

The relationship between the organizational context, performance management practices and performance: an empirical investigation using a moderating approach

ABSTRACT

This paper seeks to examine the use of performance management (PM) practices in Portuguese public agencies and whether they are associated with public performance. Moreover, we intend to empirically study if performance consequences of PM practices are contingent from the organizational culture and environment (moderating effects). Drawing on the contingency theory we argue that performance consequences of PM practices are contingent upon the appropriate fit between PM practices and the organizational context to which they operate (Chenhall, 2003; Verbeeten, 2008). Based on the survey data¹ administered to Portuguese government agencies, we investigate direct and moderating effects of PM practices on different levels of the organizational performance. Empirical results provide strong empirical evidence to support the hypotheses regarding the positive (direct) effects of PM practices and cultural aspects (like the citizens-focus and the capacity to innovate and improve) on the organizational performance. For the moderating effects, empirical results are not so robust. We only find empirical support about the moderating effect on (internal) performance as a result of the fit between the cultural strategies and the use of INTERNAL management practices. However, opposite signs were finding in relation to the moderating effect of the citizens-focus strategy and the capacity to innovate. No significant effects were finding as the result of adjustments between cultural strategies and the use of QUALITY management practices. Moreover, we confirm expectations about the insignificant impact on performance when agencies use PM practices (both QUALITY an INTERNAL) under great government pressures.

Key words: Performance management, organizational performance, organizational context, moderating approach.

INTRODUCTION

The rise of performance management (PM) practices, like total quality management, knowledge-based management, balanced scorecard, activity-based costing, benchmarking, economic value added, etc., has intensified the discussion of control, management accounting and risk management in public sector (Ballantine *et al.*, 1998; Otley, 1999; Jackson and Lapsley, 2003; Lapsley and Wright, 2004; Laegreid *et al.*, 2007; van Helden *et al.*, 2008; Verbeeten, 2008; Arnaboldi and Azzone, 2010). This trend has growing significantly especially after the New Public Management (NPM) reforms. Traditionally focusing on action controls, public sector organizations have witnessed various changes in management accounting and control systems, including a shift towards output and outcomes controls (Hood, 1995; Lapsley, 1999; ter Bogt, 2003; Johnsen, 2005; Verbeeten, 2008).

Besides some empirical research developed in the last decade about the design and use of PM practices in public sector (see for example, Abernethy and Lillis, 2001; Cavaluzzo and Ittner, 2004; Pizzini, 2006; Laegreid *et al.*, 2007; van Helden *et al.*, 2008; Verbeeten, 2008; Arnaboldi and Azzone,

¹ The survey structure and content is a result of the COBRA survey (Comparative Public Organization Data Base for Research and Analysis). Through the Centre for Research in Public Policy and Administration (NEAPP), Portugal is a partner of this academic research network, in the field of public management, since March of 2007.

2010), there is been little theory or empirical research that investigate the way in which the appropriate fit between PM practices and context enhance performance. The purpose of this paper is to add to the limited body of knowledge in this area in central government in a country which is regarded as a latecomer to NPM reforms (Araújo, 2001). This is an innovative endeavour, given the gap in the existing national and international literature regarding this issue and given that this is the first study of its kind applied to Portuguese government agencies. Our findings can help to clarify the (direct and moderating) effects of PM tools on public performance that has being little investigated, especially for the public sector. In generally, empirical results provide strong empirical evidence to support the hypotheses regarding the positive (direct) effects of PM practices and cultural aspects (like the citizens-focus and the capacity to innovate and improve) on the organizational performance. For the moderating effects, empirical results are not so robust. We only find empirical support about the moderating effect on (internal) performance as a result of the fit between the cultural strategies and the use of INTERNAL management practices. Moreover, we confirm expectations about the insignificant impact on performance when agencies use PM practices (both QUALITY an INTERNAL) under great government pressures.

The remainder of the paper is organized in four sections. The first section presents the literature review about PM in public sector as well as their performance consequences. Moreover, the hypotheses to be tested in this paper are also presented in this section. The research design is presented in the second section. Here we describe the sample and the data collection method. The measurement and descriptive statistics of dependent and explanatory variables are also presented in this section. In the next section we present the multivariate regression results about direct and moderating effects of PM practices on performance. The paper ends with the summary and the main conclusions of the paper.

LITERATURE REVIEW AND HYPOTHESES

Performance management in the public sector

Performance management is a broader concept with their central focus on the management of the organizational performance (Otley, 1999). However, 'performance' is itself an ambiguous term that should be measured in a multidimensional way (Feltham and Xie, 1994). For Otley (1999), at the organizational level, 'an organization that is performing well is one that is successfully attaining its objectives or, in other terms, one that is effectively implementing an appropriate strategy'. For a success in the implementation of PM practices, Oltey argue that there are five main sets of issues that need to be addressed: (1) key objectives to be achieved, (2) strategies and plans for their attainment, (3) target-setting, (4) incentive and reward structures and (5) information feedback loops.

Under this framework, performance management involves practices related with the process of defining goals, selecting strategies to achieve those goals, allocating decision rights, and measuring and rewarding performance (Otley, 1999; Ittner and Larcker, 2003; Verbeeten, 2008; Ferreira and Otley, 2009). In a broader way, Ferreira and Otley (2009: 264) view performance management practices *'as the evolving of formal and informal mechanisms, processes, systems, and networks used by organizations for conveying the key objectives and goals elicited by management, for assisting the strategic process and ongoing management through analysis, planning, measurement, control,² rewarding, and broadly managing performance, and for supporting and facilitating organizational learning and change'*.

Public sector organizations are differentiated in comparison with private sector organizations. The focus is not the profit maximisation and increases the capacity to generate incomes, but instead the main goal of public organizations is the satisfaction of citizens needs with greater quality and, at the same time, improves the rationality in the use of public resources. This is why, in public sector, performance measurement is referred, primarily, to those performance indicators of efficiency, effectiveness and equity that are intended to be used to improve rational decision-making in administrative and political processes (Johnsen, 2005; Johnsen and Vakkuri, 2006). Additionally, Brignall and Modell (2000) say that a specific feature of PM systems in public sector is the involvement of a broader range of financial and non-financial performance aspects of concern to key constituencies and the way these indicators may be warranted to balance conflicting interests (Feltham and Xie, 1994; Ittner and Larcker, 1998).

In the last two decades we have seen the evolution from the traditional input-oriented information systems to strategic performance management systems based on a multidimensional approach, as a way to improve accountability and the value for money (see for example, Ballantine *et al.*, 1998; Otley, 1999; Brignall and Modell, 2000; Kaplan, 2001; Modell, 2001; Jonhsen, 2001 and 2005; van Helden and Tillema, 2005; ter Bogt, 2008). As a consequence, the introduction of PM systems like the Balanced Scorecard, the Total Quality Management, the knowledge-based management, the Activity-based cost, and other financial and quality management techniques has intensified the discussion of control, management accounting and risk management in public sector (Ballantine *et al.*, 1998; Otley, 1999; Jackson and Lapsley, 2003; Lapsley and Wright, 2004; Laegreid *et al.*, 2007; van Helden *et al.*, 2008; Verbeeten, 2008; Arnaboldi and Azzone, 2010).

The introduction of quality management tools (e.g. the Balanced Scorecard, the Total Quality Management and Quality Standards), internal management tools (e.g. Team-Based Management,

² A broader concept of management control systems encompasses many forms of organizational control, such as the results control, the actions control and the cultural control (Ouchi, 1979; Otley, 1999). Hence, management control systems involve the entire strategic process, both the strategy formulation and the strategy implementation (Ferreira and Otley, 2009).

Service-Based Management and Knowledge-Based Management) and financial management tools (e.g. Activity-Based-Costing, Value Process Management, and Economic Value Added) represent the most recent changes in the management and accounting information systems of public sector organizations as a result of a 'managerialization' and NPM initiatives. In fact, after the NPM initiatives a proliferation and diffusion of businesslike tools oriented to the measurement and evaluation of public sector performance occurred (Jackson and Lapsley, 2003; Goddard, 2004; Lapsley and Wright, 2004; Laegreid *et al.*, 2007). As a consequence of these reforms and initiatives, accounting has attained far greater importance in the public sector (Goddard, 2004; ter Bogt, 2008).

For Laegreid *et al.* (2007: 390), the emergence of these new PM practices might be seen as a 'response to political demands for greater accountability of public services providers, as a product of increased concern with the efficiency and quality of public-sector services, and as a sign of political determination to meet fiscal constraints'. However, sometimes the development of these PM tools has the goal to increase legitimacy and external support (Carruthers, 1995; Geiger and Ittner, 1996; Modell, 2001; Laegreid *et al.*, 2007) without effective consequences on performance. On the other hand, based on the contingency theory, the performance consequences of PM practices are contingent upon the organizational context to which organizations operate. Thus, variations on the organizational performance should be expected as a result of the fit between PM practices and the organizational context.

Performance Consequences of PM practices

PM practices arise as a way to 'reinvent the government' (Osborne and Gaebler, 1993) and improve efficiency, effectiveness and quality in public sector organizations (Hood, 1995). The main goal of PM practices is the improvement of decision making (both at external and internal level) and the promotion of the accountability (Mayston, 1985; Johnsen, 2005; Modell, 2001; GASB, 2003; Robinson, 2003; Bovens, 2005; Cunningham and Harris, 2005). Thus, PM practices can be developed to serve several political as well as managerial purposes (like communication, accountability/value for money, learning/improvement and compensation) (see Jackson, 1993; Ittner and Larcker, 1998; Otley, 1999; Simons, 2000; Cavaluzzo and Ittner, 2004; Modell, 2005; Verbeeten, 2008; Ferreira and Oltey, 2009; Henri, 2009; and Arnaboldi and Azzone, 2010). However, many complex and ambiguous issues are yet unanswered which can act as barriers on the success of PM practices on the government performance (for some references see Ittner and Larcker, 1998; Brignall and Modell, 2000; Lapsley and Pallot, 2000; Cavaluzzo and Ittner, 2004; Johnsen, 2005; ter Bogt, 2008; Verbeeten, 2008).

For Sharma and Wanna (2005) a good PM system should provide answers to questions like what has been achieved, how efficiently the organizations' activities are performed, and whether the clients or

citizens have met their expectations. All these issues appeal for a multidimensional models of performance management in public sector (Brignall and Modell 2000). So, the use of PM practices that include a broad range of qualitative and quantitative measures (Ittner and Larcker, 1998; Abernethy and Lillis, 2001; Kaplan, 2001; Reck, 2001; Bogt, 2003 and 2004; Verbeeten, 2008), with a focus on long-term perspective is argued to lead to a better performance (Ittner and Larcker, 2003).

There has been a great appeal in the literature for the development of PM techniques aligned with the more qualitative objectives in order to improve organizational performance (Ittner et al., 2003). In public sector there is some evidence about the rise of some PM techniques as a result of the adoption of businesslike tools. Some techniques that have been introduced with a largest extent are the PM practices oriented to quality (eg., the Balanced Scorecard, total quality management and quality standards), to the internal management (such as teams and knowledge based management) and to the financial management (such as costing systems and the economic value added) (for more detail see, for example, Otley, 1999, Kloot and Martin, 2000; Aidemark, 2001; Kaplan, 2001; Askim, 2004, Jackson and Lapsley, 2003; Goddard, 2004; Lapsley and Wright, 2004; van Helden and Tillema, 2005; Laegreid et al., 2007).

Newberry and Pallot (2004) investigated the consequences of the financial management system used in New Zealand central government departments. They concluded that traditional accounting systems resulted in efficiency gains. However, because these traditional techniques are more oriented with short term objectives they don't promote improvements on the medium and long term performance. Moreover, Verbeeten (2008) observes that there is a big problem for the success of PM practices when they emphasize the quantification of short-term performance, neglecting the more qualitative performance. Ittner et al. (2003) also concluded that strategic management techniques aligned with the measure of performance, such as the Balanced Scorecard and the Economic Value Added, have greater ability to enhance long-term performance (like satisfaction and quality), not appearing associated with the short-term performance focused on traditional accounting measures (such as operating results and sales).

The results of Hyndman and Eden (2001) reinforce this view. They find that when the implementation of PM systems emphasizes improvements on efficiency on the short-term, neglecting more qualitative objectives with impact on long term performance it may jeopardize its success. Henceforth, Abernethy and Lillis (2001) talk about the importance to use micro level PM techniques (like networks, teams and knowledge based management systems) as a way to enhance the medium and long term performance. Thus, literature suggests that PM techniques aligned with the organizational goals can help to improve the organizational performance at the medium and long-term (Kaplan and Norton, 1996; Kaplan, 2001, Ittner et al., 2003; van Helden and Tillema, 2005).

Following the literature review on PM it is intended to test if the use of PM practices aligned with more qualitative and internal objectives is likely to enhance the organizational performance on different dimensions. We argue that:

H₁: The use of PM practices aligned with more qualitative and internal objectives are likely to enhance the organizational performance

The moderating effects of the organizational context

In this section we are interested in assessing the organizational outcomes when management make adaptations to their context and PM practices. Contingency theory advocates that performance consequences of PM practices depend on the fit between the PM practices and the organizational context (Ford and Schellenberg, 1982; Perera *et al.*, 1997; Abernethy and Lillis, 2001; Ittner and Larcker, 2003; Chenhall, 2003; Said *et al.* 2003; Widener, 2006; Burney and Widener, 2007; Gerdin and Greve, 2008). For Abernethy and Lillis (2001), there is considerable support that organizational performance is enhanced when managers consider interdependencies between strategic choices, structural autonomy and PM systems. Independent of the PM systems focus (internal or external), the most important is the proper fit between contextual and environment variables and performance information in order to enhance performance (Chong, 1996). Chenhall (2003) reinforces that a good fit between strategic PM systems and context should mean an improvement of performance while a poor fit may imply a decrease in performance.

In fact, there is no 'best way to organize and any way of organizing is not equally effective' (Gerdin and Greve, 2008: 996). Contrary to the economic (and the NPM) assumptions, the development of sophisticated PM practices doesn't assure improvements on the organizational performance (Chenhall, 2003; Verbeeten, 2008). A combination of context with PM practices is needed to take more effective decisions (Chenhall, 2003; Gerdin and Greve, 2008). In this paper a moderated effect is assumed between context and effects of PM practices on performance. 'An interaction effect exists whenever the effect of an independent variable (structure) on the dependent variable (performance) varies due to the values of a third variable (context)' (Gerdin and Greve, 2008: 996). This means that performance consequences of PM practices are not the same for all the agencies; oppositely, the effects of PM practices on performance may increase or decrease when there's a certain particular context (Ittner and Larcker, 2003; Said *et al.*, 2003; Gerdin and Greve, 2008; Verbeeten, 2008). In this paper the organizational context is measured by cultural aspects that feature each organization (culture) and the respondents' perception on government pressures (environment).

Cultural aspects

Based on the contingency theory, the extent to which PM practices are aligned with cultural aspects influence the organizational performance (Kaplan and Norton, 1996; Chenhall and Langfield-Smith, 1998; Ittner and Larcker, 2003; Hookana, 2008). Culture involves beliefs, values and dominant ideologies in organizations (Hookana, 2008) that determine a certain style of management. Henceforth, if PM practices have being researched as social and institutional practices (Scapens, 1994, Humphrey and Scapens, 1996, Burns and Scapens, 2001; Hookana, 2008, Chapman et al., 2009), they should be considered part of the organizational culture. In other words, they integrate the organizational culture that varies among agencies. Chenhall (2003) also notes that the culture corresponds to the strategic options that allow managers to shape the environment in which the organization operates.

The culture of public sector organizations has gradually changed since the NPM reforms, noting a shift from a more internal/process focus to a greater external/society orientation (Hookana, 2008). In consequence, we assist to a greater orientation to quantify results and to promote accountability structures where citizens and their needs become a priority among public decisions (Budding, 2004; Laegreid et al. 2006; Hookana, 2006). According to Budding (2004), the organizational climate is crucial to introduce accounting and management innovations successfully. Moreover, Hookana (2006) reported that the successful implementation of NPM practices, including accounting innovations, will depend on the the appropriate fit between the cultural context and PM practices.

The literature on the relationships between organizational culture and adoption of new control and PM practices as well as its effects on performance focuses especially the private sector (see, for example, Perera et al. 1997; Chenhall and Langfield-Smith, 1998, Burns and Scapens, 2000, Ittner et al., 2003, Hartmann et al., 2010). Moreover, the results are often inconclusive and inconsistent. In this paper, we investigate moderating effects on performance when PM practices are aligned with an innovative strategy and a citizens-focus.

The citizens-focus and the results orientation are seen as strategic choices that differentiate organizations (Perera *et al.*, 1997; Chenhall, 2003; Ittner and Larcker, 2003). An internal culture that emphasizes citizens, quality and the results achievements represent an important value driver for public organizations (Hood, 1995; Pollitt, 2000). This justifies why the top dimension of the Balanced Scorecard for the public sector is the citizen (Kaplan, 2001; Niven, 2003). These issues featured the internal culture that varied among agencies. Laegreid *et al.* (2006) expect that agencies with a citizens-oriented culture and worried to improve quality on services delivery will adopt PM practices more easily than other agencies. However, they don't find a significant association; on the other hand, the performance consequences of this association haven't been investigated in this study. Focusing the manufacture sector, Perera *et al.* (1997) predict an enhanced performance as a result of

the relationship between the use of non-financial performance measures and a customer-focus strategy. Although the positive association between the customer-focus strategy and the use of non-financial measures, authors didn't find significant results about effects of this relationship in the organizational performance. Based on these inconclusive empirical results and in the fact that no empirical studies were found that research these relationships in the public sector, we will test a non directional hypothesis about the effect of the fit between PM practices and citizens orientation on the organizational performance.

H2_a: Performance consequences of PM practices are moderated by the citizens-focus strategy.

The choice of a modern/traditional or an innovative/conservative strategy is typically used to feature the strategic choice of public organizations (Abernethy and Lillis, 2001; Laegreid *et al.*, 2006 and 2007; Pizzini, 2006). Many scholars advocate that more prospective strategies (entrepreneurial and innovative orientation) require more informal and flexible PMS featured by a more subjective long term control focused on informal communications (Chenhall, 2003; Ittner and Larcker, 2003). In opposition, more conservative strategies (a defensive and more harvest orientation) are more associated with formal systems focused on formal controls and targets (Chenhall, 2003: 151). As was said by Chenhall (2003: 150) strategy is somewhat different from other contingent variables because managers have 'strategic choice'; this means that, adopting a specific strategy, managers can position their organizations in a particular environment.

In the public sector, too, strategic management can help top managers create the conditions for a good organizational performance and for success in the future (Joyce, 2000; Kaplan, 2001; Niven, 2003). As a result of the 'managerial' movement and the adoption of businesslike tools, public organizations 'become more concerned with strategy and less with carrying-out' (Pollitt, 2000: 184). However, as was said by Abernethy and Lillis (2001) 'there is no *a priori* reason why a strategic commitment to innovation, in itself, will have positive organizational outcomes'. So, no direct relation is expected between an innovative strategy and organizational performance. In opposition, authors argue that 'improved organizational outcomes occur when management facilitates the implementation of strategic priorities through changes in their internal structures and PMS' (Abernethy and Lillis, 2001: 121). This way, we argue that when an innovative strategy is associated with the use of PMS an effect on performance is predicted. Thus, will test that:

H2_b: Performance consequences of PM practices are moderated by the capacity to innovate.

Government pressures

The external environment surrounding organizations is typically characterized by uncertainty, heterogeneity and hostility (Gordon and Miller, 1976; Gordon and Narayanan, 1984; Chenhall, 2003). The uncertainty is related to aggressive competition, dependence on strategic resources or even with the pressures exercised by the government, political groups and other stakeholders (Gordon and Miller, 1976; ter Bogt, 2003 and 2004, Chenhall, 2003; Budding, 2004). In the opinion of Budding (2004), the government actions and influences represent the most important source of uncertainty/pressure in the context of public organizations. Gupta et al. (1994) refer to this context of institutional environment.

Under the contingency theory, several researchers argue that organizations face greater uncertainty, require a better fit between the formal/external and informal/internal control systems (Gordon and Miller, 1976; Gordon and Narayanan, 1984). For example, Gordon and Narayanan (1984) found a positive association between perceived uncertainty and the importance of non-financial information. However, contingency-based research has not addressed the effects of institutional environment on the organizational performance (Gupta et al., 1994, Ittner et al., 2003). Hence, in this paper we complement contingency results with the isomorphism perspective (a perspective of the institutional theory) for to help understand the moderating effects of government pressures.

Institutionalists recognize that there is a conflict between the conformity to formal structures and to institutionalized rules and standards, and achievement levels of efficiency. This conflict is especially problematic in the public sector where the day-to-day management is involved in a lot of bureaucracy and survival greatly depends on legitimacy (Meyer and Rowan, 1991, Gupta et al. 1994; Carruthers, 1995). Thus, under this high institutionalized environment, improvements on performance are relegated to the second plan. Empirical findings obtained in prior research show that higher institutionalized contexts are conducive to the adoption of more bureaucratic and sophisticated control systems without enhance efficiency (Gupta et al., 1994; Geiger and Ittner, 1996). Rather, more personal and social forms of control are likely to improvement the work units' performance.

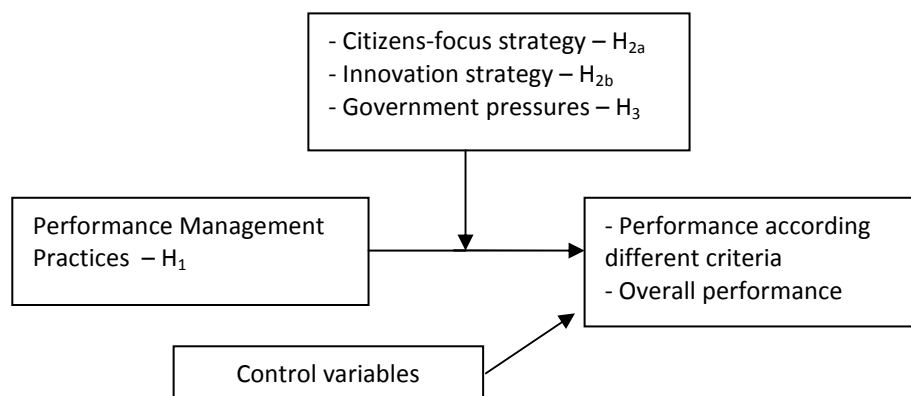
Moreover, Cavaluzzo and Ittner (2004) found that the implementation of PM practices imposed by the U.S. government to public agencies tend to be symbolic, without effective changes on the internal operations. All of these studies showed how the combination of these two theoretical trends can help to clarify how cultural aspects and the external environmental determine the effects of PM practices on the organizational performance. In the case of Portuguese public agencies, with the set of reforms implemented over the past 20 years, organizations are now more sensitive to the

development of more sophisticated structures of accountability.³ More recently, with the introduction of a new framework to measure and evaluate performance in public organizations, we can say that there is an attempt to implement PM practices which are generalized accepted in the society. Based on the institutional theory (on the isomorphism perspective), it is expected that agencies that operate in highly institutionalized environments are more likely to adopt PM regulated and institutionalized practices; however, enhancements on performance should be insignificant. Henceforth, in this paper it is intended to test the following hypothesis:

H₅: The use of PM practices in highly institutionalized environments has no significant impact on the organizational performance.

A synthesis of the theoretical model is presented in the Figure 1. The direct effects of PMS and agency' characteristics on the organizational performance (overall performance and performance according different criteria) were firstly analysed; after that we introduce the analyses of the interactive effects of PMS on performance.

Figure 1: Theoretical Model



RESEARCH DESIGN

Data and sample

Using a multivariate analysis, based on a moderating approach, we study the performance consequences of PM practices as well as the effects of the fit between PM practices and the organizational context (cultural aspects and government pressures) on the organizational performance. Based on the unique survey data obtained from Portuguese government agencies, we

³ Recently, an integrated system of management and performance evaluation (SIADAP) has been introduced in Portuguese Public Administration (Law no. 66-B/2007 of 28th December), which aims to contribute to a better performance and quality of services. The performance measurement framework for public services was established for public organizations based on a standardized structure (called QUAR). This integrated system for public services is based on the management-by-objectives philosophy pointing out measures of efficiency, effectiveness, and quality. It emphasizes (1) the setting of clear goals, based on the mission and the strategic objectives of the organization, (2) the definition of performance indicators and (3) targets to measure achievements, as well as (4) effects on performance.

study the use of PM practices in relation to their context and structures, and their effects on performance. The survey was pilot tested with five chief executive officers (CEO) of different public agencies (two agencies in the health sector, two in the social area and one higher education institution). It was designed to preserve the anonymity of respondents. The mailed survey package included an introductory letter explaining the purpose of the research and the international research network to which this survey is associated, a copy of the survey and the indication of the access link, where they should access the survey, filling it in on-line.⁴ Meanwhile several calls and e-mails were answered in order to clear out some doubts about the way to fill in the survey. In January 2010 a second request was sent by postal and e-mail for agencies who didn't answer the questionnaire.

The questionnaire was sent to a total of 342 agencies (see Table A in the Appendix), delivered by the fifteen parent ministries. After two mailings (between October 2010 and May 2011) we received 155 usable responses which mean a response rate of 45%. To examine for non-response bias, we compare the first responses (received until December) with the last responses (received after the second call sent in January 2010) to test if responses differed between the two groups. No differences were identified, providing some support for the absence of a non-response bias.

The unit of analysis is one respondent from each responding agency. Generally the chief executive officer (CEO), but it was possible to delegate the respondent function to other persons that are knowledgeable about the organization as a whole (planning and control mechanisms, implemented PMS, autonomy and cultural issues and organizational performance).⁵ The biggest part of the respondents is CEOs (38%) or senior managers (44%) (like assistants, vice-presidents, directors, sub-directors, coordinators) who are very familiar with the high decision-making process. Their work experience is, on average, about ten years. About 99% have a graduation degree and 20 respondents have PhDs. The survey data are the only data available on attitudes, perceptions and behaviors in Portuguese public sector organizations. Data was collected to measure variables like organizational culture, environment, control and performance management practices and the organizational performance.

In this paper, our sample consists of two categories of agencies: 114 legally independent agencies and 41 departments that operate more closely from the state. Following the framework of the COBRA database, we focus on the steering relationship between agencies that report to government/minister/department and the oversight authority as a complete result of the steering cycle. Subordinate agencies/subsidiaries that report to another agency were not included in our

⁴ We also allow the respondents to fill out the survey on paper and return us by postal or e-mail.

⁵ Under the organizational theory, individual top managers are the appropriate unit of analysis on this kind of study because perceptions, willingness, beliefs and behaviors towards a particular change and innovation are determined by each one within the organization (Anderson and Young, 1999).

sample because they are not comparable to other agencies covered on our study (COBRA document 2009). Agencies that report directly to an oversight authority are more involved in the processes of planning, control and performance measurement, and are more accountable for results and goal achievements than subordinated agencies.

Table 1 presents the main features of the sample, based on the affiliation, type of agency, size and the existence of a board. In average, more independent agencies are larger organizations (considering both the number of full time employees and budgeting) and have more financial independence (self-funding) in relation to the oversight authority than departments. On the other hand, Table 1 show that legally independent agencies have a greater geographical component than departments (73 agencies are regional units and all the departments are national units) and only independent agencies have a board (87 agencies). This way, we have a great heterogeneity in the agencies' structure.

Table 1: Sample characterization

		Affiliation	
		Agencies	Departments
Type of Agency	1	41	41
	0	73	0
Board	Yes	87	0
	No	27	41
Size	FTE	682	178
	Budget	136	23
Self-funding	1	35	2
	0	79	39

Legend: Affiliation: 1 - departments; 2 – agencies; Type of agency: 1 - national/central organizations; 0 - regional organizations; Size: FTE - the average number of full time employees; budget - the total budget executed in 31/12/2008, in millions euros; Self-funding: 1 - self-income is the main source of income; 0 - others income are the main source of income.

Measurement of dependent variables and descriptive statistics

The need to satisfy multiple objectives becomes performance a multidimensional concept for which no single overriding measure is adequate (Feltam and Xie, 1994; Ballantine *et al.*, 1998; Brignall and Modell, 2000; Bispe *et al.*, 2007; Otley, 2008, cited by Ferreira and Otley, 2009). So, one holistic approach is needed to measure government performance as a result of the delegate process and the introduction of performance contracts that imply a shift from input to results-oriented PMS (Cavaluzzo and Ittner, 2004; Laegreid *et al.*, 2006 and 2007; Verbeeten, 2008). Different approaches of performance were found on the literature that distinguishes the focus (Verbeeten, 2008) and the quantification of performance (Feltam and Xie, 1994; Ittner and Larcker, 1998; Banker *et al.*, 2000; Reck, 2001).

Two set dependent variables measure the organizational public performance in this paper: one single measure that measures respondents' self-assessment with related to general results of the organization (OVERALLPER); and the performance rating based on different criteria (see Table 2). For to access performance, respondents were asked to rate the following criteria on a ten-point scale (1= poor performance; 10 – very good performance): (1) efficiency; (2) effectiveness; (3) quality of service delivery; (4) motivation; (5) satisfaction of staff; (6) quality of management; (7) internal cohesion; (8) flexibility of the organization; (9) stability of the organization in the environment; (10) responsiveness to society and (11) accountability towards society. Factor analysis with oblique rotation indicates that these measures represent three underlying constructs.⁶ Three questions loading greater than 0.7 on the first factor (efficiency, effectiveness and quality of service delivery) that we label as *goal achievements* (GOALPER). The increase of the efficiency and effectiveness levels as well as the improvement of quality on service delivery are considered the main goals of public sector organizations (Hood, 1991 and 1995; Osborne and Gaebler, 1993; Dunleavy and Hood, 1994; Ittner e Larcker, 1998; Lapsley and Pallot, 2000; Goddard, 2004) as a result of the NPM reforms. For this reason we consider that this construct measures the agencies' goal achievements; a greater performance on goal achievements means a greater orientation to results and quantification of performance (ter Bogt, 2001 and 2003; Verbeeten, 2008).

On the second factor five questions loading greater than 0.5 such as motivation, satisfaction of staff, quality of management, internal cohesion and flexibility of the organization. All the underlying questions related to the organization's employees and internal environment. Thus, this construct is labelled *internal performance* (INTERNALPER). Finally, the responsiveness and accountability towards society completed all load highly on factor three and we label it as performance in relation to *society* (SOCIETYPER). Contrary to the first factor which is more oriented to results, these two factors are more oriented to the determinants of the goal achievements and have a more qualitative focus (ter Bogt, 2001 and 2003; Verbeeten, 2008).

The obtained three constructs to assess performance are consistent with the literature review on organizational performance that appeals for a multidimensional approach. In some way, our goal, internal and society approaches of performance are similar to the goal, systems resources and process approaches referred by Ford and Schellenberg. The goal approach suggested by them consists of the ultimate and identifiable goals and coincides with our construct GOALPER; the system resource approach stresses the relationship between the organization and its environment; so, some similarities were found with our society approach. Finally, the process approach of performance

⁶ Based on O' Conner (2000) we use the *Velicer's minimum average partial test* to indicate the number of factors to extract. This method reveals to be more adequate for qualitative data. We repeat this technique for all the factor analyses presented in this paper.

involves the behavior of internal participants and is alike with our internal perspective of performance. Ford and Schellenberg (1982: 50) emphasized the importance of this constituent approach because it considers not only the existence of multiple performance criteria as well as that ‘some performance criteria are likely to be more salient to decision makers at any given point than other criteria’; thus, ‘performance criteria are dynamic’. For example, managers tend to emphasize the goal approach while the government and other oversight authorities are more worried about the system approach (effects on society) and employees pay more attention to the process approach. Consequently, ‘it is possible for the organization to be assessed as good on some dimensions and poor on others’. Thus, our empirical results will show effects of PMS according different performance approaches for a clearer picture.

This way, in this paper the dependent variables consists of a single measure of performance (OVERALLPER) and a multidimensional approach of performance that assesses goal achievements (GOALSPER), employees satisfaction and internal environment (INTERNALPER) as well as the impact on the society (SOCIETYPER). Descriptive statistics of performance as well as the results of factor analysis applied to the eleven criteria of performance are presented in Table 2.

Table 2: Measurement and descriptive statistics of performance

Dependent Variables (1 – poor; 10- very good)	N	Mean	Std. Dev.	Min/Max	Factor analysis^{a)}
OVERALLPER					
How many points do you give your organisation with regard to general results of the organisation?	151	7.72	1.18	4/10	
GOALSPER (alpha = 0.9172)					
How would you assess the results of the organization on following criteria?	154	7.89	1.41	3/10	1st factor
1. Efficiency	153	7.76	1.47	3/10	0.7620
2. Effectiveness	153	7.99	1.41	3/10	0.8413
3. Quality	154	7.97	1.40	3/10	0.7648
INTERNALPER (alpha = 0.8927)					
How would you assess the results of the organization on following criteria?	154	7.51	1.44	3/10	2nd factor
1. Motivation	154	7.65	1.62	3/10	0.7087
2. Satisfaction of staff	154	7.16	1.74	1/10	0.7031
3. Quality of management	153	7.86	1.60	2/10	0.5769
4. Internal cohesion	154	7.55	1.57	2/10	0.7527
5. Flexibility of the organization	154	7.27	1.79	1/10	0.6578
SOCIETYPER (alpha = 0.8891)					
How would you assess the results of the organization on following criteria?	154	8.21	1.85	1/10	3rd factor
1. Responsiveness to society	154	7.90	1.96	1/10	0.8281
2. Accountability towards society	154	8.21	1.98	1/10	0.8235

a) The extraction method was the Principal Factors; the rotation method is the orthogonal Varimax with Kaiser Normalization.

For all the dimensions that assess performance we find that, in average, respondents’ perception of performance is over the seven points, considered a good overall (7.72) and specific performance (7.89, 7.51 and 8.21, for GOALSPER, INTERNALPER and SOCIETYPER respectively). A greater

performance is perceived in the society perspective which marks the important role of citizens and community needs in the public sector work. The higher values of the coefficient alphas confirm the internal reliability of the three constructs (0.9171 for GOALSPER; 0.8927 for INTERNALPER and 0.8891 for SOCIETYPER).⁷

Measurement and descriptive statistics of explanatory variables

PM practices

The survey items on the PM practices adopted by agencies were adapted from the broad package of modern management tools examined by Laegreid *et. al* (2007). A list of eighteen techniques was addressed, involving quality, internal, and other financial management techniques. Table B in the Appendix shows descriptive statistics, as well as the results of the factor analysis. As we can see, public reporting on the organizational performance (in yearly reports, budgets, etc.) is the most familiar tool used by 96% of the respondents, followed by the MBO used by 77% agencies. This is an expected result taking into account that SIADAP makes these issues compulsory since 2007. Other voluntarily adopted PM tools are used to a lesser extent like the Balanced Scorecard (28%), the ABC (45%), and the knowledge-based management (47%), among others. The factor analysis reveals that two groups of PM practices were extracted (with factor loading ≥ 0.5). These two groups have common characteristics and show how respondents view and deal with these practices.

The first group involves four techniques such as quality management systems (e.g. ISO), total-quality management, quality standards for production/service delivered, and internal units monitoring quality.⁸ All these practices focus on quality issues as a way to answer to important initiatives in order to increase the quality of public service delivery; so, we label it as *quality management practices* (QUALITY). The alpha of 0.7549 reveals a high internal validity of the construct (see descriptive statistics in the Table 3). Therefore, QUALITY was computed by an additive index that counts the number of tools used by agencies (ranging from 0 to 4).

The second factor consists of knowledge-based management, team-based management, service-based management, value-based management, and the activity-based management. We label this construct as *internal managerial practices* (INTERNAL) (alpha=0.6703) because all of these tools have a great focus on internal dynamics of the organization like people, processes and activities. In the model we use an additive index ranging from 0 to 5. Descriptive statistics show that, in average,

⁷ To assess the internal reliability of the constructs we use the Cronbach coefficient alphas. Coefficients greater than 0.5 values assure the internal reliability of the construct (the minimum level suggested by Nunnally, cited by Cavaluzzo and Ittner, 2004).

⁸ We obtain some consistency with empirical results obtained by Laegreid *et al.* (2007: 400). Our first factor consists of PM techniques that have some similarity with their second factor called 'quality tools' (with the exception of benchmarking which was not included in our case).

public agencies in the sample use 1,65 quality management practices (in a total of 4) against 3,15 internal managerial practices (in a total of 5). Moreover, only 19 agencies use the four quality tools against 30 agencies that use the range of internal managerial practices. These results confirm the findings of Laegreid *et al.* (2007) that quality tools are less widespread than internal managerial tools.

Table 3: Measurement and descriptive statistics of PM practices

	Alpha	Freq. ^{a)}	N	Mean	Std. Dev.	Min/Max
QUALITY	0.7549	19	155	1.65	1.39	0/4
Number of quality tools used by organizations:						
1- Quality management systems (i.e....ISO, ...) (1- yes; 0- no)		69	155	45%	0.34	0/1
1- Total-quality management (1- yes; 0- no)		21	155	14%	0.50	0/1
1- Quality standards for production/service delivery (1- yes; 0- no)		66	155	43%	0.47	0/1
1- Internal units monitoring quality (1- yes; 0- no)		99	155	64%	0.43	0/1
0- Don't use any tool		44	155	28%	0.30	0
INTERNAL	0.6703	30	155	3.15	1.49	0/5
Number of internal management tools used by organizations:						
1- Knowledge-based management (1- yes; 0- no)		103	155	66%	0.47	0/1
1- Team-based management (1- yes; 0- no)		95	155	61%	0.49	0/1
1- Service-based management (1- yes; 0- no)		124	155	80%	0.40	0/1
1- Value-based Management (1- yes; 0- no)		49	155	32%	0.48	0/1
1- Activity Based Management (ABM) (1- yes; 0- no)		118	155	76%	0.49	0/1
0- Don't use any tool		13	155	8%	0.42	0

a) Frequency of agencies that fulfilled all criteria (for example 19 for QUALITY), as well the frequency of agencies that fulfill each criteria in the index.

Organizational context

Different survey questions have been addressed to feature the organizational context (like cultural aspects and government pressures). To feature the internal organizational culture we ask respondents about the extent to which 21 cultural items characterize the organization (seven-point scale). Two groups of variables were obtained based on the factor analysis which involves 15 items (see Table 4). The first group involves eight items that focus citizens, results and quality, which are (1) emphasis on quality of delivery service; (2) honesty; (3) training importance; (4) integrity; (5) detail orientedness; (6) goal orientation; (7) results orientation and, (8) valuing customers. We label this construct as *citizens and results orientation* (CITIZENS) which measure the extent to which a citizens and results focus is a feature of the internal culture. The second group consists of seven items strongly associated with the capacity to innovate and improve: (1) support for employees; (2) interpersonal trust; (3) creativity; (4) keeping promises; (5) innovation; (6) willingness to experience and, (7) taking risk. This factor was labelled as *innovation and improvement orientation* (INNOVATION). The two underlying constructs show high alpha which assures their internal reliability. Table 4 presents measurement and descriptive statistics for these two constructs. Statistics show that culture is featured by the orientation to citizens and results (such as the values of quality, honesty and integrity) rather the capacity to innovate (5,95 and 5,05, respectively). In the rest of the analysis, we use these two constructs computed using mean standardized responses.

Another survey question asks about the influence of several stakeholders (15 items) in the organizational decisions (concerning direction and strategy) (five-point scale). The factor analysis results show that 10 items loading in two factors.⁹ The first factor consists of three items with factor loadings ≥ 0.50 : influence exercised by government, parent minister and the ministry of Finance and Civil Service. This is a dominant influence of government parties in the organizational decisions that we labelled *government pressures* (GOVPRESSURES) (the alpha of 0.7751 evidences the construct reliability). In average, our respondents consider that government parties exercise an important influence in decision making (4,25 points) which mark the lack of full independence from the state. In the rest of the analysis, we use this constructs computed using mean standardized responses.

Table 4: Measurement and descriptive statistics for organizational context

	Alpha	N	Mean	Std. Dev.	Min/Max	Factor loading ^{a)}
CITIZENS^b	0.9092	147	5.95	0.86	2/7	
1. Emphasis on quality of service delivery		150	6.03	1.02	1/7	0.71
2. Honesty		151	6.09	1.06	1/7	0.72
3. Training is important		152	5.82	1.15	7/7	0.73
4. Integrity		150	6.04	1.12	1/7	0.80
5. Detail orientedness		151	6.01	1.05	1/7	0.73
6. Goal oriented		151	5.99	0.98	1/7	0.69
7. Result orientedness		152	5.8	1.21	1/7	0.67
8. Valuing customers		150	5.93	1.20	1/7	0.65
INNOVATION	0.8706	143	5.05	1.01	1/7	
1. Support for employees		150	5.37	1.38	1/7	0.61
2. Interpersonal trust		149	5.54	1.16	1/7	0.60
3. Creativity		151	5.25	1.31	1/7	0.63
4. Keeping promises		149	5.11	1.28	1/7	0.64
5. Innovation		151	5.4	1.28	1/7	0.53
6. Willingness to experience		150	4.75	1.50	1/7	0.77
7. Risk taking		152	4.05	1.45	1/7	0.69
GOVPRESSURES	0.7751	153	4.25	0.94	1/5	
Government		154	4.06	1.15	1/5	0.79
Parent Minister		153	4.57	0.93	1/5	0.68
Ministry of Finance and Civil Service		153	4.12	1.05	1/5	0.63

(a) The extraction method was the Principal Factors; the rotation method is the orthogonal Varimax with Kaiser Normalization.

(b) Given the great number of variables having a factor loading greater than 0.50, we only select loadings greater than 0.60.

Control variables

Four control variables were introduced in the model (AFFILIATION, SIZE, COMPET and NPM) as a way to test for structural changes. Table 5 presents measurement and descriptive statistics of control variables. For SIZE we use the logarithm of the total number of full time employees (FTE) (reported to 31 December, 2008) as a way to reduce the high variability (FTE range from 5 to 9473). AFFILIATION indicates the relationship of agencies with the respective minister (more or less legal independently from the parent ministry). In average, about 53% of the sample is composed by legal independently

⁹ The second factor represents other stakeholders like client groups, regulatory board, media, private consultants, the public, etc. We decide not include this second factor in the empirical model given that, in average, they only influence decision-making at 2,33 points.

agencies; on the other hand they have, in average, 545 full time employees which means a medium size of public agencies analysed in this paper. Competition (COMP) is a dichotomous variable that reports if there are others actors/organizations that deliver similar products/or services and if the organization is in competition with them (1- if there are competitors; 0 – if not). NPM is a dichotomous variable that takes the value 1 when the agencies fulfil at least 2 of 3 criteria: (1) the extent to which the CEO reports to the oversight authority is high or very high, (2) the units management is based on the setting objectives and results achieved with high or very high extent, and (3) the self-income generated constitute the main source of funding. NPM takes the value 0 if not. Statistics show that only 49 agencies fulfil at least two of the referred criteria which mean that we have in our sample 32% NPM agencies.

Table 5: Measurement and descriptive statistics of control variables

Control Variables	N	Mean	Std. Dev.	Min
AFFILIATION (1- agencies; 0- departments)	155	0.53	0.50	0/1
SIZE (log fte)				
Logfte	154	2.34	0.57	0.7/3.99
Fte	154	545	1063	5/9743
COMPET	155	0.27	0.45	0/1
1-Other actor/organizations deliver similar products/or services and the organization is in competition with them the organization	42	0.27		
0- The organization is not in competition with other actors/organization	113	0.73		
NPM	155	0.32	0.47	0/1
1- NPM agencies	49	0.32		
0- Non-NPM agencies	106	0.68		

MULTIVARIATE REGRESSION RESULTS

Direct effects on the organizational performance

Using a multivariate analysis, we study the fit of a performance model with evidence from the public sector. The purpose of this section is to analyze the extent to which our hypotheses are confirmed by regression results. Firstly, we present results of the direct effect of PM practices and the organizational context on performance; in a second place the results of the moderating effects on the organizational performance were presented. Table 6 shows the direct effects on the organizational performance.¹⁰ The pseudo R² about 16% evidences that model 4 is the most robust model (comparatively to 12% and 11% for models 1 and 3, respectively). It means that our models as a whole are, in some way, statistically significant. Generally speaking, these statistical results reveal that a good part of the variation in the organizational performance is explained by estimated models, especially for the overall performance. For the regression results we tested collinearity using the

¹⁰ The use of OLS is problematic to estimate determinants on ordinal variables because the assumptions of OLS are violated when it is used with a non-interval outcome variable. Given that our dependent variables are ordinal variables (i.e., the categories are ordinal), the most appropriate regression technique is ordered logit regression (OLOGIT) (Hosmer and Lemeshow, 2000; Gibbons and Chakraborti, 2003).

Variance Inflation Factor (VIF). No VIF-value higher than 1.52 was reported in the models indicating that correlations between independent variables don't cause the problem of multicollinearity.

Table 6: Direct Effects on the organizational performance

		Model 1	Model 2	Model 3	Model 4
		GOALSPER	INTERNALPER	SOCIETYPER	OVERALLPER
QUALITY	H ₁	0.30** (2.49)	0.27** (2.35)	0.05 (.44)	0.55*** (4.09)
INTERNAL	H ₁	0.31** (2.53)	0.42*** (3.47)	0.28** (2.16)	0.17 (1.28)
CITIZENS		0.61** (2.21)	0.58** (2.10)	0.59** (2.16)	0.12 (.41)
INOVIATION		0.83*** (3.67)	0.67*** (2.82)	0.42* (1.90)	0.77*** (3.12)
GOVPRESURES		-0.09 (-.46)	-0.15 (-.85)	-0.21 (-1.05)	0.02 (.08)
Control variables					
AFFILITATION		-1.00** (-2.09)	-0.52 (-1.08)	0.29 (.60)	-1.27** (-2.38)
SIZE		-0.52* (-1.67)	-0.38 (-1.18)	0.34 (1.07)	0.15 (.44)
COMPET		0.65* (1.68)	0.53 (1.36)	0.31 (.79)	-0.06 (-.16)
NPM		0.07 (.19)	-0.25 (-.71)	0.68* (1.78)	0.81** (2.02)
N		133	133	134	131
LR chi ²		81.52	75.02	53.09	64.19
Pseudo R ²		0.1193	0.0890	0.1121	0.1595

Ordered Logit regression (OLOGIT) estimated coefficients with z-statistics in parentheses (STATA); *p<0.10; **p<0.05; ***p<0.01, respectively.

Regarding the effects of PM practices on the organizational performance we find statistical evidence to corroborate H₁; so, empirical results confirm that organizational performance (GOALPER, INTERNALPER and OVERALLPER) increase when agencies are likely to use PM practices (Kaplan and Norton, 1996; Kaplan, 2001; Ittner *et al.*, 2003; van Helden and Tillema, 2005). About QUALITY techniques, the significance of the estimated coefficients shows that agencies that use more QUALITY management practices will enhance their performance (except for SOCIETYPER), compared to agencies that do not use these practices. Similarly, the use of INTERNAL management techniques will also allow a significant improvement in performance (except for OVERALLPER). The higher impact on the INTERNALPER shows a greater capacity of INTERNAL techniques (such as teams, services and knowledge-based management) to improve the satisfaction and motivation of staff as well as other aspects of internal performance (p-value <0.01). This empirical result reveals the importance of micro-level techniques to improve the medium and long-term performance, as was concluded by Abernethy and Lillis (2001).

Moreover, the estimated coefficients associated with the cultural context (CITIZENS and INNOVIATION) reveals a positive and significant direct effect on performance. We find a greater level of significance for the effect of INNOVIATION in the overall performance, as well as on GOALPER and INTERNALPER (p -value <0.01). Empirical results reinforce prior contingency-based research that assumes a direct effect of strategic choices and cultural aspects on performance (see e.g., Abernethy and Lillis, 2001; Bisbe and Otley, 2004; Pizzini, 2006). In the opposite way, higher institutionalized environments, measured by government pressures on internal decisions, have no impact on the organizational performance, as was expected. This insignificant relationship reinforces institutional

assumptions (on the isomorphism perspective), and reinforces prior findings about the symbolic role of accounting innovations when they are used under great external pressures (Gupta et al. (1994) and Ittner et al., 2003).

Effects of control variables reveal that performance is also a consequence of the organizational structure (as was suggested by Perera et al., 1997). AFFILIATION shows a negative and statistically significant effect (p -value <0.05) in OVERALLPER and GOALSPER. I.e., apparently, agencies that operate more closed from the state (with less independence) can achieve better results than more independent agencies. Moreover, NPM agencies are more likely to improve the overall performance (p -value <0.05). In accordance with the NPM assumptions, agencies with a better accountability structure, with a greater orientation to results in the management of internal units, and with higher capacity to generate self-income reveals to have a more propitious structure to improve performance. However, little empirical evidence was found in relation to the other performance perspectives.

Although with limited empirical evidence (p -value <0.1), results indicate that larger agencies will have less capacity to reach their levels of efficiency, effectiveness and quality (without any significance in other levels of performance), compared with smaller agencies. Finally, some evidence was also found in relation to the greater ability of more competitive agencies to accomplish their goals (GOALSPER). As was stated by Budding (2004) and Laegreid et al. (2007), the market in which these agencies operate ask for them to act more pro-active and adopt appropriate planning and control tools as way to improve performance. However, little empirical support was obtained to confirm this relationship in other performance perspectives.

Moderating effects on the organizational performance

In this section we present the moderating effects on the organizational performance taking into account the fit between PM practices (QUALITY and INTERNAL practices) and the organizational context.¹¹ No VIF-value higher than 1.61 was reported in the models, after the centralization of independent variables,¹² indicating that correlations between independent variables don't cause the problem of multicollinearity. Table 7 presents moderating effects when agencies use QUALITY techniques. The R^2 statistics show some improvements in the fit of the estimated models. In some way, the inclusion of the interaction terms improves the understanding of variations (positive or negative) on organizational performance (although the little empirical significance of the interaction terms).

¹¹ For to estimate the moderating models we need to maintain the coefficients of the direct effects (F1, F2, F3 e F4) in order to filter effects of the interaction terms in the dependent variables (Hartmann and Moers, 1999).

¹² According Hartmann and Moers (1999), the centralization of independent variables allows solving problems of multicollinearity when the interactive effects were introduced. We use the centralization method suggested by Jaccard and Turrisi (2003). The interactive terms have been computed after centralization.

Regarding the estimated coefficients of the moderating effects between the use of QUALITY techniques and a citizens-focus strategy (QUALITY x CITIZENS), we only find statistical significance (p-value <0.1) in the explanation of SOCIETYPER. The negative sign of the coefficient indicates the possibility of such performance decrease when this adjustment occurs, leading to dysfunctional consequences. However, this result is not clear and should be analyzed with caution. Thus, we have not empirical support to reject H_{2a} in relation to the fit between QUALITY techniques and the citizens-focus strategy followed by agencies.

Table 7: Moderating effects, considering the use of QUALITY management practices

		Model 1		Model 2		Model 3		Model 4	
		GOALSPER		INTERNALPER		SOCIETYPER		OVERALLPER	
QUALITY (F1)		0.35***	(2.86)	0.31***	(2.64)	0.09	(.73)	0.57***	(4.24)
CITIZENS (F2)		0.95***	(3.44)	0.79***	(2.83)	0.76***	(2.89)	0.21	(.74)
INNOVATION (F3)		0.75***	(3.56)	0.70***	(2.92)	0.48**	(2.16)	0.79***	(3.19)
GOVPRESSURES (F4)		-0.11	(-.60)	-0.12	(-.70)	-0.21	(-1.02)	0.04	(.20)
Moderating effects									
F1*F2	H_{2a}	-0.33	(-1.67)	0.11	(.53)	-0.39*	(-1.78)	-0.06	(-.28)
F1*F3	H_{2b}	0.10	(.62)	-0.24	(-1.36)	0.20	(1.09)	-0.12	(-.65)
F1*F4	H₃	-0.14	(-1.16)	-0.08	(-.72)	-0.01	(-.10)	-0.09	(-.70)
Control variables									
AFFILITATION		-0.45	(-1.12)	-0.50	(-1.22)	0.35	(.83)	-1.43***	(-3.04)
SIZE		-0.44	(-1.46)	-0.24	(-.75)	0.35	(1.15)	0.21	(.59)
COMPET		0.68*	(1.72)	0.57	(1.46)	0.29	(.74)	-0.10	(-.25)
NPM		0.29	(.80)	-0.04	(-1.10)	0.85**	(2.24)	0.87**	(2.17)
N		135		135		136		132	
LR chi ²		76.76		67.70		54.87		65.09	
Prob. > chi2		0.000***		0.0000***		0.0000***		0.0000***	
Pseudo R ²		0.1108		0.0791		0.1135		0.1610	

Ordered Logit regression (OLOGIT) estimated coefficients with z-statistics in parentheses (STATA);
*p<0.10; **p<0.05; ***p<0.01, respectively.

In relation to the second interaction term (QUALITY x INNOVATION) the fit between the capacity to innovate and the use of QUALITY techniques reveals no significant impact on performance. Thus, we don't find empirical support to reject H_{2b} which means that the capacity to innovate have not a moderating effect on performance. I.e., apparently, we don't find variations on performance (in any perspective) as a result of the use of QUALITY techniques by agencies more innovative. In some way, we confirm the disappointing results obtained by prior research. For example, Bisbe and Otley (2004) also found no significant effect on performance as a result of the fit between product innovation and the use of the Balanced Scorecard.

In addition, the insignificance of the estimated coefficient associated with the third interaction term (QUALITY x GOVPRESSURES) reinforces our expectations based on the isomorphism perspective. Our findings suggest that the use of QUALITY techniques in highly institutionalized environments have no material impact on performance (in any perspective). In sum, empirical results show that the use of such techniques like the Total Quality Management and quality standards, have no material impact

on performance (exceptionally decrease in SOCIETYPER) when they are adjusted to the organizational context. This way, we obtain little support about the moderating effects between the organizational context and the use of QUALITY techniques on the organizational performance.

Table 8 presents moderating effects when agencies use INTERNAL techniques (like team, service and knowledge-based management).¹³ The R² statistics show some improvements in the fit of the models 2 and 3; thus, explanations on the INTERNALPER and SOCIETYPER models improve when we introduce the interaction terms. The estimated coefficient for the first interaction term (INTERNAL x CITIZENS) shows stronger empirical evidence on INTERNALPER (p-value <0.01), without any statistical significance in the other perspectives of performance. This means that, as was expected, enhancements on performance will happen when agencies use internal management techniques aligned with a citizens-focus strategy. This result suggests that the INTERNAL management techniques are more able to predict and measure the individual and internal performance like satisfaction and motivation of staff (as noted by Abernethy and Lillis, 2001). Thus, we found empirical evidence to partially support H_{2a}.

Table 8: Moderating effects, considering the use of INTERNAL management practices

	Model 1		Model 2		Model 3		Model 4		
	GOALSPER		INTERNALPER		SOCIETYPER		OVERALLPER		
INTERNAL (F1)	0.30**	(2.48)	0.37***	(3.06)	0.28**	(2.15)	0.19	(1.46)	
CITIZENS (F2)	0.70**	(2.47)	0.92***	(3.18)	0.64**	(2.27)	0.16	(.54)	
INNOVATION (F3)	0.75***	(3.40)	0.60***	(2.69)	0.42*	(1.91)	0.75***	(3.12)	
GOVPRESURES (F4)	-0.07	(-.38)	-0.013	(-.77)	-0.19	(-.93)	0.01	(.06)	
Moderating effects									
F1*F2	H_{2a}	0.05	(.25)	0.55***	(3.10)	0.15	(.81)	0.13	(.62)
F1*F3	H_{2b}	-0.06	(-.39)	-0.50***	(-3.68)	-0.07	(-.50)	-0.25	(-1.38)
F1*F4	H₃	0.01	(.12)	0.06	(.55)	0.07	(.51)	-0.00	(-.01)
Control variables									
AFFILITATION		-0.47	(-1.19)	-0.40	(-.98)	0.29	(.69)	-1.08**	(-2.39)
SIZE		-0.31	(-1.01)	-0.14	(-.46)	0.37	(1.25)	0.39	(1.18)
NPM		0.22	(.63)	-0.12	(-.33)	0.70*	(1.83)	0.92**	(2.31)
N		135		135		136		132	
LR chi²		71.32		84.97		57.26		48.85	
Pseudo R²		0.1029		0.993		0.1184		0.1208	

Ordered Logit regression (OLOGIT) estimated coefficients with z-statistics in parentheses (STATA);

*p<0.10; **p<0.05; ***p<0.01, respectively.

Regarding the second interaction term (INTERNAL x INNOVATION) we find a significant moderating effect of INNOVATION (statistical evidence only for INTERNALPER with a p-value <0, 01). Thus, we find empirical evidence about the significant effect of the fit between the use of INTERNAL management techniques and the capacity to innovate (H_{2b}). The negative sign means that more innovative agencies that use more INTERNAL management practices worsen their internal and individual performance. This way, we find empirical evidence to support some assumptions of the

¹³ Note that direct effects of explanatory variables on performance keep the results previously seen in table 7. Therefore, this means that the introduction of the interaction terms does not affect the sign and the significance of these variables.

contingency theory about the preference for ex ante and flexible information organizations when agencies adopt more innovative strategies. So, in spite of the direct alignment of these INTERNAL techniques with the internal performance, the information produced for them is not used as a way to improve individual performance in more innovative agencies.

Finally, we find empirical evidence to support H₃. Thus, no significant impact on performance is expected as a result of the fit between INTERNAL techniques and the extent to which government influence decision making. Our findings suggest that the use of INTERNAL techniques in highly institutionalized environments have no material impact on performance (in any perspective). This is a robust result for all the estimated models in this paper which reinforce our expectations about the symbolic impact of accounting innovations when they are adopted under greater external pressures.

Taken together the multivariate regression results show improvements on performance (in different perspectives) associated with the use of QUALITY and INTERNAL management practices. When adjusted for the organizational context in which agencies operate, the moderated effects on performance are not very clear (especially the moderating effects when agencies use QUALITY techniques). Moreover, there is strong empirical evidence about the fit between the organizational culture (a citizens-focus and the capacity to innovate) and the use of INTERNAL techniques on the internal performance. This way, our empirical results show that the internal and individual performance is upon dependent of the fit between the use of INTERNAL techniques and the organizational culture. This means that performance consequences of PM practices are not the same for all the agencies but it depends upon the organizational context. Moreover, we confirm prior expectations about the insignificant impact on performance when PM practices are used under great government pressures.

SUMMARY AND CONCLUSIONS

Based on theoretical assumptions of the contingency theory and the economic efficiency, we investigate whether PM practices and the organizational context are associated with organizational performance, with evidence from Portuguese central government agencies. The multiple regression analysis estimates direct and moderating effect on the organizational performance. The organizational performance was studied based on a multidimensional perspective that takes into account the capacity of public agencies to achieve its goals (GOALSPER), the capacity to improve the internal dynamics and relationships (INTERNALPER) and their relations with the society (and SOCIETYPER) as well as the organizational performance as a whole (OVERALLPER).

Empirical results provide strong empirical evidence to support the hypotheses regarding the positive (direct) effects of PM practices and cultural aspects (like the citizens-focus and the capacity to

innovate and improve) on the organizational performance. Our findings suggest that the extent to which agencies use QUALITY and INTERNAL management practices is positively associated with the organizational performance (for all the presented perspectives). These results are significant and robust, reinforcing findings of previous contingency-based research (like Otley, 1999; Kaplan, 2001; Ittner et al., 2003; Bisbe and Otley, 2004; van Helden and Tillema, 2005; Laegreid et al., 2007; Ferreira and Otley, 2009; Hartmann et al., 2010). While QUALITY management practices reveal greater impacts on the overall performance, INTERNAL management techniques show greater capacity to improve internal and individual performance. Moreover, the organizational culture like the capacity to innovative and the citizens-focus strategy reveal to be important drivers of the organizational performance (positive and significant effects) which confirm findings obtained by prior research (e.g., Abernethy and Lillis, 2001; Ittner *et al.*, 2003; Said *et al.*, 2003; Bisbe and Otley, 2004).

For the moderating effects, empirical results are not so robust. So, we only find moderate empirical support to corroborate H_{2a} and H_{2b}. CITIZENS and INNOVATION have not a moderating effect on performance as a result of the use of QUALITY techniques. However, different results were obtained for INTERNAL management practices. Agencies that follow a citizens-focus strategy are more likely to improve (internal) performance if they use INTERNAL techniques with a greater extent. Moreover, the adjustment between the use of INTERNAL management techniques and the capacity for innovation reveals a significant (negative) impact on (internal) performance. Therefore, the use of these PM practices by more innovative agencies will lead to a bad performance at a micro level. So, these results reinforce the role of internal management techniques in the prediction of internal performance, which shows their greater connection with performance at a micro level. Note that prior empirical studies show some mixed and inconclusive results about the impact of this association on performance (Chenhall, 2003, Ittner et al., 2003). This paper contributes to clarify this relationship on public agencies.

In this paper we still complement the assumptions of the contingency approach by the institutional theory (in the isomorphism perspective) to explain the moderating effects on performance when PM practices are aligned with greater government pressures. Thus, we confirm expectations about the insignificant impact on performance when agencies use PM practices (both QUALITY and INTERNAL) under great government pressures. Although prior research show that these accounting innovations are in expansion in the public sector as a result of the quality movement and the modernization of public management in the last 20 years (Jackson and Lapsley, 2003; Lapsley and Wright, 2004; Laegreid et al., 2007), the great pressure exerted by the oversight authorities in decision-making will lead to insignificant impacts of these practices on performance (DiMaggio and Powell, 1991, Gupta et al., 1994, Geiger and Ittner, 1996; Cavaluzzo and Ittner, 2004). These results help to clarify the effects

of external environment on organizational performance, which has been neglected by contingency theory (Gupta et al. 1994; Cavaluzzo and Ittner, 2004). In short, the arguments of Oliver (1991) about the different responses of organizations when they face similar institutional reforms have been reinforced in this paper. Not only the organizational context lead to different variations on performance but also the organizational structure likes size, affiliation and competition.

To conclude, adjustments between PM practices and the cultural context (citizens-focus and innovation) and their effects on organizational performance need to be explored more deeply through a qualitative study (as suggested by Modell, 2009). It is necessary to take into account that associations tested in this paper were mainly based on contingency-research carry out in the private sector due to lack of empirical evidence that explore these relationships and their impacts on public sector performance. However, the specific reality of public sector organizations can lead to the need to make adjustments in some circumstances contemplated which can enhance our empirical results. Moreover, the incorporation in the empirical analysis of the performance impact of interdependencies between the context, the use of PM practices and structure can lead to more robust evidence (as suggested by Abernethy and Lillis, 2001).

This research paper is one of the first (and the first in Portuguese central government) large-scale empirical analysis that investigates whether the use of PM practices is associated with public performance as well as the moderating effects on performance (some exceptions are studies developed by Abernethy and Lillis, 2001; Verbeeten, 2008). However, some limitations should be appointed. First, our performance variables are computed based on perceptual (self-reported) measures and not on objective measures (free from perceptual judgments); on the other hand, data were collected directly from the organization whose performance is being assessed. Following the classificatory scheme of Venkatraman and Ramanujam (1987), we use perceptual measures collected from primary sources, in accordance with other scholars, who followed the same method (see for example, Anderson and Young, 1999; ter Bogt, 2003 and 2004; Cavaluzzo and Ittner, 2004; Laegreid *et al.*, 2006 and 2007 and Verbeeten, 2008). Besides some related problems with the validity and reliability of data, Venkatraman and Ramanujam (1987: 110) argue that neither objective nor perceptual measures are superior to one another.

Secondly, limitations are also appointed in relation to the use of a survey. The questionnaire allowed us to gather information concerning 45% of the population. However, it is important to complement our quantitative data with a qualitative analysis which allows us to confirm the verified hypotheses. In sum, besides some limitations, our empirical study confirms economic and organizational theories about the role of PM practices in the organizational performance as well as the importance to consider the fit between PM practices and the organizational context when performance is studied.

APPENDIX

Table A: Response Rate of Agencies and Departments by Policy Field

	ADDRESSED			RETURNED			RESPONSE RATE		
	Agencies	Departments	Total	Agencies	Departments	Total	Agencies	Departments	Total
Homeland Security	3	5	8	2	3	5	67%	60%	63%
Foreign Affairs	2	6	8	2	2	4	100%	33%	50%
Finance	7	11	18	6	8	14	86%	73%	78%
Defence	4	6	10	3	2	5	75%	33%	50%
Justice	5	7	12	2	2	4	40%	29%	33%
Environment & Economy	9	6	15	4	4	8	44%	67%	53%
Agriculture	4	7	11	0	3	3	0%	43%	27%
Public works	7	3	10	3	1	4	43%	33%	40%
Job & Social	9	6	15	5	3	8	56%	50%	53%
Health	78	4	82	33	1	34	42%	25%	41%
Education	2	7	9	2	4	6	100%	57%	67%
Science	92	4	96	40	2	42	43%	50%	44%
Culture	7	7	14	5	3	8	71%	43%	57%
State Affairs	14	7	21	4	2	6	29%	29%	29%
TOTAL	249	92	341	114	41	155	46%	45%	45%

Table B: Descriptive Statistics and Results of Factor Analysis of PM practices

	Freq.	%	1st factor ^a	2nd factor
Public reporting on the performance of the organization in yearly reports, budgets documents, operational plans, strategic plans	148	0.96		
Management-by-objectives	120	0.77		
Customer surveys	110	0.71		
Knowledge-based management	103	0.66		0.50
Team-based management	95	0.61		0.52
Service-based management	124	0.80		0.60
Internal units monitoring quality	99	0.64	0.60	
Steering on goals and results through the benchmarking	61	0.39		
Balanced Scorecard	44	0.28		
Contract management (por ex. subcontratação)	91	0.59		
Quality management systems (i.e.ISO)	69	0.45	0.72	
Total-quality management	21	0.14	0.53	
Quality standards for production/service delivery	66	0.43	0.70	
Value-based Management	49	0.32		0.50
Activity Based Management (ABM)	118	0.76		0.52
Activity Based Costing (ABC)	69	0.45		
Value process management	43	0.28		
Economic Value Added (EVA)	13	0.10		

(a) The extraction method was the Velicer's minimum average partial test; the rotation method is the orthogonal Varimax with Kaiser Normalization. Only items with factor loadings ≥ 0.50 were included in the index.