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Religiosity and agency costs: investigating Italian unlisted companies

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Abstract

Purpose – This study examines whether religiosity, a proxy of local culture, impacts on corporate behavior meant as agency costs for Italian unlisted firms.

Design/methodology/approach – The analysis relies on a balanced panel dataset of unlisted enterprises, involving 1,118,620 firm-year observations within the time frame 2014–2023.

Findings – Consistent with our research hypothesis, we find a statistically significant negative link between agency costs and religiosity. The results also suggest that firms based in higher religious areas seem to be more effective, as measured by sales-to-asset ratio, and hold less cash than firms based in areas where religion is less felt. Our findings are aligned with empirical research on the linkage between business actions and social values (local culture) that has been done in other nations. Lastly, the achievements show robustness to other empirical standards.

Originality/value – This study extends knowledge of the impact of social values (social norms), as measured by religiosity, on the ethical business of Italian private companies. To our knowledge, this is the first study on Italian unlisted firms that investigates the relationship between agency costs and religiosity.

Keywords Agency costs, Social values, Religion, Culture (sociology), Corporate finance, Corporate ownership

Paper type Research paper

1. Introduction

One of the current business and management issues that affects listed and unlisted firms is the increase in agency costs. Over time, the topic has been widely debated in various fields, such as industrial and financial economics, political science, sociology and organizational behavior (Jensen and Meckling, 1976; Ross, 1973; Fama, 1980; Fama and Jensen, 1983; Jensen, 1986; Hammond and Knott, 1996; Weingast and Moran, 1983; Adams, 1996; Kiser and Tong, 1992; Kosnik and Bittenhausen, 1992).

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Scholars and practitioners have always wondered about remedies to agency costs, mostly referring to the realignment of interests of owners and managers and to the improvement of organizational behavior. The granting of shares to managers, which should develop their sense of belonging to the company, leading managers to focus on company performance (Jensen and Meckling, 1976), the periodic review of compensation and the granting of bonuses to managers (Core *et al.*, 1999), the inclusion of external and independent members in the board of directors (Rosenstein and Wyatt, 1990), the continuous increase of skills that fuel and build the working reputation of managers (Fama, 1980) are some of the most recurrent solutions in literature to reduce agency costs.

The relationship between owners and managers described so far falls within Organizational Behavior (OB), which identifies the ways in which the members of an organization interact and influence each other (Robbins *et al.*, 2016). OB, which encompasses various aspects such as motivation, communication, leadership, and decision-making, all of which are essential for ensuring the smooth functioning of a firm, plays an essential role in shaping the business culture.

Management theories, including OB, provide a framework for understanding and managing organizations and they assist managers in making informed decisions, creating effective strategies, and achieving organizational goals (Deep, 2023). Their application enables organizations to improve their performance, increase efficiency, and adapt to changes in the business environment.

Understanding how behavior shapes organizational culture is critical for conducting firms to success and making more informed decisions in the best interest of the organization (Akpa *et al.*, 2021; Deep, 2023). Knowledge of OB practices allows companies to reduce agency costs by mitigating the related conflicts of interest. First of all, OB is essential for promoting effective communication within an organization by aligning the interests of all stakeholders and reducing misunderstandings that can lead to agency costs (Musheke and Phiri, 2021). Furthermore, OB contributes to the development of a positive organizational culture with the consequent sharing of purposes and objectives; it also is fundamental in the development of corporate ethics, to foster diversity and inclusion, allowing companies to minimize the risk of unethical behavior associated with discrimination and to enhance a more inclusive work environment (Porcena *et al.*, 2021; Duong *et al.*, 2022).

For some time, scholars have been raised questions about variables capable of impacting corporate behavior. Among these, measures related to culture are becoming increasingly important, as they are thought to have an effect on corporate value and behavior (La Porta *et al.*, 1999; Chintrakarn *et al.*, 2017; Díez-Esteban *et al.*, 2018). The interest shown in such issues has led to the emergence of several management theories that seek to understand and investigate the link between such variables, behavior and corporate value. This contributes to establishing a framework within which research pertaining, *inter alia*, to the impact of religiosity on organizational behavior and, in turn, agency costs, can be contextualized. Religiosity is a cultural and social value linked to several managerial behavioral traits, including honesty, risk aversion, good corporate governance, and ethical conduct, which help to reduce opportunistic behavior that generate agency costs. The evolution of management theories in this domain can be traced back to specific areas, including organizational theories, behavioral and psychological theories, economic theories, and ethical and religious theories (Deep, 2023; Heubeck, 2024; Amer, 2024; Dik *et al.*, 2024; Alparslan and Kuşdil, 2024).

Research belongs to the line of studies attributed to the Social Norm Theory, according to which individual conduct is conditioned by the uses and perceptions that distinguish the community to which they belong (Perkins and Berkowitz, 1986; Berkowitz, 2004; Gelfand *et al.*, 2024; Kish Bar-On and Lamm, 2023; Heyes, 2024). From a corporate point of view, it is appropriate to point out that companies are part of the context in which they are inserted and this adherence ensures that firms acquire and reflect the values of their local community (Campbell, 2007; De Villiers and Marques, 2016). To date, various aspects have been investigated by researchers: the structure and transparency of the market (Marano and

Kostova, 2016; Vaccaro and Sison, 2011), the level of social cohesion and corruption (Baldini *et al.*, 2018), the propensity to risk (Leòn and Pfeifer, 2017; Diez-Esteban *et al.*, 2018), religiosity (Dyreng *et al.*, 2012; Terzani and Turzo, 2021; Hao *et al.*, 2019; Zhao *et al.*, 2022; Amin *et al.*, 2021; Khedmati *et al.*, 2021; Chircop *et al.*, 2020; Chourou *et al.*, 2020; Ma *et al.*, 2021; Harjoto and Rossi, 2019; Hu *et al.*, 2019; Zolotoy *et al.*, 2019; Jiang *et al.*, 2018; Attig and Brockman, 2017).

Italy, as is well known, is a country with a solid religious vocation, where the Catholic Church has played an important role in shaping culture, politics and social values in general. Although for many centuries the Catholic religion was the dominant belief, currently a vast range of religious creeds and practices coexist in the country. The various religious traditions add to the rich cultural heritage and complexity of the Italian religious landscape, contributing to forming the country's identity.

Religiosity can impact OB through the values, moral principles (such as honesty, integrity and compassion) and beliefs that individuals involved in businesses and organizations hold (Ramlee *et al.*, 2016).The effects of religiosity on OB have been a topic of interest for researchers in the fields of sociology, psychology and management. The existing literature, however, reaches conflicting results: some authors identify the existence of a positive relationship between people's religiosity and their work attitudes. as well as in the ethical decision-making process of organizations (Weaver and Agle, 2002; Fernando and Jackson, 2006; Dik *et al.*, 2024); others instead highlight the absence of a link between religiosity and organizational behavior (Hood *et al.*, 2009; Kumza *et al.*, 1973). Some studies on organizational safety also highlight the connection between religion and the assumption of risky behavior (Kouabenan, 1998; Peltzer and Renner, 2003; Chen *et al.*, 2023). Although religiosity and organizational behavior have received attention, the relationship between the two is less defined. The present study intends to contribute to filling this gap in literature by proposing to analyze the effect of religiosity on organizational behavior in the context of Italian unlisted companies.

More specifically, our work intends to test the hypothesis according to which in unlisted Italian enterprises religious beliefs may have an effect on the organizational behavior of firms and are a factor in explaining the aversion to widespread unethical practices. The relevance of this analysis stems from the significant symbolic importance of religious institutions in Italy. Starting from the Social Norm Theory, this work intends to empirically analyze the link between local religiosity and corporate behavior expressed in the agency problems form. The manner in which religiosity extends beyond the individual to influence business aspects, as well as the impact of religiosity on private and family-run businesses, are among the least explored topics in research (Heubeck, 2024). The analysis focuses on unlisted Italian companies. In this respect, it is worth highlighting how the literature refers to the impact of social norms in contexts such as the US and China (Habib *et al.*, 2023), with the consequent scarcity of studies beyond these contexts. If we then focus on the Italian context, although it has attracted the attention of researchers (Guiso *et al.*, 2004), there have been no studies on the impact of social norms, represented by religiosity, on agency costs. Very few studies address the issue by focusing on unlisted firms and no article has focused directly on Italian firms: this represents the first paper designed to investigate the link between religiosity and agency costs in unlisted Italian firms. Most of the existing studies, in fact, consider listed companies. Hence the originality of our work, which contributes to enriching the line of studies focused on local social norms aimed at analyzing their impact within a single country, Italy: in this way the differences, including institutional ones, present in the national context, are neutralized with a consequent greater reliability of the results obtained.

The structure of the paper is as follows: section 2 reports the analysis of the literature and the derivation of the research hypotheses. Section 3 explains the methodology adopted and the criteria which was followed in defining the sample. Section 4 illustrates the results obtained and section 5 describes the conclusions.

2. Literature review and hypothesis development

2.1 Theoretical underpinning

The majority of extant studies in this field trace the study of the topic back to the research line attributed to behavioral and psychological theories (Heubeck, 2024; Cristofaro *et al.*, 2023, 2024; Al-Shammari *et al.*, 2023; Kremer, 2023; Ali *et al.*, 2023). These theories seek to investigate the impact of cultural variables (social values and unwritten rules, typical characteristics of religiosity) on organizational behavior by leveraging the connection between behavioral and psychological theories. Within this research paradigm, the managerial theory known as the upper echelons theory assumes particular relevance, which can be attributed in the first instance to the seminal work of Hambrick and Mason (1984), which postulates the essentiality of the psychological characteristics and experiences of the manager in shaping the strategies and results of the organization. Subsequent theories have been developed in the wake of the upper echelon theory, including the social norm theory, social identity theory, motivation theory and terror management theory (Gavrilets *et al.*, 2024; Heubeck, 2024; Ernst *et al.*, 2024; Voigt, 2024). A common thread among these theories is the notion that unwritten social norms such as religiosity, understood as a trait, exert an influence on social interactions, and individual and collective behaviors, extending even to the workplace and corporate and managerial practices. In the realm of organizational theories, which are intricately intertwined with managerial theories, notable examples include the agency theory, stakeholder theory and institutional theory. These theories, which have been extensively researched, investigate the implications of social values on organizational processes and behaviors.

For instance, placed in the framework of the agency theory (Jensen and Meckling, 1976), religiosity can act as a mitigating factor in the relationship between the principal and the agent – religiosity impacts opportunistic behavior which, in turn, can generate agency costs. Instead, according to the stakeholder theory, religion is a driver of stakeholder satisfaction, while the institutional theory recognizes the existence of formal and non-formal factors, including local ones, which impact and influence the development of corporate strategies. The latter, in particular, includes religion among the formal institutions capable of influencing corporate organizational behavior and performance (Balzano *et al.*, 2024; O'Reilly *et al.*, 2023; DiMaggio and Powell, 1983; Olson *et al.*, 2024). The terror management theory identifies religion as a key factor capable of providing the psychological security and comfort that the individual aspires to when aware of their mortality (Alparslan and Kuşdil, 2024; Koscielniak *et al.*, 2024). Ethical and religious theories connect the effects of religion and religious teachings on ethics by triggering an exchange of values. They emphasize the significance of religion's social capital, emphasizing how religious values and knowledge, disseminated through sharing, exert a profound influence on social environments and organizational behavior. Finally, within economic theories, there have been studies that focus on understanding how religiosity can influence corporate behaviors typically related to risk tolerance.

Another management theory, specifically the stewardship theory, posits that religiosity exerts an influence on corporate finance decisions, with the concept of stewardship serving as the theoretical underpinning. Stewardship, basically, signifies the belief that individuals are entrusted with the responsibility to manage resources in a manner that is deemed to be conducive to the greater good of society (Eom and Ng, 2023; Ng and Eom, 2024; Kaapanda, 2023; Tolbert, 2023; Church *et al.*, 2023). This notion is frequently rooted in religious doctrines that highlight the significance of environmental stewardship, encompassing the Earth and its inhabitants (Eom and Ng, 2023; Ng and Eom, 2024). Consequently, companies that subscribe to stewardship principles may be more likely to prioritize sustainable business practices and long-term economic stability over short-term gains (Eom and Ng, 2023; Ng and Eom, 2024). The application of the stewardship theory, which emphasizes the importance of trust and cooperation between principals and agents, has the potential to engender a number of benefits for organizations. Firstly, it can result in a reduction in agency costs, and secondly, it can enhance overall performance.

As mentioned above, the present study aims to analyze the influence of local religiosity on agency costs. The topic is framed according to a dual perspective, considering the scope of the agency theory and that of the Social Norm Theory. The Social Norms Theory studies how individuals adapt to certain norms and expectations within the society or community to which they belong (Perkins and Berkowitz, 1986; Berkowitz, 2004). The rules in question can be either explicit, as in the case of laws and regulations, or implicit, as with reference to traditionally unwritten social rules. According to the theory in question, individuals are influenced by the conduct and attitudes of those around them; moreover, they are led to adapt to prevailing norms in order to be accepted, thus building their own social identity, fomenting their sense of belonging to the community and avoiding the incurrence of social sanctions (Hilary and Hui, 2009; Callen and Fang, 2015). Society exercises a sort of control over people by ensuring that they adhere to the norms present in it according to mechanisms consisting in the provision of rewards in the event of behavior that conforms to social norms or in the application of sanctions when the behavior is different (Dyreng *et al.*, 2012; Callen and Fang, 2015; McGuire *et al.*, 2012; Gavrilets *et al.*, 2024; Voigt, 2024; Gutmann and Voigt, 2023). Religiosity is often recognized in itself as a social norm or among the factors that can be influenced by social norms (Voigt, 2024; Stavrova *et al.*, 2013; White, 1968; Bouarif, 2015; Mokhlis, 2009). Starting from the work of Jensen and Meckling (1976), several studies have focused on factors, including religiosity, that can impact agency costs.

2.2 Religiosity

Defined as the degree of religious devotion and faith in an individual's life, religion has been the subject of extensive research in the fields of psychology, sociology and economics. Referring to the level of adherence and commitment to religious beliefs and practices, it has long been recognized as a crucial factor in shaping beliefs, values and dealings not only at an individual level, but also with a broader scope involving social and organizational appearance and behavior. Few studies have observed the topic from the perspective of bank-centric countries, such as Italy, where the presence of family-controlled firms is relatively strong and protection for shareholders and creditors is weak. The peculiarities of Italy make it the ideal context for studying the effect of religiosity on agency costs, on the assumption that religious beliefs have an impact on OB and risk aversion in firms (Callen and Fang, 2015). Religious beliefs develop specific relationships in community members, regulated in the form of rewards or sanctions depending on whether the individual conforms to these relationships or not. Faith has effects on corporate behavior and the decision-making process. Some studies highlight how, for example, risk aversion is more pronounced in Catholics than in Protestants (Noussair *et al.*, 2012; Renneboog and Spaenjers, 2011) and that local religiosity negatively influences risk aversion and gambling (Diaz, 2000; Hilary and Hui, 2009; Callen and Fang, 2015; McGuire *et al.*, 2012). In general, religious adherence is associated with risk-averse and more ethical behavior (Miller and Hoffmann, 1995). Therefore, we assume that being located in an area with a strong religious presence contrasts the adoption of unethical behavior and consequently reduces agency costs.

According to the study by the Center for Studies on New Religions (CESNUR, 2022), 74.5% of Italians and foreigners residing in the country say they are Catholic but do not necessarily attend Sunday services. One of the most significant practices with which religiosity is manifested is the weekly attendance of a place of worship (Vezzoni and Biolcati-Rinaldi, 2015). Data from *The Italian Institute of Statistics* (ISTAT), on average in the period 2014–2023, reveals that the percentage of the population aged 6 years and over who attended a place of religious worship at least once a week in the last 12 months in the regions where the firms' headquarters are located is approximately 23% (see Appendix for more details on the rate of religiosity for the various regions). Italy, the seat of the papacy, is considered the center of authority of the Catholic religion which, through papal writings, contributes to Catholic Social Teaching (Costa and Ramus, 2012). Scientific evidence agrees in highlighting the contribution of religious belief in corporate value and in shaping corporate environments, with positive effects on national well-being and growth (Guiso *et al.*, 2003). The connection between economy and religion appears complex (Zamagni, 2012) and can be traced back, among other aspects, to the analysis of the influence on the economic behavior of individuals with particular reference to family savings, business competitiveness and work. The globalization of the economy and the competition, at times unethical, recorded both on the market of real goods and on financial markets have contributed to ensuring that the pursuit of the common good in doing business, a central point of the Catholic and social teaching of the Church, is hindered in favor of the pursuit of greater individual well-being. In this regard, the Encyclicals and other papal writings explicitly refer to production and work as qualifying elements in the pursuit of the common good. In more recent times, the scientific study of the links between religion, ethics, economics and finance through social capital is occupying an ever-increasing space. It is relevant to verify whether social capital, and in particular the rate of religiosity, considered the main source of social capital (Putnam, 1993), can contribute to the economic growth of nations and more generally to the well-being of local communities and the development of the surrounding entrepreneurial fabric.

The logic according to which the pursuit of profit in itself is not sufficient for the life of the company represents the central point of the Magisterium of the Church, which postulates the protection of all corporate stakeholders as a priority (Pope Francis, Il Sole 24 Ore, 2018). The analyses regarding the link between the culture of local communities and the development of the entrepreneurial context are united by considering religious belief as an essential element. Belonging to a religious belief contributes to the development of institutions; in religious people, if compared with non-believers, a higher level of trust is observed towards others, in the government, in the correct functioning of the market and there is a more limited propensity to break the laws (Guiso *et al.*, 2003). Religion influences individuals' investment decisions and risk preferences in different ways depending on their religious denomination (Noussair *et al.*, 2012; Renneboog and Spaenjers, 2011): Catholics attach more importance to thrift and are more risk averse, while Protestants show a greater sense of financial responsibility. Part of the literature documents a positive relationship between religiosity and risk aversion (Miller and Hoffmann, 1995; Liu, 2010; Dohmen *et al.*, 2010; Hilary and Hui, 2009), while another part demonstrates that religion negatively influences risk aversion (Hoffmann, 2000; Diaz, 2000; Ellison and McFarland, 2011). The Social Doctrine of the Church, in the pursuit of the common good, focuses on some key principles of the financial world and in particular on the need to use profit appropriately and on the allocation of savings to be used for low-risk investments that still guarantee a return consistent with the risk profile. According to Catholic and social teaching, the individual must lead a dignified life through his or her work and above all away from the slavery of consumerism. Businesses, on the other hand, should manage resources in the interest of all stakeholders (employees, creditors and local communities) without renouncing profit as a form of reward for the production factors adequately employed (The Hundredth Year, 1991). In short, profit should be consistent with the opportunity cost of the capital employed. Individual religious preferences influence behavior and play an important role in risk-taking, with a significant impact on investment decisions (Hilary and Hui, 2009; Leon and Pfeifer, 2013; Jiang *et al.*, 2015; Ferris *et al.*, 2019; Chircop *et al.*, 2020; Cebula and Rossi, 2021; Fajar *et al.*, 2024; Vashahi, 2023; Gomes *et al.*, 2024; Amer, 2024; Eom and Ng, 2023; Ng and Eom, 2024; Yousaf *et al.*, 2024; Aftab *et al.*, 2023; Hilton *et al.*, 2024; Zou *et al.*, 2023). In countries, including Italy, where family businesses are more present, more restrictive risk aversion policies are adopted in order to protect financial resources and human capital (La Porta *et al.*, 1997). Different religious contexts produce different impacts on risk-taking: this impact is negative for Catholic and Islamic countries and positive for companies located in Protestant countries (Díez-Esteban *et al.*, 2018).

2.3 Agency cost

Agency costs refer to the potential conflicts of interest that can arise between principals (owners/shareholders) and agents (managers/executives) within a business organization. In the last few decades, the agency problems framework has been extended to other subjects, such as majority and minority shareholders and creditors (Jensen and Meckling, 1976; Gilson and Gordon, 2003; Shleifer and Vishny, 1997; Villalonga *et al*., 2015). Indeed, four types of agency costs are identified by Villalonga *et al*., (2015). The first type of agency problem is the classical conflict between owner and manager, which arises when the company is run by managers hired by the owners to act on their behalf and these act in pursuit of their own interests, which may be divergent from those of the owner (Jensen and Meckling, 1976; Fama and Jensen, 1983). The second type of agency problem occurs between controlling shareholders and minority shareholders, particularly highlighted in contexts where family-style business management prevails. This type of problem derives from the circumstance that the position of control assumed by the former makes them capable of depriving the latter of the private benefits of control (Grossman and Hart, 1983; Fama and Jensen, 1983). The third type concerns agency conflicts between shareholders and creditors and is included in the financial decisions made by the owners: they are inclined to invest in riskier projects, thus obtaining higher returns. However, the greater riskiness is reflected in an increase in the cost of financing, which in turn impacts the value of the debt, reducing it with negative consequences for the creditors (Fama and Miller, 1972; Jensen and Meckling, 1976; Myers, 1977). The fourth type of agency problem involves the family in general and the shareholders of the family, with a possible divergence of objectives between the two categories: for the former, the most recurrent interests include: carrying out the mission and the corporate vision, maximizing the value and the socio-emotional wealth and preserving the original corporate culture; for the shareholders, their own interests, such as the maximization of financial returns, are also relevant (Villalonga *et al*., 2015). The manifestation of agency costs, in other words, is varied and can, among other things, be attributed to the circumstance whereby firm management acts by pursuing its own interests rather than maximizing value for shareholders (Jensen and Meckling, 1976); they also result in the principals incurring costs necessary to monitor and supervise the acting of managers in order to avoid or at least contain the emergence of opportunistic behavior on the part of the latter. It follows that minimizing agency costs is a fundamental concern for companies and it is therefore essential to increase knowledge on the factors that, in various ways, can contribute to aligning the interests of shareholders and managers. Several tools can be used to mitigate agency problems, such as ownership concentration or the reduction of cash flows distributed in the form of dividends. In this regard, as highlighted by Jensen and Meckling (1976), cash can be used by managers/majority shareholders to increase their power to the detriment of the entrepreneur. Furthermore, in the Encyclical *Caritas in Veritate* by Pope Benedict XVI, conflicts between shareholders within the company are explicitly mentioned, as well as the need for the manager to act not only in the interests of the owners but also of all stakeholders. Managers are therefore urged to maintain high levels of cash flow to extract private benefits of control to the detriment of minority shareholders. On the other hand, it is believed that non-reinvested cash should be distributed to shareholders as dividends, thus avoiding its discretionary use by managers (Jensen, 1986). Hence, the dual role of liquidity as an expropriation tool and a mechanism for controlling agency costs (Rossi *et al*., 2018).

2.4 The relationship of religiosity towards agency cost

Recently, there has been a growing focus on trying to understand how the religiosity factor can influence agency costs within companies (Bjornsen *et al*., 2018; Cai and Shi, 2017; Chircop *et al*., 2020; Kanagaretnam *et al*., 2015; Leventis *et al*., 2018). An area of particular attention explores the ability of religious beliefs and practices to condition and influence the ethical behavior of people, decision-making processes, and in general the commitment towards the achievement of organizational and strategic objectives (Baxamusa and Jalal, 2018; Harjoto and Rossi, 2019; Rossi *et al*., 2019; Abdelsalam *et al*., 2017). Empirical evidence in this regard shows how religiosity can have a significant impact on the behavior of individuals, and consequently on the way in which the firm operates and is organized. Although religiosity is considered a personal trait, it can also exert an influence on corporate behavior and organizational culture (Gomes *et al*., 2024; Amer, 2024). Indeed, a considerable number of organizations have adopted religious principles and values in their operations, either explicitly or implicitly (Arli *et al*., 2023; Chowdhury *et al*., 2024). Within this context, managerial theories define frameworks that explain how managers make decisions and lead organizations effectively. The concepts of religiosity, agency costs and managerial theories are pivotal in the realm of management and organizational behavior (Vashahi, 2023).

There are several ways in which religiosity can influence agency costs in businesses, ranging from the definition of ethical values and decision-making processes to the influence of the level of trust and cooperation between individuals within businesses (Lagace, 2001). The impact of religiosity on opportunistic behavior and, in turn, agency costs is primarily through the values and ethics instilled in individuals by their religious beliefs (Heubeck, 2024). Additionally, the influence is through managerial theories by impacting the leadership style and decision-making processes of managers. Conversely, agency costs can also be influenced by managerial theories, as different leadership styles and decision-making processes can impact the level of agency costs within an organization (Vashahi, 2023).

The exact connection which occurs between religion and agency costs is not completely clear (Callen *et al*., 2011; Walker *et al*., 2012). While religiosity appears to positively bias agency costs by promoting ethical behavior and favoring trust and cooperation between individuals, it can also introduce prejudices or conflicts that can boost agency costs. In reference to the first line of research, some studies have found the existence of a negative relationship between religiosity and agency costs, suggesting that individuals with a strong religious orientation are more likely to behave in the shareholders' best interests and to comply with higher ethical standards in decision-making (Baboukardos and Rimmel, 2016; Ghoul *et al*., 2017). This thesis is supported, among other things, by Jensen and Meckling (1976) who argue that persons oriented towards values such as honesty and integrity, traits associated with religious beliefs, are less inclined to undertake opportunistic behavior which agency costs may cause. As mentioned, religiosity also influences the level of trust and cooperation within the company with positive effects on agency costs: religious beliefs frequently stress the importance of trust, honesty and mutual respect in interpersonal relationships, helping to create a positive work environment where individuals are more likely to work together and share common goals and objectives. The importance of creating a supportive and inclusive work environment for employees of all faiths is also highlighted by religiosity management theories. In this regard, one of the key management theories involving religiosity is the concept of spiritual leadership which emphasizes the importance of connecting work with a higher purpose and principles that are consistent with one's religious beliefs (Yousaf *et al*., 2024; Aftab *et al*., 2023; Hilton *et al*., 2024).

In companies where religiosity is a widespread practice, employees may be more likely to trust their colleagues and superiors, thus reducing the need for expensive monitoring and control mechanisms. A possible explanation for this can be traced back to the fact that religiosity leads the individual to attribute greater weight to ethical values and moral behavior, consequently reducing the probability of the emergence of agency problems within companies since, in this case, managers and executives are more likely to act in the best interests of the company and its stakeholders. Religious persons often follow moral and ethical codes that guide their actions and decision-making. This can help reduce agency costs by promoting honesty, integrity and ethical behavior even in the workplace and in the organization to which they belong: religious employees are found to be less likely to engage in unethical behavior, such as fraud or embezzlement, resulting in reduced agency costs for the firm (Mazar *et al*., 2008; Osoba, 2003; Diaz, 2000; Miller, 2000; Longenecker *et al*., 2004; Wahab, 2017). Spiritual leadership posits that leaders who are spiritually inclined are more likely to inspire and motivate their employees, leading to greater engagement and commitment to the organization's goals (Yousaf *et al.*, 2024; Zou *et al.*, 2023; Dik *et al.*, 2024).

Managerial theories can help mitigate agency costs by guiding managers in making informed decisions and fostering positive relationships with employees and they can also be influenced by individual religious beliefs and values (Eom and Ng, 2023). It is well known that spirituality plays a significant role in shaping organizational culture (Fajar *et al.*, 2024). The integration of religious values and beliefs into the workplace has the capacity to engender a sense of community and shared purpose among employees. This, in turn, can lead to increased job satisfaction, motivation, and overall well-being among employees (Halbusi *et al.*, 2023; Fajar *et al.*, 2024).

The idea of ethical leadership, another management theory involving religiosity, is rooted in moral principles and values, which are often derived from religious teachings (Halbusi *et al.*, 2023; Elsayed *et al.*, 2023; Liyanapathirana and Akroyd, 2022; Hassan *et al.*, 2023; Shiundu, 2024; Liden *et al.*, 2025). Research shows that religious leaders are more likely to make ethical decisions and act with integrity in their business practices (Halbusi *et al.*, 2023). This can positively impact organizational culture and employee morale, leading to greater trust and cooperation within the workplace (Hassan *et al.*, 2023).

The study by Baboukardos and Rimmel (2016) found that companies located in US counties where the degree of religious adherence is higher tend to have lower levels of agency costs, summarized in minor CEO compensation and fewer cases of accounting fraud. Other studies have found that CEOs with a strong religious guidance are more likely to engage in socially responsible behavior, such as charitable giving and environmental sustainability initiatives that can reduce agency costs by aligning the company's interests with those of its stakeholders; they also appear less inclined to engage in earnings management practices and to take risks that could potentially benefit shareholders (Leuz and Oberholzer-Gee, 2006; Cai *et al.*, 2020). Similarly, the work of Ghoul *et al.* (2017) highlights that companies with religious CEOs have been more successful in adopting corporate social responsibility (CSR) initiatives. The same conclusions are highlighted in the study by Breton-Miller *et al.* (2024), based on social identity theory and the theory of planned behavior, which shows that religious CEOs do indeed engage in CSR.

While on the one hand some studies highlight the positive effect of religious beliefs in reducing agency costs, on the other hand several studies highlight the opposite effect, i.e. the ability of religious beliefs to increase agency costs. Consider, by way of example, the differences in thought that can arise within an organization as a result of different cultural and religious creeds which can lead to conflicts and reduced collaboration, thus impacting effective management functioning. Excessive religious orientation could result in a strong self-confidence that pushes one to undertake riskier actions, based on one's beliefs rather than oriented to company principles, which leads to inadequate decision-making processes and the destruction of value for the company and its stakeholders (Adkins *et al.*, 2013). Other studies have shown a mixed or absent relationship between religiosity and agency costs: this is the case, for example, of the study on Australian companies, which found no significant relationship between religiosity and agency costs.

Religiosity remains a phenomenon affected by the context of reference and individual characteristics (Gallego-Alvarez *et al.*, 2020; Horak and Yang, 2018; Guiso *et al.*, 2004; Ang *et al.*, 2015; Horak and Yang, 2018); therefore, the results found regarding the relationship with agency costs in businesses are also influenced by the context and by cultural and institutional factors which therefore play a moderating role. Consider the countries where religion plays a very important role within society because the beliefs, values and behavior associated with religiosity are particularly institutionalized in the national context (for example in the Middle East and in some Asian countries): in these cases the impact of religiosity on agency costs may be more evident than what is found in secularized societies. A country's legal and regulatory framework can also influence the extent to which religiosity mitigates agency costs, as it can provide incentives or disincentives for managers to act in the best interests of the shareholders. On the whole, the search for the relationship between religiosity and agency costs in organizations is still complex and multifaceted. Although there is empirical evidence indicating that religiosity can influence governance and decision-making in businesses, the nature and extent of this influence varies depending on cultural and institutional factors. As evidence of the dependence on the context, several authors have analyzed the relationship between local religious culture and traits inherent to corporate behavior, especially in terms of corporate social responsibility, agency costs, earning management, risk propensity, and personnel management.

Khedmati *et al.* (2021) try to investigate whether there is a relationship between the religion of the geographical area to which the companies belong and investments in labor: the analysis, focusing on the Theory of Social Norms, shows a negative relationship between the two variables, demonstrating that religiosity can reduce inefficient investments in labor. The authors therefore conclude that companies located in countries with a strong devout vocation will not engage in inefficient investments regarding the personnel employed. Harjoto and Rossi (2019), using a sample of 156 Italian companies listed on the Italian Stock Exchange, find in the period 2002–2014 that religiosity, understood both as a personal trait of CEOs and as a variable of local culture, positively impacts the CSR of companies. Similarly, the study by Zolotoy *et al.* (2019) concerning a sample of listed US firms highlights the positive effect of CSR on entrepreneurial value due to the religious social norms of the context in which the company headquarters is located and particularly in areas where religious norms provide for greater tolerance towards risk taking. Amin *et al.* (2021) investigate the link between local religiosity and safety at work in terms of accidents: the study reveals that companies located in areas with high religiosity are less inclined to adopt unethical behavior and are more likely to use safety measures in workplaces. In this regard, the authors demonstrate that employees of companies located in religious areas experience fewer accidents than organizations based in less religious areas: these results are also the consequence of the informal social networks that develop in the community and guide the conduct of managers, prompting them to allocate resources efficiently by investing appropriately in security. The work of Hu *et al.* (2019) based on a sample US firm demonstrates that religiosity, represented by the presence of Protestants in the area, plays a mitigating role in influencing corporate liquidity policies: companies located in counties with a high percentage of Protestants present a lower level of liquidity and risk, have better profitability and at the same time are committed to guaranteeing higher payments in the long term through the provision of dividends. This evidence is also common to the work of Rossi *et al.* (2019), which shows the positive association between religiosity and dividend payouts. Chircop *et al.* (2020), involving 91,020 venture capital investments in the USA, explore the power of religion in influencing the behavior and investment decisions of venture capitalists. Theories on contextual behavior, including the Social Norm Theory, postulate in this regard that, given the positive relationship between risk aversion and religiosity, venture capitalists located in more religious geographical areas will make fewer risky investments, thus becoming more risk averse. Faith is also able to impact the availability of bank loans and the cost of debt applied to them as well as on the environmental practices undertaken at company level: as suggested by He and Hu (2016) to borrowers of companies located in countries with a high level of religiosity, lower interest rates are recognized for the disbursement of higher average loan amounts. What conditions this evidence is precisely the characteristics of religiosity understood as ethical behavior, honesty and risk aversion. Cui *et al.* (2015), using a sample of US companies, find a negative link between the religiosity of the place where the company is based and the environmentally friendly practices undertaken. Du (2013) study the ability of religion to influence earnings management: the analysis, which involves a sample of 11,357 observations regarding the Chinese stock market for the period 2001–2011, demonstrates that religion appears as a social norm capable of mitigating unethical earnings management behavior. Terzani and Turzo (2021) investigate the connection between religious social norms and corporate sustainability by examining the effect of creed and religious affiliation on Environmental, Social and Governance (ESG) disclosure and point out that these factors have a significant influence on the company's attitude to non-financial disclosure. Du (2013) and Chintrakarn *et al.* (2017) observe that religious devotion is an effective substitute for corporate governance in mitigating the agency problem.

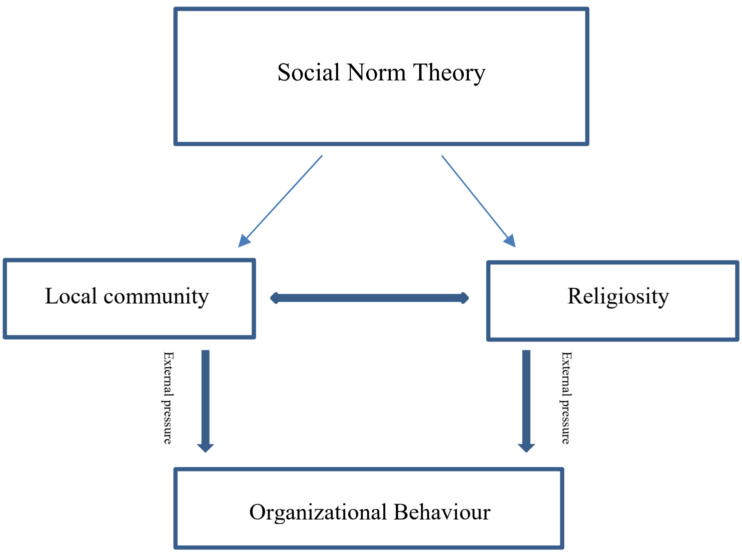
Religiosity affects the behavior of business organizations essentially through two channels. The first, called external or social pressure, is linked to the influence exerted by the local religious community; that is, organizations are influenced by external pressures of a coercive, imitative and normative type, coming from the external environment (DiMaggio and Powell, 1983). Religiosity has the characteristics of a variable of coercive and imitative pressure, as a consequence of the adaptation to valid behaviors of membership in the community, as well as normative behaviors, given the character of an informal and unwritten rule. The second channel is the internal pressure linked to the influence that top figures exert on the behavior of organizations: according to the Upper Echelons Theory, cognitive and personality traits of the top management team (such as personal belief, personality and emotions) can impact OB (Hambrick and Mason, 1984; Abatecola and Cristofaro, 2018).

Our work studies the impact of religiosity on agency costs by referring to external pressure: the basic assumption is, therefore, that local religiosity impacts OB, which in turn impacts the decision-making process of organizations (Figure 1).

2.5 Hypothesis development

The literature analysis highlights a large body of research involving listed companies in common law jurisdictions; however, less research has looked at businesses in French civil law jurisdictions and almost no research has been done on the impact of religion on business decisions made by unlisted businesses. Based on the Social Norm Theory and previous empirical findings, our basic hypothesis is the following:

H1. Italian unlisted firms headquartered in areas with a higher religiosity engage in less non-ethical behavior.



Source(s): Authors' own work

Figure 1. Channels between religiosity and OB

Family businesses comprise our sample. There is conflicting research on agency costs in family businesses. As a result of the intrafamilial altruistic component and the overlap between management and ownership, numerous studies contend that family businesses face fewer agency issues (e.g. Jensen and Meckling, 1976; Ang *et al.*, 2000; Dyer, 2006; Anderson and Reeb, 2003; Anderson *et al.*, 2003; Barontini and Caprio, 2006; Villalonga and Amit, 2006; Sacristán-Navarro *et al.*, 2011; Ernst *et al.*, 2024; Sorenson and Milbrandt, 2023). On the contrary, a number of studies claim that agency issues are more serious for family-owned businesses (e.g. Anderson and Reeb, 2003; Anderson *et al.*, 2003; Barontini and Caprio, 2006; Villalonga and Amit, 2006; Sacristán-Navarro *et al.*, 2011). According to Croci *et al.* (2011), family-run businesses tend to be less risk-taking, they are more likely to trade equity for greater debt due to control concerns, and the credit market views them as non-risk-seeking companies. According to Songini *et al.* (2013), family involvement in management causes more agency difficulties than family participation in governance, which lowers agency costs. Conversely, Colombo *et al.* (2013) discover that a company's productivity rises when its owners are engaged in management.

In the opinion of Anderson *et al.* (2003), agency issues are softer in businesses where the original family is still involved since the family cares about both the business's long-term existence and its reputation. According to Schulze *et al.* (2001, 2003), altruism may lead to agency issues that are specific to family businesses since family ties may make it more difficult to resolve disputes or rein in unproductive conduct. Shleifer and Vishny (1986) suggest that large investors and the lack of diversification will employ risk-reduction techniques. Common objectives, increased trust and shared values are further benefits of family ownership which can save agency costs associated with monitoring (Dyer, 2006). Obtaining prestige and consolidating the company's image are among the factors that inspire the company founder to undertake business expansion strategies, with the aim of optimizing value in a long-term vision. Consequently, by monitoring managers' performance more efficiently, the family business can avoid inflexible agency charges and maintain a long-term competitive advantage.

Some academics investigate the relationship between agency costs and ownership structure. In this context, ownership concentration and debt are two effective instruments for controlling agency difficulties (Jensen and Meckling, 1976; Ang *et al.*, 2000). According to Doukas *et al.* (2005), security analysis is a helpful tool for managing ownership structure, debt and agency expenses. Debt, managerial compensation and ownership concentration are among the elements proven to be able to help reduce agency costs for UK businesses (Florackis, 2008). According to McKnight and Weir (2009) board ownership and a company's debt have a tendency to reduce agency expenses in British businesses. However, Henry (2010) finds that ownership structure and leverage have little influence on agency costs in Australian listed companies. The idea that the corporate governance mechanism can lower agency costs is rejected by Rossi *et al.* (2018). In their study on a sample of small Finnish businesses, Bianchi and Luomaranta (2021) find a significant improvement in productivity when the CEO acquires majority ownership or when the majority owner takes on the role of CEO. Drawing on the contradictory results of earlier studies, we believe that agency costs in Italian firms cannot be effectively controlled by corporate governance measures.

Based on this assumption, our second hypothesis (H2) is:

H2. For Italian unlisted companies the traditional corporate governance mechanisms are not effective in reducing agency costs.

3. Methodology and data analysis

Our study concerns a sample of 111,862 non-financial and non-regulated unlisted companies during the time-span 2014–2023, which provides 1,118,620 firm-year observations. Specifically, the final dataset involves a sample of unlisted Italian companies acquired by providing for specific selection requirements (business sector, size, status, data availability).

The first requirement is represented by not belonging to the financial and utilities sector due to the peculiarities (i.e. being in a regulated sector and the partly different legislation on accounting schedules) which distinguish financial companies and utilities, thus making them not directly comparable with other companies. The initial population is made up of 200,635 active unlisted Italian non-financial and non-utilities companies, extracted from the *Orbis Europe* database. We also construct our sample relating to data that include firm-specific characteristics (e.g. *SIZE*, *OWNERSHIP*, *AGE*, *ROA*, *LEVERAGE*, *INDUSTRY*) excluding all firms that do not have at least ten years of operativity. Following these criteria, the final sample is composed of 111,862 firms. In order to analyze the sample, we use three econometric strategies. Our starting point is an Ordinary Least Squares and subsequently we run the Hausmann test to choose the most suitable model (e.g. Wooldridge, 2010; Greene, 2017); since the test rejected the Random Effects Model we use the Fixed Effects Model (FEM) to further investigate the relationship between religiosity and agency costs. In addition, considering the characteristics of our sample (large N and small T), and following Woldridge (2010) and previous studies (Hilary and Hui, 2009; Chintrakarn *et al.*, 2017, 2018; Adhikari and Agrawal, 2016; Rossi *et al.*, 2019), we also use the dynamic panel data generalized method of moment (GMM) to test for endogeneity problems related to endogeneity from omitted variable bias and reverse causality, respectively.

The following OLS (Ordinary least square) illustrates the baseline specification:

$$y_{\mathrm{i,t}} = \mu_{\mathrm{i,t}} + \alpha_1 \mathrm{RELIGIOSITY}_{\mathrm{i,t}} + \alpha_2 \mathrm{CONTROL}_{\mathrm{VARIABLES}_{i,t}} + \eta_t + \varepsilon_{\mathrm{i,t}} \quad (1)$$

where $y_{i,t}$ is the value of the dependent variable *SALES-TO-ASSET RATIO* (SAR), *ASSET LIQUIDITY RATIO* (ALR), *OPERATIVE EXPENSES RATIO* (OPE) and *FREE CASH FLOW* (*FCF*) for firm *i* in year *t* used as proxies of agency costs as in previous studies (Ang *et al.*, 2000; Singh and Davidson, 2003; Florackis, 2008; McKnight and Weir, 2009; Henry, 2010; Prowse, 1990; Bartholdy *et al.*, 1997; Harford *et al.*, 2008; Wellalage and Locke, 2012; Doukas *et al.*, 2000). *SAR* is measured as the total sales divided by total assets, *ALR* is computed as total cash divided by total assets, OPE is calculated as operating expenses, excluding the labor expenses, to total sales and FCF is the ratio between free cash flow, computed as net profit plus depreciation, and total assets.

The model considers further variables reflecting the social capital of the local community. Specifically, consistent to previous studies (e.g. Putnam, 1993; Guiso *et al.*, 2003; Griswold and Nichols, 2006; Habib *et al.*, 2023) we include the following variables in our models: the gross domestic product (*GDP)* for each region; the variable *TRUST*, to measure the degree of interpersonal trust of the people located in the region. *VOLUNTEERING*, which measures the rate of participation in volunteering activities of the population of region *i* at time *t*, *GRADUATES* which measures the percentage of the population that hold a bachelor's degree, *PWOM* to measure the percentage of women that live in the region, *CRIME RISK*, the people's perception about the risk of crime in the area in which they live, *UNEMP* which measures the percentage of the population that is unemployed. Finally, we also consider the variable *GAMBLING* as a proxy of risk calculated as the ratio between the gambling revenue divided by the *GDP* of region *i* at time *t*.

We also consider *INDUSTRY* as measured by the four-digit SIC codes (excluding all SIC codes 6000–6999, 9100–9999 and 4900–4999); η_t is the temporal dummy; $\varepsilon_{\iota,\tau}$ is the residual term and $t = 2014, 2015, 2016, 2023$. With the exclusion of variables expressed in logarithmic form, for all the other variables we consider outliers values greater than the mean plus/minus 3 standard deviations and then winsorize them to the 5th and 95th percentiles. Data regarding religiosity and other variables of social capital were obtained from *ISTAT*.

Tables 1 and 2 include the overview and the descriptive statistics for all the parameters.

The mean of *SAR* and *ALR* is 1.19% and 11.53%, respectively. We find on average a value of 28.5% for OPE and 6.80% for *FCF*, respectively.

Table 1. Variables definitions

Variables	Definition	Source
Dependent variables		
SALES TO ASSET RATIO	Total sales divided by total assets	Our calculation using *Orbis Europe*
ASSET LIQUIDITY RATIO	Total cash divided by total assets	Our calculation using *Orbis Europe*
OPERATIVE EXPENSES RATIO	Operative expenses divided by total sales	Our calculation using *Orbis Europe*
FREE CASH FLOW TO TOTAL ASSETS	Free cash flow divided by total assets	Our calculation using *Orbis Europe*
Independent variables		
RELIGIOSITY	The percentage of people aged 6 and up that have attended a religious congregation at least once a week in the last 12 months in the area where the firm's headquarters is located	*The National Institute for Statistics* (ISTAT) at https://www.istat.it/ (under Social participation and Religious observances)
Control variables		
OWNERSHIP	The total shares possessed by first shareholder divided by total equity	*Orbis Europe*
OWNERSHIP_{100}	Dummy variable that takes value of 1 if the controlling shareholder holds 100% and 0 otherwise	Our calculation
SIZE	Total assets (in logarithmic form)	Our calculation using *Orbis Europe*
AGE	Years since firm was established (in logarithmic form)	Our calculation using *Orbis Europe*
LEVERAGE	Financial debt divided by total assets	Our calculation using *Orbis Europe*
ROA	Yearly net income/average total asset*100	Our calculation using *Orbis Europe*
INDUSTRY	Four-Digit SIC (Standard Industrial Classification) codes	*The National Institute for Statistics*
GDP	Amount of Gross Domestic Product (in logarithmic form) for each region in each year	*The National Institute for Statistics*
UNEMP	Percentage of unemployed for each region in each year	*The National Institute for Statistics*
PWOM	Percentage of women in the population for each region in each year	*The National Institute for Statistics*
GRADUATES	Percentage of population with a degree for each region in each year	*The National Institute for Statistics*
TRUST	The percentage of people aged 14 and up who consider most people trustworthy, detected for the area where the firm's headquarters is located	*The National Institute for Statistics*
VOLUNTEERING	The percentage of people aged 14 and up who have carried out free activities in voluntary associations in the last 12 months in the area where the firm's headquarters is located	*The National Institute for Statistics*
GAMBLING	The total amount of bets made by the player community in relation to the GDP in the area where the firm's headquarters is located	*Customs And Monopolies Agency (ADM) and The National Institute for Statistics*
CRIME RISK	The percentage of families who believe that the risk of crime in the area in which they live is very or fairly present for each region in each year	*The National Institute for Statistics*

Source(s): Authors' own work

Table 2. Descriptive statistics

Variables	Average	Median	Minimum	Maximum	S.D
Dependent variables					
SALES TO ASSET RATIO	1.191	1.120	0.198	2.977	0.534
ASSET LIQUIDITY RATIO	0.115	0.078	0.001	0.478	0.111
OPERATIVE EXPENSES RATIO	0.285	0.258	0.074	0.718	0.144
FREE CASH FLOW TO TOTAL ASSETS	0.068	0.060	−0.004	0.209	0.043
Independent variables					
RELIGIOSITY	0.230	0.225	0.119	0.379	0.058
Control variables					
OWNERSHIP	63.774	60.000	0.000	100.000	29.647
SIZE (LOG)	3.545	3.461	1.050	7.281	0.588
AGE (LOG)	1.308	1.342	0.000	2.201	0.294
LEVERAGE	0.187	0.173	0.000	0.470	0.133
ROA	0.063	0.051	0.002	0.191	0.045
GDP (LOG)	11.173	11.193	9.649	11.646	0.359
UNEMP	0.086	0.071	0.020	0.235	0.046
PWOM	0.513	0.513	0.504	0.525	0.003
GRADUATES	0.103	0.095	0.001	0.193	0.060
TRUST	0.237	0.240	0.118	0.434	0.040
VOLUNTEERING	0.106	0.107	0.039	0.273	0.032
GAMBLING	0.036	0.037	0.011	0.071	0.012
CRIME RISK	0.290	0.271	0.045	0.516	0.097

Source(s): Authors' own work

There is a *RELIGIOSITY* rate of 25.0%, and whose median value is 22.5%. In addition, we observed that, on average, *LEVERAGE*, *ROA* and *OWNERSHIP* are 18.7%, 6.30% and 63.77%, respectively. The companies included in the study have a size represented by an average value of total assets of 3,507.52 thousand euros and, on average, have an age of 20 years.

In relation to the sociodemographic variables used in the model, UNEMP has an average value of 8.6%, PWOM is on average 51.3% and GRADUATES records an average of 10.3%. Furthermore, for TRUST, VOLUNTEERING, GAMBLING and CRIME RISK we find on average values of 23.7%, 10.6%, 3.6% and 29.0%, respectively.

4. Empirical findings and discussion

In Table 3 we summarize the results of the correlation analysis for interested readers.

Tables 4 and 5 sets out the results of the multivariate analysis. *RELIGIOSITY* takes the expected sign in line with the research hypotheses and is always statistically significant. This means that firm headquarters in higher religious areas reduce agency costs. As expected, we observe that *RELIGIOSITY* is positively associated with *SAR* and negatively correlated to the other variables representative of agency costs, respectively.

Benefiting from previous studies, we also include the *OWNERSHIP* concentration as a corporate governance mechanism to control agency costs, but we observe that it fails to reduce opportunistic behavior. Specifically, we observe a negative relationship with all the measures included in the model, expect for *OPE* and *FCF*.

In line with our research assumption (H1) we are not able to argue that *OWNERSHIP* is a good tool for checking for agency problems. Furthermore, we consider the moderating effects (*RELIGIOSITY*OWN*) and notice that there is a religiosity effect on the relationship, finding a statistically significant positive relationship with *SAR* and *ARL*, while we experience the absence of bond when we run against *OPE* and *FCF*. We also observe that all company

Table 3. Correlation matrix

	SAR	ALR	OPE	FCF	SIZE	LEVERAGE	ROA	AGE	OWNERSHIP
SAR	1.000	0.075***	−0.128***	0.068***	−0.308***	−0.073***	0.167***	−0.230***	0.005***
ALR		1.000	0.029***	0.233***	−0.065***	−0.313***	0.264***	0.024***	−0.010***
OPE			1.000	0.064***	−0.111***	−0.023***	0.010***	−0.094***	0.051***
FCF				1.000	0.042***	−0.184***	0.731***	−0.001	0.054***
SIZE					1.000	0.088***	−0.039***	0.394***	0.050***
LEVERAGE						1.000	−0.188***	0.001	−0.012***
ROA							1.000	−0.078***	0.082***
AGE								1.000	−0.148***
OWNERSHIP									1.000
RELIGIOSITY									
GDP									
UNEMPL									
PWOM									
GRADUATES									
TRUST									
CRIME RISK									
VOLUNTEERING									
GAMBLING									

	RELIGIOSITY	GDP	UNEMPL	PWOM	GRADUATES	TRUST	CRIME RISK	VOLUNTEERING	GAMBLING
SAR	0.037***	0.065***	−0.063***	0.037***	0.037***	−0.003	0.086***	0.093**	0.015***
ALR	−0.130***	0.045***	−0.080***	−0.074***	0.034***	0.084***	−0.111***	−0.052***	−0.136***
OPE	−0.026***	0.066***	−0.066***	0.018***	0.063***	0.041***	0.034***	0.038***	−0.042***
FCF	−0.077***	0.029***	−0.101***	−0.094***	0.006***	0.083***	−0.077***	0.042***	−0.092***
SIZE	−0.125***	0.037***	−0.114***	−0.103***	0.029***	0.115***	−0.098***	0.013***	−0.121***
LEVERAGE	0.006***	−0.028***	−0.010***	0.039***	−0.029***	−0.010***	0.011***	0.033***	0.001
ROA	−0.048***	0.043***	−0.060***	−0.045***	0.028***	0.044***	−0.019***	0.008***	−0.045***
AGE	−0.226***	0.063***	−0.197***	−0.134***	0.035***	0.177***	−0.177***	0.015***	−0.212***

(*continued*)

Table 3. Continued

	RELIGIOSITY	GDP	UNEMPL	PWOM	GRADUATES	TRUST	CRIME RISK	VOLUNTEERING	GAMBLING
OWNERSHIP	0.016***	0.047***	−0.023***	−0.020***	0.049***	0.016***	0.027***	0.015***	−0.011***
RELIGIOSITY	1.000	0.062***	0.530***	0.009***	0.163***	−0.568***	0.586***	0.130***	0.642***
GDP		1.000	−0.366***	−0.291***	0.900***	0.156***	0.328***	0.171***	−0.260***
UNEMPL			1.000	0.312***	−0.215***	−0.632***	0.242***	−0.578***	0.756***
PWOM				1.000	−0.311***	−0.329***	0.387***	−0.185***	0.314***
GRADUATES					1.000	0.150***	0.364***	0.085***	−0.147***
TRUST						1.000	−0.463***	0.260***	−0.650***
CRIME RISK							1.000	0.167***	0.502***
VOLUNTEERING								1.000	−0.265***
GAMBLING									1.000

Note(s): (***), and (**), indicates significance levels at 1% and 5% of two-tailed test, respectively
Source(s): Authors' own work

Table 4. Empirical estimates using OLS

	SAR	SAR	ALR	ALR	OPE	OPE	FCF	FCF
Constant	−3.163***	−3.142***	0.888***	0.897***	−0.536***	−0.089	0.235***	0.234***
	(0.196)	(0.196)	(0.040)	(0.040)	(0.050)	(0.139)	(0.011)	(0.011)
SIZE	−0.226***	−0.226***	−0.012***	−0.012***	−0.017***	−0.017***	0.003***	0.003***
	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)
LEVERAGE	−0.139***	−0.139***	−0.219***	−0.219***	0.006***	0.005*	−0.020***	−0.020***
	(0.005)	(0.005)	(0.001)	(0.001)	(0.001)	(0.003)	(0.003)	(0.003)
ROA	1.754***	1.755***	0.516***	0.517***	−0.098***	−0.094***	0.689***	0.689***
	(0.017)	(0.017)	(0.004)	(0.004)	(0.004)	(0.007)	(0.001)	(0.001)
AGE	−0.201***	−0.203***	0.015***	0.015***	−0.011***	−0.025***	−0.005**	−0.001**
	(0.004)	(0.004)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.000)
RELIGIOSITY	0.174***	0.083**	−0.101***	−0.141***	−0.057***	−0.075***	−0.006***	−0.002
	(0.026)	(0.038)	(0.005)	(0.008)	(0.006)	(0.019)	(0.001)	(0.002)
GDP	0.154***	0.154***	−0.009***	−0.009***	0.004***	0.009***	0.003***	0.003***
	(0.005)	(0.005)	(0.001)	(0.001)	(0.001)	(0.003)	(0.003)	(0.003)
UNEMP	−1.931***	−1.929***	0.007	0.008	−0.289***	−0.248***	−0.002	−0.002
	(0.039)	(0.039)	(0.008)	(0.008)	(0.001)	(0.022)	(0.002)	(0.002)
PWOM	6.648***	6.647***	−1.035***	−1.035***	1.955***	1.053***	0.476***	−0.476***
	(0.357)	(0.357)	(0.074)	(0.074)	(0.091)	(0.250)	(0.020)	(0.020)
GRADUATES	−0.680***	−0.680***	0.081***	0.081***	0.106***	0.105***	−0.025***	−0.025***
	(0.032)	(0.032)	(0.007)	(0.007)	(0.008)	(0.018)	(0.002)	(0.002)
TRUST	0.204***	0.204***	−0.099***	−0.099***	−0.029***	−0.025*	−0.005	−0.005
	(0.029)	(0.029)	(0.006)	(0.006)	(0.007)	(0.014)	(0.002)	(0.002)
CRIME RISK	−0.018	−0.018	−0.024***	−0.024***	−0.002	0.017*	−0.012***	−0.012***
	(0.015)	(0.015)	(0.003)	(0.003)	(0.003)	(0.108)	(0.001)	(0.001)
VOLUNTEERING	0.616***	0.616***	−0.208***	−0.208***	0.081***	0.009	0.032***	0.032***
	(0.041)	(0.041)	(0.009)	(0.009)	(0.010)	(0.026)	(0.002)	(0.002)
GAMBLING	4.233***	4.228***	−1.093***	−1.095***	0.106***	0.019	0.056***	−0.055***
	(0.120)	(0.120)	(0.026)	(0.026)	(0.031)	(0.108)	(0.007)	(0.007)
OWNERSHIP	−0.033***	−0.066***	−0.006***	−0.021***	0.023***	0.035***	0.002***	0.003***
	(0.003)	(0.010)	(0.001)	(0.002)	(0.001)	(0.005)	(0.000)	(0.001)

(*continued*)

Table 4. Continued

	SAR	SAR	ALR	ALR	OPE	OPE	FCF	FCF
RELIGIOSITY*OWN		0.001***		0.001***		−0.0005**		−0.0001**
		(0.0004)		(0.0001)		(0.0002)		(0.00002)
INDUSTRY	YES	YES	YES	YES	YES	YES	YES	YES
YEAR	YES	YES	YES	YES	YES	YES	YES	YES
R-squared	0.249	0.249	0.182	0.182	0.317	0.315	0.608	0.608
Adj. *R*-squared	0.249	0.249	0.182	0.182	0.317	0.315	0.608	0.608
N. Obs	1,118,620	1,118,620	1,118,620	1,118,620	1,118,620	1,118,620	1,118,620	1,118,620

Note(s): (*), (**), and (***) indicate significance levels of 10%, 5%, and 1%, respectively. Robust Standard Errors clustered by firm are given in parentheses
Source(s): Authors' own work

Table 5. Empirical estimates using OLS

	SAR	SAR	ALR	ALR	OPE	OPE	FCF	FCF
Constant	−3.151***	−3.224***	0.888***	0.887***	−0.541***	−0.517***	0.235***	0.235***
	(0.196)	(0.196)	(0.040)	(0.040)	(0.050)	(0.050)	(0.011)	(0.011)
SIZE	−0.229***	−0.230***	−0.012***	−0.012***	−0.017***	−0.017***	0.003***	0.003***
	(0.001)	(0.001)	(0.003)	(0.001)	(0.004)	(0.004)	(0.001)	(0.001)
LEVERAGE	−0.134***	−0.137***	−0.219***	−0.219***	0.004***	0.006***	−0.020***	−0.020***
	(0.005)	(0.005)	(0.001)	(0.001)	(0.001)	(0.001)	(0.003)	(0.003)
ROA	1.794***	1.741***	0.518***	0.516***	−0.114***	−0.092***	0.688***	0.689***
	(0.017)	(0.017)	(0.004)	(0.004)	(0.004)	(0.004)	(0.001)	(0.001)
AGE	−0.199***	−0.193***	0.015***	0.016***	−0.011***	−0.014***	−0.001**	−0.001***
	(0.004)	(0.003)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)
RELIGIOSITY	0.182***	0.170**	−0.100***	−0.101***	−0.060***	−0.055***	−0.006***	−0.006***
	(0.026)	(0.026)	(0.005)	(0.006)	(0.006)	(0.006)	(0.001)	(0.001)
GDP	0.156***	0.154***	−0.009***	−0.009***	0.003**	0.003**	0.003***	0.003***
	(0.005)	(0.005)	(0.001)	(0.001)	(0.001)	(0.001)	(0.003)	(0.003)
UNEMP	−1.931***	−1.919***	0.007	0.007	−0.287***	−0.293***	−0.002	−0.002
	(0.039)	(0.039)	(0.008)	(0.008)	(0.001)	(0.010)	(0.002)	(0.002)
PWOM	6.783***	6.720***	−1.028***	−1.040***	1.899***	1.944***	−0.478***	−0.475***
	(0.357)	(0.357)	(0.074)	(0.074)	(0.091)	(0.091)	(0.020)	(0.021)
GRADUATES	−0.683***	−0.683***	0.081***	0.081***	0.107***	0.108***	−0.025***	−0.025***
	(0.032)	(0.032)	(0.007)	(0.007)	(0.008)	(0.008)	(0.002)	(0.002)
TRUST	0.201	0.199***	−0.100***	−0.100***	−0.028***	−0.027***	−0.004	−0.004
	(0.029)	(0.029)	(0.006)	(0.006)	(0.007)	(0.007)	(0.001)	(0.002)
CRIME RISK	−0.021	−0.020	−0.024***	−0.024***	−0.001	−0.001	−0.012***	−0.012***
	(0.015)	(0.015)	(0.003)	(0.003)	(0.003)	(0.003)	(0.001)	(0.001)
VOLUNTEERING	0.591***	0.622***	−0.209***	−0.207***	0.091***	0.077***	0.032***	0.031***
	(0.041)	(0.041)	(0.009)	(0.009)	(0.010)	(0.010)	(0.002)	(0.002)
GAMBLING	4.233***	4.243***	−1.093***	−1.091***	0.104***	0.100	−0.056***	−0.056***
	(0.120)	(0.120)	(0.026)	(0.026)	(0.031)	(0.031)	(0.007)	(0.007)
OWNERSHIP	−0.671***		−0.055***		0.342***		0.015***	
	(0.029)		(0.006)		(0.007)		(0.001)	

(*continued*)

Table 5. Continued

	SAR	SAR	ALR	ALR	OPE	OPE	FCF	FCF
OWNERSHIP^2	0.951***		0.106***		−0.569***		−0.027***	
	(0.060)		(0.012)		(0.015)		(0.003)	
OWNERSHIP^3	−0.041***		−0.063***		0.294***		0.0155***	
	(0.037)		(0.008)		(0.001)		(0.002)	
OWNERSHIP$_{100}$		0.013***		−0.004***		0.005***		0.001***
		(0.002)		(0.0004)		(0.0004)		(0.0001)
INDUSTRY	YES	YES	YES	YES	YES	YES	YES	YES
YEAR	YES	YES	YES	YES	YES	YES	YES	YES
R-squared	0.251	0.249	0.182	0.182	0.322	0.316	0.608	0.608
Adj. *R*-squared	0.251	0.249	0.182	0.182	0.322	0.315	0.608	0.608
N. Obs	1,118,620	1,118,620	1,118,620	1,118,620	1,118,620	1,118,620	1,118,620	1,118,620

Note(s): (*), (**), and (***) indicate significance levels of 10%, 5%, and 1%, respectively. Robust Standard Errors clustered by firm are given in parentheses
Source(s): Authors' own work

characteristic variables (*LEVERAGE*, *AGE*, *SIZE*, *ROA*) are always statistically significant, even if they present a change in their sign. We cannot assume that debt reduces agency costs as an external mechanism of control. Rossi *et al.* (2018) observe similar results for Italian listed firms. Stronger religious beliefs seem to restrain corporations' opportunistic behavior more effectively than the traditional tools identified by Jensen and Meckling (1976), in contrast to the agency theory. Businesses operating in more religious areas tend to abstain from immoral actions. This justifies the impression for which businesses that practice more religion tend to behave more morally toward their shareholders without damaging the interests of stakeholders. Findings also demonstrate that larger and older firms experience greater agency costs. The sociodemographic variables, *GDP, PWOM, GRADUATES, VOLUNTEERING* and *GAMBLING* are always statistically significant. Specifically, we find that *GDP, PWOM* and *GAMBLING* are positively associated with *SAR*, *OPE* and *FCF* and negatively associated with *ALR*. The coefficient of *GRADUATES* is positively associated with *ALR* and negatively associated with *SAR*, *OPE* and *FCF*; VOLUNTEERING has a positive relationship with *SAR*, *OPE* and *FCF* and a negative relationship with *ALR*. The remaining variables (*UNEMP, TRUST* and *CRIME RISK*) are not always statistically significant. *UNEMP* is significant with respect to *SAR* and *OPE* with respect to which it assumes a negative sign, *TRUST* is significant with respect to *SAR* (positive relationship), to *ALR* and *OPE* (negative relationship). The coefficient of *CRIME RISK* is significant with respect to *ALR*, *OPE* and *FCF,* assuming a negative sign in the three models.

In Table 5, we also consider two measures to control the linearity of the relationship.

Specifically, we consider $OWNERSHIP^2$ and $OWNERSHIP^3$ and we observe that while the sign of the coefficient *RELIGIOSITY* remains positive (negative) with *SAR* (*ALR, OPE* and *FCF*), the coefficient of ownership changes, assuming a U-shape or an inverted U-shape. A high level of ownership concentration has a positive impact on *SAR* and *OPE* and a negative impact on *ARL* and *FCF.* Basically, we find a U-shape relationship between ownership concentration and agency costs. Once again, our results confirm that ownership concentration cannot be used to resolve the agency problems in Italian unlisted firms. By also considering the role of debt as an external mechanism for controlling agency costs, we observe that debt has a statistically significant negative impact in all regressions. Unlike previous studies (e.g. Ang *et al*., 2000; Florackis, 2008), we reckon that debt is not able to assume a disciplinary role in monitoring agency costs.

By analyzing our data, we notice that controlling shareholders hold 100% of shares in 23% of the sample, approximately 20,000 companies. According to Jensen and Meckling (1976), if the ownership is concentrated in the hands of a single owner there are no agency problems. In the U.S., Ang *et al.* (2000), using a sample of small businesses, test the hypothesis and find that debt and ownership concentration mitigate agency costs. Following the previous theoretical and empirical studies, and to verify if agency costs are zero when the controlling shareholder holds 100%, we create a dummy variable *OWNERSHIP100* that takes the value of 1 if the controlling shareholder holds 100% and 0 otherwise. Again, we find that the sign of the coefficient *OWNERSHIP100* does not take a well-defined sign. We conclude again that ownership concentration cannot be used as a mechanism to control and monitor agency costs for Italian unlisted firms.

Table 6 shows the fixed effect results. As we can see, the results remain substantially unchanged.

We observe a positive relationship between religiosity and SAR and a negative one with the other dependent variables (*FCF, OPE* and *ALR*), so we can affirm that religiosity takes the role of external monitoring in the agency problems.

The results of the work confirm that greater religiosity reduces opportunistic behaviors, and firm headquarters in higher religious areas record lower agency costs and have more efficient business management. The present study contributes to the research line investigating the link between religiosity (a social norm) and organizational behavior. Specifically, the findings corroborate the existence of an inverse relationship between religiosity and agency costs,

Table 6. Empirical estimates using fixed effect model

	SAR	ALR	OPE	FCF
Constant	−3.452***	0.897***	−0.598***	0.233***
	(0.214)	(0.040)	(0.055)	(0.122)
SIZE	−0.226***	−0.012***	−0.017***	0.003***
	(0.002)	(0.0003)	(0.0004)	(0.0001)
LEVERAGE	−0.137***	−0.212***	0.006***	−0.020***
	(0.006)	(0.001)	(0.002)	(0.0003)
ROA	1.757***	0.515***	−0.101***	0.689***
	(0.018)	(0.004)	(0.005)	(0.001)
AGE	−0.202***	0.015***	−0.012***	−0.0003
	(0.004)	(0.001)	(0.001)	(0.0002)
RELIGIOSITY	0.191***	−0.105***	−0.051***	−0.006***
	(0.028)	(0.006)	(0.007)	(0.001)
GDP	0.160***	−0.011***	0.003*	0.003***
	(0.009)	(0.001)	(0.001)	(0.0003)
UNEMP	−1.938***	0.013	−0.301***	−0.001
	(0.043)	(0.009)	(0.001)	(0.002)
PWOM	7.069***	−1.001***	2.096***	0.467***
	(0.391)	(0.082)	(0.099)	(0.022)
GRADUATES	−0.701***	0.096***	0.112***	−0.021***
	(0.036)	(0.008)	(0.009)	(0.002)
TRUST	0.227***	−0.111***	−0.032***	−0.003
	(0.032)	(0.007)	(0.008)	(0.002)
CRIME RISK	−0.021	−0.024***	−0.007*	−0.013***
	(0.017)	(0.003)	(0.004)	(0.001)
VOLUNTEERING	0.575***	−0.203***	0.081***	0.035***
	(0.045)	(0.010)	(0.011)	(0.002)
GAMBLING	4.291***	−1.144***	0.098***	0.056***
	(0.129)	(0.028)	(0.033)	(0.007)
OWNERSHIP	−0.031***	−0.006***	0.023***	0.002***
	(0.002)	(0.0006)	(0.001)	(0.0002)
INDUSTRY	YES	YES	YES	YES
YEAR	YES	YES	YES	YES
R-squared	0.392	0.339	0.448	0.684
Adj. *R*-squared	0.252	0.185	0.319	0.609
N. Obs	1,118,620	1,118,620	1,118,620	1,118,620

Note(s): (*), (**), and (***) indicate significance levels of 10%, 5%, and 1%, respectively. Robust Standard Errors clustered by firm are given in parentheses
Source(s): Authors' own work

which consequently exerts a positive influence on OB in line with results of previous studies (Weaver and Agle, 2002; Fernando and Jackson, 2006; Dik *et al.*, 2024). This suggests that religion exerts a mediating effect by motivating individuals to engage in ethical behaviors, both within their own communities and in professional settings, fostering positive relationships among colleagues and contributing to the attainment of organizational goals and strategies.

The extant literature, along with the various managerial theories examined in this study, substantiates the notion that the actions of managers are contingent on and can be influenced by the prevailing socio-economic context. Context gives rise to the development, dissemination and adoption of formal or informal social norms among individuals. Those who recognize themselves in such contexts are compelled to conform to these norms because doing so is less costly than disregarding them. A similar phenomenon occurs in the corporate context, where managers are compelled to act in accordance with the norms shared in their respective social groups. Their behavior is guided not only by personal interests but also by ethical considerations, in line with various managerial theories, including social norm theory, social identity theory and organizational behavior. Consequently, religion, as a social norm, contributes to the instilling of beliefs that counteract fraudulent, unethical and common sense behavior, thereby aligning the interests of management with those of the owners and consequently reducing agency costs.

4.1 Robustness check

RELIGIOSITY could have endogeneity problems (e.g. Chintrakarn *et al.*, 2018). To check for endogeneity issues this study also employs a dynamic panel data model involving a two-step system-GMM (Arellano and Bond, 1991; Blundell and Bond, 1998) because it is an effective econometric instrument that distinguishes between endogeneity due to simultaneity and endogeneity attributed to unobservable heterogeneity (e.g. Wooldridge, 2002; Wintoki *et al.*, 2012). Untabulated results remain the same also when using the GMM-System.

The estimation results support our hypotheses *H1* and *H2*: that firms situated in areas with a higher religiosity have fewer agency problems and appear to have more ethical behavior with regard to the stakeholders' interests. Findings also imply that religiosity is impactful on corporate conduct as emphasized in former works (La Porta *et al.*, 1999; Guiso *et al.*, 2006, 2015; Hilary and Hui, 2009; Chintrakarn *et al.*, 2018; Díez-Esteban *et al.*, 2018). Furthermore, results remained robust in numerous alternative specification estimations. When we use the GMM two-step the results remain the same. Finally, for all regressions we find values of the variance inflation factors (VIFs) lower than 10, which leads us to the reasonable conclusion that multicollinearity is not a problem in our analyses.

5. Conclusions

A growing literature has investigated the relationship between religiosity, which represents a relevant part of the social capital, and ethical business. Although it is widely believed that religiosity can influence corporate behavior and, in turn, agency costs, and more generally business ethics, very few studies have addressed this issue with reference to unlisted companies and in particular none have focused on the Italian business context. Using a balanced panel dataset of Italian unlisted companies, involving 1,118,620 firm-year observations over the period 2014–2023, this study finds a statistically significant relationship between religiosity and agency costs. Specifically, we find an inverse link between agency costs and religiosity. Religiosity, used as an unwritten social norm (social value), seems to affect corporate conduct and mitigate unethical business. The results of our analysis emphasize that a greater religiosity mitigates opportunistic behavior; this conclusion is reached even when the main shareholders are added in our specification. Our findings conform with previous studies highlighting that religiosity discourages the non-ethical acting of firms (Montenegro, 2017; Harjoto and Rossi, 2019; Cebula and Rossi, 2021) and provide an insight on the mediating role of faith on the firm's strategy and decision-making process. We also reckon that our results can be spread to countries with features similar to Italy (e.g. Spain, France and Portugal).

5.1 Managerial implications and contribution

This study sheds light on how faith influences a firm's strategy and decision-making process. Our results suggest several managerial implications and contributions. Firstly, our study extends the literature on this topic to unlisted firms. Secondly, for Italian unlisted firms the classical corporate governance mechanisms do not work as with companies based in other countries, and specifically those based in common law countries. Thirdly, this study provides useful insights to owners and investors who can benefit with the knowledge that agency problems, and therefore ethical business behavior, are more severe in the firms based in lower religious areas than companies based in higher religiosity areas. As we know, the agency costs decrease the firm's efficiency in the short term and destroy value in the long term, therefore investors can take appropriate measures to prevent the inefficiency of the company, perhaps by appointing trusted members on the board of directors and/or in the board of auditors, in order to protect the money invested. Finally, banks can have another useful indicator when they have to finance companies located in less religious areas. More precisely, in addition to the classic performance indicators, they should also consider cultural variables, such as religiosity, as a parameter in the financing phase.

5.2 Limitation and future research proposal

As with any other work, our work is not free from limitations. Firstly, the specific peculiarities of Italian unlisted companies could differentiate them from those of other countries, both civil law and common law countries. Secondly, in our unlisted Italian companies there is a founder that manages the company, directly or indirectly, and the managerial setup is based on family members; essentially the decision-making process is only a prerogative of the family. Thirdly, the capital structure choice and, as a result, the low capitalization of Italian companies, can be partly attributed to the family's reticence to expand the shareholding structure, and therefore the prevalent financing channel is self-financing and bank debt. These factors could compromise their development in the long term even though they present potential and the requirements to grow and go public. All these could represent limitations in extending the results to countries that are different from Italy. Furthermore, there could be other cultural factors, apart from religiosity, that are not considered in the work, and have a potential impact on agency costs, just as religiosity could influence other entrepreneurial aspects and not only agency costs. Future extensions of this work could examine the influence and significance of religiosity on insolvency, capital structure, earnings management, and corporate risk-taking for Italian unlisted companies as well as for firms based in other predominantly Catholic nations.

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Appendix

Table A1. Religiosity rate by Italian regions

REGIONS	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Piemonte	0.250	0.251	0.225	0.243	0.192	0.211	0.183	0.171	0.160	0.157
Valle D'Aosta	0.189	0.210	0.174	0.183	0.165	0.207	0.141	0.119	0.122	0.144
Liguria	0.216	0.186	0.178	0.169	0.190	0.163	0.150	0.125	0.128	0.131
Lombardia	0.315	0.305	0.304	0.269	0.250	0.273	0.225	0.221	0.186	0.163
Provincia Autonoma di Bolzano/Bozen	0.225	0.239	0.241	0.244	0.227	0.204	0.146	0.119	0.137	0.122
Provincia Autonoma di Trento	0.276	0.312	0.268	0.295	0.251	0.235	0.201	0.185	0.195	0.148
Veneto	0.307	0.324	0.263	0.282	0.250	0.244	0.199	0.194	0.187	0.162
Friuli-Venezia Giulia	0.180	0.219	0.202	0.211	0.205	0.190	0.151	0.153	0.154	0.131
Emilia-Romagna	0.202	0.216	0.227	0.199	0.199	0.189	0.189	0.172	0.147	0.132
Toscana	0.181	0.194	0.172	0.192	0.185	0.170	0.135	0.145	0.135	0.121
Umbria	0.229	0.255	0.227	0.210	0.211	0.200	0.167	0.155	0.152	0.160
Marche	0.330	0.316	0.287	0.278	0.284	0.281	0.217	0.216	0.192	0.223
Lazio	0.237	0.267	0.251	0.249	0.239	0.207	0.181	0.149	0.177	0.175
Abruzzo	0.275	0.285	0.272	0.247	0.261	0.230	0.210	0.171	0.150	0.201
Molise	0.308	0.309	0.336	0.304	0.271	0.284	0.257	0.191	0.196	0.220
Campania	0.349	0.354	0.356	0.316	0.299	0.328	0.262	0.207	0.250	0.241
Puglia	0.367	0.326	0.331	0.342	0.307	0.308	0.281	0.244	0.236	0.222
Basilicata	0.304	0.286	0.309	0.302	0.279	0.271	0.218	0.172	0.183	0.180
Calabria	0.378	0.348	0.288	0.334	0.323	0.319	0.247	0.235	0.243	0.255
Sicilia	0.379	0.373	0.334	0.312	0.296	0.317	0.271	0.240	0.242	0.227
Sardegna	0.225	0.219	0.263	0.242	0.232	0.221	0.163	0.156	0.159	0.161

Source(s): Authors' own work adapted from The National Institute for Statistics (ISTAT) data

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