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EDITORIAL

SMEs NAVIGATING IN COMPLEX ENVIRONMENTS

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Abstract

Purpose: *The aim of this editorial is to develop a reflection on how small and medium enterprises (SMEs) can face the complexity that increasingly characterizes the competitive environments in which they live.*

Findings: *After defining environmental complexity, the editorial links it to the concept of ambidexterity, that is, the classic dichotomy between exploration and exploitation. In particular, the different forms of organizational ambidexterity are analyzed, emphasizing the solutions (of contextual ambidexterity) that are accessible to SMEs.*

Practical and Social Implications: *The editorial suggests and discusses two strategies that are sustainable by SMEs dealing with environmental complexity: learning to manage the (contextual) ambidexterity paradox, and SMEs' growth through acquisitions and networking.*

Originality of the Study: *SMEs and their strategic behavior are originally analyzed through the two complementary approaches of organizational ambidexterity and organizational paradoxes.*

1. Complexity in business environments

The aim of this editorial is to develop a reflection on how small and medium enterprises (SMEs) can face the complexity that increasingly characterizes the competitive environments in which they live.

There are different definitions and approaches to complexity, that are used in a wide number of areas, such as sustainability, education, healthcare, public policies, engineering, economics, and management of firms (Sigahi and Sznelwar, 2024). In management studies and in this editorial, complexity refers to the competitive environment by taking on the standpoint of the firm (with its internal complexity), in particular the entrepreneurs and managers who must face it (Furlan et al., 2023).

Given this domain, scholars have emphasized three (or four) components of environmental complexity (Barrales-Molina et al., 2010; Rullani, 2022a). The first concerns the number of things (in the business environment) to be considered in the decision-making process, i.e., the number of variables that come into play and the number of modes of each of them. The second component is systemic in nature: the variables are interdependent. The third component is associated with the fact that things change, also in the sense that new ones emerge.

This dynamic complexity also increases when the changes are predictable because of the knowledge and instrumentation required to perform forecasting. But it is the emergence of unpredictable events and processes that makes dynamic complexity the most drastic generator of uncertainty. As Duncan (1972, p. 313) stated in one of the seminal contributions on organizations and environmental complexity, "individuals in decision units with dynamic-complex environments experience the greatest amount of uncertainty in decision making". The difference between predictable and unpredictable changes is so significant that one could speak of two distinct components of complexity.

Among the different components of environmental complexity, the one concerning things that change unpredictably is the most "complex", such that it sometimes hinders decision-making. And it is this complexity that dominates the current competitive scenario. COVID-19 pandemic offers a recent and dramatic example of this dimension of environmental complexity since its widespread and frequent mutation has left firms and organizations with high uncertainty regarding business continuity, employees' motivation, distance working, unemployment (Azizi et al., 2021). But this is only one example of a larger problem. In a global competitive environment, where everything is connected (Barabási, 2003), events that arise in certain places can propagate with high speed on a global scale, becoming black swans (Taleb, 2007), e.g., the pandemic that started in the Chinese city of Wuhan or, ten years earlier, the global economic crisis started by the Lehman Brothers crash (Rullani, 2022b).

Today's discourse on complexity in the competitive environment must necessarily deal with two far-reaching phenomena. The first is the enormous uncertainty that characterizes the global geopolitical and economic scenario – which after the long season of hyper-globalization (1990-2008) in the following phase has also been marked by some processes of de-globalisation (Paul, 2023; Jindal and Kumar, 2024) – and in any case increasingly fluid and difficult to predict. The second is the fourth industrial revolution or digital transformation. This transition is inherently very open, full of emerging novelties and uncertainties, and this is what makes it profoundly different from the third industrial revolution (Schwab, 2017). On the one hand, technologies such as big data, artificial intelligence and the Internet of Things are creating new and powerful tools to cope with environmental complexity (Davenport et al., 2020; Rullani, 2022a). On the other hand, they represent a factor of complexity due to two concomitant causes: (i) the problems of selection, integration, and optimal use that they bring up (Cugno et al., 2021), and (ii) the organizational changes, often not easy to carry out, that the introduction of these technologies requires to obtain results in line with expectations (Pozzi et al., 2023). This double difficulty may explain, for instance, the emergence of what Gebauer et al. (2021) have called the double paradox of digital servitization, observed in manufacturing firms that have engaged in such strategies: the paradox regarding servitization occurs when firms investing in services do not earn the expected returns; similarly, the digitalization paradox highlights a similar issue with the investments in digital technologies.

2. Too much complexity for SMEs?

How do firms deal with the complexity of the current competitive scenario? Embedded in organizational studies is the theory that organizations living in complex competitive environments – in analogy to biological organisms (Jost, 2004) – respond by developing internal complexity in a mirror-image fashion to external complexity (Schneider, 2017). Following this perspective, the problem of the firm coping with external complexity is well represented by the concept of ambidexterity, that is, the classic dichotomy "between the exploration of new possibilities and the exploitation of old certainties" proposed by March (1991, p. 71), where exploitation of the already known includes refinements and incremental innovations.

In relatively simple competitive environments, which are typical of industries evolving in a gradualistic (incremental) manner, incumbent companies can live by exploitation alone (Tushman and O'Reilly, 1996). Such a regime does not result in a clear-cut discrimination between large and small firms: the former develop incremental innovations with their large

R&D structures, the latter do so with their small R&D structures, and often even without such structures (Sedita and Grandinetti, 2023; Thomä and Zimmermann, 2020).

However, this gradualistic approach becomes inappropriate in complex and rapidly changing competitive environments as it is in the era of the fourth industrial revolution. This is where ambidexterity comes into play, which implies a superior capacity on the part of the firm as exploration and exploitation are two completely different and rather conflicting processes, and getting them to work well together within the same organization is never an easy task. Precisely, and focusing on incumbent firms, ambidexterity takes on in a dual form, although the literature on ambidexterity has not shed full light on this duplicity. The first form is represented by ambidexterity as defined by March, where exploitation and exploration are two simultaneous processes, with exploration engaged in producing a new knowledge outcome with respect to the one on which exploitation is based (March, 1991, 2006). The second form is represented by ambidexterity as conceived by Teece within the theory of dynamic capabilities: these capabilities are those that firms must have in order to maintain or regain competitive advantage in rapidly changing environments (Teece et al, 1997); they relate to the three distinct core processes of sensing opportunities, seizing these opportunities, and, "when necessary, reconfiguring the business enterprise's intangible and tangible assets" (Teece, 2007, p. 1350); sensing and seizing refer to exploration and exploitation (O'Reilly and Tushman, 2008; Teece, 2007), where, however, exploitation (seizing) refers – differently than in March – to the outcome generated by an exploration process (sensing) that sequentially precedes it. This second form cannot be addressed, as hypothesized by Tushman and O'Reilly (1996), through the solution of temporal ambidexterity, with the firm focusing first on exploration and then on exploitation, because the two processes must be close in time if not partially overlapping (Turner et al., 2013).

One path to ambidexterity that allows it to be managed in both its forms is structural ambidexterity, which can be achieved by creating spatially separated organizational structures that are coordinated at the organizational level above them (O'Reilly and Tushman, 2004; Raisch and Birkinshaw, 2008). This solution avoids the conflicts that would be created by mixing two opposite logics, particularly when the business unit dedicated to exploration has to experiment with a business model whose value components (value proposition, value creation, value capture) are distant from those that distinguish the consolidated business model (Markides and Charitou, 2004). On the other hand, the unit that has received the exploratory mandate does not only carry out pure exploration activities because the new business model must necessarily be experimented with real customers: therefore, there is coexistence in the same organizational unit of

exploration and exploitation, which is a particular form of what in the ambidexterity literature has been called contextual ambidexterity (Markides, 2013). Ultimately, in the solution we are discussing we have structural ambidexterity if we look at the corporate level, while we have contextual ambidexterity if we look at the level of the (predominantly) explorative business unit: the upper level refers to ambidexterity à la March, the lower level to ambidexterity à la Teece.

This two-level approach to ambidexterity represents a specific source of economies of scale meaning that only large organizations can create in-house ad hoc units for the experimentation of an entirely new business model (Markides, 2023), as was the case in the past, for example, with the development of an online distribution channel to complement traditional brick-and-mortar sales (Markides and Charitou, 2004). Another factor that gives rise to a problem of scale is associated with the exploration process. The scenario of the fourth industrial revolution is still so open that the possibility of exploring the opportunities it is gradually offering demands the ability to master different knowledge domains and be able to combine them together. The scale of investment in knowledge required to cope with such a level of knowledge breadth (Prabhu et al., 2005) or exploration breadth (Paiola et al., 2024) is definitely high.

The picture outlined justifies the question that gives this section of the editorial its title. We try to answer it in the following section.

3. SMEs capable of dealing with complexity

In view of the increasing complexity that SMEs have to face (Audretsch and Belitski, 2021; Rullani, 2022a; Sgrò et al., 2021), the following section discusses two strategies that are sustainable by SMEs, and which are linked to the key aspects that emerged in the previous analysis (contextual ambidexterity and exploration breadth).

3.1. Learning to manage the ambidexterity paradox

Firms, and especially those whose size does not allow for the structural solution to ambidexterity discussed in the previous section, may practice contextual ambidexterity that is not protected at the level of the whole organization by spatial separation. The concept of contextual ambidexterity deserves a foreword because it has been the subject of misunderstanding in the literature (Markides, 2013). It was first introduced by Gibson and Birkinshaw (2004), according to whom ambidexterity must involve each individual working in a given organization, who must autonomously

know how to divide his/her time between exploitation and exploration,[1] while there must be processes or systems in the organization that enable and encourage these individual behaviors. Although several authors continue to use the concept of contextual ambidexterity in the original meaning of Gibson and Birkinshaw (e.g., Reischl et al, 2022), since their article, which contributed significantly to the growth of studies on organizational ambidexterity (Birkinshaw and Gupta, 2013), there has been an evolution of the concept. Above all, it has been applied to a broader range than the within-individual solution (Pertusa-Ortega et al., 2021) so that, at present, it represents a multifaceted construct that indicates more than one way to handle two business models within the same organization (Furlan et al., 2023). For example, some authors have spoken of contextual ambidexterity to qualify those cases where some employees manage the relationships with demanding clients whose complex needs require a superior exploration investment (Bednarek et al., 2016; Im and Rai, 2008). In other studies, the concept has been used to frame cases where a project team with an exploration mandate operates within the organization or one of its units (Lavie et al., 2010; Furlan et al., 2023; Paiola et al., 2024).[2] Clearly, the two-level solution we have identified as accessible to large organizations also has a component of contextual ambidexterity (at the lower organizational level).

Looking at contextual ambidexterity as a multifaceted construct, it is not difficult to see its importance – in appropriate forms such as the project/exploration team – as an approach available to SMEs to deal with the complexity inherent in the digital transition (Park et al., 2020; Pencarelli, 2022).

In this respect, the conceptual intersection between contextual ambidexterity and the organizational theory of paradoxes (Andriopoulos and Lewis, 2010; Papachroni and Heracleous, 2020) appears of particular relevance. In the founding contributions of this theory (Lewis, 2000; Smith and Lewis, 2001), a paradoxical tension between two elements is defined by three core dimensions: (1) the elements involved are in opposition (contradiction); (2) they cannot be completely separated as there are strongly connected (interrelation); (3) the opposition cannot easily solved, but it remains over time (persistence). The most prominent paradoxical dualities/tensions attended by the management literature that has adopted the paradox lens are (Carmine et al., 2024): financial goal versus social responsibilities (sustainable development); collaboration and competition in inter- and intra-firm relationships (co-opetition); global demands versus local demands in

[1] Gibson and Birkinshaw (2004) use the terms "alignment" and "adaptability", which they state are similar to those of exploitation and exploration proposed by March (1991).

[2] This project/exploration team-based solution could be placed on the borderline between contextual ambidexterity and structural ambidexterity.

multinational corporations; and, finally, exploration versus exploitation, or (contextual)[3] ambidexterity. Regarding the latter, there has been an intense connection between the strand of studies on ambidexterity and that on organizational paradoxes (Lewis and Smith, 2022).

The fact that the two elements of the ambidexterity paradox are contradictory, interdependent and exist simultaneously over time raises a fundamental problem of paradox management. According to paradoxical thinking, firm leaders faced with these paradoxical tensions do not focus on one to the exclusion of the other (either/or logic) but try to manage both (both/and logic) (Schad et al., 2017). Lewis et al. (2014) propose five leadership practices in this regard: appreciate paradoxes as a vital Ingredient of high performance; proactively identify and raise tensions; avoid traps of anxiety and defensiveness; consistently communicate a both/and vision; finally, separate efforts to focus on different sides of a paradox. Regarding this last key requirement of paradoxical leadership, the authors point out that "a both/and vision reminds organizational members of the paradoxical, overarching objective, as separation enables focused action on each side of a tension" (p. 71).

Interestingly, Lewis et al. (2014) draw these lessons from the observation of some big corporations such as IBM, Lego and Unilever. However, none of these practices seem precluded to SMEs, including the last one that has the greatest structural implications: in fact, working (also) distinctly on the two sides of the paradox – in our case, exploration and exploitation – is a requirement for all the forms that fall under the label of contextual ambidexterity.

Of course, stating that managing ambidexterity through a paradoxical approach does not pose a problem of scale excluding SMEs does not mean that it is an easy task. Indeed, paradoxical leadership is an individual capability that is not currently widespread among the top managers of firms, regardless of the size of the firm itself (Trieu et al., 2023). Moreover, in the case of SMEs, a problem occurs that has been read by Chrisman et al. (2015) as a paradoxical tension between ability (discretion to act) and willingness (disposition to act). In other words, applying this general paradox to paradoxical ambidexterity,[4] entrepreneurs in SMEs have all the freedom they need to take this path, but are reluctant to take it (De Massis et al., 2015; Rondi et al., 2020).

[3] Note that in the case of structural ambidexterity, the second condition (interrelation) is necessarily not present.

[4] The focus of Chrisman et al. (2015) is on every kind of innovation that the firm (family business) can develop. The recognition of the innovation paradox is aligned with the organizational theory of paradox: "The greater discretion that family owners are believed to have in combination with family firms' unwillingness to innovate thus constitutes a paradox, by which we mean they have contrary elements that are interrelated, concurrent, and durable (Smith and Lewis, 2011)" (Chrisman et al., 2015, p. 312).

In any case, the way SMEs deal with contextual ambidexterity and the related issue of paradoxical leadership represent a promising avenue for future research and for managerial actions aimed at managing uncertain processes such a disruptive innovation, or even unexpected events. To deal with unexpected events that can generate crisis situations, in a logic of strategic ambidexterity, SME'S must pay attention to current management, but also prepare managerial prevention tools capable of facilitating the dealing with unexpected situations. For example, it is necessary to adopt organizational structures capable of grasping weak signals coming from the environment and sufficiently flexible and prepared for resilience activities in emergency cases. One way to mitigate possible negative impacts induced by unexpected events and crises could be also the stipulation of insurance policies and the setting up of capitalized financial structures, capable of ensuring adequate liquidity even in adverse and unexpected moments. During the recent crises induced by the health emergency and the Russian-Ukrainian conflict, in fact, many companies went bankrupt or were on the verge of closure due to the lack of cash flows associated with situations of high debt and financial fragility. Crisis prevention also requires the preparation of effective alert systems, based on suitable sector indicators, such as those introduced by the Italian legislator in 2019, in the wake of crisis prediction models (Gabbianelli, 2016; Falini et al., 2021).

3.2. SMEs' growth processes through acquisitions and networking

We must now return to the topic of firm size, this time within the broad category of SMEs. Some useful data to start this reflection comes from the observatory on merger and acquisition (M&A) transactions built by KPMG, which has been quantifying and analyzing this type of external growth in Italian firms since the late 1980s (Fiani, 2024; KPMG, 2010). According to this source, the recent phase is characterized by a significant growth in M&A transactions and – even more interesting in the context of our analysis – the phenomenon has not reproduced the pattern of strong concentration that marked it in the past – a few large transactions by a few large companies – being fuelled above all by an unprecedented involvement on the part of SMEs, particularly with regard to acquisitions. This change is associated with the formation of an M&A "ecosystem" that is now capable of supporting SMEs interested in growing (also) through these transactions, thanks to a wide variety of investors specialized in their financing as well as players operating at the interface between firms and financial institutions.

Many acquisitions carried out by SMEs do not represent a simply faster alternative to internal (organic) growth within the domain of the firm's already known, but a way to leapfrog the firm's stock of knowledge and

skills, in other words, to cope with competitive complexity (Furlan and Grandinetti, 2011; Salvato et al., 2007). The acquisition of another firm, if framed in a clear strategic vision and supported by a careful evaluation of the firm to be acquired, then becomes the effective solution for: strengthening the acquiring firm in a functional area in which it is weak, acquiring know-how regarding specific technologies or services to be added to products, facilitating entry into foreign markets that are culturally distant from the domestic market, or diversifying into product markets that have not yet been explored.

Through acquisitions, or takeovers as they are otherwise known, firms purchase all of another firm's shares or at least a share that grants control of that firm (De Pamphilis, 2015). Other transactions deserve a mention in which the focal firm: acquires a minority share of another, gives up a minority share to another firm, exchanges shares with it, or creates a joint venture with it. In our perspective of analysis, all these forms of ownership structure openness become important for SMEs (the vast majority of which are family businesses) to the extent that they lead to an enhancement of the entrepreneurial resources and dynamic capabilities (Teece et al., 1997) with which the firms involved deal with the complexity of their competitive environments.

As mentioned above, takeovers provide access to resources and capabilities that the acquiring company lacks. Another way to strengthen the management structure with fresh knowledge and skills is the recruitment of external managers, provided that the owner-entrepreneurs do not make the mistake of seeing the recruited "external 'professional' managers (assuming they can attract them) as 'quick-fix' solutions to possibly deeper structural/cultural problems within the business" (Fletcher, 2002, p. 404). Recently, some scholars have emphasized the roles that middle managers can play in their companies' discontinuous change processes: developing ideas and proposing them to top managers, adapting the strategy defined at the corporate level to the specificities of the organizational units they preside over, or experimenting the innovation project in their organizational unit (Tarakci et., 2023). For instance, a functional or product manager proposes to develop in his/her unit a new business model based on digital servitization that has relevant corporate implications, obtains the approval of the top managers(s) and organizes a project team within his/her unit (contextual ambidexterity) in order to carry out the experimentation (Paiola et al., 2022). It would be interesting to study the strategic roles that middle managers play in SMEs/family businesses also because in many cases the top managers with whom they interface are the owner-entrepreneurs.

The competitive relevance of inter-organizational relations for SMEs is well known (Agostini and Nosella, 2019). SME'S can develop inter-firm agreements, which represents a "light" form of external growth, less de-

manding and risky from an economic and financial point of view than M&A, although with the constraint of having to share the value created through the alliance with the partners. These are forms of external growth that allow companies to face the challenges of complexity quickly and with modest use of resources. These are maneuvers indicated both for winning "resource-driven" strategies, based on the search for exogenous skills to enhance strategic formulas based on the resources and skills already possessed by the company, and for winning "opportunity-driven" strategies. in search of the resources necessary to seize opportunities that distance the company from the strategic path of consolidating it, enriching it and completing it.

The growing complexity of markets is urging companies to collaborate with other actors to strengthen their skills, share risks, access complementary know-how and therefore accelerate innovation. The main objectives concern: (1) specialization in their "core business" by improving the quality of the products offered, in order to obtain a competitive advantage not only for individual partners, but also for the entire network; (2) the increase in strategic and operational flexibility, favored by the rapid mobilization (in and out) of the complementary resources necessary for the businesses managed and by the expansion of the relational capital of each partner in the network; (3) facilitated access to new markets, leveraging a greater critical mass and the exploitation of economies of scale, promoting stability and growth in turnover; (4) the expansion of the range of goods and services produced and offered, reaping the advantages of variety and breadth of value propositions; (5) increasing efficiency by achieving economies of scale and reducing management costs; (6) the reduction of the financial needs relating to investments; (7) better access to credit and incentives to encourage the reduction of indebtedness and financial risk; (8) access to knowledge and skills of other companies, through the exchange of know-how and the sharing of resources; (9) corporate reorganization and best use of personnel; (10) the common use of telematic and IT platforms; (11) the possible sharing of marketing processes, especially at the level of communication and web marketing; (12) the possible sharing of innovation and research processes; (13) the possible sharing of procurement processes through purchasing groups, to have greater bargaining power towards suppliers.

The network contract, introduced in Italy by a specific law, is a formal agreement that allows activities and resources to be pooled with the aim of improving company functioning, strengthening competitiveness and innovation. This represents a valid tool for relaunching the competitiveness of smaller businesses, seeking the advantages of larger dimensions without losing entrepreneurial, strategic and organizational autonomy. The main managerial challenge to improve the performances achieved so far by the

aggregations through network contracts concerns the strengthening of the governance processes, in particular those of coordination of the partners, making the cooperative vocation of the allies prevail over the potential risks of conflict. Finally, it is important that the networks take on strategic perspectives capable of dealing with international business, starting from a context of strong territorial roots, typical of network contracts created by Italian SME'S: this implies that the networks know how to deal with relationships with even strong ties with international partners, as long networks, capable of connecting to global purchasing, intermediation and consumption circuits making use of the strength of the local and Italian territorial brand (Aureli et al., 2015).

SMEs can develop agreements to avoid size growth. Nevertheless, here we would like to distance ourselves from a view of the role of networking that simplistically – like the better-known "small is beautiful" – tends to regard it as a pure substitute for growth. On the contrary, growth (organic or external) and networking are closely interdependent processes. On the one hand, through the acquisition of the target company, the acquirer may also and sometimes especially be interested in the relationships that the acquiree brings with it (Furlan and Grandinetti, 2011). On the other hand, external growth processes present various criticalities – think, for instance, of the delicate post-acquisition phase (Tunisini and Bocconcelli, 2013) – to deal with which the firm is generally supported by external consultants, who fall fully into the category of knowledge-intensive business services, KIBS (Miles, 2005).[5] Finally, the boundaries between growth and networking are rather blurred: in particular, strategic alliances can take either the equity form (external size growth) or the non-equity form (formal or informal inter-firm collaboration), but both may be suitable for pursuing a given strategic objective. Not surprisingly, strategic alliances in both forms are included, like M&As, in the broad concept of external growth (Gomes, 2020).

In conclusion, growth cannot be a strategic imperative tout court for SMEs but must be conceived as a targeted and tailor-made path for the firm, which develops and updates over time, and is always linked to the development of internal capabilities and external relations. For SMEs that want to take up the challenges posed by the current phase of technological discontinuity, and the consequent extension of the exploratory breadth, the true strategic imperative is to identify the knowledge domain within which to design size growth, the strengthening of internal capabilities and the development of relations with other actors in the ecosystem in which the firm lives (Simone et al., 2021). In any case, the growth processes of SMEs (small

[5] The involvement of other KIBS has proved to be essential in the exploratory phase of radical innovation processes, for instance, in digital transformation projects (Rapaccini et al., 2023): in this respect, ambidexterity always has a network dimension (Park et al., 2020).

becoming medium, medium becoming large) in its various forms, motivations, and implications, should receive great attention in the current phase, revitalizing the strand of studies on medium-sized enterprises started in Italy some fifteen years ago (Coltorti, 2007; Varaldo et al., 2009).

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EARNINGS MANAGEMENT IN ITALIAN FAMILY AND NON-FAMILY UNLISTED COMPANIES: THE MODERATING EFFECT OF GENDER DIVERSITY[1]

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Abstract

Purpose. *Building upon the stakeholder theory, this paper aims to investigate the relationship between family control and earnings management practices while considering the potential moderating effect of gender diversity on the Board of directors.*

Design/methodology/approach. *Using a longitudinal sample of 1,461 manufacturing Italian Small and Medium-sized Enterprises over the period 2014-2020, we performed panel regression analyses to empirically investigate the relationship between earnings management, family firm status and the moderating effect of gender diversity on board.*

Findings. *The empirical findings show that family firms are less likely to engage in the practices of earnings management than non-family firms are. The association between family firm status and earnings management is moderated negatively by gender diversity.*

Practical and Social implications. *This study emphasizes the critical role of family control and board gender diversity in reducing financial manipulation practices and improving accounting transparency. These findings offer practical guidance for implementing measures aimed at enhancing the quality of financial reporting in unlisted Small and Medium-sized Enterprises. Greater women's representation on the family businesses board can promote accounting transparency and integrity, carrying significant social implications.*

Originality of the study. *This study contributes to the literature on the quality of financial information in both family firms and unlisted companies, exploring new areas of research. The study is original also considering the moderating variable chosen: to the best of our knowledge, no study has already explored the moderating influence of gender diversity on the relationships between family control and earnings management.*

[1] Paragraphs attribution: All authors were involved in the research design and contributed to writing the manuscript. Marianna Mauro conceived the study and wrote Sections 1. Monica Giancotti wrote Section 2 and 3. Giulia Cattafi wrote Sections 4 and 5. Giorgia Rotundo wrote Section 6. All authors were involved in the revision of the manuscript according to the comments of the reviewers. All authors approved the final version of the manuscript.

1. Introduction

Earnings management (EM) has dominated the accounting research landscape for about three decades (Habib et al., 2022). The term refers to "any practice intentionally carried out by management, with opportunistic and/or informative purposes to report the desired number of results, different from the real one" (García Lara et al., 2005).

EM practices prevent knowing the truthful and appropriate image of the economic-financial situation of the company. Therefore, it influences the decisions of investors and funders, affecting both the confidence of economic agents, and the ability to attract resources, which can affect a wide range of stakeholders (Gómez-Mejía et al., 2014).

The existing literature regarding EM is really extensive (e.g., Cascino et al., 2010; Lennox et al., 2018; Prencipe et al., 2011; Songini et al., 2013), although empirical research has focused mainly on listed companies (e.g. Landry et al., 2013; Vieira, 2016) whose EM practices are generally linked to the pressure of the capital market (Mafrolla & D'Amico, 2017).

However, understanding the dynamics of EM within unlisted companies remains unexplored (Paiva et al., 2016), leaving a notable gap in the literature. Addressing this gap is significant as unlisted small and medium enterprises (SMEs) play a vital role in the economy, contributing significantly to employment, innovation, and Gross Domestic Product (GDP).

Despite their importance, these firms are subject to different regulatory and oversight environments compared to their listed counterparts (Borralho et al., 2020). Unlisted companies often have less stringent reporting requirements and less external scrutiny, potentially creating a fertile ground for EM practices. Therefore, analyzing EM practices within unlisted firms can provide insights into the quality of financial reporting and the transparency of business operations in a substantial segment of the economy.

Although EM is a relevant topic in accounting research, few researchers have studied this issue in family businesses (Stockmans et al., 2010, 2013; Paiva et al., 2016; Borralho et al., 2020).

The limited existent evidence shows that family and non-family firms differ in their financial reporting decisions, but results are in contrast: most of the studies show that family firms have better financial reporting practices and lower EM than non-family firms (e.g., Ali et al., 2007; Jiraporn & DaDalt, 2009; Achleitner et al., 2014; Ramírez-Orellana et al., 2017; Dechow et al., 1995), others reveal opposite outcomes (Chi et al., 2015; Prencipe et al., 2014).

This makes up a research gap that is important to cover.

Examining EM practices – particularly in the context of family versus non-family businesses – is relevant for several reasons. First, family businesses, which constitute a significant portion of firms globally (Gómez-

Mejía et al., 2014; Diéguez-Soto et al., 2015), including in Italy, have unique characteristics that distinguish them from non-family firms. These characteristics can significantly influence financial practices and reporting.

Second, family businesses often feature concentrated ownership and control, which can lead to agency problems compared to publicly traded firms (Azila-Gbettor et al., 2022). For instance, the alignment of interests between owners and managers may reduce the inclination towards EM to meet short-term performance goals. Conversely, the desire to maintain family control and legacy (Gómez-Mejía et al., 2014) might sometimes incentivize EM to smooth earnings and present financial stability.

Third, the reputational concerns and long-term orientation typical of family firms may cause more conservative financial reporting practices (Lumpkin et al., 2010). Family owners are more invested in preserving the firm's reputation for future generations, which can lead to a lower propensity for EM practices.

In summary, the influence of family control on EM is an area that has not been extensively explored in the existing literature, particularly in unlisted SMEs. Our study aims to fill this gap by assuming these firms as our units of analysis, providing insights into how family ownership affects financial reporting practices in a substantial yet under-researched segment of the economy.

This research also contributes to the literature by analyzing the potential moderating role of gender diversity on the board of directors (BoD) of SMEs.

The topic of board gender diversity and EM is widely documented in the literature. Prior evidence indicates that, on average, women directors can positively affect financial reporting quality by engaging less in EM (Arun et al., 2015; Gavious et al., 2012). In particular, prior empirics show that firms with women directors on the board have a higher quality of reported earnings than firms without gender-diverse boards (Srinidhi et al., 2011; Adams & Ferreira, 2009).

Despite the interest in this topic, also in this case, not many researchers have studied this issue from a family business perspective (Helal, 2022; Alhebri & Al-Duais, 2020). Despite previous studies showed that the association between EM and family control can be moderated by other factors (Habib et al., 2022) – such as family business generation (Borralho et al., 2020; Bansal, 2021); family ownership (Kumala & Siregar, 2021; Widagdo et al., 2021), board characteristics (Gavana et al., 2022) – the role of gender diversity was under investigated.

Yet, the literature shows that women in family firms play a key role: compared to non-family firms, they are more motivated to pass on their activities to future generations, demonstrate a greater aptitude for long-term commitment and a greater protective instinct towards family reputation (García-Meca & Santana-Martín, 2023). Other studies (Shukla & Teraiya,

2022) demonstrated that in family businesses, the influence of women managers on a company's innovation and creativity is stronger than in non-family businesses; and more recently, some authors have identified potential benefits resulting from the presence of women in family businesses, including greater diversity of thought and perspectives, better organizational performance and improved planning capacity (Bannò et al., 2024).

In this framework, understanding their impact on reducing EM practice is fundamental to improving financial reporting quality (Bannò et al., 2024).

Building upon the stakeholder theory, this paper aims to investigate the relationship between family control and EM practices. Moreover, it also examines the potential moderating effect of gender diversity on the BoDs.

In order to achieve our research objective, we used a longitudinal sample consisting of 1,461 Italian manufacturing SMEs over the period 2014-2020. To test the research hypotheses, we performed a panel regression analysis to examine the interrelations between EM, family firms' status and the potential moderating effect of gender diversity on boards.

Our results show that family firms are less prone to engaging in EM practices than non-family firms are. Moreover, the empirical findings also provide evidence on the role of gender diversity on boards in moderating the relationship between family firm status and EM practices.

The choice to focus on the Italian context is based on the following reasons. First, Italy is a civil law country means that accounting and tax regulations are perfectly aligned: the rules governing accounting (i.e. financial reporting) and those governing tax reporting are consistent with each other. This means that the figures reported in financial statements for accounting purposes are likely the same as those reported for tax purposes (Lamb, 1998). For these reasons, firms may have an incentive to engage in EM to minimize tax payments (Matonti et al., 2021).

Furthermore, the predominance within the market of Italian family and non-family unlisted companies, more specifically SMEs, and a presence of diversified investors and their preferences, can represent factors favorable to financial manipulation (Corbetta & Minichilli, 2005).

Finally, the fact that Italian policy makers have enforced Law 120\2011, which imposes gender quotas for Italian public companies' BoDs and the consequent promotion of gender equality in management positions (Shabbir, 2018), pushed us to choose gender diversity as a moderating factor.

The study is structured as follows. After the present introduction, section 2 summarizes the relevant literature about EM focusing on family firms; section 3 addresses the theoretical framework that led us to propose research hypotheses. In the section 4, the research methodology is presented and in section 5, the empirical results are provided. Section 6 concludes

the study with a general discussion of our findings, description of limitations, and future research steps.

2. Literature review

2.1 EM: general definition

EM has been a widely studied topic in both academic research and financial markets. Although there is no unanimous definition of "EM", it is commonly known as a practice employed by management in order to misrepresent or conceal economic-financial firm's information, aimed at satisfying the expectations of analysts (García Lara et al., 2005; Dyreng et al., 2022) or investors (Ewert & Wagenhofer, 2013; Nguyen et al., 2021). Prior studies have classified EM in two forms: i) accounting EM, whose effects only affect the subtotal cash flow and ii) economic EM, affects total cash flows negatively (Ewert & Wagenhofer, 2013). In both cases, it is possible to deduce that EM negatively affects the quality of economic-financial communication: introducing biases to financial reports, in fact, prevents knowing the real firm's economic-financial performance (Gómez-Mejía et al., 2014).

The literature identifies different motivations underlying the adoption of EM practices: i) to achieve of certain targets for managers who have remuneration contracts based on a given level of profits ii) to reduce the volatility of profits (maintaining improving trends) to preserve and strengthen the financial situation, image and corporate reputation on the market; iii) to minimize political control and regulatory effects (Nia et al., 2015; Temile et al., 2018; Callao et al., 2021).

2.2 EM in listed and unlisted companies

Several studies consistently reveal a broader use of EM behaviors aimed at increasing income among listed companies (Ding et al., 2007; Landry et al., 2013; Vieira, 2016; Ado et al., 2020). On the contrary, few studies discuss it in unlisted companies (Matonti et al., 2021; Paiva et al., 2019) or present comparison results between the two types of companies (Campa, 2019; Gaio et al., 2020).

In general, EM practices differ among listed and unlisted companies in relation to the number and type of stakeholders (Campa, 2019) and to the market regulation and tax policies (Ball & Shivakumar, 2005; Campa, 2019).

The literature identifies two contrasting hypotheses to explain the differences between listed and unlisted companies in the adoption of finan-

cial management practices (Hope et al., 2013; Campa, 2019).

The first, called the "demand" hypothesis, assumes that listed companies adopt poorer EM practices than unlisted companies because they need to provide their many stakeholders with better quality and more reliable financial information.

On the other hand, stakeholders of unlisted companies, which are typically banks and capital providers, have greater access to internal information and therefore rely less on institutional annual reports (Campa, 2019).

The second, called the "opportunistic behavior" hypothesis, states that listed firms have greater incentives than unlisted entities to manipulate earnings due to market and stakeholder pressure to meet earnings expectations and the presence of capital equity (Hope et al., 2013).

Not least, studies based on samples of companies from emerging markets (Aharony et al., 2000; Liu & Lu, 2007; Chen & Wang, 2004; Jian & Wong, 2010), provide clear evidence of the fact that listed Chinese companies drastically increase their profits for obtaining authorization for an Initial Public Offer (IPO), for issuing new shares or for avoiding being delisted.

The implicit assumption is that compliance with regulatory requirements is the incentive for companies to manage their profits.

On the contrary, a study by Gaio et al. (2020), analyzing 8,752 listed and unlisted European companies between 2005-2012 suggest a greater propensity for the adoption of EM practices of unlisted companies compared to listed companies and that the latter show higher quality profits tending to manage it further downwards, suggesting more conservative accounting earnings.

2.3 EM in family firms

EM has been studied in relation to different governance characteristics, such as independence and board size (Davidson et al., 2005), existence and independence of the audit committees (Jaggi & Leung, 2007), ownership concentration (Yeo et al., 2002) and presence of institutional investors (Rajgopal et al., 2007) but only recent few studies have considered ownership and have addressed EM in family businesses.

The results, although sometimes contrasting, show a different propensity to adopt this manipulation practice in family and non-family businesses (Prencipe et al., 2008; Stockmans et al., 2010; Achleitner et al., 2014; Chi et al., 2015; Gavana et al., 2019).

Evidence in the literature suggests that family businesses are significantly less likely to engage in EM practices than their non-family counterparts because of the enormous reputational capital invested in the business (Jiraporn & DaDalt, 2009; Martin et al., 2016; Gavana et al., 2019).

In fact, given the concentration of ownership in family businesses (Fac-

cio & Lang, 2002) and the high risk to which the invested capital is subject, the owning family has a greater incentive (Bennedsen & Nielsen, 2010) to monitor managers and prevent opportunistic behaviors.

Since family members often hold top management positions, there is a convergence of interests between managers and the controlling family (Blanco-Mazagatos et al., 2016).

An extensive body of American literature confirms that family businesses have better corporate and financial reporting practices than non-family businesses (Wang, 2006; Ali et al., 2007; Tong, 2007; Jiraporn & Dadalt, 2009).

In particular, Ali et al. (2007) report better earnings quality in family firms than in non-family firms, suggesting that family ownership among large American firms leads to fewer agency problems.

Meanwhile, at the European level, few empirical studies have discussed EM in family and non-family businesses (Prencipe et al., 2008; Cascino et al., 2010; Prencipe et al., 2011; Paiva et al., 2019).

Using a sample of 1,043 UK-listed family and non-family firms, Paiva et al. (2019) investigated the potential impact of the monitoring from analysts on EM practices. Contrary to prior studies, they found that family firms have higher levels of EM as compared to non-family firms unless they are followed by a significant number of analysts.

Another study by Prencipe et al. (2008) shows that family and non-family businesses show a similar aptitude for manipulating profits through the capitalization of research and development costs.

2.4 Board gender diversity and EM

In recent years, several researchers have investigated the moderating role of gender diversity in board composition (Gull et al., 2018; Zalata et al., 2018; Fan et al., 2019; Umer et al., 2020). However, the results are inconclusive.

Most studies found that gender diversity on boards helps to improve the quality of financial reporting, introducing a broader talent pool as well as better and more accountable corporate governance (Adams & Ferreira, 2009; Vieira & Madaleno, 2019; Mnif Sellami & Cherif, 2020).

More specifically, some studies detailed the positive impact of gender diversity in reducing EM practices, linking it with particular socio-psychological aspects and behavioral characteristics typically associated with women.

In particular, women on board: i) have superior monitoring ability compared with men directors (Adams & Ferreira, 2009; Kao et al., 2020); ii) are more conservative in the choice of financial reporting policy and standard (Panzer & Müller, 2015); iii) are good at collecting personal information, reducing the information asymmetry (Li et al., 2023); iv) are more inclined to

be cautious and risk averse than men (Powell & Ansic, 1997); v) bring a collaborative leadership style that benefits boardroom dynamics by increasing the amount of listening, social support, and win-win problem solving (Kramer et al., 2006); vi) are more likely to adopt ethical behavior than men (Dayanandan et al., 2012).

Li et al. (2023) confirmed that women's participation on supervisory boards and executives reduces real EM. Particularly, they also found that women executives - excluding Chief Executive Officers (CEOs) and Chief Financial Officers (CFOs) - who are also directors are more likely to limit earnings manipulation.

An analysis conducted by Triki Damak (2018) on a sample of 85 French listed companies from 2010 to 2014, within the French context, demonstrates a significant negative correlation between the presence of women on the board and the level of EM practices.

Consistent with previous findings, Umer et al. (2020) reveal that the CEO woman plays a pivotal role in constraining EM practices based on a sample of 100 listed non-financial companies over the period of 2010-2015.

On the contrary, other studies find no association between earnings manipulation and gender diversity on boards (Srinidhi et al. 2011; Sun et al., 2011; Kuo et al., 2014). For example, the study conducted by Pavlovic et al. (2018) on Serbian agriculture companies listed at the Belgrade Stock Exchange found a negative but not statistically significant relationship between women's representation on the board and EM.

Similarly, Sun et al. (2011) finds no gender-based effect in constraining EM, suggesting that ethical beliefs concerning EM do not significantly differ between man and woman audit committee directors.

3. Theoretical framework and hypotheses development

Regarding the framework used in explaining EM in family firms, agency theory (Jensen & Meckling, 2019) has been identified as the dominant paradigm (Prencipe et al., 2008, 2011, 2014; Paiva et al., 2016; Ali et al., 2007; Jiraporn & DaDalt, 2009; Cascino et al., 2010), followed by the stewardship theory (Anderson & Reeb, 2003; Miller & Le Breton-Miller, 2006; Miller et al., 2008) and the socio-emotional wealth theory (Martin et al., 2016; Stockmans et al., 2010).

However, to justify our study, we adopt arguments from stakeholder theory (Freeman, 1984), which are considered more suitable than other theories used in the literature. There are at least three reasons behind this choice. First, the theory is based on maximizing value for all stakeholders who have relationships with the company and not just maximizing wealth for shareholders (Zellweger & Nason, 2008).

About that, as suggested by Zellweger and Nason (2008), in contrast to their non-family counterparts, family firms have de facto an additional stakeholder group, the family; second, family firms may have a higher incentive to ensure the satisfaction of stakeholders because individuals in family firms often play multiple stakeholder roles (e.g. employee, owner, manager and family member); finally, there is some evidence that family firms display strong community relations and are embedded in the societal context of their firms (Dyer & Whetten, 2006).

Second, the stakeholder theory, based on ethical behavior and corporate transparency, is suitable for the context of family businesses which have shown a greater propensity to adhere to ethical standards in their financial reporting compared to non-family businesses (Dyer & Whetten, 2006).

Third, contrary to agency theory which focuses only on the divergences between managers and shareholders, stakeholder theory aims to align the interests of all subjects who cooperate within the company and to reduce agency problems arising from the separation between ownership and control within family businesses (Gómez-Mejía et al., 2007).

Finally, stakeholder theory aligns well with the family business perspective of considering the interests of various stakeholders and preserving the wealth of the business in the long term (Miller & Le Breton-Miller, 2006; Prencipe et al., 2008, 2011).

Given these considerations, previous studies show that family firms have lower EM than non-family firms (Ali et al., 2007; Jiraporn & DaDalt, 2009) and provide high-quality financial information as compared to non-family firms (Prencipe et al., 2008, 2011; Cascino et al., 2010).

The pressure to meet short-term expectations from shareholders is lower and managers are more prone to focus on the long-term development of firms and to be more focused on creating and developing long-term relations with stakeholders, including employees, suppliers, and lenders (Prencipe et al., 2008, 2011).

The management of these relationships would be driven by a concern to foster more open dealings with stakeholders and to enhance transparency. In view of these findings, we formulated our first research hypothesis as follows:

H1: *Family firms exhibit a lower propensity for EM practices compared to non-family firms.*

Building upon prior literature, we hypothesize that gender diversity on boards moderates the relationship between family business status and the quality of financial information (Gull et al., 2018).

The BoD can play a crucial role in influencing EM practices in SMEs. According to Jensen and Meckling (1976), the primary function of the BoD is

to supervise and regulate a company's management, ensuring that managers prioritize the interests of shareholders. Therefore, the BoD's oversight is crucial for ensuring the quality and transparency of financial reporting (Dechow et al., 1996).

However, as highlighted by Fama and Jensen (1983), the effectiveness of the BoD hinges significantly on its composition. Against this background, we hypothesize that greater gender diversity on the board might improve board effectiveness. Specifically, we propose that the relationship between family control and EM practices decreases as the number of women directors on the board increases.

Women directors bring unique skills in communication, risk management, and ethical oversight (Bøhren & Staubo, 2016; Dang et al., 2014), which are crucial for effective board governance. Their emphasis on monitoring and independence (Ararat & Yurtoglu, 2021; Farrell & Hersch, 2005) and better attendance records further enhance board effectiveness.

Furthermore, BoD with a greater representation of women directors exhibits better quality decision-making. Women directors are more acquisitive (Levi et al., 2014), adopt less aggressive investment policies (Chen et al., 2019), and implement better acquisition decisions because of their greater risk aversion (Arun et al., 2015; Belounia et al., 2020).

These attributes contribute to enhanced board effectiveness in overseeing corporate strategies and operational decisions. Women directors' acquisitive nature and prudent risk management approach are beneficial in mitigating the likelihood of earnings management practices in family firms.

Therefore, we formulated the second hypothesis as follows:

H2: *Gender diversity strengthens the negative relationship between family control and EM.*

In other words, a higher number of women directors on the board will strengthen board governance effectiveness and reduce the incidence of EM practices, improving the overall integrity of financial reporting in these firms.

4. Research method

4.1. Sample, data collection and conceptual model

This study uses a sample of Italian manufacturing firms spanning the period 2014-2020. Firm-level data were sourced from AIDA-Bureau van Dijk, a comprehensive database containing detailed accounting data and general information, including governance and ownership, for approximately 980,000 Italian companies. Furthermore, this database provides a historical series extending up to 10 years.

The manufacturing sector is a cornerstone of the Italian economy, contributing significantly to GDP and employment growth. According to a recent report by the Confindustria Study Center, Italy's manufacturing sector ranks among the top 10 globally for added value, investments, production diversification, and export competitiveness (Romano & Traù, 2020). Therefore, manufacturing SMEs represents a compelling research focus within the Italian context (Trianni et al., 2013).

To mitigate the potential distortive effects of Covid-19 on corporate balance sheets and to prevent biased regression estimates, we set the upper time limit of our analysis in the year 2020.

Furthermore, to address the challenges associated with manually identifying family businesses, we opted to use a random sample rather than the entire population for our empirical analysis. Following Palia and Lichtenberg (1999), we carefully selected a representative sample aimed at minimizing size and survival biases. Therefore, our focus was exclusively on active manufacturing firms meeting the SMEs criteria established by the European Commission. Specifically, we identified manufacturing companies using the ISTAT-ATECO 2007 classification system, encompassing only those within section "C" (divisions 10 to 32 based on the first 2 digits). SME classification was based on criteria including headcount (10 to 250 employees) and turnover (2 to 50 million euros), aligning with EU Recommendation 2003/361.

Based on these criteria (size, sector, and legal status), we randomly selected a sample of 1,536 companies from the identified population of 24,600 Italian manufacturing SMEs available in the AIDA-Bureau van Dijk database as of June 2023. Firms lacking complete data necessary for estimating discretionary accruals (DA) or determining their family or non-family status were removed from the sample (n=75).

It is important to highlight that in this study, DA was calculated using the modified Jones model proposed by Dechow et al. (1995) and used as a proxy for EM. Key variables used for calculating DA included Earnings Before Interest and Taxes (EBIT), total assets, turnover, receivables, and operating cash flow (CFO).

In contrast, identifying the family or non-family business status required ownership and management data, including the surnames of shareholders and directors. Companies were excluded if it was impossible to find out the surnames of the shareholders and/or directors, such as those controlled by entities or foreign parent companies not included in the AIDA database.

This process yielded a longitudinal dataset of 10,062 firm-year observations, covering 1,461 Italian manufacturing SMEs over the period 2014-2020. Within this sample, 732 companies (50.10%) were classified as family firms, while the remaining 729 (40.90%) were classified as non-family firms.

To examine the potential moderating effect of gender diversity on the

relationship between the status of "family firm" and EM, a moderator variable Z *(Gender diversity)* was introduced in the regression model. Gender diversity was measured as the proportion of women directors on the board (Hillman, 2015; Post & Byron, 2015). We measure this variable as the ratio of the total number of women directors and the total number of directors on board (e.g., Ahmadi et al., 2018; Dwaikat et al., 2021).

4.2. Econometric model

In line with prior research (e.g., Borralho et al., 2020; Cascino et al., 2010; Paiva et al., 2019; Prencipe et al., 2011), we conducted panel regression analyses to test our hypotheses.

Our study explores the association between family firm status and EM, incorporating the moderating effect of gender diversity. Therefore, we used a two-step estimation approach.

The first step involved regressing family firm status against EM practices (HP1). This was operationalized through the following regression equation [1]:

$$[1]\ DA_{it} = \beta_0 + \beta_1 Family\ firm_i + \beta_2 Firm\ size_{i,t} + \beta_3 Leverage_{i,t} + \beta_4 Firm\ age_{i,t} + \beta_5 Board\ size_i + \beta_6 Generation + \beta_7 Board\ age + \beta_8 Liquidity + Regional\ dummies + Years + \varepsilon_{i,t}$$

In the second step, we performed a regression analysis to examine the potential moderating effect of gender diversity, measured by the proportion of women on boards (HP2).

This model incorporated the interaction term, which represents the product of gender diversity and family firm status. Accordingly, we estimated the following regression equation [2]:

$$[2]\ DA_{it} = \beta_0 + \beta_1 Family\ firm_i + \beta_1 Gender\ diversity + \beta_2 Firm\ size_{i,t} + \beta_3 Leverage_{i,t} + \beta_4 Firm\ age_{i,t} + \beta_5 Board\ size_i + \beta_7 Board\ age + \beta_8 Generation + \beta_9 Liquidity + \beta_{10} Family\ firm^{*}\ Gender\ diversity + Regional\ dummies + Years + \varepsilon_{i,t}$$

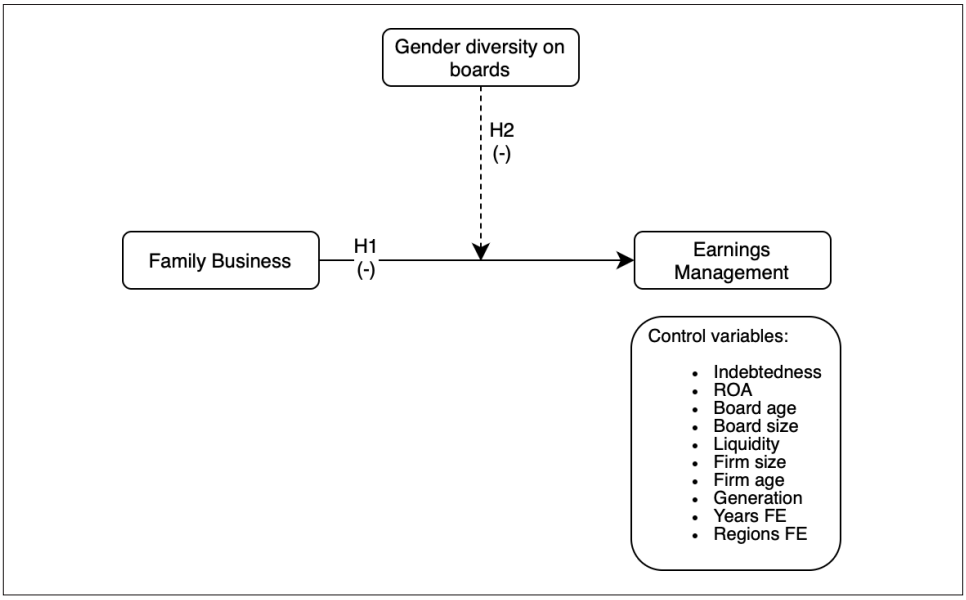
In Equations [1] and [2], DA represents the absolute values of DA, estimated using the modified Jones model (Dechow et al., 1995) (see section 4.3.1).

"*Family Firm*" denotes the explanatory variable of our interest, while "*Gender diversity"* serves as a moderating variable.

The interaction effect is represented by their product of these variables (i.e., "*Family firm x Gender diversity*").

Fig. 1 illustrates how the effect of the independent variable "*Family Firm*" on the outcome variable "*Discretional Accruals*" is expected to be influenced by the moderating variable "*Gender Diversity*" and the expected sign of these relationships.

Fig.1 Research design



Source: author's elaboration

4.3. Variables

In this section, we provide a comprehensive description of the variables used in the empirical analysis, detailing their measurements, descriptions, and expected effects on EM.

4.3.1 Dependent variable: earnings management

In line with Borralho et al. (2020), we used the DA adjustments method (Jones, 1991) as a proxy for measuring EM. This approach enables the separation of the expected component of accounting outcomes, which are yet to be converted into cash flows, from the unexpected component associated with EM (Borralho et al., 2020; Dechow et al., 1995; Jara-Bertin & López-Iturriaga, 2008).

To estimate DA, we adopted a two-step approach. In the first step, we calculated total accruals (TA) using a cash-flow approach (Borralho et al., 2020; Stockmans et al., 2010; 2013; Nguyen et al., 2021).

In the accounting literature, TA is commonly defined as the difference between operating income and operating cash flow. This difference reflects the cumulative effect of accrual basis implementation in traditional accounting practices (Mendes et al., 2012). Therefore, we derived the following equation [3] to quantify the TA for each company *i* at time *t*:

$$TA_{i,t} = EBIT_{i,t} - CFO_{i,t} \qquad [3]$$

Where $EBIT_{i,t}$ represents Earnings Before Interests and Taxes for firm *i* in year *t* and $CFO_{i,t}$ denotes Operating Cash Flow for firm *i* in year *t*.

In the second step, to estimate DA, we employed the modified Jones model introduced by Dechow et al. (1995), which is widely adopted in research on unlisted firms (Borralho et al., 2020; Stockmans et al., 2010, 2013). Since DA are not directly observable using accounting data, we first estimated the following ordinary least squares (OLS) regression equation [4] annually from 2014 to 2019:

$$\frac{TA_{i,t}}{A_{i,t\text{-}1}} = a_0 + \beta_0 \frac{1}{A_{i,t\text{-}1}} + \beta_1 \left(\frac{\Delta REV_{i,t} - \Delta REC_{i,t}}{A_{i,t\text{-}1}} \right) + \beta_2 \left(\frac{\Delta INVEST_{i,t}}{A_{i,t\text{-}1}} \right) + \varepsilon_{i,t} \qquad [4]$$

In Equation [4], TA is the value of the TA for company *i* in year *t*, scaled by the one-year lagged value of total asset. $\Delta REV_{i,t}$ and $\Delta REC_{i,t}$ represent, respectively, the change in revenues (Turnover sales *t* - Turnover sales *t-1*) and in receivables (Receivable *t* – Receivables *t-1*) from year *t* and year *t-1* scaled by 1-year lagged values of the total asset. $A_{t\text{-}1}$ is the 1-year lagged value of total asset. INVEST represents the book value of tangible fixed assets and intangible assets. $\varepsilon_{i,t}$ is the residual for firm *i* in year *t*

Then, the estimated coefficients from the regression equation [4] ($\widehat{\beta_0}, \widehat{\beta_1}$ *and* $\widehat{\beta_2}$) were used to estimate non-discretionary accruals (NDAC), as shown in Equation [5]:

$$\frac{NDAC_{i,t}}{A_{i,t\text{-}1}} = \widehat{\beta_0} \frac{1}{A_{i,t\text{-}1}} + \widehat{\beta_1} \left(\frac{\Delta REV_{i,t}}{A_{i,t\text{-}1}} \right) + \widehat{\beta_2} \left(\frac{\Delta INVEST_{i,t}}{A_{i,t-1}} \right) \qquad [5]$$

Finally, DA was calculated as the difference between TA and NDAC, as shown in Equation [6]:

$$DA_{i,t} = TA_{i,t} - NDAC_{i,t} \qquad [6]$$

In essence, DA are the residuals from the regression equation [4] and serve as a proxy for EM, which was used as the dependent variable of the final regression models (Callao & Jarne, 2010).

4.3.2 Independent variable: family firm status

Due to the lack of an official, publicly accessible database specifically for family businesses in Italy, we used AIDA as the primary data source to gather information on the ownership and governance structures of the firms in our sample.

Following the definition outlined by the European Commission (EC) (2009), we defined family firm as enterprises where the majority of voting rights were held by one or more family members, and at least one family member was involved in the BoD. This definition, endorsed by international organizations, including the OECD, AIDAF, and Eurostat (AIDAF, 2014), offers a standardized approach for identifying family businesses.

Following prior literature (Cucculelli & Peruzzi, 2020; Megaravalli & Sampagnaro, 2018) that used secondary data, we implemented a rigorous procedure to identify family firms within our sample. First, we accessed historical data on ownership and governance structures from the "*Ownership structure*" and "*Board of directors and managers*" sections of AIDA-BvD. These data were meticulously organized and recorded in an Excel spreadsheet.

Subsequently, we manually screened the board composition and ownership details of each company to find out familial ties among directors and shareholders, primarily using surnames as key identifiers (Arosa et al., 2010; Gómez-Mejía et al., 2011).

However, some businesses in our sample were sole proprietorships, where the owner also held the sole directorship.

According to Andersson et al. (2018), these companies were categorized as family firms.

Conversely, for non-sole proprietorships, we classified a company as a family business if at least two shareholders with identical surnames collectively held a majority (at least 50.01%) of equity shares, and if at least one family member served on the board, as in the studied by Baù et al. (2019) and Andersson et al. (2018).

Once companies were classified, we coded this information using a binary variable, assigning it value of 1 to denote family firms, and 0 otherwise (Vieira, 2016)[2].

[2] Given that AIDA typically provides data for the most recent two years for the majority of firms, we inferred the family control status of preceding years by assuming a continuity in family ownership and involvement on the BoD.

4.3.3 Moderating variable: Gender diversity in the BoD

Gender diversity was proxied using the proportion of women on the BoD (Hillman, 2015; Post & Byron, 2015).

This measure was calculated by dividing the number of women directors by the number of directors on board (Ahmadi et al., 2018; Dwaikat et al., 2021).

Prior studies have shown that gender diversity on boards can provide firms with valuable resources (Alves, 2023).

A higher representation of women directors has been associated with more cautious decision-making, less aggressive investment strategies (Chen et al., 2019), and reduced opportunistic behaviors (Srinidhi et al., 2011).

Consequently, we anticipate that a higher women's representation on board, contributing to enhanced gender diversity, will strengthen board oversight and governance mechanisms.

Therefore, we expect this to exert a negative moderating effect on the relationship between family firm status and EM practices.

4.3.4 Control variables

In the regression analysis, we included a range of control variables to control for firm-level characteristics, governance structures, and geographical location.

First, we controlled for firm size, measured by the number of employees. Larger firms typically have more robust internal control mechanisms, which can deter the adoption of EM practices (Paiva et al., 2019).

Second, we introduced financial leverage as a control variable by introducing the long-term debt to total asset ratio (Borralho et al., 2020). According to Rodríguez-Pérez and Van Hemmen (2010), firms with higher levels of indebtedness often face greater scrutiny from creditors. This heightened scrutiny can discourage managers from manipulating earnings and encourage them to report higher quality financial information to maintain creditor confidence and secure future financing. Therefore, we expect that higher levels of debt will reduce incentives for managers to engage in earnings manipulation, leading to lower levels of DA.

Another control variable we included is firm age, measured as the natural logarithm of the number of years since a firm's incorporation (Gavana et al., 2019), due to its potential effect on EM practices. Younger firms may lack established organizational structures and face increased pressure to meet investor expectations, potentially leading managers to manipulate earnings. Therefore, we hypothesize that as firm age increases, the propensity for EM to decrease, suggesting a negative relationship between firm age and DA.

Since firm liquidity can potentially motivate managers to engage in EM

(Huang et al., 2017), we also controlled for this factor using the current ratio, defined as the ratio of current assets to short-term liabilities.

Similarly, Return on Asset (ROA), calculated as the ratio of EBIT to total assets, was included as a control variable to account for its potential positive impact on EM (Borralho et al., 2020).

Given the potential influence of board characteristics on EM practices, we controlled for a set of governance-related control variables. First, we controlled the average age of BoD, using the natural logarithm of the average age of directors as a proxy. Older board members typically bring more experience and established reputations, often adopting a more conservative approach and showing reluctance toward EM practices compared to their younger counterparts (Le & Nguyen, 2023).

Second, we controlled for the size of the BoD, measured by the natural logarithm of the number of directors on the board. A larger board size may potentially reduce the effectiveness of oversight, as a more directors board could limit the ability of each member to monitor management closely (Kao & Chen, 2004).

Following Borralho et al. (2020), we also included a control variable for company generation, categorizing firms into different generations based on firm age. First-generation companies were those less than 25 years old, second-generation between 25 and 50 years old, and third generation firms older than 50 years.

Finally, to account for regional and temporal effects, we introduced a set of dummy variables for geographical location and year. Geographical location was proxied using 20 dummy variables, each corresponding to distinct regions at the NUTS:2 subdivisions in Italy. Similarly, year dummies were employed to account for time fixed effects.

Tab. 1 - Description and measurements of the variables used in the regression analyses

Variables	Measurement/Definition	Reference	Expected sign
Dependent variable			
Earnings Management (EM)	Discretionary Accruals calculated using the Modified Jones Model	Dechow et al., (1995)	
Independent variable			
Family Firm	Dummy variable equals 1 if a firm is classified as a family firm, 0 otherwise	Vieira, (2016)	Negative
Moderating variable			
Gender diversity	The ratio of women directors to the total number of directors	Ahmadi et al., (2018); Dwaikat et al., (2021)	Negative
Control variables			
Firm size	Natural log of the number of employees	Paiva et al., (2019)	Negative
Indebtedness	The ratio of long-term debt to total asset	Borralho et al., (2020)	Negative
Return on Asset (ROA)	The ratio of operating income to total assets	Borralho et al., (2020)	Positive
Liquidity	The ratio of current assets to short-term liabilities	Mauro et al., (2023); Delen et al., (2013)	Positive
Board Age	Natural logarithm of the average age of directors	Le & Nguyen, (2023)	Negative
Board Size	Natural logarithm of the number of directors on board	Kao & Chen, (2004)	Positive
Generation	Categorical variable: 1 if a firm < 25 years old, 2 if 25-50 years, 3 if > 50 years old	Borralho et al., (2020)	Negative
Regional dummies	20 dummy variables representing distinct regions based on the NUTS:2 subdivisions in Italy.		-
Temporal dummies	Dummy variable equals for each year of analysis		-

Source: author's elaboration

5. Results

Table 2 presents the descriptive statistics for the variables used in the empirical analysis.

Across all firms in our sample, the average value of DA is 0.028, suggesting a moderate engagement. On average, each firm boast at 16.4% representation of women on the board, as denoted by the mean value of "*Gender diversity*" at 0.164.

Turning to financial metrics, the mean debt-to-asset ratio of 0.103 shows a relatively low level of indebtedness among the sampled firms. With a mean ROA of 7.384, the firms exhibit moderate levels of operating profitability. The liquidity ratio also reflects positive average values, showing a mean of 1.803.

In terms of workforce and company age, firms in the sample have an average of 11 employees and an average age of 31 years. Furthermore, on average, the firms in the sample are second-generation firms.

Moving to Panel B and Panel C, we observe notable differences in the average values of DA between family (0.024) and non-family firms (0.031). Family firms, on average, exhibit lower levels of DA compared to their non-family counterparts.

Regarding gender diversity, family firms show a slightly higher women's representation on the boards, with a mean of 0.200. In contrast, non-family firms have an average gender diversity score of 0.129, indicating approximately 12.9% representation.

Turning to financial indicators, family firms exhibit higher levels of debt but also higher operating profits than non-family firms. Specifically, family businesses show an average ROA of 7.442, slightly surpassing the 7.327 observed for non-family businesses. Conversely, non-family firms exhibit a lower debt-to-asset ratio (0.096), indicating less debt compared to family businesses.

Marginal differences emerge in terms of board size and the age of directors between family and non-family firms. The average age of directors in family firms is 58, slightly higher than the average of 56 of non-family firms. Likewise, both family and non-family firms have, on average, 4 directors on their board.

Non-family businesses exhibit structural characteristics that distinguish them from their family-owned counterparts. On average, non-family businesses are younger, with an average age of 27 years, compared to family businesses, which have an average age of 33 years.

Furthermore, non-family businesses tend to be larger in terms of workforce size: non-family businesses have an average of 117 employees, whereas family businesses have an average of 111 employees.

Tab.2 Descriptive statistics

	Obs.	Mean	SD	Min	Max
Panel A – Full sample (n = 1,461)					
Family firm	10,062	0.501	0.500	0	1
Discretionary accruals (abs)	10,062	0.028	0.040	0.000	1.953
Gender diversity	10,062	0.164	0.208	0	1
Debt to asset ratio	10,062	0.103	0.106	0	0.817
Return on Asset (ROA)	10,062	7.384	8.291	-83.06	97.88
Board age	10,062	57.828	8.143	35	175
Board size	10,062	3.961	1.933	1	21
Liquidity	10,062	1.803	1.070	0.16	9.95
N. employees	10,062	11	92	0	1953
Firm age	10,062	31	17	1	147
Generation	10,062	1.751	0.649	1	3
Panel B – Family firms (n = 732)					
Discretionary accruals (abs)	5,035	0.024	0.027	0.000	0.449
Gender diversity	5,035	0.200	0.224	0	1
Debt to asset ratio	5,035	0.111	0.098	0	0.703
Return on Asset (ROA)	5,035	7.442	7.088	-33.35	64.02
Board age	5,035	58.84	8.66	38	175
Board size	5,035	3.92	1.84	1	11
Liquidity	5,035	1.85	1.12	0.33	9.95
N. employees	5,035	111	99	0	1953
Firm age	5,035	33	18	1	121
Generation	5,035	1.827	0.653	1	3
Panel C – Non-family firms (n = 729)					
Discretionary accruals (abs)	5,027	0.031	0.050	0.000	1.953
Gender diversity	5,027	0.129	0.184	0	1
Debt to asset ratio	5,027	0.096	0.114	0	0.817
Return on Asset (ROA)	5,027	7.327	9.342	-83.06	97.88
Board age	5,027	56.812	7.450	35	148
Board size	5,027	3.997	2.025	1	21
Liquidity	5,027	1.756	1.009	0.16	9.93
N. employees	5,027	117	85	2	1104
Firm age	5,027	29	17	1	147
Generation	5,027	1.675	0.635	1	3

Notes: *Panel A presents the descriptive statistics for the entire sample. Panel B provides descriptive statistics for the subset of family businesses. Panel C displays descriptive statistics for the subset of non-family firms.*

Source: author's elaboration

The correlation coefficients displayed in Tab.3, along with the average Variance Inflation Factor (VIF) below 5.00 (O'brien, 2007), suggest the absence of multicollinearity among the variables in our models.

Tab.3 Correlation matrix and VIF

Variables	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**VIF**
1. Discretionary Accruals	1											
2. Family Firm	-0.09*	1										1.97
3. Gender Diversity	-0.01	0.17*	1									1.04
4. Debt to asset ratio	-0.07*	0.07*	-0.02*	1								1.18
5. Return on Asset	0.20*	0.01	0.01	-0.25*	1							1.09
6. Board age	-0.03*	0.13*	0.02	-0.01	-0.01	1						1.05
7. Board size	0.04*	-0.04*	0.09*	0.01	0.01	-0.13*	1					1.05
8. Liquidity	0.07*	0.04*	0.03*	-0.15*	0.32*	0.02*	0.03*	1				1.13
9. N. employees	0.07*	-0.03*	0.01	0.04*	-0.04*	0.03*	0.11*	-0.01	1			1.15
10. Firm age	-0.05*	0.13*	0.06*	-0.07*	-0.02*	0.13*	0.04*	0.12*	0.05*	1	1	3.27
11. Generation	-0.04*	0.13*	0.06*	-0.05*	-0.04*	0.13*	0.04*	0.10*	0.04*	0.83*	0.83*	3.25
Mean VIF												**1.52**

Notes: (*) Correlation is significant at the 0.05 level (one tailed) ($p<0.05$)

Source: author's elaboration

Tab.4 presents the results of pooled OLS regression. Model (1) presents the results of the baseline model (1), which includes only the control variables and the independent variable (*Family Firm*). Model (2) incorporates the moderating variable (*Gender Diversity*). Model (3) reports the results of the full regression model, which adds the interaction term "*Family firms x Gender Diversity*".

Tab.4 The outcomes of the Pooled OLS regression

Variables	**(1)** DA	**(2)** DA	**(3)** DA
	Coeff./S.E.	Coeff./S.E.	Coeff./S.E.
Hypothesis 1			
Family firm	-0.006** (0.001)	-0.006** (0.002)	-0.002 (0.002)
Hypothesis 2			

Gender diversity		-0.001 (0.002)	-0.006 (0.005)
Family firm x Gender diversity			-0.011** (0.005)
Debt to asset ratio	-0.004 (0.005)	-0.005 (0.005)	-0.004 (0.005)
ROA	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)
Board age	-0.002 (0.003)	-0.002 (0.003)	-0.002 (0.003)
Board size	0.002 (0.003)	0.002 (0.001)	0.001 (0.001)
Liquidity	0.0001 (0.001)	0.0001 (0.001)	0.0001 (0.001)
N. Employees	0.0001*** (0.0001)	0.0001*** (0.0001)	0.0001*** (0.0001)
Firm age	-0.005*** (0.001)	-0.005*** (0.001)	-0.005*** (0.001)
Generation	0.002** (0.001)	0.002** (0.001)	0.002** (0.001)
Intercept	0.049*** (0.014)	0.049*** (0.014)	0.048*** (0.014)
Year dummies	Yes	Yes	Yes
Regional dummies	Yes	Yes	Yes
Observations	10,062	10,062	10,062
R^2	0.0672	0.0672	0.0680
Adjusted R^2	0.0640	0.0639	0.0647
F-statistic	10.90***	10.82***	10.90***

Notes: *The table presents the results of the panel data regressions for equations [1]-[2]. Robust standard errors are reported in parentheses. The dependent variable is DA, used as a proxy of AM practices. Model (1) presents the results of the baseline regression, which includes only the control variables and the independent variable (Family Firm). Model (2) incorporates the moderating variable (Gender Diversity). Model (3) reports the results of the full regression model, which adds the interaction term between family business status and gender diversity on the company's BoDs. Regional and temporal dummies have been omitted due to space constraints but are available upon request from the authors.*

**** Denotes significance at the 1% (p<0.01)*

*** Denotes significance at the 5% (p<0.05)*

** Denotes significance at the 10% (p<0.10)*

Source: author's elaboration.

In Model (1), the coefficient of "*Family Firm*" variable shows a negative relationship with DA at the 5% significance level (β=-0.006, p<0.05). This result indicates that family firms exhibit lower levels of DA than non-family firms, which supports our HP1.

Our findings align with existing research suggesting that family-owned businesses are less likely to manipulate earnings (Borralho et al., 2020**;** Prencipe et al., 2008; Bansal, 2021; Ali et al., 2007).

Family businesses Family firms are known for their distinctive organizational characteristics and values (Corbetta & Salvato, 2012) that shape their management practices, including their approach to EM. These traits include a strong commitment to stakeholders, greater adherence to ethical principles, reduced agency costs and greater focus on long-term sustainability (Borralho et al., 2020).

Furthermore, family businesses' emphasis on corporate reputation, promoting trust relationship, and maintaining intergenerational wealth (Cascino et al., 2010; Prencipe et al., 2011) may further reduce their inclination to engage in EM.

In Model (2), which introduces the moderating variable, we observe a non-statistically significant negative coefficient for the "*Gender diversity*" (β=-0.001, p>0.10). This suggests that there is no significant relationship between gender diversity on boards and DA. In essence, the presence of women on boards does not appear to have a significant impact on EM.

This finding aligns partly with the research of Kyaw et al. (2015), who found no significant relationship between women representation on the board and EM as measured by DA. As noted by Sanad et al. (2022), the empirical literature presents mixed findings regarding the influence of gender diversity on EM, contributing to the inconclusiveness of this relationship.

Model (3) includes the interaction term "*Family Firm x Gender Diversity*" to examine whether and how board gender diversity moderates the relationship between family business status and DA. The coefficient of the interaction term is negative and statistically significant at the 5% level (β=-0.011, *p*<0.05), indicating a significant moderating effect. The negative sign of the interaction term shows that greater gender diversity on boards strengthens the negative relationship between family firms and EM. In other words, as the representation of women on boards increases, the negative impact of family firm status on DA becomes stronger. This means that family firms with a higher proportion of women on the board are even less likely to engage in EM than family firms with fewer or no women directors. This evidence strongly supports our HP2 and aligns with the findings of a recent study by Helal (2022) on a sample of SMEs in Bangladesh.

To provide a clearer understanding of the moderating effect of gender diversity, Figure. 2 displays a graph illustrating the marginal effects of board gender diversity on EM. Consistent with HP2, the graph illustrates

how the negative impact of family control on EM practices decreases as levels of board gender diversity increase. This indicates that a greater presence of women on the board further reduces the likelihood of family businesses engaging in EM practices.

Regarding the control variables, the regression estimates in Table 4 reveal a negative but not statistically significant relationship between indebtedness (debt-to-asset ratio) and DA.

This result may be due to the increased scrutiny indebted companies receive from creditors. Although debt does not exert a statistically significant impact on EM, the observed negative relationship may suggest that companies may strategically leverage debt to capitalize on growth opportunities. This finding is consistent with the research of Pazzaglia et al. (2013) and Rodríguez-Pérez and Van Hemmen (2010), who noted that highly indebted firms are subjected to greater scrutiny from creditors. This increased oversight pushes these firms to provide more transparent financial information, which in turn can bolt investor confidence and facilitate access to credit.

On the contrary, it appears that more profitable firms tend to exhibit higher levels of DA, indicating reduced accounting transparency. The coefficient of ROA is consistently positive and statistically significant ($p<0.001$) across all estimated models. This result, in line with Borralho et al. (2020), contradicts prior studies (e.g., Paiva et al., 2019; Prencipe et al., 2011, 2008; Vieira, 2016) that reported a negative association between financial performance and EM.

The coefficient of "*Liquidity*" displays a statistically significant positive relationship with DA, aligning with the findings of Moghaddam and Abbaspour (2017). As expected, there is a positive association between DA and firm size, whereas a negative relationship exists between DA and firm age. This implies that larger and younger firms are more inclined to engage in EM.

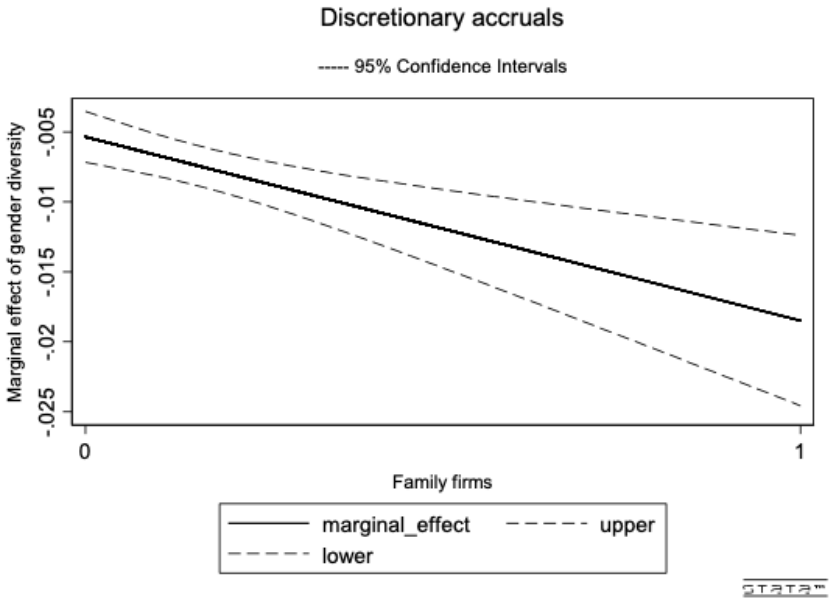
Despite the expectation that larger firms would have robust internal control mechanisms to deter EM practices (Paiva et al., 2019), our study reveals a positive relationship between firm size and DA. This finding aligns with the research of Ali et al. (2015). One explanation may lie in the growing pressure that larger firms face from investors and stakeholders to consistently demonstrate positive or growing earnings.

In contrast, our findings indicate that younger firms are more prone to engage in EM than their older counterparts are. The coefficient of "*Firm Age*" consistently shows a negative sign and is statistically significant across all estimated models. Young firms often lack established organizational structures and routines, often facing pressure from investors to fulfill ambitious growth expectations. This may incentivize managers to resort to EM practices.

Regarding board characteristics, our findings reveal a lack of significant association between certain board attributes, particularly age and size, and DA. However, as expected, our results suggest that firms with larger and

younger boards are more prone to engaging in EM. This aligns with the findings of Le and Nguyen (2023) and Kao and Chen (2004).

Fig.2 The moderating effect of gender diversity on the relationship between family firm status and EM



Source: author's elaboration.

5.1. Robustness test

Given the time-invariant nature of both our independent variable (*family firms*) and the moderator (*gender diversity*), we considered the use of a Fixed-Effects (FE) regression model inappropriate for this study. Therefore, following the recommendation of D'amato (2017), we repeated the regression analyses using the Generalized Least Squares (GLS) with Random-Effects (RE) as a robustness test.

This method was chosen to mitigate potential cross-sectional autocorrelation disturbances or unobservable heterogeneity linked to panel data (Baltagi & Wu, 1999). Using GLS Random-Effects allows for more efficient and unbiased estimations, particularly useful when analyzing longitudinal data that does not meet the assumptions of pooled OLS.

Table 5 presents the estimates of the influence of family control on EM practices using GLS-RE. These findings are consistent with those obtained using Pooled OLS. This consistency enhances the reliability and validity of our findings regarding the impact of family control on EM practices and the moderating effect of gender diversity on boards.

Tab.5 The outcomes of GLS Random-Effects regression

Variables	DA (4) Coeff./S.E.	DA (5) Coeff./S.E.	DA (6) Coeff./S.E.
Hypothesis 1			
Family firm	-0.006**	-0.006**	-0.004
	(0.001)	(0.001)	(0.007)
Hypothesis 2			
Gender diversity		0.001	0.006
		(0.003)	(0.005)
Family firm x Gender diversity			-0.011**
			(0.005)
Debt to asset ratio	-0.005	-0.005	-0.005
	(0.005)	(0.005)	(0.007)
Return on Asset	0.001***	0.001***	0.001***
	(0.000)	(0.000)	(0.000)
Board age	-0.002	-0.002	-0.002
	(0.005)	(0.004)	(0.004)
Board size	0.002	0.002	0.002
	(0.001)	(0.001)	(0.001)
Liquidity	0.0001	0.001	0.001
	(0.000)	(0.001)	(0.001)
N. Employees	0.0001***	0.0001***	0.0001***
	(0.000)	(0.0001)	(0.0001)
Firm age	-0.005***	-0.005***	-0.005***
	(0.001)	(0.002)	(0.002)
Generation	0.002**	0.002**	0.002**
	(0.001)	(0.001)	(0.001)
Intercept	0.050***	0.050***	0.049***
	(0.020)	(0.020)	(0.020)
Year dummies	Yes	Yes	Yes
Regional dummies	Yes	Yes	Yes
Observations	10,062	10,062	10,062
N. cluster	1,443	1,443	1,443
R^2 (overall)	0.0658	0.0658	0.0666
Wald Chi^2	311.50***	275.71***	277.09***

Notes: The table presents the outcomes of GLS-RE regressions analysis. Robust standard errors are in parentheses. Model (4) presents the results of the baseline regression model, which includes only the control variables and the independent variable (Family Firm). Model (5) incorporates the moderating variable (Gender Diversity). Model (6) reports the results of the full model, which includes the interaction term between family business status and gender diversity on the board. Regional and temporal dummies have been omitted due to space constraints but are available upon request from the authors.
*** Denotes significance at the 1% ($p < 0.01$).
** Denotes significance at the 5% ($p < 0.05$)
* Denotes significance at the 10% ($p < 0.10$)

Source: author's elaboration.

6. Conclusions

This research examined the adoption of EM in Italian unlisted companies, comparing family and non-family businesses. It also explored the moderating effect of gender diversity on the BoD to reduce this manipulative practice.

The analyses were conducted using a sample of 1,461 manufacturing Italian SMEs during the period 2014-2019.

The study focuses on Italy due to its civil law system aligning accounting and tax regulations, potentially incentivizing EM to avoid debt agreement violations and minimize tax payments. Additionally, the prevalence of SMEs and diverse investor preferences in the market may favor financial manipulation. Italian policy enforcing gender quotas for public companies' boards and promoting gender equality in management roles prompted the examination of gender diversity as a moderating factor. Our results showed that family firms are less prone to the practices of EM than non-family firms, and that the association between family firm status and EM is negatively moderated by gender diversity.

Despite similar studies in the literature, the context or moderating variable differs.

For example, also Borralho et al. (2020), analyzing 263 Spanish companies between 2011 and 2015, show that family firms are less prone to the practices of EM than non-family firms. However, differently from our studies, they showed that the association between family firm status and EM is moderated by the firm generation. Contrary, in England, Paiva et al. (2019) argued that, among 1,043 listed companies, family firms have higher levels of EM as compared to non-family firms, unless they are followed by a significant number of analysts considered the moderator variable.

Consistent with our results, other studies showed a significant negative effect of board women's presence on EM practices level (Lakhal, 2015; Triki Damak, 2018; Gull et al., 2018), although the context of family businesses is not always specified.

More similar to our results, Mnif Sellami and Cherif (2020), empirically analyzed a sample of 198 French family firms over the period 2010–2018 and revealed that the negative linkage between women board directorship and EM remained constant for independent women directors while the opposite holds for their family-affiliated counterparts.

This study complements prior literature in different ways.

First, although EM is a major research topic in the financial accounting field, this stream of research has directed only limited attention to accounting behavior in family firms (Paiva et al., 2016).

Especially noteworthy is the dearth of research on EM in unlisted family firms (Paiva et al., 2016). This is undoubtedly a consequence of the difficulties in obtaining data from private family firms (Prencipe et al., 2014). We contribute to the scant research on EM in unlisted family businesses (e.g., Stockmans et al., 2010, 2013), confirming empirically that the family context affects the quality of financial information by reducing EM practices.

Second, there are a limited number of studies focused on the Italian context (Prencipe et al., 2008; Cascino et al., 2010; Prencipe et al., 2011; Ferramosca & Allegrini, 2018).

In this sense, we contribute to the literature by adding first evidence from a

country in which most firms are still controlled by family ownership. We have chosen to focus the analysis on the manufacturing sector, as this represents the core of Made in Italy (Banca d'Italia, 2020; Cucculelli & Peruzzi, 2020).

Third, our study is original also considering the moderating variable chosen.

Although some researchers have generally explored the impact of gender diversity on both financial reporting quality and EM (Gull et al., 2018; Arun et al., 2015; Gavious et al., 2012; Srinidhi et al., 2011), this issue requires further investigation, particularly in family firms. To the best of our knowledge, no study has already explored the moderating influence of gender diversity on the relationships between family control and EM. Our results confirm our research hypothesis 2, suggesting that gender diversity has a mitigating effect on the relationship between family firms and EM practices. In other words, a higher concentration of women directors on the BoD further reduces the propensity of a family firm to engage in EM practices.

Finally, despite most of the previous studies referred to the agency theory (Ali et al., 2007; Jiraporn & DaDalt, 2009; Cascino et al., 2010; Prencipe et al., 2011, 2008), to the stewardship theory (Anderson & Reeb, 2003) or to the socio-emotional wealth theory (Stockmans et al., 2010; Achleitner et al., 2014), we extend family business literature by applying stakeholder theory (Freeman, 1984) to the family firm and EM context, as suggested by family business scholars (Paiva et al., 2016; Zellweger & Nason, 2008).

Although these strengths of our research, we recognize some limitations to our study, which suggest directions for research future.

First, our sample only comprises 1,461 Italian manufacturing SMEs over the six years period spanning from 2014 to 2020 and it is not clear whether the current findings can be generalized to other countries or other time periods.

Furthermore, the composition of the sample may not accurately represent the broader population of Italian SMEs or the manufacturing sector as a whole.

Therefore, future studies may offer new insights by conducting their analyses over an extended sample and time period.

The second limitation of this study is the use of secondary data sources to classify family and non-family firms. Since AIDA typically provides information for the last two years for most firms, we inferred the family control status of previous years by assuming continuity in family ownership and involvement in the BoD. While this approach allows us to make reasonable estimations regarding the family/non-family classification for periods where direct data is unavailable, it is essential to acknowledge the inherent limitations of this method.

Relying solely on secondary data sources may lead to inaccuracies or classification bias, as these sources may not always provide up-to-date information on ownership structures or familial involvement in governance. Additionally, this method assumes that ownership and governance structures remain unchanged throughout the observation period, which

may not always be the case in practice. Therefore, future studies could use alternative methods for inferring family control status over longer time frames, perhaps by incorporating additional data sources or employing more sophisticated classification techniques.

Third, although the literature provides empirical evidence of a trade-off between accrual and real EM techniques (Zang, 2012; Azzam et al., 2021) in our study, we considered only accrual EM and this may underestimate the total EM activities (Braam et al., 2015).

Fourthly, our study results assume that women directors are homogeneous without exploring interpersonal differences. In line with the previous search (Gull et al., 2018; Zalata et al., 2022), there is a need to further explore this area by analyzing other proxies or characteristics (i.e., qualification, type of assignment, ecc.) of women directors that influence EM. For example, Zalata et al. (2022) showed that it is not the gender difference that improves the quality of earnings, but the financial background of women directors that determines the quality of profits.

Also, Gull et al. (2018) suggest that business expertise and audit committee membership are key attributes of women directors for promoting the effective monitoring of EM.

Last, our research design does not show the mechanisms that women directors use to improve earnings quality.

Our results might be relevant practical implications for financial accounting users and monitoring bodies to prevent the risk of EM practice. In fact, understanding the impact of family control and the moderating effect of a board gender diversity in reducing financial manipulation practices could help improve the quality, transparency, and integrity of financial reporting, as well as increase investor confidence in family businesses.

Finally, the social implications are not negligible: our study confirms and strengthens the positive effects deriving from the presence of women on the board to improve practices aimed at supporting the sustainability and integrity of family businesses.

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DIFFERENCE IN ANTECEDENTS OF ENTREPRENEURIAL INTENTION BETWEEN MEN AND WOMEN: A STUDY OF ALBANIAN UNIVERSITY STUDENTS

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Abstract

Purpose. *This study examines the entrepreneurial intentions of male and female university students in Albania, which is a little-studied but interesting context due to a culture affected by both patriarchal values and a communist past. The main goal is to analyze the influence on entrepreneurial intention of individuals' perceptions of possessing the characteristics required to be a successful entrepreneur as well as their perceptions of the need to sacrifice personal life to have a business, of the external macro-environment as a source (or not) of social guarantees and benefits, and of their fear of failure.*
Design/methodology/approach. *The study used data from a survey of 447 students at seven Albanian universities. The authors employed a probit maximum likelihood model with robust standard errors to investigate the research hypotheses.*
Findings. *The results reveal differences between the entrepreneurial intentions of female and male students and show that some under-researched perceptual variables explain the entrepreneurial intention and the influence of gender on it.*
Practical and Social Implications. *The results give insights into the possible focus of policies aiming to enhance entrepreneurship among young women in Albania. Government policies should take into account the necessity to help women consider entrepreneurship as a possible career and encourage them to see themselves as capable of starting new ventures.*
Originality of the study. *Considering the interplay of patriarchal values and Albania's communist past, the results are inspiring for entrepreneurship research. Furthermore, the study focuses on under-researched variables and the moderating effect of gender on these variables.*

1. Introduction

Entrepreneurship research has produced numerous studies on barriers that limit the individual intention to start a business. Notwithstanding, there is limited knowledge about specific features of entrepreneurship and differences in perceived barriers to start an own entrepreneurial activity in societies with a relatively young entrepreneurial culture (Iakovleva and Solesvik, 2014; Ivlevs et al., 2021; Puffer et al., 2010). Entrepreneurial intention (EI) of individuals is limited by a set of perceived barriers that vary according to contexts (Franke and Lüthje, 2004; Hsu et al., 2019; Kouriloff, 2000; Liñán et al., 2011) while informal rules, values and traditions play a significant role in this process (Webb et al., 2020). Research focused on post-communist economies shows participation of women in the labor market (Welter, 2007; Pistrui et al., 2000) is an important feature to explore.

Women all over the world often demonstrate a generally lower EI even in countries that, at least from a legal standpoint, offer equal opportunities to men and women (Santos et al., 2016; Verheul et al., 2006). Attempts to explain these differences offered a wide array of possible causes from limitations in access to resources (Coleman et al., 2019; Marlow and Patton, 2005) to the role women have as mothers and wives (Leung, 2011). Yet, little is understood about the possible difference in the strength of barriers that influence entrepreneurial intention of individuals who potentially have a similar start to follow the road of the own business. With some exceptions (e.g., Welter, 2007), research has rarely underlined the influence of the egalitarian communist approach on female employment after the communist fall.

Albania represents an interesting research context, as years of communist egalitarian policy had to deal with centuries of Albanian tradition where the role of women has always been subordinated to the will of men (Danaj, 2022; Murzaku and Dervishi, 2003). One of the poorest and least developed economies in Europe, where the period of transition from planned to liberal market economy created profound social and economic distortions (Danaj, 2022; Stecklov et al., 2010), Albania remains the least successful Western Balkan country in implementing policies to encourage entrepreneurship (Hach and Trenkmann, 2019; OECD, 2019; Rehman et al., 2019). Entrepreneurship research continues to renew the claim to study cultural and social settings (Yousafzai et al., 2019; Webb et al. 2020; Ahl, 2006) while studies on women and EI in transition economies additionally contribute to confirm this claim for a better understanding of specific barriers (Carraher et al., 2010; Aidis et al., 2007). Previous studies on entrepreneurial intention of students in Albania (Alimehmeti and Shaqiri, 2015; Laudano et al., 2019) have left unexplored gender differences in the perception of barriers. With an overarching goal to understand the limited results of entrepreneurship support programs and taking into account the

Albanian historical background and recent developments of entrepreneurship literature that stress the complexity of barriers (Cacciotti et al., 2016; Gupta et al, 2009; Hsu et al, 2019), this study tests four barriers that refer to the individual's idea about entrepreneurship as an activity and about the context.

This paper aims to analyze EI of Albanian university students and to explore whether men and women are influenced in a similar way by the perception of 1) possessing the characteristics necessary to start an entrepreneurial activity; 2) the necessity to sacrifice other aspects of life to have entrepreneurial success; 3) fear of failure due to external conditions and 4) perception that the environment does not offer social guarantees.

Our results confirm the usefulness of distinguishing men from women instead of analyzing only the entire sample as the strength of barriers to EI appeared to differ in case of men and women. We suggest that these results contribute to research that explores specific features of entrepreneurship in different contexts.

The paper is structured as follows. First, we describe the main characteristics of the Albanian context. Then, we review the literature regarding EI and the factors that affect it and offer two sets of hypotheses: the first one refers to the entire sample and the second one aims to compare men and women. Thereafter, we describe the research design, discuss our results, and present conclusions.

2. The transition and tradition of Albania

After the fall of communist regimes in Europe in 1991, Albania began the transition to a liberal economy based on private entrepreneurship. Transition economies differ significantly from one another (Aidis et al., 2007; Puffer et al., 2010), yet having some common features such as the presence of formal and informal institutional voids (Puffer et al., 2010; Webb et al., 2020). Albania had one of the most rigid totalitarian communist regimes, which was reinforced by progressive, deliberate self-isolation that resulted from the rejection or loss of support from other communist countries (Lawson and Saltmarshe, 2000). The lag in economic development compared to wealthier European countries made Albania one of the poorest countries in Europe (Bitzenis and Nito, 2005; Dana, 1996; World Population Review, 2022) with an unemployment rate never below 11% from 1990 to 2020 (ILO, 2021) and a corruption rate that continues to remain high (110 according to the corruption index data in year 2023). In November 2021 Albania received a 90-million-euro tranche of macro-financial assistance from the European Bank of Reconstruction and Development (EBRD), yet the country still has to implement actions to improve its general business environment

in the perspective of EU accession talks and for the creation of a wealthier economy, goal confirmed in the 2023 transition report.

In the past few years, support programs were implemented to promote entrepreneurship as a possible way to manage unemployment and enhance economic development, including such initiatives as the European Union's program Competitiveness for Enterprises and Small and Medium-Sized Enterprises, and the specific guarantee agreement created by the European Investment Fund and Raiffaisen Bank (known as the Western Balkans Enterprise Development and Innovation Facility) to help Albanian small and medium-sized enterprises access financial resources (OECD, 2019). These efforts remained ineffective (Rehman et al., 2019) showing a general lack of motivation to entrepreneurship as a career choice (Hach and Trenkmann, 2019). Nevertheless, previous studies have found a positive attitude toward entrepreneurship among Albanian university students (Alimehmeti and Shaquiri, 2015; Garo et al., 2015) making young and educated Albanians crucial to study the obstacles to entrepreneurial initiative.

In Albanian traditional culture women had a rather peripheral role in terms of decision making and were expected to be good daughters, mothers and wives who care for families and children, following men's decisions. Despite an egalitarian communist philosophy promoting equal participation of men and women in economic activities, the Albanian patriarchal society had difficulty to overcome its deeply rooted traditions. After the communist regime collapsed, these unresolved contradictions exacerbated the breach in the fragile system of equality between genders, putting women in situations of greater dependence due to economic difficulties (Murzaku and Dervishi, 2003). While the percentage of women among university graduates in 2021-22 was equal to 65,3%, the average share of women entrepreneurs in the period 2017-21 was lower than 32% (INSTAT, 2023; Regional Cooperation Council, 2022). Entrepreneurship was a new phenomenon as private entrepreneurial initiative became possible only since the beginning of the economic transition in the 1990s (Xheneti and Barlett, 2012) and was characterized by the presence of institutional voids similar to the ones of other post-communist countries (Puffer et al., 2010, Webb et al., 2020). These voids formed an additional difficulty in establishing a healthy entrepreneurial climate and in attracting more individuals to start their own businesses.

3. Barriers affecting entrepreneurial intention

Entrepreneurship is a complex, "multi-faced phenomenon" (Sciascia and De Vita, 2004). A significant number of studies have been produced aiming to discover which factors affect individuals' EI. They can be distin-

guished into two streams: the first one deals with environmental factors that span from access to financial resources (Marlow and Patton, 2005) to contexts that affect individuals' decision to start an entrepreneurial activity (Yousafzai et al., 2019; Welter, 2007).

Another research stream departs from the fact that within equal environmental conditions, individuals differ in their EI, therefore pointing out the importance of personal-level factors. Focusing on them, studies have found that while self-efficacy represents an important predictor of EI (McGee et al., 2009), a more extended understanding of personal characteristics (Liñán et al, 2011; Rosiqie-Blasco et al., 2018; Sahin et al., 2019) and the perception of such characteristics as fitting the professional activity (Gupta et al., 2009; Hsu et al., 2019) allow to develop a more fine-grained picture of possible barriers that prevent individuals from entrepreneurship. Difficulties deriving from institutional settings and formal rules are easier to identify than barriers resulting from individual perceptions (Fayolle et al., 2014; Webb et al., 2020), but simple changes of formal laws, rules, and conditions have a limited effect if individuals' perceptions prevent them from starting an entrepreneurial activity.

Based on previous entrepreneurship works and stressing the relevance of individuals' perceptions, this research elaborates and tests in Albania four barriers to EI such as 1) absence of perceived fit of individual characteristics with those required for successful entrepreneurship; 2) fear of failure due to external conditions; 3) sacrifice as part of entrepreneurial journey; and 4) macroeconomic environment offering benefits and social guarantees.

3.1 Perceived fit of an individual's characteristics with those required for successful entrepreneurship

In making career choices, individuals evaluate various factors, including the characteristics they believe compulsory to succeed in a specific career (Schneider, 1987). One of the barriers to entrepreneurship derives from the perceived lack of skills necessary to start and run the own venture (Choo and Wong, 2006; Giacomin et al., 2011). Entrepreneurship research confirms that individual's perception of ability to perform a certain behavior is an important antecedent of EI (Krueger and Brazeal, 1994; McGee et al., 2009; Rosique-Blasco et al., 2018; Sahin et al., 2019), however, recent research has started to take into consideration not only the ability and knowledge to perform a task, but the importance of the perceived fit between entrepreneurship and individual feelings about it as a possible career path (Hsu et al., 2019).

Entrepreneurship differs significantly from other activities (Cardon et al., 2005). In the attempts to distinguish potential entrepreneurs, research

goes towards the discoveries of specific personality characteristics such as attention deficit and hyperactivity (Wiklund et al., 2017) or traits due to a purely physical disease (Lerner et al., 2021). We suggest that what inhibits EI of individuals is the perception of a certain misfit between their characteristics and the ones of entrepreneurs. In contexts with a young entrepreneurial culture, as the Albanian one, the idea of entrepreneurship and characteristics required to be successful can differ from the ones present in contexts where entrepreneurial culture has an old history. Changing rules of the game, institutional voids and refilling of such voids with private initiatives created a rather insecure and unstable climate where individuals had to cope with additional set of difficulties to entrepreneurship (Alvarez et al., 2023; Puffer et al., 2010, Volkov, 1999), thus, the perceived coherence between individual characteristics and the ones that are required to be entrepreneurs becomes particularly important. Therefore, we formulate the following hypothesis:

Hypothesis 1a: Individuals' perceptions that they possess the characteristics required for successful entrepreneurship relate positively to EI.

3.2 Fear of failure due to external conditions

Failure can be perceived as a learning opportunity or become an event that negatively influences an individual's professional development (Yamakawa et al., 2015). Studies show that fear of failure inhibits entrepreneurial growth aspirations (Verheul and van Mil, 2011), re-engagement in entrepreneurship (Yamakawa et al., 2015), and dissuades individuals from starting their own firms (Cacciotti et al., 2016; Shinnar et al., 2012).

Previous studies have mainly analyzed a general fear of failure, tacitly accepted as a fear of failure in entrepreneurial venture, and only few publications have pointed out multiple shades of fear (e.g., Cacciotti et al., 2016). In countries with an unstable business environment due to political or economic changes, fear of failure can derive from external conditions rather than from the idea about the own inability to run the business. Years of transition created turbulent external conditions for nascent Albanian entrepreneurs, and the actual level of corruption and voids in business environment are expected to be an important barrier to entrepreneurship, also for young people, as they are perceived as a hostile environment. Therefore, we propose the following:

Hypothesis 2a: Individuals' fear of failure because of external conditions negatively influences EI.

3.3 Sacrifice as a part of the entrepreneurial journey

The search for better working hours and fair wages motivates individuals to start their own businesses (Werner et al., 2014). Entrepreneurs are known for a particular passion they nurture for their activity that makes them resistant to difficulties due to extreme devotion (Cardon et al., 2005; Murnieks et al., 2014), but entrepreneurship also evokes risk, stress, and hard work that diminish EI (Choo and Wong, 2006; Sandhu et al., 2011). Particular passion nurtured by individuals involved in the own entrepreneurial activity makes them resistant to difficulties due to extreme devotion (Cardon et al., 2005; Murnieks et al., 2014). However, we suggest that the requirement of having to dedicate significant effort to one's own business sacrificing other aspects of life may be an obstacle to EI for an individual evaluating an option and not involved yet in entrepreneurial activity. Thus, we suggest:

Hypothesis 3a: Individuals' perceptions that entrepreneurial success demands sacrifice in other aspects of their lives negatively influence EI.

3.4 A macroenvironment with benefits and social guarantees

A long period of a state-provided employment affected the culture of communist countries making difficult the spread of entrepreneurial initiatives (Ivlevs et al., 2021; Volkov, 1999; Webb et al., 2020), but entrepreneurship may be a response both to a perceived opportunity or a need of self-realization (Falck et al., 2012; Werner et al., 2014) and to unemployment, low wages, an unstable economic situation (Schlaeger and Koenig, 2014). However, Albania still has an unstable economic situation with difficulties to find employment, therefore, we suggest that individuals, in an environment lacking benefits and social guarantees, will search for alternative solutions such as entrepreneurial activity. Therefore, we hypothesize that:

Hypothesis 4a: Individuals' perceptions that the macroeconomic environment lacks benefits and social guarantees is positively related to EI.

3.5 Barriers affecting EI: gender differences

The lower entrepreneurship rate for women vs men is explained through the limitations they face, such as difficulties in accessing finance, investments, opportunities (Al-Dajani et al., 2019; Marlow and Patton, 2005), through different socialization processes that lead to different professional aspirations related to value and beliefs (De Clercq et al., 2021; Zhao and Yang, 2021), or

emphasizing differences men and women naturally have in their personal characteristics (McGee et al., 2009; Sahin et al., 2019). Women have a lower congruence with traits required for entrepreneurship (Gupta et al., 2009), but the attribution of lower participation of women in entrepreneurship to specific characteristics, such as their tendency to avoid risky activities and stress (Byrnes et al., 1999; Sandhu et al., 2011), is contradicted by studies that describe an inverse situation in matriarchal societies (e.g., Shahriar, 2018) and, therefore, stressing the role of the environment where women grow.

Compared to men, women's employment choices depend more on the local environment (Ahl and Nelson, 2015; Yousafzai et al., 2019) and reflect also female-specific conditions, including maternity leave and childcare infrastructure, that facilitate or inhibit participation in professional activities (Leung, 2011; McGowan et al., 2012). Entrepreneurship is considered a male domain (Ahl, 2006) and formal possibility to perform a certain activity is not enough if an individual does not feel a fit with certain professional choices (Hsu et al., 2019). Therefore, even women who believe to have the characteristics necessary to become successful entrepreneurs may have weaker EI than men. However, we expect that in a country where in recent decades there has been a strong focus on egalitarianism, women will have an EI that is similar to that of men. Thus, we propose the following:

Hypothesis 1b: The positive relationship between individuals' perceptions of having the characteristics required for successful entrepreneurship and their EI is similar for women and men.

The fear of failing in an entrepreneurial initiative represents a barrier to EI for both genders (Shinnar et al., 2012; Tsai et al., 2016), but women are less likely to participate in risky activities (Byrnes et al., 1999; Wagner, 2007). Similarly to other post-communist countries, conducting the first entrepreneurial activities in the absence of clear rules and a business infrastructure was challenging in Albania, while financial crises contributed to the instability of the economic environment. Economic difficulties of the transition period forced people to challenge the traditional view of women's roles and to consider any activity to ensure survival (Murzaku and Dervishi, 2003; Stecklov et al., 2010). Therefore, we expect that women are similar to men as far as the relationship between fear of failure because of external events and EI are concerned. Thus, we propose the following hypothesis:

Hypothesis 2b: The negative relationship between the fear of failure because of external events and EI is similar for men and women.

The attractiveness of a given profession contributes to an individual's in-

tention to pursue a particular career path. Entrepreneurial activity requires great dedication and time and may provoke negative emotions related to this professional choice (Patzel and Shepherd, 2011). Entrepreneurial activity of women is entrenched in families and is affected by the role that women are expected to play (Leung, 2011; McGowan et al., 2012). For example, women who start their own entrepreneurial ventures may desire more flexible working hours after giving birth (Adamson and Kelan, 2019; Leung, 2011). Entrepreneurship perceived as requiring sacrificing other aspects of life may become less attractive for women. Therefore, we propose the following hypothesis:

Hypothesis 3b: The negative relationship between the perception that entrepreneurial success demands sacrifice in other aspects of life and EI is stronger for women than for men.

Structural changes that occurred during the transition period in Albania created an unemployment problem that forced individuals to search for alternative sources of income. Female participation in the labor market depends on conditions that permit women to participate in professional activities (Achtenhagen and Tillmar, 2013; Ahl and Nelson, 2015; De Clercq et al., 2021). For example, motherhood is an important event that affects women's career paths, so options for maternity leave, availability and expense of daycare, and operating hours of kindergartens are crucial factors that impact the participation of women in the labor market (Arenius and Kovalainen, 2006). Nevertheless, when these resources are insufficient or inaccessible, necessity, rather than inspiration, may force women into business. A lack of benefits and social guarantees forces both genders to consider entrepreneurship as a possible choice, but women depend more than men on support to start and continue their professional activities. Therefore, considering the role of women in their families, the perceived lack of social benefits and guarantees is expected to have a weaker motivating effect on women than on men. Thus, we propose the following hypothesis:

Hypothesis 4b: The positive relationship between individuals' perceptions of the macroeconomic environment as lacking social benefits and guarantees and EI is weaker for women than for men.

4. Data

4.1 Sample

The data were collected from surveys conducted at seven Albanian universities (Vlorë, Korçe, Durrës, Epoka, Tirana, University of New York Ti-

rana, and European University of Tirana) on students in the final year of their bachelor's degrees in economic disciplines or business administration. The choice of the sample follows the idea to test the barriers perceived by young individuals who, due to their professional education, might become the new entrepreneurial face of Albania. The study was limited to students in their last year of study to ensure that the participants had already received a basic education in economic disciplines, understood the economic environment, and had the potential for EI. Furthermore, students in their last year of study are more likely to be considering their career plans, including the possibility of starting their own businesses.

The questionnaire was prepared in English, and an independent professional translator translated it into Albanian, while another translator translated it back into English to ensure a correct translation.

The questionnaire was anonymous, and one of the authors manually administered it to university students from May through December 2019. A total of 593 questionnaires were obtained (631 questionnaires were distributed), and 447 were fully completed (a 94% response rate).

Of the respondents, 10.5% were from Vlorë University, 13.3% from Korçe University, 23.3% from Durrës University, 16.5% from Epoka University, 12.6% from the European University of Tirana, 4.9% from the University of New York Tirana, and 18.9% from Tirana University. Furthermore, 115 male students (25.7%) and 332 female students (74.3%) responded.

4.2 Variables

EI, the dependent variable in the study, was measured as a dummy variable (yes = 1; no = 0) based on responses (yes = one; no = zero) to the following question: "What would you really like to do?" The survey offered six answers: (a) to become an entrepreneur and have my own firm; (b) to work (as an employee) at a good position in a good firm; (c) to be a freelancer; (d) to be a politician; (e) to work in the public sector; or (f) I would rather prefer_ (space was provided here for the respondent to specify a preference). The students could only make one choice, so we considered it a dummy variable. We distinguished the choice "to become an entrepreneur" from the other answers by assigning it a value of one and assigning the other answers a value of zero.

The main independent variables were fit of characteristics, fear of failure, entrepreneurship as sacrifice, and perceived social guarantees. The variable fit of characteristics differed from other studies that evaluated the congruence of characteristics (e.g., Gupta et al., 2009) and was measured by a dummy variable. Based on their understanding, students indicated what characteristics were important to a successful entrepreneur and whether they believed they possessed them in a subsequent question. The variable was assigned the value of one if the respondents confirmed they had such

characteristics and zero otherwise.

Previous studies analyzed fear of failure referring to the general failure in entrepreneurial venture (Langowitz and Minniti, 2007; Shinnar et al., 2012; Tsai et al., 2016). This study refers to the fear of failure due to external conditions that cannot be controlled by an individual. The participants had to indicate whether they agreed with the following statement: "I have a fear of failing in my entrepreneurial activity due to external conditions I cannot control." The responses were measured on a five-point Likert scale from one ("absolutely not") to five ("definitely yes").

The entrepreneurship as sacrifice variable departs from previous studies by highlighting the importance of devotion to entrepreneurial activity (e.g., Cardon et al., 2005). Studies have investigated whether individuals consider entrepreneurship an attractive activity (Liñán et al., 2011) or a stressful activity that requires dedicated time and energy (Giacomin et al., 2011; Sandhu et al., 2011). This proxy was measured on a five-point Likert scale. Students rated the validity of the following sentence: "Being a successful entrepreneur demands sacrificing many things in one's life to achieve success." The responses were measured on a five-point Likert scale from one ("absolutely not") to five ("definitely yes").

The use of the perceived social guarantees variable in this study departs from the studies that include variables to describe individual perceptions of external conditions as possible barriers to entrepreneurial activity (Arrighetti et al., 2016; Choo and Wong, 2006). In the current study, this variable refers to the external conditions that offer fewer benefits and social guarantees. Students indicated whether they agreed with the following sentence: "Nowadays, there are always fewer benefits and social guarantees." This proxy was measured as a dummy variable and was assigned the value of one if the respondents agreed with the sentence and zero if they did not. Consistent with previous studies (Hatak et al., 2015; Schoon and Duckworth, 2012; Zellweger et al., 2011), we use age, previous work experience, prior entrepreneurial activity, parents' education, and entrepreneurial parents as control variables in our empirical analysis.

Descriptive statistics

Table 1 presents the descriptive characteristics, and Table 2 presents the correlation matrix.

Table 1: Descriptive statistics

Panel A: Descriptive statistics for the entire sample of students					
Variables	**Mean**	**Standard deviation**	**First quartile**	**Median**	**Third quartile**
Entrepreneurial intention	0.604	0.489	0	1	1
Fit of characteristics	0.776	0.418	1	1	1
Fear of failure	3.975	1.024	3	4	5
Entrepreneurship as sacrifice	4.125	1.037	4	4	5
Perceived social guarantees	0.422	0.494	0	0	1
Age	21.202	3.158	20	21	21
Previous work experience	1.223	1.201	0	1	2
Prior entrepreneurial activity	0.153	0.360	0	0	0
Parents' education	3.313	0.936	3	4	4
Entrepreneurial parents	0.515	0.500	0	1	1

Panel B: Comparison of female and male students				
Variables	Women	Men	Difference	t-statistic
Entrepreneurial intention	0.550	0.727	-0.177***	-4.18
Fit of characteristics	0.774	0.781	-0.007	-0.18
Fear of failure	4.100	3.647	0.453***	4.74
Entrepreneurship as sacrifice	4.123	4.130	-0.070	-0.07
Perceived social guarantees	0.428	0.407	0.021	0.453
Age	20.990	21.684	-0.694**	-2.52
Previous work experience	1.080	1.550	-0.470***	-4.54
Prior entrepreneurial activity	0.098	0.278	-0.180***	-5.83
Parents' education	3.388	3.137	0.251***	3.04
Entrepreneurial parents	0.508	0.529	-0.021	-0.48

EI is positively correlated with fit of characteristics and negatively linked to fear of failure, providing preliminary support for Hypotheses 1a and 2a. In contrast, the correlation between entrepreneurship as sacrifice and EI is positive and does not align with our expectations (H3a). Regarding the control variables, age had a negative correlation with EI, which indicates that older students are less inclined to launch a business. In contrast, having prior work and entrepreneurial experience and having parents involved in entrepreneurial activities is positively correlated with EI.

Table 2: Correlation matrix

	Variables	1	2	3	4	5	6	7	8	9	10
1	Entrepreneurial intention	1									
2	Fit of characteristics	0.171***	1								
3	Fear of failure	-0.119*	0.00383	1							
4	Entrepreneurship as sacrifice	0.139**	0.0797	0.0918	1						
5	Perceived social guarantees	0.0903	0.0546	0.0666	-0.0129	1					
6	Age	-0.143**	-0.0101	-0.0211	-0.0514	-0.00219	1				
7	Previous work experience	0.102*	0.0363	-0.0789	0.0174	0.134**	0.203***	1			
8	Prior entrepreneurial activity	0.108*	0.118*	-0.109*	0.137**	0.0926	0.133**	0.378***	1		
9	Parents education	-0.0202	-0.0266	0.0267	0.0845	0.00702	-0.0760	-0.116*	-0.124**	1	
10	Entrepreneurial parents	0.0989*	0.0522	-0.120*	-0.0318	-0.00335	-0.0686	0.0644	0.182***	-0.0610	1

** $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$*

4.4 Results

To empirically test our hypotheses, we ran a probit maximum likelihood model with robust standard errors (Shahriar, 2018; Westhead and Solesvik, 2016; Zhang et al., 2014). Specifically, the following model was applied:

Pr. (EI = 1) = β0 + β1 Fit of characteristics + β2 fear of failure + β3 entrepreneurship as sacrifice + β4 perceived social guarantees + control variables + μ_t

Table 3 shows the results from the analysis that examined the determinants of Albanian students' EI. Model 1 employs only the main independent variables of the study over the entire sample of students. Model 2 introduces a set of control variables in the regressions. Models 3 and 4 of Table 3 separately report the findings for the subsamples of women and men to examine whether the determinants of EI differ according to gender.

Table 3: Antecedents of the entrepreneurial intention of Albanian university students

Variables	**(1)**	**(2)**	**(3)**	**(4)**
	without control variables	**with control variables**	**Women**	**Men**
Fit of characteristics	**0.470*****	**0.457*****	**0.497*****	0.454
	(0.001)	**(0.002)**	**(0.005)**	(0.135)
Fear of failure	**-0.165*****	**-0.167*****	**-0.173****	-0.035
	(0.006)	**(0.007)**	**(0.021)**	(0.780)
Entrepreneurship as sacrifice	**0.176*****	**0.174*****	**0.176****	**0.266****
	(0.003)	**(0.004)**	**(0.012)**	**(0.027)**
Perceived social guarantees	**0.255****	**0.222***	**0.334****	-0.168
	(0.038)	**(0.080)**	**(0.024)**	(0.539)
Age		-0.079***	-0.104**	-0.073*
		(0.002)	(0.012)	(0.052)
Previous work experience		0.113*	0.054	0.185
		(0.060)	(0.448)	(0.122)
Prior entrepreneurial activity		0.124	0.277	-0.324
		(0.529)	(0.288)	(0.302)
Parents' education		-0.035	-0.005	0.031
		(0.612)	(0.948)	(0.848)
Entrepreneurial parents		0.160	0.273*	-0.036
		(0.207)	(0.063)	(0.895)
Constant	-0.329	1.271*	1.484	0.755
	(0.340)	(0.077)	(0.116)	(0.567)
R-squared	0.0502	0.0820	0.0942	0.101
Observations	447	447	332	115

*Robust pval in parentheses *** p<0.01, ** p<0.05, * p<0.1*

Regarding the entire sample of students, fit of characteristics shows a positive and significant effect ($\beta = 0.457$, $p < .01$) on EI. Therefore, the perception of having the necessary characteristics to be a good entrepreneur is a strong determinant of EI. This result supports H1a. Furthermore, the coefficient of the variable fit of characteristics remains positive only for the female subsample ($\beta = 0.497$, $p < .01$), so the data do not confirm H1b. Contrary to H1b, the relationship between perceiving oneself as possessing the characteristics necessary to start an entrepreneurial venture and the intention to start the venture is stronger for female students than for male students. Our results confirm the importance of fit between own characteristics and characteristics considered as relevant to entrepreneurs, in line with previous studies showing that the perceived congruence with entrepreneurs' characteristics is critical (Gupta et al., 2009; Hsu et al., 2019). The coefficient of fear of failure is negative and statistically significant ($\beta = -0.167$, $p < .01$), which confirmed H2a. Thus, the difficulties related to unstable economic conditions represent a relevant barrier to entrepreneurship for university students in Albania. Considering the effect of fear of failure in the female and male subsamples, the results show that the relationship between perceiving the economic situation in the country as unfavorable for starting an entrepreneurial activity and the EI of Albanian students is negative and significantly stronger for women ($\beta = -0.173$, $p < .05$) than for men. Therefore, the data do not support H2b. The negative correlation between fear of failure due to external conditions and EI confirms the results of studies showing a general negative influence of fear of failure on entrepreneurship (Cacciotti et al., 2016; Tsai et al., 2016).

The findings do not confirm H3a. Indeed, the variable entrepreneurship as sacrifice shows a positive coefficient and is statistically significant ($\beta = 0.174$, $p < .01$). Contrary to our prediction, entrepreneurship as sacrifice positively relates to the EI of university students. The results suggest that dedicating significant effort to one's business does not prevent the professional choice of starting an entrepreneurial activity. Interestingly, the empirical findings do not differ in terms of gender. The coefficients of entrepreneurship as sacrifice shown in Models 3 and 4 of Table 3 have a positive sign, indicating that women and men do not behave differently. In particular, female students are not more reluctant than male students to sacrifice their private lives to follow their professional inclinations. Our result contradicts previous findings that the idea of hard work and the necessity to dedicate time and energy to entrepreneurial activity negatively influence EI (Choo and Wong, 2006; Sandhu et al., 2011), although it is coherent with works that, studying individuals already involved in entrepreneurial activity (Gundry and Welsch, 2001), found a higher propensity to work hard and sacrifice in post-communist countries (Pistrui et al., 2000).

The analysis confirms H4a by showing that the perception of the environment as offering few benefits and social guarantees positively influences EI. The empirical findings presented in Model 2 show the positive statistical significance of the variable perceived social guarantees ($\beta = 0.222$, $p < 0.10$). The result is coherent with the evidence of studies dealing with post-communist contexts where, despite the lack of entrepreneurial culture (Ivlevs et al., 2021; Webb et al., 2020), individuals start to consider entrepreneurship as a possible choice once social guarantees become obsolete (Alvarez et al., 2023). This hypothesis is confirmed for the entire sample, but the coefficient retains a positive sign for the female subsample ($\beta = 0.334$, $p < .05$) and loses strength, becoming non-significant in the male subsample ($\beta = 0.168$, $p > .10$). Seemingly, an institutional setting characterized by adverse circumstances in terms of social guarantees makes women, rather than men, consider entrepreneurship a possible solution with a substantially motivating effect on women. Thus, contrary to H4b, the research shows that Albanian women, but not men, consider entrepreneurship a possible way to overcome economic difficulties and compensate for the lack of social guarantees. Our results about the higher willingness of women to sacrifice some spheres of their lives challenge some previous studies (e.g. Sandhu et al., 2011), but echo that of Carraher et al. (2010) who, for the ex-Soviet Latvia, found no gender difference in need for achievement, and the one of Laudano et al. (2019) who found that the need for achievement is an important predictor of EI for Albanian women.

Perceived fit of own characteristics with the ones considered relevant to be a successful entrepreneur recalls studies of entrepreneurial self-efficacy and self-confidence, normally confirmed to be an important antecedent of EI (Choo and Wong, 2006), although related rather to the perception of fit (Hsu et al., 2019). Our results evidence the relevance of this relationship in case of women, with no significant influence in case of men. Similarly, fear of failure due to external events represents an important barrier to women only, confirming that women have a lower propensity to risk (Byrnes et al., 1999; Wagner, 2007).

In sum, given the large set of research hypotheses, Table 4 summarizes both the hypothesized relationships and the findings of the empirical analysis.

Table 4: Hypothesized sign and confirmed hypotheses

Research hypotheses	Hypothesized sign	Confirmed hypotheses
H1a	Positive	Yes
H2a	Negative	Yes
H3a	Negative	No
H4a	Positive	Yes
H1b	Positive for both women and men	No
H2b	Negative for both women and men	No
H3b	Stronger negative for women	No
H4b	Weaker positive for women	No

5. Discussion

This study tests four variables selected and adjusted taking into consideration the specific Albanian context with its mix of young entrepreneurial culture and traditional idea of woman's role in society. Studies on entrepreneurial intention in Albania are rather limited, often presenting results where men and women are analyzed as one group (Alimehmeti and Shaqiri, 2015; Garo et al., 2015) or concentrated only on women (Laudano et al., 2019). As a result, to the best of our knowledge, the difference between Albanian men and women in their perception of barriers to EI remains rather unknown. Aiming to cover this gap, our study has confirmed the relevance of the selected barriers to EI and the importance to understand better men and women as two separate groups in order to obtain a more fine-grained idea about the issues to address when implementing entrepreneurship support programs.

Evaluating the influence of barriers on men and women as one group, the evidence of a negative correlation between fear of failure due to the external conditions and EI, so as the expected importance of fit between own characteristics and characteristics considered as relevant to entrepreneurs, confirms the results of previous studies (Cacciotti et al., 2016; Gupta et al., 2009; Hsu et al., 2019; Tsai et al., 2016). Differently, the evidence on entrepreneurship as sacrifice shows a positive coefficient, contradicting previous findings that the idea of hard work and necessity to dedicate time and energy to entrepreneurial activity negatively influences EI (Choo and Wong, 2006; Sandhu et al., 2011), although partially recalling the idea of higher acceptance of sacrifice to have an entrepreneurial success discovered in post-communist countries (Pistrui et al., 2000).

After analyzing men and women separately, we get some unexpected results. In particular, the positive relationship between the perception of

having the characteristics to be a successful entrepreneur and EI is stronger for women, suggesting that fit is particularly relevant for women to consider entrepreneurship as a possible professional choice. Literature has confirmed the importance of perceived fit with entrepreneurial activity, calling for more extended research on fit and gender (Hsu et al., 2019). Following this call, our study suggests that encouraging the perception of fit in a group composed of both men and women would not produce a similar significant positive effect on EI.

Fear of failure represents a significant barrier to EI of women in our sample, but this result acquires an additional meaning when considered together with perceptions related to the environment. Surprisingly, lack of social guarantees appears to produce a pushing effect on women and no effect on men in Albania. Therefore, although being more affected by fear of failure, women manage to overcome this fear when they perceive the external environment as not offering any social guarantees. The effect of external events on rising EI has been confirmed also in Albania (see COVID in Çera et al, 2022), but no difference between men and women emerged in previous studies.

Perception that women have about entrepreneurial activity as a solution in case of economic difficulties is also evident in their attitude to sacrifice some aspects of life to be successful in entrepreneurship. Predisposition to sacrifice was found in women who already belong to high-growth-oriented entrepreneurs (Gundry and Welsch, 2001), but not in studies of barriers to EI among individuals not yet involved in entrepreneurial activity.

Research has found that in post-communist countries there is a lower importance of the barriers traditionally relevant for women in other contexts (e.g. Carraher et al., 2010) and that this can be explained by the historical egalitarian approach to participation in the labor market, thus demonstrating that institutional support and institutional policies aiming to involve men and women in certain professional activity have positive results (Welter, 2007). In Albania, the positive influence of entrepreneurial education on EI has been confirmed (Çera et al., 2021), although the difference between control and treated groups was at a rather low-medium level. The results of our study suggest that both the content of entrepreneurial programs and gender of participants can affect possible outcomes. The contradictory Albanian context (with a traditionally marginal place of women in society and communist past) lets emerge the impact of egalitarian policies on young women who show their willingness to start an entrepreneurial journey and make it successful. Our study indicates that women are not less adapted to entrepreneurship but may need a different type of support as they are more than men dependent on perceiving themselves as having the characteristics necessary to start their entrepreneurial activity, while this perception is less relevant for men.

6. Conclusions

International support programs still have limited results, while studies have evidenced the importance of entrepreneurial education in rising EI in Albania (Çera et al., 2021). According to our result, Albanian women rather than men appear to be seriously oriented to consider entrepreneurship as a way to cope with certain economic distortions. This hardly recalls the traditional Albanian values where the place of women was marginal to the economic activity, therefore becoming much closer to an egalitarian vision. Policies should take into account the necessity to help women consider entrepreneurship as a possible career and encourage them to see themselves as capable of starting new ventures. This could be realized going beyond traditional education that provides technical knowledge, introducing specific educational programs to develop a new culture. We suggest that educational programs consider the different factors affecting the entrepreneurial intention of women and men. Consequently, we recommend that governmental policies consider the relevance of role models for women and support the creation of microenvironments similar to business clubs within or with a tight collaboration of universities to organize round tables, informal meetings, business games, presentations, mentorship programs and facilitate collaborations and networking.

In conclusion, we posit that studies on EI give an incomplete picture when leaving apart the differences between men and women in terms of barriers' perception and that results of education for entrepreneurship could be enhanced by the introduction of a gender approach as they depend on both content of entrepreneurial programs and gender of participants.

7. Limitations and future research

This study has some limitations. First, the data were collected in Albania; therefore, it would be interesting to check whether data from other countries would reflect similar or different trends. Second, our sample is limited to the students of economic disciplines, although entrepreneurship is an activity that can be performed by individuals with different backgrounds. The results of our research could vary according to the field of studies of individuals. Third, this study was conducted before COVID-19, an extraordinary event that became a starting point for numerous governmental policies. Specifically, recent research has demonstrated the negative effects of the pandemic period on female-run businesses (Torres et al., 2023; Emami et al., 2023). Consequently, it would be interesting to discover whether the influence of the variables tested in this study has changed significantly after the pandemic period.

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ARTIFICIAL INTELLIGENCE IN BUSINESS AND DECISION MAKING: ANALYSIS OF BENEFITS AND CHALLENGES FOR CONSULTANCY SMES

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Abstract

Purpose*. This study examines how consultancy SMEs that have not yet adopted AI judge its adoption and its use in business activities and specifically in decision making and perceive its advantages and disadvantages.*
Design/methodology/approach*. We conducted four case studies and semi-structured interviews involving four consultancy SMEs that have not yet adopted AI.*
Findings*. In the consultancy sector, AI may be applied in Customer Relationship Management, data analysis, training, and work support. However, AI may not be the best technological solution and competent people may be lacking. The use of AI in decision making is viewed with more caution: possible advantages (e.g., higher efficiency, work facilitation) are recognised, but some perceived disadvantages (e.g., ethical, privacy, and responsibility issues; distortions in the decision-making process) must be addressed.*
Practical and Social implications*. AI can bring numerous benefits for consultancy SMEs, which must be aware of the potential disadvantages. Policy makers should design effective interventions that support and guide these firms in adopting AI.*
Originality of the study*. This study focused on consultancy SMEs, which may encounter difficulties in the introduction of AI due to insufficient resources and knowledge, while at the same time being pushed by the consultancy sector to urgently incorporate AI.*

1. Introduction

Artificial intelligence (AI) can be employed to help humans make better decisions in many areas, from medical to business (Metcalf et al., 2019). Within firms, AI is "likely to change the role of management and organisational practices" (Kshetri, 2021, p. 970). AI can indeed match or outperform human workers in carrying out activities requiring high cognitive capabilities and big data (Booyse and Scheepers, 2024; Manyika et al., 2017). However, there are barriers associated with AI adoption in SME (Hansen & Bøgh, 2021) and, most of all, in decision making (Booyse & Scheepers, 2024; Moser et al., 2021).

SMEs play an essential role in the economies of many countries (European Commission, 2023). To remain competitive, SMEs must adopt advanced technologies, including AI (Bhalerao et al., 2022). However, they may lack the resources and knowledge to adopt and implement AI (Hansen & Bøgh, 2021). Other challenges SMEs face in adopting AI include poor financial position, firms' size, and data quality (Bhalerao et al., 2022).

The adoption of AI in decision making seems to be particularly challenging for all firms. AI has serious limitations in making unstructured decisions such as strategic ones, while it can completely replace workers and effectively make structured and semi-structured decisions (Duan et al., 2019; Tamò-Larrieux, 2021). Moreover, the adoption of AI is subject to obstacles since human decision makers usually prefer to delegate a decision to a colleague rather than to AI (Leyer & Schneider, 2021). Finally, using AI for decision making purposes has ethical implications that require a precise definition of responsibilities and the deciphering of the process that led to a certain decision (Duan et al., 2019).

Concurrently, AI may have transformative implications for the consultancy sector (Samokhvalov, 2024). Customers are interested in AI applications and expect more tailored and innovative solutions, whereas consultants face challenges in satisfying customers' desires and their role is questioned (Samokhvalov, 2024). AI can be a useful tool to devise solutions, but will unlikely fully replace human expertise (Samokhvalov, 2024). AI will instead provide input to the decision making and tasks (Feuerriegal et al., 2022), while consultants will remain accountable for the decisions taken and will play a key role due to their unique skills and client relationships (Samokhvalov, 2024). Nevertheless, firms must meet customers' interests in AI and urgently adapt and incorporate this technology into their business (Samokhvalov, 2024).

Based on this premise, this study examines how consultancy SMEs that have not yet adopted AI judge, in terms of expectations and concerns, its adoption and its use in business activities and specifically in decision making, and perceive its consequences, its advantages and disadvantages. Specifically, we aim to answer the following research questions:

- How is AI perceived in consultancy SMEs?
- What are the perceived benefits that consultancy SMEs can derive from the use of AI and what the perceived risks they face?
- How can AI be used in the decision making of consultancy SMEs?
- What are the perceived benefits that consultancy SMEs can derive from the use of AI in decision making and what the perceived risks they face?

Consultancy SMEs that have not yet adopted AI represent a particularly interesting study sample. These firms may perceive big pushes to adopt AI due to the recent changes in the sector, but at the same time may be reluctant to introduce this technology due to the possible lack of resources and the perceived risks arising from the use of AI in business activities, with particular regard to decision making. Consultancy SMEs that have not yet adopted AI are therefore a suitable sample of firms to answer the research questions above.

In this study, we adopted a qualitative approach, conducting four case studies and semi-structured interviews involving four consultancy SMEs that have not yet adopted AI.

The remaining of the paper is structured as follows. Section 2 provides a theoretical framework on the topic, focusing on the definition and types of AI, the adoption of AI in SMEs, and the use of AI in decision-making. Section 3 describes the methodology adopted, and specifically the method and sample selection. Section 4 describes how the data were analysed and main findings. Section 5 discusses the results in light of previous literature. Section 6 concludes.

2. Literature review

2.1. Definition and types of AI

Today there is no universally recognised and accepted definition of AI. McCarthy (2007, p. 2), one of the founding fathers of AI, defines it as "the science and engineering of making intelligent machines, especially intelligent computer programs". Nilsson (2009), instead, defines AI as the activity aimed to make machines intelligent, where intelligence refers to the quality that allows an entity to function properly and prudently in its environment. More recently, in its broader definition, AI is equated with an algorithm (Sheikh et al., 2023). However, this definition is not particularly appropriate since the term algorithm is prior to the concept of AI and is widely used even outside this specific field of research (Sheikh et al., 2023).

AI can be classified both according to its evolutionary state, and according to the type of intelligence that the system demonstrates to possess (Ka-

plan & Haenlein, 2019). Each type of AI, given its characteristics, is best able to perform certain work activities and has a more or less extensive use in decision making (Kaplan & Haenlein, 2019).

Based on the state of evolution, AI can be classified into Artificial Narrow Intelligence (ANI), Artificial General Intelligence (AGI), and Artificial Super Intelligence (SAI) (Kaplan & Haenlein, 2019). Artificial Narrow Intelligence, also referred as weak AI, is programmed to perform the tasks assigned (e.g., extracting information from a specific dataset) and has many advantages, such as simplification of decision making and better execution of individual tasks than humans (Kaplan & Haenlein, 2019). Artificial General Intelligence, also referred to as strong AI, allows machines to understand, emulate the human mind and human behaviour, learn cognitive skills and perform complex intellectual tasks very similar to those performed by humans (Kuusi et al., 2022). Lastly, Artificial Super Intelligence, the most advanced, powerful and intelligent type of AI, is capable of overcoming human intelligence as it can interpret human emotions and experiences, replicate human behavioural intelligence, and develop its own thinking skills and emotional understanding, beliefs and desires (Kaplan & Haenlein, 2019).

Instead, based on the type of intelligence demonstrated, AI can be classified into analytical, human-inspired or humanised AI (Kaplan & Haenlein, 2019). Analytical AI has characteristics attributable exclusively to cognitive intelligence, i.e., it can represent the world and use previous experiences to learn and guide new decisions (Kaplan & Haenlein, 2019). Human-inspired AI is associated with emotional abilities and can thus recognise and consider emotions during decision making (Kaplan & Haenlein, 2019). Lastly, humanised AI has cognitive, emotional, and social intelligence and is therefore self-conscious and aware when interacting with humans (Kaplan & Haenlein, 2019).

2.2. Adoption of AI in consultancy SMEs

Consultancy SMEs, as knowledge-intensive firms, are particularly well-positioned to benefit from AI across a range of business activities including data analysis, generating market insights, enhancing customer relationship management, refining social media strategies, improving decision-making processes, and offering more sophisticated problem-solving solutions (Bhalerao et al., 2022; Bunte et al., 2021). In these firms, AI can automate data-heavy processes, enabling consultants to deliver more strategic insights with greater accuracy and speed. For example, AI-driven tools can help in segmenting client data more effectively, identifying emerging trends, and crafting highly targeted recommendations that align closely with client objectives.

The adoption of AI offers distinct advantages tailored to the consultancy sector, such as enhanced operational efficiency through the automation of routine tasks, optimized service delivery with customized AI-based solutions, and reduced operational costs due to more efficient resource utilization (Bhalerao et al., 2022; Mantri et al., 2023). Additionally, AI supports better risk management by predicting market shifts, while saving time through streamlined processes and providing access to advanced analytics that can be pivotal in crafting evidence-based strategies for clients (Bhalerao et al., 2022; Mantri et al., 2023).

In an increasingly competitive landscape, AI is not just a technological upgrade but a strategic necessity for consultancy SMEs. It allows these firms to differentiate their service offerings, deliver added value, and maintain a competitive edge (Bhalerao et al., 2022). By integrating AI, consultancy SMEs can offer clients deeper insights and innovative solutions that larger firms might struggle to achieve with the same agility (Hansen & Bøgh, 2021). For consultancy SMEs, being at the forefront of AI adoption is key to remaining relevant, attracting new clients, and retaining existing ones.

However, despite these clear benefits, the road to AI adoption for consultancy SMEs is fraught with challenges (Cubric, 2020). One major hurdle is the limited knowledge and awareness of how AI can be effectively utilized within the specific context of consultancy services (Bunte et al., 2021). Many firms lack a well-defined AI strategy that aligns with their business objectives (Mantri et al., 2023). Additionally, high upfront costs and the significant time investment required for successful AI implementation can be prohibitive for smaller firms (Bunte et al., 2021).

Resource limitations are particularly acute for consultancy SMEs, where financial constraints, inadequate technological infrastructure, and a shortage of AI expertise present significant barriers (Bhalerao et al., 2022; Bunte et al., 2021; Hansen & Bøgh, 2021; Mantri et al., 2023). Recruiting skilled workers who possess both consultancy and AI competencies is difficult, especially for smaller firms operating with tighter budgets. Furthermore, access to quality data, crucial for AI applications, is often limited, making it challenging for these firms to develop robust AI solutions.

Cultural resistance to change within consultancy SMEs also plays a role in slowing AI adoption (Mantri et al., 2023). Many firms struggle with the shift from traditional consultancy methods to AI-driven processes, which may require significant changes in workflows, communication strategies, and decision-making approaches. Inefficient communication channels and the inherently smaller scale of consultancy SMEs further complicate the integration of AI, as these firms may lack the organizational depth to support extensive AI initiatives (Mantri et al., 2023).

Overall, while AI holds immense potential for consultancy SMEs, realizing this potential requires overcoming significant challenges. Tailored

strategies, such as phased AI adoption, targeted upskilling, strategic partnerships, and leveraging scalable AI solutions, are essential to help these firms navigate the complexities of integration and fully harness the benefits of AI in delivering high-impact consultancy services.

2.3. AI and decision making

The use of AI in decision making is discussed with reference to the types of decision making, the interaction between AI and human decision makers, and the factors affecting the implementation of AI for decision making.

2.3.1 Types of decision making

According to Anthony (1965), there exist three levels of decision making. The first level concerns strategic planning. Strategic decisions are typically unstructured, i.e., there is no standardised procedure to understand the best choice to take (Edwards et al., 2000; Simon, 1987). The second level is management control. Compared to a strategic decision, a management control decision is more structured and requires strategic objectives to be transformed into standardised operational objectives and criteria to understand the best choice to take (Edwards et al., 2000; Simon, 1987). The third level relates to operational control. The decisions that fall into this category are well defined, limited in type, and even more structured than the previous ones and based on sources within the organisation (Edwards et al., 2000). More recently, Simon (1987) identified a fourth level of decision making, for which a decision is not required because the activities to be carried out are defined and planned.

With reference to decision making, there are AI systems that can only support or assist the human decision maker, whereas others can completely replace it (Duan et al., 2019; Edwards et al., 2000). Specifically, for the first three levels of decision making (i.e., strategic planning, management control, and operational control), the systems used as decision support increase decision quality, although the ultimate effectiveness depends on the human decision maker (Duan et al., 2019). In addition, expert systems replacing the human decision maker are effective at the management and operational level but have serious limitations at the strategic level (Duan et al., 2019). Consequently, the replacement of the decision maker by AI is considered useful in the case of decisions of a structured and semi-structured type. In contrast, for unstructured decisions, AI supports but does not replace the decision maker (Duan et al., 2019). Lastly, a system used to support decision makers does not necessarily save time (Edwards et al., 2000). Instead, when the system totally replaces the human decision maker, the time needed to make decisions is reduced (Edwards et al., 2000).

2.3.2 Interaction between AI and human decision makers

Two approaches describe how AI relates to human decision makers. The first approach, called decision automation, implies a substitution of the human decision maker with the new cognitive technologies that are being developed (Langer & Landers, 2021). The second approach, called decision augmentation, considers and envisages, instead, a collaboration between the human being and AI to improve cognitive performance together, mainly in terms of quality and efficiency (Langer & Landers, 2021).

Regarding decision automation, machines are now progressively establishing themselves as decision-making entities (Tamò-Larrieux, 2021). This may create fear, despite decision automation may allow to overcome the unconscious and prejudices of the human decision maker that often lead to poor choices with negative consequences for firms' efficiency (Leyer & Schneider, 2021).

However, thinking that AI could assist people in making better decisions would allow us to see AI as an opportunity for growth (Duan et al., 2019). The starting point of decision augmentation is indeed to understand what work activities are currently being carried out by humans and which could instead be deepened or scaled down by the machine (Leyer & Schneider, 2021). The progressive change of opinion that foresees a change from the pursuit of decision automation to the promotion of decision augmentation will see intelligent machines as collaborators of human beings in creating innovative and creative solutions (Leyer & Schneider, 2021).

What is evident, however, is that the path leading to a decision by AI is still unknown. Human decision makers prefer indeed to delegate a decision to a colleague rather than to AI for several reasons, including a lack of confidence in AI, a lack of knowledge about how AI makes a decision, higher confidence in human abilities, the desire to keep control, and the system inability to adapt to the specific context (Leyer & Schneider, 2021). Another important issue is that the effectiveness resulting from the introduction of AI tools in decision making depends largely on the acceptance by human decision makers, and the use they make of them (Duan et al., 2019; Edwards et al., 2000). Poor knowledge of technology and a reduced understanding of the system can thus negatively affect the relationship between the decision maker and AI (Duan et al., 2019). On the contrary, lower prejudices, the potential to reduce workload, and the new insights AI could propose are among the reasons that encourage people to delegate a decision to AI (Leyer & Schneider, 2021).

2.3.3 Factors affecting the implementation of AI for decision making

To ensure a successful implementation and therefore avoid bottlenecks and obstacles, it is necessary, first of all, that the firm understands the technology behind the system used and, specifically, which technology performs a given activity, as well as the strengths and weaknesses of the chosen systems (Duan et al., 2019).

Another fundamental factor that can greatly influence technological success, and therefore a correct implementation of AI in a society, is culture. Culture, understood both nationally and from the point of view of the firm, personal and/or religious values, can influence a person's behaviour and consequently has an impact on the adoption of technology, encouraging its introduction, or on the contrary, delaying it (Lee et al., 2013). Societies with a strongly individualistic culture usually have a positive attitude towards technology and are therefore in favour of its adoption, this is because individuals perceive it as a tool that can help them be more efficient (Lee et al., 2013).

Finally, using AI for decision making purposes has ethical implications. In particular, it requires governments, and competent legal authorities, to define policies and regulatory processes so that they can define responsibilities precisely and decipher the procedure that led the system to take a particular decision (Duan et al., 2019).

3. Methodology

3.1. Method

The research adopted a qualitative analysis in the form of in-depth, semi-structured interviews as they can elicit a free and comprehensive expression of the respondents' perspectives, enabling the collection of a wide range of insights and understandings (Rowley, 2012).

To mitigate subject bias, we implemented a courtroom-style procedure during the interviews and ensured that at least one of the authors was present (Bingham and Eisenhardt, 2011). Before the interview, we met the interviewees several times to establish a trusting relationship (Mellon, 1990).

Based on previous studies, we developed a comprehensive interview guideline to cover all pertinent topics (see Appendix A). The interview covered these issues: definition of AI, future adoption of AI, use of AI in business processes and its perceived consequences, advantages and disadvantages, use of AI in decision making and its perceived consequences, advantages and disadvantages. The interview guideline was shared with the interviewees before conducting the interview.

During the interviews, we extracted more detailed information by asking questions such as "*What do you mean by that?*" and "*Could you please explain this in more detail?*". Additional questions were also posed whenever relevant information emerged.

3.2. Sample selection

Case selection was carefully designed to capture the diverse realities within consultancy SMEs. The firms were chosen based on their size, ranging from micro (1-9 employees), small (10-49 employees), to medium-sized firms (50-249 employees), ensuring representation across different organizational scales. This variation allows us to explore how AI adoption challenges and opportunities may differ based on firm size and resource availability. Additionally, the selected cases span different sectors within consultancy—ranging from IT services to coaching and vocational training—enabling a more comprehensive analysis of how sector-specific dynamics influence AI perceptions and adoption. By incorporating firms with distinct characteristics, this study aims to provide a richer and more nuanced understanding of the factors affecting AI adoption in consultancy SMEs, thereby offering insights that are both broad and applicable across different contexts within the industry.

The interviews targeted individuals playing pivotal roles in the decision-making processes and, specifically, holding positions related to firm ownership and management.

Table 1 describes the characteristics of selected firms.

Table 1 Characteristics of selected firms

	Alfa	**Beta**	**Gamma**	**Delta**
Sector	Coaching and vocational training	Mechanical or industrial engineering	IT services and consulting	Consulting and Business Services
Foundation year	2011	2007	2007	2007
Revenues	276.308 €	1.990.249 €	12.219.713 €	156.920 €
Total assets	117.981 €	2.948.687 €	7.991.886 €	119.122 €
Employees	8	32	170	9
Number of interviews	1	2	2	1
Respondent's role	Owner	Two technology transfer engineers	Human Resources & Innovation & Project Manager	Sole administrator

Source: author's elaboration.

4. Findings

4.1. Data analysis

We first transcribed the interviews, which ranged from 30 to 60 minutes. Then, we collected relevant information using the transcribed notes. To reduce interpretation biases (Corbin & Strauss, 2015), this analysis was performed only by a subset of the authors, including the ones who did not participate in the interviews. Lastly, we compared our findings with existing literature to ensure reliability and validity (Yin, 2003).

4.2. Definition of AI

To explore the understanding and cognition of AI, respondents were asked to provide a definition of AI:

> *Alfa: AI is formed by different subjects […] We build it continuously with our inputs and our requests and you enlarge it. I see it a bit like this, as a kind of global intelligence computerised, automated [...] that we are all collaborating to build by putting stuff in, putting in requests, commands, corrections, etc.*
>
> *Beta: I would define AI as an information system, in the strict sense of computer science, able to approach and try to emulate what is human thought, understood as a correlation engine.*
>
> *Gamma: AI is any computer system that implements any training logic according to a training database, or learning database, which provides answers or logical or consequent reasoning.*
>
> *Delta: AI through algorithms reconstructs the abilities of man, the thinking skills of man [...] therefore that ability to learn the decision-making processes of man and bring them back into a context, perhaps different, where the same metrics, the same models, the same patterns of reasoning are applied.*

The proposed definitions offer a multifaceted vision of AI. One vision relates to the technical aspects of AI, which is defined as training computer systems working on databases. The second vision focuses on the relationship between AI and the capabilities of the human being, highlighting how the first is built trying to reconstruct the abilities of the individual, particularly his ability to think. Lastly, the third vision is particularly different from the other two and sees AI as represented by each person who contributes to feed its database.

Moreover, it emerged that the definition is influenced not only by the type of consultancy the firm offers and the interviewee's role but also by the interviewee's educational background. Specifically, the most technical definitions are provided by respondents who cover technical figures at the firm level and have a technical background.

4.3. Future adoption of AI

Most of the interviewed firms want to introduce AI more systematically in the future, for almost all the activities carried out. On the contrary, only a firm is not interested in adopting AI in light of its activities. Specifically, this firm is oriented to creating a new thought or business model, whose objective is to bring out the value from the mind of an individual (a client) and organise it to enhance its identity. This activity does not make AI suitable.

4.4. Use of AI in business processes

The most profitable adoption opportunity is in the field of Customer Relationship Management and, more generally, in the management of supply and demand:

> *Beta: In the other processes AI would not give us such a value so maybe it isn't necessary to invest, but precisely because the business dimension is... that is, we are not big as a firm and the processes are quite simple. But maybe on the part with customers, with identifying after an event the type of services to propose. On this part AI can give value. So the commercial marketing part.*

Another important application regards the extrapolation and analysis of data from the multitude of information on the network or in the firm databases. AI is used to highlight correlations and, above all, reduce the load of activities considered monotonous and repetitive, and consequently transfer the interest of employees to activities deemed to have higher added value:

> *Gamma: How many consultants in life had to go through hundreds of pages of documents to understand where a problem was or to understand how to solve a given problem raised? This is what you are going to make more automated [...] I don't think that this will replace the consultant as the assistant, but it will make his work much faster, allowing him or her to put his intelligence into activities with more added value.*

Lastly, the introduction of AI in the field of training and support for the growth of the individual's work has been suggested.

However, there are many other possible adoptions of AI at the firm level and, consequently, interest in this technology continues to increase.

4.5. Perceived advantages and disadvantages of using AI in business processes

AI is considered fascinating and profitable as it can improve human decision making through the synthesis and combination of information and the support provided in decision making. This is particularly helpful since, according to the interviewees, the synthesis of information is neither a trivial nor a fast process.

However, the interviewees perceive that the investment may not always be repaid by the benefits for many reasons.

First, there are many useful and high-level software and advanced technologies capable of meeting specific needs and, consequently, AI may not be the best technological solution.

Second, the introduction of AI is not always justified. For example, Gamma, a firm that creates AI systems for its customers, is not currently interested in including AI at the firm level because this technology is already integrated in the systems used daily for project realisation.

Third, since AI is a new technology, at present there may not be competent people able to guide a complete and adequate training path to the firm's needs. Moreover, this path would require considering and addressing too many variables, reducing the efficiency of what has been introduced:

> *Beta: You still know very little, in the sense that everyone wants growth paths, but there are not many competent people within the firm who make these growth path in a structured way. I think maybe in a few years we will be ready. There are some solutions of difficult applicability within our reality, because we are small [...] and because our firm does different things [...] There are too many variables to consider when it comes to managing people, so I would take AI with caution.*

4.6. The use of AI in decision making

AI is recognised as a useful tool to support decisions. However, the possibilities of adoption, and the type of system most suitable to use, depend on the product offered by the firm.

In firms that face similar but never identical projects, for which there is therefore a lack of business cases and historical data that can guide AI in making choices, relying completely on AI could not be a wise and efficient choice since the ouput will not be supported by data and therefore be "random".

Instead, AI could be of greater use for manufacturing firms, where operations are indeed mainly based on technical and objective conditions and rely on indicators obtained from data collected at the firm level. In this case, decisions are more standard, and the autonomy of AI is conceivable.

In summary, at the current state of the art, AI can be implemented with

less difficulty in processes with decisions characterised by a high intensity of data. On the contrary, for all decisions that cannot be based on objective data or for which it is preferable to make a choice based on one's inclinations, the implementation of AI is not currently considered possible and beneficial.

4.7. Perceived advantages and disadvantages of using AI in decision making

According to the interviewees' perceptions, AI may offer several advantages in decision making. First, AI may be an excellent tool and increase efficiency during the data collection and analytical phase. This is especially true for data-intensive decisions since AI allows decision-makers to go beyond the considerations that emerge instantly.

Second, AI may overcome the problem of specialisation and promote interdisciplinarity in the various sectors of a firm:

> *Beta: For each sector, for each role, for each task, there would be a need for an expert figure in the field. This thing fails with AI in the sense that it can replace different tasks and can be a tool that gives the possibility to know many more things. None of us are all-rounders, we all specialise in one area.*

Lastly, AI may facilitate the work and everyday life of all and also benefit the health of the person and increase his/her free time.

At the same time, the interviewees believe that using AI in decision making may imply some disadvantages and issues to be resolved that may cause some resistance. In fact, there are interviewees who consider themselves a great admirer of AI and are eager to explore and exploit it as much as possible. In contrast, there are also interviewees who still maintain a certain distance. Specifically, the use of AI in decision making is perceived to be also associated with a risk of dealing with increasingly homogeneous solutions and a risk of overlooking certain important aspects and some of the repercussions that AI may entail.

AI may also decrease the level of skills such as problem solving, critical sense, or even reasoning. These skills must be constantly trained, but if we excessively rely on AI to perform this reasoning, workers may not develop these skills. This is a problem since complexity cannot be eliminated and workers must be able to deal with it.

The use of AI in decision making may raise questions of ethics and fairness. These principles are input parameters for new technologies, but AI does not seem to respect these principles as humans would.

Consequently, an explicit transfer of sensitive data to AI is still viewed with caution because AI is judged less reliable than a human being. Thus it would be preferable that sensitive issues are dealt with by a person. However, AI seems to be necessarily associated with less privacy since data is essential to AI.

The issue of responsibility, therefore, is a huge legislative gap that needs to be addressed.

At the moment, the responsibility for a decision, whether taken by AI or by the individual, falls on the human decision maker. For this reason, the issue of co-responsibility is increasingly being analysed. Co-responsibility is intended to underline the fact that several parts contribute to the development of AI, which therefore becomes responsible for its proper functioning. According to the interviewees, the first that should be considered responsible for a decision are all the individuals who input the data into the system, together with the builders and developers:

> *Alpha: We're all working together to build AI. [...] The interlocutors in this game are the owners of the various forms of AI. The owners are, according to an ethical point of view and responsibility, the developers, the big tech, users, we who input data and make this intelligence system grow more and more, because we put our intelligence, our observations, our questions, we ask questions to AI, and certainly the institutions. We are all in this game. I doubt that only one of us [...] is able to handle this great question of privacy and ethical problem, but since we are all responsible, we will all need to agree. I think it's very difficult for us all to agree, and I think we can all get help from AI.*

AI may also lead to obvious distortions of the way of thinking and sometimes it is unclear how AI comes to a decision. According to the interviewees, not knowing this process negatively affects the credibility and scrupulousness of the decision taken by AI. Therefore, regarding everything that is not objectionable, at the moment it is not believed that AI can make decisions correctly.

Lastly, an important consequence of using AI in decision making regards the possible substitution of a human decision maker. According to the interviewees, at present, there are no major concerns associated with the future of employment as a result of the use of AI in decision making. Instead, the interviewees expect that there will be an evolution of jobs and a higher level of comfort as merely physical or conceptual work activities will be performed by machines. As occurred in the past, humans will be employed in other tasks.

The human factor, today, is thus still relevant and fundamental: the position of the human as a decision maker is not threatened by AI because there would be no overlap of roles. The interviewees believe that at the strategic level, a superficial thought can be easily replicated by AI, quickly and completely. However, if there is a desire for awareness, deepening and mastering a theme, the decision maker's position cannot be threatened:

> *Delta: AI could produce decision results perhaps faster, more complete and articulated than I could do. A very rapid thought and solution can exist. Those who have already done a strategy in the past can, thanks to AI, put together information and recreate it. But this solution can be very superfi-*

cial. Instead, our clients are firms that give themselves the time to stop, to go deep together with us [...] Our work is minable yes. Still, if I can find a space of relationship with my client that focuses on different elements than those on which AI focuses, we will continue to maintain contact with our client.

Moreover, the interviewees note that the decision proposed by AI may not be necessarily in line with the nature of the firm. According to their beliefs, AI can produce useful results, but these help to generate a picture of the situation that is used as a basis for further analysis. Based on this picture, the decision maker will take a direction that is consistent and compatible with his/her identity, thinking, and strategic and development directions.

AI may thus offer support and validation to the decision maker without excluding the human, who provides an important value.

5. Discussion

Table 2 summarises the main results of our analysis.

Table 2 Main findings

Topic	Findings
Definition of AI	Main types of definitions: • Definition focused on the technical aspects of AI • Definition focused on the relationship between AI and the capabilities of the human being • AI as represented by each person who contributes to feed its database Influencing factors: • Type of consultancy offered • Interviewee's role and educational background
Future adoption of AI	General desire to introduce AI in the future, for almost all the activities carried out
Use of AI in business processes	Possible applications: • Customer Relationship Management and, more generally, the management of supply and demand • Extrapolation and analysis of data • Training and support for the growth of the individual's work
Perceived advantages and disadvantages of using AI in business processes	Advantages: • Better human decision making Disadvantages: • The investment may not always be repaid • AI may not be the best technological solution • AI is not always justified given the firm's activities • Shortage of competent people
Use of AI in decision making	AI is useful to support standard decisions, otherwise relying completely on AI is not a wise and efficient choice

Perceived advantages and disadvantages of using AI in decision making	Advantages: • Higher efficiency during the data collection and analytical phase • Overcoming the problem of specialisation and promoting interdisciplinarity • Work and everyday life facilitation Disadvantages: • Increasingly homogeneous solutions • Decrease of workers' level of skills • Ethics and fairness issues • Privacy issues • Responsibility issues • Possible distortions in the decision-making process • Adequacy of the decision in relation to the firm's nature

Source: author's elaboration.

The definitions of AI provided by the interviewees are very heterogeneous and reflect their professional role and education. This finding is in line with the absence of a universally recognised definition of AI even in the scientific literature (Sheikh et al., 2023) and suggests that AI is a complex and multifaceted technology. In addition, provided definitions focused not only on technical aspects of AI but also on how AI relates to human skills (e.g., ability to think, creativity, and problem solving).

Companies that were interviewed are looking forward to the use of AI in the future, especially for managing customers and stakeholders and getting data from large databases. This supports previous research that AI can be used effectively in these business tasks (Bhalerao et al., 2022; Bunte et al., 2021). Contrary to existing literature highlighting the need for all firms to adopt AI to remain competitive (Hansen & Bøgh, 2021) and the need for consultancy firms to urgently incorporate AI into their business (Samokhvalov, 2024), no consultancy SME mentioned the existence of competitive pressures within the consultancy sector to adopt AI. According to the interviewed firms, the expected challenges in adopting AI in business processes relate to the firm's size, the high investment that may not always be repaid, the existence of alternative high-level software and advanced technologies, the misalignment between the benefits offered by AI and the firm's activities, and the shortage of competent people. These findings confirm the internal economic, technology-related, and social challenges highlighted by previous literature (e.g., Bhalerao et al., 2022; Bunte et al., 2021; Hansen & Bøgh, 2021).

For decision making, interviewed firms perceive AI as a useful tool to support decisions (Duan et al., 2019), in line with the idea of decision augmentation, which envisages a collaboration between the human decision maker and AI to improve cognitive performance together (Langer & Landers, 2021).

According to the interviewed firms, several may be the advantages of using AI in decision making, such as higher efficiency during the data collection and analytical phase, better quality of decisions, and the relief from

performing certain work activities, especially the repetitive ones. These perceived potential benefits confirm the evidence found in previous studies (Bhalerao et al., 2022; Mantri et al., 2023). However, according to the interviewed firms, actual effectiveness and help of AI in decision making may depend on the type of work activity and is expected to be greater for decisions based on technical and objective conditions in manufacturing. This view is coherent with the idea that AI is useful for decisions of a structured and semi-structured type (Duan et al., 2019). However, the risk of receiving homogeneous solutions from AI is expected, and this is in contrast to the customers' demands for more tailored and innovative solutions from consulting firms (Samokhvalov, 2024). Similarly, the adequacy of AI decisions in relation to the firm's nature is questioned by interviewed firms.

At the same time, according to the interviewed firms, using AI in decision making may imply some disadvantages and poses issues that need to be addressed. For example, in the interviewees' view, AI does not seem to respect ethics and fairness as humans would. Moreover, the use of sensitive data by AI is considered with resistance. Lastly, responsibility for decisions taken by the AI is an issue that needs to be addressed since AI may cause distortions of the way of thinking and sometimes it is unclear how AI comes to a decision. This evidence is consistent with previous literature highlighting that AI may be associated with a lack of confidence in the technology, a lack of knowledge about how decisions are taken, and the desire to keep control (Leyer & Schneider, 2021).

Instead, the substitution of human decision makers due the use of AI is not considered a possible event because there is no overlap of roles: according to the interviewed firms, AI can make independent decisions, but a human may be required when awareness and master of a topic is necessary. AI may only thus play a supporting role to the human decision maker (Leyer & Schneider, 2021) and the value of the person is considered irreplaceable. Interviewees' opinions confirm the views that in the consultancy sector, AI will provide input to the decision making, but will not replace humans since consultants will remain accountable for the decisions taken and will play a key role due to their unique skills and client relationships (Feuerriegal et al., 2022; Samokhvalov, 2024).

6. Conclusions

This study examined how consultancy SMEs that have not yet adopted AI judge its adoption, focusing on its use in business activities and decision making, and its perceived consequences, advantages and disadvantages. The analysis revealed that the introduction of AI is viewed positively: all the interviewed firms would like to introduce AI in a more systematic way

for almost all the activities conducted. In particular, the use of AI in the field of Customer Relationship Management and the extrapolation and analysis of data is judged as particularly valuable. AI is also recognised as a useful tool to support decisions requiring a high intensity of data. In the interviewees' view, AI may offer several advantages in decision making, such as higher efficiency during the analytical phase. However, the adoption of AI in decision making raises caution and some issues need to be resolved. Specifically, according to the interviewed firms, ethics and privacy must be preserved, a responsible party for the decisions taken by the AI must be identified, and AI decisions should not be distorted.

This study contributes to the literature investigating the use of AI in businesses and in decision making. In particular, this study makes significant contributions to the growing body of literature on AI adoption by focusing on the often-overlooked context of consultancy SMEs. While most existing research emphasizes AI implementation in larger firms or across various sectors, this study offers a more nuanced understanding of the specific challenges and opportunities faced by consultancy SMEs. Moreover, our study focuses on consultancy SMEs that have not yet implemented AI, thus offering insights into expectations, concerns, and barriers specific to this context. By investigating how consultancy SMEs perceive AI, this research uncovers critical distinctions between AI applications in business processes and decision-making activities, allowing for a clearer understanding of where AI may be most beneficial and where challenges are most significant. Consultancy SME may, in fact, encounter difficulties in the introduction of AI due to several internal economic, technology-related, and social challenges (Cubric, 2020), while at the same time being pushed by the consultancy sector to urgently incorporate AI (Samokhvalov, 2024). What emerged from the analysis is that consultancy SMEs do not seem to be influenced by their size or sector in their choice to introduce AI in decision making and how they judge its use. Rather, they seem to exhibit the same resistance as all types of firms. Moreover, the study challenges prevailing assumptions in the literature regarding competitive pressures for AI adoption. Contrary to previous findings that emphasize the need for rapid AI integration to stay competitive, consultancy SMEs in this study do not feel an immediate urgency to adopt AI. Instead, their decisions are more influenced by the perceived value of AI in relation to their specific business models, resources, and client needs. This highlights the importance of context in understanding AI adoption; what drives adoption in larger or more resource-intensive firms may not apply in the same way to consultancy SMEs.

The study also introduces the concept of perceived feasibility in AI adoption, where certain business processes are viewed as more aligned with AI capabilities than others. For instance, consultancy SMEs are more open to

adopting AI in standardized, data-driven tasks but remain hesitant to use it in complex, strategic decision-making, where human expertise and relational dynamics play a critical role. This nuanced view not only contributes to the literature but also provides practical implications for managers and policymakers who aim to support AI adoption in this sector.

Important managerial and policy implications can be derived from this analysis. Our findings underscore the need for tailored strategies when promoting AI adoption among consultancy SMEs. Instead of a one-size-fits-all approach, support mechanisms should consider the specific sectoral dynamics, firm size, and the strategic priorities of these firms. By highlighting these distinct considerations, this research provides valuable insights for both scholars and practitioners seeking to better understand the conditions under which AI adoption can be effectively realized in the consultancy sector. Specifically, from a managerial point of view, adopting AI in business and in decision making can bring numerous benefits. However, consultancy SMEs must be aware of the potential disadvantages and issues associated with AI adoption. By understanding these drawbacks, consultancy SMEs can make informed decisions and mitigate risks effectively, while maximising the benefits of AI. In particular, to effectively shift perceptions and encourage AI adoption among consultancy SMEs, targeted measures should be implemented. Firms should consider the development of tailored AI training programs that not only build technical expertise but also address specific concerns related to AI, such as ethical implications and decision-making transparency. These programs should be designed to demystify AI, making its benefits more tangible and directly applicable to the unique needs of consultancy SMEs. In addition, creating small-scale pilot projects that demonstrate the practical value of AI in real-world consultancy scenarios could be instrumental. These projects would serve as proof of concept, showing how AI can enhance efficiency, improve client outcomes, and maintain the human element that is crucial in consultancy.

From a policy point of view, understanding the resistance to AI adoption among consultancy SMEs is crucial for policy makers to design effective interventions that support and guide these firms in adopting this technology. Through their intervention, policy makers can play a key role in facilitating the successful integration of AI into the consulting sector. In particular, government and industry bodies could offer financial incentives or subsidies for consultancy SMEs that invest in AI adoption. Such incentives could lower the initial financial barriers that many SMEs face. Furthermore, developing clear regulatory guidelines that address the ethical and privacy concerns surrounding AI could help build trust and reduce resistance among firms hesitant to adopt AI. Additionally, establishing AI adoption support networks or consultancy-specific AI centers of excellence could provide ongoing support, resources, and shared knowledge to

consultancy SMEs, fostering a community of practice that encourages the broader adoption of AI across the sector. By implementing these targeted measures, both at the managerial and policy levels, the barriers to AI adoption can be mitigated, and perceptions within consultancy SMEs can be positively influenced, leading to a more widespread and effective integration of AI into their business processes.

This study is not devoid of limitations, which may guide future research developments. First, our study focuses on consultancy SMEs. It would be interesting to investigate whether larger firms in the consultancy sector judge the use of AI in business and in decision making in the same way. In larger firms, the introduction of AI may be more profitable since these firms have a higher investment capacity and can invest resources in the training of workers and in their acceptance of this particular technology.

Second, a further limitation of the research is represented by the context of analysis. Italian firms were selected to confine the analysis to an area with a common economic, political and social context. It is therefore proposed to extend the analysis at international level. This analysis could, for example, assess the impact of culture, which is a factor affecting the introduction of new technologies and its acceptance.

Third, the use of the interview method may represent a limitation of this analysis. Conducting interviews enables the collection of more in-depth evidence on a certain topic. However the analysis sample is narrowed down. It would be interesting to conduct a quantitative analysis (e.g., using questionnaires) to ascertain whether what emerged from our analysis is confirmed on a larger sample of consultancy SMEs and whether there are certain patterns in the way the use of AI in business and in decision making is assessed that our analysis did not allow us to identify.

Finally, this study focused solely on how consultancy SMEs that have not yet adopted AI assess its adoption, thus considering only the perspective of businesses. However, customer perspective is crucial, especially in the consulting sector. Future studies could analyse how customers perceive the solutions proposed by AI, for instance, in terms of customisation and adequacy, ethics, and reliability. Moreover, it could be interesting to investigate their willingness to pay for solutions proposed by AI compared to those devised by humans.

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Appendix 1: Interview guideline

Definition of AI
- *What would you call AI?*

Future adoption of AI
- *Are you considering introducing AI in your firm?*
- *To what extent would you like to adopt AI?*

Use of AI in business processes
- *For which business activities can AI be used most profitably?*

Advantages and disadvantages of using AI in business processes
- *What could be the advantages of AI in business processes?*
- *What could be the disadvantages?*

Use of AI in decision making
- *Would you use AI to make decisions? If so, what kind of decisions?*

Advantages and disadvantages of using AI in decision making
- *What could be the advantages of AI in decision making?*
- *What could be the disadvantages?*
- *How do you judge the use AI in decision making regarding the following topics:*
  - *Ethics and fairness*
  - *Privacy*
  - *Responsibility*
  - *Transparency and explicability*
- *Do you think that your position as a decision maker could be threatened by the introduction of AI?*

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ANTECEDENTS OF INTENTION TO USE SHARING ECONOMY SERVICES IN THE LATTER PHASE OF COVID-19

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Abstract

Purpose. *The sharing economy presents a crucial opportunity for companies, especially for small and medium enterprises (SMEs). Through collaborative partnerships and sharing economy services, these companies can overcome limited resources, fostering growth and competitive advantage. However, identifying key variables that attract users and drive the usage of sharing economy services is essential for their success. The objective of this study is to analyse the impact of four categories of antecedents (i.e., COVID-19 related, technical, individual and personal, and environmental variables) on consumers' intention to use sharing economy services during an advanced phase of the COVID-19 pandemic.*

Design/methodology/approach. *A total of 316 respondents participated in an online survey and Structural Equation Modelling (SEM) was used to analyse the proposed research model and test the hypotheses.*

Findings. *A positive and significant influence of technical (i.e., service quality), individual and personal (i.e., perceived value and perceived usefulness), and environmental antecedents (i.e., environmental orientation) on the intention to use sharing economy services has been detected, while a non-significant impact of COVID-19 related factors (i.e., fear of COVID-19, uncertainty of COVID-19, and perceived risk of travelling during COVID-19) has been identified. However, a significant moderating effect of fear of COVID-19 on the relationship between perceived value and the intention to use sharing economy services has been confirmed.*

Practical and Social implications. *The paper provides possible strategies that sharing economy providers could adopt to enhance their customers' intention to continue using their services.*

Originality of the study. *The paper seeks to fill different research gaps identified in the extant literature by shedding light on the effects of specific categories of predictors on the consumers' intention to use sharing economy activities during an advanced phase of the pandemic crisis.*

1. Introduction

In the context of COVID-19, consumer behaviours have significantly changed, particularly due to the emergence and persistence of various psychological issues associated with the crisis (Seçer et al., 2020; Zulauf et al. 2021;). In this scenario, businesses, especially SMEs, have confronted significant challenges brought about by the crisis (Belarmino et al., 2021; Hossain et al., 2022).

In particular, activities within the Sharing Economy had to deal with a precarious situation due to the COVID-19 (Hossain, 2021).

Literature defines the sharing economy as "a socio-economic ecosystem that commonly uses information technologies to connect different stakeholders-individuals, companies, governments, and others, to make value by sharing their excess capacities for products and services" (Cornejo-Velazquez et al., 2020, p. 103).

Sharing economy activities, including car and accommodation sharing, experienced substantial growth before the COVID-19 pandemic, with projected revenues reaching around $335 billion by 2025 (PwC, 2015). Due to the COVID-19 outbreak and subsequent containment measures, Sharing Economy activities, particularly in accommodation and travel (Fortezza et al., 2019), have been significantly impacted, raising concerns about their survival (Hossain, 2021; Conger & Griffith, 2020). Research emphasises the importance of identifying key predictors of consumers' intention to use sharing economy activities across various stages of the pandemic (Hossain, 2021; Tan et al., 2022).

Indeed, while the effects of COVID-19 on sharing economy practices have been recognized, the analysis, mainly covering the early pandemic period, remains in the initial stage (Hossain, 2021). Limited knowledge exists regarding the long-term impact of COVID-19 on the Sharing Economy during more advanced pandemic stages and in the post-pandemic scenario. Understanding people's perceptions and attitudes towards sharing economy services during crises like the COVID-19 pandemic is crucial for addressing future ones. This knowledge offers valuable insights not only for health emergencies but also for less uncommon and unpredictable crises such as globalization, climate change, and conflicts.

Acknowledging that large-scale crises aren't black swan events (Mishra, 2020), businesses can utilize shared resources and collaborative platforms to support communities during times of need. Understanding how individuals adapt to sharing economy services in crises allows companies in these sectors to proactively plan for resilience and sustainability. This is especially crucial for SMEs, which encounter additional challenges in competitive adaptability, forecasting, and overall technology enhancement (Awheda et al., 2016). Partnerships characterized by collaboration and the

utilization of sharing economy services offer a solution for SMEs facing resource constraints (Sultan et al., 2021). Specifically, sharing economy services, which encompass resource sharing, exchanging, and leasing, enable SMEs to access resources that might otherwise be beyond their individual means (Randolph et al., 2023).

Based on these assumptions, the aim of this study is to analyse the impact of different antecedents on consumers' intention to use sharing economy activities, with a particular emphasis on a specific phase of the pandemic, namely 2021.

Concerning the antecedents, the paper has subdivided them into four areas. The first group of predictors is related to the pandemic context (i.e., "COVID-19 related antecedents"), and it is composed of fear of COVID-19, uncertainty of COVID-19, and perceived risk of travelling during COVID-19. The second category (i.e., "Technical antecedents") concerns the effective quality of the sharing economy activities (i.e., service quality) since it represents, in the sharing economy context, a phenomenon worthy of investigation (Akhmedova et al., 2021). The third area regards the consumers' perception towards the sharing economy services (i.e., "Individual and personal antecedents"), and it is composed of perceived value and perceived usefulness. Finally, environmental orientation represents the last investigated antecedent, which falls within the "Environmental antecedents" category. Notably, as corroborated by Hamari et al. (2016), sustainable consumption represents a key determinant of the intention to share.

Overall, by doing so, the paper seeks to fill different research gaps. In particular, by shedding light on the effects of specific-related factors on the consumers' intention to use sharing economy activities, the paper responds to the literature's call underling to identify key antecedents of this intention (Hossain, 2021; Wang et al., 2020). Additionally, it extends current research by examining the long-term impact of COVID-19 on the sharing economy during more advanced pandemic stages, particularly in 2021, which represents an intense phase of the COVID-19 crisis (Wang et al., 2021). Consequently, the study attempts to fill a specific gap related to the need to enhance existing studies, especially those focused on the early pandemic period (Hossain, 2021).

Finally, the analysis of the individuals' perceptions and attitudes towards sharing economy services during the COVID-19 pandemic is crucial, especially for SMEs operating in this sector, in addressing future crises of various types. In general, past pandemics have caused notable impacts on health, society, politics, and the economy. These lessons are essential for guiding future actions aimed at improving readiness and ensuring a more efficient response to subsequent pandemics (Neumann & Kawaoka, 2023). Same as past pandemics, COVID-19 has underscored the importance of global readiness and the capacity to manage every facet of such a crisis

(Cox, 2020). From this standpoint, by investigating four categories of antecedents (i.e., COVID-19-related, technical, individual, and environmental variables), the study aims to contribute not only to the understanding of consumer perceptions and behavior during Covid-19 but also to provide deeper insights into possible future trajectory of sharing economy services in public health emergencies of international concern (PHEIC) landscape. This is an aspect not to be underestimated, especially in light of the data from the International Health Regulations (IHR), which has declared as many as six events as PHEICs only within the years spanning from 2007 to 2020 (Wilder-Smith & Osman, 2020), including the H1N1 pandemic or the Ebola outbreak, which caused a considerable decline in travel and trade (Vaidya et al., 2020).

The remainder of the paper is organized as follows: while Section 2 provides the literature review, Section 3 presents the hypotheses development. Subsequently, Section 4 presents the methodology, and Section 5 shows the empirical results. Finally, Section 6 concludes the study by debating the theoretical and managerial implications, limitations, and directions for future research.

2. Literature review

2.1 Intention to use and its predictors in the sharing economy industry

The sharing economy has garnered considerable attention in recent years. This innovative form involves individuals sharing or exchanging goods and services through digital platforms, fostering a collaborative and resource-efficient approach to consumption. It encompasses a diverse range of sectors, from transportation and accommodation to skill-sharing and asset utilization (Soltysova & Modrak, 2020). Central to the sharing economy is the concept of access over ownership, where individuals leverage shared resources to meet their needs (Barbu et al., 2018). This model not only provides economic benefits but also promotes sustainability and community engagement (De Las Heras et al., 2021).

Scholars have extensively explored the Sharing Economy model among SMEs, focusing primarily on the business model aspect (Sun et al., 2023). In more detail, the Sharing Economy represents a compelling opportunity for SMEs. These firms, inherently facing challenges in securing human resources, capital, and technology compared to larger ones, find themselves naturally inclined towards intensive collaboration and integration with business partners to overcome their limitations (Soltysova & Modrak, 2020).

However, a significant research gap exists in the analysis and understanding of user perceptions and experiences within the Sharing Economy

services (e.g., Chua et al., 2020; Dabija et al., 2022). Notably, literature underscores the importance of comprehending individuals' sentiments, particularly in the context of service adoption, with a specific focus on SMEs. Indeed, the perceived value and, notably, the customers' perceived risks become even more significant for SMEs operating within the sharing economy. This heightened significance arises from frequently inadequate and unavailable information about various potential risks (Mao & Lyu, 2017), including less regulated policies and the potential absence of professional service training for these providers.

Within this research line focused on the consumer perspective, some studies have directed their attention to identifying the main factors influencing consumers' intention to use sharing economy services in the unique circumstances of the COVID-19 pandemic.

For instance, by specifically analysing the Airbnb service, Chua et al. (2020) investigated the positive influence of different antecedents (i.e., ease of use, convenience, security, reputation, normative influence, informative conformity) on the consumers' intention to use it. In their study focused on ride-sharing apps, Rasheed Gaber and Elsamadicy (2021) examined the key role of performance expectancy, effort expectancy, social influence, facilitating conditions, economic benefits, perceived infectability, and fear of COVID-19 as potential antecedents of intention to use Uber. Moreover, Dabija et al., (2022) hypothesized and corroborated the positive influence of trust and perceived value on the consumers' intention to use sharing economy platforms.

With the final aim of identifying the main categories of antecedents influencing the intention to use sharing economy services during more advanced pandemic stages, in the present study, the following groups of predictors have been analysed: (i) COVID-19 related; (ii) technical; (iii) individual and personal; (iv) environmental antecedents.

Concerning the COVID-19 related antecedents (i.e., "fear of COVID-19", "uncertainty of COVID-19", and "perceived risk of travelling during COVID-19"), we have chosen them since they are the main constructs specifically related to the pandemic scenario. Notably, among the different consequences provoked by the COVID-19 crisis, the feelings of fear, uncertainty, and perceived risk represent the most significant effects having particularly influenced consumers' attitudes and intentions (Erjavec & Manfreda, 2022; Halan, 2021).

With regard to the technical antecedents, "service quality" has been selected since it represents a critical factor in the sharing economy sector (Akhmedova et al., 2021; Zuo et al., 2019). Indeed, the quality optimization of the sharing economy activities allows to enhance customer satisfaction and intention (Nguyen & Hoang, 2022), thus turning it into a critical topic in service research (Ostrom et al., 2010).

The individual and personal antecedents, "perceived value" and "perceived usefulness" have been chosen since they play a critical role as major drivers of intention to use sharing economy activities (e.g., Chan et al., 2020).

Finally, in the last group, namely environmental antecedents, the variable "environmental orientation" has been inserted since, according to the extant literature (e.g, Möhlmann, 2015; Hamari et al., 2016), sustainability represents a key determinant of the intention to use sharing economy options.

3. Hypotheses development

3.1 COVID-19 related antecedents: Fear of COVID-19, Uncertainty of COVID-19, and Perceived risk of travelling during COVID-19

In recent years, the detrimental effects of the COVID-19 pandemic on physical and mental health have been widely explored. For instance, Schimmenti et al. (2020) argued that the COVID-19 pandemic has caused a lack of stable human connections along with the formation of negative feelings.

Among them, fear of COVID-19, uncertainty of COVID-19, and perceived risk of travelling during COVID-19 have been examined as major drivers influencing consumers' adoption of new travel behaviours and intentions (Agyeiwaah et al., 2021; Rather, 2021).

Conceptually, fear of COVID-19 has been defined as a negative emotional state encompassing the anxiety and despair felt because of COVID-19's potential effects, its high rates of transmission and fatality, and the absence of effective treatment (Jian et al., 2020). All these factors, combined with large numbers of asymptomatic people, constant shifts in infection and death trends, and the emergence of new variants, have also led to a sense of uncertainty of COVID-19 (Jian et al., 2020). Moreover, this sense has been strictly related to the perceived risk of travelling, namely the uncertainty and ambiguity perceived by individuals about a journey (Sageng et al., 2021), especially due to the instability dictated by the pandemic context (Rather, 2021).

By specifically focusing on the sharing economy services, extant research underlined how fear of COVID-19, uncertainty of COVID-19, and perceived risk of travelling have led consumers to adopt behaviours aimed at protecting themselves from the interaction with others (Rania & Coppola, 2022), especially by abstaining from travelling during the rising cases of COVID-19 (Dwivedi et al., 2022).

In particular, in their study, Agina et al. (2023) hypothesized a negative impact of fear of COVID-19 and uncertainty on tourists' intention to use Airbnb. The authors also assumed that a high-risk perception of traveling

negatively affects travel intention as well as the intention to use Airbnb.

Starting from these assumptions, it could be hypothesized a negative influence of fear of COVID-19, uncertainty of COVID-19, and perceived risk of travelling on consumers' intention to use sharing economy services. Thus:

H1. Fear of COVID-19 has a negative impact on intention to use sharing economy services.

H2. Uncertainty of COVID-19 has a negative impact on intention to use sharing economy services.

H3. Perceived risk of travelling during COVID-19 has a negative impact on intention to use sharing economy services.

3.2 Technical antecedents: Service quality

Service quality can be defined as "the difference between customer's expectations for service performance prior to the service encounter and their perceptions of the service received" (Ananth et al., 2011, p. 246). Overall, extant literature has deeply analysed the relationship between this construct and consumers' intention to use in different contexts such as digital platforms in the health sector (e.g., Pratminingsih & Utami, 2022), cloud e-bookcases (e.g., Chiu et al., 2016), and mobile services (e.g., Widiani et al., 2022).

Within the sharing economy industry, this variable assumes a key role since the sharing economy platforms are usually adopted by both the service providers (e.g., Airbnb hosts, Uber drivers) and the customers of the service (Wang et al., 2020). In this respect, some studies have analysed and corroborated the major outcomes of service quality such as customers' loyalty, trust (Wang et al., 2020), and likelihood of choosing a sharing option again (Möhlmann, 2015). By specifically focusing on customers' behavioural intentions, Chiang et al. (2021) hypothesized how the perceived quality of sharing economy platforms affects users' usage intention. Subsequently, Nguyen and Hoang (2022) identified a strong impact of service quality on customers' intention to use a ride-hailing service. Finally, Podrug and Grubišić (2023) corroborated how service quality positively and directly impacts the behavioural intentions of users in the sharing economy in both the accommodation and transport sectors.

Therefore, starting from these assumptions, the following hypothesis has been postulated:

H4. Service quality has a positive impact on intention to use sharing economy services.

3.3 Individual and personal antecedents: Perceived value and perceived usefulness

Perceived value can be defined as "the ratio of perceived benefits and perceived costs" (Kwak et al., 2021, p. 3), while perceived usefulness has been conceptualized as "the degree to which an individual believes that using a particular system would enhance his or her performance" (Arteaga-Sánchez et al., 2020, p. 729). Both concepts assume a key role in the sharing economy context since they can exert a positive effect on the intention to use sharing economy platforms (Dabija et al., 2022). More in detail, Kim and Kim (2020) analysed the significant influence of perceived value on consumers' intention to continue using bike-sharing services. Subsequently, Dabija et al. (2022) corroborated how the perceived value related to the experience of utilizing a specific sharing economy platform positively impacts the intention to use it.

Similarly, different publications have identified a positive relationship between perceived usefulness and behavioural intention (Wang et al., 2020). For instance, Cheng (2020) and Arteaga-Sánchez et al. (2020) found a positive relationship between perceived usefulness and intention to use sharing economy platforms. Thus, the more customers perceive that organizing their journey could be easier and more efficient through the adoption of a sharing option, the more likely they are to continue using it. Therefore, the following hypotheses have been proposed:

H5. Perceived value has a positive impact on intention to use sharing economy services.

H6. Perceived usefulness has a positive impact on intention to use sharing economy services.

3.4 Environmental antecedents: Environmental orientation

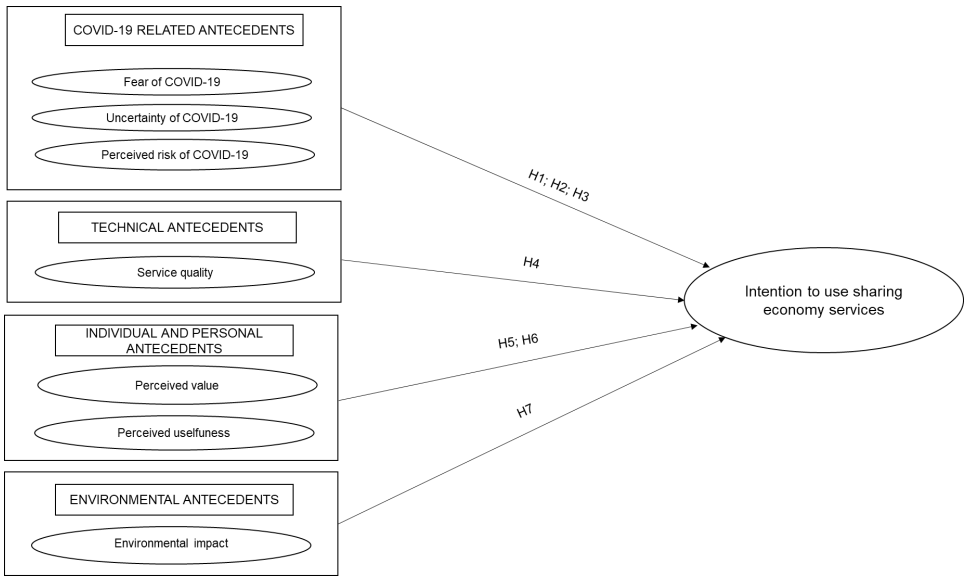
Among the different intrinsic motivators related to the intention to use sharing options, different studies underlined the leading role played by customers' environmental orientation. Notably, Hwang and Grifths (2017) and Carbone et al. (2018) found that consumers tend to be today more sustainable and environmentally conscious by increasingly embracing and adopting sharing consumption options with respect to individual ones. Moreover, Hamari et al. (2016) and Tussyadiah (2015) detected respec-

tively how sustainability has a significant impact on consumers' intention towards collaborative consumption and accommodation-sharing options. More recently, Khalek and Chakraborty (2022), Abutaleb et al. (2023), and Vătămănescu et al. (2023) examined the impact of environmental consciousness on behavioural intentions to use sharing economy services. Therefore, based on the above studies, the last hypothesis has been postulated:

H7. Environmental orientation has a positive impact on intention to use sharing economy services.

Figure 1 shows the overall model under investigation.

Figure.1 Conceptual model



Source: author's elaboration

4. Methodology

To reach the objective of the study, a cross-sectional research design has been adopted. About the selection of the sample, the snowball technique has been used to maximize respondents' participation.

Data have been collected in Italy from April 22, 2021, to November 11, 2021. The translation–back-translation method has been adopted to conduct the survey in the Italian language. Then a Google Form has been used for the survey administration, while the main social networks (i.e., WhatsApp, Facebook, and LinkedIn) have been adopted for its distribution. The

data collection gathered 320 responses, of which 316 were deemed valid. Table 1 illustrates the socio-demographic characteristics of the sample.

Table 1. Description of the sample (N=316)

Variable		%
Age	18-23	75,6%
	24-29	15,3%
	30-39	4,1%
	40-49	1,9%
	50-59	1,9%
	Over 60	1,2%
Gender	Male	35,6%
	Female	64,4%
Level of education	Middle School	0,6%
	High School	81,9%
	Bachelor/Master degree	16,6%
	Ph.D.	0,9%
Area of residence	Urbanized area	45,3%
	Urban agglomeration	46,3%
	Rural area	8,4%

Source: author's elaboration

With regards to the structure of the questionnaire, the first two sections have been composed of a set of items, that can be grouped into two categories: determinants of sharing economy, and intention towards using sharing services. The last part of the questionnaire concerned the socio-demographic profile of the respondents.

For the operationalization of the constructs, existing and empirically validated scales have been adopted. Survey respondents were asked to indicate their level of agreement for each of the items using a seven-point Likert scale, anchored by totally disagree (1) to totally agree (7). Table 2 offers the complete list of the items along with the adopted source. The model's constructs align with the reflective paradigm commonly used in social sciences (Coltman et al. 2008), leading to specific operational steps that are reported in the following section.

Table 2. Constructs, items, and sources

Constructs	Main sources
FEAR OF COVID-19 1. I am afraid of the coronavirus 2. It makes me uncomfortable to think about the coronavirus 3. I am afraid of losing my life because of the coronavirus 4. When watching news and stories about the coronavirus on social media, I become nervous or anxious	Jian et al. (2022)
UNCERTAINTY OF COVID-19 1. I perceive the context of COVID-19 as very complex 2. I perceive the context of COVID-19 as unpredictable 3. I perceive the context of COVID-19 as changing rapidly	Jian et al. (2022)
PERCEIVED RISK OF TRAVELLING DURING COVID-19 1. In the current situation, I prefer to avoid travelling to large cities / destinations 2. I feel more averse to travelling due to the risk of the COVID-19 epidemic 3. In the current situation, I prefer to shorten the duration of my potential trips	Rather (2021)
SERVICE QUALITY 1. The design of sharing economy services (e.g. car sharing, house sharing) is appealing to me 2. I have quick and easy access to sharing economy services (e.g. car sharing, house sharing) 3. Sharing economy services (e.g. car sharing, house sharing) make it easy for me to conclude my transaction 4. The customer service of sharing economy services (e.g. car sharing, house sharing) is responsive to its customer's needs 5. I believe that sharing economy services (e.g. car sharing, house sharing) know about the needs of their customers	Möhlmann (2015)
PERCEIVED VALUE 1. Sharing economy services (e.g. car sharing, house sharing) are reasonably priced 2. Sharing economy services offer value for money 3. Sharing economy services offer good products for the price 4. Sharing economy services are economical 5. I enjoy using sharing economy services 6. Sharing economy services have a consistent quality 7. Using Sharing economy services would help me make more friends	Adaptation from Chin et al. (2020)
PERCEIVED USEFULNESS 1. I find sharing economy services useful in my daily life 2. Sharing economy services help me travel more conveniently 3. Sharing economy services improve the quality of my trip	Adaptation from Shao et al. (2020)
ENVIRONMENTAL ORIENTATION 1. By using sharing economy services, I reduce my use of natural resources 2. With the use of sharing economy services, I demonstrate environmental friendly consumption behavior	Adaptation from Möhlmann (2015)

INTENTION TO USE SHARING ECONOMY SERVICES 1. Sharing economy services are a better mode of consumption rather than buying options 2. All things considered, I expect to continue using sharing economy services often in the future 3. My participation in sharing economy services benefits me financially 4. My participation in sharing economy services saves my time 5. Sharing economy services help save natural resources	Adaptation from Hawapi et al. (2017)

5. Findings

First, Common Method Bias (CMB), Kaiser-Meyer-Olkin (KMO) Bartlett's tests, and Variance Inflation Factor (VIF) analysis have been performed, then, the data have been analysed with a two-step approach (measurement model and structural model).

5.1 Common Method Bias, KMO and Bartlett's tests, and Variance Inflation Factor analysis

A statistical procedure using the post hoc Harman single-factor approach was to test that the data variance was not explained by one single factor (Babin et al. 2016). The eight factors have been then loaded into a single factor. The unrotated factor solution showed that the one-factor solution accounted for 45.771% of the explained variance, which was less than the 50% threshold (Podsakoff et al. 2003), meaning that CMB was unlikely to be an issue.

The KMO and Bartlett's tests were performed to assess the degree of unidimensionality of the scales. As suggested by Cerny and Kaiser (1977), KMO values above 0.6 indicate an acceptable sampling. The KMO value of 0.77 confirmed the adequacy of the sample (Field, 2013). In addition, the Bartlett's test of sphericity showed a significance level (p-value) of 0.000, leading to the rejection of the null hypothesis stating there is no difference between the correlation matrix and the identity matrix.

The degree of multicollinearity has been also assessed through the value of the variance inflation factor (VIF). None of the VIF values for the latent variables were greater than 10, which indicates that multicollinearity was not an issue (Hair et al. 2017).

5.2 Assessment of the measurement model

Confirmatory Factor Analysis (CFA) was run using IBM SPSS Amos 22 to test if the empirical data conformed to the presumed model. The meas-

urement model included 28 items describing 8 latent constructs: Fear of COVID-19, Uncertainty of COVID-19, Perceived risk of COVID-19, Service quality, Perceived usefulness of sharing services, Perceived value, Environmental orientation, and Intention of sharing economy. A model is considered to have good fit when the Chi-square/df is below the recommended value 3.00, as suggested by Baumgartner and Homburg (1996), NFI, TLI, and CFI achieve 0.90 and RMSEA values are smaller than 0.09 (Bentler & Bonett, 1980; Hu & Bentler, 1999). Based on these cut-offs, the results show an acceptable model fit: $\chi 2/df$ =1.91, RMSEA = .054, CFI=.95, NFI=.90, and TLI= .94.

As Table 3 shows, reliability analysis has been carried out and the Cronbach's alpha values ranged from .82 to .92, exceeding the threshold of 0.7 (Nunnally, 1978).

Table 3. Loadings, reliability and validity

	Items	Mean (SD)	Loadings	Cronbach's Alpha	Composite Reliability	AVE
Fear of COVID-19	FC			.88	.90	.70
1		4.42 (1.73)	.884			
2		4.02 (1.93)	.931			
3		2.82 (1.80)	.610			
4		3.89 (1.86)	.874			
Uncertainty of COVID-19	UC			.89	.89	.74
1		5.60 (1.31)	.776			
2		5.61 (1.35)	.933			
3		5.56 (1.35)	.860			
Risk of COVID-19	RC			.92	.92	.79
1		4.38 (1.80)	.901			
2		4.08 (1.76)	.927			
3		4.10 (1.87)	.833			
Service Quality	SQ			.89	.84	.58
1		4.94 (1.38)	.745			
2		5.48 (1.29)	.903			
3		5.12 (1.31)	.656			
4		5.25 (1.31)	.717			

Perceived usefulness of sharing services	PU			.84	.86	.68
1		4.75 (1.62)	.638			
2		5.22 (1.35)	.951			
3		4.90 (1.44)	.859			
Perceived Value	PV			.89	.97	.93
1		5.19 (1.29)	.933			
2		5.26 (1.22)	.902			
3		5.19 (1.34)	.929			
4		4.86 (1.35)	.856			
5		5.04 (1.39)	1.176			
Environmental Orientation	EO			.82	.82	.69
1		4.47 (1.77)	.805			
2		4.36 (1.65)	.859			
Intention of sharing economy (SE)	ISE			.86	.86	.61
1		4.41 (1.28)	.791			
2		5.11 (1.33)	.866			
3		4.90 (1.30	.757			
4		4.67 (1.47)	.714			

Source: author's elaboration

Moreover, internal reliability and convergent validity have been respectively assessed by Composite Reliability (CR) and Average Variance Extracted. Both CR and AVE exceeded the minimum cut-off of 0.5, confirming that all measures have adequate reliability (Bagozzi & Yi, 1988). Factor loadings are higher than 0.4, as recommended by Fornell and Larcker (1981).

Table. 4 - Fornell-Larcker Criteria

	1	2	3	4	5	6	7	8
1. Fear of COVID-19	0.834							
2. Uncertainty of COVID-19	0.458	0.859						
3. Risk of COVID-19	0.735	0.451	*0.888*					
4. Service quality	0.202	0.454	0.223	0.76				
5. PU of sharing services	0.222	0.263	0.244	0.535	*0.826*			
6. Perceived value	0.160	0.224	0.147	0.573	0.521	*0.966*		
7. Environmental orientation	0.345	0.187	0.346	0.285	0.344	0.293	*0.863*	
8. Intention of SE	0.235	0.319	0.248	0.677	0.711	0.648	0.282	*0.768*

Note: Values in Italic represent Square-root of AVE. Off-diagonal, below the Italic values are correlation coefficient.

In addition to Fornell and Larcker criteria (Table 4), following Senyo and Osabutely (2020), we also assessed discriminant validity using the Heterotrait-Monotrait Ratio of correlations (HTMT), which evaluates if two variables are perfectly measured by their true correlations by estimating the ratio of within and between constructs correlations (Henseler et al., 2015). To determine the presence of discriminant validity, the HTMT values must be lower than 0.85 (Henseler et al., 2015). As shown in table 5, HTMT ratios are between 0.206 and 0.720. This confirms the discriminant validity between the constructs in the research model.

Table. 5 - HTMT Ratio

	1	2	3	4	5	6	7	8
1. Fear of COVID-19	–							
2. Uncertainty of COVID-19	0.510	–						
3. Risk of COVID-19	0.720	0.482	–					
4. Service quality	0.217	0.434	0.206	–				
5. PU of sharing services	0.279	0.290	0.237	0.545	–			
6. Perceived value	0.243	0.353	0.215	0.620	0.539	–		
7. Environmental impact	0.364	0.206	0.359	0.300	0.378	0.290	–	
8. Intention of SE	0.259	0.342	0.260	0.673	0.722	0.745	0.496	–

Note: Off-diagonal, heterotrait-monotrait ratio of correlations.

5.3 Assessment of the structural model

The final step in the data analysis assesses the structural model by examining the path significance and effect of each hypothesised relationship. To test the structural relationships among the research variables and the standardized path coefficients, a Structural Equation analysis (SEM) was performed. The fit indices for the structural equation model again achieved good fit both (RMSEA < 0.06, CFI > 0.90, NFI > 0.90, and TLI > 0.90). Table 5 shows the results of the SEM. Fear of COVID-19 has not a significant effect on intention to use sharing economy services, thus, H1 is not supported. Uncertainty of COVID-19 has also a not significant effect on intention to use sharing economy services (β = -0.032, p = 0.485), thus H2 is not supported. Same as the previous COVID-related variables, risk of COVID-19 has no significant effect on intention to use sharing economy services (β = -0.006, p = 0.883), not supporting H3. On the other hand, service quality has a significant positive effect on intention to use sharing economy services (β = 0.325, p < 0.001), thus H4 is supported. Perceived usefulness has a positive significant effect on intention to use sharing economy services (β = 0.311, p < 0.001), thus H5 is supported. Also perceived value has a significant and positive effect on intention to use sharing economy services (β = 0.211, p < 0.001), supporting H6. Finally, environmental orientation has a significant and positive effect on intention to use sharing economy services (β = 0.153, p < 0.001), supporting H8.

Tab. 5 - Results of hypotheses testing

H	Structural path	Proposed effect	SRW	t-Value	p-Value	Results
H1	FC → ICC	-	-0.002	-0.044	0.965	NS
H2	UC → ICC	-	-0.032	-0.699	0.485	NS
H3	RC → ICC	-	-0.006	-0.147	0.883	NS
H4	SQ → ICC	+	0.325	4.225	< 0.001	S
H5	PU → ICC	+	0.311	6.869	< 0.001	S
H6	PV → ICC	+	0.211	4.554	< 0.001	S
H7	EI → ICC	+	0.153	4.215	< 0.001	S

Note: SRW = standardized regression weight

5.4 Post-hoc analysis

In this research, the intention toward the sharing economy remained unaffected by COVID-related factors. Given the contingent nature of the COVID-19 crisis and the contradictory findings in the current literature regarding the influence of COVID-related variables, we opted to further considering them as intervening variables rather than sole determinants of the intention to use sharing economy services. Consequently, we conducted a post-hoc analysis to assess whether COVID-related variables could exhibit a moderating effect in the model. Specifically, we tested whether fear, uncertainty, and perceived risk of COVID-19 showed moderating effects in the relations between service quality, perceived value, perceived usefulness, environmental impact, and intention to use sharing economy services. Table 6 displays the results for all the post-hoc moderation tests.

Among the selected variables, the results show that only fear of COVID-19 shows moderating effects. Fear of COVID-19 moderates the relationship between perceived value and intention to use sharing economy services $R^2 = 0.07$, $F(1, 312) = 4.33$, $p < .05$, ß = 0.05, to such an extent that the higher the fear of COVID, the stronger the relationship between perceived value and intention to use sharing economy services. However, fear of COVID-19 does not moderate the relationship between service quality, perceived usefulness, environmental impact, and intention to use sharing economy services.

Tab. 6 - Results of post-hoc moderation analysis

Path	*B (SE)*	*LLCI*	*ULCI*
Fear of COVID			
Perceived value x Fear of COVID-19 → Intention to use	.052 (.03)*	.0028	.1012
Service quality x Fear of COVID-19 → Intention to use	.002 (.03)	-.0517	-.0548
Perceived usefulness x Fear of COVID-19 → Intention to use	.019 (.02)	-.0247	.0638
Environmental impact x Fear of COVID-19 → Int. to use	.025 (.02)	-.0191	.0689
Uncertainty of COVID			
Perceived value x Uncertainty of COVID-19 → Int. to use	.007 (.03)	-.0479	.0612
Service quality x Uncertainty of COVID-19 → Int. to use	-.028 (.03)	-.0812	.0244
Perceived usefulness x Uncertainty of COVID-19 → Int. to use	-.038 (.02)	-.0823	.0067
Environmental impact x Uncertainty of COVID-19 → Int. to use	-.008 (.03)	-.0581	.0414
Risk of COVID			
Perceived value x Risk of COVID-19 → Int. to use	.019 (0.2)	-.0247	.0638
Service quality x Risk of COVID-19 → Int. to use	-.013 (.02)	-.0596	.0330
Perceived usefulness x Risk of COVID-19 → Int. to use	-.018 (03)	-.2583	.2210
Environmental impact x Risk of COVID-19 → Int. to use	.002 (.02)	-.0364	.0369
Conditional indirect effects of perceived value and fear of COVID-19 on intention to use sharing economy services			
Low fear of COVID-19	.621 (.05)***	.5184	.7231
Medium fear of COVID-19	.712 (.04)***	.6245	.7991
High fear of COVID-19	.803 (.07)***	.6629	.9428

*Note. N = 316. * p < .05; ** p < .01; *** p < .001. Number of bootstrap samples 5,000; B = Unstandardized coefficients (bootstrap standard errors in parentheses); LLCI = 95% lower level confidence interval; ULCI = 95 % upper level confidence interval.*

5.5. Discussion

Although the implementation of the digital sharing economy provides many positive values, there are still few SMEs that adopt the digital sharing economy, due to knowledge challenges and limited resource capacity (Lestantri et al., 2022). The sharing economy has revolutionized how people access and utilize resources, especially in the accommodation and travel sector, and understanding what motivates people to use sharing economy services is crucial for businesses. In this view, by acquiring knowledge on the factors impacting consumers' willingness to use sharing economy services, SMEs could effectively tap into the sharing economy and gain a competitive advantage.

Overall, findings identified: (i) a positive and significant influence of service quality, perceived value, perceived usefulness, and environmental orientation on intention to use sharing economy services; (ii) a non-significant impact of fear of COVID-19, uncertainty of COVID-19, and perceived risk of travelling during COVID-19; (iii) a moderating effect of fear of COVID-19 on the relationship between perceived value and intention to use sharing economy services.

More in detail, concerning the COVID-19 related antecedents, the hypotheses have not been supported. This allowed us to confirm how the intention to use sharing economy services was not influenced by customers' negative feelings related to the pandemic situation. These results could be explained in light of the fact that the sharing economy providers have been able, during the crisis, to convince customers that their services could offer all the necessary precautionary measures to reduce the infection risks. Overall, these results are in line with previous studies, which identified a non-significant influence of COVID-19 related motives on continuance intention to use ride-sharing (Rasheed Gaber & Elsamadicy, 2021) and food delivery apps (Barbosa et al., 2020).

Regarding the significant moderating effect of fear of COVID-19, this outcome can be attributed to the heightened importance of perceived value in sharing economy services during the pandemic. These services provide a combination of flexibility, security, and customization that addresses users' specific concerns in the context of public health. For instance, the fear of contagion may lead individuals to avoid crowded places. Sharing economy services can be viewed as a valuable alternative where maintaining social distancing is easier compared to public transportation or traditional hotel facilities. Additionally, amid the pandemic, financial difficulties were widespread, and sharing economy services, often more cost-effective than traditional alternatives, emerged as a more accessible solution during a period of economic uncertainty.

As for the technical antecedents, results are in line with previous studies

(e.g., (Nguyen & Hoang, 2022)) corroborating the significant role of service quality in the formation of consumers' intention to continue using the sharing economy services.

About individual and personal antecedents, a positive impact of perceived value and perceived usefulness has been corroborated. This finding permits us to underline the key role of consumers' perception in their behavioural intentions, thus confirming previous studies (e.g., Dabija et al., 2022; Arteaga-Sánchez et al., 2020; Cheng, 2020).

Finally, with respect to environmental antecedents, it emerged a significant direct influence of customers' environmental orientation on intentions to use sharing economy services. This result confirmed previous studies (e.g., Abutaleb et al., 2023) underlining how sustainability currently represents a major driver of consumers' intention towards the sharing economy. More in detail, this allowed us to confirm how in 2021 (a stage in which the crisis was still particularly felt), the orientation towards environmental sustainability has represented a significant antecedent, which has led customers to opt for economic models based on sharing options.

6 Conclusions

6.1 Theoretical implications

The paper provides different theoretical contributions. Firstly, it enhances existing research by exploring the influence of specific COVID-related factors on consumers' intention to use sharing economy services, thus addressing a specific call that has emerged from the literature (Hossain, 2021; Yang & Lee 2021 and Tan et al. 2022). Indeed, while research has emphasized the relevance of examining the evolution of consumers' intentions and behaviours during COVID-19, particularly by focusing on sectors deeply disrupted by this crisis, such as the sharing economy, this analysis is still in its early stage (Hossain, 2021). Secondly, the study explores the potential long-term impact of COVID-19 on the sharing economy intention and its predictors, especially by focusing on a more advanced phase of the pandemic. In doing so, the paper responds to a further call of the research, highlighting that the analysis of the sharing economy in the context of COVID-19 has primarily concentrated on the early pandemic period (Hossain, 2021).

Thirdly, gaining insight into individuals' perceptions and interactions with sharing economy services during the COVID-19 pandemic is essential, especially for SMEs operating in this domain, as it aids in facing potential future challenges associated with public health emergencies, adapting to dynamic market conditions, and reducing potentially long-lasting eco-

nomic losses due to future pandemics (Neumann & Kawaoka, 2023).

Finally, the paper aims to establish a comprehensive framework composed of specific categories of antecedents (i.e., COVID-19 related, technical, individual, and environmental antecedents), that may influence consumers' intention to utilize sharing economy options in times of crisis.

Overall, our research encompasses four crucial categories of antecedents that investigate specific aspects such as government regulations, technological advancements, individual characteristics, and broader societal influences, all of which play significant roles in shaping consumer behavior in the sharing economy. Understanding the role of all these factors is not only vital for helping SMEs navigate the challenges posed by the COVID-19 pandemic but also for anticipating and adapting to potential future public health emergency crises.

6.2 Managerial implications

The paper analyses a critical industry, being the sharing economy sector one of the businesses most affected by the COVID-19 crisis. This impact has raised concerns among various authors about the sector's survival (Hossain, 2021; Conger & Griffith, 2020). In particular, the study offers practical insights related to the possible strategies that sharing economy providers can employ to improve customers' intention to continue using their services, even after the end of the pandemic crisis.

By identifying key predictors influencing customers' intention to use sharing economy services, the paper underscores the significance of service quality, perceived value, perceived usefulness, and environmental orientation in shaping providers' strategies. Focusing specifically on service quality, it is crucial to offer responsive platforms with detailed and comprehensive information (Nguyen & Hoang, 2022). The adoption of the D.R.E.A.M.S.[1] model (Marimon et al., 2019) may enable sharing economy providers to develop platforms characterized by a high level of service quality. In further detail, this model entails: (i) streamlined data entry processes; (ii) incorporation of a user review section; (iii) authentication of user information via automatic verification of email, phone numbers, and social media accounts; (iv) content moderation, both textual and visual; (v) ensuring high-quality platform information; and (vi) incentivizing user-generated content. Moreover, it is of paramount importance for SMEs not only to share resources for innovation from a collaborative perspective (Metallo et al., 2016) but also to leverage their specific strengths by concentrating on delivering personalized and reliable services, ensuring that customers feel valued.

[1] *Declared; Rated; Engaged; Active; Moderated; Social*

Regarding the positive impact of perceived usefulness, results corroborate the importance of providing more effective, efficient, and user-friendly platforms, which could encourage consumers to continue using the service. In fact, more complex sharing systems could not only discourage users from re-adopting them but can also lead to the development of negative outcomes (i.e., hate) or service abandonment, prompting users to seek alternative services (Francioni et al., 2022). To create user-friendly platforms, providers may focus on search engine visibility and structural characteristics such as navigation menu, layout, readability, and navigation speed.

Then, based on our results, we argue that managers should carefully shape perceived value, emphasising cost savings and economic and social benefits, to provide tangible advantages over traditional alternatives and influence users' decisions. An interesting aspect is the moderation effect of Fear of COVID-19 on perceived value and the intention to use sharing economy services, serving as a caution. During the pandemic, safety concerns and hygiene measures take precedence, influencing individuals to prioritize health considerations. Increased fears of virus transmission heighten the impact of safety considerations on the intention to use these services. Furthermore, the trade-off between perceived benefits, such as cost savings, and associated risks, particularly the risk of exposure to the virus, becomes more pronounced. This intensifies the scrutiny of this balance, prompting individuals to seek services that offer value but also mitigate risks.

Regarding the significant impact of environmental orientation, it's noted how individuals now prioritize sustainable practices and eco-friendly choices. To leverage this trend, managers should develop communication strategies aimed at promoting the positive association between sharing economy services and environmental ideals. For instance, advertising content could highlight the role of sharing options in reducing pollution and energy waste (Sadiq et al., 2023). This approach aligns with Previati et al. (2022), who emphasize the need for SMEs to adapt their business models post-COVID by embracing digital transformation and green initiatives. By aligning with these updated principles, companies can meet evolving consumer needs with modernized digital solutions focused on quality and environmental sustainability.

Overall, firms can learn several crucial lessons from the COVID-19 crisis to better prepare for future challenges and the next pandemic (Neumann & Kawaoka, 2023). Our study highlights the enduring importance of maintaining high service quality and perceived value, even amidst disruptions caused by public health emergencies to meet consumer expectations and maintain customer loyalty, which are essential for long-term sustainability. Additionally, our research underscores the interplay between psychological factors, like fear of COVID-19, and consumer decision-making, which

should encourage firms to address consumer concerns, implement transparent communication, and safety measures, and offer value-added services to mitigate the impact of fear on consumer behavior.

6.3 Limitations and future research

The study is not free from limitations. Firstly, within the study, the translation–back-translation method has been adopted. However, it could lead to some potential limits related to the difficulty in verifying the variables' cultural adaptation (Francioni et al., 2022). Secondly, the sharing economy services have been analysed in a general way, without focusing on specific categories or brands. Therefore, it could be interesting, in the future, to compare different categories/brands of sharing economy services. Thirdly, following Patuelli et al. (2022), future studies could investigate the specific practices that businesses operating in different fields of the sharing economy undergo during crises. Then, by focusing on the investigated variables, it could be valuable to extend the conceptual model by also analysing the main outcomes of intention.

Caution must be exercised when drawing inferences from the study results, as the sample exhibits demographic imbalances. The majority of participants are female, aged 18-29, holding a high school diploma. These characteristics may introduce biases, making it crucial to interpret the outcomes within the context of this skewed demographic composition, recognizing potential impacts on the broader applicability of the study's conclusions. Future studies are encouraged to replicate the model proposed in this study with a more balanced sample. Consideration should be given to including diverse age groups, genders, and educational backgrounds. Additionally, conducting a multi-group analysis comparing various national contexts could provide a more comprehensive understanding of the observed phenomena. Finally, conducting a longitudinal study to examine the post-COVID phase could provide valuable insights into the evolving outcomes over time.

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INNOVATIVE STARTUPS AND SOCIAL GOALS: HOW DO ITALIAN FIRMS ASSESS THEIR IMPACT?

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Abstract

Purpose. *This paper aims to explore how Italian innovative startups with a social goal approach their social impact assessment and how/if this approach has changed over time. These companies are obliged to draw up a "Social Impact Description Document".*
Design/methodology/approach. *We perform an exploratory analysis, through longitudinal multiple case studies, to answer these research questions: (RQ1) What is the approach to social impact assessment by Italian innovative startups with a social goal?; (RQ2) How does this approach change over time? Firms in our analysis were chosen through a criterion sampling strategy. We used the Italian Business Register as database (updated at november, 2022). Data gathered through the multiple case studies have been analyzed by content analysis; moreover, we compared the content of the Social Impact Description Documents of firms with the framework provided in 2015 by the Italian Ministry of Economic Development. Finally, we conducted an interview with one of the reference firms.*
Findings. *The approach to social impact assessment still turns out to be a fulfillment of a compulsory requirement to receive/maintain the status of innovative startup with a social goal; structure and content of the documents appear almost unchanged over time, revealing a still poor awareness about this relevant issue. These critical evidences are mitigated if the fim is also a benefit corporation.*
Practical and Social implications. *The study aims to awake the attention of firms to consolidate increasingly effective solutions to assess their social impact, because this is also a driver to ensure sustainable development.*
Originality of the study. *The value of our study can be traced in providing an original contribution to the existing literature, as the studies referring to impact assessments in innovative firms in Italy are still limited (Vesperi and Lenzo, 2016; Piccarozzi, 2017; Gallo and Vannoni, 2021); in addition, it provides an in-depth analysis of social impact description documents.*

1. Introduction

Over time, national governments have increasingly encouraged firms to behave responsibly and to generate social impact.

In Italy, a particular type of firm has also been regulated, it is the Innovative startup with a social goal (ISUSG): it is an innovative startup according to Decree-Law no. 179/2012 and it carries out its activity in the sectors of social enterprise, as identified by Italian legislation (Legislative Decree 112/2017, art. 2, paragraph 1). These firms are obliged to draw up a "Social Impact Description Document" when applying for the recognition of the status of innovative startup, declaring their expected impact; the document must therefore be updated annually, with information about achieved impact, to demonstrate the maintenance of the requirements necessary for this status. The procedures to grant the status of Innovative startup with a social goal are regulated on Circular 3677/C (January 20, 2015), by the Italian Ministry of Economic Development. The document is compulsory to obtain the status of ISUSG (formal profile) and it has the important task of representing the concrete engagement of the firm into the social well-being (substantial profile).

Social impact assessment (SIA) is a very complex activity, it requires a deep examination of all the processes of the company; it takes a long time, critical attitude and stakeholders' involvement. The increased awareness of the role played by business in improving not merely economic, but also social return is reflected in the way which the debate on the purpose of firms has broadened to include scholars, institutions and practitioners (Mion, 2020; Nigri et al., 2020; Kirst et al., 2021). In addition, a vibrant literature on measuring social impact has flourished (Vanclay, 2012; Vivalt 2015; Mathur 2016; Grieco, 2018; Hervani et al., 2022), highlighting a lot of related issues, mainly attributable to the non-univocal definition of the "impact perimeter" (Vanclay, 2020). A further strand of literature explores the contribution of the degree of innovation of companies to their ability to generate social impact (Bloom and Chatterjee, 2009; Weerawardena and Mort, 2012; González et al., 2017; Cucino et al., 2021). Our contribution is therefore part of this theoretical framework, as it analyzes the case of innovative firms and their approach to social impact assessment; in particular, we focus on firms that are directly linked to the topic because they pursue a social goal, in response to a specific legislation: innovative startups with a social goal (hereinafter ISUSG(s)). These companies must prepare annually a document describing the social impact of their activity, the content of which is both qualitative and quantitative. The analysis of these documents can be used to assess the approach adopted for social impact assessment and how it has evolved over the time. Social impact assessment, which is a critical process for all entities, can be even more difficult in the case of

new companies, also facing the difficulties in starting up their business. Among innovative startups, those with a social goal are still are under-investigated in literature (Piccarozzi, 2017). In particular, to the best of our knowledge, there is still no study that longitudinally analyzes the social impact description documents of these companies. Following Vesperi and Lenzo (2016), who comparatively analyze these documents for three firms, we want to contribute to the literature by providing an up-to-date and longitudinal analysis of the topic. With this in mind, an exploratory analysis was conducted, using a qualitative method based on longitudinal multiple case studies, to respond the following research questions: (RQ1) What is the approach to social impact assessment by Italian innovative startups with a social goal?; (RQ2) How does this approach change over time? The remainder of the paper is as follows: section 2 is for literature review; section 3 presents the research methodology; section 4 describes the research findings, while the last section presents conclusions, implications and limits of the research.

2. Literature review

Some studies have shown that the ability of companies to innovate can contribute positively to the impact that their activities can generate in terms of social benefit (Bloom and Chatterjee, 2009; Weerawardena and Mort, 2012; González et al., 2017; Nechaev, and Hain, 2023). However, literature on this specific topic is still sparse: some authors tried to design a framework to describe pivotal factors to successful innovation for impact (Herrera, 2016), distinguishing among organizational drivers (strategic alignment, responsible purpose, stakeholder engagement and business model management) and institutional drivers (values, leadership, culture, strategy, structure and policies); moreover, other authors focused on the topic of social innovation, in a broader sense, as "[…] Innovations that are both social in their ends and in their means. Social Innovations are new ideas (products, services and models) that simultaneously meet social needs (more effectively than alternatives) and create new social relationships or collaborations" (EU Commission, 2013). For the aim of our research, we focus on contributions addressing the main issues related to social impact assessment, which predominantly refer to the definition of social impact, methods for social impact assessment, difficulties in social impact measurement. To date, it is not possible to identify a completely unambiguous definition of social impact and this is an important limit for the development of a shared and easily replicable measurement methodology; academics, financial institutions, and international organizations are very committed to find more and more appropriate methodological solutions.

Florman et al. (2016) propose a critical examination of social impact assessment methodologies and suggest an "external rate of return platform" to measure economic and social impact holistically. Variables to be included in the social impact assessment process have been progressively expanded over time, starting from a more restrictive and limited definition, based on a regulatory context (Vanclay 2003), to a new concept of SIA, which is summarized in the definition provided by Vanclay (2012): "SIA is the process of analyzing (predicting, evaluating and reflecting) and managing the intended and unintended consequences that are likely to follow from specific policy actions or project development, particularly in the context of appropriate national, state or provincial environmental policy legislation". Over time, the scope of social impact assessment has significantly expanded, in order to develop methodologies able to deepen the effects on the well-being of communities in the medium-long term: in this context, the concept of "community sustainability" has emerged as much relevant (Vanclay and Esteves, 2011), determining a broader definition of social impact assessment. A thriving academic literature has flourished, addressing topics related to SIA, such as distortions in reporting SIA findings, difficulties in evaluating non-tangible impacts and differential impacts, the importance of SIA as a planning tool, the role of Governments in promoting SIA (Vivalt, 2015; Mathur, 2016; Roshayani et al., 2015; Koks and Thissen, 2016; Silovská and Kolaríková, 2016; O'Faircheallaigh, 2017; Grieco, 2018). This liveliness has resulted in the formulation of several different classifications of impact assessment methodologies; we can report those ones among strategic, participatory and integrated methods (Perrini and Vurro, 2013), and among output-based techniques, positive outcome-based techniques, and holistic techniques (Nicholls, 2015). The classification by Clark et al. (2004), however, is still the most popular one; it distinguishes among process methods, impact methods and monetization methods for SIA. Process methods refer to the logical model of the "Impact value chain" and promote a comparative evaluation of resources (inputs), steps and processes (outcomes) and results (outputs) of a phenomenon. Impact methods are based on a qualitative analysis of the connections among the different elements constituting a particular phenomenon, to shed light on their contribution to social goals. Monetization methods, finally, use economic and financial proxies to assign a monetary value to the benefits generated from a process/action. Maas and Liket (2011) categorize thirty contemporary social impact measurement methods, underlying that social impact measurement methods differ on some main dimensions (i.e. aim, approach, and evaluation time). They clearly states the relevance of an output orientation of social impact methods, on longer-term effects.

Moreover, due the particular type of firms in our study, we can consider the paper by McLoughlin et al. (2009), which proposes a holistic im-

pact measurement model for social enterprises, called "social impact for local economies (SIMPLEs)". Authors offer a five-step approach with the following goals: conceptualize the impact problem; identify and set priorities for measurement of impacts; design and apply appropriate impact measures; report impacts and embed the results in management decision making. Still on social enterprises, Waligóra (2020) highlights another important aspect that can be found in the capital-generating function of social enterprises, which can affect the improvement of social capital with a deep impact into local communities.

Finally, we can refer to the few contributions that address the topic with specific regard to Italian innovative startups with a social goal.

Vesperi and Lenzo (2016) analyze the first empirical evidence on innovative startups with a social goal and on the Social Impact Description Document, offering a comparison on the use of this document and its implementation in three firms, located in different areas of Italy. Their results show a fair homogeneity in the structure of the documents, while there is a strong heterogeneity in the content of the documents. Authors also note the prevalent use of qualitative "ad hoc" measures, in many cases carried out by the management of the firm. The only quantitative indicator used is SROI.

Piccarozzi (2017) analyze the relationship between social innovation and sustainability in Italian innovative startups with social goal, and try to understand how sustainability could be fostered through them. Results show that the Social Impact Assessment Document explicitly pays attention to social innovation and sustainability in different ways; however, the document does not show the link between social innovation and sustainability.

Gallo and Vannoni (2021) conduct a survey on social impact assessment methodologies by innovative startups with a social goal; through an exploratory study, with a questionnaire administered to 88 companies, authors highlight a significant lack of knowledge of impact assessment methods, as well as a sort of "mistrust" by firms. The only quantitative indicator used is the SROI.

Arena et al. (2018) analyze the opportunities to unlock finance for social tech startups; Laspia et al. (2021) compare innovative startups with a social goal with other innovative startups.

Overall, the analysis of the literature on social impact assessment testifies the persistence of the issue related to the definition of social impact, which translates into the difficulty of identifying clear and replicable metrics for impact assessment. Stakeholder involvement, multidisciplinary skills and social and economic reference context are essential for an effective assessment.

3. Methodology

A qualitative approach based on longitudinal multiple case study was adopted, analyzing Italian innovative startups with social goal operating in the service sector with Social Impact Description Documents available on their website. A multiple case study is particularly appropriate to answer "how questions" (Eisenhart, 1989; Eisenhart, Graebner, 2007). Furthermore, longitudinal approach allows us to observe and analyze the phenomenon during a longer time period (Yin, 2009). The Italian context is particularly eligible for this study, as Italy introduced a specific law for innovative startups with a social goal in 2015, and this status has proved increasingly appealing. Firms were chosen through a criterion sampling strategy (Patton 2002), based on the following criterion: we looked for firms set up as Innovative startups with a social goal no more than five years before, operating in the service sector, and having at least two consecutive "Social Impact Description Documents" available on their official websites. In Italy, Innovative startups with a social goal operating in the service sector are 216 (according to Italian Business Register data for Innovative startups, november 2022); among these firms, 172 have been set up for no more than five years. Innovative startups with a social goal are mainly micro-firms, in the legal form of limited liability companies (about 95% of the total), without phenomena of women, youngers or foreigners' prevalence. We have consulted the websites of these 172 companies, finding Social Impact Description Documents available just for six companies; three of these firms have at least two subsequent Social Impact Description Documents available, so we focused our analysis on them. Table 1 shows some descriptive information about our sample. The information was gathered using the Italian Business Register for Innovative startups, last updated on november, 2022.

Table 1 – ISUSGs main characteristics

Firm/Data	Turnover	No. Employees	Shared capital
Alpha	0 – 100 €/th	0-4	10 -50 € /th
Beta	0 – 100 €/th	n.a.	1 – 5 €/th
Gamma	0 – 100 €/th	n.a.	1 – 5 €/th

Source: the Italian Business Register for Innovative startups, last updated on november, 2022. Data are presented by classes of values, according to the Italian Business Register for Innovative startups.

Data gathered through the multiple case studies have been analyzed by content analysis (Krippendorff, 2012). It allows us to verify the alignment of the social impact description documents with the indications contained in the ministerial guide and other relevant characteristics (readability,

style, form, etc.), also exploring change over time. We have analyzed any patterns of content qualitatively, to deepen the meaning of content within texts. Moreover, the ministerial guide provides a framework for social impact description document, which should consist both of a qualitative and of a quantitative section (general indicators and sectoral-specific indicators). In particular, the qualitative section should describe the organization, highlighting its contribution to the pursuit of social impact goals and explaining the theoretical model of reference for the impact assessment, referring to two conceptual frameworks, the Theory of Change and the Impact Value Chain[1]. The quantitative section of the Social Impact Document should, instead, report a set of indicators measuring the impact. The guide provides a grid that introduces an indicative set of references, distinguishing between general indicators and specific indicators. General indicators, both for output and for outcome, include measures for: social impact on beneficiaries; social impact on internal stakeholders; governance; equal gender principles; supporting for research activities; environmental sustainability; interaction with the reference territory and civic participation; number of stakeholders involved in the impact assessment; main economic and financial data. Specific indicators, both for output and for outcome, specifically refer to the sectors in the Legislative Decree 112/2017, art. 2, paragraph 1, for social enterprises.

To further deepen our analysis, we also conducted an interview with Alpha.

3.1 Presentation of case studies

The three case studies are illustrated below. In particular, for each firm we furnish a description of the corporate purpose and some of its characteristic features.

Table 2 – Presentation of case studies

Firm/Data	Year of establishment	Geographical location	Field
Alpha	2018	North	Digital services for accessibility
Beta	2019	North	Solutions for carbon neutrality
Gamma	2019	North	Lighting systems

Source: the Italian Business Register for Innovative startups, last updated on november, 2022.

[1] Theory of Change is a rigorous and participatory process that explains a firm's expected path to impact by outlining causal linkages in an initiative. The Impact Value Chain directly builds on firm's Theory of Change, by articulating the relationship between firm's activities, outputs, outcomes and impact (Clark et al., 2004).

Case study 1- Alpha

Alpha is a firm established in 2018, in the north of Italy. It offers integrated digital services to connect users with specific needs related to accessibility with places and structures that can best accommodate them.

Corporate purpose: "We create connections between people, places, structures and events. We are building (...), a global database of data on the accessibility of places, events and facilities, which people can access for free to find the information they need to move around peacefully".

The company has Social Impact Description Documents available on its website for the years 2019 and 2020.

The Social Impact Description Document for 2019 consists of 10 pages, containing the following sections: description (problem/need; solution; achieved goals; work in progress); market (end users; advantages for entrepreneurs; advantages for public entities; advantages for event organizers); social impact (social impact on beneficiaries; social impact on internal stakeholders; gender equality opportunities; research support; connections with the reference territory and civic participation; enhancement of the territory; economic and financial data); conclusion.

The Social Impact Description Document for 2020 consists of 8 pages, containing the following sections: description (problem/need; solution; achieved goals; work in progress); market (end users; advantages for entrepreneurs; advantages for public entities; advantages for event organizers); social impact (social impact on beneficiaries; social impact on internal stakeholders; equal opportunities; research support; links with the territory and civic participation; enhancement of the territory; economic and financial data); conclusion.

The structure in which the Social Impact Description Document is organized is unchanged over the two years; the content is rather concise; readability is high. A benefit in social terms can be traced reading the corporate purpose, however there are no explicit references to social impact. There are no references to the theoretical frameworks of Theory of Change and Impact Value Chain. Outcome and output metrics are not provided.

Case study 2- Beta

Beta is a firm established in 2019, in the north of Italy. It operates in the field of carbon neutrality, with solutions designed to avoid emitting climate-changing gases. It is also a Benefit Corporation.

Corporate purpose: "As a Benefit Corporation (...), the company intends to pursue one or more purposes of common benefit and operate in a responsible, sustainable and transparent towards people, communities, territories and the environment, cultural heritage and activities and social, organiza-

tions and associations and other stakeholders. The company gives priority to the implementation of projects of common benefit related to the environment, urban hygiene, optimization of waste processes and processing."

As a benefit corporation, the startup publishes the Impact Report, whose structure cannot therefore be precisely compared with that one of the Social Impact Description Document, even if *de facto* it absorbs its essential contents.

The Impact Report for 2019 consists of 23 pages, containing the following sections: problem; about us; business strengths; goals and value proposition; governance; environment; community; customers; impact measurement. B Impact Assessment is used as social impact measurement (http://bimpactassessment.net/). This is a protocol that, through a precise evaluation of the different business areas, allows measure the impact of the company through a number on a scale of values from 0-200 points. The firm's score is 81.4. The document refers to Theory of Change and contains outcome and output metrics.

The Impact Report for 2020 consists of 17 pages, containing the following sections: problem; about us; business strengths; goals and value proposition; governance; environment; community; customers; impact measurement. B Impact Assessment is used as social impact measurement. The score for the firm is 105.3.

The structure in which the Impact Report is organized is mostly unchanged over the two years; the content is rich; readability is high. The reference to objectives of common-social benefit is extensively stressed in the corporate purpose. There is the reference to the theoretical frameworks of Theory of Change. Outcome and output metrics are provided.

Case study 3 – Gamma

Gamma is a firm established in 2019, in the north of Italy. It offers services for conception, design, development and implementation of lighting systems, enhancement of cultural heritage, education and training for universities and postgraduate.

Corporate purpose: "In our reference sector we want to promote a new use of the lighting tool which, through new generation technologies, highlights not only the three-dimensionality of light, but also its fourth dimension (time)."

The Social Impact Description Document for 2019 consists of 6 pages, containing the following sections: description (mission; technological innovation; social goal; actions; organization; stakeholders); business scenario; social impact (grid with general and specific indicators).

The Social Impact Description Document for 2020 consists of 6 pages, containing the following sections: description (mission; technological innovation; social goal; actions; organization; stakeholders); business scenar-

io; social impact (grid with general and specific indicators).

The structure in which the Social Impact Description Document is organized is unchanged over the two years; the content is rather concise; readability is high. A benefit in social terms is not traceable reading the corporate purpose. There are no references to the theoretical frameworks of Theory of Change and Impact Value Chain. Outcome and output metrics are not provided.

4. Findings

Alpha's and Gamma's approach to social impact description looks rather like an attempt to fulfil a legal obligation. In fact, besides being rather concise, the documents do not contain all the information relating to impact assessment, theoretical framework and the standards used for measurement. The documents, moreover, show no particular signs of improvement over time: form and content remain much the same, confirming a style which is succinct. Readibility is high, because the language is extremely simple, but the documents don't allow third parties to deeply understand the actual social impact of the activity and the path to the impact. Instead, in the case of Beta, the documents deepen more adequately the description of the social impact, with reference to the theoretical framework of Theory of change and use of quantitative indicators and standards. Undoubtedly, this result is conditioned by the fact that Beta is also a benefit corporation: to meet the transparency requirements of the legislation, benefit corporations are required to draw up the annual impact report to be attached to their financial statements and published on the company website. Firms must be compliant with the evaluation standard specified by the legislation, so there is a regulatory constraint on the content of the report.

Table 3 summarizes results of our comparison between the content of the Social Impact Description Documents of the three firms in our case study and the characteristics that the document should have according to the indications of the ministerial guide. Evidences are valid for both years of analysis, for each company, since no changes have been found in the structure of the documents in a longitudinal perspective.

Table 3 – Main results of Social Impact Description Documents' analysis

Characteristic/Firm	Alpha	Beta	Gamma
Organization			
Presentation	Yes	Yes	Yes
Problem and solutions	Yes	Yes	Yes
Actions	Yes	Yes	Yes
Social Impact Assessment			
Theory of Change	No	Yes	No
Impact Value Chain	No	No	No
Grid of general indicators			
Internal stakeholder	Yes	Yes	Yes
Governance	No	Yes	No
Gender equality	Yes	Yes	No
Research support	Yes	No	Yes
Sustainability	No	Yes	No
Territory and civic partecipation	Yes	Yes	Yes
Economics and financial data	Yes	No	No
Number of interviewed person for impact evaluation	No	No	No
Sector-specific indicators	Yes (3)	Yes (intl. Standard)	Yes (9)

Source: authors' elaboration.

Based on these results, the answers to our two research questions can be formulated as follows: for (RQ1) "What is the approach to social impact assessment by Italian innovative startups with a social goal?", the approach to social impact description still remains a fulfillment to respond, almost exclusively, to a compulsory requirement to receive/maintain the status of ISUSG: for (RQ2) "How does this approach change over time?", the structure and content of the documents appear almost unchanged over time, revealing a still low level of awareness about this relevant issue by companies. These critical evidences are mitigated in the case of Beta, since it is also a benefit corporation. In this sense, being a Benefit Corporation increase the company's commitment to the issue of impact assessment, also with a view to enhance firm's resilience (Bartolini et al., 2023).

To further deepen our investigation, we contacted the three companies by email, asking for their availability for an interview about the topic. We only had the availability of Alpha. As the first step, we emailed the CEO of Alpha to arrange the interview. We conducted one personal remote interview. We investigated the following aspects: procedure to draft the document; usefulness of the document; firm's perception with respect to the

indications of the ministerial guide; main critical issues. Then, authors independently develop an individual case study summary before consultation with colleagues. Subsequently, all the authors pooled their thoughts in a series of brainstorming sessions and discussed the findings. For the full transcript of the interview, you can contact the authors at their institutional email addresses.

Table 4 summarizes results of this analysis.

Table 4 – Main results of the interview to Alpha

Area of investigation
Procedure to draft the document
✓ approach for macro-objectives ✓ mapping processes for data collection ✓ participation in training events ✓ meetings with the Chamber of Commerce
Usefulness of the document
✓ It is useful because it helps to think about the company's goals and the path to achieve them ✓ It is useful as a planning and control tool ✓ It is useful because it stimulates attention to the issue of social impact assessment
Firm's perception about the ministerial guide
✓ It is difficult to understand ✓ It is not useful enough from a practical point of view
Main critical issues
✓ Measurability issue ✓ Sanctioning aspects

Source: authors' elaboration.

The CEO's answers highlight the company's commitment to the drafting of the document, through a participatory process and a rigorous approach in the collection of information useful for the purpose. The document is widely recognized as useful for defining and implementing of business goals. These answers contradict the result of our content analysis of the social impact description documents, which resulted in an interpretation in the form of a mere response to a regulatory obligation. The ministerial guide for drafting the document is perceived as difficult to understand and to use, because it is not very concrete. Finally, the answers stress the difficulties in the measurability of social impact and highlight that firms are subject to financial penalties in the event of late transmission of the document, to avoid which the CEO suggests a reminder close to the deadline by the local Chamber of Commerce.

5. Conclusions

Results from the content analysis of the social impact description documents of Alpha, Beta and Gamma highlight the persistence of significant lacks in assessing the social impact of ISUSGs, resulting in rather simple documents, which merely provide some general information; however, a greater awareness of this issue is emerging in the case of the firm that is also a benefit corporation. Moreover, results of the interview to Alpha give positive signals in this sense, highlighting a good perception of the usefulness of the document and revealing a participatory and organized drafting process.

Our research aimed to give an original contribution to the existing literature as the studies referring to the theme of impact assessments in innovative firms in Italy are still limited (Vesperi and Lenzo, 2016; Piccarozzi, 2017; Gallo and Vannoni, 2021); moreover, our scope is very empirical and practical, and aims to underline the importance for companies to consolidate increasingly effective solutions to assess their social impact, because this is also an important driver to ensure sustainable development and has many practical and managerial implications. The choice about the analysis of a specific country - Italy - can be framed in the "Comparative International Entrepreneurship (CIE)" reference theory (Oviatt and McDougall, 2005).

This study has the following main limitations: first, the investigation is limited by the number of cases analyzed; second, we adopted a qualitative method to respond to the research questions, but future research may be conducted implementing a mixed method, based on qualitative and quantitative techniques. The sector and the age of the companies, on the other hand, do not represent limitations, as the service sector is representative of the 87.5% of the total ISUSGs and the age is inevitably determined by the status of startup firm.

An aspect that can also be considered as a witness for the inadequate awareness about the relevance of the social impact assessment can be traced in the small number of firms with social impact description documents available on their websites (3.49% of the total): to create a shared social value, the communication of the results obtained and the actions taken for these purposes is a very important tool, so firms should also significantly improve their approach in this regard.

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BOOK REVIEW:

IMPRENDITORIALITÀ E CREAZIONE DI IMPRESA NEL CONTESTO UNIVERSITARIO ITALIANO (ENTREPRENEURSHIP AND BUSINESS CREATION IN THE ITALIAN UNIVERSITY CONTEXT), BY MICHELA LOI, MARIA CHIARA DI GUARDO, FRANCO ANGELI, MILANO, 2022

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Abstract

The book provides an overview of the experience of Italian universities in entrepreneurial education, mainly with the aim of encouraging business creation by university students. In particular, the volume focuses on the results achieved, in the period 2017-2020, by a network of Italian universities - Italian C-Lab Network – committed to designing and implementing educational paths in the field of entrepreneurship, in response to the need of highlighting the importance of new businesses for the development of society.

Review

The volume I am recommending to the readers of the Journal Piccola Impresa/Small Business was written by Michela Loi and Maria Chiara Di Guardo from University of Cagliari. Authors' research topics deal with entrepreneurship and innovation, with a focus on the relationship between training activities and innovation process. The work is divided into five chapters, each containing an extensive bibliography for further exploration of the topics discussed.

The first chapter highlights that entrepreneurship education is a very recent area of research, that deepens how to develop mindsets and skills useful for business creation. Studies focus on the following main topics: antecedents of the choice to become entrepreneurs; support infrastructures for the development of entrepreneurial skills; entrepreneurial learning processes arising from the management of one's own business; impact of entrepreneurship education activities; recognition of entrepreneurship education as an academic discipline. Authors focus in particular on the contribution by Pittaway and Cope (2007), which represents a relevant theoretical and empirical reference within entrepreneurial education, with respect to experiential learning. Subsequently, Contamination labs (CLabs) are presented, which in the Italian context are defined as places of contamination, both physical and virtual, which promote the culture of entrepreneurship, sustainability, innovation and doing, as well as interdisciplinarity and new learning models, in line with the spirit of new business creation (D.D., November 29, 2016, n. 3158 Guidelines). The CLab Network, established in 2017, is therefore presented, with the aim of systematizing all the CLabs of Italian universities, in order to form a network among them. Moreover, a set of indicators (about organization, dissemination, networking and training) are provided for the monitoring of CLabs activities. Information comes from three sources: CLab organizers, CLab participants and stakeholders. Questionnaires (CLab organizers and participants) and interviews (stakeholders) are used for collecting information.

The second chapter is dedicated to the presentation of universities that adhere to the network (23 universities, from 15 regions) and that have created their CLabs; moreover, the main characteristics of the activated programs are described. Many aspects are investigated, here are some of the main points of interest. 47% of the initiatives come from universities in the South and Islands, 13% from universities in the Center and 40% in the North of Italy. The analysis of the characteristics of the CLabs is based, on the one hand, on the experience gained by each CLab (year of establishment, number of editions completed and organization), and, on the other hand, it takes into consideration the recognition of CLab participation as training credits or internship. To examine the involvement of universities

in the implementation of the CLabs, the professionals involved in the implementation of training and management activities are, therefore, considered. Funding received by the CLabs is also analyzed.

The third chapter is devoted to the analysis of the training results of the CLabs. The focus is on a set of dimensions adopted in literature for the study of the effectiveness of entrepreneurial education programs, which refer to the affective-motivational and behavioral spheres of learning and to the dimensions of career planning and success. The number of business ideas matured within the CLABs, awards, and funding obtained by the participants is also explored. Results are presented with reference to two collection periods and using a control sample. A total of 798 ideas have been developed, with 49% of the projects having a technological vocation and 25% of them a social one. The ideas resulted in 34 established startups. Participants received a total of 171 awards and received 1.170.000 euros in funding.

The fourth chapter deals with the ability of CLabs to create networking with external stakeholders, in particular through collaboration with entrepreneurs, business incubators and accelerators. Results show that there are many collaborations, especially with companies, banks and local institutions. The chapter is in turn divided into four parts: the first one examines the network and the main stakeholders involved by the CLabs; the second one considers the level of involvement in the training or management activities of the CLabs; the third part reveals the opportunities for CLab participants and the fourth explores, finally, the point of view of stakeholders. Most stakeholders claim that the relationship with universities is successful: ease of intermediation and spillovers are two of the main positive effects considered. Authors also assess the impact of the Covid19 pandemic on the investigated phenomena.

The last chapter, finally, traces and consolidates the main topics in the book, also reaffirming the importance of an integrated system for entrepreneurial education to a sustainable economic and social development process. Universities have a critical role in making economic, entrepreneurial and social contexts vital, because they can foster the integration of knowledge among the various stakeholders, promote the acquisition and development of skills relevant to business creation and support students in choosing professional careers that are more suited to their aspirations and skills.

The book offers a very detailed picture of the phenomenon of contamination labs in Italy and it represents a useful guide for the development of entrepreneurship education programs, in order to encourage the creation of new businesses by students.

The book is particularly recommended for students interested in setting up new businesses and universities that want to engage themselves in activities aimed at promoting self-entrepreneurship. It is certainly an interesting read even for academics, as it offers very meticulous analyses on a research topic that is still quite recent.

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