

FINANCIAL DETERMINANTS FOR IMPROVING PUBLIC SECTOR ACCOUNTABILITY: A META-ANALYTIC STUDY

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Abstract

The economic crisis has highlighted the need to pay close attention to the disclosure of financial information by public administration institutions; this is an element contributing to the control, accountability and responsibility and thus to achieving greater financial stability and sustainability. Although the disclosure of public financial information has traditionally been linked with financial variables, previous researches in this respect have been somewhat inconsistent in their findings, and conclusive evidence has yet to be provided regarding these factors and their influence on the level of disclosure. The present meta-analysis tries to reveal the existence of a statistically significant association between certain financial variables and the disclosure of public financial information, although the strength and sign of this association will depend on the context under analysis.

The results obtained indicate that, depending on the context in which public managers are operating, they may have different attitudes toward the disclosure of public financial information; the medium employed for the dissemination and public indebtedness are also significant factors to this disclosure. Therefore, results reveal a variable degree of predisposition among public managers to adopt policies aimed at increasing the disclosure of public financial information.

Keywords: financial disclosure, meta-analysis, accountability, financial variables.

1. Public financial information disclosure, transparency and accountability

Recent decades have produced far-reaching changes in public management systems, giving rise to modernization and innovations in certain basic patterns and functions of governance within democratic societies (Calista and Melitski, 2007). The changes proposed in the framework of New Public Management (NPM) are aimed at achieving a new culture in which greater emphasis is placed on achieving citizens' satisfaction, on establishing management evaluation methods, on enhancing the accountability of public administration institutions, on opening up public sector organizations to greater competitiveness, on achieving more transparent and up-to-date control mechanisms, on favoring benchmarking processes, and on decentralizing public service management (Hood, 1995).

The implementation and dissemination of information and communication technologies (ICTs) in governmental systems has favored the development of the above reforms and facilitated the modernization of public administration institutions (Chan and Chow, 2007), and has reinforced democratic governance in a society based on new communication networks (Castells, 2007). This process, termed in a very general sense e-Government (Chadwick, 2006; Rocheleau, 2007), has enabled an optimization of the provision of public services and greater access to information (Martins, 1995), greater interaction and participation by citizens in public management, all easier with the introduction of Web 2.0 (Taylor, Lips and Organ, 2007), and greater management transparency by public representatives – this latter factor being a key aspect in the accountability of public administration institutions (Navarro-Galera and Bolívar, 2010; Haque, 2006).

The great importance attributed to improving accountability and, in consequence, to information and transparency in the context of public administration reforms has given rise to studies focusing on the area of governmental financial information (Mack, Stanley and Jennings, 2008; Bolivar, Pérez and Hernández, 2007). These studies have concluded that public administration institutions, through the creation of governmental websites, are opening up considerably, and that these websites constitute a fundamental element in raising citizens' confidence in the use of public resources (Tolbert and Mossberger, 2006), for designing a new form of democracy (e-Democracy), and for combating corruption (Kim, Kim and Lee, 2009; Shim and Eom, 2009).

Many of these studies have attempted to identify the determinant factors for the greater dissemination of financial information by public organizations, whether in hard copy (Baber and Sen, 1984; Evans and Patton, 1987) or online (Internet) (Serrano-Cinca, Rueda-Tomás and Portillo-Tarragona, 2009; Pérez, Bolívar and Hernández, 2008; Laswad, Fisher and Oyelere, 2005). However, despite the numerous efforts made no consistent results have been achieved, and researchers still lack conclusive evidence regarding the existence of such factors, and their possible influence on the dissemination of public economic-financial information.

Two factors that have traditionally been associated with higher levels of information disclosure are financial condition and inter-governmental transfers. These factors

are especially significant in the present generalized economic crisis, in which governments are pressured to improve efficiency and effectiveness, but at the same time have fewer resources available. Therefore, greater attention must be paid to the goals of financial stability in public administration institutions (Padovani, Rossi and Orelli, 2010; Chapman, 2008) and to implementing the principle of sustainability (Burrnside, 2005; Clifford, 2005).

Therefore, our analysis of financial condition and inter-governmental transfers, which are assumed to be determinant factors in the disclosure of public financial information, could be of great significance for establishing whether public administration institutions are indeed fulfilling their duty of public accountability, satisfying the demand for transparency and achieving the goal of financial stability. We take into account that the results obtained by previous studies in this respect have not been conclusive, presenting considerable heterogeneity and inconsistency.

The use of the meta-analysis technique makes it possible to draw statistically significant conclusions regarding the identification of financial condition and inter-governmental transfers as factors favoring the disclosure of public financial information. By this approach, we can explore the causes of the inconsistencies observed in earlier results, using statistical procedures capable of detecting the moderating variables responsible for such heterogeneity (Lipsey and Wilson, 2001; Hunter and Schmidt, 2004).

In the present study, we identified 26 empirical studies that analyzed different financial variables assumed to significantly influence the disclosure of financial-economic information. The aim of the present paper is to integrate these earlier empirical results, by means of the meta-analysis technique, and thus to investigate the underlying causes of the variations and contradictions presented, with respect to financial condition and inter-governmental transfers as determinant variables in the disclosure of public financial information. Our aim is to provide tools for public managers to design public policies favoring compliance with demands for greater information transparency and accountability and, at the same time, for citizens to be provided with clear criteria for evaluating the efforts of public administration institutions with regard to these determinant factors, to improve accountability and to comply with the principles of financial stability and economic sustainability.

Finally, this paper addresses the research gap identified, analyzing both the determinant financial variables that are common to all the main exploratory models presented, and also the conditions under which different studies have been conducted, and which could have affected the conclusions drawn (the moderating effects). By integrating the results of diverse individual studies, we seek to identify the financial incentives that, independently of the characteristics pertaining to each empirical analysis, favor the greater disclosure of public financial information. We thus seek to enable public managers to better respond to demands for financial information, and to enable citizens to observe how governments comply with the goal of financial stability by designing public policies taking into account these incentives.

The rest of this paper is organized as follows. The following section analyzes the financial variables that may influence the level of disclosure of public financial information, and examines the inconsistencies in previously published results. In section 3, we develop our empirical study, detailing the methodology employed and the moderating effects taken into consideration, and describe the main results achieved. Finally, in the discussion and conclusions section, we present the main findings of this study and its implications for future research.

2. Financial determinants and moderator effects of the disclosure of public financial statements

2.1. Financial determinants

Various studies have investigated the factors promoting more and better disclosure of public financial information. These studies are mainly based on agency theory, legitimacy theory and incentives theory (Baber, 1983; Christiaens, 1999; Evans and Patton, 1987; Ingram, 1984; Ingram and DeJong, 1987; Robbins and Austin, 1986).

The agency theory has become relevant in public sector reforms under the NPM framework (O'Flynn, 2007; Boston, 2011), and the key idea underpinning this theory is that policymakers and public managers do not have the same interests as citizens, and that they must be held accountable for their actions in order to demonstrate that they have acted according to their responsibilities (Jensen and Meckling, 1976; Fama, 1980; Fama and Jensen, 1983a, 1983b). Hence, in a context of asymmetric information and in an environment full of uncertainty (Bendor, Taylor and van Gaalen, 1985), public governmental financial statements are the instruments used by external users (citizens) to inform themselves of the actions of policymakers and public managers (Mack and Ryan, 2006; Peters, 2007). In this milieu, the agency relations existing within public sector organizations constitute an incentive for their managers to voluntarily disclose information, thus enabling their actions to be monitored and controlled.

Although many analyses have been made of the factors considered to be significant incentives to the greater disclosure of financial information by public administration, the current economic crisis has led researchers to pay particular attention to financial variables – financial condition, and inter-governmental grants and funds – and how these influence public managers in their strategies for greater transparency and accountability within public organizations.

Financial condition is one of the aspects most commonly addressed in studies in this field. It is considered a key factor in determining the level of disclosure of economic-financial information by public administration institutions, and public indebtedness is the main unit of measurement used for this purpose. Since financial condition was first considered by Baber (1983) and Ingram (1984), many studies have examined this question, considering it to be a crucial factor in motivating public managers to provide greater transparency.

The inclusion of this variable in an analysis of the disclosure of financial information is justified with the argument that it is an integral component of accountability of

public managers, of the financial credibility of public administration institutions vis-à-vis potential investors (Baber, 1983; Ingram, 1984), and of the government's capability to manage its debts (Giroux and Deis, 1993). Indeed, in accordance with agency theory, when public administration institutions recur to financial markets to obtain financing through debt emission they are more responsive to demands for information disclosure, in order to minimize conflicts of interest between creditors and politicians (Baber and Sen, 1984; Gore, 2004).

Furthermore, citizens wish to know the use that public administration institutions have made of public financial resources obtained from increased debt, especially with regard to financing the provision of public programs and services (Styles and Tenyson, 2007). In this respect, Lüder (1994) and Laswad, Fisher and Oyelere (2005), among others, have reported a positive association between indebtedness and the disclosure of voluntary public financial information, because when debt approaches unsustainable levels, financial difficulties appear. This factor increases the need for reports to be published reflecting the financial situation and the public management policies implemented.

However, the empirical studies analyzed have reported inconsistent results. While Evans and Patton (1983), Robbins and Austin (1986), and Giroux and Deis (1993) in studies on municipal institutions concluded that indebtedness is significantly associated with disclosure, this relation has not always been found in the case of national institutions. On the contrary, Gore (2004) reported the existence of a positive relation that strengthens as the size of the public administration institutions analyzed increases. These contradictory results become even more evident when a different medium of disclosure is analyzed (Laswad, Fisher and Oyelere, 2005; Pérez, Bolívar and Hernández, 2008). Thus, when economic-financial information is disclosed in hard copy form, there is a direct relation (Robbins and Austin, 1986; Ingram and DeJong, 1987; Giroux and Deis, 1993).

The funds and grants received from other public organizations are also present in many of the models as determinant factors in the disclosure of public financial information, although to a lesser extent than is financial condition. Nevertheless, they are considered an essential factor in the disclosure of financial information due to the management control imposed by the public administration institutions that provide this type of funding (Ingram, 1984; Robbins and Austin, 1986). The public organizations that provide these resources do so to finance the development of lower-ranking institutions; so this provision of funds to other public organizations involves the establishment of a series of conditions, such as identifying the ultimate use to be made of the resources (Copley, 1991; Ingram and DeJong, 1987), and justification of this use, through the disclosure of financial information (Ingram, 1984; Lüder, 1994). In fact, researchers (Ingram and DeJong, 1987) have found that the provision of a substantial proportion of regional funding by the federal government may result in increased federal influence and greater monitoring of the region's information disclosure policies.

In this respect, Ingram and DeJong (1987) and Robbins and Austin (1986) highlighted the existence of a positive association between the capital transfers received and greater hard copy disclosure of public financial information, in order to demonstrate the transparent management of resources received. On the other hand, studies by Laswad, Fisher and Oyelere (2005) and Pérez, Bolívar and Hernández (2008) failed to find any such association when the information disclosure was made using the Internet. Indeed, in some studies a negative relation has been observed (Giroux and Deis, 1993), which suggests that public administration institutions that are more dependent on inter-governmental transfers have less incentive to disclose and provide information.

2.2. Moderator effects

As can be seen from our review of the literature, there is some consistency in the results published, and so trends cannot be identified, nor is it easy to determine the real influence of financial variables on public managers with respect to their strategies for the disclosure of public financial statements. Therefore, it is necessary to conduct studies enabling us to determine what degree of influence is exercised by financial variables as an incentive to the disclosure of public financial information.

Accordingly, we identified four essential moderating effects that characterize the diverse empirical studies carried out and which, therefore, could condition the conclusions reached: (a) the medium employed for the disclosure of financial information (online versus hard copy); (b) the administrative culture of the countries in which the study data were obtained; (c) the level of government constituting the research focus; (d) the measurement unit utilized to quantify the determinant factors being analyzed.

We wish to examine whether there exist differences among recent studies, as the administrative reforms implemented in recent decades by public administrations have led to their modernization, thus increasing transparency and accountability (Haque, 2006). The implementation of ICTs by public administration institutions has favored this modernization process (Chan and Chow, 2007), and reinforced governmental democracy (Calista and Malitski, 2007). This situation enables us to address two different, heterogeneous scenarios, depending on the format used for the disclosure of financial information (online or hard copy). Therefore, the first moderating effect to be considered is the medium by which the public administration institutions in question disclose their financial information.

Another moderating variable considered is that of administrative culture. Studies have shown that the implementation of NPM models has been similar in countries that share certain cultural values, influencing the role played by the state and its relation with citizens, who, in turn, contribute to the importance attributed to transparency and the responsibility of accountability owed by public administration institutions (Kickert, 1987). As the approach adopted may influence policies on information openness, it is foreseeable that there will be differences in the disclosure of public

information among different countries, according to the predominant administrative culture (Bolivar, Pérez and Hernández, 2006).

The third moderating effect that could influence the heterogeneity observed among different studies is the level of the public administration institution being analyzed (national government versus local government). At the municipal level, the relation between public sector staff and citizens is one of greater proximity (Laswad, Fisher and Oyelere, 2005). Moreover, citizens tend to be more interested in accessing information informing them of the situation of municipal government (Thomas and Streib, 2003). Nevertheless, the adoption of ICTs has tended to bring down barriers, potentially enhancing political responsibility and transparency (King, 2006). This transparency seems to be greater when citizens feel the administration is closer to them (Rodríguez-Pose and Bwire, 2004).

Finally, the use of different units of measurement to quantify financial variables could help explain the inconsistency of the results obtained in previous studies (Pomeroy and Thornton, 2008). Therefore, we examined whether the measurement units employed to evaluate financial variables as an incentive to the disclosure of public financial information could act as a moderating element in this respect.

We address the subject by analyzing both the basic financial incentives considered by other researchers in their exploratory models, and also the conditions in which the different studies were performed, which could have influenced the conclusions drawn (which we term the moderating effects) – see Figure 1.

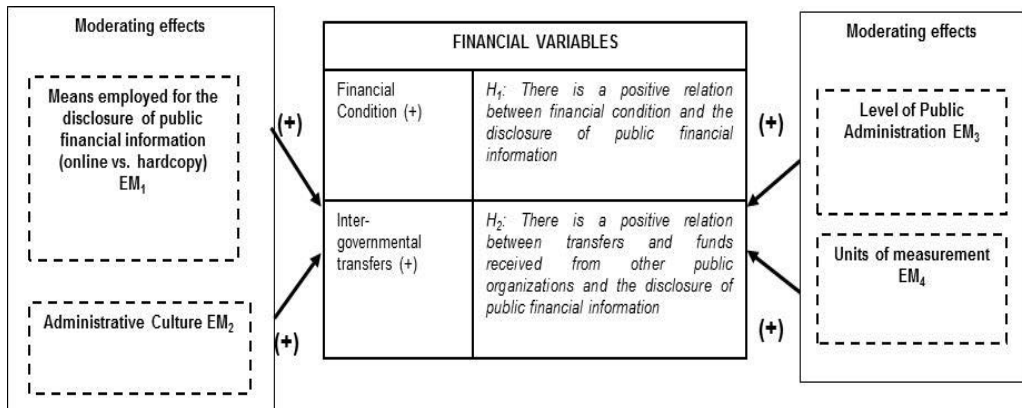


Figure 1: Incentives for the disclosure of public financial information and moderating effects of empirical investigations

Source: Authors

In brief, by integrating the results of various individual studies, we seek to determine the real influence played by the financial situation of public administration institutions on the information transparency of their financial statements, independently of the characteristics of each empirical analysis. As a result, public managers should be better able to comply with their duty of accountability by designing public policies taking into account these incentives.

3. Empirical analysis

3.1. Meta-analysis techniques and sample selection

To achieve the goals of this study, we conducted a meta-analysis to accumulate statistical information on the results published by independent studies, in order to assess them and determine whether the differences identified are due mainly to discrepancies in the variables, to differences in the measuring scales used, to sampling error, or whether, on the contrary, they are due to the existence of other factors inherent to the study design (moderating effects) (Hunter and Schmidt, 2004; Rosenthal, 1978, 1991; Wolf, 1986). Thus, we may account for the exact causes of the inconsistency among the results published (Lipsey and Wilson, 2001).

According to Glass (1976), the meta-analysis is a robust statistical technique that is used to accumulate and integrate the results obtained from previous statistical analyses, and to draw overall conclusions for subsequent investigation. This technique enables the researcher to achieve clear, coherent conclusions, systematically extracted from previous research, highlighting common points that would be difficult to identify by descriptive analysis alone (Hunter, Schmidt and Jackson, 1982; Rosenthal, 1978, 1991). Hence, through the use of appropriate statistical procedures, we can identify the moderating variables responsible for the heterogeneity of earlier results (Stanley, 2001; Stanley and Jarrell, 1989).

Meta-analysis is recognized as an alternative to traditional reviews (which often run into difficulties in extracting useful knowledge from a body of studies on a common subject), enabling clear, conclusive conclusions to be drawn (Hedges, 1984; Cooper, 1982). Indeed, only by systematizing the process of research synthesis it is possible to identify comparable results among different studies focusing on a given subject (Light and Pillemer, 1982). In this sense, meta-analysis involves applying statistical methods to the results produced from earlier studies, thus achieving a beneficial accumulation of scientific knowledge (Cooper and Hedges, 1993), and equipping academic reviews with greater rigor and objectivity (Lipsey and Wilson, 2001).

In applying meta-analysis in our own study, a sample selection strategy was performed. We first carried out a comprehensive analysis of all the publications listed in the categories of Public Administration, Information Science, and Business and Finance, indexed by the Institute for Scientific Information for the period 1980-2012. This in-depth search gave us the main academic contributions, such as Baber (1983), Baptista da Costa *et al.* (2007), Pérez, Bolívar and Hernández (2008), Copley (1991), Evans and Patton (1983, 1987), Ingram (1984), Robbins and Austin (1986), and Serrano-Cinca, Rueda-Tomás and Portillo-Tarragona (2009). Subsequently, a systematic search was made of the ABI/INFORMS, ScienceDirect and Business Source Premier databases, using descriptors and keywords such as public financial reporting practices, voluntary disclosure, government accounting, local government and accounting disclosure, among others.

Nevertheless, this computer-oriented procedure did not span the entire range of publications available, and so we then applied other techniques that were comple-

mentary, albeit less systematic. This involved selecting the most significant papers obtained from the first search, and then performing an exhaustive analysis of the references cited in these articles. In addition to this search of published empirical papers, we examined working papers and other classes of non-published research work, in the principal databases (Social Science Research Network, Econlit and Ecopapers), to attenuate bias that might be present in the publications alone (Rosenthal, 1978).

We then read all the studies obtained from the above searches, excluding manuscripts that were purely theoretical or conceptual, and provided no quantitative data, studies that only examined the content of public economic-financial statements, those which did not constitute an analysis of financial incentives as factors relevant to the disclosure of public financial-economic information, and studies based on empirical evidence derived from a case study. By this procedure, we compiled a homogeneous sample from the relevant bibliography while avoiding biased estimations.

In addition, all the studies included provided the statistical information necessary for the meta-analysis to be performed, usually Pearson or Spearman (r) correlations. When such correlations were not mentioned in the papers examined, we used the statistics published, transforming them into correlations following the procedures described by Lipsey and Wilson (2001), Rosenthal (1991), and Wolf (1986). Thus, the correlations obtained were based on the content of the variables utilized, and not on their descriptors. Similarly, when a study offered various correlations for measuring an independent variable, Hunter and Schmidt (2004) recommended using a single coefficient of correlation for each study, calculating the weighted mean of the different correlations.

Finally, when the primary sources did not offer the statistical information needed – for example, the matrix of correlations – to determine this weighted mean, we calculated a simple average of the correlations (Petter and McLean, 2009). Similarly, in our consideration of the units of measurement of the different variables, we took as a reference the definitions provided by the authors of each paper. The application of the above process for sample selection and analysis produced a total sample of 26 empirical studies; the main characteristics are shown in Table 1.

The studies can contribute with more than one observation to the sample because they include different estimations with different data sets, different explanatory variables or different models. This sample is similar to the one used in an earlier review (Nair, 2006), enabling us to estimate the signs of the relations between the different variables, and the strength of these relations, and thus identify the sources of difference among studies. This is possible because a meta-analysis does not require a large number of studies to achieve useful results (Lipsey and Wilson, 2001).

As observed, the meta-analysis enables us to detect the existence of heterogeneity, and to identify the factors that may provoke variations and incoherencies among primary sources. Thus, we may account for the heterogeneity observed in the relations between the incentives analyzed and the level of disclosure of economic-financial information in the public sector. In our particular case, the statistical artefacts to be

Table 1: Main characteristics of the studies analyzed

AUTHOR / STUDIES	SAMPLE	COUNTRY	ONLINE VS. HARDCOPY	ADMIN. LEVEL	FINANCIAL CONDITION	INTER-GVT GRANTS
Baber (1983)	44	USA	Hardcopy	State	+	Non-Significant
Evans and Patton (1983)	1,032-977-269-839	USA	Hardcopy	Local	Mix results	-
Ingram (1984)	49	USA	Hardcopy	State	+	Non-Significant
Baber and Sen (1984)	47	USA	Hardcopy	State	-	Non-Significant
Robbins and Austin (1986)	99	USA	Hardcopy	Local	+	Significant
Ingram and DeJong (1987)	544-49	USA	Hardcopy	State	+	Significant
Evans and Patton (1987)	444-151-145-148	USA	Hardcopy	Local	+	Significant
Dwyer and Wilson (1989)	142	USA	Online	Local	-	Non-Sign./Sing.
Banker, Bunch and Strauss (1989)	127	USA	Hardcopy	Local	+	Significant
Copley (1991)	129-136	USA	Hardcopy	Local	+	Significant
Carpenter (1991)	50	USA	Hardcopy	State	+	Significant
Cheng (1992)	50	USA	Hardcopy	State	-	Non-Significant
Giroux and Dels (1993)	110	USA	Hardcopy	Local	Mix results	+
Christiaens (1999)	100	HOLLAND	Hardcopy	Local	+	Non-Significant
McLelland and Giroux (2000)	164	USA	Online	Local	-	+
Giroux and McLelland (2003)	92	USA	Hardcopy	Local	+	Non-Sign./Sign
Gore (2004)	87-175	USA	Hardcopy	Local	+	Significant
Gore, Sachs and Trzcinka (2004)	66-48	USA	Hardcopy	Local	+	Non-Sign./Sign.
Smith (2004)	107	USA	Hardcopy	Local	Mix results	-
Laswad, Fisher and Oyelele (2005)	60	NEW ZEALAND	Hardcopy/Online	Local	+	Non-Significant
Malone (2006)	200	USA	Hardcopy	Local	+	Significant
Tennyson and Styles (2007)	162	USA	Online	Local	+	Significant
Carslaw, Mason and Mills (2007)	6,573-6,848-7,197-7,410-8,169	USA	Hardcopy	Local	-	+
Baptista da Costa et al. (2007)	175	PORTUGAL	Hardcopy	Local	Mix results	+
Pérez, Bolívar and Hernandez (2008)	65	SPAIN	Online	Local	+	Non-Significant
Cárceba and García (2008)	334	SPAIN	Online	Local	Mixed Results	-
Serrano-Cinca, Rueda-Tomás and Portillo-Tarragona (2009)	92	SPAIN	Online	Local	+	Non-Significant
Cárceba and García (2010)	334	SPAIN	Online	Local	Mixed Results	-

Source: Authors' calculation

corrected are those caused by sampling error, as we lack the information required to counteract the effects of measurement range and reliability defects; this is a characteristic limitation of research studies in the financial field, one not experienced in other areas such as business management or psychology (García-Meca and Sánchez-Ballesta, 2009, 2010).

In order to ensure independence in the data extraction process, the meta-analysis was carried out by two of the three authors, separately. Once the data had been obtained, the authors met to discuss and resolve discrepancies, with the third author participating as a further evaluator. Thus, differences of opinion were resolved and a final consensus reached.

3.2. Analysis of results

Table 2 presents the global meta-analysis results of the relations found between the financial variables considered and the level of disclosure of public economic-financial information. These data enable us to determine whether there exists variability among the results, as shown by the Q statistic and the explanatory power of the error of the variance (S_e^2). If this variability is found, we then search for the factors responsible for the differences among the studies analyzed, in order to account for the inconsistency among the relations in question. To do so, we first consider whether the principal differences could be due to the means of disclosure employed (online versus hard copy); we then test whether the differences are due to the administrative culture or to the level of public administration institution analyzed; finally, we test whether the differences are caused by the unit of measurement used for each financial variable.

3.2.1. Financial Condition

As can be seen in Table 2, financial condition is an incentive to disclose that has been widely considered in the literature, being mentioned in a total of 32 observations. The mean correlation found was 0.117, with a confidence interval of 0.088-0.145, which suggests there is a significant degree of statistical association ($z = 5.89$; $q < 0.001$) between the financial situation of the public administration institution and its level of information disclosure. These results confirm that financial condition is an incentive that significantly influences public managers in their decisions regarding the disclosure of public information (H_1 cannot be rejected – see Figure 1). However, the limited explanatory power of the variance of the error shows there is a high degree of heterogeneity (Q value: 59.006; $q < 0.05$). These tests of homogeneity suggest the existence of factors that modulate the relation identified.

Table 2 shows that the relation is stronger when public financial information is disclosed as hard copy than when online methods are used ($r = 0.122 > r = 0.080$), although the difference is not statistically significant. Moreover, as shown by the limited explanatory power of the variance of the error and the Q statistic (22.086; $q < 0.05$), there is a high degree of heterogeneity in the results obtained from studies that analyze the online disclosure of public financial information. Accordingly, we believe

Table 2: Meta-analytic data on the determinant factors of the disclosure of public financial information (online vs. hard copy)

Independent Variable	Sample	K	Mean Correlation (r)	% S_e^2 / S_r^2	Confidence Interval (95%)		X^2_{k-1}
					Min.	Max.	
Financial Condition	4,594	32	0.117+	54.23	0.088	0.145	59.006***
Online (IFRS)	521	5	0.080	22.64	-0.006	0.165	22.086**
Hard copy (NIFRS)	4,073	27	0.122+	75.99	0.091	0.152	35.529
Inter-governmental transfers	37,943	18	0.124+	44.22	0.114	0.134	40.702***
Online (IFRS)	229	2	0.093	85.97	-0.036	0.222	2.326
Hard copy (NIFRS)	37,714	16	0.124+	41.99	0.114	0.134	38.103+

*p < 0.1 ** p < 0.05 *** p < 0.01 + p < 0.001

Source: Authors' calculation

that the results and conclusions, as well as the strength of the relation identified will vary depending on the medium of communication employed for the disclosure of public financial information (EM_1 cannot be rejected).

Due to the variability among the results referring to the online disclosure of financial information, it is necessary to examine the possible causes of this variability, and to test whether the relation in question is affected by the characteristics of the study itself, when the information is distributed as hard copy. Table 3 shows that financial condition does have a positive influence on the online disclosure of financial information in countries with a non-Anglo-Saxon administrative culture ($r = 0.280$), while this association is negative ($r = -0.007$) when the organizations belong to an Anglo-Saxon culture, although in the latter case there is a certain heterogeneity in the conclusions reached, which leads us to believe there must exist other factors causing differences in the results obtained. Therefore, we conclude that the administrative culture prevailing in the public administration institutions has a moderating effect on the conclusions reached (EM_2 cannot be rejected). This analysis cannot be extended to the level of all public institutions, as to date no studies have been carried out analyzing the disclosure of online financial information by state-wide organizations.

The analysis of the relations between financial condition and the hard copy disclosure of public financial information shows that, with respect to administrative culture, in every case there is statistical significance. Furthermore, although Table 2 showed there was no heterogeneity in the results, the data were in fact slightly inconsistent with respect to the Anglo-Saxon public administration institutions (Q statistic 35.403; $q < 0.1$). In any case, according to the data obtained in our study, the relation between financial condition and the level of information disclosure is stronger in the non-Anglo-Saxon countries ($r = 0.134 > r = 0.121$), although this difference is not substantial, and in local versus state-wide administrations ($r = 0.128 > r = 0.034$); the result is not significant in the latter case – see Table 3.

Turning our attention to the local administrations (Table 4), the data show that the hard copy disclosure of information is strongly related to the financial condition of local administrations, independently of whether they belong to an Anglo-Saxon or a

Table 3: Meta-analytic data on the relation between financial condition and the disclosure of public financial information (online vs. hard copy)

Independent Variable FINANCIAL CONDITION	Sample	K	Mean Correlation (<i>r</i>)	% S_e^2 / S_r^2	Confidence Interval (95%)		χ^2_{k-1}
					Min.	Max.	
Online (IFRS)							
Administrative Culture							
Anglo-Saxon	364	3	-0.007	24.09	-0.110	0.096	12.455***
Non-Anglo-Saxon	157	2	0.280	100	-0.829	0.425	0.566
Level of Administration							
Local Administration	521	5	0.080	22.64	-0.006	0.165	22.086**
Hard copy (NIFRS)							
Administrative Culture							
Anglo-Saxon	3,798	25	0.121+	70.62	0.089	0.152	35.403*
Non-Anglo-Saxon	275	2	0.134+	100	0.018	0.251	0.328
Level of Administration							
National Administration	290	6	0.034	94.11	-0.082	0.150	6.376
Local Administration	3,783	21	0.128+	78.29	0.097	0.160	26.822

* $p < 0.1$ ** $p < 0.05$ *** $p < 0.01$ + $p < 0.001$

Source: Authors' calculation

non-Anglo-Saxon administrative culture, while this influence is not so clear when the medium of disclosure employed is the Internet. In the latter case, it can be seen that local public administration institutions in non-Anglo-Saxon countries are more motivated to favor online information transparency when their financial condition is poor (see Table 4).

Table 4: Meta-analytic data on the relation between financial condition and the disclosure of public financial information by local governments (online vs. hard copy)

Independent Variable FINANCIAL CONDITION	Sample	K	Mean Correlation (<i>r</i>)	% S_e^2 / S_r^2	Confidence Interval (95%)		χ^2_{k-1}
					Min.	Max.	
Online (IFRS)							
Local Administration							
Anglo-Saxon	364	3	-0.007	24.09	-0.110	0.096	12.455***
Non-Anglo-Saxon	157	2	0.280	100	-0.829	0.425	0.566
Hard copy (NIFRS)							
Local Administration							
Anglo-Saxon	2,964	18	0.127+	68.05	0.092	0.163	26.452*
Non-Anglo-Saxon	275	2	0.134+	100	0.018	0.251	0.328

* $p < 0.1$ ** $p < 0.05$ *** $p < 0.01$ + $p < 0.001$

Source: Authors' calculation

With respect to the units of measurement used by researchers in their econometric models regarding the influence of financial condition, four main ratios were used. Table 5 shows that when the ratios used were financial expenditure and fiscal pressure, there was no heterogeneity. However, this evidence is not generalizable, as very few such studies were analyzed. On the other hand, when indebtedness was the unit

of measurement, the mean correlation presented was 0.108, which was statistically significant ($z = 5.36$; $q < 0.001$), although the explanatory power of the residual variance was 58.36%, which leads us to believe that the relation between financial condition and the level of disclosure of financial information depends on the unit employed to measure this incentive, we support the hypothesis EM_4 .

Table 5: Meta-analytic data of financial condition (units of measurement)

Independent Variable FINANCIAL CONDITION	Sample	K	Mean Correlation (r)	% S_e^2 / S_r^2	Confidence Interval (95%)		X^2_{k-1}
					Min.	Max.	
					Ratio financial expenditure	214	
Ratio fiscal pressure	157	2	0.123	100	-0.032	0.278	1.767
Ratio total debt	4,063	27	0.108***	58.36	0.078	0.139	46.263***
Ratio general capital funds	436	4	0.035	27.14	-0.059	0.129	14.736***

* $p < 0.1$ ** $p < 0.05$ *** $p < 0.01$ + $p < 0.001$

Source: Authors' calculation

3.2.2. Inter-governmental grants

The question of grants and funds received from other public administration institutions has been widely studied, and presents a mean correlation of 0.124 and a confidence interval of 0.114-0.134 (see Table 2). Although some authors have concluded that the receipt of funds from other public institutions may discourage public managers from disclosing economic-financial information (Ingram, 1984; Giroux and Deis, 1993; Pérez, Bolívar and Hernández, 2008), we found the association to be significantly positive ($z = 15.98$; $q < 0.001$), see Figure 1 – as such, H_2 cannot be rejected. Nevertheless, the error of the variance revealed a high degree of variation among the 18 studies analyzed (Q statistic 40.702; $q < 0.01$), which suggests there exist factors that modulate the relation in question.

Table 2 shows that the relation between inter-governmental grants and the disclosure of public financial information is stronger and statistically significant when disclosure is as hard copy rather than on the Internet ($r = 0.124 > r = 0.093$). Moreover, the data reveal that the medium of disclosure does influence the conclusions reached in individual studies (the results support the hypothesis EM_1), although heterogeneity in this respect remains high, and so it remains necessary to search for other moderating effects.

The results obtained in this meta-analysis show that the level of public administration institutions considered is another variable that affects administrations receiving inter-governmental grants, with respect to the greater disclosure of public financial information. Table 6 shows that this relation is stronger for national than for local administrations ($r = 0.152 > r = 0.124$), being statistically significant in both cases. However, in the case of local administrations, there must be other moderating factors accounting for the variability in the results, as the data present considerable heterogeneity (35.350; $q < 0.001$).

Table 6: Meta-analytic data on the relation between inter-governmental funds and the disclosure of public financial information (online vs. hard copy)

Independent Variable INTER-GOVERNMENTAL TRANSFERS	Sample	K	Mean Correlation (<i>r</i>)	% S_e^2 / S_r^2	Confidence Interval (95%)		χ^2_{k-1}
					Min.	Max.	
Hard copy (NIFRS)							
Administrative Culture							
Anglo-Saxon	37,539	15	0.124+	39.39	0.114	0.134	38.077+
Level of Administration							
National Administration	693	4	0.152+	100	0.079	0.225	2.121
Local Administration	37,021	12	0.124+	33.85	0.114	0.134	35.350+

* $p < 0.1$ ** $p < 0.05$ *** $p < 0.01$ + $p < 0.001$

Source: Authors' calculation

In general, two units of measurement are employed by researchers in examining the influence of inter-governmental grants. Table 7 shows that the mean correlations are stronger and statistically positive when researchers use current and capital transfers (0.127; $q < 0.001$).

Table 7: Meta-analytic data of inter-governmental funds (units of measurement)

Independent Variable INTER-GOVERNMENTAL FUNDS	Sample	K	Mean Correlation (<i>r</i>)	% S_e^2 / S_r^2	Confidence Interval (95%)		χ^2_{k-1}
					Min.	Max.	
Current and capital transfers	36,437	7	0.127+	87.42	0.117	0.137	0.002
Ratio inter-governmental receipts	1,506	11	0.026	63.41	-0.025	0.076	17.348

* $p < 0.1$ ** $p < 0.05$ *** $p < 0.01$ + $p < 0.001$

Source: Authors' calculation

Given the non-existence of heterogeneity in this case, we conclude that the unit of measurement employed does influence the results finally obtained (EM_4 cannot be rejected).

4. Further discussions and conclusions

The results presented in this paper show that the conditions under which earlier studies were carried out did indeed modulate the results and conclusions presented. Our statistical analysis shows that the prevailing administrative culture in each country, the level of government studied, the means of disclosure adopted by public administration institutions for their financial statements, and the units of measurement employed are all factors that influence the strength and significance of the relations considered.

Although various studies have reported that financial condition is a key factor in the disclosure of public information (Baber, 1983; Ingram, 1984; Giroux and Deis, 1993; Evans and Patton, 1987; Robbins and Austin, 1986; Cheng, 1992; Laswad, Fisher and Oyelere, 2005), and the results of our study confirm this association, the relation is stronger when disclosure is performed in hard copy rather than on the Internet – indeed in the latter case, it is not statistically significant.

Furthermore, when public financial information is disclosed online, the statistical association between financial condition and this disclosure is positive in the case of non-Anglo-Saxon public administration institutions, but negative for Anglo-Saxon ones. This result might appear surprising in view of the fact that countries in the Anglo-Saxon area are characterized by their positive attitude toward the client/customer and, accordingly, are in favor of transparency, accountability and responsibility (Sanderson, 2001; Torres, 2006; Pina, Torres and Acerete, 2007). On the other hand, when information is disclosed in hard copy, the relation is positive and statistically significant for countries in both administrative cultures.

With respect to public indebtedness, we observed a positive, significant relation when studies were based on cities and local administrations, but not in the case of state-wide administrations, this result being consistent with the findings of previous studies (Evans and Patton, 1983; Lüder, 1992). This evidence leads us to believe that the pressure exercised on municipal managers to fulfil their duty of accountability to stakeholders, when municipal debt is high, is greater in local contexts, due to the greater proximity to citizens and to the fiscal pressure to which citizens are subjected. For this reason, municipal public managers are more motivated to lessen municipal debt and its costs; this alleviates pressure on them to disclose information, as well as reducing the tax burden on citizens, a fact that may be well regarded at election time (Laswad, Fisher and Oyeler, 2005; Gore, Sachs and Trzcinka, 2004).

Our findings also support the idea that the unit of measurement employed to determine the financial condition of a public institution could influence its disclosure of public financial information. In fact, while the ratio of financial costs and the consideration of total indebtedness present positive and significant associations with disclosure, fiscal pressure and general capital funds offer a weaker and non-significant relation. The reason for this could be that public institutions present different capacities to comply with their obligation of ensuring the understandability of published information regarding financial condition, depending on the unit of measurement employed. As public indebtedness is a variable that is traditionally disclosed, whether as hard copy or online (Pérez, Bolívar and Hernández, 2008; Bolívar, Pérez and Hernández, 2007), rational stakeholders should be able to readily understand and analyze this information. In any case, for the sake of understandability and homogeneity, it would be useful to establish a single, agreed definition of financial condition so that comparisons could be performed among different studies, thus facilitating consistency, making the information more comprehensible to stakeholders, and establishing models favoring information transparency and compliance with the duty of accountability.

With respect to inter-governmental transfers, our results confirm the existence of a strong, positive association with the disclosure of financial information, although this relation is only observed when information is disclosed as hard copy; the situation is unclear in the case of online disclosure. The results could be derived from the need to comply with legal requirements for administrative procedures. In this regard, public administration institutions transferring funds require the beneficiary to provide docu-

mented justification of the use of the financial resources supplied in order to monitor and control compliance with the obligations acquired in agreements and conventions regarding inter-governmental transfers.

Even if a great deal of research was identified regarding the disclosure of financial information performed by local governments (Pérez, Bolívar and Hernández, 2008; Bolívar, Pérez and Hernández, 2007; Laswad, Fisher and Oyelere, 2005; Gore, Sachs and Trzcinka, 2004), there is a lack of research about this topic in the State-wide public administration institutions. Research in this context is focused on the financial information disclosed by US State-wide public administration institutions (Baber, 1983; Ingram, 1984; Carpenter, 1991; Cheng, 1992). Nonetheless, there is no research about online disclosure of public financial information by State-wide public administration institutions in non-Anglo-Saxon countries – this is an area of study that would be very suitable for future research.

Our findings lead us to believe that local administrations which receive transfers from State-wide or supranational bodies are especially motivated to disclose public economic-financial information in hard copy, and thus demonstrate that the funds received have been used in accordance with the requirements of the program for which they were assigned (Ingram and DeJong, 1987; Copley, 1991), which ensures the efficient management and use of these resources (Robbins and Austin, 1986; Lüder, 1992).

In conclusion, we demonstrate the existence of a statistically significant association between financial variables and the disclosure of public financial information, although the strength and sign of this association will depend on the context being analyzed. In fact, the results obtained seemed to indicate that, depending on the context in which public managers are operating, they may have different attitudes toward the disclosure of public financial information. Thus, although the financial variables analyzed (financial condition and intergovernmental transfers) seem to be of considerable importance in the decisions made on the disclosure of public financial information, and hence comply with administrations' duty of accountability and financial stability and sustainability; the medium employed and the area in which the public administration institution operates are also factors significant to this disclosure. Finally, public indebtedness and the context in which local institutions operate also appear to be essential aspects to the disclosure of public financial information. The first of these, because it is usually readily understandable to stakeholders, and the second, because greater proximity to citizens may be reflected as greater pressure exercised on public managers to comply with their duties of responsibility, financial stability and sustainability.

Further investigation is needed to determine whether the disclosure of financial information by public administration institutions is sufficient, with respect to their duty of responsibility and financial stability and sustainability, and whether there exist other variables in the area of public finance that could also affect the level of disclosure of this information. Moreover, it could be useful to carry out studies based on econometric or regression models to identify the fundamental variables favoring

more and better disclosure of public financial information, and thus satisfy the information demands of stakeholders.

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