financial gains [49].

2.2. Family control and financial performance

Family members prioritise long-term stability and intergenerational succession by focusing on preserving their legacy [50], practising effective governance [40], and maintaining community reputation [51]. Research demonstrates that these deeply rooted values foster a business environment with strong kinship ties, collective goals, and intergenerational respect [52]. This cohesion enhances the firm's governance capacity and decision-making processes, leading to better external reputation and overall FP.

However, some studies highlight potential governance challenges that arise from centralised family control [6]. For example, Ali et al. [53] argue that such control can lead to manipulative accounting practices for personal gain, suggesting that not all FFs achieve strong governance outcomes [54]. Nonetheless, emerging evidence shows that concentrated ownership by founders or their descendants effectively reduces agency costs and allows for closer oversight of managers and employees, thereby improving operational efficiency [55].

2.3. ESG and company financial performance

Recent research offers mixed evidence regarding the relationship between ESG factors and FP, with some studies finding positive and negative outcomes [33,56,34]. Several owners view ESG investments as high-cost initiatives that provide few immediate personal returns [57]. This perception often stems from the conflict between short-term profit goals and the long-term benefits of ESG [54]. Nonetheless, an emerging body of literature suggests that responsible strategic investing can significantly benefit family enterprises. The alignment of ESG's longer time horizon with the enduring values held by FFs enhances this potential [58].

FFs engage with ESG in two primary ways: reputational enhancement and risk mitigation [11]. First, by prioritising ESG, firms can improve corporate reputation, attract investors, increase employee satisfaction, and foster innovation [59,49]. When companies demonstrate leadership in social responsibility and environmental stewardship, they often observe a positive correlation with share price performance [60]. These gains are for compliance and to resonate with the prestige and emotional values that FF owners cherish [33,43].

Second, ESG is an insurance mechanism that shields FFs from reputational and financial harm (Wan [61]). Evidence suggests that ESG engagement can reduce the adverse effects of corporate innovation failures [62], adverse social events, and investment risks [63]. By fostering transparency and lowering agency costs [64], ESG helps to decrease information asymmetry and improve access to financing [65]. This protective role becomes vital for FFs, where potential risks can threaten economic interests and family reputations.

2.4. Chinese FFs and ESG

Chinese FFs often view ESG commitments as direct extensions of their ethical and social mandates [66]. In this light, ESG initiatives become integral to preserving the family's honour and social standing. Trust, favouritism towards relatives, and a strong sense of moral responsibility drive ESG adoption. By embedding ESG initiatives in their enterprises' cultural and ethical framework, Chinese FFs demonstrate how SEW-driven priorities transcend geographical and cultural boundaries, making their ESG engagement contextually distinct and theoretically significant [67].

Based on this understanding, we propose the following hypothesis:

H1: In Chinese FFs, family members' SEW positively influences ESG engagement.

Cultural norms heavily influence how family-controlled businesses operate in China [68]. Confucian values, which dominate the Chinese cultural context, promote loyalty [40], family-centred decision-making, and strong commitments to preserving family heritage [69]. In this

context, family members protect and extend their legacy [51], especially in a volatile business environment [70]. By securing healthy profits and mitigating economic uncertainty, Chinese FFs strive to ensure their continuity and legacy [38]. Trust and favouritism, common in Chinese FFs, promote efficient governance behaviours that positively influence corporate performance. These cultural dimensions and the SEW framework enhance FP.

We therefore propose the following hypothesis:

H2. Therefore, we propose the following hypothesis:

H2. Family control positively influences corporate financial performance in Chinese FFs.

Stringent environmental regulations [71] and government-led social initiatives [72] are propelling firms to adopt more sustainable and socially responsible practices [73]. Businesses increasingly recognise that these pressures are vital for maintaining competitiveness and enhancing family reputation in China's growing capital market [14,74]. Although China is still in the early stages of adopting ESG-driven investment strategies—primarily led by retail investors [75]—the rising trends in ESG investment underscore the importance of sustainability for corporate success [76] and fostering stronger stakeholder relationships [32].

Considering this literature, we propose the following hypothesis:

H3. ESG engagement can positively affect firm financial performance in Chinese FFs

Moreover, ESG practices in Chinese family businesses connect family control to financial performance [26]. First, when FFs adopt ESG, they demonstrate a corporate social responsibility that stems from their SEW-driven motivations, focusing on family legacy and reputation [77]. Second, in China's centralised governance structure, FFs that align with ESG-related government priorities can attract more institutional support [78]. This strategic alignment reinforces the family's responsibility to business and society and strengthens the firm's market positioning [79].

Therefore, we propose a fourth hypothesis:

H4. ESG engagement positively mediates the relationship between family control and corporate financial performance in Chinese FFs.

3. Methodology and methods

3.1. Data collection

This study examined Chinese-listed FFs from 2016 to 2020, marked by significant changes in China's regulatory environment that directly influenced corporate sustainability practices. The chosen timeframe strategically captured the effects of major legislative milestones introduced in 2015, such as the Overall Plan for Ecological Civilization System Reform and the Green Bond Support Project Catalogue. These policies profoundly affected how family businesses approached green finance and ESG standards in response to government pressures to meet increasing environmental expectations [80]. Additionally, implementing the 'Zero-COVID' policy after 2020 and its economic repercussions justified excluding later years to ensure data consistency. This context provided a unique opportunity to explore how FFs navigated the evolving governance landscape, particularly in managing their reputation and sustainability strategies amid stringent governmental expectations [81].

The initial dataset, comprising 7135 firm-year observations, is sourced from the China Stock Market Database. In China, a company is considered a family business if it is controlled by one family or several related families, according to Gao et al. [82]. This study adopted the standards established by Wu et al. [26] to refine this categorisation further. Specifically, it focused on FFs that explicitly disclose family control in their annual audit reports or other relevant documents, if the family's ownership stake is at least 20 %.

A meticulous screening process is applied to enhance data quality and relevance. Observations were excluded for reasons such as sector-specific regulations, incomplete data, and outliers, as detailed in Table 1. After these refinements, the final sample comprised 6710 observations from 1181 companies. The dataset is winsorised at the 1 % level for all variables to minimise the influence of outliers.

3.2. Description of variables

3.2.1. Independent variable

In this study, the independent variable is family control, which quantifies the extent of a family's influence over a company's decisions, primarily assessed through shareholding. Family control was measured as the aggregated voting rights of family members holding beneficial ownership, following established methodologies [83,84,85]. When multiple family members held beneficial ownership, we aggregated their control percentages to represent the family's overall influence

3.2.2. Dependent variables

This study employs accounting-based and market-based measures to gauge firm FP. Accounting measures capture historical outcomes and internal efficiencies, while market measures assess investors' expectations regarding future earnings [86]. Specifically, return on assets (ROA)—the ratio of earnings before interest and taxes over the book value of average total assets—is used to evaluate profitability efficiency [87]. As a standard performance indicator, ROA effectively captured how effectively a firm utilised its assets to generate profits [88,5,89].

3.2.3. Mediating variable

The mediator variable is the Huazheng ESG score, a widely recognised metric for evaluating the ESG performance of Chinese companies [90]. Developed by a domestic consulting and financial services firm, this score merged global ESG standards with localised factors pertinent to the Chinese market (e.g., [91,92,93]). Its consideration of China-specific elements—such as poverty alleviation programmes, social situations, environmental governance measures, and government-imposed incentives or penalties—made it particularly apt for capturing ESG engagements in Chinese-listed firms. Table 2 provides details of the themes and metrics used in calculating this score.

3.2.4. Control variables

Several control variables are incorporated to isolate the influence of exogenous factors on FP. **Firm Size** is measured by the natural logarithm of total assets, accounting for the influence of scale. **Leverage** reflects the ratio of debt to total assets, influencing profitability and stability [94]. **Firm Age** captures potential maturity advantages, older firms may exhibit stable market relationships and operational practices affecting performance. **Fixed Asset Ratio** quantifies long-term capital investments [95]; **Growth Rate** is used to gauge the expansion dynamics, and **Turnover Rate** measures operational efficiency [96]. The overall variable description is shown in Table 3.

Table 1
Sample selection process.

Observations	
Preliminary sample size (2015–2020)	7135
Observations in the financial sector	53
Observations listed less than one year or observations with incomplete information on shareholdings / corporate governance	337
Outliers	55
Full sample size	6710

Table 2
HuaZheng chinese ESG framework indicators.

Pillars	Theme	Key Indicators
Environment	Environmental Management System	Environmental Management System
	Green Operation Objectives	Low-Carbon Plans or Objectives
		Green Procurement Policies or Plans
	Green Products	Carbon Footprint
		Sustainable Products or Services
	External Environmental Certification	Products or Company Environmental Certification
	Environmental Non-compliance Events	Environmental Non-compliance and Illegal Events
Social	Institutional System	Quality of Social Responsibility Reporting
	Health and Safety	Objectives or Plans to Reduce Safety Incidents
		Negative Operational Events
		Trends in Operational Accidents
	Social Contribution	Donations Related to Social Responsibility
		Employee Growth Rate
		Poverty Alleviation
	Quality Management	Products or Company Quality Certification
Governance	Institutional Construction	Corporate Self-ESG Supervision
	Governance Structure	Related Transactions
		Proportion of Directors and Supervisors
	Business Activities	Tax Transparency
	Operational Risk	Asset Quality
		Overall Financial Credibility
		Short-term Solvency Risk
		Proportion of Major Shareholders' Pledges
		Quality of Information Disclosure
	External Sanctions	Exchange Sanctions, Securities Regulatory Commission Penalties, Disappearances, and Investigations
		Listed Company Executives' Violations

Table 3
Definition of variables.

Variables	Acronym	Variable measurement
Dependent variables		
Return on Assets	ROA	The ratio of earnings before interest and taxes over the book value of average total assets
SA index*	SA	Measuring Financial Constraints
Mediator variable		
ESG score	ESG	Hua Zheng ESG scores for each company, a higher score means a higher engagement
Independent variable		
Family shareholding	FAM	The proportion of control of listed companies owned by actual family controllers
Control variables		
Firm size	Fsize	The natural logarithm of the book value of total assets (Yuan)
Leverage	LEV	The ratio of total debt to total assets
Firm age	Firmage	Natural logarithm of the company's establishment year + 1
Fixed asset ratio	FIXED	The ratio of fixed assets to total assets
Growth rate	Growth	The ratio of the current year's operating income to the previous year's income minus one
Turnover Rate	Dturn	The frequency of stock turnover in the market over a year
Year	year	Year
Industry	IND	China 2012 Industry Classification, exclude the financial sector

*SA included for robustness testing; formula for calculation in main text.

3.3. Data analysis

This study examined the effect of family control on firm FP in China. To achieve this, we adopted a mediating approach to investigate how ESG engagement influenced the relationship between family control and FP (see Fig. 1). Mediation analysis followed Baron and Kenny's [97] framework, using Models 1–3 to test the direct and mediated effects of ESG engagement. Ordinary Least Square regression analysis (using STATA 17 as a statistical software package) is employed to estimate the models, testing direct and indirect correlations between ESG engagement and FP.

Correlation (a) represents the direct effect of family control on FP and can be described as follows:

$$ESG_{it+1} = B_i + B_1 FAM_{it} + \sum B\ CONTROLS_{it} + i.year * i.Industry + u_{it} + \varepsilon_{it}$$

Correlation (b) represents the direct effect of ESG engagement on FP and can be described as follows:

$$FP_{i,t} = a_0 + a_1\ ESG_{i,t+1} + \sum \alpha\ CONTROLS_{i,t} + i.year * i.Industry + u_{i,t} + \varepsilon_{i,t}$$

Correlation (c) represents the centralized control practices on FP without any mediation effect and can be described as follows:

$$FP_{i,t} = a_0 + a_1\ FAM_{i,t} + \sum \alpha\ CONTROLS_{i,t} + i.year * i.Industry + u_{i,t} + \varepsilon_{i,t}$$

Correlation (c') represents the centralized control practices on FP but with ESG mediation effect. Accordingly, this study runs the following regression model:

$$FP_{it} = a_0 + a_1\ FAM_{it} + a_2 ESG_{t+1} + \sum \alpha\ CONTROLS_{it} + i.year * i.Industry + +u_{it} + \varepsilon_{it}$$

Where u is the between-entity error, and ε is the within-entity error.

Considering that ESG will not immediately affect the company, this study included a one-year lag. Year-industry interaction fixed effects were introduced in the models to address collinearity, incorporate non-time-varying effects, and, more crucially, capture the heterogeneous responses of different industries to economic shocks within the same period.

The mediating variables' role generates a decomposition of the total effect (c) of the independent variables on the dependent variable into a direct effect (c') and an indirect effect (a,b).

Finally, bootstrapping and the Sobel test were used to test the robustness of the results in assessing the mediating effect of ESG engagement. Bootstrapping is a resampling technique that estimates the properties of an estimator by sampling from an approximate distribution [98]. This method is advantageous for our analysis since it does not depend on the normality of the sample distribution, making it a robust approach [99]. Bootstrapping allows for more accurate standard errors to be calculated and is useful in constructing hypothesis verification, particularly in cases where traditional parametric assumptions may not be valid [100].

In conjunction with bootstrapping, the Sobel test was employed to examine the significance of the mediation effect. The Sobel test is a method used to test the significance of mediation effects within a model, providing a statistical basis to determine the impact of including a mediator variable [101].

Applying these methods allowed us to rigorously test both the direct and indirect effects in our mediated effects models [102] and provide a comprehensive understanding of the mediating role of ESG in the context of Chinese FFs.

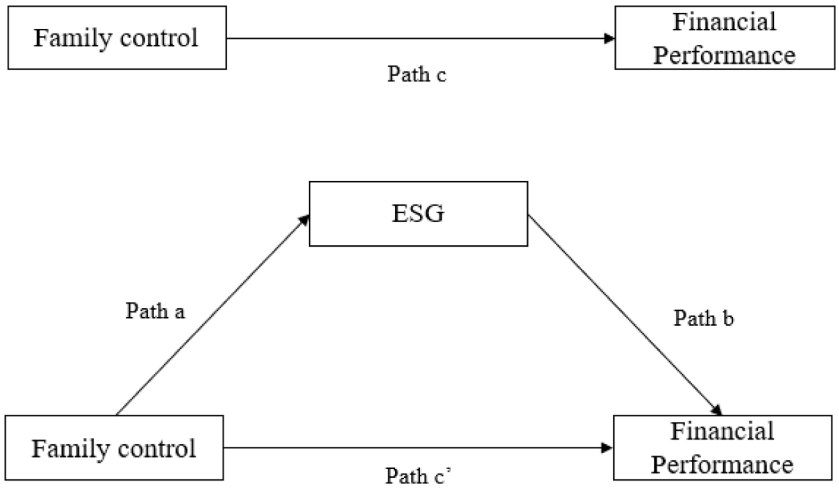

Fig. 1. Mediating effects regression model path.

4. Empirical results

4.1. Model validation

Table 4 presents the descriptive statistics for the study variables. The average ROA for the sample firms is 7 %, reflecting their overall performance. The average family control percentage is 45 %, indicating substantial family influence in the Chinese business context. ESG scores range from a minimum of 41.67 to a maximum of 89.81, highlighting varying levels of ESG engagement among Chinese firms.

We employ the variance inflation factor (VIF) and Pearson product-moment correlation coefficient to address the potential multicollinearity in the regression models. VIF values, as presented in Table 5, are 1.14, well below the threshold of 10, indicating that multicollinearity does not significantly affect our regression models. We use the Pearson correlation coefficient to evaluate linear relationships between variables based on their covariance and standard deviations [103].

The analysis reveals a positive but modest correlation between ROA and the SA (size-age) index (0.066***). Family control (FAM) demonstrates a positive correlation with ROA and SA, suggesting that increased family involvement enhances FP while mitigating financial constraints. ESG performance (ESGt+1) was also positively correlated with financial outcomes, supporting the idea that effective ESG practices improve a firm's financial health.

Conversely, leverage (lever) negatively correlates with ROA and SA, indicating that higher leverage may reduce FP and increase financial constraints. Similarly, firm size (Fsize) negatively correlates with SA, suggesting larger firms may face greater financial constraints. Other variables, such as turnover rate (Dturn), firm age, and growth with ROA, SA and Tobin's Q, reflect diverse effects on FP and constraints. The statistical significance of these correlations, denoted by asterisks in Table 5, emphasises the robustness of our findings.

4.2. Regression results

Multiple regression with mediation effects was performed to test our hypotheses. Table 6 shows the results according to our model. We used the following step-by-step approach to explore each path:

1. Path *c* - Total Effect of Family Control on Firm Financial Performance.

The regression analysis for Path c reveals a significant positive relationship between family control and firm FP, with a coefficient of 0.090 ($p < 0.01$). This finding supports H2, indicating that family control enhances FP, likely driven by family-controlled firms' focus on preserving and optimising family wealth.

2. Path *a* – Relationship between Family Control and ESG Engagement.

Results reveal a positive relationship between family control and ESG engagement, with a coefficient of 3.210 ($p < 0.1$). This finding supports H1, suggesting that family-controlled firms increasingly view ESG engagement as a strategic tool for reputation management and long-term growth.

3. Path *b* - Impact of ESG Engagement on Firm Financial Performance.

The analysis of Path b yields a significant positive effect of ESG engagement on FP, with a coefficient of 0.002 ($p < 0.01$). This finding aligns with H3, highlighting ESG practices as strategic factors that improve operational efficiency, risk management, and stakeholder relations, enhancing FP.

4. *Path c'* – Direct Effect of Family Control on Firm Financial Performance with ESG as a Mediator.

In Path c', the direct effect of family control on FP remains significant

Table 4
Statistical description.

Variable	n	Mean	S.D.	Min	0.25	Mdn	0.75	Max
ROA	6710	0.07	0.06	−0.08	0.04	0.06	0.1	0.2
SA*	6710	−3.82	0.22	−5.60	−3.96	−3.80	−3.66	−3.05
FAM	6698	0.46	0.15	0.22	0.34	0.45	0.58	0.76
ESGt+1	6702	72.88	6.09	41.67	69.55	73.49	77.03	89.81
lever	6710	0.37	0.18	0.07	0.22	0.35	0.5	0.78
Fsize	6710	21.88	0.99	20.18	21.12	21.77	22.5	24.2
Cashflow	6710	0.06	0.08	−0.44	0.02	0.06	0.09	2.22
Dturn	6710	−0.21	0.54	−1.83	−0.36	−0.04	0.05	0.77
FirmAge	6710	2.91	0.28	1.95	2.71	2.94	3.14	3.37
Growth	6593	0.23	0.43	−0.43	−0.01	0.13	0.34	1.92
FIXED	6710	0.19	0.12	0	0.1	0.18	0.27	0.87

Table 5
Variance inflation factor and pearson correlation matrix.

Variable	VIF	ROA	SA	FAM	ESG_{t+1}	lever	Fsize	Dturn	FirmAge	Growth	FIXED
ROA		1									
SA	\	0.066***	1								
FAM	1.04	0.264***	0.098***	1							
ESG_{t+1}	1.08	0.311***	0.068***	0.156***	1						
Lever	1.43	−0.292***	−0.073***	−0.089***	−0.148***	1					
Fsize	1.44	−0.021*	−0.168***	−0.079***	0.035***	0.517***	1				
Dturn	1.06	−0.060***	−0.125***	−0.120***	−0.068***	0.093***	0.173***	1			
FirmAge	1.03	−0.058***	−0.856***	−0.061***	−0.068***	0.079***	0.106***	0.120***	1		
Growth	1.03	−0.025**	0.023*	0.020*	0.030**	0.042***	0.025**	−0.0170	0.00900	1	
FIXED	1.03	−0.040***	−0.044***	−0.040***	−0.052***	0.031**	0.029**	0.0120	0.031**	−0.163***	1
Mean VIF	1.14										

Table 6
Regression model results.

VARIABLES	(path c) FP	(path c') FP	(path a) ESG_{t+1}	(path b) FP
FAM	0.090***	0.085***	3.210*	
	(5.06)	(4.82)	(1.78)	
ESG_{t+1}		0.002***		0.002***
		(8.36)		(8.50)
Lever	−0.148***	−0.139***	−5.873***	−0.135***
	(−13.25)	(−12.63)	(−6.26)	(−12.20)
Fsize	0.026***	0.023***	2.031***	0.023***
	(8.34)	(7.41)	(7.17)	(7.33)
Dturn	0.003***	0.003***	−0.083	0.003***
	(3.38)	(3.58)	(−0.99)	(3.42)
FirmAge	0.017	0.018	−0.463	0.026*
	(1.23)	(1.35)	(−0.33)	(1.90)
Growth	0.001	0.001	0.368*	0.001
	(0.59)	(0.31)	(1.88)	(0.35)
FIXED	−0.070***	−0.066***	−2.822**	−0.064***
	(−5.41)	(−5.22)	(−2.07)	(−5.09)
Constant	−0.487***	−0.540***	34.130***	−0.528***
	(−5.57)	(−6.38)	(4.32)	(−6.39)
Industry * Year	YES	YES	YES	YES
Robust Error	YES	YES	YES	YES
Observations	6581	6573	6573	6585
R-squared	0.175	0.195	0.081	0.187
Number of firms	1811	1808	1808	1811

Robust t-statistics in parentheses.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

(coefficient: 0.085, $p < 0.01$), though slightly reduced compared to Path c. The reduction, combined with the significant positive impact of ESG on FP, indicates a partial mediating effect of ESG engagement. This finding supports H4, demonstrating that although family control directly influences FP, ESG engagement significantly contributes to the relationship.

Sobel, Goodman, and Bootstrap tests confirm the mediating role of ESG engagement (Table 7). The Sobel test reveals a significant indirect effect of ESG engagement (estimate: 0.015, z-value: 10.404, $p < 0.001$). This high significance leve is corroborated by the Aroian and Goodman tests, reinforcing the robustness of the mediation effect. Significant path coefficients (a_coefficient: 5.822, $p < 0.001$; b_coefficient: 0.002, $p < 0.001$) confirm strong relationships between family control, ESG engagement, and FP.

Even with ESG as a mediator, the direct effect of family control on FP remains significant (Direct_effect_c': 0.078, $p < 0.001$). The total effect (Total_effect_c: 0.074, $p < 0.001$) suggests that ESG engagement partially mediates the relationship.

Bootstrap test results (Table 8) with 1000 replications confirm the significant indirect effect (0.0151094, $p < 0.001$) and direct effect (0.0755823, $p < 0.001$) of family control on FP. The total effect (0.0906917, $p < 0.001$) underscores the combined impact of direct and indirect effects, affirming ESG's mediating role.

Table 7
Sobel & goodman test – Direct and indirect effects (ROA).

Test Type	Estimate (Est)	Standard Error (Std_err)	z-Value (z)	P-value (P>|z|)
Sobel	0.015	0.001	10.404	< 0.001
Aroian	0.015	0.001	10.396	< 0.001
Goodman	0.015	0.001	10.411	< 0.001
Effect Type	Estimate (Est)	Standard Error (Std_err)	z-Value (z)	P-value (P>|z|)
a_coefficient	5.822	0.504	10.622	< 0.001
b_coefficient	0.002	0	22.401	< 0.001
Indirect_effect_aXb	0.012	0.001	9.598	< 0.001
Direct_effect_c'	0.078	0.004	15.46	< 0.001
Total_effect_c	0.074	0.004	17.871	< 0.001
Proportion of total effect mediated:			0.158	
Ratio of indirect to direct effect:			0.188	
Ratio of total to direct effect:			1.188	

The findings emphasise the strategic importance of ESG practices in enhancing FF performance. ESG engagement is not merely a compliance measure aligned with family SEW but a critical driver of corporate success.

4.3. Robustness test

Alternative measures of FP are employed to confirm the robustness of the findings. The SA index replaces ROA to evaluate financial constraints. Based on firm-level data and market conditions, this index is a well-established indicator of corporate financing difficulty [104]. It captures critical factors such as firm size and age, which influence access to external finance and financial health. In China, where corporate finance is heavily regulated, the SA index is a regional relevant replacement variable. The calculation is as follows:

$$SA = -0.737 \times Size + 0.043 \times Size^2 - 0.04 \times Age$$

where Size is the natural logarithm of the firm's total assets, and Age is the operating year of the firm = the year of observation - the establishment time.

Additionally, Tobin's Q is used to substitute ROA, offering a market-based perspective of FP. Tobin's Q, which reflects a firm's market valuation relative to its assets, aligns with the long-term focus of ESG strategies, capturing future growth potential. The specific calculation is as follows:

$$Tobins\ Q = Market\ Value / Total\ Assets$$

4.3.1. SA index

In Table 9, the results highlight the mediating role of ESG engagement, revealing an estimated effect of 0.003 (p-values ≈ 0.053), below the 0.1 threshold for statistical significance. The a_coefficient (5.822, p

Table 8
Bootstrap test.

Bootstrap results					Number of obs =	6573
					Replications =	1000
	Observed Coefficient	Std. Err.	z-Value	$P > z$	[95 % Conf. Interval] Lower	[95 % Conf. Interval] Upper
bs 1: r(ind eff)	0.0151094	0.0014975	10.09	0	0 0.0121743	0.0180445
bs 2: r(dir eff)	0.0755823	0.0044823	16.86	0	0.0667971	0.0843675
bs 3: r(tot eff)	0.0906917	0.0046117	19.67	0	0.816530	0.0997304

Table 9
Robustness of sobel test (SA).

Test Type	Estimate (Est)	Standard Error (Std_err)	z-Value	P-value ($P>\|z\|$)
Sobel	0.003	0.001	1.879	0.053
Aroian	0.003	0.001	1.871	0.053
Goodman	0.003	0.001	1.887	0.052
Effect Type	Estimate (Est)	Standard Error (Std_err)	z-Value (z)	P-value ($P>\|z\|$)
a_coefficient	5.822	0.502	10.613	< 0.001
b_coefficient	0.002	0.000	1.909	0.049
Indirect_effect_aXb	0.002	0.001	1.879	0.053
Direct_effect_c'	0.040	0.008	4.876	< 0.001
Total_effect_c	0.043	0.008	5.148	< 0.001
Proportion of total effect mediated:			0.059	
Ratio of indirect to direct effect:			0.063	
Ratio of total to direct effect:			1.063	

< 0.001) indicates a strong positive relationship between family control and ESG engagement. At the same time, the b_coefficient reveals a positive effect of ESG on FP, though slightly weaker than in the ROA model.

4.3.2. Tobin's Q

In Table 10, the Sobel test using Tobin's Q produces an estimate of 0.043 (p-values = 0.024–0.026), demonstrating a statistically significant mediation effect. These results substantiate the earlier findings (Table 8) and provide additional insights into ESG's impact within a market valuation framework.

The mediation effects in Tables 8 and 9 reveal that Tobin's Q model mediates a slightly lower proportion of the total effect (0.042), reflecting nuanced market perceptions for future growth potential and investment opportunities. Nevertheless, ESG engagement remains a significant mediator across both models.

The robustness tests using the SA index and Tobin's Q reinforce the hypotheses. They highlight the strategic importance of ESG engagement, driven by SEW (H1), the positive correlation between family control and corporate FP (H2), the beneficial impact of ESG on FP (H3), and ESG's role as a mediator (H4). These findings demonstrate that ESG engagement enhances tangible and intangible assets, supporting long-term sustainability and legacy for FFs. The results affirm that ESG practices benefit FP across different financial dimensions, including market valuation and financial constraints.

Table 10
Robustness of sobel test (Tobins Q).

Test Type	Estimate (Est)	Standard Error (Std_err)	z-Value	P-value ($P>\|z\|$)
Sobel	0.043	0.014	3.014	0.025
Aroian	0.043	0.014	3.001	0.026
Goodman	0.043	0.014	3.026	0.024
Effect Type	Estimate (Est)	Standard Error (Std_err)	z-Value (z)	P-value ($P>\|z\|$)
a_coefficient	5.314	0.502	10.200	< 0.001
b_coefficient	0.008	0.002	3.155	0.001
Indirect_effect_aXb	0.043	0.014	3.014	0.002
Direct_effect_c'	0.980	0.107	9.159	< 0.001
Total_effect_c	1.024	0.106	9.637	< 0.001
Proportion of total effect mediated:			0.042	
Ratio of indirect to direct effect:			0.044	
Ratio of total to direct effect:			1.044	

5. Discussion

This study examines the relationship between family control and firm FP in Chinese FFs, emphasising the mediating role of ESG engagement. Research results indicate that family-centric governance models rooted in SEW improve profitability and operational efficiency in the Chinese business landscape [38]. Social, emotional, and cultural factors—prioritising the family unit and viewing the family business as a legacy—drive this trend [70]. By seeking to maintain family reputation, Chinese FFs enhance cohesion with corporate management, positively affecting financial outcomes [40].

ESG engagement emerges as a strategic tool that strengthens FFs' competitive positioning. Higher family ownership correlates with increased ESG commitment, partly motivated by the desire to maintain family honour and reduce systemic risk [33]. Consistent with Gómez-Mejía et al. [105], the findings demonstrate that FFs' aversion to SEW damage drives their adoption of ESG practices. Parallels with other emerging markets, such as India and Malaysia, further dictate these results. In India, green strategic resources significantly bolster long-term economic benefits and mitigate financial risks [106]. Similarly, family ownership in Malaysia significantly deepens ESG participation [6]. These insights underscore the global relevance of the findings, suggesting that family governance structures naturally align with ESG adoption, even across culturally diverse settings.

This study makes several key contributions to the literature on family business and ESG practices in the Chinese market. First, it highlights the strategic alignment between family control and ESG engagement, illustrating that family control, guided by SEW objectives, prioritises ESG practices in strategic decision-making. The findings from Malaysia [6] further corroborate this alignment, emphasising the influence of family ownership on ESG participation.

Second, the analysis reveals that ESG partially mediates the relationship between family control and FP, underscoring the multifaceted role of sustainable practices in FFs. Although ESG initiatives may not produce financial returns immediately, they build risk buffers and reputational capital—assets that grow increasingly valuable over time. This pattern supports Rees and Rodionova's [57] contention that FFs engage in ESG as a long-term protective strategy motivated by SEW preservation.

Third, the findings reveal that ESG-related investments yield varying effects on FP indicators influenced by differing stakeholder expectations or operational characteristics. Agarwala et al. [107] propose that firms invest substantial resources and adopt long-term planning to surpass a critical ESG threshold for tangible performance gains. For FFs, this sustained commitment aligns closely with their goal of protecting their SEW legacy.

6. Conclusions and policy implications

This study advances the understanding of how ESG engagement mediates the relationship between family control and FP, thereby promoting the long-term development of FFs. By strategically integrating SEW priorities with sustainability initiatives, family-controlled firms strengthen their reputational capital, enhance profitability, and effectively position ESG as a strategic lever rather than merely a compliance tool. The findings highlight that in emerging markets—where regulatory pressures and societal demands for sustainable practices are increasing—ESG activities aligned with familial values can preserve legacy while fostering long-term competitiveness and resilience.

These insights foster FFs' view of ESG as an external obligation and an integral component of strategic planning. Incorporating sustainability within the family governance structure can deliver multifaceted benefits, including improved financial performance and enduring reputational advantages. Policymakers and regulatory bodies can support this progression by offering targeted incentives, refining disclosure standards, and implementing capacity-building programmes to help FF leaders leverage ESG's strategic benefits.

Despite its contributions, the study acknowledges certain limitations. Its focus on a specific temporal and geographical context may limit the generalizability of the results. Future research could investigate how variations in cultural settings, institutional frameworks, and family governance structures influence the ESG performance nexus, potentially expanding analyses to other developing regions such as African markets. Examining distinct kinship arrangements and generational transitions within FFs may also provide deeper insights into how familial dynamics shape the implementation and effectiveness of ESG practices.

CRediT authorship contribution statement

ChangYi Zhu: Writing – original draft, Formal analysis, Conceptualization. **Alexandra Simón Villar:** Methodology, Conceptualization. **Maria Jose Parada Balderrama:** Project administration.

Declaration of competing interest

All authors declare that they have no conflicts of interest.

Data availability

The authors do not have permission to share data.

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