

## 2. INTERNAL CONTROLS AND FINANCIAL PERFORMANCE IN SMALL AND MEDIUM ENTERPRISES: FIRST EVIDENCE OF CORRELATION IN THE NORTHEASTERN ITALY CONTEXT

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### **Abstract**

An effective internal control system (ICS) is expected to ensure that companies reach their goals, improve corporate governance, protect their assets, guarantee the reliability of financial information and prevent fraud. These important goals, activities and processes could affect a company's financial performance. The agency theory and institutional theory both stress the importance of an effective ICS. Using a quantitative approach, this study investigated the relationship between the five components of an ICS as described in the Committee of Sponsoring Organizations framework and financial performance of small to medium enterprises (SMEs) in Veneto, Italy. The study used an industry and time-period fixed-effect ordinary least square regression model for testing hypotheses. Financial performance was assessed using two different financial ratios (ROA and ROA\*). The analyses revealed that risk assessment as well as information and communication were significantly correlated with financial performance, while control environment, control activities and monitoring activities had less or no influence. This study offers empirical evidence of the importance of a good ICS in SMEs, at least in relation to some components, and their positive effect on a company's financial performance.

**Keywords:** Small and medium enterprises (SMEs), Internal controls, Internal control system (ICS), Financial performance, ROA, Italy.

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## 2.1. Introduction

In recent years, several studies have highlighted the importance of the internal control system (ICS) and its links to corporate governance, business reporting and fraud prevention issues (D’Aquila, 1998; Doyle et al., 2007a; Fadzil, 2005; Jokipii, 2010; Owusu-Ansah & Ganguli, 2010; Sobel & Reding, 2004; Zhang et al., 2007)<sup>1</sup>.

In most cases, the focus was on large companies, with their sophisticated structures and controls, where segregation of duties and other checks and balances are inserted by design in their processes. In these companies, the board of directors (BoD), its subset of members belonging to the audit committee and the senior management are responsible for the ICS design and effectiveness (Baker & Anderson, 2010). The internal auditing activity has the specific task of gathering and elaborating information on the state of internal controls, with specific audits addressed to the management (Solomon & Solomon, 2004).

The most recognised framework for defining and assessing the ICS is the CoSO report, which the Committee of Sponsoring Organizations of the Treadway Commission (CoSO) first issued in 1992. According to this framework, ‘Internal control is the process effected by an entity’s board of directors, management and other personnel, designed to provide reasonable assurance regarding the achievement of objectives relating to operations, reporting and compliance’ (Internal Control – Integrated Framework; CoSO, 2013).

The ICS has five components, which apply to all the three categories of the aforementioned objectives (operations, reporting and compliance): (1) control environment, (2) risk assessment, (3) control activities, (4) information and communication and (5) monitoring activities.

<sup>1</sup> In the past century, the Italian accounting and business administration literature (e.g., Amaduzzi, 1953; Besta, 1926; Bruni, 1973, 1990; Zappa, 1956) outlined the importance of internal control issues and their effects on a firm’s economy.

Control environment sets the tone of the organisation, being the foundation of all other components, including integrity, ethical values and human resource competence.

Risk assessment involves identifying and analysing main risks associated with achieving company objectives.

Control activities are the actions established by policies and procedures that the organisation sets in relation to its objectives (in terms of operations, reporting and compliance), such as segregation of duties, authorisations, crosschecking and the four-eyes principle.

Information and communication deal with the collection, analysis and reporting of relevant information at all the levels and users, both internal and external.

Lastly, monitoring activities are both ongoing and separate activities of ICS assessment conducted by specific employees and managers to verify that the ICS is present and functioning.

For each component, one or more principles, suitable for all entities and representing the fundamental concepts associated with the component, were stated. The analysis in the present study considered most of the provisions contained in two relevant documents issued by CoSO: the Internal Control – Integrated Framework (CoSO, 2013) and the Guidance for Smaller Public Companies Reporting on Internal Control over Financial Reporting (CoSO, 2006).

The purpose of this study was to approach the ICS as a whole, considering all the components, for a comprehensive analysis of its role and contribution to company performance. Thus far, most studies on internal controls have focused on its individual components (Jokipii, 2010) and, in very limited cases, on smaller companies.

Small to medium enterprises (SMEs) face special issues and challenges when defining, structuring and implementing internal controls. In particular, determining an adequate segregation of duties, attracting an adequate pool of independent outside parties to serve on the BoD and obtaining adequate internal accounting resources are common problems in SMEs. In addition, the increased opportunity for management override of controls and the low level of formalisation of the procedures linked to internal controls are typical weaknesses noticed in SMEs (CPA Australia, 2008).

The objective of an ICS is to lead companies to pursue their goals, adding value; following this reasoning, the activities and procedures linked to internal controls must be cost-effective. This characteristic of cost-effectiveness can be difficult to achieve, particularly in SMEs that may incur additional costs to project the ICS and to demonstrate that it is enforced. In fact, the

internal control of SMEs is less formalised and often lacking in available resources. By contrast, SMEs may have advantages such as a wider span of control by senior management or greater direct interaction with personnel (CoSO, 2013).

Following the principles and guidelines issued by the CoSO, SMEs should be able to implement a cost-effective ICS, counting on the available resources, albeit limited.

Internal control provides many positive contributions to companies, ranging from detailed analysis of objectives and their degree of achievement to feedback on the business and its operations. Other positive effects are robust external financial reporting – that could lead to improved access to capital markets – but also efficient and widespread use of information that usually improves the decision-making process and enhances the efficiency of functions and processes.

All these actions should also be associated with increased company efficiency and effectiveness in all its processes, from the top in the BoD activity to the bottom in the lower lines. However, one well-known fact is that implementing a ‘good’ ICS results in costs being incurred, such as for designing and maintaining structured processes and procedures; enhancing personnel training; elaborating and delivering information; and tracking activities. Consequently, in designing and implementing the ICS, costs and benefits should be analysed together, in a cost-benefit equation, since costs are often quantified precisely while benefits are more uncertain.

Is it worth it? Would companies, and particularly SMEs, with a better ICS also have a better financial performance?

To test the hypothesis that an effective and efficient ICS leads to improved financial performance, panel data on companies in Veneto, Italy, were collected through surveys in 2016 and 2017 and a multiple regression model with fixed effects was prepared and tested in 2018. Results suggest a positive correlation exists between the ICS variables and financial performance.

The remainder of this paper is organised as follows. Section 2 presents the literature review and hypotheses. Section 3 describes the method, sample data and analysis. Section 4 illustrates conclusions.

## 2.2. Literature review and hypothesis

### 2.2.1. Literature review

The topic of the ICS, with its role, structure and costs, is strongly related to the ‘agency problem’. During the past decades, a specific stream of academic literature, starting from the seminal work of Jensen and Meckling, focused on the problems arising owing to the separation between company ownership and management (Jensen & Meckling, 1976; Fama & Jensen, 1983). Under this “agency theory”, the principal (the shareholder) should invest in controls (e.g., management layers, procedures, BoD, BoD committees, internal and external audits, budgets and reporting and disclosure procedures) since the agent (the management) could pursue its own interest instead of that of the principal.

A good ICS represents a ‘tool’ to mitigate the agency problem and satisfy shareholders’ expectations. (Arwinge, 2013). Other mechanisms to address the agency problem are financial reporting, budgeting and audit committees (Jensen & Payne, 2003).

According to this stream, SMEs face an agency problem similar to that large companies face, because of the presence of independent directors and executives and because a type of ‘mismatch’ between shareholders and managers remains (Abor & Adjasi, 2007; Arosa et al., 2013).

The institutional theory too underlined the importance of controls, because organisations need common rules and structures and governments tend to force organisations towards this end (DiMaggio & Powell, 1983; Meyer & Rowan, 1977). Under this perspective, controls are mainly installed to gain public legitimacy and because of institutional pressure (e.g., from governments, standard setters and accounting associations).

For most of the past decades, internal controls were considered predominantly for accounting purposes. These controls were relevant for both external and internal auditing issues and were categorised into general groups when referring to the whole organisation and into specific ones when affecting certain cycles or operations (Maijoor, 2000).

Only after the various financial scandals that occurred in the 1980s was the ‘real’ importance of internal controls evident from a wider perspective than previously: all the reports issued by the main commissions – delegated the tasks of identifying the origins, the possible causes and solutions to the aforementioned problems – stressed the relevant role of the ICS (Stringer & Carey, 2002).

In 1992, the CoSO published a fundamental framework on internal controls (the CoSO report), which became the basis for various other models and frameworks issued by international organisations, associations of companies, supervising bodies and national legislations.

In 1998, the Basel Committee on Banking Supervision introduced its Framework for Internal Control Systems that included five elements of internal control: management oversight and control culture, risk recognition and assessment, control activities and segregation of duties, information and communication, and monitoring activities and correcting deficiencies (Basel Committee on Banking Supervision, 1998). Based on the ‘five components’ of the CoSO report, the Turnbull report of 1999 presented the ‘Internal Control: Guidance for Directors on the Combined Code’ for companies listed in the United Kingdom to assess their risk and control processes (The Institute of Chartered Accountants in England and Wales, 1999).

Further, the Canadian Institute of Chartered Accountants (1995) introduced its Criteria of Control Framework, which was inspired by the CoSO framework. In addition, most of the codes and documents on the ICS topic issued by the Organisation for Economic Co-operation and Development, the European Union and the main supervision committees of stock exchanges of major worldwide economies cited or at least considered the CoSO framework.

According to the CoSO report, which was last amended in 2013, a functioning ICS is intended to provide reasonable assurance that the organisational objectives will be achieved, through the provision of precise and trustworthy financial information, compliance with procedures, laws and regulations and protection against frauds and thefts. According to Dimitrijevic et al. (2015), a developed ICS represents a barrier protecting companies against various types of data manipulation and fraud.

The CoSO report designed a framework identifying five fundamental components of the ICS: control environment, risk assessment, control activities, information and communication, and monitoring activities (CoSO, 2013).

The control environment is the first fundamental component of the ICS, and all other components are based on it. Its elements are heterogeneous and vary from processes to structures, along with the commitment to integrity and ethical values by employees, the appropriate assignment of authority and responsibilities and the processes for selecting and retaining competent individuals, among others.

The control environment has a widespread effect on all company processes, from strategy formulation and implementation to reporting decisions (D'Aquila, 1998).

Kinyua et al. (2015) tested the effect of the internal control environment on the financial performance of companies listed on the Nairobi Securities Exchange and found a positive and significant relationship between the two sets of variables that it considered, that is, those related to the ICS and to financial performance.

The second component of the CoSO framework is risk assessment. Risk is intended in a wide perspective, as the possibility that an event will occur and adversely affect the achievement of the operations, reporting and compliance objectives of the organisation (CoSO, 2013). Risk assessment consists of the processes and activities established to identify, describe and assess the risks that could jeopardise the achievement of objectives, and it forms the basis for the subsequent risk management process (CoSO, 2017; Sobel & Reding, 2004). In support of the fundamental role of the enterprise risk management (ERM) process, Florio and Leoni (2017), in the context of Italian listed companies, found that firms with a wider implementation of ERM systems presented higher performance, measured both in terms of return on assets (ROA) and Tobin's Q.

Control activities are a set of actions established through policies and procedures that are aimed at guaranteeing that the management's directives to reduce risks for the attainment of objectives are performed at all levels of the entity (CoSO, 2013). Referring to the financial information process, the top management performs top-level reviews, comparing actual performance to budgets and forecasts by analysing financial reports and performance indicators related to different operational and financial information. At lower levels, the staff implements policies and procedures to effectively collect information in the company's accounts. Muraleetharan (2013) found a positive relationship between control activities and firm performance. Ejoh and Ejom (2014) found no significant relationship between internal control activities (i.e., performance reviews, information processing, physical controls and segregation of duties) and financial performance of tertiary institutions in Nigeria. They recommended establishing proper checks and balances for all financial transactions and that the management should regularly organise training on internal control for staff.

The fourth component of the ICS is information and communication. Information supports the functioning of the whole ICS; without information shared among the staff, the system cannot function properly (CoSO, 2013). Communication is the process of providing, sharing and obtaining the

necessary information. It is both internal and external. Internal communication is the flow of information throughout the organisation. External communication comprises both inbound communication of external information and information provision to external parties (stakeholders). Hooks et al. (1994) emphasised the role of communication in facilitating fraud prevention and detection.

Lastly, monitoring activity is the component of the ICS that is expected to assess the presence and proper functioning of its other components, identifying deficiencies and possible remediation. One typical monitoring activity is carried out by the BoD in assessing the Plan-Do-Check-Act (PDCA) cycle and by the management by activating a risk management process (Sobel & Reding, 2004).

Each component of the ICS, individually, and together in a holistic view, have a relevant impact on system effectiveness (CoSO, 2013; Stringer & Carey, 2002).

The impact of the failure of the ICS can be significant in all the companies (Jensen, 1993).

Doyle et al. (2007a) showed that material weaknesses in internal controls were more probable for firms that were smaller, less profitable, more complex, growing rapidly or undergoing restructuring.

Some other studies focused their attention on internal auditing practices (Fadzil et al., 2005), because these are a key element for a good ICS in their role of reviewing and evaluating its adequacy (CoSO, 2013). Moreover, the presence of the internal audit is considered important to improve corporate governance, internal processes and results. In auditing practices, it has been noticed that the higher the reliability of the ICS, the lower the extension of the tests that the auditor needed to conduct (Yu & Neter, 1973).

Zhang et al. (2007) analysed the relationship between audit committee quality, auditor independence and the disclosure of internal control weaknesses after the passing of the Sarbanes – Oxley Act: Internal control weaknesses were more likely in firms in which audit committees had less financial expertise, in which auditors were more independent and in firms with recent auditor changes. Krishnan (2005) measured audit committee quality in three dimensions (i.e., its size, its independence and its expertise) and found that independent audit committees and audit committees with financial expertise reduced the incidence of internal control problems (reportable conditions and material weaknesses). Aldamen et al. (2012) noted that higher-quality audit committees mitigated the exogenous effects of the global financial crisis and resulted in higher firm performance compared with lower-quality committees.



Ensuring effective functioning of the ICS should be a fundamental challenge to avoid bad performance and financial distress, to protect the organisation's assets and to achieve organisational goals. The results of a survey on Finnish firms indicated that environmental uncertainty and strategy had statistically significant effects in determining the ICS structure (Jokipii, 2010). This finding is consistent with internal control frameworks (above all, the CoSO framework) that, albeit presenting a standardised configuration for internal control, suggest adapting the framework to a firm's characteristics and needs. In conclusion, Jokipii (2010) found that contingency characteristics affect the ICS structure and its observed effectiveness.

Other studies have focused on analysing only one element of the ICS, such as the control environment (D'Aquila, 1998), information and communication (Hooks et al., 1994) and weaknesses in internal control (Zhang et al., 2007), and on internal control over financial reporting (Doyle et al., 2007a; 2007b).

Most previous studies focused on large corporations or medium-sized companies and their structured ICS; very few considered SMEs and the specificity of their ICS.

Hence, the present study focused on the relationship between internal controls and financial performance in SMEs.

The global economic literature and the legislation both do not provide a unique and generally accepted definition of SMEs. A common base is the limited activity and resources employed, but different economic contexts justify and maintain different SME classifications (Van der Wijst, 1989).

For this study's purpose, we referred to the EU definition that identifies SMEs with respect to certain parameters, in terms of total assets, sales turnover and employees (European Commission, 2017).

SMEs and micro companies are the backbone of the Italian and the European economy. In 2016, in the EU-28 non financial business sector SMEs and micro companies accounted for more than 99% of companies, two-thirds of total EU-28 employment (67%) and slightly less than three-fifths (57%) of the value added generated by the non financial business sector (Cerved, 2017). SMEs alone (excluding micro companies) accounted for approximately 7% of the companies, while micro companies reached 93% (with strong differences among EU countries) and large companies only 0.2% (European Commission, 2017).

In 2016, in Italy, 140,000 SMEs were active (one-fifth of which were medium-sized companies), employing approximately 4 million people.

This study's fundamental hypothesis was the positive correlation between the ICS and firm financial performance. Benefits derived from a 'good' ICS

should exceed costs: management commitment and responsibility should be stronger; long-term survival and prosperity should be adequately monitored. The costs and disadvantages potentially associated with implementing a stronger ICS – such as less flexibility, weak push and limited resources for innovation, thus lowering profitability (Maijoor, 2000) – should not overshadow its benefits.

Considering the aforementioned studies, firm financial performance was mainly measured by accounting profit rates or by Tobin's Q. These measures differ by two important characteristics: time perspective (the former consider the past and Tobin's Q considers the future) and the subject that is measuring performance (accountants for profit rates; the community of investors for Tobin's Q). Several studies that focus on large companies use the latter measure as proxy of company performance.

It has been argued that for SMEs, Tobin's Q could be affected by severe accounting practice problems and by the impossibility to determine its value, since often these are unlisted companies (Demsetz & Villalonga, 2001).

Ibrahim et al. (2017) found the existence of a positive relationship between some components of the ICS and financial performance: Improvements in risk assessment, control activities and monitoring led to improved financial performance. They also found that the control environment as well as information and communication did not have a statistically significant influence on firm performance.

Channar et al. (2015) investigated the functionality of each of the five internal control components, the effectiveness of the control system and its relationship with financial performance for six banks in Hyderabad. They noted that internal control effectiveness had a positive relationship with the financial performance of these banks.

Ngari (2017) investigated the effect of internal controls on financial performance of microfinance institutions in Kenya and found that segregation of duties, vouching, authorisation and approval of accounting transactions and internal audit functions affected financial performance significantly.

Eniola and Akinselure (2016) noted that effective ICS was able to improve financial performance considerably by helping the organisation significantly reduce fraud perpetration and that internal control contributed significantly to the achievement of goals and objectives. They recommended the development and discovery of new ways to strengthen internal control.

Mwakimasinde et al. (2014) found a significantly positive effect of ICS on the financial performance in Kenya, and Shokoohi et al. (2015) confirmed it for telecommunication companies in Iran.

Focusing on SMEs, in which the separation between ownership and management is typically less pronounced, internal controls are often weaker and less effective than in large companies. Resources to define and check procedures are limited; vulnerability to failures in planning and control activities, in managing risks and in avoiding errors and frauds is higher (CPA Australia, 2008). Jiang and Li (2010) noted that the main problems of ICS in SMEs were owing to the management's negligence, poor risk awareness and lack of attention to corporate culture. The ICS was often considered too expensive and inadequate to lead to significant results – even in the presence of potential risk of distortion of accounting information, weak and slow transfer of information and lack of appropriate internal audit bodies.

However, in the context of SMEs, certain peculiarities could make it easy to build 'a good' ICS. The establishment of a positive environment and culture may be easier to achieve, while the communication throughout the company may be more direct and effective. In addition, in SMEs where the BoD and the management tend to overlap creating a stronger control environment, the weaknesses of other areas could be offset (CoSO, 2006). The likelihood that SMEs will endow themselves with a code of conduct is low, but they can emphasise the importance of ethics and develop a climate and a culture of integrity using less formal means (D'Aquila, 1998).

In SMEs, the risk assessment process too, under certain conditions, can be more effective than in larger companies, because the involvement of the CEO, the BoD and other top managers is deeper; the access to information is easier and widespread, balancing the potential lack of expertise.

The structure of control activities in SMEs is influenced by their organisational characteristics, namely, the greater concentration of the decision-making power, the wider spans of control and the more direct communication. Another aspect of the control activities in SMEs is that segregation of duties may be difficult to achieve, owing to their limited resources. However, a stronger control environment could compensate for it (CPA Australia, 2008).

Despite their importance, information systems in SMEs are characterised by a lower level of formalisation: many SMEs achieve effective communication through more frequent daily contact instead of formalised reports.

Gramling et al. (2010) analysed the problem of segregation of duties, which is an important component of the ICS, in smaller companies. However, they did not consider the impact of this aspect on financial performance.

Tazilah and Hussain (2015) stressed the importance of the monitoring system in SMEs in ensuring the elimination of undesirable activities (fraud)

and weaknesses linked to the difficulty in establishing an adequate segregation of duties.

Shanmugam et al. (2012a; 2012b) in two different papers underlined both the central role that internal control and fraud prevention could play on SMEs performance and a significant relationship between internal control and performance of SMEs in Malaysia.

### 2.2.2. *Hypotheses formulation*

The fundamental hypothesis of the present study was that the ICS – in the context of SMEs as well—had a positive influence on financial performance, so that by improving the effectiveness of the ICS (as a whole and, in depth, of its five components) companies may improve their financial results. To test this hypothesis, this empirical study was carried out, collecting information about the ICS of the SMEs and their financial performance in a selected area. To enhance the response rate, questions were limited to 10, two for each component of the ICS according to the CoSO framework. Further, the questions and variables were relevant to the SME context. To define these, we mainly considered recommendations, check lists and other documents issued by the CoSO and by professionals, because we found very limited support in the existing literature. Since our survey remained external (with no insider data) and respondents were willing to answer only a few questions, we did not conduct a drill-down process of investigation with further questions.

#### 2.2.2.1. Control environment

According to the CoSO framework, the first component of the ICS is the ‘control environment’. To test its influence in SMEs, two topics were selected: the first deals with the detection, communication and management of conflicts of interests of BoD members; the second was related to the consistency between managers’ competences/experience and the position they hold.

A conflict of interest can be defined as a situation in which a board member’s obligation collides with personal, business or other interests. In a situation in which a conflict of interest emerges, firms must be able to deal effectively with such a problem to avoid the likely negative consequences.

Adopting a policy to define ‘in practice’ a conflict of interest of board members could be useful to avoid such conflicts.

Board members have a fiduciary duty to submit their individual interests to the best general interest of the company. Not all conflicts of interest are prohibited or detrimental, but board members are expected to disclose all actual and potential conflicts of interest, to allow the organisation to evaluate these and take adequate compensative actions, when necessary.

The presence of conflicts of interest is a typical ‘agency problem’ that companies and civil law tend to define and regulate. In SMEs, where trust and strong relationships among members are typical, this topic could be relevant but underestimated.

*Hp 1.1: Close attention to detection, communication and management of conflicts of interests of the members of the BoD has a positive influence on firm performance.*

The second element is the consistency between the competences and the experience of the top management (both executives and managers) and the position they hold. This should guarantee that the responsibility of a certain function is assigned to a competent manager who has the ‘right’ profile with the necessary professional skills and knowledge. This, in turn, can represent an important contribution to business profitability.

Abor and Biekpe (2007) found a significantly positive relationship between performance and skill level of the management, indicating that SMEs in which management teams were highly qualified exhibited high profitability.

*Hp 1.2: The greater the consistency of the managers’ profile with the position held, the higher the financial performance of the company.*

#### 2.2.2.2. Risk assessment

The second component of the ICS is ‘risk assessment’, which is part of the wider ERM. ERM is a ‘process, effected by an entity’s board of directors, management and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objective’ (CoSO, 2004).

According to the Italian Corporate Governance Code (Comitato per la Corporate Governance, 2018), the BoD leads and evaluates the adequacy of the internal control and risk management systems to favour the identification,

measurement, management and control of risks in the company. The BoD is not the main actor and is not directly responsible for risk management, which is a typical managerial task. Nonetheless, the BoD, with its role in governance activities, can improve the effectiveness of the ERM process, providing direction, authority and oversight to the actors responsible for ERM (Sobel & Reding, 2004).

Several studies analysed the impact of ERM on firm performance, reaching mixed results. Hoyt and Liebenberg (2011), focusing their attention on U.S. insurers, found a positive relation between firm value (Tobin's Q) and the use of ERM, quantifying a statistically and economically significant ERM premium of roughly 20%. McShane et al. (2011) found evidence of a positive relationship between advancements in traditional risk management and firm value but no additional value increase for firms reaching a higher ERM rating. Baxter et al. (2013) found that companies with superior ERM programmes were more complex and had greater financial resources and better corporate governance than other companies had. They also noted that firm performance (both accounting returns and market valuation) was higher for firms with higher-quality ERM, even if only during the global financial crisis. Farrell and Gallagher (2014) suggested that more mature levels of ERM led to higher firm value (Tobin's Q).

In the context of Italian listed companies, Florio and Leoni (2017) found that firms with a wider implementation of ERM systems presented higher performance, measured in terms of both ROA and Tobin's Q.

Focusing on SMEs, the importance of this activity in the scheduled task of the BoD could be tested for its potential impact on financial performance.

*Hp 2.1: The higher the frequency of the BoD discussions and analyses of risks, the greater the positive influence on firm performance.*

Risk owners are 'the people in a corporation who are responsible and accountable for managing specific risks'; only senior management and risk owners should be directly responsible for risk management, while the BoD assumes ultimate responsibility for corporate governance (Sobel & Reding, 2004).

Accurate, careful monitoring and management of the specific risks of a certain function by risk owners is very important in improving internal control. Senior management delegates risk management authority and specifies risk tolerance thresholds to risk owners, who, in turn, allocate specific risk management authority and risk tolerance thresholds to other personnel.

In SMEs, risk assessment is often neglected but if implemented at all levels by involving managers and executives, it can represent an important element for positive performance.

*Hp 2.2: Careful monitoring and assessment of risks by risk owners (function managers) have a positive influence on financial performance.*

### 2.2.2.3. Control activities

The third component of the ICS according to the CoSO framework is ‘control activities’. In small businesses, resources for control activities are scarce but reinforcing the PDCA cycle could help align results with objectives (and resources). To complete the feedback process, the BoD should periodically define and revise its strategies. This important task of the BoD, if brought forward properly, could be crucial in ensuring good financial performance. Both the agency theory and the stewardship theory support the assignment of this strategic role to the BoD in large corporations, but it is considered less relevant in SMEs.

*Hp 3.1: If the BoD performs the activities of evaluation of results, comparison of results with objectives and revision of strategies more frequently, performance improves.*

Segregation of duties is an internal control that aims to ensure that no single individual has the authority to perform two or more conflicting sensitive transactions with the potential to influence financial reporting. The organisation requires a set of checks and balances to mitigate the risks emerging from this situation, such as frauds, material misstatement and financial statement manipulation. Examples of segregation of duties are the assignment of the responsibility for physical access to a supply room to a different individual than the one responsible for maintaining the records and the separation of accounting and payment functions by delegating these to different employees (CPA Australia, 2008).

In the SME context, where the resources and the number of employees are limited, segregation of duties is more difficult to realise (CoSO, 2013; Gramling et al., 2010). Using data on a sample of 116 small companies, Gramling et al. (2010) analysed the nature of the material weaknesses in relation to segregation of duties: the most often reported weakness was the presence of too few employees, while the areas involved were cash disbursements, cash, accounts payable/invoice approval, purchases and period-end closing. The first ‘easy’ solution to poor segregation of duties is increasing

the staff, while other useful compensating controls could be rotating existing personnel, increasing management involvement and oversight related to material transactions and allowing third-party involvement in performing activities related to some controls or analysis of top-down risk-based segregation of duties.

Conversely, the performance of typical supervising and operations-related activities by SME shareholders who are also board members and directly manage the company may reduce the weakness of the ICS and the aforementioned agency problems.

*Hp 3.2: 'Good practices' of internal control and segregation of duties positively influence firm performance.*

#### 2.2.2.4. Information and communication

The fourth component of the ICS is 'information and communication'. In the SME context, where processes and documentation are often poorly defined, two important aspects in the field of information and communication are the provision of adequate and timely documentation to directors before the BoD meeting is held and the communication of strategies, firm performance and financial statements to relevant stakeholders (e.g., banks, investors, employees, suppliers and customers).

A necessary condition for a productive BoD meeting is ensuring that the board members receive adequate and timely documentation to allow them to prepare properly for the meeting. Otherwise, the ability of directors to participate effectively in the meeting could be seriously reduced, owing to the lack of information and time to analyse such documentation. The academic literature has offered a weak contribution on this aspect of the BoD activity, although some authors have recognised the usefulness of the analysis of this variable (Arosa et al., 2013). Iturralde et al. (2016) hypothesised a positive association existed between meeting preparation and the control and service roles of the BoD in SMEs but did not find a significant relationship.

*Hp 4.1: A positive relationship exists between the provision of adequate and timely documentation to board members and firm performance.*

Disclosure can be either voluntary or compulsory (Healy & Palepu, 2001) and may vary from communication of firm performance to that of financial statements or the strategies pursued. Corporate disclosure is addressed to a variety of relevant stakeholders, such as banks, investors, employees, suppliers and customers.



The literature has provided evidence of an association between corporate disclosure (related to corporate social responsibility, integrated reporting and other issues) and firm market value (Chen & Lee, 2017; Durnev & Kim, 2005; Jiao, 2011; Lee & Yeo, 2016).

It seems to be straightforward that disclosure is important, at least for large and listed companies.

In SMEs, where the disclosure regulatory regime is less stringent, the significance of disclosure is less clear. Other than a few companies – that follow a valid ‘stakeholders approach’, taking into account the need of other parties to obtain information and documents from the company – most of the SMEs seem to limit these disclosure practices. For them, disclosure could be particularly costly (Farvaque et al., 2011) and complicated even if recently, after the prolonged financial crisis and its impact on company funding, most of the SMEs had to keep open their communication channels with their funders and investors (mostly banks).

*Hp 4.2: A positive correlation exists between the quality of disclosure and communication of the financial statement, the company performance and the main strategies to stakeholders, and firm performance.*

#### 2.2.2.5. Monitoring activities

The last component of the ICS is ‘monitoring activity’. As the CoSO report and the corporate governance framework state, both internal and external auditors play an important role in the ICS of the firm. The BoD must adequately consider their reports and observations, to realise the prescribed corrective actions and changes to guarantee that each of the five components of the ICS is present and properly functioning. The BoD’s ability to be receptive on these prescriptions and suggestions in the SME context could lead to better control and improved performance.

*Hp 5.1: The ability of the BoD to consider the observations and reports of independent auditors adequately is positively linked to performance.*

The periodic control of the respect of internal rules (e.g., procedures, service orders, organisation chart and job descriptions) is part of the monitoring activities. Internal audit is a fundamental activity for good corporate governance (Gramling et al., 2004). This task logically closes the managerial feedback cycle and sets the basis for the improvement process.

Ongoing and separate evaluations assure that the management is strongly engaged in a timely manner in this relevant activity that is extended to the whole organisation (CoSO, 2013).

*H<sub>p</sub> 5.2: The higher and the more frequent the control of internal rules, the higher is firm performance.*

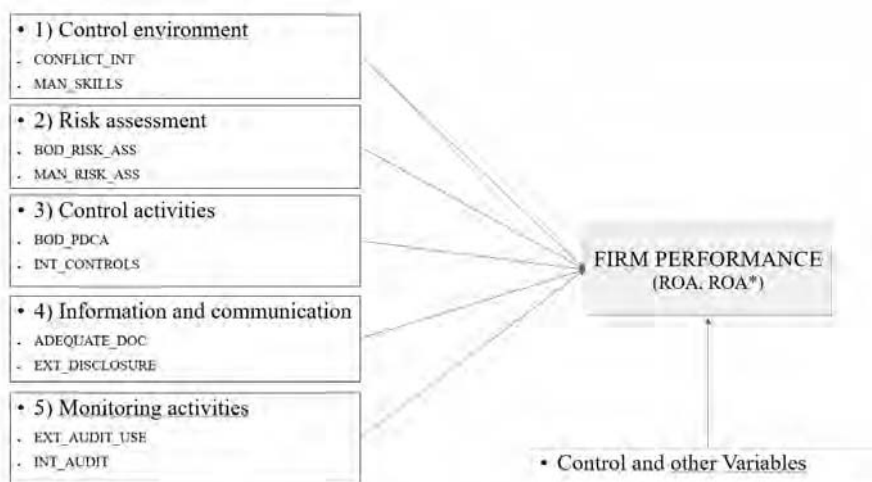
## 2.3. Empirical research: model, sample data and analysis

### 2.3.1. Empirical model

The present study used a cross-sequential ordinary least squares (OLS) regression model for testing the aforementioned hypotheses. In particular, the model considered the financial performance of SMEs as the dependent variable, which is influenced by a set of independent variables on internal controls and a set of control variables.

An overview of the model is presented in Figure 1.

Figure 1 – Overview of the model



Various studies on corporate governance and internal control issues have used this approach, both for one or two variables (Bennedsen et al., 2008; Daily & Dalton, 1993; Eisenberg et al., 1998; Ejoh & Ejom, 2014; Mak & Kusnadi, 2005; Vafeas, 1999; Yermack, 1996) and for a larger set of

variables (Abor & Biekpe, 2007; Afrifa & Tauringana, 2015; Arosa et al., 2013; Coles et al., 2001; Ibrahim et al., 2017).

The regression analysis considered two different and alternative models with two dependent and alternative variables as measures of profitability: ROA and ROA\*. The first dependent variable, ROA, considered the financial performance measured by the ratio of earnings before interest and taxes (EBIT) to total assets. This quantity derives revenues and costs only from standard operations, excluding the financial, the noncurrent and the fiscal effects. Using ROA as the dependent variable, the focus of the model was set only to core operations and their impact on profitability, regardless of the influence of leverage and other extraordinary components of the income statement (Anderson & Reeb, 2003). The second model, which used ROA\* as the dependent variable (ROA\* is the ratio of net income to total assets), incorporated the full profitability of the company, including the cost of interest, as derived from its net financial position (Delen et al., 2013), for taxes and extraordinary components.

These two financial ratios are widely used in the literature as proxies of company financial performance because of the ease of calculation and their validity across industries (Abor & Biekpe, 2007; Arosa et al., 2013). In addition, other performance measures, such as Tobin's Q or market capitalisation, are difficult to determine for unlisted companies.

In our model, all the independent variables were lagged to allow their effect on company financial performance. The ICS was investigated with reference to year 2014, while the ROA and ROA\* ratios were calculated for the end of 2014, 2015 and 2016 (Cornett et al., 2007). Using lagged values, we consider the reverse-causality problem in our model.

To enhance analysis reliability, the two different regressions (with respect to ROA and ROA\*) were performed inserting dummy variables for both time-period (observation of financial results for a three-year period) and industry fixed effects (European NACE code at two-digit level).

Owing to the panel structure of the dataset, we were able to control for unobserved time-invariant effects by estimating fixed-effects models.

### *2.3.2. Population characteristics*

This study used panel data on SMEs in Veneto, Italy, collected through surveys in 2016 and 2017, to test the proposed hypotheses. A specific questionnaire (both paper and web-based types) was sent to companies active in 2014 that were selected using these criteria: (1) located in Verona and

Vicenza provinces, (2) industry distribution, (3) small and medium-sized companies and (4) limited liability companies engaged in regular activity.

The analysis was limited to Verona and Vicenza provinces to ensure the best contact with companies and their main associations (i.e., Confindustria and API).

Following the industry distribution of companies in the local area and their representativeness, we considered only companies belonging to the manufacturing (C), construction and buildings (F) and grocery and distribution (G) macro-sectors.

In selecting SMEs, we used only the number of employees (that had to be in the range of 10 to 249 employees) without any other analysis in terms of total assets or sales turnover. Micro companies (less than 10 employees) were excluded owing to their lack of managerial control and corporate governance mechanisms. Small companies were categorised separately as small companies 1 (10-19 employees) and small companies 2 (20-249).

To be able to collect data from public registers and to focus only on more structured companies, unlimited liability companies were not considered (the Italian legislation does not require unlimited liability companies to disclose financial statements).

Companies that were insolvent, under liquidation or had no activity (i.e., in special situations that may affect data) were excluded, as were companies that had some particular legal forms, such as consortiums or cooperatives.

Considering these criteria, 5,041 SMEs were active in 2014 and were addressed by our survey. All the companies were unlisted.

### *2.3.3. Sample data*

Most companies belonging to the population that met the study criteria were contacted via email and/or telephone, to stress the purpose and importance of this study and to give them detailed instructions on how to fill the questionnaire. Since the target sample was composed of SMEs, questionnaires were addressed directly to the Chairman, the CEO or the CFO. Respondents had to return completed questionnaires via email or fax or in a web-based form. Companies answered with respect to the situation in year 2014.

All the questions were formulated according to the study's hypotheses concerning the specific context of SMEs. To make it easier to answer and standardise possible answers, a Likert scale (1-5) for each question was

prepared. A sample of 10 companies was used in a pre-test, to calibrate the mean of the Likert scale to the possible distribution of answers.

Returned questionnaires (276) were validated by analysing the coherence of answers and excluding companies that according to the Italian civil law declared that they did not have a BoD (36 cases). Further, companies that, with regard to their financial data, surpassed  $\pm 100\%$  for sales variation and  $\pm 30\%$  for EBIT/sales, EBITDA/sales, EBIT/total assets or net income/total assets were excluded. SMEs with return on equity fluctuations exceeding  $\pm 60\%$  were not considered. This last exclusion of companies based on all the five parameters winsorised data for approximately 10% over the set of 240 respondents. In addition twelve companies had to be excluded because of missing financial statement data over the three-year period considered. The final number of respondents selected was 190, that is, 3.8% of the total population of 5,041 SMEs.

The analysis of the first and last quartile ( $p < 0.05$ ) of respondents does not reveal substantial differences between the two groups, confirming the validity of responses collected.

In relation to the participation pattern, 100% of the selected companies participated in all three years (balanced panel).

### 2.3.4. Definition of variables and model specification

To study the relationship between firm performance and ICS, two separate regression models [1] and [2] were derived, using the following variables:

$$\begin{aligned} \text{ROA} = & \alpha + \beta_1 \text{CONFLICT\_INT} + \beta_2 \text{MAN\_SKILLS} + \beta_3 \text{BOD\_RISK\_ASS} + \beta_4 \quad [1] \\ & \text{MAN\_RISK\_ASS} + \beta_5 \text{BOD\_PDCA} + \beta_6 \text{INT\_CONTROLS} + \beta_7 \text{ADE-} \\ & \text{QUATE\_DOC} + \beta_{8a} \text{EXT\_DISCLOSURE} + \beta_{8b} \text{EXT\_DISCLOSURE}^2 + \beta_9 \\ & \text{EXT\_AUDIT\_USE} + \beta_{10} \text{INT\_AUDIT} + \beta_{11} \text{TOT\_ASS} + \beta_{12} \text{SALES\_VAR} + \\ & \beta_{13} \text{LEVER} + \beta_{14} \text{FIRM\_AGE} + \beta_{15} \text{MED\_SIZE} + \beta_{16} \text{Y2015} + \beta_{17} \text{Y2016} + \\ & \beta_n \text{INDUSTRY Dummies} + \varepsilon \end{aligned}$$

$$\begin{aligned} \text{ROA}^* = & \alpha + \beta_1 \text{CONFLICT\_INT} + \beta_2 \text{MAN\_SKILLS} + \beta_3 \text{BOD\_RISK\_ASS} + \quad [2] \\ & \beta_4 \text{MAN\_RISK\_ASS} + \beta_5 \text{BOD\_PDCA} + \beta_6 \text{INT\_CONTROLS} + \beta_7 \text{ADE-} \\ & \text{QUATE\_DOC} + \beta_{8a} \text{EXT\_DISCLOSURE} + \beta_{8b} \text{EXT\_DISCLOSURE}^2 + \beta_9 \\ & \text{EXT\_AUDIT\_USE} + \beta_{10} \text{INT\_AUDIT} + \beta_{11} \text{TOT\_ASS} + \beta_{12} \text{SALES\_VAR} \\ & + \beta_{13} \text{LEVER} + \beta_{14} \text{FIRM\_AGE} + \beta_{15} \text{MED\_SIZE} + \beta_{16} \text{Y2015} + \beta_{17} \text{Y2016} \\ & + \beta_n \text{INDUSTRY Dummies} + \varepsilon \end{aligned}$$

The list of variables used was as follows:

- Detection, communication and management of conflicts of interests of BoD members (CONFLICT\_INT): Conflicts of interests of BoD members can generate negative consequences for the activity of the BoD and for firm performance. This variable was assigned the value 1 when the BoD did not identify and manage conflicts of interests at all and 5 when the attention to this problem was very high (other possible values were: 2 rarely, 3 sometimes, 4 often). In the present study's SME context, specific formalisation was not required.
- Competences and skills of management and executives (MAN\_SKILLS): This variable aimed at measuring the consistency of competences, skills and experience of managers and executives in relation to the position held (1: absolutely not; 5: very much).
- Analysis and discussion of risks within the BoD (BOD\_RISK\_ASS): The BoD is one of the players in the ERM system, with its oversight role. Therefore, analysis and discussion of risks is a fundamental task of the BoD. Its relevance can be assessed by taking into account the number of times (meetings) the BoD analyses and discusses company risks during the year (1: never; 5: more than six times per year).
- Assessment and management of risks by executives and managers (MAN\_RISK\_ASS): This variable evaluated the risk management activities of executives and managers, with 1 assigned when the activity was not performed and 5 when they paid extensive attention to monitoring and managing risks.
- BoD strategic and operational feedback (BOD\_PDCA): Repeating the PDCA cycle within the BoD activity for strategic and operational control enhances the commitment of management and executives to feedback processes. This variable measured the number of times the BoD was involved in the PDCA cycle per year (1: never; 2: once a year; 3: every three months; 4: every month; 5: several times per month).
- 'Good practices' of internal control and segregation of duties (INT\_CONTROLS): Segregation of duties and other good internal control practices reinforce the ICS. On a Likert scale, 1 was assigned to firms in which the 'good practices' of internal control and segregation of duties were not followed at all and 5 to those firms in which these practices had very high importance.
- Adequate and timely documentation (ADEQUATE\_DOC): Proper preparation for BoD meetings is a very important element for BoD effectiveness. Without the timely provision to BoD members of the

necessary information and documents, BoD activity is slowed down and the decision-making process is not properly designed. On a Likert scale, 1 is assigned when the documentation is not adequate and timely and 5 when great attention is given to this aspect.

- Communication to stakeholders (EXT\_DISCLOS): This variable monitored the communication of firm strategies, objectives and financial results to relevant stakeholders (e.g., banks, investors, employees, suppliers and customers) using a Likert scale ranging from 1 to 5 (1: absolutely not; 5: very much). In our analysis, we also considered this variable in a quadratic form, assuming a potential inverted U-shaped curve rather than a simple linear relationship.
- Observations and reports from independent auditors (EXT\_AUDIT\_USE): This variable was used to test if the BoD adequately considered the observations and reports of the independent auditors (1: absolutely not; 5: very much).
- Internal audit and self-assessment activities (INT\_AUDIT): Respect for procedures, service orders, the organisation chart and job descriptions is an important part of the ICS; this variable measured the importance attributed to this monitoring activity (1: absolutely not; 5: very much).
- ROA and ROA\*: Financial statement data were extracted in 2017 from the AIDA database (Bureau van Dijk). This database collects financial statement data from the Italian register of companies; financials can be extracted according to a set of parameters defined by the user. As dependent variables, in our model ROA and ROA\* were collected for the years 2014, 2015 and 2016 (31<sup>st</sup> December).
- Control variables: TOT\_ASS: The natural logarithm of total assets was used as a control variable, in line with previous studies in which larger firms were considered more profitable (Arosa et al., 2013; Barontini & Caprio, 2006). SALES\_VAR: The variation of sales, measured as  $(\text{sales}_1 - \text{sales}_0) / \text{sales}_0$  was used as a proxy of growth. In some previous studies, growing firms revealed higher profitability. LEVER: The ratio of total debt to total assets was used to measure the borrowing level of the firm. In line with previous studies, we expected an inverse relationship with financial performance. FIRM\_AGE: This aspect was measured through the natural logarithm of the number of years since the firm was incorporated. In other studies, profitability was inversely correlated to firm age (Arosa et al., 2013). MED\_SIZE: This control variable takes the value 1 when the firm is of medium size and 0 otherwise. INDUSTRY dummies: Dummy variables for each

NACE/ATECO industry code, with 1 set in the NACE code to which the company belongs (0 otherwise). These variables were required for the NACE industry fixed-effect regression. Y2015 and Y2016: Dummy variables, with 1 assigned if financial data refer to 2015 or 2016 (and 0 otherwise). Control variables for years were required for the time-period fixed-effect regression.

The summary of the variables is reported in Table 1. The ‘Exp. sign’ column summarises the main evidence from the previous literature.

*Table 1 – Definitions of variables*

N.	Exp. sign	Description
CONFLICT_INT	+	A variable that takes a value from 1 to 5 depending on the level of detection, communication and management of conflicts of interests.
MAN_SKILLS	+	A variable that takes a value from 1 to 5 in relation to the level of consistency between competences/experience of management and position held.
BOD_RISK_ASS	+	A variable that takes a value from 1 to 5 in relation to the number of times the BoD analyses and discusses risks during one year.
MAN_RISK_ASS	+	A variable that takes a value from 1 to 5 depending on the degree of attention given to risk assessment and management by risk owners.
BOD_PDCA	+	A variable that assumes a value from 1 to 5 in relation to the frequency of the PDCA cycle conducted by the BoD.
INT_CONTROLS	+	A variable assuming a value from 1 to 5 depending on the degree of pursuit of ‘good practices’ of internal control and segregation of duties.
ADEQUATE_DOC	+	A variable taking a value from 1 to 5 based on the degree of adequacy and timeliness of the documentation given to BoD members.
EXT_DISCLOS	+	A variable that assumes a value from 1 to 5 depending on the degree of disclosure of relevant information to stakeholders.
EXT_AUDIT_USE	+	A variable assuming a value from 1 to 5 in relation to the attention given by the BoD to the independent auditors’ reports.
INT_AUDIT	+	A variable that takes a value from 1 to 5 in relation to the periodic check of internal rules.
TOT_ASS	+	Logarithm of total assets; proxy for company size.
SALES_VAR	+	Sales revenues variation (in %); proxy for company growth.
LEVER	-	Total debts over total assets.
FIRM_AGE	-	Logarithm of number of years of activity from birth.
MED_SIZE	+	A dummy that takes the value 1 for a medium-sized company and 0 otherwise.
Y2015		A dummy that takes the value 1 if financial data are for 2015 and 0 otherwise.
Y2016		A dummy that takes the value 1 if financial data are for 2016 and 0 otherwise.
INDUSTRY dummy n		Dummies (from 1 to n) that take the value 1 when the company belongs to a certain INDUSTRY and 0 otherwise.



### 2.3.5. Descriptive statistics

Table 2 contains descriptive statistics for the aforementioned variables, including mean, standard deviation, minimum and maximum. In the last columns of this table are reported statistics with respect to the completely comparable population of 5,041 companies in Veneto.

Table 2 – Descriptive statistics of variables

Variable	Sample N. 190					Population N. 5,041		Z-test
	N.	Min	Max	Mean	Std. Dev.	Mean	Std. Dev.	
CONFLICT_INT	190	1	5	2.190	1.416	-	-	-
MAN_SKILLS	190	1	5	3.650	1.256	-	-	-
BOD_RISK_ASS	190	1	5	3.250	1.173	-	-	-
MAN_RISK_ASS	190	1	5	3.420	1.003	-	-	-
BOD_PDCA	190	1	5	3.090	0.859	-	-	-
INT_CONTROLS	190	1	5	3.570	1.188	-	-	-
ADEQUATE_DOC	190	1	5	3.260	1.174	-	-	-
EXT_DISCLOS	190	1	5	3.150	1.302	-	-	-
EXT_DISCLOS^2	190	1	25	11.633	8.348	-	-	-
EXT_AUDIT_USE	169	1	5	3.200	1.313	-	-	-
INT_AUDIT	190	1	5	3.490	1.072	-	-	-
TOT_ASS	570	13.291	18.386	15.906	1.170	15.790	2.020	1.941*
SALES_VAR	570	-0.683	0.868	0.042	0.161	0.050	0.994	-0.002*
LEVER	570	0.066	0.919	0.540	0.191	0.600	0.061	-21.846^
FIRM_AGE	190	0.693	4.899	3.301	0.679	-	-	-
MED_SIZE	570	0	1	0.350	0.478	-	-	-
ROA	570	-0.202	0.288	0.064	0.059	0.060	0.011	1.366*
ROA*	570	-0.199	0.187	0.036	0.048	0.030	0.009	1.762*

Z-test: \* = significant at 0.95, ^ = Not significant (at 0.95)

The results for this study's sample show that companies are strongly involved in evaluating the coherence between skills and competences of managers and their position (MAN\_SKILLS), as well as ensuring internal controls (INT\_CONTROLS) and internal audits and self-assessment activities (INT\_AUDIT). Conversely, they do not spend too much energy in evaluating conflicts of interest of BoD members (CONFLICT\_INT), probably because in SMEs, directors, managers and shareholders tend to be the same individuals and because there is a high level of informal and frequent interactions by the BoD that may reduce lack of information.

External disclosure (EXT\_DISCLOS) and the use of external audits (EXT\_AUDIT\_USE) are the two other variables with the lowest values,

which is not surprising considering the aforementioned peculiarities of SMEs.

For the 2014–2016 period, the financial data considered revealed positive values, with positive sales variation trend (+4.2%) and positive profitability for both ROA and ROA\*. Leverage of SMEs was slightly overweighed compared with recommended values, but was expected for the typical Italian scenario of undercapitalisation.

The comparison of the two groups (the sample and the population) is interesting for verifying their similarity. According to results from the Z-test (significant at 0.95) for both variables, we can extend the validity of the results to the whole population of companies in Veneto. We can also extend validity of the results for the independent variables. Considering the use of the Likert scale (1–5)—that has a mean of three and a standard deviation of 1.414—the size of this study’s population (5,041) and a maximum accepted error of 0.05 (two tailed), the minimum dimension of the sample should be 186 units (this sample had 190 cases).

The last column reports the results of the Z-test on similarity between the two groups (robustness at 0.95).

### *2.3.6. Regression results*

To test the study’s hypotheses, we used two different OLS regression models as illustrated in equations [1] and [2]. ROA and ROA\* were set as dependent variables, while the others described in Section 3.4 acted as independent or control variables.

Table 3 reports the correlation matrix of the variables. Most of the independent variables presented a statistically significant correlation with each other, particularly EXT\_DISCLOS, INT\_CONTROLS, INT\_AUDIT and MAN\_RIS\_ASS. The last two variables were highly correlated, exceeding 0.5; companies that strongly assure respect of procedures had managers who carefully monitored their risks. Risk assessment by managers and executives also had high correlation (> 0.4) with INT\_CONTROLS and INT\_AUDIT.

In addition, the ROA and ROA\* variables in most of the cases revealed positive correlations with the independent variables.

Tables 4 and Table 5 report the results of 11 regressions, for ROA and ROA\* respectively, as defined in models [1] and [2] one dependent variable at a time.

We adopted this approach to isolate the effect of each independent variable on the dependent variable for both ROA and ROA\*. Six of those

regressions in both models (columns 3, 4, 6, 7, 9 and 11) revealed a good adjusted  $R^2$  value ( $F > 8.5$ ,  $p < 0.01$ ) associated with statistical relevance (significance at the 0.01, 0.05 or 0.10 levels).

Table 6 reports the results of the two complete models as in equations [1] and [2].

For each regression, we calculated the variance inflation factor (VIF) of the independent variable, to test for multicollinearity, verifying that results were under ten (Myers, 1990).

Both models gave a good interpretation of the relationship between the independent variables as well as the control variables and financial performance (respectively, adjusted  $R^2 = 0.346$ ,  $F = 7.996$ ,  $p < 0.01$  and adj.  $R^2 = 0.357$ ,  $F = 8.352$ ,  $p < 0.01$ ).

The variables that had a statistically significant coefficient for both [1] and [2] were CONFLICT\_INT, BOD\_RISK\_ASS, MAN\_RISK\_ASS, ADEQUATE\_DOC and EXT\_DISCLOS, indicating the influence on ROA and ROA\* of three components of the ICS: control environment, risk assessment and information and communication. On analysis of the relationship between ROA or ROA\* with the ICS one variable at a time, as reported in Tables 4 and 5, two other variables became statistically relevant: INT\_CONTROLS ( $p < 0.05$ ,  $p < 0.1$ ) and INT\_AUDIT ( $p < 0.05$ ).

Table 3 – Correlation matrix

Var.	C_INT	SKIL	B_RA	M_RA	PDCA	L_C	A_DOC	E_D	E_D^2	EA_U	LA	T_ASS	S_VAR	LEV	F_AGE	MSIZE	ROA
C_INT																	
SKIL																	
B_RA																	
M_RA	0.167*	0.202**	0.217**														
PDCA		0.243**	0.465**	0.147*													
L_C	0.208**	0.260**	0.159*	0.431**	0.220**												
A_DOC			0.281**	0.281**		0.312**											
E_D	0.157*	0.229**	0.262**	0.264**	0.262**	0.300**	0.210**										
E_D^2	0.133**	0.208**	0.255**	0.252**	0.260**	0.301**	0.202**	0.983**									
EA_U	0.243**	0.221**	0.161*	0.166*	0.156*	0.354**	0.354**	0.194*	0.197**								
LA	0.191**	0.197**	0.285**	0.605**	0.228**	0.470**	0.268**	0.377**	0.367**								
T_ASS	0.173**	0.122**			0.119**	0.295**	0.211**	0.147**	0.150**	0.458**	0.100*						
S_VAR		0.117**															
LEV	0.130**		0.183**		0.165**			0.195**	0.185**	-0.107*	0.088*		0.098*				
F_AGE	-0.159**							0.128**	-0.133**			0.133**		-0.098*			
MSIZE	0.151**	0.103*			0.090*	0.222**	0.214**			0.461**		0.685**			0.108**		
ROA	0.088*	0.088*	0.143**	0.181**		0.119**	0.189**			0.154**	0.127**	0.112**	0.250**	-0.235**	-0.118**	0.213**	
ROA*	0.097*	0.097*	0.097*	0.161**		0.107*	0.193**			0.173**	0.129**	0.156**	0.220**	-0.310**	-0.099*	0.221**	0.936**

Note: \*\*\* Significant at  $p < 0.01$ , \*\* at  $p < 0.05$ , \* at  $p < 0.10$  levels.

Table 4 – Multivariate analysis of ICS variables and their impact on firm performance (ROA)

	(1) ROA	(2) ROA	(3) ROA	(4) ROA	(5) ROA	(6) ROA	(7) ROA	(8) ROA	(9) ROA	(10) ROA	(11) ROA
(Const.)	0.229***	0.224***	0.206***	0.206***	0.226***	0.230***	0.209***	0.228***	0.194***	0.228***	0.216***
CONFLICT_INT	-0.001										
MAN_SKILLS		0.002									
BOD_RISK_ASS			0.007***								
MAN_RISK_ASS				0.008***							
BOD_PDCA					0.002						
INT_CONTROLS						0.005**					
ADEQUATE_DOC							0.007***				
EXT_DISCLOS						0.000		0.021**			
EXT_DISCLOS^2								-0.003**			
EXT_AUDIT_USE										0.001	
INT_AUDIT											0.005**
TOT_ASS	-0.005*	-0.005*	-0.004	-0.005*	-0.005*	-0.006**	-0.005*	-0.005*	-0.004	-0.005*	-0.005*
SALES_VAR	0.095***	0.094***	0.094***	0.094***	0.095***	0.095***	0.096***	0.095***	0.095***	0.095***	0.096***
LEVER	-0.071***	-0.072***	-0.081***	-0.076***	-0.073***	-0.074***	-0.072***	-0.072***	-0.074***	-0.072***	-0.075***
FIRM_AGE	-0.013***	-0.013***	-0.012***	-0.013***	-0.013***	-0.013***	-0.013***	-0.013***	-0.013***	-0.013***	-0.013***
MED_SIZE	0.024***	0.024***	0.024***	0.024***	0.024***	0.023***	0.021***	0.024***	0.024***	0.023***	0.024***
A2015	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
A2016	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
N	570	570	570	570	570	570	570	570	570	570	570
Adjusted R <sup>2</sup>	0.299	0.299	0.315	0.317	0.299	0.306	0.316	0.298	0.304	0.298	0.305
F-statistic	8.338***	8.366***	8.915***	9.005***	8.350***	8.619***	8.970***	8.332***	8.320***	8.337***	8.565***

Notes: \*\*\* Significant at  $p < 0.01$ , \*\* at  $p < 0.05$ , \* at  $p < 0.10$ . Fixed effects on INDUSTRY NACE 2 digits are included but not reported.

Table 5 – Multivariate analysis of ICS variables and their impact on firm performance (ROA\*)

	(1) ROA*	(2) ROA*	(3) ROA*	(4) ROA*	(5) ROA*	(6) ROA*	(7) ROA*	(8) ROA*	(9) ROA*	(10) ROA*	(11) ROA*
(Const.)	0.12297***	0.11809***	0.10947***	0.10738***	0.12294***	0.12375***	0.10803***	0.12259***	0.09217***	0.12240***	0.11314***
CONFLICT_INT	-0.00018										
MAN_SKILLS		0.00163									
BOD_RISK_ASS			0.00415***								
MAN_RISK_ASS				0.00594***							
BOD_PDCA					-0.00029						
INT_CONTROLS						0.00274*					
ADEQUATE_DOC							0.00566***				
EXT_DISCLOS								-0.00047	0.01857***		
EXT_DISCLOS^2									-0.00303***		
EXT_AUDIT_USE										0.00062	
INT_AUDIT											0.00401**
TOT_ASS	-0.00068	-0.00077	-0.00044	-0.00082	-0.00067	-0.00139	-0.00112	-0.00060	-0.00002	-0.00083	-0.00091
SALES_VAR	0.06509**	0.06410***	0.06429***	0.06430***	0.06519***	0.06490***	0.06583***	0.06533***	0.06499***	0.06509***	0.06532***
LEVER	-0.07524***	-0.07584***	-0.08056***	-0.07804	-0.07515***	-0.07646***	-0.07532***	-0.07475***	-0.07641***	-0.07506***	-0.07779***
FIRM_AGE	-0.00951***	-0.00949***	-0.00930***	-0.00982***	-0.00943***	-0.00962***	-0.00944***	-0.00960***	-0.01003***	-0.00943***	-0.00944***
MED_SIZE	0.01576***	0.01551***	0.01543***	0.01574***	0.01566***	0.01525***	0.01319***	0.01562	0.01539***	0.01520***	0.01582***
A2015	0.00203	0.00203	0.00196	0.00200	0.00203	0.00204	0.00204	0.00203	0.00199	0.00204	0.00200
A2016	0.00847**	0.00846**	0.00835*	0.00842**	0.00847**	0.00850**	0.00851**	0.00848**	0.00840**	0.00849**	0.00844**
N	570	570	570	570	570	570	570	570	570	570	570
Adjusted R <sup>2</sup>	0.313	0.315	0.323	0.329	0.313	0.318	0.332	0.313	0.322	0.313	0.321
F-statistic	8.865***	8.931***	9.242***	9.471***	8.865***	9.029***	9.551***	8.869***	8.965***	8.872***	9.143***

Notes: \*\*\* Significant at  $p < 0.01$ , \*\* at  $p < 0.05$ , \* at  $p < 0.10$ . Fixed effects on INDUSTRY NACE 2 digits are included but not reported.

In particular, considering each single hypothesis illustrated in Section 2, Hp 1.1 was rejected. Contrary to our hypothesis, the relationship between monitoring activity over conflict of interests and ROA and ROA\* ratios was negative ( $p < 0.05$ ,  $p < 0.10$ ), proving that an increase of this activity will adversely affect financial performance. This result is in contrast with the predictions of the agency theory and may prove that other informal mechanisms of control (i.e., social control) may arise in the SME context of this study (O'Reilly & Chatman, 1996).

Considering Hp 1.2, contrary to the results of Abor and Biekpe (2007), there is no statistically relevant relationship between MAN\_SKILLS and firm performance.

Table 6 – Multivariate analysis of ICS variables on firm performance (ROA and ROA\*)

Variable	(1) ROA	(2) Sig. ROA	(3) ROA*	(4) Sig. ROA*
(Constant)	0.144	0.002	0.055	0.117
CONFLICT_INT	-0.003	0.047**	-0.002	0.083*
MAN_SKILLS	7.995E-5	0.966	0.001	0.714
BOD_RISK_ASS	0.008	0.000***	0.005	0.002***
MAN_RISK_ASS	0.007	0.011**	0.005	0.026**
BOD_PDCA	-0.002	0.584	-0.002	0.325
INT_CONTROLS	0.002	0.332	0.001	0.750
ADEQUATE_DOC	0.007	0.001***	0.005	0.001***
EXT_DISCLOS	0.020	0.026**	0.017	0.013**
EXT_DISCLOS^2	-0.004	0.009***	-0.003	0.003***
EXT_AUDIT_USE	-0.003	0.196	-0.001	0.348
INT_AUDIT	-0.002	0.431	-4.656E-5	0.983
TOT_ASS	-0.003	0.281	0.001	0.704
SALES_VAR	0.093	0.000***	0.064	0.000***
LEVER	-0.080	0.000***	-0.079	0.000***
FIRM_AGE	-0.016	0.000***	-0.012	0.000***
MED_SIZE	0.023	0.001***	0.014	0.004***
A2015	0.001	0.883	0.002	0.598
A2016	0.006	0.260**	0.008	0.025**
N	570		570	
Adjusted R <sup>2</sup>	0.346		0.357	
F-statistic	7.996	0.000	8.352	0.000

Notes: Results from equation 1 in column (1) and 2 in column (3). Robust standard errors in (3) and (4) within parentheses. \*\*\* indicates  $p < 0.01$ ; \*\* indicates  $p < 0.05$ ; \* indicates  $p < 0.10$ . Fixed effects on INDUSTRY NACE 2 digits are included but not reported.

We also hypothesised (Hp 2.1) a positive relationship between risk assessment and firm performance. The variable considered (frequency of risk analysis and discussion within the BoD) confirmed its positive influence on firm performance ( $p < 0.01$ ), stressing the importance of the alignment between corporate governance and ERM (Sobel & Reding, 2004). Hp 2.2, that belongs to the same area of the CoSO framework (risk assessment), was confirmed ( $p < 0.05$ ), since we found a significant positive relationship between MAN\_RISK\_ASS and firm performance. These two results together indicate the important contribution of the risk assessment component to the overall performance. This finding is consistent with those of Florio and Leoni (2017) and Farrell and Gallagher (2014).

Hp 3.1, about a positive relationship between PDCA cycle and firm performance, was rejected: BOD\_PDCA in our sample was not relevant for firm performance, using both ROA and ROA\*.

If we consider the full model, Hp 3.2 had to be rejected, while considering the INT\_CONTROLS variable alone (and its regression with ROA in Table 4 and ROA\* in Table 5) a positive relationship ( $p < 0.05$ ,  $p < 0.10$ ) with firm performance could be highlighted. This result stresses the importance of internal controls and segregation of duties as suggested by professionals (CPA Australia, 2008; Gramling et al., 2010).

Another hypothesis (Hp 4.1) was that a positive relationship exists between the provision of adequate and timely documentation (ADEQUATE\_DOC) and firm performance. Our findings supported this hypothesis ( $p < 0.01$ ) and confirmed the suggestion by Arosa et al. (2013) and by Iturralde et al. (2016) to further investigate this relevant aspect of BoD activity in SMEs.

Considering Hp 4.2, the relationship was statistically relevant between EXT\_DISCLOS and both ROA and ROA\* ( $p < 0.05$ ). Differently from expectations, we found an inverted U-shape, because the quadratic coefficient was negative while the linear coefficient was positive. A greater level of external disclosure had a positive impact on firm performance expressed in terms of ROA and ROA\*, but on exceeding certain levels the impact become negative, probably because the cost of disclosure may exceed benefits or because revealing too many strategies and results may be inappropriate (Farvaque et al., 2011).

This is in opposition to the stakeholder theory, which stresses the importance of the organisation maintaining its relationship and communication with stakeholders as well as a communication channel with stakeholders (Velte & Stawinoga, 2017).



Hp 5.1 had to be rejected, since we found an insignificant relationship between EXT\_AUDIT\_USE and our performance measures, ROA and ROA\*.

Finally, considering Hp 5.2, our findings showed a significant relationship between INT\_AUDIT and firm performance (Gramling et al., 2004) but only if we consider the variable alone, measuring the relationship with ROA and ROA\* in single variable-specific regressions (Table 4 and Table 5). This finding could stress the importance of monitoring activity within the ICS designed by the CoSO framework.

In relation to control variables, the seniority (FIRM\_AGE) and leverage (LEVER) of the company, as expected, played an important and negative role in influencing firm performance. Older companies tend to have worse profitability, as found by Arosa (2013). By contrast, growing companies (higher sales revenues variation: SALES\_VAR) and larger companies (MED\_SIZE) had positive, better financial performance.

Three further OLS regressions, one for each year of our dataset, confirmed most of our results and our research design for limiting reverse causality issues.

## **2.4. Conclusion**

This study analysed the importance of the whole ICS in relation to financial performance in SMEs, in contrast to most previous studies that focused on large companies and on a limited number of ICS components. According to one strand of the literature, SMEs face an agency problem similar to that of large companies, even if with some specifications, since SMEs are more concerned with firm survival and growth rate than with procedure definition, management selection or compensation.

We hypothesised that a good ICS, as recommended by the CoSO framework and by professionals, could lead to improved financial performance in terms of ROA and ROA\* ratios.

To test this hypothesis, we conducted a survey on a sample of SMEs in Veneto, Italy, and we designed and implemented a cross-sequential OLS regression, with both industry and year fixed effects.

Our empirical results revealed significant correlation between the ICS components and the two financial ratios, used as proxies for financial performance. Among them, the most relevant were the risk assessment component and the information and communication component. In addition, the control

environment, control activities and monitoring activities exerted influence but were less powerful.

Therefore, according to our results, SMEs could improve their financial performance by enforcing their ICS, especially (1) in risk management processes both in the BoD activity and in the management team and (2) in internal and external disclosures.

In relation to the risk assessment component, our results fully confirmed that adequate risk monitoring by the BoD and by the management had a positive and relevant influence on financial performance.

Concerning the information and communication component, the provision of adequate and timely documentation to the BoD before the meetings positively influenced firm performance. A correctly informed BoD makes better decisions and properly monitors the company activity.

Another information and communication activity by the BoD affects company external disclosure. According to the stakeholder theory, company external disclosure should play an important role in establishing a positive relationship with stakeholders and hence in improving performance. Our empirical results confirmed the positive influence but suggest avoid this activity in excess, because its costs and strategic implications might exceed benefits.

The three other components of the ICS also exerted influence on firm performance.

In relation to the control environment, surprisingly, our results showed a negative relationship between detection, communication and management of conflicts of interests of BoD members and financial performance. In SMEs, this could be owing to the monitoring costs that may override benefits, particularly when managers and shareholders tend to overlap.

Control activities and monitoring activities in our context showed weaker influence. We found a significant and positive relationship for ‘good practices’ of internal control and segregation of duties and for internal audit and self-assessment procedures, but only considering these variables alone and not in our full model.

This study has some limitations. First, the data were cross-sequential and even after we limited for reverse causality, we could not exclude it at all. Second, data were collected in a limited context (Northeastern Italy, and in particular, the provinces of Verona and Vicenza), thereby limiting the possibility of generalising their validity. Third, owing to the need to enhance the response rate, our survey consisted of only a limited number of questions that did not provide a deep analysis of the whole ICS of SMEs. In this sense, we hope that future research will focus again on this topic and on its links with performance.

Nonetheless, our results offer empirical evidence of the importance of a 'good' ICS and its components in influencing SMEs' financial performance.

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Il tema della comunicazione esterna agli *stakeholders* è da sempre, per l'aziendalista, un'area di studio di estrema attualità, nel cui ambito, l'attenzione degli studiosi e dei *practitioners* si è indirizzata alla comunicazione *econo-mico-finanziaria*, dove il bilancio di esercizio riveste un ruolo centrale quale strumento informativo di sintesi della dinamica gestionale. In tempi più recenti i confini della comunicazione esterna si sono ampliati nelle forme e nei contenuti, attribuendo un rinnovato interesse a tematiche in passato relegate a ruoli "di contorno": l'importanza della comunicazione in materia di sostenibilità ambientale e di salvaguardia delle risorse naturali, di tutela dell'occupazione e sicurezza dei lavoratori, di sviluppo socio-culturale del territorio, e così via. Sono poi oggetto di rinnovato interesse anche tutte le tematiche di bilancio più tradizionali, sia in ragione della entrata in vigore di nuovi standard contabili di riferimento, sia in ragione dell'attenzione oggi indirizzata alle cd. "*non GAAP measurement*".

Nel quadro delineato si è collocato il Convegno Sidrea 2018 dedicato al tema "*Nuove frontiere del reporting aziendale. La comunicazione agli stakeholders tra vincoli normativi e attese informative*". La presente pubblicazione accoglie una parte rilevante dei contributi presentati e discussi nel corso delle sessioni parallele del Convegno.

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