

## Linking decision and utility theories to financial information usefulness and company performance: A study applied to Portuguese's certified accountants

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### ABSTRACT

The role accounting plays in decision-making in business is a broad topic that has driven academics. This paper is grounded on decision and utility theories. It investigates the Certified Accountants' perception of financial information (FI) usefulness and the company's performance. Based on data collected through a survey applied to certified accountants, this study develops and evaluates an original theoretical model using the Structural Equations Model (SEM). The results reveal that manager's gender and academic qualifications influence the perception of FI utility. Non-owner managers and older companies also attach more significance to FI in decision making. The managers who attribute the most usefulness to FI in decision-making are those of companies with higher performance. Additionally, the results show that the FI usefulness is a mediator variable in the relationship between the characteristics above and company performance. This research helps all stakeholders improve decision-making, studying past events with FI to predict future results and consequently increase the company's success.

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## 1. Introduction

Human decision-making is a complex process. It comprises risks and cost-benefits appraisals; it occurs within specific contexts and affects persons with idiosyncratic mindsets. Traditional economic models rely on the basic assumption that human beings are rational. In the business world, very often, this rationality is associated with the use of financial information. The behavioral schools of finance and accounting launched new research streams to explain neuronal aspects of human decision-making and behaviors (Artienwicz, 2016). Previous research identified biological, emotional, and neurologic factors that affect rationality, namely impulsivity, limbic system, intuition, experience, age, morality, etc. The concept of neurocognition aims to capture all that complexity of the decision process (Cesar, Jerônimo & Carneiro, 2012). Nevertheless, as pointed out by Botchway and Rashedi (2020:1) “accounting information plays a decision-facilitating role since it possesses value relevance capabilities to enhance decision making”. Indeed, in a highly intertwined and connected business environment, financial information gained a prominent role. It became the language of the globalized economy. Classic literature explains this phenomenon with two interrelated theories. According to Fishburn (1970, p. 1), “decision making serves as the foundation on which utility theory rests”. Utility theory is related to people's preferences and the assumption that this preference will numerically bring usefulness to the person (Fishburn, 1968). On the other hand, the barriers that hinder success in decision-making are the focus of decision theory. Research within this theory has shown that managers face difficult decisions (Maguire and Albright, 2005), which can be mitigated if they have access to accurate and reliable FI. The Lack of FI is a barrier to the foundations of this theory.

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Decision-making is a term related to how people make choices between desirable alternatives (Edwards, 1954). Bachrach and Baratz (1962) create the term "non-decisions" that are hidden questions on which one simply decides not to decide (Bachrach and Baratz, 1962), maybe because the decision would not be useful or benefit the person or group of people. Miller and Wilson (2006, p. 294) refer that in literature *"is clearly a contrast between seeing decision-making as a functional prerequisite of effective organization and seeing it as a maelstrom of political activity and sectional conflict, where power games are played out in an arena which is only partially open to view, and this accounts in part for the differences in approaches to research and discussion"*. According to neoclassical economic assumptions, individuals usually act as maximizing entrepreneurs, who make decisions in a sequential and linear process (Mintzberg, Raisinghani, & Theoret, 1976). Decision-making is necessary because according to structural functionalism, more complex companies have a greater need to make rational decisions and, in this sense, key decisions are necessary for the functioning of companies. (Miller & Wilson, 2006). Management is involved with several types of activities and decisions which entail quality and reliable accounting information (Soudani, 2012). Decision-making involves the use of various types of information, highlighting FI, information generated from an accounting information system.

For Salehi, Rostami and Mogadam (2010, p. 188), FI *"plays an important role in the process of managing an enterprise's activity"*. According to Soudani (2012, p. 50), *"accounting information systems are considered as important organizational mechanisms that are critical for effectiveness of decision management and control in organizations"*. Successful management of organizations implies the use of FI, because successful decision-making refers to the ability of firms' decision makers to manage problems successfully (Powell, 1987; White, Pothos & Busemeyer, 2015). According to Haleem and Teng (2018) the accounting system provides useful information to stakeholders for decision making, which can determine the organization's success. The same is to say that the use of FI is a semiquinone condition for the success of companies. In fact, Hope and Vyas (2011) and Cepêda and Monteiro (2020) conclude that FI usefulness of financial information and business performance are statistically correlated. Business performance is a consequence of the usefulness of FI; however, the literature suggests the existence of antecedent variables, such as individual characteristics of managers and the company characteristics where manager performs functions (Amoako, 2013; Florin, 2014; Tang & Liu, 2016; Santos, Dorow & Beuren, 2016). In Portugal, 99.9% of the business fabric are Micro, Small and Medium Enterprises (SMEs) (Pordata, 2019), so most managers fall into family businesses. The death rate of companies is around 12%, which is largely influenced by SMEs.

However, Bertolami, Artes, Gonçalves, Hashimoto, and Lazzarini (2018) refer that many SMEs do not survive their first years of life due to lack of market knowledge, business management experience, and financial problems, given their maturity. Besides that, companies with some maturity also face insolvency processes. Thus, a better understanding of the factors that influence the performance of companies is necessary, as it can contribute to the survival and growth of companies and, consequently, enhance the economic country development. Failure of relevant and true information may have compromised good decision-making (Maguire & Albright, 2005), resulting in a disastrous outcome. This situation requires a better understanding of the manager characteristics (individuals and context) that influence his behavior in decision-making and with consequent impact on the company's performance. Managers and accountants are responsible for the timely and accurate disclosure of FI. It is crucial to understand how accountants perceive managers' attitudes regarding FI they co-produce through annual reports. In this context, this study, based on usefulness and decision and utility theories, aims to analyze the relationship between FI usefulness in decision-making and business performance, taking into account the decision behavioral and utility theories. Specifically, the objective is to analyze whether the individual manager characteristics (gender and academic qualifications) and the company (size, manager non-owner, and seniority) influence the FI usefulness and, consequently, its performance. This research is relevant for the literature development, as it evaluates an original model for managers, in the sense that it identifies the factors that contribute to the success of Portuguese companies using the two theories as a theoretical basis. On the other hand, most of the literature focuses only on the study of decision-making based on the manager's beliefs in allocating financial resources, and the study at hand will also consider the formation of probability beliefs about potential returns on various assets (Latane and Tuttle, 1965).

The structure of this paper is as follows: the next section introduces the main topics related to the empirical research and presents the investigation hypotheses. The following sections develop the procedures and samples used to test the research hypotheses. In the penultimate and last section, empirical findings are discussed, and the research conclusions and implications are presented.

## **2. Literature reviews and hypotheses development**

### *2.1 Decision-making and decision theory*

Lindblom (1959) refers that incrementalism dispelled the myth that decision-making was a linear process. This author refers that each actor involved will have their problem perception and its solution. For White et al. (2015), successful decision-making refers to the ability of corporate decision-makers to find a better solution or the most lucrative solution among several alternatives. The *"way a decision-maker should assess evidence depends on how the task is framed"* (Mock et al., 2008). However, there are three types of decision making: sporadic (subject to major disruption, and with great opportunity for negotiation); fluid (faster, flows into formal meetings with fewer impediments and delays); and restricted (flows less than the

fluid process and occurs more often than sporadic, tending to circle around a central figure) (Cray, et al., 2007). According to the same authors, the primary deciding factor is the duality of complexity and political burden, and together determine the kind of process that strategic decisions follow. In the area of implementation, Nutt (1984) sustains that decisions can take place in various ways, such as intervention, participation, persuasion, and ordering, being the first most effective. For Bourgeois and Brodwin (1984), there are five forms of implementing a decision: command, change, collaborative, cultural, and growth strategy model. According to the garbage-can theory, problems depend on the amount of energy that will need to be deposited in the garbage-can solve them (Miller & Wilson, 2006). In Garbage-can theory, participants can have preferences, and when different participants are deposited, the problems, the solutions with different types of energies, a solution can find a problem and a decision arises. When a problem does not find a solution, a problem can come out of garbage with a participant (Miller and Wilson, 2006). This author refers that decisions may vary in content (what they are about); in process (how the decision moves through the organizations), and in importance (operational or strategic) (Miller & Wilson, 2006). Decision-making is strongly linked to decision theory. This theory has two interrelated facets, normative and descriptive theories. According to Slovic, Fischhoff and Lichtenstein, 1977, p. 265) "*The normative theory is concerned with prescribing courses of action that conform most closely to the decision maker's beliefs and values. Describing these beliefs and values and the manner in which individuals incorporate them into their decisions is the aim of descriptive decision theory*". Decision theory is an interdisciplinary approach that determines how decisions are made, given an unknown and uncertain decision environment, at this point it is understood that the manager, assuming the rational point of view, makes an optimal decision in the presence of an uncertainty (Shagari & Dandago 2013), whereas the more reliable the FI is, the more perceptive the manager's decision-making will be accounting information system provide useful FI for decision-making process (Sajady et al., 2012). Decision-making relies on the fundamentals of decision theory. Athanasou and Perera (2019) refer that an individual is faced with this theory when he/she must decide and, to do so, he/she must define a set of goals to achieve, as well as identify the possible alternatives, so that subsequently, manager can define the attributes/factors that should consider when choosing the best choice.

Decision makers need FI to support their choices, that is, information of both qualitative and quantitative nature (Smith, 2020). This author mentions that as much data, in real-time, can help the decision-makers to make the best choices. In addition, the usefulness of accounting information, which integrates the entire system of internal control, is a valuable decision mediator (Huian, 2020). Hence, the usefulness of accounting information is considered as a key outcome of maintaining the quality of internal control (Phornlaphatrachakorn, 2019). Following the International Accounting Standards Board (IASB), the main purpose of FI general purpose is to provide useful information about the reporting entity to stakeholders so that they can make appropriate economic decisions (Huian, 2020). The quality of internal control plays a key role in determining and driving the competitive advantage, performance, success, and survival of companies in rigorous markets and competitive environments (Phornlaphatrachakorn, 2019). Decision theory is a fundamental pillar for understanding decision making, in turn decision success can increase if the manager assigns usefulness to the FI produced by accountants (Sajady et al., 2012). Thus, the utility theory should be considered in the decision-making process (Fishburn, 1968).

## 2.2 The usefulness of Financial Information and utility theory

According to Fishburn (1968), utility theory is related to people's preference and the assumption that this preference will numerically bring usefulness to the person (Fishburn, 1968). The key result of the theory, for Wang, Lee, Augenbroe and Paredis (2017, p.79) "*is the expected utility theorem, which states that a decision-maker should select the alternative with the greatest expected utility*". This theory is based on the assumptions of accounting, which aim to produce useful information for all FI stakeholders. FI usefulness refers to information capable of making a difference in the decision-making of users of financial statements because it has confirmatory value, predictive value or both (Frendy & Semba, 2017). FI lets stakeholders use available FI "*FI are prepared so that information can be used by stakeholders to better understand and manage the firm*" (Carragher and Auken, 2013). SMEs owners generally lack management knowledge and have difficulty interpreting financial statements, this difficulty prevents owners from extracting the usefulness of FI (Auken, 2005). However, the difficulty in analyzing and interpreting the FI can jeopardize business survival (Çaliyurt, 2011). FI provides useful information to a wide range of users, its internal and external users (İbicioğlu et al., 2010). All FI produced must be reliable, relevant and accurate to be analyzed and processed by users in order to be a fundamental pillar in decision-making (Popescu, 2009). The great usefulness of accounting information can help provide and improve better decision-making and improve and increase the competitive advantage, performance, and success of companies (Phornlaphatrachakorn, 2019). Financial Statements are one of the main sources of information for financial analysis (Monea, 2013). The profit and loss account reports company financial performance over a given period, this financial statement summarizes all income and expenses and reports the results (Monea, 2013, p. 143). The cash flow statements information, in conjunction with profit and loss statement and the balance sheet, have decision-making relevance to external and internal user groups (Sharma & Jones, 1998). Financial statements are designed to provide useful information regarding the financial position, performance, and changes in the financial position of companies for a particular time. Being that one of the great purposes in its use is to predict future gains and dividends (İbicioğlu, Kocabiyik, & Dalgar, 2010). The financial statements, from the point of view of an investor, are essential for forecasting the future, from the point of view of a manager, they are useful to help anticipate future conditions and for planning actions that will affect the company's

future activities (İbicioğlu *et al.*, 2010). The notice 8254/2015 of July 29 of the Portuguese official gazette states that the qualitative characteristics that make FI useful in decision-making are:

- *Understandability* - The FI must be readily understandable by users and cannot “be excluded merely on the grounds that it may be too difficult for certain users to understand”.
- *Materiality* - The FI is material when “its omission or inaccuracy influences the economic decisions of users taken on the basis of the financial statements”.
- *Relevance* – Information has the quality of relevance when it influences how economic decisions users make when evaluating past, present, or future events or confirming, or correcting, or correcting, such as their past evaluations.
- *Comparability* – users must be able to compare an entity's financial statements over time in order to identify trends in its financial position and performance.
- *Credibility* – Information is credible unless it contains significant errors, is not biased, and users can be confident that it accurately represents objectives and what is reasonably expected to present. To have credibility, any information in the financial statement must be completed. Any omission can make the information false, misleading and lacks credibility or become irrelevant.

In fact, the financial statements are the result of all the information processed over time and, at the same time, they become an essential FI tool and of the decision-making process. (Monea, 2013). This is true when the accountant, in preparing financial statements, has taken into consideration the qualitative characteristics that make information useful in the decision-making of the various stakeholders. However, individual investors rarely use FI prepared by accounting, this behavior increases the risk of loss of investments (Ezamaa *et al.*, 2018). In his opinion, in addition to education, and the interpretation of legislation, national and international institutions should facilitate the interpretation of FI, which is one of the most important sources of information in the decision-making process. Managers, when analyzing the FI, must understand and interpret the financial data in order to attribute the due usefulness to the FI, facilitating the decision-making process. (Çaliyurt, 2011). Managers not only want to analyze the organization's performance, but they also want to know how the organization has achieved those goals (Smith, 2020). Financial performance focuses on companies' income and distribution of expenditures (Edwards and Pinkerton, 2020) and is one of the indicators that shows an organization's effectiveness and efficiency in achieving its financial goals (Omondi-Ochieng, 2019; Karamoy & Tulung 2020). Thus, in addition to financial performance, companies are increasingly concerned with information transparency (Bennett, James and Klinkers, 2017). Such transparency is only possible with an effective accounting system that respects all the qualitative characteristics of FI (İbicioğlu *et al.*, 2010). Thus, this system is one of the most effective tools in the management decision-making process, as it allows the collection and organization of FI on various business, banking and other transactions, making it a critical aid for management in business operation (Amoako, 2013). According to Çaliyurt (2011), all companies and their FI have their own characteristics, so decisions are influenced by the company characteristics and individual characteristics of decision-makers according to utility theory with the assumption on decision theory. Ma, Bartnik, Haney and Kang (2017, p. 2), show that manager characteristics influence decision making, for example, “*ethical leadership is not only associated with a leader trait (e.g., honesty, integrity and trustworthiness) and ethical behaviours (e.g., openness, concern, fairness and ethical decision making) but also linked to value-based management*”. According to Çaliyurt (2011), most studies state that female managers tend to make decisions on financial issues based on the opinion of their husbands, families, and friends, instead of being taken according to the science of financial management. The research results affirm that in businesswomen are not good at decision-making because they do not have business skills and do not have sufficient education in financial management (Çaliyurt, 2011). In the study by Zeng and Wang (2015), it is possible to conclude that female managers do not focus on the opportunity cost of money and moderate the problem of excess investment in free cash flow, being possible to verify that at this level, they are more conservative than male managers. Okafor and Amalu (2010) state that female entrepreneurship, when the business is constituted, focuses a lot on the survival and growth of companies, neglecting other factors that lead to failures in business implementation. In this context, we formulate the first hypothesis:

*H<sub>1</sub>: Managers' Gender influences the usefulness they attach to FI in decision making.*

Academic qualifications attainment influences the understanding of FI importance. In addition, if a business owner is educated at a higher level, he will have greater success and ease in building, analyzing and implementing the management control systems needed in the business (Amoako, 2013). Ezamaa *et al.* (2018) report that managers often have difficulty interfering with FI factor that diminishes its usefulness. According to Amoako (2013), only with a level of higher education is it possible to succeed in understanding challenges posed by business management. In this context, we formulate the second hypothesis:

*H<sub>2</sub>: Managers with academic qualifications at the level of higher education attribute more usefulness to FI in decision making.*

The importance of examining contextual factors of companies as an example of company size has been particularly addressed in the literature (Sharma & Jones, 1998; Cepêda & Monteiro, 2020; Fujianti, 2018; Alonso-Almeida, 2015; Liargovas & Skandalis, 2010; Wood, 1991). Companies and their financial statements have different characteristics, so decisions are influenced by company characteristics (Çaliyurt, 2011). Decision-making in small businesses involves several factors that make

the process complex. One of these factors may be the company characteristics (for example, the level of revenue can serve as a proxy for the company size); the company level can affect many small business decisions. (Carraher & Auken, 2013). In this context, we formulate the third hypothesis:

*H<sub>3</sub>: Managers of larger companies attach greater usefulness to FI in decision making.*

In the study by Amoako (2013), results indicate that the majority of owners, because they do not have sufficient management knowledge, do not feel comfortable using FI to make their decisions. According to Amoako (2013), owners do not appreciate the need to keep accounting records, lack necessary accounting knowledge, and blame costs of hiring accounting professionals. In this context, we formulate the fourth hypothesis:

*H<sub>4</sub>: Managers who are not company owners attribute more usefulness to FI in decision making.*

İbicioğlu *et al.* (2010) report that, compared with large firms, small firms have less liquidity, have more volatile cash flows, rely on short-term financing, and are more likely to experience financial difficulties and constraints. These authors further state that failure rates in small businesses are unacceptably high. The cause of this situation, according to Amoako (2013), may be related to the fact that micro-company managers assign less importance to FI in decision making. In this context, the following hypothesis of this investigation is defined:

*H<sub>5</sub>: Managers of older companies attribute more usefulness to FI in decision making.*

According to contingency theory, contingent factors affect, as technologies and business environment, affect the design and functioning of organizations, as well as its performance “Given its importance in everyday life and professional settings, there is a growing body of research that seeks to examine if decision-makers are proficient in hypothesis evaluation and whether performance can be enhanced” (Mock *et al.*, 2008, p. 124). Company performance “is one type of effectiveness indicator” (Richard, Devinney, Yip and Johnson, 2009, p. 722) and it has always motivated and guided company actions (Folan and Browne, 2005). Literature suggests that there is “a multidimensional conceptualization of organizational performance related predominately to stakeholders, heterogeneous product, market circumstances and time” (Richard *et al.*, 2009, p. 718). According to these authors (p. 719), measuring business performance is essential for managers to assess where firms stand in relation to their rivals and how companies evolve and perform over time. Ruf, Muralidhar, Brown, Janney and Paul (2001) use measures of financial performance as return on equity, return on sales, and sales growth. Several authors measure company performance through profitability, growth, and market share (Dhanaraj and Beamish, 2003; Richard *et al.* 2009). Other authors adopt a dynamic guideline to measure performance by asking the respondent evolution of results in the last 3 years (Sousa, Martínez-López, and Coelho (2008). Previous empirical studies have analyzed the relationship between company performance and FI usefulness (Hope & Vyas, 2011; Soudani, 2012; Cepêda & Monteiro, 2020). These authors provide statistical support for this relationship. In this context, we formulate the following hypothesis:

*H<sub>6</sub>: FI usefulness significantly influences the company performance.*

Literature suggests that the people are different from each other. Understanding the individual traits of people is important when these characteristics can influence their professional behavior (Triki, Cook and Bay, 2015). Personality traits, as a way of being, thinking, acting, among others, influence the choices and perceptions of professionals in a particular area of work. Montenegro and Rodrigues (2020) study, applied in Portugal, show that the gender, age, academic education, accounting ethics education and experience influence accountants' judgments. Cepêda and Monteiro (2020) verify that as managers' individual characteristics (e.g., academic qualifications and management skills) have impact on perception about the FI usefulness and that the variables FI usefulness and business performance are statistically correlated. Furthermore, Kallerberg and Leight (1991) indicate that manager's gender relevance to small companies' performance is a critical issue in survival and organizational success. In this context, we expected that managers' individual characteristics have an impact directly on the FI usefulness and indirect on firm performance, Therefore, in this study we formulate the following research hypothesis.

*H<sub>7</sub>: FI usefulness in decision-making has a mediating effect on the relationship between individual manager characteristics and company performance.*

This hypothesis gives rise to two sub-hypotheses:

*H<sub>7.1</sub>: FI usefulness in decision-making has a mediating effect on the relationship between manager gender and company performance.*

*H<sub>7.2</sub>: FI usefulness in decision-making has a mediating effect on the relationship between managers Academic qualifications and company performance.*

Previous research also shows that the characteristics of the companies where managers work (e.g., size, age and accounting standards) have an impact on the importance they attach to IF (Cepêda & Monteiro, 2020). On the other hand, there is empirical

evidence that firms' performance is influenced by the distinctive characteristics of firms (Fama & French, 1992). Despite the scarcity of studies in this area, there are no studies that analyze the FI usefulness mediating effect on the relationship between individual characteristics company and companies' performance, although there are fundamentals in this regard (Mukhametzyanov & Nugaev, 2016). Thus, in this study we intend to test the last investigations hypotheses:

*H<sub>8</sub>: FI usefulness in decision-making has a mediating effect on the relationship between company characteristics and company performance.*

This hypothesis gives rise to three sub-hypotheses:

*H<sub>8.1</sub>: FI usefulness in decision-making has a mediating effect on the relationship between size and company performance.*

*H<sub>8.2</sub>: FI usefulness in decision-making has a mediating effect on the relationship between non-owner managers and company performance.*

*H<sub>8.3</sub>: FI usefulness in decision-making has a mediating effect on the relationship between age (seniority) company performance.*

The hypotheses defined above are evident in the operational model that we propose for this research.

2.3 Conceptual model and methodology of the study

Operational model

This research aims to analyze the FI usefulness determinants related to manager's individual characteristics (gender and academic qualifications) and context factors (size, manager-owner and age) and analyses its impact in the company's performance. The operational model is present in Fig. 1.

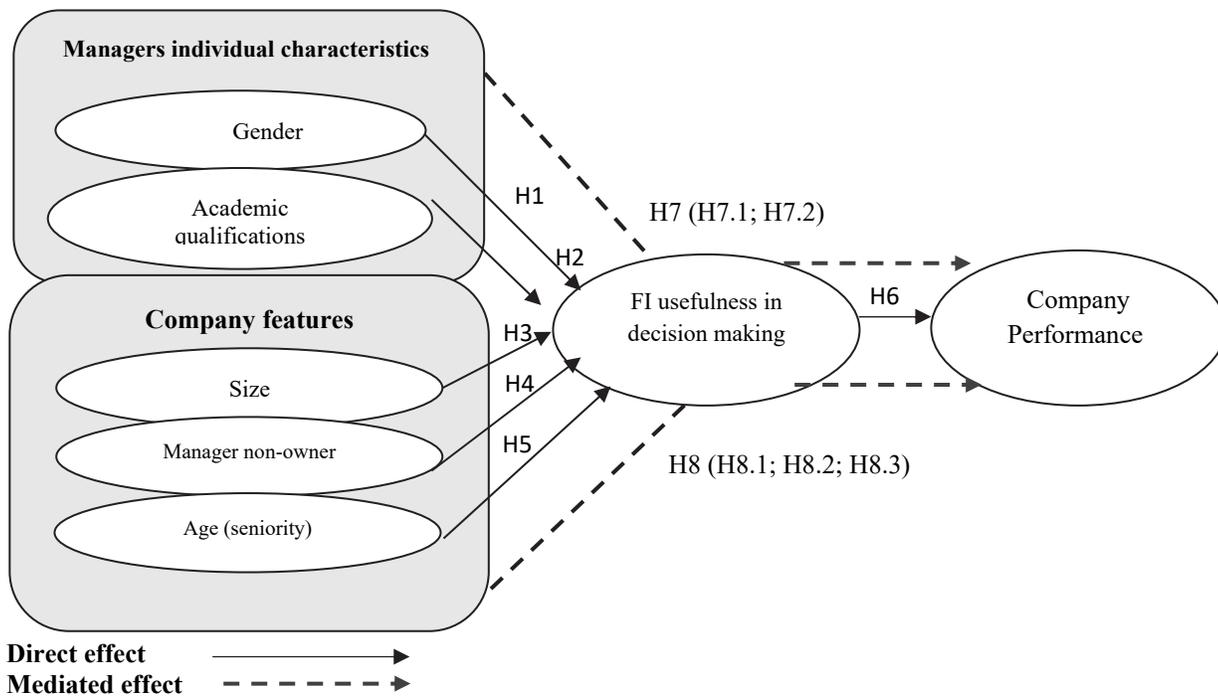


Fig. 1. Conceptual model

2.4 Measuring instruments development

To achieve the proposed objective, this study is based on a quantitative approach, which involves applying an online survey to certified accountants (available on the Certified Accountants website<sup>1</sup>). This survey is directed to certified accountants because they are the ones who prepare and produce companies FI and can evaluate FI usefulness, depending on the type of information that is usually produced and what is actually requested by the manager.

<sup>1</sup> CAA website: <https://www.occ.pt/>

In this study, the survey application to accountants was in collaboration with the Certified Accountants Association (CAA), which agreed to publish the survey on its institutional website. In this way, it was possible to collect responses quickly, at no cost and in large quantities, and to guarantee data confidentiality (Gillham, 2000). Given the large number of Certified Accountants (about 72,000), this study opts for a non-probabilistic statistic. A survey-based study was carried out to test the proposed model. The questionnaire was pre-tested with higher education teachers on the accounting area and accounting professionals to detect problems related to instruction/questions wording and clarity. The questionnaire's final version included questions about the firm (size, owner and age) and managers (gender and academic qualifications), FI usefulness in decision-making and company performance. To measure company and manager variables, several questions were asked in the questionnaire: Regarding company age, respondents were motivated to enter a number that corresponded to companies age; regarding whether the manager is the company owner or not, respondents were asked to answer either (1) no or (2) yes; as for companies size, accountants answered this question taking different options into account, namely: (1) micro entity, (2) small entity, (3) medium entity or (4) large entity; to know managers gender was asked if this was (1) female or (2) male. Finally, to measure academic qualifications, we asked whether company managers had higher education, (1) no or (2) yes. To measure FI usefulness, we used the items shown in Table 1. We measured company performance using Murphy, Trailer and Hill's (1996) measurement scale (6 items) Table 2. The items of each dimension were evaluated on a Likert scale of 5 points.

**Table 1**  
FI Usefulness

FI usefulness	Author(s)
1. Company managers give due importance to financial indicators in the decision-making process.	Jaffar, Selamat, Ismail and Hamzah (2012)
2. Company managers beyond FS requests another type of FI.	Amoako (2013).
3. Company managers attach great value to FI.	Bondt and Thaler (1995)

**Table 2**  
Company's Performance

Company Performance	Author(s)
1. Turnover has increased over the last 3 years.	Murphy, Trailer and Hill (1996)
2. The business has been very lucrative.	
3. The company has expanded its activity in the last 3 years.	
4. The company has increased its market share in the last 3 years.	
5. The company size has increased in the last 3 years.	
6. The number of employees has increased in the last 3 years.	

### 2.5 Survey administration and sample

The survey was carried out with Portuguese's certified accountants enrolled in the CAA in May 2017 to August 2018. We emphasize that professionals, in order to perform the function of certified accountant must be compulsorily enrolled in CAA. The link to access the online survey was made available on CAA website. During data collection, a total of 285 questionnaires were received, 250 of which were usable because 35 respondents do not currently practice. In data analysis, we used SPSS statistical software (version 19) and LISREL (version 8.8).

## 3. Results

### 3.1 Sample Characteristics

Findings show that the sample is mostly composed of men (56,8%), by individuals over 50 years old (65.6%), higher education (80.8%), experience for more than 10 years (81.6%) and that currently assume accounting in more than one company (65.6%). Accountants', in their replies, took into consideration company and managers that, by the nature and wealth of information allowed them, with more knowledge, to respond to this inquiry. Regarding managers under analysis, 80% are male, 57.6% have higher education, 56% work in micro-entities, 27.2% in small entities, 14.4% in medium-sized companies and 2.4% in large companies, and 88.8% managers are business enterprise owners. Most companies belong to the services sector (57.6%), with 25.6% of the commercial sector and 16.8% of industry. About three-quarters of companies have started business more than 10 (years) ago and more than half of the companies have been in the market for more than 20 years.

### 3.2 Structural equation model

In this study, to prepare the data and assess whether it meets the requirements to be subjected to an SEM analysis, we proceeded to a preliminary data analysis. Then we proceeded to an SEM evaluation. Analysis using the structural equation model involves two steps, the measurement model, and the structural model assessment.

The maximum likelihood estimation method was used to evaluate the measurement model (Hair, Anderson, Tatham and Black, 1998). This method, when using covariance matrices, calculates more reliable estimates (Diamantopoulos & Siguaw, 2000). In the analysis, we find moderate violations of normality main assumptions. However, this method is considered robust against normality assumption violations (Diamantopoulos & Siguaw, 2000). The measurement model, the unidimensionality of the constructs, as well as reliability and validity (convergent and discriminant) were analyzed. Table 3 provides measurement model evaluation results. Confirmatory factor analysis rejected 1 item in the company performance dimension (business has been very profitable). In first-order models, all items correspond statistically with their factor, demonstrating the unidimensionality of the factor. All loads of observed variables have values, proving the existence of convergent validity of the constructs ( $\geq 0.70$ ) (Garver & Mentzer, 1999). All latent variables have values greater than 0.60, which proves the reliability of the scales (Bagozzi & Yi, 1988). Finally, the value of the extracted average variance ( $> 0.50$ ) shows discriminant validity of the constructs (Fornell & Larcker, 1981).

**Table 3**

Measurement model results

<i>Construct and items</i>	<i>Standardized loading</i>
<b>Usefulness of FI (CR= 0.879, AVE= 0.79)</b>	
Company managers give due importance to financial indicators in decision-making process	<b>0.95</b>
Company managers beyond the FS requests another type of FI.	<b>0.95</b>
Company managers beyond the FS requests another type of FI.	<b>0.76</b>
<b>Company Performance (FC= 0.94, MVE= 0.71)</b>	
Turnover has increased over the last 3 years.	<b>0.84</b>
The company has expanded its activity in the last 3 years.	<b>0.92</b>
The company has increased its market share in the last 3 years.	<b>0.97</b>
The company size has increased in the last 3 years.	<b>0.92</b>
The number of employees has increased in the last 3 years.	<b>0.70</b>

Notes: CR = composite reliability; AVE = average variance extracted. All loadings are statistically significant at  $p < 0.001$ .

The structural model was estimated in order to test the hypotheses proposed. In this study, the parameters of the analysis do not confirm models fit ( $\chi^2(51) = 184.90$ ;  $p < 0.05$ , CFI = 0.94, GFI = 0.90, NNFI = 0.91, RMSEA = 0.10). We present in Table 3 testing results hypothesis.

**Table 4**

Testing results hypotheses

Parameters	Standardized coefficients	t-value	R <sup>2</sup>	Hypotheses	Results
Gender – FI usefulness	-0.11	-3.18(*)		H1	Supported
Academic qualifications – FI usefulness	0.11	2.53(*)		H2	Supported
Company non-owner - FI usefulness	-0.06	-2.50(*)	0.30	H3	Supported
Age (seniority) - FI usefulness	0.45	2.56(*)		H4	Supported
Size - FI usefulness	-0.02	-0.22		H5	Not supported
FI usefulness - company performance	0.27	4.30(*)	0.17	H6	Supported

Note: (\*) Sig. value  $p < 0.01$ .

As we can see in Table 4, of the 6 direct hypotheses, only 1 was rejected (H5). The revised structural model was estimated after eliminating the relationship between company size and FI usefulness since in the initial evaluation, it is not statically significant. Parameters of the analysis confirm the models fit ( $\chi^2(44) = 19.20$ ;  $p < 0.05$ , CFI = 0.95, GFI = 0.90, NNFI = 0.93, RMSEA = 0.08). We present in Table 4 the testing result hypothesis for the revised model.

**Table 5**

Testing result hypothesis (revised model)

Parameters	Standardized coefficients	t-value	R <sup>2</sup>	Hypotheses	Results
Gender – FI usefulness	-0.11	-3.46*		H1	Supported
Academic qualifications - FI usefulness	0.11	2.93*		H2	Supported
Company's non-owner - FI usefulness	-0.06	-2.67*	0.29	H3	Supported
Age (seniority) - FI usefulness	0.42	3.69*		H4	Supported
FI usefulness - company performance	0.26	4.34*	0.12	H6	Supported

Note: (\*) Sig. value  $p < 0.01$ .

The results show that based on decision theory and utility theory and the Portuguese economic context: (1) managers gender has an impact on FI usefulness. However, it is not male managers who attribute greater usefulness to FI, but female; (2) the managers with higher education attach greater usefulness to FI; (3) older companies' managers and non-owners attribute greater usefulness to FI in decision-making and; (4) managers who attribute most usefulness to FI are managers of better-performing companies. Results allow direct hypothesis support of H1, H2, H3, H4 and H6. In this study, we also analyzed indirect relationships, that is, the mediating effect of individual characteristics of manager and company features on company performance through FI usefulness. We tested mediating effect significance by using the Aroian test (Baron & Kenny, 1986). The results found show that managers gender and academic qualifications directly impact FI usefulness and has an indirect effect in company's performance of  $-0.03$  ( $-0.11 \times 0.26$ ;  $p < 0.01$ ;  $Z = -3.20$ ) and  $0.03$  ( $0.11 \times 0.26$ ;  $p < 0.01$ ;  $Z = -2.66$ ), respectively. Indirect effects of company age and non-owner managers on company performance is  $0.12$  ( $0.42 \times 0.26$ ;  $p < 0.01$ ;  $Z = -2.80$ ) and  $-0.02$  ( $-0.06 \times 0.26$ ;  $p < 0.01$ ;  $Z = -2.60$ ), respectively. Results allow support to hypothesis H7.1, H7.2, H8.2, and H8.3.

#### 4. Discussion and Conclusion

For good management, it is necessary to use and analyze FI, both for analyzing past mistakes and predicting future decisions. This study aims to explore consequent antecedents of FI usefulness with utility theory and decision theory assumption. As antecedents, we consider managers' and companies' characteristics and resulting company performance. In this study, we developed and evaluated a theoretical model using SEM. Based on 250 certified accountants' opinions, results show that managers' individual characteristics, such as gender and academic qualifications, have an influence on the usefulness that managers attribute to FI in decision making. This way made it possible to verify that, it is in fact women and managers who have higher qualifications that attribute greater usefulness to FI. These results are consistent with Okafor, Amalu (2010), and Amoako (2013) studies. Regarding contextual characteristics, results indicate that non-proprietary managers of older companies attach greater importance to information that is produced by accounting in decision-making that goes against the fundamentals of Carraher and Auken (2013) İbicioglu *et al.* (2010) and Amoako (2013). In terms of direct relationships, we just did not find a significant relationship between company size and usefulness of financial information, not meeting the results of Carraher and Auken (2013). It was also possible to conclude that FI usefulness significantly influences company performance against the foundations of Hope and Vyas (2011), Soudani (2012) and Cepêda and Monteiro (2020).

This paper contributes to the literature, as we present evidence, with the assumptions on utility and decision theory, on the relationship between managers individual characteristics and company, the usefulness of FI, and business performance, by using Structured Equations Model (SEM) and Certified Accountants. Given the high rate of bankruptcies in the Portuguese business fabric, this research becomes very relevant for accounting and management professionals. It provides a better understanding of Portuguese managers and companies' characteristics that influence the usefulness of FI in the decision-making process. Models are only approximations of reality and are based on theoretical assumptions. Thus, this study has some limitations, namely in terms of survey sample size, since we use a convenience sample that limits results generalization. Another survey limitation is that investigation it's not applied directly to managers, as this investigation is time-limited, we chose to apply the survey to certified accountants as the answer is easier to obtain on the one hand. On the other hand, they are aware of the usefulness that managers attribute to FI as a function of FI requested by the manager.

In future research, we suggest analyzing other variables associated with managers' individual characteristics (e.g., management skills, experience, and age) and the company (e.g., degree of internationalization). The frequency with which FI is requested may determine its usefulness; therefore, we suggest future investigation to include this variable in the FI usefulness dimension and check whether Non-Financial Information determines the usefulness of FI in decision-making. We recommend applying this study directly to managers to compare the results obtained and apply it in different countries where large companies' samples are more significant.

#### References

- Amoako, G. K. (2013). Accounting Practices of SMEs, A Case Study of Kumasi Metropolis in Ghana. *International Journal of Business and Management*, November, 8(24),73-83.
- Artienwicz, N. (2016). Behavioral stream in Polish accounting, its relation to behavioral finance and the perspectives for neuroaccounting development in Poland. In *Neuroeconomics and the decision-making process* (pp. 246-261). IGI Global.
- Athanasou, J. A., & Perera, H. N. (2019). *International handbook of career guidance*. Springer, Cham <https://doi.org/10.1007/978-3-030-25153-6>
- Auken, V. (2005). A Model of Small firm Capital Acquisition Decision. *International Entrepreneurship and Management Journal*, 1(3), 335-352.
- Bachrach, P., & Baratz, M. S. (1962). The two faces of power. *American Political Science Review*, 56, 52-947.

- Bagozzi, R.P., & Yi, Y. (1988). On the evaluation of structural equation models. *JAMS*, 16, 74–94. <https://doi.org/10.1007/BF02723327>
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research, Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173–1182. <https://doi.org/10.1037/0022-3514.51.6.1173>
- Bennett, M., James, P., & Klinkers, L. (Eds.). (2017). *Sustainable measures, Evaluation and reporting of environmental and social performance*. Routledge, London and New York.
- Bertolami, M., Artes, R., Gonçalves, P. J., Hashimoto, M., & Lazzarini, S. G. (2018). Sobrevivência de empresas nascentes, influência do capital humano, social, práticas gerenciais e gênero. *Revista de Administração Contemporânea*, 22(3), 311–335. <https://doi.org/10.1590/1982-7849rac2018160121>
- Bondt, W., & Thaler, R. (1995). Financial decision-making in markets and firms, A behavioral perspective. In R. A. Jarrow, V. Maksimovic, and W.T. Ziemba (Eds.). *Handbooks in Operations Research and Management Science* (Vol. 9, Cap. 13, pp. 385-410). Amsterdã, Elsevier.
- Botchway, H. B., & Rashedi, H. (2020). The perceptions of managers on the usefulness of accounting information during the decision-making process (Case Study, Iran Khodro Automotive Co). Available at SSRN 3514157.
- Bourgeois, L. J., & Brodwin, D. R. (1984). Strategic implementation, five approaches to an elusive phenomenon. *Strategic Management Journal*, 5, 64-241.
- Çaliyurt, K. T. (2011). Importance of Financial Management Knowledge in Small and MEedium ENnterprises (SMEs) Managing by Women. *Trakya Üniversitesi Sosyal Bilimler Dergisi*, 13(2), 327-354.
- Carraher, S., & Auken, H. V. (2013). The use of financial statements for decision. *Journal of Small Business & Entrepreneurship*, 26(3), 323-336.
- Cepêda, C., & Monteiro, A. (2020). The Accountant's Perception of the Usefulness of Financial Information in Decision Making – A Study in Portugal. *Brazilian Journal of Business Management*, 22(2), 363-380.
- Cesar, A. M. R. V. C., Jerônimo, P. F., & Carneiro, R. B. (2012). Neuroaccounting, the neuroscience contribution to analyze the budget decision making process. *Enfoque*, 31(3), 89.
- Child, J. (1974). Managerial and organizational factors associated with company performance part I. *Journal of Management Studies*, 11(3), 175-189.
- Cray, D., Mallory, G. R., Butler, R. J., Hickson, D. J., & Wilson, D. C. (1988). Sporadic, fluid and constricted processes, Three types of strategic decision-making in organizations. *Journal of Management Studies*, 25(1), 13-39.
- Dhanaraj, C., & Beamish, T. C. (2003). A resource-based approach to the study export performance. *Journal of small Business Management*, 41(3), 242-261.
- Diamantopoulos, A., & Sigauw, J. A. (2000). *Introducing LISREL*. SAGE Publications, Ltd <https://www.doi.org/10.4135/9781849209359>
- Edwards, D. N., & Pinkerton, E. (2020). Priced out of ownership, quota leasing impacts on the financial performance of owner-operators. *Marine Policy*, 111, 1–10.
- Edwards, W. (1954). The theory of decision making. *Psychological Bulletin*, 51(4), 380–417.
- Ezamaa, D. P., Paredes, M. R., Martín, M. S., & Liaño, B. G. (2018). Shorter and easier is more useful, A longitudinal analysis of how financial report enforcement affects individual investors. *Journal of Behavioral and Experimental Economics*, 74, 20-37.
- Fama, E. F., & French, K. R. (1992). The cross-section of expected stock returns. *The Journal of Finance*, 47(2), 427-465.
- Fishburn, P. C. (1968). Utility theory. *Management Science*, 14, 335-378.
- Fishburn, P. C. (1970). *Utility Theory for Decision Making*. Em, D. B. Hertz, ed. Research Analysis Corporation. Operations Research Society of America, 1-231.
- Florin, B. (2014). Development of decision making by managers with financial and accounting information. *Economic Sciences*, 23, 40–56.
- Folan, P., & Browne, J. (2005). A review of performance measurement, Towards performance management. *Computers in Industry*, 56(7), 663-680.
- Fornell, C., & Larcker, D. (1981). Evaluating structural equation models with unobserved variables and measurement error. *Journal of Marketing Research*, 18, 39-50.
- Frendy & Semba, H. D. (2017). Does Recycling Improve Information Usefulness of Income? The Care of Japan. *Asian Review of Accounting*, 25(3), 376-403.
- Fujianti, L. (2018). Top Management Characteristics and Company Performance, An Empirical Analysis on Public Companies Listed in the Indonesian Stock Exchange, *European Research Studies Journal*, 11, 2,62-76.
- Garver, M.S., & Mentzer, J.T. (1999) Logistics Research Methods, Employing Structural Equation Modelling to Test for Construct Validity. *Journal of Business Logistics*, 20, 33-57
- Hair, J. F. Jr., Anderson, R. E., Tatham, R. L. and Black, W. C. (1998). *Multivariate data analysis* (5th ed.). Prentice Hall, New Jersey.

- Haleem, A., & Teng, K. L. (2018). Impact of User Competency on Accounting Information System Success, Banking Sectors in Sri Lanka. *International Journal of Economics and Financial Issues*, 8(6), 167–175.
- Hope, O. K., Thomas, W., & Vyas, D. (2011). Financial credibility, ownership, and financing constraints in private firms. *Journal of International Business Studies*, 42(7), 935-957.
- Huian, M. (2015). The Usefulness of Accounting Information on Financial Instruments to Investors Assessing Non-Financial Companies. An Empirical Analysis on the Bucharest Stock Exchange. *Journal of Accounting and Management Information Systems*, 14(4),748-769.
- İbicioğlu, K. H., Kocabiyik, T. and Dalgac, H. (2010). Financial statement utilization during decision making process in SMEs, a comparative study on European and Turkish managers. *Marmara Üniversitesi*, 28(1), 209–226.
- Ismail, I. (2014). The effect of company size and leverage towards company performance, After Malaysian economic crisis. *International Journal of Management and Innovation*, 6(2), 32-48.
- Jaffar, N., Selamat, Z., Ismail, N., & Hamzah, H. (2012). The usefulness of the SMEs' accounting information. *Journal of Modern Accounting and Auditing*, 8(10), 1407–1418.
- Karamoy, H., & Tulung, J. E. (2020). The effect of financial performance and corporate governance to stock price in non-bank financial industry. *Corporate Ownership and Control*, 17(2), 97–103. <https://doi.org/10.22495/cocv17i2art9>
- Latane, H., & Tuttle, D. (1965). Decision Theory and Financial Management. *The Journal of Finance*, 21(2), 228-244.
- Lee, H., & Choi, B. (2003). Knowledge Management Enablers, Processes, and Organizational Performance, An Integrative View and Empirical Examination. *Journal of Management Information Systems*, 20(1), 179–228.
- Liargovas, P. G., & Skandalis, K. S. (2010). Factors affecting firms' performance: The case of Greece. *Global Business and Management Research: An International Journal*, 2(2), 184-197.
- Lindblom, C. E. (1959). The science of "muddling through". *Public Administrative Review*, 19(2), 79-88.
- Ma, C., Bartnik, R., Haney, M., & Kang, M. (2017). Ethical Leadership, An Integrative Review and Future Research Agenda. *Ethics & Behavior*, 28(2), 104–132.
- Maguire, L. A., & Albright, E. A. (2005). Can behavioral decision theory explain risk-averse fire management decisions?. *Forest Ecology and Management*, 211(1-2), 47-58.
- Miller, S. J., & Wilson, D. C. (2006). *Perspectives on Organizational Decision-Making*. The Sage handbook of organization studies.
- Mintzberg, H., Raisinghani, D. and Theoret, A. (1976). The structure of "unstructured" decision processes. *Administrative Science Quarterly*, 21, 75-246.
- Mock, T. J., Wright, A., Srivastava, R. P., & Lu, H. (2008). The Framing and Evaluation of Multiple Hypotheses. *Asia-Pacific Journal of Accounting & Economics*, 15(2), 123-140.
- Monea, M. (2013). Information System of the Financial Analysis. *Annals of the University of Petroșani, Economics*, 13(2), 149-156.
- Mukhametzhanov, R. Z., & Nugaev, F. S. (2016). Financial statements as an information base for the analysis and management decisions. *Journal of Economics and Economic Education Research*, 17(2), 47-54.
- Nutt, P. C., 1984. Types of organizational decision processes. *Administrative Science Quarterly*, 29(3), 50-414.
- Okafor, C., & Amalu, R. (2010). Entrepreneurial Motivations as Determinants of Women Entrepreneurship Challenges. *Petroleum-Gas University of Ploiesti, Bulletin, Economic Science Series*, 1(12), 67-77.
- Omondi-Ochieng, P. (2019). Financial performance trends of United States Hockey Inc, a resource-dependency approach. *Journal of Economics, Finance and Administrative Science*, 24(48), 327–344. <https://doi.org/10.1108/JEFAS-02-2018-0022>
- Phornlaphatrachakorn, K. (2019). Internal control quality, accounting information usefulness, regulation compliance, and decision-making success, evidence from canned and processed foods businesses in Thailand. *International Journal of Business*, 24(2), 198–215.
- Popescu, D. D. (2009). Enterprise Analysis. Editura ASE, București.
- Pordata (2019). Retrato de Portugal PORDATA, Edição 2019. accessed at 20 julho 2020. Available in <https://www.pordata.pt/ebooks/PT2019v20190711/mobile/index.html>
- Powell, V. (1987). Improving public enterprise performance, concepts and techniques (No. 22). International Labour Organization.
- Richard, P. J., Devinney, T. M., Yip, G. S., & Johnson, G. (2009). Measuring organizational performance, Towards methodological best practice. *Journal of Management*, 35(3), 718-804.
- Ruf, B. M., Muralidhar, K., Brown, R. M., Janney, J. J., & Paul, K. (2001). An empirical investigation of the relationship between change in corporate social performance and financial performance: A stakeholder theory perspective. *Journal of Business Ethics*, 32(2), 143-156.
- Sajady, H., Dastgir, M., & Nejad, H. H. (2012). Evaluation of the effectiveness of accounting information systems. *International Journal of Information Science and Management (IJISM)*, 6(2), 49-59.
- Salehi, M., Rostami, V., & Mogadam, A. (2010). Usefulness of accounting information system in emerging economy, empirical evidence of Iran. *International Journal of Economics and Finance*, 2(2), 186–195.
- Santos, V., Dorow, D., & Beuren, I. (2016). Management practices of micro and small companies. Universidade Federal de Pernambuco.

- Shagari, S., & Dandago, K., (2013). Decision Usefulness Approach To Financial Reporting, A Case For The General Public. The 14th Asian Academic Accounting Association (4As) Annual International Conference, holding at Penang, Malaysia October 27-30.
- Sharma, R., & Jones, S. (1998). The Contingent Impact of Firm Size and Managerial Level on Cash Flow Statement Based Evaluations. *Asia-Pacific Journal of Accounting*, 5(1), 127-148.
- Slovic, P., Fischhoff, B., & Lichtenstein, S. (1977). Behavioral decision theory. *Annual Review of Psychology*, 28(1),1-39.
- Smith, S. S. (2020). Blockchain, artificial intelligence and financial services, Implications and applications for finance and accounting professionals. Springer. <https://doi.org/10.1016/j.paid.2015.06.017>
- Soudani, S. N. (2012). The Usefulness of an Accounting Information System for Effective Organizational Performance. *International Journal of Economics and Finance*, 4(5), 136-145.
- Sousa, C. Martínez-López, F., & Coelho, F. (2008). The Determinants of Export Performance, A Review of the Research in the Literature between 1998 and 2005. *International Journal of Management Reviews*, 10(4), 343-374.
- Tang, Y. C., & Liu, Y. J. (2016). Beyond objective knowledge, the moderating role of field dependence–independence cognition in financial decision making. *Social Behavior and Personality*, 44(3), 519–528.
- Triki, A., Cook, G. L., & Bay, D. (2017). Machiavellianism, moral orientation, social desirability response bias, and anti-intellectualism, A profile of Canadian accountants. *Journal of Business Ethics*, 144(3), 623-635
- Wang, Q., Lee, B. D., Augenbroe, G. and Paredis, C. J. (2017). An application of normative decision theory to the valuation of energy efficiency investments under uncertainty. *Automation in Construction*, 73, 78-87.
- White, L. C., Pothos, E. M., & Bussemeyer, J. R. (2015). Insights from quantum cognitive models for organizational decision making. *Journal of Applied Research in Memory and Cognition*, 4(3), 229–238.
- Wood, D.J. (1991). Corporate Social Performance Revisited. *The Academy of Management Review*, 16, 691-718.
- Zeng, S., & Wang, L. (2015). CEO gender and corporate cash holdings. Are female CEOs more conservative? *Asia-Pacific Journal of Accounting & Economics*, 22(4), 449-474.



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