The stereotype of accountants: using a personality approach to assess the perspectives of laypeople

Fernanda Leão
CIICESI, ESTG, Politécnico do Porto, Felgueiras, Portugal, and
Delfina Gomes
School of Economics and Management, University of Minho, Braga, Portugal

Abstract

Purpose – In the context of Portugal, this study examines the stereotypes of accountants held by laypeople and how they are influenced by financial crises and accounting scandals.

Design/methodology/approach – To better understand the social images of accountants, the authors adopt a structural approach based on the big five model (BFM) of personality. The authors test this approach on a Portuguese community sample ($N = 727$) using a questionnaire survey. The results are analyzed considering the socioanalytic theory.

Findings – The results suggest the existence of a stereotype dominated by features of conscientiousness, which is related to the superior performance of work tasks across job types. This feature comprises the core characteristics of the traditional accountant stereotype, which survives in a context challenged by financial scandals and crises. The findings highlight the social acceptance of accountants as an occupational group but do not suggest the possibility of accountants benefiting from the highest levels of social status when considered in relation to the traditional accountant stereotype.

Originality/value – By combining the BFM and the socioanalytic theory, this study provides a unique theoretical approach to better understand the social images of accountants. The findings demonstrate the suitability of using the BFM to study the social perceptions of accountants. They also indicate a paradox based on the survival of the traditional stereotype. This stereotype appears to be resistant to scandals and financial crisis, instead of being impaired, giving rise to another prototype with concerns about integrity.

Keywords Accountant stereotypes, Big five model, Socioanalytic theory, Portugal

Paper type Research paper

Introduction

Stereotypes are shared socially constructed images resulting from interpersonal relations, personal observations and cultural values, which have the potential to influence the behavior of individuals (Chan *et al.*, 2012; Hilton and Hippel, 1996; Hinton, 2000; Stangor and Schaller, 1996). Social judgment influences the content of stereotyped portraits, which usually

comprise personality traits and, to a lesser extent, physical traits (Hinton, 2000). These characteristics are generalized beliefs about individuals who share a distinguishing feature identifying a stereotyped group, such as gender, ethnicity or occupation (e.g. Hinton, 2000).

This study focuses on the stereotype of accountants, a group whose personality traits cover a dominant part of their social image (e.g. Bougen, 1994; Carnegie and Napier, 2010; Leão *et al.*, 2019). In this context, it must be noted that accounting practices have widespread repercussions on societal progress (e.g. Miller, 1994), and accountants play a key role in this process. Although the accounting practices have transformed and helped accountants to transcend local boundaries, stereotypes remain "part of the social fabric of a society" (Stangor and Schaller, 1996, p. 4) and, as a result, might vary cross-culturally. Accounting researchers have been analyzing the social images of accountants; however, little is known about the stereotypes of accountants outside the Anglo-American contexts. In other fields, the research on stereotypes across cultures has highlighted important findings, transcending the Anglo-American-centered knowledge (Cuddy *et al.*, 2009). According to Cuddy *et al.* (2009, p. 2), "[c]ultural influences might preclude universal principles of stereotyping" and variations in accounting practices (e.g. Gray, 1988). To better understand the role of accounting in the society, it is important to examine how accountants are understood in specific social settings (Carnegie and Napier, 2010; Hopwood, 1994). Wells (2017, p. 33) calls for more research on the stereotypes of accountants and theorizes that they are "a consequence of cognitive, affective, socio-motivational and cultural mechanisms." Caglio *et al.* (2019) also highlight the need for further research on the social images of accountants set in different cultural settings. As argued by Caglio *et al.* (2019) and Wells (2017), the literature tends to present the resistance and dominance of a poor stereotype of accountants over time; however, there is weak knowledge about its universality. This raises question on the context-dependent nature of the knowledge. A better understanding of this dimension of the phenomenon will provide material to manage the image across contexts, thus reducing the potential intergroup prejudices limiting the social power of accounting.

Set in Portugal, this study examines the stereotypes of accountants held by laypeople and how they are affected by moments of scandals and financial crises. It addresses the calls made by examining the stereotypes of accountants in a specific Portuguese context, which is marked by financial instability, and thus offers valuable insights to extend this growing body of literature in several ways. The Portuguese stereotype of accountants might help in understanding cross-cultural similarities and differences among the stereotypes identified in the literature. Essentially, this study will enhance the understanding of the stereotypes of accountants found in different contexts, thus assisting in identifying potential universal content. Regarding the specific period of data collection, the Portuguese context might help in evaluating the degree of immunity of the social image of accountants to financial scandals involving accounting. We found and discuss a paradox regarding the stability of the traditional stereotype in challenging moments of scandals and financial crisis.

This study offers evidence from the society in general. We add an underexplored source to the literature by collecting perceptions from the society's realm. Although laypeople's views of accountants might be restricted (Cantor and Mischel, 1979), it is important to gather the perceptions of nonaccountants about accountants in order to understand the stereotypes of accountants within the society. According to the findings of Caglio *et al.* (2019, p. 18), the "distance from the profession is an important factor for explaining people's perceptions of accountants, which influences the image of accountants held by different groups." By drawing on the developments of the personality theory, this work contributes to interdisciplinary research in accounting, which combines accounting and psychology by using personality theory (e.g. Aranya and Wheeler, 1986; Briggs *et al.*, 2007; Davidson and Dalby, 1993a). In adopting this theoretical frame, it answers the call for research by Taggar and Parkinson (2007) who highlight personality measures as important tools to address accounting issues.

Specifically, this study examines the stereotype of accountants as perceived by the Portuguese laypeople, through a representative sample of 727 responses, by combining the big five model (BFM) of personality and Hogan's (1996) socioanalytic theory. Hence, the study offers a unique theoretical approach to better understanding the social images of accountants. It also tests the suitability of the BFM for examining the social perceptions of accountants. The BFM has been used by psychologists to research stereotypes (e.g. Chan et al., 2012; Terracciano et al., 2005) and by Coate et al. (2003) in the field of accounting. According to Srivastava (2010, p. 69), the BFM is "first and foremost a model of social perception", which provides its dimensions and reflects the concerns of the perceivers. In general, laypeople spontaneously infer traits about others (Hamilton et al., 2015) and are sensitive to others' typical behavior and its significance and variability across situations (Wright and Dawson, 1988). As highlighted by Srivastava (2010, p. 72), "personality traits and trait factors are perceivers' representations of temporally stable and cross-situationally coherent patterns of thought, feeling, and behavior". We use the socioanalytic theory to interpret the results of BFM. It emphasizes that human nature is socially constructed to facilitate interpersonal relationships and postulates that personality should be understood not only from the viewpoint of the actor but also from the perception of the observer.

The remainder of this paper is organized as follows: the next section provides a brief review of the research on the stereotypes of accountants. The subsequent three sections address the theoretical aspects, that is, the conceptual issues of personality, the BFM of personality and the socioanalytic theory, respectively. These sections are followed by the research method, which presents the research setting, participants, instrument and procedures of recruitment and data analysis. The subsequent two sections present the study's findings and its discussion. The final section provides the concluding comments.

Prior research on the stereotypes of accountants
The stereotypes of accountants are composed of a set of personality features and typical behaviors (Davidson and Dalby, 1993b). They influence social expectations that shape individuals' actions toward accountants and accounting (Hilton and Hippel, 1996). According to DeCoster and Rhode (1971, p. 662), "[t]he stereotyping of accountants has resulted in assigning negative attitudes to the profession by many observers."

Several researchers have adopted qualitative and quantitative approaches to study the stereotypes of accountants, with the literature on individuals' inquiry mainly supported by students, accountants and managers (Aranya et al., 1978; Bedeian et al., 1986; Caglio et al., 2019; Coate et al., 2003; Cory, 1992; DeCoster and Rhode, 1971; Fisher and Murphy, 1995; Friedman and Lyne, 1997; Granleese and Barrett, 1990; Hakel et al., 1970; Hunt et al., 2004, 2009; Imada et al., 1980; Marriott and Marriott, 2003; Parker and Warren, 2017; Wessels and Steenkamp, 2009).

This growing body of literature has identified several images of accountants. As summarized by Carnegie and Napier (2010), the two main stereotypes highlighted in the literature are the *traditional accountant* and the *business professional*, with the first one being dominant and socially unattractive. In the *traditional accountant*, honesty, integrity, meticulousness and trust contrast with damaging traits such as dull, boring, unimaginative and uncommercial (Carnegie and Napier, 2010). These damaging features have disappeared from the *business professional*, giving space to the opposite characteristics. However, concerns related to competence, integrity and opportunism are also part of this modern stereotype, while these are assets of the *traditional accountant* (Bougen, 1994; Carnegie and Napier, 2010). Carnegie and Napier (2010, p. 372), by examining post-Enron popular literature, state that "[t]he general consensus of the books under review is that the *traditional accountant* stereotype is no longer descriptive of modern accountants" They conclude that the accounting transformation has changed social perceptions of accountants from a *traditional accountant* to a *business professional* stereotype.

While these results seem to announce the death of the *traditional accountant* stereotype, evidence from the literature set in contemporary times shows its persistence (Caglio *et al.*, 2019; Hunt *et al.*, 2009; Magon and France, 2018; Parker and Warren, 2017; Wessels and Steenkamp, 2009). According to Parker and Warren (2017, p. 1917), "[t]he traditional stigmatized stereotype of the accountant appeared to be alive and well".

Richardson *et al.* (2015), when distinguishing between the existing social images of accountants, identify two other stereotypes of accountants: (1) *the guardian,* a contemporary stereotype, described as ethical, professional and versatile; and (2) *the beancounter*, summarized as inept, awkward and obsessive. Richardson *et al.* (2015) classify the personality traits of these stereotypes and the prototypes of the *traditional accountant* and the *business professional*. The *traditional accountant* and the *guardian* are associated with positive personality traits, while the *beancounter* and the *business professional* are linked to the negative traits.

Despite the relevance of personality traits in the content of the stereotypes of accountants, prior ventures of inquiry have paid limited attention to personality measures. According to Taggar and Parkinson (2007), these measures are useful for analytical and predictive research and for triangulating previous studies. This research has focused on the accuracy and content of the stereotypes of accountants by collecting students' and accountants' perceptions (Bedeian *et al.*, 1986; Coate *et al.*, 2003; DeCoster and Rhode, 1971; Granleese and Barrett, 1990; Imada *et al.*, 1980). It highlights the inaccuracy of the *traditional accountant* stereotype regarding the self-image of accountants. Bedeian *et al.* (1986, p. 120) state that "[t]he contrast between the profile developed [. . . through accountants' inquiry] and the traditional public image of accountants may well reflect changes occurring in the accounting profession that have not yet been perceived by the general public". Reinforcing this prediction, Davidson and Dalby (1993a) focus on the personality characteristics of the increasing number of women in the accounting profession and highlight the inaccuracy concerning the traditional male stereotype. However, when the focus is the content of the stereotype, personality measures have mainly revealed consistent prototypes with the *traditional accountant* stereotype. For example, Coate *et al.* (2003) reveal the survival of this stereotype, through a BFM-based survey of students' perceptions of accountants. Their results show that accountants are perceived as extremely conscientious, slightly emotionally stable, less extroverted, agreeable and open to experiences than that of an average individual. Researchers claim that this prototype does not meet the demands of a changing professional environment exposed to constant global economic and financial challenges (Hopwood, 1994; Levy *et al.*, 2011). It has been highlighted accounting's need for a different personality profile. Specifically, it has been emphasized the need for accountants that are more extroverted and possess effective communication and leadership skills. This emphasis has led researchers to look for changes in the personality types of current and future accountants (e.g. Briggs *et al.*, 2007; Levy *et al.*, 2011). Findings indicate that the accounting profession fails to attract and retain significantly different personality profiles over time, with the results of Levy *et al.* (2011) being consistent with those of Coate *et al.* (2003). This finding implies the accuracy of the *traditional accountant* stereotype.

While the literature is not consensual about the accuracy and endurance of the *traditional accountant* stereotype in specific contexts, the accounting profession might be facing a reciprocal effect between the personality traits of the current or future professionals and their traditional stereotype. The personality profile of accountants might be feeding this stereotype, which might be conditioning the processes involved in attracting, recruiting and retaining, rendering futile the efforts to attract individuals with a *more colorful characterization* (Jeacle, 2008). In the following section, the conceptual issues related to personality are addressed.

Personality: conceptual issues
The literature presents personality as a broad and fuzzy concept that is difficult to define and proposes multiple similar definitions (e.g. Coaley, 2014; Eysenck, 1998; Pervin and

Cervone, 2010). Within this diversity, most theorists view personality as having observable and unobservable dimensions as well as conscious and unconscious aspects (Ewen, 2003). Researchers agree that personality refers to "[. . .] *psychological qualities that contribute to an individual's enduring and distinctive patterns of feeling, thinking, and behaving*" (Pervin and Cervone, 2010, p. 8, italics in the original; Ryckman, 2008). According to Pervin and Cervone (2010), this conceptualization covers five main aspects underlying personality: (1) the enduring nature of personality traits, which tend to remain stable across time and situations; (2) the uniqueness and distinctiveness of a personality; (3) the research concern to identify the causal psychological factors contributing to uniqueness and long-term trends; (4) the inclusion of inner facets – mental life and emotional experiences; and (5) the relationship with the social environment.

In addition to the aforementioned aspects, in most shared references, Coaley (2014) finds that an allusion to the dynamic facet of personality is related to an adaptation to the environment and the predictor function assigned to the enduring characteristics. This finding implies that individuals have the capacity to adjust to different situations with unpredictable behaviors emerging related to temporary circumstances, motivated by situational and cultural pressures (Allport, 1961; Coaley, 2014). However, apart from these transient states, personality has an enduring nature and tends to be stable since individuals usually return to their comfort areas, enabling the prediction of ordinary behavior (Allport, 1961; Coaley, 2014).

This possibility has led many researchers to focus on a wide range of personal characteristics by focusing on objective descriptions (Coaley, 2014). These descriptions usually include "behavioral style, intellectual ability, special talents, motives acquired in the process of development and maturing, emotional reactivity, attitudes, beliefs and moral values" (Coaley, 2014, p. 226). Based on these descriptions, personality can be viewed as a psychological construct filled by individuals' relatively stable traits (Coaley, 2014; Ryckman, 2008).

Driven by judgment, personality is also a concept used in everyday life (Coaley, 2014). Laypeople usually define personality based on social attractiveness (Ryckman, 2008). They often understand personality after a judgment process, which leads to attributing to others a good personality or the inexistence of it, depending on how much their behaviors conform to the perceivers' patterns (Ryckman, 2008). According to Allport (1961), the comparison of individuals considers universal and group rules – the perceived characteristics of a given person are compared with those of humans in general and with their peers' characteristics (Allport, 1961). Each person judges others and understands others' personality according to the broad generalizations and known stereotypes of its own class (Allport, 1961; Coaley, 2014; Terracciano *et al.*, 2005). Although some notice a person's individuality, the judgment process is often manipulated by the existence of well-established stereotypes linked, for example, with profession, race, gender or social class (Allport, 1961). Thus, individuals' views of others' personalities are anchored in their beliefs and everyday thinking, including the emotional aspects (Allport, 1961; Coaley, 2014).

From an academic perspective, there are several theoretical approaches to personality, including psychodynamic, phenomenological, social-cognitive and trait theories (see, for example, Pervin and Cervone, 2010). Trait theories are empirical, and they offer taxonomies to assess individuals' personality (Coaley, 2014). This study adopts a taxonomy of personality traits from the five-factor model of personality, as explained in the next section.

The five-factor model of personality
The five-factor model of personality, often referred to as the BFM, emerged within the trait paradigm to which Allport and Odbert (1936) contributed with a seminal work. In this paradigm, personality consists of a set of traits that can be measured, neglecting how personality develops in favor of its content and measure (Coaley, 2014; Pervin and Cervone, 2010). Trait theorists advocate that it is possible to build a comprehensive theory of an

individual's personality by measuring the most relevant individual differences (Pervin and Cervone, 2010), which rests on the following assumptions: (1) behaviors, feelings and thoughts vary in different ways, and it is possible to measure this variance; and (2) once measured, traits are normally distributed, that is, the scores extend along a normal distribution curve, where most individuals will be around the average and a small number at the extremities (Coaley, 2014).

In order to describe a personality based on traits, trait approaches use inventories of natural language, which comprise straightforward words such as shyness and goodness (John *et al.*, 2008). According to Pervin and Cervone (2010), consistency and distinctiveness are two characteristics of trait terms. That is, trait terms should reflect a regularity of behavior and its variation when comparisons between persons are made. Thus, a trait is

> [...] any persistent characteristic, emotional, cognitive or behavioural, which influences the way in which personality is demonstrated. Being essentially abstractions, [...] they are independent of any specific immediate stimulus external to the person which elicits a response. Traits provide some stability and are non-situational [...]. Traits also refer to single dimensions made up of related components: for example neuroticism, isolated as a fundamental and unique trait, includes behaviours and thoughts associated with guilt, low self-esteem, depression, phobia, anxiety and psychosomatic illnesses. (Coaley, 2014, p. 234)

The larger seminal construct of traits of Allport and Odbert (1936) led to several subsequent studies exploring much smaller constructs of traits that could form the basis of most human behavior and provide reliable measures of personality characteristics (Ewen, 2003; Pervin and Cervone, 2010). This reduction was possible through the use of factor analysis, with the literature reaching a general agreement on how to assess personality and which individual differences are important to make this assessment (e.g. Coaley, 2014; Pervin and Cervone, 2010).

Since the early 1980s, there has been a significant rise in the number of personality studies that strive to understand the relationships among the descriptors of personality and identify their structural representation (Digman, 1990; Goldberg, 1990; John *et al.*, 2008). Several authors have proposed a structure of personality based on the five constructs or factors, known as the BFM, which have been supported by data from different disciplines and appraisers (Goldberg, 1990, 1992; John *et al.*, 2008). This evidence has convinced various researchers that BFM presents the best trait structure to approach personality (Digman, 1990, 1997), despite the existence of opposite views (Block, 1995).

These constructs represent personality dimensions, which may be seen as prototypical characteristics (John *et al.*, 2008). They cover an extensive range of personality traits, summarized into broad concepts (meta-traits) – *extraversion*, *agreeableness*, *conscientiousness*, *neuroticism* and the *openness to experience* (the *OCEAN* of personality) (John *et al.*, 2008; John and Srivastava, 1999). These concepts have been elaborated by John and Srivastava (1999, p. 121, italics in the original) in the following words:

> Extraversion implies an *energetic approach* to the social and material world and includes traits such as sociability, activity, assertiveness, and positive emotionality. Agreeableness contrasts a *prosocial and communal orientation* toward others with antagonism and includes traits such as altruism, tender-mindedness, trust, and modesty. Conscientiousness describes *socially prescribed impulse control* that facilitates task and goal-directed behaviour, such as thinking before acting, delaying gratification, following norms and rules, and planning organizing, and prioritizing tasks. Neuroticism contrasts emotional stability and even-temperedness with *negative emotionality*, such as feeling anxious, nervous, sad, and tense. Finally, Openness to Experience (versus closed-mindedness) describes the breadth, depth, originality, and complexity of an individual's *mental and experiential life*.

These constructs originally emerged from studies based on the English language. Its generalizability among languages and cultures has been an aspect of concern, particularly for

research in other languages like Portuguese (De Raad and Peabody, 2005; Goldberg, 1990; John *et al.*, 2008; Saucier *et al.*, 2000). In this regard, the main concerns are related to misinterpretations, contextual dimensions, and mistranslations (for a discussion, refer to John *et al.*, 2008). While studies have failed in replicating the full BFM structure outside the Anglo-American context (e.g. De Raad and Peabody, 2005; Saucier *et al.*, 2000), several non-English studies have developed similar constructs of the BFM (Pervin and Cervone, 2010). Accordingly, McCrae and Costa (1997) strongly posited the universality of the BFM, by studying diverse samples from different cultures whose languages belong to five distinctive language families, including Portuguese, which contributed to the study with a sample of 2,000 individuals. This finding is in line with that of Schmitt *et al.* (2007) and Benet-Martínez and Oishi (2008). Benet-Martínez and Oishi (2008) emphasize that, across cultures and languages, evidence notably supports the BFM structure, thereby allowing for its measurement outside the Anglo-American context with confidence and reliability.

The BFM structure has been mostly approached and presented as orthogonal and, therefore, providing the highest level of the personality description (Digman, 1997; Saucier, 2002). Despite the lack of consensus within the psychology community (Ashton *et al.*, 2009), there is growing evidence of high correlations between the dimensions of the BFM. This has led some researchers to suggest the use of two higher-order factors of BFM to describe personality at a broader level of abstraction (DeYoung, 2006; DeYoung *et al.*, 2002; Digman, 1997; Jang *et al.*, 2006). Digman (1997) analyzes the correlations between the factors of 14 studies supporting the BFM and demonstrating the existence of two higher-order constructs, which he labeled *Alpha* and *Beta*. The first construct integrates *agreeableness*, *conscientiousness* and *neuroticism*; the second incorporates *extraversion* and *openness to experience*.

According to Digman (1997, p. 1253), *Alpha* and *Beta* "furnish links between the atheoretical Big Five model and traditional and contemporary theories of personality, which, under a variety of interpretations, have dealt with one or the other – or both – of these high-level factors." The author views these factors as broad concepts. He posits *Alpha* in socialization theories and hence considers it a socialization factor, while he posits *Beta* in personal growth theories and regards it a factor of personal evolution. DeYoung *et al.* (2002) label *Alpha* as *stability* and *Beta* as *plasticity*. They advocate that the first is formed by traits revealing a person's stability/instability on emotional, social and motivational levels, while the second is composed of traits showing individuals' flexibility in behavior and cognition. In other words, *Beta/plasticity* reflects people's capability and tendency to be involved with novelty. In this study, we refer to A*lpha* as *socialization* and *Beta* as *personal growth*, as a way of providing a more comprehensive labeling of these broad personality dimensions (Digman, 1997).

While the conceptualization provided by the BFM helps in analyzing individuals' behavior (John *et al.*, 2008), frequent criticisms indicate that it does not provide a comprehensive theory of personality, partially due to its statistical roots (Block, 1995; Wiggins, 1996b). However, there are several theoretical perspectives on the BFM (see, for example, Wiggins, 1996a). Among these, the socioanalytic theory (Hogan, 1996) allows the interpretation of the BFM results from the perceivers' perspective. It presents a suitable frame to interpret the results of this study, and it is the subject of the next section.

Socioanalytic theory

Socioanalytic theory emphasizes that human nature is socially constructed to facilitate interpersonal relations and postulates that personality should be understood not only from the actor's viewpoint but especially from the observer's perception. According to Hogan (1996, p. 166), "[p]ersonality from the observer's perspective consists of our views of the

distinctive features of another person's behavior." For him, these characteristics, materialized through the trait words used by the observers, describe individuals' social reputation, which covers their social status and acceptance. Therefore, from a socioanalytic perspective, individuals' social reputation reflects their position in the community, and it is a dominant part of their personality, given that daily behavior is shaped by the individual need to protect personal reputation.

The personality of others can be assessed only through observable behaviors (Allport, 1961; Eysenck, 1998), with reputations being publicly visible, and hence able to be extracted from the realm of social life. In fact, laypeople can provide accurate judgments (Funder and Sneed, 1993) and be sensitive to behavioral tendencies and inconsistencies in the case of low cross-situational consistency (Wright and Dawson, 1988). According to Hogan (1996), the BFM can be used for the aforementioned assessment as it covers the categories used by individuals for personality evaluation. From a socioanalytic perspective, the BFM constructs indicate the level of acceptance and status granted to a given person or group. When regarding the BFM, Hogan (1996, p. 173) defines reputation as "an index of how well a person is doing in the game of life." He advocates that reputation has a stable nature, owing to which it can be used to predict future behaviors of a target and estimate individuals' value in the group to which they belong.

The socioanalytic theory "is based on a commitment to evolutionary theory, naturalistic observation, and the inevitability of human self-deception" (Hogan, 1996, p. 165). Its key assumptions are as follows. First, individuals are products of evolutionary adaptation. Therefore, the context of human evolution provides the best framework for understanding personality. Second, humans are group-living, social animals. They share a culture that provides them the rules to live within the status hierarchy of their group. Third, individuals' primary motivations arise from two unconscious needs – social acceptance and status. While acceptance improves survival conditions and group living, status provides privileges in accessing opportunities for success. Fourth, the human interactions facilitate an implicit negotiation for acceptance and status. Finally, social life is not exempt from tensions and rivalries, given that status and acceptance tend to be inversely correlated. In other words, the success of one person or a group often implies a loss for another. While conforming to others' established rules usually leads to acceptance, such conformity damages the opportunities to succeed.

In the given context, it can be stated that the socioanalytic theory mitigates the theoretical problem of the BFM by providing a lens to interpret the results obtained for the BFM from an observer's perspective, within the social context, thereby allowing an understanding of the social performance of a group and the potential impacts of the stereotype of its members. In regard to the use of the BFM, it provides a suitable taxonomy that can be used across languages and cultures to measure the personality traits, which have been highlighted as a dominant part of the stereotypes of accountants. It covers the main aspects people use to judge others, based on natural language that facilitates ordinary people's inquiry.

This study combines the BFM and the socioanalytic theory to examine the stereotype of accountants held by laypeople. The BFM is used to assess the stereotype and the results are interpreted by using the socioanalytic theory. The research method adopted in this study is presented in the next section.

Research method
Research setting
Social welfare characterizes the Portuguese society, which is also conservative, averse to change, little individualist and not predisposed to strive for power equalization (Hofstede, 1984; Instituto de Ciências Sociais, 2013). Portugal is a liberal democracy; it is marked by the

legacy of a corporatist dictatorship (1926–1974). While a long-standing authoritarian dictatorship conditioned the progress of the country (Birmingham, 2003), the country's development strategy, in the postdictatorial period, was successful drawing on its membership in the European Union (Alexandre *et al.*, 2019).

During the 1980s and the 1990s, Portugal witnessed rapid development, which led the country to approach European standards of living (Alexandre *et al.*, 2019). Beyond the European membership, this transformation can be attributed to the country's financial system and the government, which "became ubiquitous" acting as a change agent in the social and economics spheres (Alexandre *et al.*, 2019, p. 24). In this dynamic context, in 1995, government intervention led to the professionalization of accounting in business practice in Portugal.

More than a century after the professionalization of accounting in Britain and after several unsuccessful attempts, Portugal succeeded in professionalizing accounting (Rodrigues *et al.*, 2003), whose process started in 1972 with the recognition of auditing as a profession performed by auditors. The results of this study emphasize *certified accountants* in Portugal, who are devoted to business practice, and committed to the financial accounting. In Portugal, the certified accountant and auditing professions are well-distinguished by ordinary people, with the coexistence of two separate professions. *Certified accountants* are generally known as accountants, while those who perform auditing are known as auditors. Examples of the public distinction of this division can be found in the news of financial scandals published by newspapers of high circulation in Portugal. For instance, when the journalists identified the protagonists of the scandal of *Banco Espírito Santo* (BES) detailed below, they describe the profile of several implicated individuals, including an accountant and auditors, making a distinction of the roles each of professionals/professions played in the process (e.g. Riso and Lima, 2020).

The *certified accountants* represent the largest Portuguese professional group, with approximately 70,000 members (Ferreira, 2019). They achieved social closure through a unique professional body that has long tried to highlight accountants' roles in society (Ferreira, 2019; LUSA, 2018). To get an entry into this profession, it is important to hold a bachelor's degree and successfully complete a training and an exam. Notwithstanding the established ring fence, the profession is characterized by a high endogenous level of competition, which has been posing a significant challenge to the profession and has conditioned the income of its members (Ferreira, 2019).

The data collection period corresponded to a period of economic turmoil in Portugal. In this context, there have been three major crises since the beginning of the new millennium, in addition to local financial scandals owing to accounting frauds. Between 2007 and 2014, the news highlighted several accounting frauds, particularly those involving four Portuguese banks, which led to significant losses within the Portuguese community. These scandals led to criminal processes in a context of slow and discredited justice among Portuguese citizens (Maia, 2014). They attracted significant media attention during the period. For example, VISAO (a Portuguese news magazine) published 222 articles on financial and economic frauds between 2008 and 2014, which were republished in 2014 in a book (Gonçalves and Pimenta, 2014). The book used the terms "accounting" and "accounts" 95 and 76 times, respectively. In the foreword, Camacho (2014, p. 21) highlights accounting fraud as "[a]n accounting virtual world, capable of generating artificial fortunes in seconds . . . and real dramas [. . .] also from a moment to the next." According to Camacho (2014), the republication of the articles in a book was justified by the Portuguese context in 2014, when another big financial scandal arouse – the case of BES.

In the Portuguese banking industry, the first financial scandal was committed by the Banco Comercial Português (BCP), one of the largest Portuguese private banks, in 2007 (Guerreiro and Vicente, 2015). BCP was accused of fraudulent accounting practices between 1999 and 2007. The highlighted fraud was the manipulation of the stock market by faking

profitability, and an accounting embezzlement of about €416 million, which also served the interests of the board of directors, whose wages reached 10% of the profit (Guerreiro and Vicente, 2015; Louçã, 2013). The auditing firm and the bank's Chief Financial Officer, an ex-employee of the auditing firm, faced legal penalties for this fraud (Louçã, 2013; LUSA, 2015).

In 2008, accounting frauds continued to play a leading role in two more financial scandals, leading to the fall of two other private Portuguese banks, *Banco Português de Negócios* (BPN) and *Banco Privado Português* (BPP) (Guerreiro and Vicente, 2015). The BPN case was a mega criminal process, which attracted wide media coverage. Figueiras (2017) identified 1,185 pieces from primetime news channels on the BPN fraud. Concerning the legal aspect, the presiding judge highlighted the case as the biggest embezzlement in the history of the country (Diário de Notícias, 2012; Moreira, 2017). Portugal's Central Bank accused BPN's chairperson and other people for falsifying BPN accounts between 2002 and 2007 (Assembleia da República, 2009; Figueiras, 2017). The legal auditing failed to identify several accounting irregularities, which represented about €9.7 million (Assembleia da República, 2009; Moreira, 2017). Some of the accounting misdeeds in BPN included improper asset valuation, unrecorded cash payments to employees and hidden operations with offshore and other companies. These accounting misdeeds ruined the financial structure of the bank when the accounts were corrected (Assembleia da República, 2009).

Involving an accounting manipulation worth €40 million, the BPP collapse started in November 2008. The case came into light after BPP's CEO reported about the bank's liquidity issues to the Central Bank of Portugal (Ferreira, 2009). This financial scandal also attracted considerable media attention (LUSA, 2020). According to the presiding judge of the process, the accounts were manipulated to give a false perception of BPP's financial strength (LUSA, 2020) and to allow dividend distribution and wage increases of the executive board, which were significant in the years preceding the scandal (ESQUERDA, 2013).

The start of the data collection period (i.e. the summer of 2014) coincided with another big financial scandal by BES. Operating across financial and nonfinancial domains, the BES group was the largest listed bank at the time and a distinguished and trustworthy player in Portugal and abroad (Esteves and Jesus, 2015). Similar to the frauds of the aforementioned banking industry leaders, this bank's fraud attracted significant media attention. The bank's accounting problems were related to hidden liabilities and overvalued assets (Esteves and Jesus, 2015). This fraud involved 18 people, including an accountant and 7 companies (Riso and Lima, 2020) According to LUSA (2017), the accused accountant committed a manipulation of €1.3 million to protect the group from a financial collapse.

The Portuguese government intervened in these banks to prevent a systemic risk and mitigate the impacts on deposits (Diário de Notícias, 2012; Esteves and Jesus, 2015). The government nationalized BPN and provided state loans and issued state guarantee for a loan contract to BCP and BPP, respectively. It divided BES into *good* and *bad banks;* while the toxic assets were transferred to the *bad bank,* the *good bank* was recapitalized with € 4.9 million from a resolution fund, which was supported by €3.9 million of state loans [1] (Guerreiro and Vicente, 2015). The different solutions implemented by the Portuguese government to deal with these scandals were justified by the mitigation of systemic risk. The BCP had conditions to proceed, and the collapse of others was inevitable. While BPN and BES were commercial banks with thousands of clients, BPP was an investment bank devoted to the management of fortunes (Esteves and Jesus, 2015; Ferreira, 2009). These interventions adversely impacted the public accounts, with the last financial and economic Portuguese crisis (2010–2013) being the "more severe and traumatic crisis of democratic Portugal" [2]. It was marked by a large imbalance of public accounts, which led to an international bailout in 2011 and the entry of the European *Troika* (2011–2014), a group with members from the European Commission, the International Monetary Fund, and the European Central Bank (Alexandre *et al.*, 2019; Martins *et al.*, 2020).

As mentioned, the new millennium did not favor Portugal's economy. The country saw a surge in public and private debt before the 2011 bailout (Alexandre *et al.*, 2019). During this period, the global economy was hit by the *subprime* crisis. Fragile since the beginning of the century, the Portuguese economy also suffered severe impacts [3]. The rebalancing of public accounts implied a strong drop in people's income, given the significant increase in taxes and decline in public service wages and pensions (Alexandre *et al.*, 2019). These events had long-term effects, with the average household income recording a slow recovery and reaching a level close to that of 2010 in 2017 (PORDATA, 2020). In this context, we have designed the sample in the subsequent section.

Participants and recruitment procedures
This study considers the observer's perspective of accountants' personality. It uses a Portuguese community sample comprising 727 individuals who were not engaged in the accounting profession at the time of data collection. We could not ensure a random sample; however, its dimension exceeded the number of observations required for a Portuguese community sample, with a confidence level of 99% and a margin of error of 5%. We also presented a diversified sample by covering different regions and individuals with different demographic characteristics (age, gender, educational level and occupations). It also approximates the distribution of the Portuguese population across gender, and urban and nonurban regions. Table A1 presents the demographic characteristics of the sample. Concerning age, the proportion of participants less than 30 years, between 30 and 50 years, and above 50 years accounted for approximately 20.4%, 58.4% and 21.2% of the total sample. The sample included 310 men and 417 women, of which nearly 64% had completed graduation. Participants from Oporto, Lisbon and Braga represented approximately 36%, 17% and 14% of the total sample, respectively. We invited participants on a voluntary basis from August 2014 to June 2015. We invited people from the street in the Oporto region to take the survey and later used Email and Facebook for disseminating the questions [4]. There was no monetary compensation or other incentive to participate, and the responses were accessed only by the research team. The objectives of the study were explained to the participants, before they anonymously responded to the items in the BFM instrument, which is described in the next section.

Instrument
Studies have assessed the BFM using different instruments, some lengthier than others, and hence, there is no single standard (Gosling *et al.*, 2003; John *et al.*, 2008). This study uses a 44-item big five inventory (BFI) (John *et al.*, 1991), which is a well-established and extensively used instrument (Gosling *et al.*, 2003; Rammstedt and John, 2007). The suitability of this instrument for research has been verified across cultures and languages, including the Latin communities to which Portugal belongs (Chan *et al.*, 2012; Schmitt *et al.*, 2007). The BFI also has the advantage of serving as a concise and quick measure to respond (John *et al.*, 2008; Schmitt *et al.*, 2007); this aspect proves valuable when it is difficult to motivate the volunteers. It comprises 44 short sentences (see Appendix 2), rated on a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree) (John *et al.*, 2008). Its short phrases are based on trait adjectives, recognized as prototypical indicators of the BFM (John, 1990).

To manage respondents' acquiescence, the BFI has 16 pairs of items with opposite inferences on personality (John *et al.*, 2008). This enquiry retains the simplicity of the adjectival terms, avoiding, at the same time, the ambiguity and multiple interpretation that may arise in measurements based on single adjectives (John *et al.*, 2008). Additionally, it provides variables with a brief but contextualized meaning and simplifies the translation of the instruments to languages other than English (Saucier *et al.*, 2000). For this study, first the

two researchers translated their short sentences separately; subsequently, the versions were compared and discussed to establish the Portuguese final form to be administered. Additionally, we asked a group of 10 persons, from different scientific areas (teachers, researchers and students), to validate the Portuguese version of the questionnaire, including the ethical issues. The procedures of data analysis are presented in the next section.

Data analysis
We obtained the scores for the BFM dimensions – extraversion (F1), agreeableness (F2), conscientiousness (F3), neuroticism (F4) and openness (F5) – by computing the mean of a set of attributes, as theoretically specified by BFI (e.g. John *et al.*, 2008, p. 158; this structure is presented in Table A2). Each dimension has low and high poles (John *et al.*, 2008). The low pole represents the reversed trait, that is, introversion vs. extraversion, antagonism vs. agreeableness, lack of direction vs. conscientiousness, emotional stability vs. neuroticism, and closeness vs. openness (Pervin and Cervone, 2010). This study assumes that the five-point scale provides a measure for the low and high poles through the scores 1 (very low) or 2 (moderately low) and 4 (moderately high) or 5 (very high), respectively, with 3 being the neutral indicator for the dimension (Goldberg, 1992; Pervin and Cervone, 2010).

By examining the BFM as a model reflecting the content of social perception (Srivastava, 2010), it can be understood that Level 3 indicates that the target's behavior does not stimulate extremist perceptions of a given trait/dimension. Given this, in this situation, a certain dimension may be interpreted as not being a key distinctive feature of the target group. In this regard, such a score dimension would suggest that the target group is representative of an ordinary person or an average individual. According to Coaley (2014, p. 251), ordinary people are normally distributed along a symmetric bell curve, with "most people around the average and fewer at the extremes", which represent the aforementioned low and high poles.

The database was built using the statistical package for the social sciences (SPSS) (v.22, IBM SPSS, Chicago, IL); we also use SPSS to execute statistical procedures, other than those used to perform confirmatory factor analysis. To validate the factorial solution of the BFM and assess the second-order hierarchical structure we use the SPSS structural equation modeling software (AMOS) (v.22, IBM SPSS, Chicago, IL).

As part of the analysis, first, we perform a descriptive statistics of the entire BFI, as established by John *et al.* (1991). We use Cronbach's alpha to evaluate the internal consistency of the scales. Coefficient values above 0.6 are acceptable (Chan *et al.*, 2012; Clark and Watson, 1995; Malhotra, 1999). As Cory (1992), we consider the possibility of group differences in perception; we test this possibility using the one-way analysis of variance (ANOVA), splitting the sample by gender, age, level of education and interaction with accountants. We use Levene's test to validate the ANOVA's assumption of variance homogeneity. The assumption of normal distribution of the dependent variables was assessed through the Kolmogorov–Smirnov test with Lilliefors significance correction procedure and the skewness (sk) and kurtosis (ku) coefficients, where the values of $|sk|>3$ or $|ku|>8$ were considered problematic (Kline, 2011).

We use the confirmatory factor analysis (CFA) to validate the BFM structure as an appropriate model of the social perception of accountants. We obtain the manifest variables through the BFI items (see Table A3 for a more extensive description). From the 44 items, we obtain 28 manifest variables (16 pairs of items and 12 single items), which represent the original measurement structure of the BFI. Table A3 provides a detailed composition of the constructs.

We employ the maximum likelihood (ML) estimation method. As recommended by Kline (2011), considering the aforementioned rules, we use the skewness and kurtosis coefficients to assess the assumption of multivariate normality of manifest variables. In accordance with the recommendations provided by Hair *et al.* (2010), we assess convergent validity through factor loadings and average variance extracted (AVE), while we measure the reliability on the basis of Cronbach's alpha and construct reliability (CR). According to Hair *et al.* (2010), factor

loadings should be statistically significant and their standardized estimates should not fall below |0.5|; AVE should be 0.5 or higher and CR coefficient indicates good reliability when it is 0.7 or higher and acceptable reliability in the range of 0.6–0.7, when occurs just in part of the constructs of the model.

As recommended by Fornell and Larcker (1981), we assessed the discriminant validity by comparing the AVE of each pair of constructs with the interconstruct square correlation estimate, which should be below both AVE. The high correlations between constructs may lead to problems in supporting the discriminant validity. This finding may imply the existence of higher-order factors. In this case, discriminant validity is warranted only for the latent constructs of the higher level (Koufteros et al., 2009). This study has theoretical support for the presence of two second-order factors (see, for example, Digman, 1997), which was considered in the analysis by means of a higher-order CFA of the BFM.

The model fit was assessed using the four selected indices (Hair et al., 2010), among the most commonly used and informative indices (Hooper et al., 2008; Kline, 2011) – the comparative fit index (CFI), goodness-of-fit index (GFI), root mean square error of approximation (RMSEA) and standardized root mean square residual (SRMR). Table A4 presents the reference values of these indices, as recommended by Hair et al. (2010) and Marôco (2010).

Results

Perceived personality ratings of accountants

Table 1 presents the basic psychometric characteristics obtained for each of the original BFI scales. This table presents the number of items in each dimension (see Table A2 for a full description), the obtained mean scores, standard deviations and Cronbach's alpha values. Cronbach's alpha coefficients range from 0.64 to 0.85. The scales of conscientiousness and openness show the highest alpha reliability (above 0.8), followed by agreeableness (above 0.7) and extraversion and neuroticism (above 0.6).

Except for neuroticism, the values obtained for all other dimensions of personality were positioned above the mean value of the scale. As shown in Table 1, the most salient dimension is conscientiousness, which displays the highest value, while values for extraversion, agreeableness and openness are near the middle of the scale. The conscientiousness value suggests that this dimension stimulates the most extreme perceptions. In this dimension, accountants are perceived as hard-working, organized, reliable, focused and methodical.

An analysis of the content of the dimensions, excluding conscientiousness, reveals the following points. In extraversion, talkativeness and assertiveness have the most extreme values, but on the opposite side. Talkativeness positions accountants at the lower pole of the scale with 2.88 points, and assertiveness has the highest value at 3.46. In agreeableness, all traits place accountants above the middle of the scale, with helpfulness being the most prominent at 3.58 points, followed by kindness (3.28). In neuroticism, except for BFI-19 "Worries a lot," which displays a value of 3.47, all other items were positioned at the lower pole of the scale, suggesting, in general, that accountants are perceived as emotionally stable

Scale	n	Mean	SD	Alpha
Extraversion	8	3.089	0.398	0.644
Agreeableness	9	3.293	0.409	0.732
Conscientiousness	9	3.745	0.474	0.849
Neuroticism	8	2.750	0.409	0.669
Openness	10	3.174	0.491	0.842
Note(s): $N = 727$; n = number of items in the scale; SD = Standard deviation				

Table 1.
Basic statistics for the original BFI

and having a slight tendency to worry. In relation to Openness, again, except for BFI-35 "Prefers work that is routine," a reversed item in the dimension, whose direct score is 3.20, the remaining items have values above the mean value of the scale. The most salient items are BFI-15 "Is ingenious, a deep thinker" and BFI-10 "Is curious about many different things," at 3.63 and 3.41 points, respectively.

We found some statistically significant differences when examining differences in the perception between the groups of participants within the categories of gender, age (less than 30 years, between 30 and 50 years and above 50 years), level of education (with/without graduation) and interaction with accountants (personal, by phone, e-mail, simple visual interaction or never interacted). Table A5 provides a comparison of the obtained ratings of the stereotyped personality dimensions of accountants across these subsets of participants.

Results from the one-way ANOVA (see Table A6) do not show statistically significant difference between gender groups in all the personality dimensions. We obtain opposite results for the "level of education, which shows statistically significant differences between groups in all dimensions, in which more positive mean scores were identified from participants without graduation". Regarding "Age" groups, statistically significant difference was identified only in relation to *extraversion* and *neuroticism*. The mean scores of *extraversion* decreased in the younger age groups, while it increased for those of *neuroticism*. Finally, contrary to Cory (1992), whose findings suggest that personal contacts with accountants do not influence perceptions of the stereotype, we found statistically significant differences between the groups of "Interaction with accountants" to *agreeableness* and *conscientiousness*, with the mean scores being higher in these dimensions when participants referred to interact with accountants.

Since we found statistically significant differences between "Age" groups, and they were more than two groups, we conducted a post hoc Tukey honestly significant difference (HSD) test to identify the specific groups that differed. The Tukey test (see Table A7) showed that the perception of *extraversion* of people over 50 years is significantly different from those less than 30 years and between 30 and 50 years ($p < 0.05$). Under the same conditions, it also highlighted that the perception of *neuroticism* of people over 50 years significantly differed from those less than 30 years. Combining these results with the mean scores found in these dimensions, this study highlights that older participants have a better perception of accountants in terms of *extraversion* and *neuroticism*.

Confirmatory factor analysis
The original BFM adjusted to the sample of this study was tested with 28 manifest variables derived from the BFI, as previously mentioned. These variables do not exhibit skewness and kurtosis values, indicating serious violations of normality ($|sk|>3$; $|ku|>8$; Kline, 2011). The skewness and kurtosis for all variables were below $|1|$ and $|2|$, respectively. On an average, $|sk|$ is approximately 0.268, and $|ku|$ is approximately 0.559. This initial model reveals a poor overall fit, as presented in Table 2.

Model	nMV	X^2	df	CFI	GFI	RMSEA (IC 90%)	SRMR	MECVI
Initial*	28	1679.796	340	0.837	0.837	0.074;]0.070; 0.077[	0.072	2.503
Intermediate	23	1109.200	220	0.878	0.869	0.075;]0.070; 0.079[	0.060	1.687
Final	18	456.708	125	0.937	0.932	0.060;]0.055; 0.066[	0.044	0.759

Note(s): nMV = number of manifest variables; *Respecting BFI structure and considering the mean of the 16 pairs of items with opposite implications as variables; Reversed brackets used to indicate an open interval

Table 2.
Goodness-of-fit indexes of alternative measurement models

To investigate the possible existence of a model that better adjusts our data, the analysis proceeds by respecifying the model. We test an intermediate model after removing all manifest variables with low standardized factor loadings (below 0.5), which is a generally accepted cut-off criterion (Hair *et al.*, 2010). These variables had loadings between 0.251 and 0.498 (see Table A3, variables marked with one asterisk). In general, this model presents a better fit than those of the previous model (see Table 2), but the results are far from perfect.

A third and final model was constructed using the modification indices provided by AMOS. The modification indices with larger impact on model adjustment suggested correlations among residuals of manifest variables within a factor and with errors from variables of other factors. According to Byrne (2010), this type of correlation suggests an overlap in the content of the items, and its existence often arises when dealing with real data (Bentler and Chou, 1987). To avoid this situation, the model was respecified excluding some variables (see Table A3, variables marked with two asterisks), based on the following criteria: problematic items with a lower standardized factor loading and those exhibiting a higher number of correlations among the items will be deleted when they are not essential to maintaining a minimum of three items per construct (Hair *et al.*, 2010).

A substantial improvement in the model fit was achieved with this final version, which presents a good overall fit, as indicated by the goodness-of-fit indexes displayed in Table 2. According to Marôco (2010), a respecification of an original instrument should be subject to external validation, which can be verified through the modified expected cross-validation index (MECVI), in the absence of a second independent sample allowing cross-validation. As evident from the MECVI values in Table 2, the final model (Figure 1) is the best of the three because it exhibits a significant reduction in this index than that of the others (Bandalos, 1993; Marôco, 2010).

The main indicators of the convergent validity of the final model presented acceptable values (see Table A8). All factor loadings are statistically significant at the 0.001 level (two-tailed). Except in relation to item i14 in F4, which is near 0.5, the other standardized estimated coefficients are above the threshold of 0.5. The AVE was low for F1 and F2, near acceptable for F4, and adequate for F3 and F5. However, the construct reliability coefficients (CR) of F3, F4 and F5 indicate good reliability, and the others of F1 and F2 are acceptable because they are near 0.7. Additionally, Cronbach's alpha also indicates acceptable internal consistency reliability of the scales, with none of the coefficients falling below 0.6.

Discriminant validity was assessed by comparing the interconstruct square correlation estimate with AVE values, and it was not possible to confirm discriminant validity across all constructs (see Table A9). According to Koufteros *et al.* (2009), this suggests the existence of higher-order factors of the BFM, in line with the findings of several authors (e.g. DeYoung, 2006; Digman, 1997; Jang *et al.*, 2006; Rushton and Irwing, 2008). The results of this study show high correlations between F2–F1, F2–F3, F2–F4 and F5–F1, which supports the findings of Rushton and Irwing (2008) concerning the second-order structural hierarchy of the BFM. These authors, based on Digman's (1997) data, identify that the best second-order structural hierarchy of the BFM comprises the higher-order factors *socialization* and *personal growth* (Digman, 1997), saturating both in F2. As a result, they suggest that *socialization* should saturate in F2 (*agreeableness*), F3 (*conscientiousness*), and F4 (*neuroticism*), as originally proposed by Digman (1997). However, beyond saturating in F1 (*extraversion*) and F5 (*openness to Experience*), *personal growth* also saturates in F2 (a*greeableness*).

We tested this second-order model and found a good overall fit, as can be seen in Figure 2. Discriminant validity between *socialization* and *personal growth*, as was expected for second-order models, was confirmed because the AVE from both the factors ($AVE_{Socialization} = 0.635$; $AVE_{Personal\ Growth} = 0.566$) is higher than the square correlation estimate among them ($r^2_{Socialization\text{-}Personal\ Growth} = 0.377$). All paths from *socialization* and *personal growth* to first-order constructs were statistically significant at a level of 0.001 (two-tailed). They are
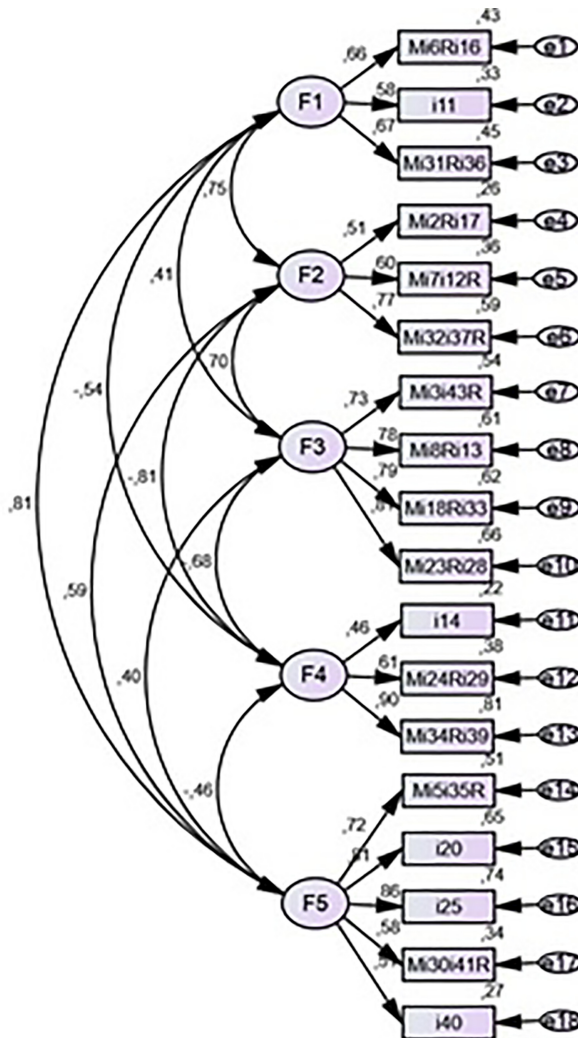
X2(125)=456,708; p=,000; CFI=,937; GFI=,932
RMSEA=,060; P(rmsea<=0.05)=,002, I.C. 90%],055; ,066[
MECVI=,759; SRMR=,044

Note(s): F1 = Extraversion; F2 = Agreeableness; F3 = Conscientiousness;
F4 = Neuroticism; F5 = Openness

generally powerful (above 0.7; Hair *et al.*, 2010), except for the path from *personal growth* to F2 (*agreeableness*), which was also identified by Rushton and Irwing (2008). To verify if Digman's (1997) hierarchical structure provides a preferred model, we removed this weakened path. The new overall fit (X^2(130) = 488.002; p = 0.000; CFI = 0.932; GFI = 0.926; RMSEA = 0.062; P(rmsea $\leq$ 0.05) = 0.001, I.C. 90% [0.056; 0.067]; SRMR = 0.048;
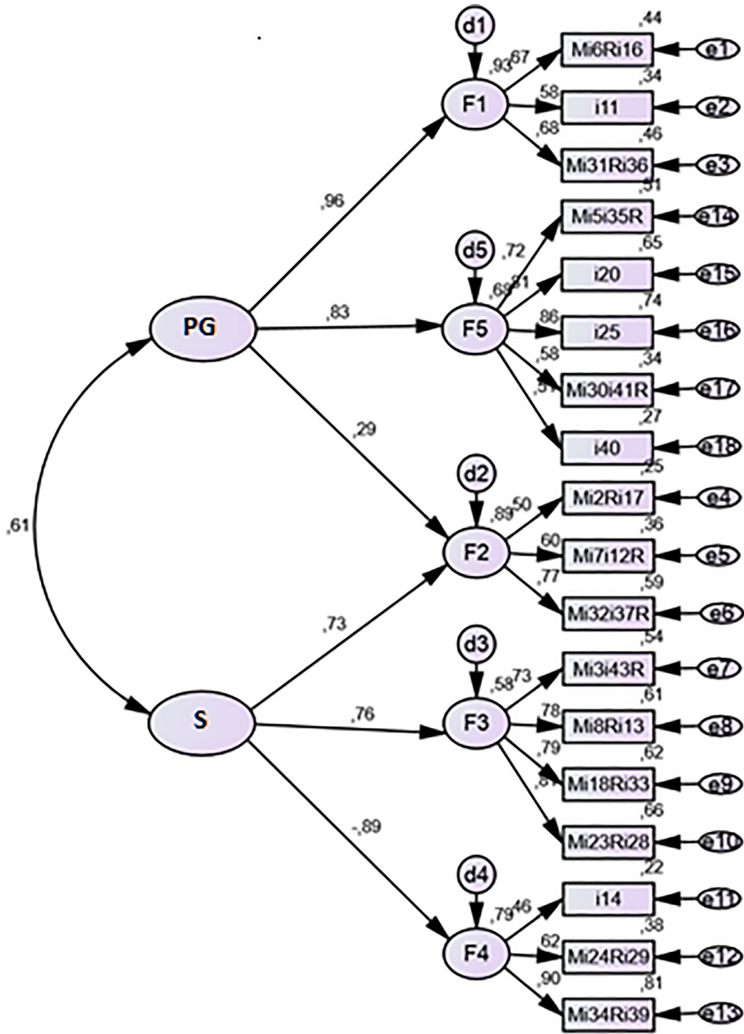
X2(129)=466,822; p=,000; CFI=,936; GFI=,930
RMSEA=,060; P(rmsea<=0.05)=,002, I.C. 90%],054; ,066[
SRMR=,045; MECVI=,762

Figure 2.
Second-order model of
the BFM

Note(s): PG = Personal Growth; S = Socialization; F1 = Extraversion;
F2 = Agreeableness; F3 = Conscientiousness; F4 = Neuroticism;
F5 = Openness

MECVI = 0.788) is generally poorer than that obtained for the previous model, supporting the
findings of Rushton and Irwing (2008).

Discussion

This study focuses on how accountants are socially perceived, as reflected by the BFM, and the extent to which the BFM is a suitable tool for studying the social perception of accountants. Our empirical data support the BFM as an appropriate framework for studying the social perception of accountants. However, we did not find all manifest variables in each construct, as established by the original BFI, equally important in measuring the dimensions. We tested three alternative models, and the findings show that the model labeled as "final" provides better adjustment to our data. This is an alternative model that excludes some BFI variables (those marked with one or two asterisks in Table A9). As such, while this study supports the BFM structure, it highlights changes in measures, strengthening the idea that the dimensions may vary in certain contexts (John *et al.*, 2008).

To better understand the perceived personality profile of accountants, we computed the mean scores of the manifest variables of the suggested alternative model. The new values do not substantially differ from those computed for the original BFI, indicating an identical stereotype (see Table A10). In general, the results do not highlight accountants as introverts, antagonists, neurotics, closed and lacking directions. However, the values obtained for the respective dimensions (*extraversion*, *agreeableness*, *neuroticism*, and *openness*) do not support the idea that these are key traits of the Portuguese stereotype of accountants. While their values are near the neutral point, which is where undifferentiated people are expected to be placed (Coaley, 2014), the values obtained for *conscientiousness* stimulated the most extreme perceptions, exhibiting a mean score near 4 (moderately high). Thus, *conscientiousness* is highlighted as the most distinguishing dimension (see Figure 3). It presents accountants as perfectionists and hardworking, organized and reliable workers. This categorization is consistent with the review of Barrick and Mount (1991) who state that the essence of *conscientiousness* lies aspects related to reliability (carefulness, responsibility, rigorousness, organization and planning) and volitional features (hardworking, persevering and achievement-oriented).

The features of *conscientiousness* dominate the content found of the stereotypes of accountants. A stereotypical image usually encompasses the typical characteristics of a target group, capable of distinguishing such a group from ordinary people (Garcia-Marques and Mackie, 1999; Hinton, 2000). According to Cantor and Mischel (1979), laypeople have restricted views about others and often describe them based on partial perspectives. Moreover, since the results of the BFM, from the observer's perspective, reflect the concerns of perceivers (Srivastava, 2010), one may expect that perceivers take extremist positions only regarding dimensions they consider crucial for the target group. These dimensions cover the
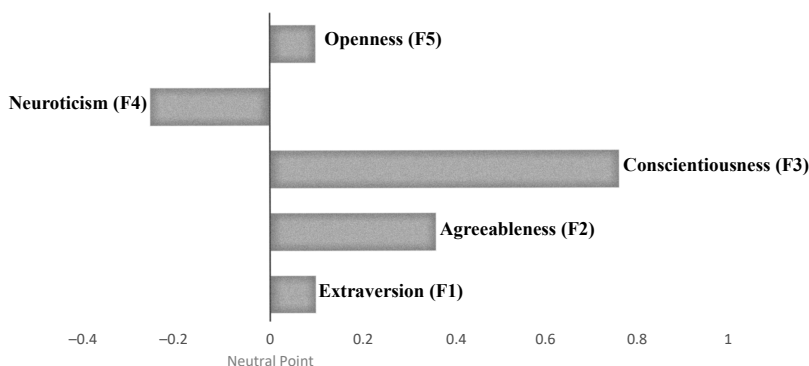

Figure 3.
Perceived personality profile of accountants

recognized stimulus guiding the perception, which "is ultimately an interpretation of incoming sensory stimuli" (Rookes and Willson, 2000, p. 93).

In this context, it must be noted that the standpoints taken by laypeople are anchored to broad generalizations, beliefs and everyday thinking (Allport, 1961; Coaley, 2014; Terracciano *et al.*, 2005). They are influenced by the perceived social roles of the target group, which significantly contributes to the set of traits associated with it (Eagly and Steffen, 1984; Zebrowitz, 2009). From this perspective, our results suggest that the perceived social role of Portuguese accountants is linked to *conscientiousness*. Perceivers often understand others' personalities based on what they need to perform a routine activity (Eagly and Steffen, 1984). Essentially, our findings support the view of accounting as an absorbing activity, requiring people high in *conscientiousness*, which is related to a strong work performance across job types (Barrick and Mount, 1991; Mount *et al.*, 1998).

These findings corroborate those of Coate *et al.* (2003) whose survey of students also highlighted *conscientiousness* as the dominant dimension of the stereotype of accountants in the US context. *Conscientiousness* is related to work dedication, interpersonal facilitation, adherence to idealistic ethical rules and performance in nonteam contexts (Hogan *et al.*, 1998; Levy *et al.*, 2011; Mount *et al.*, 1998). It "describes *socially prescribed impulse control* that facilitates task and goal-directed behaviour, such as thinking before acting, delaying gratification, following norms and rules, and planning organizing and prioritizing tasks" (John and Srivastava, 1999, p. 121, italics in the original). This characterization matches the description of the positive side of the known *traditional accountant* stereotype (Carnegie and Napier, 2010). This study also found *extraversion* and *openness* as the most neutral dimensions, showing that the Portuguese accountants are not perceived as sociable, energizing, exciting and creative persons. In these dimensions, the most noticeable ratings position accountants as dull and unexciting, which reflect the prototype characteristics of the negative side of the *traditional accountant* stereotype (Carnegie and Napier, 2010). Accordingly, the findings of this study support the idea that the images created by society regarding accountants are stable across time and situations. They paradoxically suggest the survival of the *traditional accountant* stereotype in a time and context where a different stereotype, perhaps nearer to the *business professional* would be expected (Carnegie and Napier, 2010). This contemporary stereotype was found in the US context after Enron's collapse overshadowed by ethical issues along with features such as versatility and managerial and communicative skills.

The context of this study is rich in aspects that could have stimulated the transformation of the former social image of accountants. The first aspect concerns the maturity of the professionalization of accounting in Portugal. When data were collected, the profession was well-recognized and had established social closure in business practice since 1995. The trajectory of the Portuguese professionalization of accounting in two phases, separated by 23 years (1972-auditing; 1995-business practice), may have conditioned the transformation of the stereotype of the latest professionals. The Portuguese professional environment of those in business practice is characterized by high competitiveness pushing down their income. This situation seems not to stimulate the challenge of the perceptive prototype held by lay society, with the upgrades in profiles provided by professionalization being neglected.

The second aspect is related to the appealing contemporary image of accounting and accountants presented by professional organizations (Jeacle, 2008). The professional body of certified accountants in Portugal made significant efforts toward this image-building. Since 1995, it has sought to socially highlight the profession by presenting accountants with a Vanguardist spirit, performing tasks with an important social role (LUSA, 2018). It was expected that almost 20 years of this work have challenged the stereotype.

The third aspect regards the recognition of the involvement of accountants in management tasks, a characteristic of contemporary stereotypes such as the *business*

professional or the *guardian*. The participants of this study were questioned about the importance of supporting management as an accountant. Results indicate that more than 90% of the sample considers supporting management as the task of accountants, with almost 70% considering it very or extremely important. This result along with the other findings highlights the persistence of the Portuguese variant of the *traditional accountant* stereotype, as identified by Leão *et al.* (2019) in 1860 and 1870s, in which the management skills were an evident feature.

The fourth aspect is associated to the turbulence faced in the profession owing to several international and local financial scandals, highlighting accounting manipulations and ethical issues. In Portugal, the period 2007–2014 was marked by several financial scandals and accounting frauds in the banking industry. During these eight years, the accounting practices were broadly questioned by Portuguese media, which successively highlighted integrity problems. These scandals significantly impacted public accounts and people's life, due to savings losses, a brutal increase in taxes and wages' cuts, representing a considerable downgrade in family's income. At the time activist groups were created claiming for their savings, with the scandals being largely discussed over different means of communication, including prime-time news, television debates and interviews. The income of the Portuguese people was successively attacked, and the public discussion of the scandals joined journalists, people from politics and other relevant personalities. The accounts manipulation was the villain of this story which was publicly held responsible for the decline of the standard of living suffered by Portuguese citizens, mostly laypeople in accounting. The real and potential impacts of the scandals led the Portuguese government to intervene in each situation to mitigate the systemic risk in the banking industry. These interventions adversely affected public accounts, and the economic and financial crisis Portugal was dealing since the beginning of the century worsened. The scandals and their consequences are abnormal situations, which potentially challenge the way people see the world. When data collection started, Portuguese people were experiencing difficult times, which became harder with the unexpected announcement of the big collapse of BES. The headlines of the time highlight a dark side of accounting and accountants, with the accounting manipulations being made public along with the recognition, by the accountant of the bank, of their use: "The accounts [. . .] had been manipulated since 2008 [. . .]. The statement is by [. . .], the accountant [. . .] who [. . .] the head of BES [. . .] indicate as the responsible for the deviation of €1.3 billion in liabilities" (Pereira *et al.*, 2014).

While part of these contextual factors (professionalization, the attempt to rebuild the image and the recognition of accountants' involvement in management) could have stimulated perceptions of versatility, managerial and communicative skills, the scandals and their impact on people's lives through the economic and financial crisis could have fed negative perceptions about accountants' integrity. Paradoxically, in such a context, the perceptive structures seem unshaken, revealing the survival of the traditional stereotype. A shift in the stereotype was expected, given the media exposure of the scandals and their impact on people's standard of living due to the scandals' effect on the financial situation of the country over the years (Carnegie and Napier, 2010; Friedman and Lyne, 2001). However, as postulated by the socioanalytic theory (Hogan, 1996), a stereotype is a social reputation, and our results are consistent with Hogan's (1996) perspective that reputations have a stable nature. Our findings are also consistent with the literature that demonstrates the survival of the *traditional accountant* in modern times, highlighting its endurance in different contexts (Caglio *et al.*, 2019; Coate *et al.*, 2003; Hunt *et al.*, 2009; Magon and France, 2018; Parker and Warren, 2017; Wessels and Steenkamp, 2009). The paradox found in this study seems to be reinforced by the fact that graduated laypeople represent more than 50% of the sample, and they tend to be more questioning, and well-informed, traits that could give them the

propensity to readjust their perceptive structures. Our results reveal a poorer stereotype held by graduated people but not its transformation.

We also shed some light on the literature about the accuracy/inaccuracy of the traditional stereotype, given the dominance of *conscientiousness* in the found stereotype. On the one hand, according to Resick *et al.* (2007), *conscientiousness* has been related to individuals who consider their perceived compatibility with organizational culture and members when taking a job. On the other hand, the findings of Levy *et al.* (2011, p. 243) highlight that accountants "had a significantly higher mean score on Conscientiousness compared with those from other occupations" and significant lower mean scores on the other dimensions of personality. As such, when looking to the found stereotype, the idea of a reciprocal effect between accountants' personality and their traditional image seems to be reinforced.

Additionally, the results of this study corroborate that *conscientiousness* is a manifestation of *socialization*, which reveals a person's stability/instability on emotional, social and motivational levels (DeYoung *et al.*, 2002), measured also by *neuroticism* and *agreeableness*. According to socioanalytic theory (Hogan, 1996), *conscientiousness* is a part of an individual's social identity, which results from the individual's conscientious or unconscientious involvement in the management of own social performance (Hogan and Ones, 1997). Socioanalytic theory postulates that people are motivated to achieve social acceptance and status, which form their social reputation. These assets support a group's survival and grant social privileges, respectively. Therefore, individuals described by perceivers as conscientious develop "the identity of a 'person of integrity'" (Hogan and Ones, 1997, p. 865). This identity extends people's reputation of being agreeable and emotionally stable (Hogan and Ones, 1997). The results of this study support this proposition, given that the other two manifestations of *socialization* (agreeableness and neuroticism) follow *conscientiousness* in terms of the distance from the neutral point.

When considering *conscientiousness*, a good reputation also grants social acceptance. This personality dimension is linked with conformism, and, as posited by the socioanalytic theory, conformity to others' rules leads to social acceptance. Conscientious people "do not challenge authority, like rules, and avoid arguments, ambiguities, and altercations" (Hogan and Ones, 1997, p. 853). According to the socioanalytic theory, social acceptance is important for maintaining a group, and this study supports accountants' comfort in this regard. However, this theory also suggests the existence of tensions in social life, highlighting that social acceptance tends to be inversely correlated with social status. The findings of this study show that achieving high social status and its inherent social privileges are challenges faced by accountants, given that conformity only facilitates social status up to a certain point (Hogan and Ones, 1997). In this regard, *extraversion* seems to be a key dimension for the social image of accountants, since high values in this dimension have been found to predict an elevated level of social status (Anderson *et al.*, 2001), which, according to this study, the Portuguese group needs to improve. According to Levy *et al.* (2011, p. 246), "the field seems to attract more introverts in comparison with other professions", and it has failed to captivate people with traits contributing to a successful professional project, which requires teamwork and interpersonal communication skills. In the context of Portugal, there is a need to attract the best profiles to the accounting profession, given the high competitiveness within the group and the low income of its members (LUSA, 2018).

Conclusion

This research examines the social perception of accountants by drawing on the BFM, and adopting a structural method, thus bringing to the field an underexplored approach. This study enriches the body of literature on the stereotypes of accountants by extending the research about the contemporary social images of accountants, using an original theoretical

approach that combines the BFM with socioanalytic theory. This study also provides evidence through an underexplored community sample comprising laypeople in accounting, whose views highlight the established stereotypes.

The BFM provides a deeper understanding of the stereotypes of accountants. It provides a common instrument to support studies in different contexts (Benet-Martínez and Oishi, 2008; McCrae and Costa, 1997), thereby illuminating the influence of cultural specificities on the stereotypes of accountants and the core traits feeding these images. By being suitable for use, from both the observers' perspective and the self-perspective (Srivastava, 2010), this model also allows research on the accuracy/inaccuracy of the stereotype of accountants, which contributes toward the lack of consensus in the literature.

This study also offers insights to better understand how the social images of accountants perform in contexts with a well-established professionalization, in which the social arena is invaded by economic crisis and financial scandals implicating accountants. The major conclusion is that an early image of accountants, the *traditional accountant* stereotype, survives in such a context, resisting different kinds of input. On the one hand, our findings suggest the existence of a stereotype dominated by features of *conscientiousness*, which has been related to integrity and great job performance in nonteam contexts (Hogan and Ones, 1997; Mount *et al.*, 1998). On the other hand, dull and unexciting are also highlighted as the most distinguishing features of accountants in the dimensions of *extraversion* and *openness*.

Based on Hogan's (1996) socioanalytic theory, this study reveals the social acceptance of accountants as a professional group but denies the possibility of accountants benefiting from the highest levels of social status when perceived as the *traditional accountant* stereotype. With the same perspective, the findings also suggest the possibility of people attributing different social positions to accountants according to the existing stereotype (see Figure 4). Future studies are expected to offer new insights into this possibility, thus providing a better understanding of the recognized social standing of accountants. Socioanalytic theory explains the social interaction to which stereotypes provide guiding symbolic material mostly comprised of personality traits (Hilton and Hippel, 1996). It provides a framework to better understand the personality traits people perceive in others and the contribution of stereotypes to groups' social standing and power.
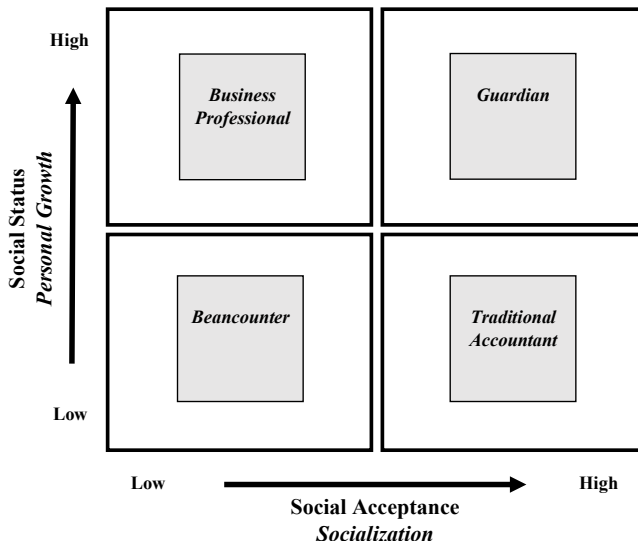
Figure 4.
Social standing of the stereotypes of accountants

The reported persistence of the *traditional accountant* stereotype is consistent with most of the investigations in the field but inconsistent with the findings of Carnegie and Napier (2010). These authors, drawing on a contemporary context along with financial scandals, found that accountants may no longer be described according to the traditional image but as *business professionals*. When considering the existence of nonconsensual results across studies, this research corroborates the idea that how perceptions perform over time may differ across cultures (Chan *et al.*, 2012). This suggests that cultural differences may significantly influence the perpetuation of the former image of accountants. Accordingly, future works engaging in comparative analysis, with samples from different regions, will be useful to elucidate the cultural effects on the stereotypes of accountants, and the paradox of the *traditional accountant* stereotype remaining unshakable in the event of scandals and financial crises and their media exposure. Another explanation for this resistance might be related to the possibility that laypeople see auditors as more responsible for the frauds than accountants. Future studies comparing the impact of scandals, occurring in different settings, on the reputation of auditors and accountants are expected to illuminate this possibility.

This study also found statistically significant differences between groups of perception (educational level, age and interaction with accountants). In general, the study found a poorer stereotype for *extraversion* and *neuroticism* among graduates and younger age groups, while the interaction with accountants improved the stereotype concerning *agreeableness* and *conscientiousness*. These results strengthen the endurance of the existing stereotypes and reinforce the found paradox. Further research is needed to provide additional evidence and examine the reasons for these differences.

The findings of this study also have practical implications. Considering that enduring characteristics have a predictor function (Coaley, 2014), the link between accountants and *conscientiousness* facilitates positive assessments of their actual or potential professional performance. This positively impacts the perceived role of accounting in society. However, according to Hopwood (1994, p. 299), accounting has undergone social transformation, contemporaneously contributing "to the functioning of a very wide range of organizations and socio-economic processes". For example, Coate *et al.* (2003) emphasized that the accounting context currently requires significant social interaction. In this regard, these authors suggest that an improvement in stereotypes can benefit the profession. They advocate that recruiters should take an active position to captivate individuals high in *extraversion* and *openness*, which can lead to an adjustment in the stereotype. The BFM is a recognized model for this purpose, and the possibility of its application in practical contexts involving accountants is reinforced by the results of this study. This usefulness is highlighted through the model's potential to obtain scores for *socialization* and *personal growth*, which reflect the model's structure at a higher level of abstraction through an aggregated perspective (DeYoung *et al.*, 2002; Digman, 1997).

Future research is, however, expected to provide the profession with pointers to policy and action to adjust the stereotypes of accountants to the contemporary profiles. As demonstrated in this study the stereotype is universal and very resistant to change. Future studies may analyze whether this resistance prevails in the psychology literature, what would allow discussing how the profession might address this and how to change it. It is also expected research to validate the theoretical model proposed in this study through other samples. Despite the reasonability of the obtained psychometric characteristics, it is important to conduct additional investigations to validate or improve the instrument to assess the BFM in the context of accounting. In particular, concerning the constructs of *extraversion* and *agreeableness*, in which lower construct reliabilities were identified. While this study reinforces the idea of the universality of the BFM, it calls attention to the adaptation and development of measurement instruments for professional groups, especially

accountants. This will be important for practical purposes and to promote local and transcultural investigations.

Notes

1. https://www.fundoderesolucao.pt/financiamento-de-medidas-de-resolucao (accessed November 26, 2020).

2. https://www.ffms.pt/crises-na-economia-portuguesa/5047/a-mais-longa-e-severa-das-crises (accessed November 9, 2020).

3. https://www.ffms.pt/crises-na-economia-portuguesa/5046/filha-da-crise-financeira-internacional (accessed November 9, 2020).

4. Although initially the aim was to collect answers randomly in direct contact with people, it became clear that it would not be possible. People refused to stop and/or answer to the questionnaire. After a month, the decision was to broadly disseminate the questionnaire via email to individual persons, associations and through Facebook to reach a significant number of answers. The possible bias is acknowledged, however it would be difficult, from operational and financial perspectives, to collect significant and representative data for the purpose of the study in other way.

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Appendix 1

Categories	Characteristics	N	%
Gender	Male	310	42.64
	Female	417	57.36
		727	*100.00*
Age	Less than 30 years old	148	20.36
	30–40 years old	252	34.66
	41–50 years old	173	23.80
	Above 50 years old	154	21.18
		727	*100.00*
Level of education	No schooling completed	2	0.27
	Basic education	74	10.18
	Upper secondary education	152	20.91
	Postsecondary nontertiary education	37	5.09
	Degree	287	39.48
	Master's degree	127	17.47
	Doctorate	48	6.60
		727	*100.00*
Occupation	Military-specific occupations	20	2.75
	Government occupations	11	1.51
	Management occupations	104	14.31
	Intellectual and scientific occupations	267	36.73
	Technical occupations at intermediate level	34	4.68
	Office and administrative support occupations	129	17.74
	Sales and other service occupations	43	5.91
	Farming, fishing and forestry occupations	2	0.28
	Qualified occupations of industry, construction and artisan	17	2.34
	Transportation and material moving occupations	4	0.55
	Nonqualified occupations	42	5.78
	Housewife	7	0.96
	Student	47	6.46
		727	*100.00*
Region	Aveiro	26	3.58
	Beja	3	0.41
	Braga	101	13.89
	Bragança	11	1.51
	Castelo Branco	15	2.06
	Çoimbra	31	4.27
	Évora	13	1.79
	Faro	28	3.85
	Guarda	8	1.10
	Leiria	10	1.38
	Lisboa	122	16.78
	Portalegre	2	0.28
	Porto	265	36.45
	Santarém	33	4.54
	Setúbal	19	2.61
	Viana do Castelo	9	1.24
	Vila Real	9	1.24
	Viseu	3	0.41
	Açores	12	1.65
	Madeira	7	0.96
		727	*100.00*
Interaction/contact with accountants	Personal interaction	580	79.78
	Interaction only by phone	8	1.10
	Interaction only by e-mail	7	0.96
	Just visual contact	20	2.75
	Without any interaction or contact	69	9.49
	Without response	43	5.92
		727	*100.00*

Table A1.
Participants'
demographics

Appendix 2

Whole sample (*N* = 727)

Dimension/Items**	Mean (original/reversed)*	SD	Mean (pairs of opposite items)
Extraversion	*3.09*	*0.398*	
Talkative (BFI-1)	3.00	0.857	
Reserved (BFI-6)* (RP16)	2.74 (3.26)	0.814	3.04
Full of energy (BFI-11)	3.13	0.773	
Generates a lot of enthusiasm (BFI-16)	2.82	0.688	
Tends to be quiet (BFI-21)* (RP1)	3.24 (2.76)	0.690	2.88
Has an assertive personality (BFI-26)	3.46	0.703	
Is sometimes shy, inhibited (BFI-31)* (RP36)	2.90 (3.10)	0.714	3.14
Is outgoing, sociable (BFI-36)	3.17	0.691	
Agreeableness	*3.29*	*0.409*	
Tends to find fault with others (BFI-2)* (RP17)	2.50 (3.50)	0.821	3.22
Is helpful and unselfish with others (BFI-7)	3.30	0.688	
Starts quarrels with others (BFI-12)* (RP7)	2.15 (3.85)	0.758	3.58
Has a forgiving nature (BFI-17)	2.93	0.627	
Is generally trusting (BFI-22)	3.12	0.732	
Can be cold and aloof (BFI-27)* (RP42)	3.11 (2.89)	0.794	3.19
Is considerate and kind to almost everyone (BFI-32)	3.34	0.655	
Is sometimes rude to others (BFI-37)* (RP32)	2.78 (3.22)	0.763	3.28
Likes to cooperate with others (BFI-42)	3.48	0.659	
Conscientiousness	*3.74*	*0.474*	
Does a thorough job (BFI-3)	3.79	0.714	
Can be somewhat careless (BFI-8)* (RP13)	2.36 (3.64)	0.874	3.72
Is a reliable worker (BFI-13)	3.80	0.593	
Tends to be disorganized (BFI-18)* (RP33)	2.19 (3.81)	0.796	3.80
Tends to be lazy (BFI-23)* (RP28)	2.05 (3.95)	0.693	3.83
Perseveres until the task is finished (BFI-28)	3.71	0.671	
Does things efficiently (BFI-33)	3.79	0.644	
Makes plans and follows through with them (BFI-38)	3.65	0.646	
Is easily distracted (BFI-43)* (RP3)	2.43 (3.57)	0.668	3.68
Neuroticism	*2.75*	*0.409*	
Is depressed, blue (BFI-4)	2.34	0.838	
Is relaxed, handles stress well (BFI-9)* (RP19)	3.34 (2.66)	0.771	3.07
Can be tense (BFI-14)	2.88	0.813	
Worries a lot (BFI-19)	3.47	0.711	
Is emotionally stable, not easily upset (BFI-24)* (RP29)	3.23 (2.77)	0.719	2.79
Can be moody (BFI-29)	2.81	0.735	
Remains calm in tense situations (BFI-34)* (RP39)	3.57 (2.43)	0.672	2.54
Gets nervous easily (BFI-39)	2.65	0.686	
Openness	*3.17*	*0.491*	
Is original, comes up with new ideas (BFI-5)	3.06	0.820	
Is curious about many different things (BFI-10)	3.41	0.749	
Is ingenious, a deep thinker (BFI-15)	3.63	0.677	
Has an active imagination (BFI-20)	3.17	0.775	
Is inventive (BFI-25)	3.20	0.777	
Values artistic, aesthetic experiences (BFI-30)	2.88	0.739	
Prefers work that is routine (BFI-35)* (RP5)	3.20 (2.80)	0.882	2.93
Likes to reflect, play with ideas (BFI-40)	3.18	0.671	
Has few artistic interests (BFI-41)* (RP30)	2.83 (3.17)	0.810	3.03
Is sophisticated in art, music or literature (BFI-44)	3.24	0.716	

Note(s): SD = Standard deviation
*Items whose scores were reversed to compute the mean of the dimensions; reversed scores in brackets
**For example, "BFI-1" indicates that the item is the first sentence of the Big Five Inventory and "RP16" indicate that "BFI-6" is a reversed pair of "BFI-16"

Table A2.
Descriptive statistics
for BFI

Appendix 3

Constructs	Manifest variables	Description
Extraversion (F1)	M (BFI-1; BFI-21R) (Mi1i21R)*	Talkative
		Tends to be quiet
	M (BFI-6R; BFI-16) (Mi6Ri16)	Reserved
		Generates a lot of enthusiasm
	M (BFI-31R; BFI-36) (Mi31Ri36)	Is sometimes shy, inhibited
		Is outgoing, sociable
	BFI-11 (i11)	Full of energy
	BFI-26 (i26)**	Has an assertive personality
Agreeableness (F2)	M (BFI-2R; BFI-17) (Mi2Ri17)	Tends to find fault with others
		Has a forgiving nature
	M (BFI-7; BFI-12R) (Mi7i12R)	Is helpful and unselfish with others
		Starts quarrels with others
	M (BFI-27R; BFI-42) (Mi27Ri42)**	Can be cold and aloof
		Likes to cooperate with others
	M (BFI-32; BFI-37R) (Mi32i37R)	Is considerate and kind to almost everyone
		Is sometimes rude to others
	BFI-22 (i22)*	Is generally trusting
Conscientiousness (F3)	M (BFI-3; BFI-43R) (Mi3i43R)	Does a thorough job
		Is easily distracted
	M (BFI-8R; BFI-13) (Mi8Ri13)	Can be somewhat careless
		Is a reliable worker
	M (BFI-18R; BFI-33) (Mi18Ri33)	Tends to be disorganized
		Does things efficiently
	M (BFI-23R; BFI-28) (Mi23Ri28)	Tends to be lazy
		Perseveres until the task is finished
	BFI-38 (i38)*	Makes plans and follows through with them
Neuroticism (F4)	M (BFI-9R; BFI-19) (Mi9Ri19)*	Is relaxed, handles stress well
		Worries a lot
	M (BFI-24R; BFI-29) (Mi24Ri29)	Is emotionally stable, not easily upset
		Can be moody
	M (BFI-34R; BFI-39) (Mi34Ri39)	Remains calm in tense situations
		Gets nervous easily
	BFI-4 (i4)**	Is depressed, blue
	BFI-14 (i14)	Can be tense
Openness (F5)	M (BFI-5; BFI-35R) (Mi5i35R)	Is original, comes up with new ideas
		Prefers work that is routine
	M (BFI-30; BFI-41R) (Mi30i41R)	Values artistic, aesthetic experiences
		Has few artistic interests
	BFI-10 (i10)**	Is curious about many different things
	BFI-15 (i15)*	Is ingenious, a deep thinker
	BFI-20 (i20)	Has an active imagination
	BFI-25 (i25)	Is inventive
	BFI-40 (i40)	Likes to reflect, play with ideas
	BFI-44 (i44)**	Is sophisticated in art, music, or literature

Note(s): *variables excluded in the intermediate model; ** variables excluded in the final model

Table A3.
Constructs and
manifest variables

Appendix 4

Fit indices	Marôco (2010) Reference values	Hair *et al.* (2010) Goodness-of-fit ($N > 250$; $12 < Nr.Var < 30$)
CFI	<0.80–bad fit	Above 0.92
	[0.80; 0.90[–poor fit	
	[0.90; 0.95[–good fit	
	≥0.95–very good fit	
GFI	The same of CFI	Above 0.95
RMSEA	>0.10–Unacceptable fit	<0.07, with CFI of 0.92 or higher
	]0.05; 0.10]–acceptable fit	
	≤0.05–very good fit	
SRMR	<0.08	0.08 or less, With CFI above 0.92

Note(s): Reversed brackets used to indicate an open interval

Table A4.
Model fit indices

Appendix 5

Stereotype	E		A		C		N		O	
Participants	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
All participants (N = 727)	3.089	0.398	3.293	0.409	3.745	0.474	2.750	0.409	3.174	0.491
Participants by gender										
Male (N = 310)	3.058	0.396	3.282	0.416	3.738	0.443	2.729	0.375	3.157	0.489
Z-scores	−0.078	0.994	−0.025	1.016	−0.015	0.935	−0.049	0.917	−0.034	0.996
Female (N = 417)	3.112	0.399	3.301	0.403	3.750	0.496	2.764	0.433	3.186	0.493
Z-scores	0.058	1.002	0.019	0.988	0.011	1.047	0.036	1.057	0.025	1.003
Participants by age										
Less than 30 years (N = 148)	3.038	0.402	3.251	0.397	3.713	0.471	2.811	0.429	3.188	0.529
Z-scores	−0.129	1.009	−0.103	0.972	−0.068	0.992	0.150	1.047	0.029	1.078
From 30 to 50 years (N = 425)	3.075	0.399	3.288	0.409	3.759	0.473	2.749	0.417	3.144	0.486
Z-scores	−0.036	1.003	−0.012	1.001	0.030	0.996	−0.002	1.018	−0.061	0.990
Above 50 years (N = 154)	3.179	0.379	3.346	0.416	3.737	0.484	2.692	0.361	3.243	0.461
Z-scores	0.224	0.952	0.131	1.017	−0.017	1.020	−0.140	0.882	0.141	0.938
Participants by level of education										
Without graduation (N = 265)	3.170	0.368	3.366	0.416	3.804	0.478	2.668	0.410	3.331	0.441
Z-scores	0.202	0.925	0.179	1.019	0.125	1.008	−0.199	1.001	0.320	0.898
With graduation (N = 462)	3.043	0.407	3.251	0.399	3.711	0.469	2.796	0.402	3.083	0.496
Z-scores	−0.116	1.024	−0.103	0.975	−0.072	0.989	0.114	0.982	−0.184	1.010
Participants with/without interaction with accountants										
With interaction (N = 615)	3.098	0.385	3.300	0.402	3.752	0.477	2.742	0.411	3.186	0.480
Z-scores	0.022	0.967	0.018	0.984	0.014	1.005	−0.018	1.004	0.025	0.977
Without any kind of interaction (N = 69)	3.062	0.377	3.184	0.398	3.610	0.434	2.797	0.381	3.080	0.454
Z-scores	−0.070	0.946	−0.267	0.974	−0.284	0.916	0.116	0.930	−0.191	0.924

Note(s): E = Extraversion; A = Agreeableness; C = Conscientiousness; N = Neuroticism; O = Openness; SD = Standard deviation

Table A5.
Stereotype by groups
of participants

Appendix 6

Dependent variables	Gender df	Gender F	Gender p-value	Age df	Age F	Age p-value	Level of education df	Level of education F	Level of education p-value	Interaction with accountants df	Interaction with accountants F	Interaction with accountants p-value
Extraversion	1,725	3.277	0.071	2,724	5.443	0.005	1,725	17.403	0.000	1,682	0.557	0.456
Agreeableness	1,725	0.349	0.555	2,724	2.138	0.119	1,725	13.609	0.000	1,682	5.234	0.022
Conscientiousness	1,725	0.115	0.735	2,724	0.562	0.570	1,725	6.563	0.011	1,682	5.561	0.019
Neuroticism	1,725	1.297	0.255	2,724	3.181	0.042	1,725	16.923	0.000	1,682	1.121	0.290
Openness	1,725	0.609	0.435	2,724	2.400	0.091	1,725	45.448	0.000	1,682	3.072	0.080

Table A6.
One-Way ANOVA for gender, age group, level of education and interaction with accountants: groups differences on the Big Five dimensions

Appendix 7

Multiple comparisons
Tukey HSD

Dependent variable	(I) age	(J) age	Mean difference (I–J)	Std. Error	Sig	95% confidence interval Lower bound	Upper bound
BF1	Less than 30 years	From 30 to 50 years	−0.03699	0.03776	0.590	−0.1257	0.0517
		Above 50 years	−0.14056*	0.04554	0.006	−0.2475	−0.0336
	From 30 to 50 years	Less than 30 years	0.03699	0.03776	0.590	−0.0517	0.1257
		Above 50 years	−0.10357*	0.03721	0.015	−0.1910	−0.0162
	Above 50 years	Less than 30 years	0.14056*	0.04554	0.006	0.0336	0.2475
		From 30 to 50 years	0.10357*	0.03721	0.015	0.0162	0.1910
BF2	Less than 30 years	From 30 to 50 years	−0.03735	0.03895	0.603	−0.1288	0.0541
		Above 50 years	−0.09557	0.04698	0.105	−0.2059	0.0148
	From 30 to 50 years	Less than 30 years	0.03735	0.03895	0.603	−0.0541	0.1288
		Above 50 years	−0.05822	0.03838	0.284	−0.1484	0.0319
	Above 50 years	Less than 30 years	0.09557	0.04698	0.105	−0.0148	0.2059
		From 30 to 50 years	0.05822	0.03838	0.284	−0.0319	0.1484
BF3	Less than 30 years	From 30 to 50 years	−0.04675	0.04530	0.557	−0.1531	0.0596
		Above 50 years	−0.02419	0.05463	0.898	−0.1525	0.1041
	From 30 to 50 years	Less than 30 years	0.04675	0.04530	0.557	−0.0596	0.1531
		Above 50 years	0.02256	0.04464	0.869	−0.0823	0.1274
	Above 50 years	Less than 30 years	0.02419	0.05463	0.898	−0.1041	0.1525
		From 30 to 50 years	−0.02256	0.04464	0.869	−0.1274	0.0823
BF4	Less than 30 years	From 30 to 50 years	0.06199	0.03895	0.250	−0.0295	0.1535
		Above 50 years	0.11844*	0.04697	0.032	0.0081	0.2288
	From 30 to 50 years	Less than 30 years	−0.06199	0.03895	0.250	−0.1535	0.0295
		Above 50 years	0.05645	0.03838	0.306	−0.0337	0.1466
	Above 50 years	Less than 30 years	−0.11844*	0.04697	0.032	−0.2288	−0.0081
		From 30 to 50 years	−0.05645	0.03838	0.306	−0.1466	0.0337

(*continued*)

Table A7.
Post hoc Tukey
HSD test

Multiple comparisons Tukey HSD						95% confidence interval	
Dependent variable	(I) age	(J) age	Mean difference (I–J)	Std. Error	Sig	Lower bound	Upper bound
BF5	Less than 30 years	From 30 to 50 years	0.04431	0.04677	0.611	−0.0655	0.1542
		Above 50 years	−0.05502	0.05641	0.593	−0.1875	0.0775
	From 30 to 50 years	Less than 30 years	−0.04431	0.04677	0.611	−0.1542	0.0655
		Above 50 years	−0.09933	0.04609	0.080	−0.2076	0.0089
	Above 50 years	Less than 30 years	0.05502	0.05641	0.593	−0.0775	0.1875
		From 30 to 50 years	0.09933	0.04609	0.080	−0.0089	0.2076

Table A7.

Note(s): *The mean difference is significant at the 0.05 level

Appendix 8

Constructs/Items	Standardized estimated coefficients	Average variance extracted (AVE)	Construct reliability (CR)	Cronbach's alpha
Extraversion (F1)		0.405	0.671	0.640
Mi6Ri16	0.657			
i11	0.579			
Mi31Ri36	0.670			
Agreeableness (F2)		0.402	0.662	0.662
Mi2Ri17	0.506			
Mi7i12R	0.602			
Mi32i37R	0.767			
Conscientiousness (F3)		0.608	0.861	0.860
Mi3i43R	0.734			
Mi8Ri13	0.781			
Mi18Ri33	0.787			
Mi23Ri28	0.814			
Neuroticism (F4)		0.467	0.710	0.682
i14	0.464			
Mi24Ri29	0.614			
Mi34Ri39	0.899			
Openness (F5)		0.501	0.829	0.825
Mi5i35R	0.716			
i20	0.807			
i25	0.860			
Mi30i41R	0.580			
i40	0.515			

Table A8.
Convergent validity (final model)

Appendix 9

Factors	Correlation estimate	Square correlation estimate	AVE of each factor	
F5 ↔ F4	−0.458	0.210	0.501	0.467
F5 ↔ F3	0.402	0.162	0.501	0.608
F5 ↔ F2	0.587	0.345	0.501	0.402
F5 ↔ F1	0.814	0.663	0.501	0.405
F4 ↔ F3	−0.675	0.456	0.467	0.608
F4 ↔ F2	−0.809	0.654	0.467	0.402
F4 ↔ F1	−0.541	0.293	0.467	0.405
F2 ↔ F3	0.698	0.487	0.402	0.608
F1 ↔ F3	0.409	0.167	0.405	0.608
F1 ↔ F2	0.751	0.564	0.405	0.402

Table A9.
Discriminant validity
(final model)

Appendix 10

Dimensions of personality	Original BFI		Suggested model ("final")	
	Mean	SD	Mean	SD
Extraversion	3.089	0.398	3.104	0.488
Agreeableness	3.293	0.409	3.357	0.426
Conscientiousness	3.745	0.474	3.757	0.490
Neuroticism	2.750	0.409	2.737	0.513
Openness	3.174	0.491	3.101	0.542

Note(s): $N = 727$; SD = Standard deviation

Table A10.
Perceived personality
profile of accountants
(compared scores)

Corresponding author
Delfina Gomes can be contacted at: dgomes@eeg.uminho.pt