The current issue and full text archive of this journal is available on Emerald Insight at:
https://www.emerald.com/insight/1755-425X.htm

Journal of Strategy and Management

Strategic innovation: exploring governance drivers of FinTech investments

Luca Ferri and Flavio Spagnuolo
Department of Economics, Management, Institutions, University of Naples Federico II, Naples, Italy
Ciro Troise
Department of Management, University of Turin, Turin, Italy, and
Annamaria Zampella
Department of Economics, Management, Institutions, University of Naples Federico II, Naples, Italy

Received 25 November 2024
Revised 14 January 2025
Accepted 18 January 2025

Abstract

Purpose – The innovation brought by FinTech is strategically transforming the business models of banking entities, their operational efficiency and their relationship with customers and stakeholders. Although the financial drivers behind FinTech investments have been extensively explored, there remains a gap in the extant research regarding the influence of governance factors on these kinds of investments. This study seeks to address this gap by investigating whether and how governance composition and characteristics are associated with investments in FinTech projects, exploring a sample of Cooperative Credit Banks (CCBs) operating in Italy, a unique context where these small institutions represent more than half of the banking sector and that often face difficulties in adopting innovative and digital tools.

Design/methodology/approach – This study adopted a quantitative approach. Specifically, multiple regressions analyses were performed on a sample of 230 Italian CCBs during the period 2017–2022.

Findings – We find that the presence of a corporate social responsibility committee, managers with high IT skills, Board's gender diversity, younger generation of managers and their educational level can significantly stimulate FinTech investments.

Originality/value – The study contributes to enriching the literature on FinTech and digital transformation in the banking sector, offering particular insights for regulators and managers of CCBs, who are particularly sensitive to innovation matters and increasingly inclined to strategically satisfy the needs of a 4.0 clientele.

Keywords Innovation, Strategy, Governance factors, FinTech investments, Cooperative credit banks

Paper type Research paper

1. Introduction

In the last decades, technology and innovation systems deeply changed the worldwide economy, strategically improving the effectiveness and the availability of financial services for both consumers and economic entities (Aduba and Asgari, 2022; Troise and Camilleri, 2021; Peter *et al.*, 2020). At this regard, banking institutions have been hit by the rapid phenomenon of digital transformation, which has changed banks' business strategies, their organizational structures' efficacy (Li *et al.*, 2022) and the competitiveness in the whole industry (Marchini *et al.*, 2019). FinTech, as defined by Schueffel (2016), represents the innovative application of technology to improve financial services, strategically transforming banking entities and their operational models.

However, while the international context is rapidly welcoming such an innovative change, the process is not homogenous and differences across countries still exists (Bank of Italy, 2022). For instance, the Italian context may represent an interesting field of investigation for empirical research on FinTech ecosystems. Filotto *et al.* (2021) highlight that such country is lagging behind European Union (EU) countries in welcoming FinTech projects broadly. In a recent paper of Bank of Italy (2022), regulators highlight that investments in financial technologies' services are still low in this country if compared to other EU countries, mainly

Journal of Strategy and Management
© Emerald Publishing Limited
e-ISSN: 1755-4268
p-ISSN: 1755-425X
DOI 10.1108/JSMA-11-2024-0309

because of the persistence of traditional business model that hinder the technological changes. Moreover, it should be noticed that Italian cooperative credit banks (CCBs) are among the most important financial institutions in the country, as they represent more than half of the Italian banking sector (Zedda *et al*., 2024).

At this regard, several scholars argued that investments in FinTech might be of greater strategic importance for CCBs as compared to larger banking groups. The rationale behind this argument lies in the unique characteristics and operational constraints of CCBs, which often face more significant challenges in terms of technological innovation, cost efficiency and customer engagement. Unlike large banking groups, which possess extensive resources and established technological infrastructures, CCBs typically operate with limited financial and technological capabilities (Caldarelli *et al*., 2016). Consequently, innovative investments in FinTech become critical for CCBs, as they enable these smaller institutions to enhance their digital capabilities, improve service delivery and remain competitive in an increasingly digitalized financial landscape. This strategic perspective is supported by a body of literature that highlights the potential of FinTech investments for CCBs, emphasizing their role in fostering innovation, expanding access to financial services and driving the sustainable growth of such institutions (Arner *et al*., 2016; Zedda *et al*., 2024). Furthermore, digital transformation has become a critical strategic priority for organizations navigating competitive and technological pressures (Troise *et al*., 2022a), further emphasizing the need for governance-driven innovation.

Prompted by the abovementioned arguments, in this paper we want to shed light on how certain CCBs' internal dynamics may strategically drive the level of investments related to FinTech initiatives in the Italian banking sector. In particular, the focus of the present research is on a set of potential governance drivers of FinTech investments related to Italian CCBs. The majority of studies did not consider Board of Directors (BoD) composition and characteristics as potential predictors for FinTech projects implementation. So far, with reference to the banking sector, the research contributions on FinTech investments remain quite limited to financial and economic explanatory variables (i.e. Bhattacharya and Bloch, 2004; Bartoloni, 2013; Campanella *et al*., 2023; Trequattrini *et al*., 2022), although it is well known the role of governance arrangements in shaping decision-making process linked to banks' level of investments and strategic innovation choices (Xie *et al*., 2021; Öberg, 2024).

In order to bridge this lack of literature, we analyse a set of 230 Italian CCBs during the period 2017–2022, exploiting multiple regression models that rely on Ordinary Least Square (OLS) assumptions, and we regress our measure of FinTech investments on a set of well-known variables associated to governance arrangements. Specifically, we formulate several hypotheses to test if (1) the presence of corporate social responsibility (CSR) committee; (2) the level of BoD' IT skills; (3) the degree of BoD' gender diversity; (4) the BoD' members education; and (5) the age of BoD' members are significantly associated to the level of FinTech investments.

Consistently with the developed hypotheses, main results from the analyses show that the presence of a CSR committee, highly-IT skilled BoD, Board's gender diversity and their degree of educational level can significantly stimulate FinTech investments in Italian CCBs. Interestingly, our results also suggest that older generation of directors are more prone to invest in FinTech projects if compared with younger one, coherently with the stream of studies positing that young managers have lower risk-appetite for innovative projects (e.g. Ginesti *et al*., 2021). Furthermore, our additional test reveals that during COVID-19, the associations found in the main analysis are significantly stronger if compared with the prior period, consistent with the rationale that during the recent pandemic crisis, the digitalization particularly captured the attention of banks' governance structures to exploit widely the innovation opportunities of the context (Zuo *et al*., 2021).

This paper has several contributions. First, it aims to enrich the line of studies on the drivers of digital transformation in the banking sector (Filotto *et al*., 2021; Plekhanov *et al*., 2023; Elia *et al*., 2023), by responding to the recent call by Campanella (2023) and Trequattrini (2022).

Second, this study expands awareness as to the drivers of innovation in CCBs, which aligns with the nascent literature examining strategic innovation systems and digital transformation in smaller economic entities (Troise *et al.*, 2022b; Verma *et al.*, 2023). Moreover, the research makes easier the understanding of the digitalization process' speed, particularly in the countries highly leveraged by such kind of banking institutions. Third, with reference to managers and regulators, our research can encourage the former to strategically spread the use of digital infrastructures as it allows a more intense competition (Shim and Shin, 2016), while it may address the latter to stimulate more effective governance standards able to welcome faster innovation nudges.

The remainder of the paper is organized as follows. Sections 2 and 3 examine, respectively, the theoretical framework and the main issues raised in the existing literature with regard to the FinTech investments. Section 4 discusses the research design. Section 5 presents the findings of this study's analysis, and section 6 provides concluding remarks.

2. Theoretical framework

The theoretical framework of this study is rooted in the Upper Echelons Theory, which postulates that organizational outcomes are a reflection of the experiences, values and cognitive bases of its top executives (Hambrick and Mason, 1984). Within the context of Italian CCBs, this theory provides a robust foundation for examining the governance-driven factors influencing FinTech investments. The Upper Echelons Theory emphasizes that managerial characteristics, such as educational background, age, gender diversity and specific skill sets, profoundly shape strategic decision-making processes, particularly in resource-constrained environments (Harymawan *et al.*, 2020; Naranjo-Gil *et al.*, 2009).

In the case of CCBs, the applicability of the Upper Echelons Theory is evident in the study's exploration of Board of Directors (BoD) composition and its association with FinTech adoption. The study highlights that attributes like the presence of CSR committees (Elmaghrabi, 2021; Orazalin *et al.*, 2023), the technological proficiency of board members (Ginesti *et al.*, 2021) and gender diversity (Rao and Tilt, 2016; Ginesti *et al.*, 2021) are critical drivers of innovation. These characteristics align with the theory's assertion that the personal values and experiences of executives influence their perception and prioritization of innovation opportunities.

Moreover, the research integrates this theoretical perspective with empirical findings, demonstrating that governance elements such as educational attainment and the age diversity of board members significantly correlate with FinTech investment decisions (Bhagat and Bolton, 2008; Mothe and Nguyen-Thi, 2021). The younger generation of managers is often associated with openness to technological innovations, while older managers bring risk tolerance necessary for such investments, creating a balanced decision-making framework (Ginesti *et al.*, 2021; Holmstrom, 1999). These findings reinforce the Upper Echelons Theory by showcasing how the interplay of cognitive diversity among board members fosters organizational innovation in FinTech, even amidst constraints like limited financial resources and technological infrastructure.

This framework underscores the strategic importance of aligning governance structures with innovation goals, particularly in CCBs where governance dynamics are pivotal to navigating digital transformation. By grounding its hypotheses and interpretations in the Upper Echelons Theory, the study contributes to a nuanced understanding of how leadership characteristics can shape technological advancements in the banking sector, offering insights for both academic inquiry and practical application.

3. Literature review and hypotheses development

To date, the literature concerning digital transformation and FinTech focuses more on the effects attributable to the adoption of these technological changes (Marchini *et al.*, 2019)

neglecting instead a deep examination of the drivers that encourage their implementation in the banking system and, in turn, within CCBs ecosystem (Campanella *et al.*, 2017). However, scholars recognize that factors able to determine the capital expenditures in FinTech projects are mainly linked to financial matters (Bartoloni, 2013; Trequattrini *et al.*, 2022). For instance, it is recognized the impact of banks' capital structure (Campanella *et al.*, 2023), banks' growth (Bhattacharya and Bloch, 2004), public support and institutional funding (Bakhshi *et al.*, 2015) on the choice to pursue innovative and risky projects. Conversely, if compared to financial matters, governance arrangement dynamics have been quite overlooked although they address future investments (Al-Gamrh *et al.*, 2020) and innovation opportunities (Becker-Blease, 2011; Xie *et al.*, 2021). At this regard, corporate governance arrangements significantly influence firm performance and innovation (Bhagat and Bolton, 2008), underscoring the potential role of board characteristics in driving FinTech adoption. In addition, effective governance structures enable organizations to balance exploration and exploitation in innovation (Tushman and O'Reilly, 1997), a dynamic particularly relevant for driving FinTech investments in resource-constrained environments.

The presence of a CSR committee, for example, can particularly lead Board of Directors (BoD) to undertake FinTech investments for the following reasons. First of all, CSR committee is an internal organization body that guarantee a higher sustainable and environmental, social and governance (ESG) performance (Elmaghrabi, 2021; Radu and Smaili, 2021; Orazalin *et al.*, 2023). Scholars demonstrate that the use of financial technologies influences the ESG practices in the banking sector (Dicuonzo *et al.*, 2024). Indeed, FinTech solutions widely exploit blockchain solutions, and the related high traceability of financial products promotes higher transparency and more ethical behaviour among managers in business organizations (Shahzad *et al.*, 2023). Rastogi *et al.* (2023) argue that FinTech improve the financial inclusion, whereas digital payment technologies allow to disadvantaged individuals to access more easily at banks' services and such circumstance would favour the sustainable economic growth worldwide (Dicuonzo *et al.*, 2024).

Also, Devine *et al.* (2022) highlight that FinTech is introducing platforms that embed sustainable criteria in investment selection, enabling investors to enter simply in Corporate Social Investments (CSI) and monitor more consciously their investments' choices. Moreover, given that FinTech solutions rely upon the use of Big Data (Stulz, 2019), CCBs can trust in enhanced data analytics tools that allow to assess more ethically their investment decisions (Semenova and Hassel, 2015; Dicuonzo *et al.*, 2024).

Based on these considerations – and whereas all the innovative nudges are more disruptive for CCBs if compared with large banking organizations (Arner *et al.*, 2021) – it is reasonable to expect a positive association between the presence of a CSR committee and the level of FinTech investments by the Italian CCBs. Hence, we aim to test the following hypothesis:

H1. The presence of a CSR committee is positively associated with FinTech investments in the Italian CCBs setting.

In recent years, the skills required by the banking system have changed, increasingly oriented toward IT areas. Unfortunately, small firms, such as CCBs, denote managerial skills that are poorly developed and specialized in terms of new technologies that actually limit the potential for business development (Cupertino *et al.*, 2018). Yet, the challenges posed by increasing digitization loom and can be traced back to the achievement of at least three objectives in the credit sector: guaranteeing data security, maintaining information transparency and promoting innovation (Bank of Italy, 2022).

Indeed, the extensive use of technology exposes banks to greater risks deriving, among other things, from the malfunctioning of the systems, so that people engaged in the business are also required to protect the integrity of the information assets – in a context such as that current, where requests for access to data multiply (as a result of the open banking model) – and to guarantee the reliability of the information produced. In addition, the use of digital technology and the new complex artificial intelligence algorithms for the offer of services requires greater

attention to customer protection (Malekpour *et al*., 2023). In this changing scenario, therefore, managers are required specific management skills, as well as increasingly specialized IT skills, which should favour or enhance innovation. Therefore, within the CCBs, it is reasonable to assume that the presence of BoD members with IT and engineering knowledge can promote innovation and, therefore, also FinTech systems, hence the following third hypothesis:

H2. The presence of BoD members with IT skills is positively associated with FinTech investments in the Italian CCBs setting.

Another determinant to consider in governance matters, relates to board diversity, especially in terms of gender composition. On the empirical level, the existing evidence about the impact it generates on innovation is, however, conflicting. Indeed, several studies show how gender diversity on the board is positively associated with innovation in terms of R&D investments (Miller and del Carmen Triana, 2009), exerts a favourable effect on firm performance (Østergaard *et al*., 2011) and increase organizational creativity (Torchia *et al*., 2011). In addition, board diversity has a positive impact on performance, shaping new ideas and fostering innovation (Ruiz-Jiménez *et al*., 2016). Recently, Arena *et al*. (2021) have shown how women in top positions in the health sector facilitate the adoption of innovative e-Health tools, given their contribution in terms of improving both human and social capital. Furthermore, their presence confers soft management skills to the decision-making process, thus improving managerial creativity. Conversely, other contributions disavow this positive relationship (e.g. Ljunggreen *et al*., 2010; Kvidal and Ljunggren, 2014).

The driving role of women on the BoD in the development of innovative investments has also attracted the attention of regulators (i.e. the European Union) who have become supporters of initiatives on gender diversity in support of very high-content startups technology (Women TechEU pilot program).

Although the literature on board gender diversity and innovation still appears to be non-unitary, the prevalent studies agree that the presence of the female gender on the Board encourages the implementation of innovative projects (i.e. Burke and Collins, 2001; Rao and Tilt, 2016), improves the operating efficiency of the board itself (i.e. Ginesti *et al*., 2021) and it favours the development of socially more performing strategies (Rao and Tilt, 2016). Based on these arguments, we expect a positive relationship between the presence of women on the board and FinTech investments, hence the following hypothesis:

H3. The presence of women on the BoD is positively associated with FinTech investments in the Italian CCBs setting.

Studies based on the upper echelons' perspective underline how the characteristics and background of top managers significantly influence organizational decision-making processes and strategic choices. Among these characteristics, the educational background of a manager emerges as a critical determinant in shaping the firm's propensity to innovate. According to Harymawan *et al*. (2020), the educational level of a manager is directly linked to the firm's innovation expenditure, as higher educational attainment enhances cognitive abilities, enabling individuals to better comprehend complex scenarios and embrace novel opportunities. Similarly, Naranjo-Gil *et al*. (2009) argue that education opens individuals' minds to diverse perspectives and fosters a more proactive attitude toward innovation.

Investing in innovation is widely recognized as a dual process: it both stimulates and is stimulated by the creation of knowledge. For multinational corporations, innovation is not merely a competitive necessity but a foundational element for sustaining long-term competitive advantage in an increasingly dynamic and globalized market (Ginesti *et al*., 2021). Within this context, the Board of Directors (BoD) plays a pivotal role, as its members are responsible for steering the firm's strategic investments, including those in emerging technologies.

Building on these considerations, we posit that BoD members with a higher educational background are more likely to appreciate the strategic importance of innovation and adopt a

favourable attitude toward investing in technologies that drive innovation. In particular, financial technology (FinTech) represents a critical domain where innovation intersects with financial services, offering transformative potential for operational efficiency, customer experience and competitive positioning.

The hypothesis is further supported by prior studies suggesting that a higher level of education enhances decision-makers' openness to technological advancements and complex investments, as well as their ability to assess long-term benefits over short-term risks. This is particularly relevant in the context of Italian CCBs, where the adoption of FinTech solutions can significantly impact their ability to remain competitive while addressing the unique challenges of the sector.

On this basis, we propose the following hypothesis:

H4. The level of BoD members' education is positively associated with FinTech investments in the Italian CCBs setting.

Research into cognitive abilities and decision-making across the life span suggests that workers of different ages have distinct experiences, skills, and perceptions of technology and new trends, providing superior solutions to organizational problems and can increase organizational efficiency, effectiveness and profitability (Mothe *et al.*, 2021).

In particular, younger employees may tend to have stronger academic skills, but be socially inexperienced, while older employees are often less at ease with new technologies (Vaportzis *et al.*, 2017). Probably because, as their age increases, employees have less mental and physical energy to sustain extensive and long-term investment projects, such as technology innovation projects (Ginesti *et al.*, 2021). Overall, if the different perspectives and mental models embodied in diverse workforces improve their collective knowledge, problem-solving capacity, and new idea generation (Østergaard *et al.*, 2011), they should also lead to greater technological innovation.

However, there are empirical works that provide different evidence with regard to the impact of age for investment behaviour. For instance, some authors argue that younger managers pay more attention to their career development and to the scrutiny of the labour market than older managers and thus could avoid risky investments (Holmstrom, 1999; Ginesti *et al.*, 2021). Also, Zwiebel (1995) suggests that younger executives may avoid innovative investments and pursue less risky projects that are easier to control for external scrutiny.

Hence, since the literature provides mixed results on the effect of employees' age on the adoption of technology, we formulate a non-directional prediction as follows:

H5. There is a significant association between the members' age of Board of Directors and FinTech investments in the Italian CCBs setting.

4. Research design

4.1 Sample selection

We collect data on CCBs by *Orbis BankFocus* database (*Bureau Van Dijk*). We selected from the banking sector all the CCBs operating in Italy. Specifically, the number of CCBs is 243 in such country, which represent almost 10% (8%) of domestic deposits (granted loans). Starting from this banks' population, we only retrieved few observations related to missing financial and/or qualitative data of CCBs. Hence, we run our empirical analysis on a final sample of 230 CCBs, which stand for almost the 95% of the Italian CCBs' population. The empirical analysis covers the years between 2017 and 2022. While the former is the first year subject to attention by the Bank of Italy in the field of FinTech, the latter is the last year available with comprehensive data from *Orbis BankFocus*. Overall, Table 1 shows the sample composition, pointing out the distribution of CCBs by their geographical distribution (Panel B) and highlighting that more than 50% of Italian CCBs are located in the North of Italy.

Table 1. Sample composition

Panel A. Sample selection process	
Initial sample – Whole Population of Italian CCBs (from Orbis BankFocus – Bureau Van Dijk)	*243*
Missing financial from BankFocus database and/or qualitative data from banks' annual reports	13
Final sample for empirical analyses	*230*
Panel B. Distribution of CCBs per geographic area	
North	116
Centre	56
South and Islands	58
Total	*230*

Source(s): Table created by authors

4.2 Statistical modeling and variables definition

To test our hypotheses on the association between governance variables and the level of FinTech investments in Italian CCBs, we rely on the following model explicated in equation (1) below:

$$FIN_{i,t} = +\beta_0 + \beta_1 CSRc_{i,t} + \beta_2 SKI_{i,t} + \beta_3 W_{i,t} + \beta_4 EDU_{i,t} + \beta_4 EDU_{i,t} + \beta_5 AGE_{i,t} + \beta_6 SIZE_{i,t} + \beta_7 GEO_{i,t} + \beta_8 TIER1_{i,t} + \beta_9 ROAA_{i,t} + \beta_{10} CO_{i,t} + \beta_{11} LIQ_{i,t} + FE\,Year_i + \varepsilon_{i,t} \quad (1)$$

Based on Breusch–Pagan Lagrangian Multiplier test (Breusch and Pagan, 1980) and Hausman test (Hausman and Taylor, 1981) to choice our model specifications, we run a balanced panel fixed effects regression. Specifically, with reference to the dependent variable (*FIN*) we consider the amount of FinTech capital expenditures for bank *i* in year *t* divided by total assets.

With reference to the independent variables of interest (i.e. governance variables), we retrieved the measures on *CSRc*, *SKI*, *W*, *EDU* and *AGE* by prior literature that follows a similar approach (Elmaghrabi, 2021; Ginesti *et al*., 2021; Radu and Smaili, 2021; Orazalin *et al*., 2023). Also, we added several variables to control for further aspects that scholars in general recognized to affect the levels' of capital investments (Titman *et al*., 2004; Nguyen, 2018; Campanella *et al*., 2023): bank's dimension (*SIZE*), geographical location (*GEO*), banks' capitalization (*TIER1*), bank's profitability (*ROAA*), a bank's efficiency ratio (*CO*) and bank's liquidity ratio (*LIQ*). Lastly, since our empirical analysis is both country- and industry-specific, we do not need to include fixed effects for these aspects, while we consider a year fixed effects structure (*FE Year*). Overall, Table 2 shows label, name, description and the source of the variables employed in the analysis.

5. Results and discussion

5.1 Descriptive statistics

For a purpose of clarity, the following Table 3 shows the variables' descriptive statistics. The dependent variable FIN ranges between 0 and 0.91, with a mean of 0.48. This result is interesting because it means that there is at least a CCB with a high ratio between FinTech expenditure and total assets.

The 43% of the CCBs in the sample has a CSRc. This result is consistent with what can be read on the ICCREA Group website where it is specified that all the CCBs of the group are equipped with a sustainability governance system, understood as the integration of the three ESG factors in the governance, in strategies and operational and control processes, which is based on precise centres of responsibility [1].

It seems that the IT skills are considered important by HRs because the maximum value is 0.98 and the means is 0.49; also the presence of woman seems crucial looking at the maximum value is 0.89, but the mean value is not so high (0.39).

Table 2. Variables definition

Label	Variable	Variable description	Source
FIN	FinTech investments	FinTech expenditure divided by total assets at the end of the fiscal year	CCBs annual reports
CSRc	CSR committee	0 for the absence of a CSRc; 1 for the presence of a CSRc	CCBs annual reports/ CCBs website
SKI	Skills	Ratio of the number of managers with IT skills and the total number of managers. This indicator reveals the IT skills and knowledge used by the credit system to support technological development processes	CCB's websites and Google/LinkedIn profiles
W	Female presence on the board	Ratio between the number of women on the board and the total number of the board. This ratio represents the incidence of women in the BoD	CCB's websites and Google/LinkedIn profiles
EDU	Level of education	Ratio between the number of members who holds MBA or PhD and the total number of the board. This ratio represents the incidence of members with high education level in the BoD	CCB's websites and Google/LinkedIn profiles
AGE	Age	Natural logarithm of BoD' age	CCB's websites and Google/LinkedIn profiles
SIZE	Dimension	Log of total assets	Bureau van Dijk
GEO	Geographical location	0 for Central South and Islands; 1 for Northern Italy	Bureau van Dijk
TIER1	Banks' capitalization	The ratio of a bank's core tier 1 capital—that is, its equity capital and disclosed reserves—to its total risk-weighted assets	Bureau van Dijk
ROAA	Banks' profitability	Ratio between operating revenues and average assets	Bureau van Dijk
CO	Cost income	Calculated by dividing the operating expenses by the operating income	Bureau van Dijk
LIQ	Liquidity ratio	Liquid assets/Total deposits	Bureau van Dijk

Source(s): Table created by authors

Table 3. Descriptive statistics

Variables	Obs	Min	Max	Mean	Std. Dev
FIN	1,380	0	0.91	0.48	0.29
CSRc	1,380	0	1	0.43	0.49
SKI	1,380	0	0.98	0.49	0.29
W	1,380	0	0.89	0.39	0.74
EDU	1,380	0	0.66	0.31	0.93
AGE	1,380	45	73	59.11	8.35
SIZE	1,380	4.93	8.32	5.97	0.48
GEO	1,380	0	1	0.50	0.50
TIER1	1,380	8.01	79	21.48	8.56
ROAA	1,380	−2.49	3.97	1.04	0.78
CO	1,380	−52.83	250.95	36.24	34.17
LIQ	1,380	0.06	98.17	33.05	20.82

Source(s): Table created by authors

The 31% of board members holds MBA or PhD, and at least a CCB's board recognizes a maximum of 66%. Lastly, the average age of boards' members is almost 59 years old.

Looking at control variables, Size has a mean of 5.97; GEO has a mean of 0.50, suggesting that CCGs are equally distributed on the national territory; Tier 1 has a mean of 21.48, well

beyond the minimum threshold identified by the Basel Accords. The average ROAA is 1.04, CO is 36.24 and LIQ is 33.05.

Table 4 describes the correlation matrix. The dependent variable FIN is positively and significantly correlated with W, while it is negatively and significantly correlated with EDU. Overall, it seems that correlation between variables is not an issue. However, after the calculation of the regression analysis, we will perform the variance inflation factor (VIF) to corroborate these results.

5.2 Regression results

For a purpose of clarity, the following Table 5 shows the regressions results.

The presence of a CSR committee is positively and significantly associated with the level of FinTech investments (coefficient on CSRc of 0.04, *p*-value <1%) suggesting that on average, CCBs governed with the attendance of a CSR-engaged committee are more encouraged to invest in FinTech projects if compared with CCBs acting without the help of a CSR committee. From the perspective of the Upper Echelons Theory, this finding aligns with the notion that boards emphasizing social responsibility reflect values and cognitive priorities that foster innovation (Hambrick and Mason, 1984). Whereas such committee plays a crucial role in guarantee high ESG performance (Elmaghrabi, 2021; Radu and Smaili, 2021; Orazalin *et al.*, 2023), this finding also entail that FinTech investments help to increase sustainability performance of organizations, as many authors believe (Devine *et al.*, 2022; Rastogi *et al.*, 2023; Dicuonzo *et al.*, 2024). Overall, our result corroborates the inferences provided by Asni and Agustia (2022) that effective governance mechanisms can encourage the company sustainability via innovative projects. Hence, we can accept our first hypothesis (HP1).

Coherently with the results provided by Cirillo *et al*. (2023), our results for banking industry reveal that the level of BoD's IT skills is positively and significantly associated with the dependent variable (coefficient of *SKI* of 0.07, *p*-value <1%). While we expected such a result because IT management skills should favour and enhance FinTech investments (Bank of Italy, 2017), this association may be further interestingly motivated. Under the Upper Echelons framework, this association reflects how the cognitive diversity brought by IT-skilled managers equips boards to embrace technological innovation as a strategic priority. IT expertise enables boards to mitigate the risks associated with digital transformation while capitalizing on its potential (Bank of Italy, 2017). This circumstance makes our result economically relevant, whereas this positive association may mean that a change in work organisation within CCBs is possible through the implementation of FinTech projects prompted by IT skilled managers. In sum, we also confirm our second hypothesis (HP2).

Moreover, our evidence suggests that the higher presence of women in the BoD encourages FinTech investments, since the variable W is positively and statistically significant (coefficient of 0.09, *p*-value <1%). While our finding is in contrast to Ljunggreen *et al*. (2010), and Kvidal and Ljunggreen (2014) – who do not find significant differences between female gender and the innovation development – we agree with Burke and Collins (2001), Rao and Tilt (2016), Ginesti *et al*. (2021) and Arena *et al*. (2021), on the inference that the presence of woman in the BoD confers soft management skills to the decision-making process, thus improving managerial creativity that leads to new innovation process (e.g. FinTech projects). Within the Upper Echelons framework, this gender diversity broadens cognitive resources, promoting a strategic inclination towards innovation and supporting the third hypothesis (HP3).

Further, EDU is positively and significantly associated with FIN (coefficient of 0.10, *p*-value <1%), and this leads us to accept HP4. Consistent with the Upper Echelons Theory, higher education enhances cognitive capacity and openness to innovation, as suggested by Ginesti *et al*. (2021) and Naranjo-Gil *et al*. (2009). Boards composed of highly educated members are better equipped to identify and exploit technological opportunities, driving strategic investments in FinTech.

Lastly, we find a positive and significant association between AGE and FIN (coefficient of 0.02, *p*-value <1%), so HP5 is also accepted. The Upper Echelons perspective elucidates this

Table 4. Correlation results

Variables		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1)	FIN	1											
(2)	CSRc	0.03	1										
(3)	*SKI*	0.01	−0.03	1									
(4)	W	0.05*	−0.03	0.02	1								
(5)	EDU	−0.06**	−0.03	0.02	0.01	1							
(6)	AGE	−0.00	0.01	0.01	0.00	0.01	1						
(7)	SIZE	0.04	0.03	−0.01	0.00	0.02	−0.08**	1					
(8)	GEO	−0.02	0.04	0.07***	−0.04	0.05**	0.01	−0.34***	1				
(9)	TIER1	0.01	0.01	0.00	−0.02	−0.06	−0.05**	−0.16***	0.35***	1			
(10)	ROAA	0.03	−0.02	−0.00	0.00	0.04	0.07	0.04	0.15***	0.29***	1		
(11)	CO	−0.02	0.00	0.08	0.01	0.02	0.01	0.00	−0.13***	−0.19***	−0.19***	1	
(12)	LIQ	−0.02	0.03	−0.04	0.01	0.04	0.03	−0.25***	0.19***	0.34***	−0.19***	0.32***	1

Note(s): ** p-value < 10%; ** p-value < 5%; *** p-value < 1%*
Source(s): Table created by authors

Table 5. Regression results

Variables	Coefficients	Stud. t	VIF	HPs
Constant	−0.05	−0.07	–	–
CSRc	0.04	3.46***	1.10	Accepted
SKI	0.07	3.65***	1.04	Accepted
W	0.09	4.70***	1.04	Accepted
EDU	0.10	5.52***	1.03	Accepted
AGE	0.02	8.65***	1.04	Accepted
SIZE	−0.01	−0.71	1.25	–
GEO	0.02	2.82***	1.07	–
TIER1	0.01	1.42	1.74	–
ROAA	0.02	0.27	2.03	–
CO	0.00	0.03	1.53	–
LIQ	0.00	1.78*	1.56	–
Year FE	YES			
F-test	492.33***			
Adj. R^2	0.41			
Obs	1,380			

Note(s): ** p-value < 10%; ** p-value < 5%; *** p-value < 1%*
Source(s): Table created by authors

finding by emphasizing the value of diverse experiential and cognitive bases. While younger managers bring strong academic skills, older managers are often less constrained by career considerations, enabling them to take calculated risks on innovative projects (Holmstrom, 1999; Ginesti *et al.*, 2021). This balance fosters a strategic approach to FinTech investments that integrates risk tolerance with informed decision-making.

Looking at control variables, GEO is positively and significantly associated with FIN (*p*-value <1%), confirming that CCBs in the Northern of Italy invest more in FinTech projects (Bank of Italy, 2022); while LIQ is marginally positive and significantly associated with the dependent variable (*p*-value <10%), that is consistent with the notion that less liquidity-constrained banks can invest more in innovation (Spatareanu *et al.*, 2019).

5.3 Additional test

We provide additional test splitting the sample in two periods: before COVID-19 pandemics (2017–2019) and during COVID-19 pandemics (2020–2022). Results are depicted in Table 6 and, looking at the magnitude of the coefficients, they are consistent with Fu and Mishra (2022) who find that the spread of COVID-19 and related government lockdowns led to a sizeable increase in the rate of finance app downloads. In addition, CSR practices have always played an important and positive role during periods of crisis, *namely environmental crisis (Rim and Ferguson, 2017), financial crisis (Bae and Kwon, 2020), racial crisis (Kim and Yang, 2009), public-relation crisis (Tao and Song, 2020) and brand crisis (Ham and Kim, 2019*; Ramya *et al.*, 2021). Hence, we expect that also during COVID-19 pandemic, this committee has somehow contributed positively to the implementation of FinTech systems which, during this crisis, have proven crucial in ensuring the continuity of various digital services.

The result on IT skills seems quite obvious, as digital services increased during the lockdown period, so skills in this area also appeared of primary importance (Fu and Mishra, 2022).

Regarding the results on the role of the woman in the BoD, it seems that during COVID-19 they enhance FinTech investments. This result, on the one hand, is surprising because the literature has often classified women as risk averse (and FinTech investments are not risk-free) (Chatterjee and Nag, 2023). On the other hand, lower accumulation of debt then allows the company to borrow new resources from financial institutions if necessary and to survive periods such as the COVID-19 pandemic and less likely to go bankrupt (Garcia and Herrero, 2021; Chatterjee and Nag, 2023).

Table 6. Additional test

Variables	*Coefficients* Pre-COVID-19 sub-sample	*Stud. T*	*Coefficients* COVID-19 sub-sample	*Stud. t*	*Diff. in mean (p-value)*
Constant	−0.07	−0.71	0.04	0.07	0.002***(*p*-value<0.01)
CSRc	0.04	3.44***	0.11	3.76***	0.003**(*p*-value<0.05)
SKI	0.07	2.38**	0.10	5.26***	0.002***(*p*-value<0.01)
W	0.10	3.13***	0.13	4.75***	0.001***(*p*-value<0.01)
EDU	0.06	1.83*	0.11	5.74***	0.222
AGE	0.01	5.79***	0.08	3.60***	0.316
SIZE	0.02	1.70*	0.06	0.75	–
GEO	0.02	2.56**	0.03	0.50	–
TIER1	0.00	0.16	0.02	0.74	–
ROAA	0.06	0.51	0.08	0.70	–
CO	0.00	0.33	0.02	0.73	–
LIQ	0.01	1.17	0.02	0.69	–
Year FE	NO		NO		
Mean VIF	1.60		1.65		–
F-test	261.99***		675.78***		–
Adj. R^2	0.42		0.44		–
Obs	690		690		–

Source(s): ** p-value < 10%; ** p-value < 5%; *** p-value < 1%*
Note(s): Table created by authors

The differences between the two periods are corroborated by the *t*-test, which demonstrates that these differences exist in relation to FIN, CSRc, *SKI* and W.

6. Conclusions

This study focused on the governance determinants of FinTech investments, in the fascinating scenario of Italian CCBs. Our results show that the presence of a CSR committee, managers with high IT skills, Board's gender diversity, younger generation of managers and their educational level can significantly stimulate FinTech investments.

Overall, the study enriches the stream of research on the drivers of digital transformation in the banking sector, by responding to the recent call by Campanella *et al.* (2023) and Trequattrini *et al.* (2022) to specifically investigate the field of CCBs, for which digital transformation can hugely impact banks' business model and competitiveness concerns.

Evidence provided by this study suggests that a combination of governance factors, including social commitment, technological skills, diversity and young talents, can promote investments in FinTech in Italian CCB. Such results can be useful for both banks' managers and regulators.

Specifically, our outcomes may encourage the former to prioritize governance structures that actively promote innovation, such as establishing specialized committees (e.g. for CSR) to align FinTech initiatives with broader corporate goals and long-run strategies. Leadership recruitment strategies must focus on attracting diverse and technically skilled individuals, as managerial expertise in IT and gender diversity within boards contribute to more innovative and decision-making process. This would ensure that banks' management possesses the strategic capabilities necessary for navigating technological disruptions. Overall, integrating these governance-driven approaches enables banks and economic entities in general to create a robust foundation for highly competitive advantage.

Also, regulators can actively encourage banks to establish CSR committees or to increase their social and environmental commitment. This could be done through incentives or specific guidelines aimed at highlighting the importance of the positive social and environmental

impact of banks. In this way, regulators can support training and development programs for managers and bank staff to improve their IT skills. Finally, regulators can support policies and initiatives aimed at promoting generational turnover, gender diversity and higher education among banks' managers. This could include mentoring programs, scholarships, incentives for hiring young talents and guidelines that encourage the appointment of women to decision-making roles. This would also entail a broader social change, given the importance of digital technologies for the economic development (Subramaniam and Masron, 2024).

We also highlight the social implication of this study, since governance-driven FinTech adoption has the potential to significantly impact society by addressing socioeconomic disparities and promoting inclusive financial systems. Indeed, FinTech reduces barriers to banking for marginalized communities through improved access to financial services, reducing dependency on physical branches and allowing underserved populations to access services via mobile apps or online platforms. In addition, governance-focused FinTech strategies can prioritize initiatives like microcredit platforms or peer-to-peer lending, specifically tailored for low-income individuals who lack traditional credit histories, favouring microcredit and financial inclusion. Also, FinTech platforms can bridge financing gaps for small businesses, especially in underdeveloped regions. Governance models that focus on equitable innovation ensure resources are allocated to solutions benefiting these businesses. Lastly, by leveraging blockchain technology or digital payment systems, FinTech can reduce the costs of financial transactions, making banking more affordable for low-income users. Overall, we emphasize the role of governance as catalyst for social impact since governance structures emphasizing CSR can ensure FinTech adoption aligns with societal goals, such as sustainability and equity.

However, this study is not without limitations. First, our setting is limited to the Italian CCBs, while further research could be conducted on small banks operating in other countries and/or on European sample. This makes the sample relatively small even if we employed the massive part of the overall CCB population.

Secondly, our results might be affected by the COVID-19 pandemic. To partially cover this limitation, we developed an additional test on the role of FinTech investments during COVID-19. However, the results might be interpreted with caution, and further research is needed on this point. In this regard, future studies could verify the impact of particular events (i.e. COVID-19 pandemic, Ukrainian war, etc.) on FinTech adoption and could investigate the evolution of FinTechs' drivers during different years and in different countries.

Finally, our research discusses the governance factors that afflict FinTech investments in CCBs without considering the effect of this technology on banks profitability. In this way, further studies could consider the improvement in profitability due to technology investments and the differences between banks that employ different technologies. Moreover, future studies could enrich the findings on governance drivers of FinTech investments by analysing other economies and settings.

Note

1. The list of CCBs belonging to ICCREA group here: https://www.gruppobcciccrea.it/SiteAssets/Pagine/Newsroom/Sala-Stampa/Company%20Profile_semestrale%202023_V5.pdf

References

Aduba, J.J. and Asgari, B. (2022), "Analysing and forecasting the diffusion of electronic payments system in Nigeria", *Technology Analysis & Strategic Management*, Vol. 34 No. 10, pp. 1215-1233, doi: 10.1080/09537325.2021.1950675.

Al-Gamrh, B., Ku Ismail, K.N.I., Ahsan, T. and Alquhaif, A. (2020), "Investment opportunities, corporate governance quality, and firm performance in the UAE", *Journal of Accounting in Emerging Economies*, Vol. 10 No. 2, pp. 261-276, doi: 10.1108/jaee-12-2018-0134.

Arena, C., Catuogno, S., Saggese, S. and Sarto, F. (2021), "The adoption of e-Health in public hospitals. Unfolding the gender dimension of TMT and line managers", *Public Management Review*, Vol. 23 No. 10, pp. 1553-1579, doi: 10.1080/14719037.2020.1775280.

Arner, D.W., Barberis, J. and Buckey, R.P. (2016), "FinTech, RegTech, and the reconceptualization of financial regulation", *Northwestern Journal of International Law and Business*, Vol. 37, p. 371.

Asni, N. and Agustia, D. (2022), "Does corporate governance induce green innovation? An emerging market evidence", *Corporate Governance: The International Journal of Business in Society*, Vol. 22 No. 7, pp. 1375-1389, doi: 10.1108/cg-10-2021-0389.

Bae, S.C. and Kwon, T.H. (2020), "Hedging operating and financing risk with financial derivatives during the global financial crisis", *Journal of Futures Markets*, Vol. 41 No. 3, pp. 384-405.

Bakhshi, H., Edwards, J.S., Roper, S., Scully, J., Shaw, D., Morley, L. and Rathbone, N. (2015), "Assessing an experimental approach to industrial policy evaluation: applying RCT+ to the case of creative credits", *Research Policy*, Vol. 44 No. 8, pp. 1462-1472, doi: 10.1016/j.respol.2015.04.004.

Bank of Italy (2017), "FinTech in Italia. Indagine conoscitiva sull'adozione delle innovazioni tecnologiche applicate ai servizi finanziari", available at: https://www.bancaditalia.it/compiti/vigilanza/analisi-sistema/stat-banche-intermediari/FinTech_in_Italia_2017.pdf

Bank of Italy (2022), "The digital transformation in the Italian banking sector", available at: https://www.bancaditalia.it/pubblicazioni/qef/2022-0682/QEF_682_22.pdf

Bartoloni, E. (2013), "Capital structure and innovation: causality and determinants", *Empirica*, Vol. 40 No. 1, pp. 111-151, doi: 10.1007/s10663-011-9179-y.

Becker-Blease, J.R. (2011), "Governance and innovation", *Journal of Corporate Finance*, Vol. 17 No. 4, pp. 947-958, doi: 10.1016/j.jcorpfin.2011.04.003.

Bhagat, S. and Bolton, B. (2008), "Corporate governance and firm performance", *Journal of Corporate Finance*, Vol. 14 No. 3, pp. 257-273, doi: 10.1016/j.jcorpfin.2008.03.006.

Bhattacharya, M. and Bloch, H. (2004), "Determinants of innovation", *Small Business Economics*, Vol. 22 No. 2, pp. 155-162, doi: 10.1023/b:sbej.0000014453.94445.de.

Breusch, T.S. and Pagan, A.R. (1980), "The Lagrange multiplier test and its applications to model specification in econometrics", *The Review of Economic Studies*, Vol. 47 No. 1, pp. 239-253, doi: 10.2307/2297111.

Burke, S. and Collins, K.M. (2001), "Gender differences in leadership Styles and management skills", *Women in Management Review*, Vol. 16 No. 5, pp. 244-257, doi: 10.1108/09649420110395728.

Caldarelli, A., Fiondella, C., Maffei, M. and Zagaria, C. (2016), "Managing risk in credit cooperative banks: lessons from a case study", *Management Accounting Research*, Vol. 32, pp. 1-15, doi: 10.1016/j.mar.2015.10.002.

Campanella, F., Della Peruta, M.R. and Del Giudice, M. (2017), "The effects of technological innovation on the banking sector", *Journal of the Knowledge Economy*, Vol. 8 No. 1, pp. 356-368, doi: 10.1007/s13132-015-0326-8.

Campanella, F., Serino, L., Battisti, E., Giakoumelou, A. and Karasamani, I. (2023), "FinTech in the financial system: towards a capital-intensive and high competence human capital reality?", *Journal of Business Research*, Vol. 155, 113376, doi: 10.1016/j.jbusres.2022.113376.

Chatterjee, C. and Nag, T. (2023), "Do women on boards enhance firm performance? Evidence from top Indian companies", *International Journal of Disclosure and Governance*, Vol. 20 No. 2, pp. 155-167, doi: 10.1057/s41310-022-00153-5.

Cirillo, V., Fanti, L., Mina, A. and Ricci, A. (2023), "The adoption of digital technologies: investment, skills, work organisation", *Structural Change and Economic Dynamics*, Vol. 66, pp. 89-105, doi: 10.1016/j.strueco.2023.04.011.

Cupertino, S., Vitale, G. and Riccaboni, A. (2018), "L'impatto dei Big Data sulle attività di pianificazione and controllo aziendali: un caso di studio di una PMI agricola Italiana", *Management Control*, Vol. 3, pp. 59-86, doi: 10.3280/maco2018-003004.

Devine, A., Sanderford, A. and Wang, C. (2022), "Sustainability and private equity real estate returns", *The Journal of Real Estate Finance and Economics*, Vol. 68 No. 2, pp. 1-27, doi: 10.1007/s11146-022-09914-z.

Dicuonzo, G., Palmaccio, M. and Shini, M. (2024), "ESG, governance variables and Fintech: an empirical analysis", *Research in International Business and Finance*, Vol. 69, p. 102205.

Elia, G., Stefanelli, V. and Ferilli, G.B. (2023), "Investigating the role of Fintech in the banking industry: what do we know?", *European Journal of Innovation Management*, Vol. 26 No. 5, pp. 1365-1393, doi: 10.1108/ejim-12-2021-0608.

Elmaghrabi, M.E. (2021), "CSR committee attributes and CSR performance: UK evidence", *Corporate Governance: The International Journal of Business in Society*, Vol. 21 No. 5, pp. 892-919, doi: 10.1108/cg-01-2020-0036.

Filotto, U., Caratelli, M. and Fornezza, F. (2021), "Shaping the digital transformation of the retail banking industry. Empirical evidence from Italy", *European Management Journal*, Vol. 39 No. 3, pp. 366-375, doi: 10.1016/j.emj.2020.08.004.

Fu, J. and Mishra, M. (2022), "Fintech in the time of COVID−19: Technological adoption during crises", *Journal of Financial Intermediation*, Vol. 50, p. 100945.

García, C.J. and Herrero, B. (2021), "Female directors, capital structure, and financial distress", *Journal of Business Research*, Vol. 136, pp. 592-601, doi: 10.1016/j.jbusres.2021.07.061.

Ginesti, G., Spano, R., Ferri, L. and Caldarelli, A. (2021), "The chief financial officer (CFO) profile and RandD investment intensity: evidence from listed European companies", *Management Decision*, Vol. 59 No. 13, pp. 99-114, doi: 10.1108/md-05-2020-0650.

Ham, C.D. and Kim, J. (2019), "The role of CSR in crises: integration of situational crisis communication theory and the persuasion knowledge model", *Journal of Business Ethics*, Vol. 158 No. 2, pp. 353-372, doi: 10.1007/s10551-017-3706-0.

Hambrick, D.C. and Mason, P.A. (1984), "Upper echelons: the organization as a reflection of its top managers", *Academy of Management Review*, Vol. 9 No. 2, pp. 193-206, doi: 10.2307/258434.

Harymawan, I., Nasih, M., Agustia, D., Ratri, M.C. and Nowland, J. (2020), "CEO and CFO education and RandD investment in Indonesia", *Australasian Accounting, Business and Finance Journal*, Vol. 14 No. 2, pp. 16-34, doi: 10.14453/aabfj.v14i2.3.

Hausman, J.A. and Taylor, W.E. (1981), "Panel data and unobservable individual effects", *Econometrica: Journal of the Econometric Society*, Vol. 49 No. 6, pp. 1377-1398, doi: 10.2307/1911406.

Holmstrom, B. (1999), "Managerial incentive problems: a dynamic perspective", *The Review of Economic Studies*, Vol. 66 No. 1, pp. 169-182, doi: 10.1111/1467-937x.00083.

Kim, H.K. and Yang, S.U. (2009), "Cognitive processing of crisis communication: effects of CSR and crisis response strategies on stakeholder perceptions of a racial crisis dynamics", *Public Relations Journal*, Vol. 3 No. 1, pp. 1-39.

Kvidal, T. and Ljunggren, E. (2014), "Introducing gender in a policy programme: a multilevel analysis of an innovation policy programme", *Environment and Planning C: Government and Policy*, Vol. 32 No. 1, pp. 39-53, doi: 10.1068/c11207r.

Li, Q., Zhu, R. and Qin, W. (2022), "Does the fintech create value? A textual analysis of commercial banks in China", *Technology Analysis and Strategic Management*, Vol. 36 No. 10, pp. 1-16, doi: 10.1080/09537325.2022.2145185.

Ljunggreen, E., Alsos, G.A., Amble, N., Ervik, R., Kvidal, T. and Vilk, R. (2010), "Gender and innovation", in *Learning from Regional VRI-Projects*, available at: https://www.academia.edu/

Malekpour, M., Sedighi, M., Caboni, F., Basile, V. and Troise, C. (2023), "Exploring digital transformation and technological innovation in emerging markets", *International Journal of Emerging Markets*, Vol. 20 No. 13, pp. 96-121, doi: 10.1108/ijoem-02-2023-0147.

Marchini, P., Medioli, A., Belli, L. and Davoli, L. (2019), "Internet of Things e Industria 4.0. Un case study di successo di digital manufacturing", *Management Control*, Vol. 3, pp. 11-34, doi: 10.3280/maco2019-003002.

Miller, T. and del Carmen Triana, M. (2009), "Demographic diversity in the boardroom: mediators of the board diversity–firm performance relationship", *Journal of Management Studies*, Vol. 46 No. 5, pp. 755-786, doi: 10.1111/j.1467-6486.2009.00839.x.

Mothe, C. and Nguyen-Thi, T.U. (2021), "Does age diversity boost technological innovation? Exploring the moderating role of HR practices", *European Management Journal*, Vol. 39 No. 6, pp. 829-843, doi: 10.1016/j.emj.2021.01.013.

Naranjo-Gil, D., Maas, V.S. and Hartmann, F.G. (2009), "How CFOs determine management accounting innovation: an examination of direct and indirect effects", *European Accounting Review*, Vol. 18 No. 4, pp. 667-695, doi: 10.1080/09638180802627795.

Nguyen, H.V. (2018), "Hedging and hedging effectiveness under required disclosures: a study of the impact of derivatives use on capital investment", *Journal of Economics and Finance*, Vol. 42 No. 3, pp. 471-491, doi: 10.1007/s12197-017-9399-5.

Öberg, C. (2024), "Exploring the interplay of corporate and ecosystem change", *Journal of Strategy and Management*, Vol. 17 No. 4, pp. 730-743, doi: 10.1108/jsma-08-2023-0206.

Orazalin, N., Kuzey, C., Uyar, A. and Karaman, A.S. (2023), "Does CSR contribute to the financial sector's financial stability? The moderating role of a sustainability committee", *Journal of Applied Accounting Research*, Vol. 25 No. 1, pp. 105-125, doi: 10.1108/jaar-12-2022-0329.

Østergaard, C.R., Timmermans, B. and Kristinsson, K. (2011), "Does a different view create something new? The effect of employee diversity on innovation", *Research Policy*, Vol. 40 No. 3, pp. 500-509, doi: 10.1016/j.respol.2010.11.004.

Peter, M.K., Kraft, C. and Lindeque, J. (2020), "Strategic action fields of digital transformation: an exploration of the strategic action fields of Swiss SMEs and large enterprises", *Journal of Strategy and Management*, Vol. 13 No. 1, pp. 160-180, doi: 10.1108/jsma-05-2019-0070.

Plekhanov, D., Franke, H. and Netland, T.H. (2023), "Digital transformation: a review and research agenda", *European Management Journal*, Vol. 41 No. 6, pp. 821-844, doi: 10.1016/j.emj.2022.09.007.

Radu, C. and Smaili, N. (2021), "Alignment versus monitoring: an examination of the effect of the CSR committee and CSR-linked executive compensation on CSR performance", *Journal of Business Ethics*, Vol. 180, pp. 1-19, doi: 10.1007/s10551-021-04904-2.

Ramya, S.M. and Baral, R. (2021), "CSR during COVID-19: exploring select organizations' intents and activities", *Corporate Governance: The International Journal of Business in Society*, Vol. 21 No. 6, pp. 1028-1042, doi: 10.1108/cg-09-2020-0426.

Rao, K. and Tilt, C. (2016), "Board diversity and CSR reporting: an Australian study", *Meditari Accountancy Research*, Vol. 24 No. 2, pp. 182-210, doi: 10.1108/medar-08-2015-0052.

Rastogi, S., Singh, K. and Kanoujiya, J. (2023), "Do countries capture their inclusive growth, sustainability, and poverty correctly? A study on statistical performance indicators defined by World Bank", *Social Responsibility Journal*, Vol. 19 No. 10, pp. 1935-1951, doi: 10.1108/srj-12-2022-0553.

Rim, H. and Ferguson, M.A.T. (2017), "Proactive versus reactive CSR in a Crisis: an impression management perspective", *International Journal of Business Communication*, Vol. 57 No. 4, pp. 545-568.

Ruiz-Jiménez, J.M. and del Mar Fuentes-Fuentes, M. (2016), "Management capabilities, innovation, and gender diversity in the top management team: an empirical analysis in technology-based SMEs", *BRQ Business Research Quarterly*, Vol. 19 No. 2, pp. 107-121, doi: 10.1016/j.brq.2015.08.003.

Schueffel, P. (2016), "Taming the beast: a scientific definition of fintech", *Journal of Innovation Management*, Vol. 4 No. 4, pp. 32-54, doi: 10.24840/2183-0606_004.004_0004.

Semenova, N. and Hassel, L.G. (2015), "On the validity of environmental performance metrics", *Journal of Business Ethics*, Vol. 132 No. 2, pp. 249-258, doi: 10.1007/s10551-014-2323-4.

Shahzad, U., Asl, M.G. and Tedeschi, M. (2023), "Is there any market state-dependent contribution from Blockchain-enabled solutions to ESG investments? Evidence from conventional and Islamic ESG stocks", *International Review of Economics and Finance*, Vol. 86, pp. 139-154, doi: 10.1016/j.iref.2023.03.001.

Shim, Y. and Shin, D.H. (2016), "Analyzing China's fintech industry from the perspective of actor–network theory", *Telecommunications Policy*, Vol. 40 Nos 2-3, pp. 168-181, doi: 10.1016/j.telpol.2015.11.005.

Spatareanu, M., Manole, V. and Kabiri, A. (2019), "Do bank liquidity shocks hamper firms' innovation?", *International Journal of Industrial Organization*, Vol. 67, 102520, doi: 10.1016/j.ijindorg.2019.06.002.

Stulz, R.M. (2019), "FinTech, bigtech, and the future of banks", *The Journal of Applied Corporate Finance*, Vol. 31 No. 4, pp. 86-97, doi: 10.1111/jacf.12378.

Subramaniam, Y. and Masron, T.A. (2024), "Digital technologies, poverty and microfinance in developing countries", *Journal of Strategy and Management*, Vol. 18 No. 1, pp. 110-122, doi: 10.1108/jsma-06-2023-0134.

Tao, W. and Song, B. (2020), "The interplay between post-crisis response strategy and pre-crisis corporate associations in the context of CSR crises", *Public Relations Review*, Vol. 46 No. 2, 101883, doi: 10.1016/j.pubrev.2020.101883.

Titman, S., Wei, K.J. and Xie, F. (2004), "Capital investments and stock returns", *Journal of Financial and Quantitative Analysis*, Vol. 39 No. 4, pp. 677-700, doi: 10.1017/s0022109000003173.

Torchia, M., Calabrò, A. and Huse, M. (2011), "Women directors on corporate boards: from tokenism to critical mass", *Journal of Business Ethics*, Vol. 102 No. 2, pp. 299-317, doi: 10.1007/s10551-011-0815-z.

Trequattrini, R., Lardo, A., Cuozzo, B. and Manfredi, S. (2022), "Intangible assets management and digital transformation: evidence from intellectual property rights-intensive industries", *Meditari Accountancy Research*, Vol. 30 No. 4, pp. 989-1006, doi: 10.1108/MEDAR-03-2021-1216.

Troise, C. and Camilleri, M.A. (2021), "The use of digital media for marketing, CSR communication and stakeholder engagement", in *Strategic Corporate Communication in the Digital Age*, Emerald Publishing, pp. 161-174.

Troise, C., Tani, M., Matricano, D. and Ferrara, E. (2022a), "Guest editorial: digital transformation, strategic management and entrepreneurial process: dynamics, challenges and opportunities", *Journal of strategy and management*, Vol. 15 No. 3, pp. 329-334, doi: 10.1108/jsma-08-2022-363.

Troise, C., Corvello, V., Ghobadian, A. and O'Regan, N. (2022b), "How can SMEs successfully navigate VUCA environment: the role of agility in the digital transformation era", *Technological Forecasting and Social Change*, Vol. 174, 121227, doi: 10.1016/j.techfore.2021.121227.

Tushman, M.L. and O'Reilly, C.A. (1997), "Sorting organizational hardware", *Journal of Business Strategy*, Vol. 18 No. 4, p. 43.

Vaportzis, E., Giatsi Clausen, M. and Gow, A.J. (2017), "Older adults perceptions of technology and barriers to interacting with tablet computers: a focus group study", *Frontiers in Psychology*, Vol. 8, p. 1687, doi: 10.3389/fpsyg.2017.01687.

Verma, S., Shome, S. and Hassan, M.K. (2023), "FinTech in small and medium enterprises (SMEs): a review and future research agenda", *European Management Journal*, Vol. 41 No. 6, pp. 950-971, doi: 10.1016/j.emj.2023.07.003.

Xie, S., Chen, Y. and Liu, Y. (2021), "Internal governance and innovation", *Accounting and Finance*, Vol. 61 No. S1, pp. 2507-2538, doi: 10.1111/acfi.12673.

Zedda, S., Modina, M. and Gallucci, C. (2024), "Cooperative credit banks and sustainability: towards a social credit scoring", *Research in International Business and Finance*, Vol. 68, 102186, doi: 10.1016/j.ribaf.2023.102186.

Zuo, L., Strauss, J. and Zuo, L. (2021), "The digitalization transformation of commercial banks and its impact on sustainable efficiency improvements through investment in science and technology", *Sustainability*, Vol. 13 No. 19, 11028, doi: 10.3390/su131911028.

Zwiebel, J. (1995), "Corporate conservatism and relative compensation", *Journal of Political Economy*, Vol. 103 No. 1, pp. 1-25, doi: 10.1086/261973.

About the authors

Luca Ferri is an associate professor of accounting at the Department of Economics, Management, Institutions of the University of Naples "Federico II". His main research fields concerns to Information and Communication Technology (ICT) implementation in firms and, more specifically, in accounting and auditing processes.

Flavio Spagnuolo is a research fellow in Accounting at the Department of Economics, Management, Institutions of the University of Naples "Federico II". He took a PhD in Management, and his main area of interest and research are International accounting standards, ESG dynamics, financial analysis and reporting in the context of mergers and acquisitions.

Ciro Troise is an associate professor of Business Management at the Department of Management of the University of Turin "Valter Cantino". His main research field focuses on management, entrepreneurship, strategies, innovation, new technologies. He is EiC of IJETRADE, AE of EJIM and JSMA and member of the editorial board and guest editor of leading international journals. Ciro Troise is the corresponding author and can be contacted at: ciro.troise@unito.it

Annamaria Zampella is an assistant professor of Accounting at the Department of Economics, Management and Institutions, University of Naples "Federico II". Her research interests cover the areas of accounting, risk disclosure and risk management.

For instructions on how to order reprints of this article, please visit our website:
www.emeraldgrouppublishing.com/licensing/reprints.htm
Or contact us for further details: **permissions@emeraldinsight.com**