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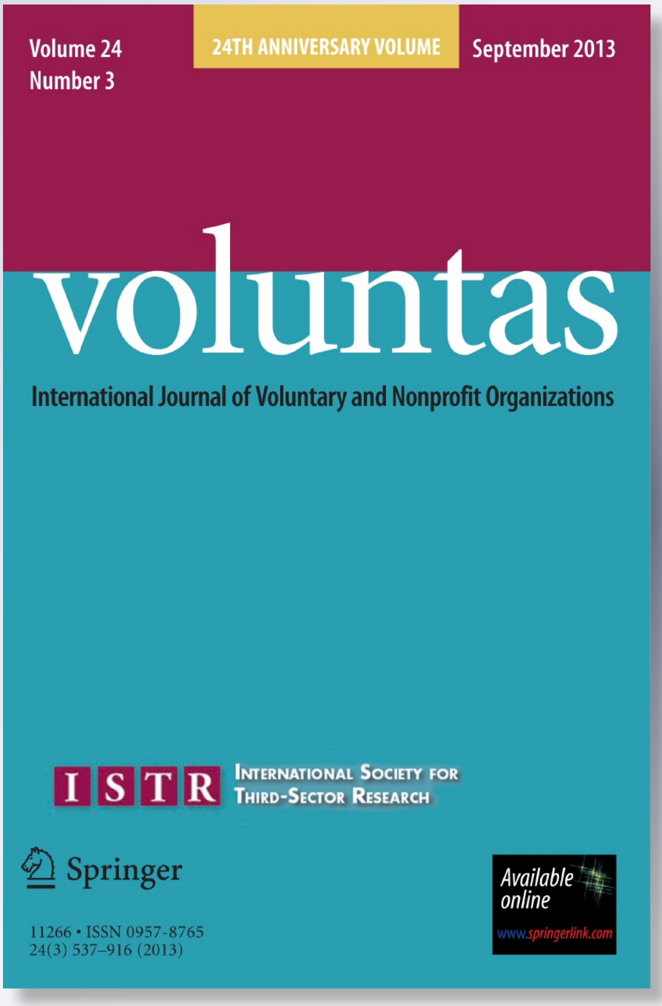

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ORIGINAL PAPER

Web-Based Accountability Practices in Non-profit Organizations: The Case of National Museums

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Abstract Stakeholder theory posits that accountability systems depend on the strength and the number of their stakeholders. This paper aims to analyze the empirical validity of stakeholder theory, focusing on accountability systems in the museum sector. Based on Wikipedia resources, we have selected all of the "National Museums" (134 museums) in the major developed countries: Australia, Canada, France, Germany, Italy, the United Kingdom, and the US. After we control for type of activity (art or other), cost per visitor and country, the results of an OLS multivariate model show that size of the museum, which is assumed to represent the strength and number of stakeholders, and the amount of funds received, which represents the power of a particularly salient category of stakeholders (donors), are the two main determinants of the accountability level. We conclude that accountability, in the absence of shareholders, is driven by the number and the power of different stakeholders, validating the stakeholder theory.

Résumé Le postulat de la théorie des parties prenantes est que les systèmes de responsabilité dépendent de la puissance et du nombre de leurs parties prenantes. Cet article a vocation à analyser la validité empirique de la théorie des parties prenantes, en s'intéressant aux systèmes de responsabilité dans le secteur des musées. Nous basant sur des ressources Wikipedia, nous avons sélectionné tous les « Musées nationaux » (134 musées) dans les principaux pays développés : Australie, Canada, France, Allemagne, Italie, le Royaume-Uni et les USA. Après un

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contrôle par type d'activité (art ou autre), coût par visiteur et pays, les résultats d'un modèle multivariable MCO (Moindres Carrés Ordinaires) indiquent que la taille du musée, dont on suppose qu'elle représente la puissance et le nombre des parties prenantes, et le volume des fonds reçus, qui illustre la puissance d'une catégorie particulièrement remarquable de parties prenantes (donateurs), sont les deux déterminants principaux du niveau de responsabilité. Nous concluons que la responsabilité, en l'absence d'actionnaires, est déterminée par le nombre et la puissance des différentes parties prenantes, validant ainsi la théorie des parties prenantes.

Zusammenfassung Die Stakeholder-Theorie unterstellt, dass Rechenschaftssysteme von der Stärke und Zahl ihrer Stakeholder abhängig sind. Ziel des vorliegenden Beitrags ist es, die empirische Gültigkeit der Stakeholder-Theorie zu untersuchen, wobei wir uns hier auf die Rechenschaftssysteme im Museumssektor konzentrieren. Beruhend auf Wikipedia-Quellen haben wir sämtliche "Nationalmuseen" (134 Museen) aus den wichtigsten Industrieländern ausgewählt: Australien, Kanada, Frankreich, Deutschland, Italien, Großbritannien und den USA. Nach Prüfung der Tätigkeit (Kunst oder Sonstiges), der Kosten pro Besucher und des Landes zeigen die Ergebnisse eines multivariaten Modells nach der gewöhnlichen Kleinstquadrate-Methode (ordinary least squares, OLS), dass die Museumsgröße, von der angenommen wird, dass sie die Stärke und Zahl der Stakeholder darstellt, und die Höhe der erhaltenen Gelder, die die Einflussstärke einer speziell hervorgehobenen Stakeholder-Kategorie (Spender) repräsentiert, die zwei wesentlichen Bestimmungsgrößen für das Rechenschaftsmaß sind. Wir ziehen den Schluss, dass die Rechenschaft, sofern keine Anteilseigner vorhanden sind, durch die Zahl und Einflussstärke verschiedener Stakeholder bestimmt wird. Die Stakeholder-Theorie wird somit bestätigt.

Resumen La teoría de las partes interesadas postula que los sistemas de responsabilidad dependen de la fortaleza y el número de sus partes interesadas. Este documento tiene como objetivo analizar la validez empírica de la teoría de las partes interesadas, centrándose en los sistemas de responsabilidad en el sector de los museos. Basándonos en recursos de Wikipedia, hemos seleccionado todos los "Museos Nacionales" (134 museos) en los principales países desarrollados: Australia, Canadá, Francia, Alemania, Italia, Reino Unido y los Estados Unidos de América. Después de controlar por tipo de actividad (arte u otro), coste por visitante y país, los resultados de un modelo multivariable OLS/MCO (mínimos cuadrados ordinarios) muestran que el tamaño del museo, que se asume que representa la fortaleza y el número de partes interesadas, y la cantidad de fondos recibidos, que representa el poder de una categoría particularmente sobresaliente de partes interesadas (donantes), son los dos principales determinantes del nivel de responsabilidad. Concluimos que la responsabilidad, en ausencia de accionistas, es impulsada por el número y el poder de las diferentes partes interesadas, validando la teoría de las partes interesadas.

Keywords Stakeholder theory · Accountability systems · Museums · Web communication

Introduction

Stakeholder theory derives from Freeman (1984, p. 46), who defined a stakeholder as "any group or individual who can affect or is affected by the achievement of an organization's objectives."

This theory is concerned with how the power of stakeholders and their competing interests are managed by the organization in terms of broader accountability. One role of the board of directors and management is to create an appropriate balance between these interests in overseeing an organization's accountability systems (Gray et al. 2006). In this regard, all the categories of stakeholders (internal and external) are crucial and should be involved. On this point, Mitchell et al. (1997) argue that the salience of stakeholders (e.g., the degree to which their arguments were perceived to count) depended upon the stakeholder possessing three attributes: power, legitimacy, and urgency. In concrete terms, the accountability system of each organization is modeled following the different role, engagement, and importance of each category of stakeholders. Because in non-profit organizations, the audience of "salient" and strategic stakeholders is wider than in corporations—in which shareholders are overriding stakeholders because of their prominent ownership position—the accountability systems should take into the account this higher complexity related to the heterogeneous expectations of each stakeholders' category.

As described above, this paper aims to analyze the empirical validity of stakeholder theory, which posits that accountability systems depend on the strength and the number of stakeholders.

The particular contribution of this article to the scholarly discussion is to enhance empirical knowledge concerning the levels of accountability of non-profit organizations at an international level with particular reference to the museum sector. In doing so, we hope to fill—at least to some extent—the research void in this field that has existed so far (Najam 1996; Ebrahim 2005; Costa et al. 2011).

To this end, we study the field of non-profit organizations, specifically museums. There are three main reasons for this choice.

First, the absence of shareholders in the traditional sense within non-profit organizations makes stakeholder theory a viable perspective from which to understand accountability to multiple stakeholders where power differentials in capital and factor markets and in regulation mean that differing interests need to be implicitly or explicitly prioritized (Collier 2008, p. 935; Mulgan 2000, p. 124).

Second, organizations need to ensure their long-term survival and success by directly satisfying all stakeholders (Collier 2008; Woodward and Marshall 2004, p. 124). Therefore, because institutional aims are at the basis of accountability systems, multiple-stakeholder theory is stronger in this field.

Finally, stakeholder theory offers organizations a way of identifying and reconciling disparate stakeholder interests by recognizing organizational obligations to wider and more ethically concerned constituencies (Simmons 2004).

In this study, we analyze a specific external accountability channel: web communication. At this time, the web is the main tool for gathering information for general stakeholders, and it is also the easiest to use (Sikka 2006; Gallhofer and Haslam 2006). This capability is particularly important for multi-stakeholder organizations. In the most general terms, "we might refer to a non-profit organization's web-based accountability practices as any online reporting, feedback, and/or stakeholder input and engagement mechanisms that serve to demonstrate or enhance accountability" (Saxton and Guo 2011).

The rapid diffusion of web technologies throughout the non-profit sector has brought with it considerable potential for organizational change (McNutt and Boland 1999; Schneider 2003; Hackler and Saxton 2007) and, more critical for our current purposes, has helped create the framework for the emergence of a more accountable era characterized by increasingly inclusive and transparent organizational practices (Benjamin 2008).

Internet-based technologies are increasingly providing citizens with the ability to gain access to information they deem important. At the same time, these technologies have led to an increased ability of organizations to disclose financial and operational information. Through the use of interactive electronic networking capabilities, this technology also facilitates stakeholder inclusion in organizational decision-making by lowering participation costs. In short, with the diffusion of Internet technology, there is both an increased need as well as ability to use the web to address organizational accountability (Saxton and Guo 2011).

To our knowledge, no empirical study has analyzed the link between the number and the power of different classes of stakeholders and web-based accountability. In the non-profit field, one of the reasons for the increase in disclosure practices is the heterogeneity of the information demanded by the diverse stakeholder community (Keating and Frumkin 2003).

While this article has a theoretical foundation, we aim to provide useful results that can verify if the number and the power of different stakeholders, in a typical non-profit context and in absence of shareholders, really influence the levels of internal and external accountability. A general thought about the avenue that the international and national standardization process of museum accountability practices can follow derives from these results.

Toward this end, the article uses the following structure. First, we analyze stakeholder theory and accountability systems. Then, we conduct a literature review and state our research hypotheses. Then, the dataset and method are presented. The last section of the article discusses findings and conclusions.

Stakeholder Theory and Accountability in Museums

Museums are non-profit institutions, and their corporate governance structure does not include shareholders. Their activity is oriented towards the interests of the community [see International Council of Museums (ICOM), Code of ethics, Definition of museum], which is understood to include both present and future generations (Gilhespy 1999 speaks about intergenerational equity). The overriding purpose of museums is to satisfy the cultural requirements of their communities (see: ICOM 2006; American Association of Museums 2007).

Thus, there is a sort of "social contract" that links the museum and the community (Mayston 1993; Edson and Dean 1996; Lord and Lord 1991; Ambrose and Paine 1993). The community enters into a contract with an expert in managing a specific type of heritage (artistic, archaeological, etc.). This contract remains valid as long as the cultural demands of stakeholders are satisfied.

This corporate governance mechanism takes the form of a multiple agency relationship (principal–agent–agent) (Cornforth 2003; Miller 2002; Murray 1997; Prieto-Rodríguez and Fernández-Blanco 2006). The community (principal) expresses its cultural requirements through a representative (a first-level agent) who is invested with the power to provide guidance and to coordinate and control initiatives. This representative, then, has the task of appointing the top management of the museum organization (second-level agents) and ensuring that they respect the mandate that they have received from the community.

In the Anglo-Saxon world, the Trust is a perfect reflection of this type of multi-agency relationship. The Trustee (the first-level agent) is a group of people, often selected civil society representatives (professors, artists, lawyers, etc.) who are given ownership of the assets in question and are obligated to preserve them for future generations and make them available to the general public. This body appoints the managers of the museum (the second-level agents) who implement the cultural guidelines of the Trustee. The latter has the task of expressing the interests of the community and ensuring that the management correctly addresses them.

Accountability facilitates the proper functioning of this system. Despite its popularity, the concept of accountability is often misunderstood and misinterpreted, because it is contradictory in nature, and interestingly, the term itself still has no clear definition. Edwards and Hulme (1996, p. 967) define accountability as "the means by which individuals and organizations report to a recognized authority (or authorities) and are held responsible for their actions." Cornwall et al. (2000) broaden this perspective by defining accountability as both a reactive response to those who hold the organization responsible and a proactive notion of taking responsibility voluntarily. These definitions immediately raise a fundamental question: What precisely might an organization be accountable for, and to whom is it accountable? For some authors, the concepts of accountability, transparency, and trust are inseparable. In general, accountability involves both answerability and enforceability. Ebrahim (2003a, p. 194) suggests a broader approach to accountability that we adopt in this paper, characterizing it as "the means through which individuals and organizations are held externally to account for their actions, and as the means by which they take internal responsibility for continuously shaping and scrutinizing organizational mission, goals, and performance."

In this and in other definitions, the essence of accountability is answerability, since being accountable means having the obligation to answer questions regarding decisions, activities, and actions (Brinkerhoff 2004). Accountability is often identified with a duty of information provision and with the justification of the organization activity, but its definition also relates to specifying accountability for what and for whom.

A recent distinction in non-profit accountability literature is between “the theoretical concepts of hierarchical accountability as a form of accountability to a narrow range of influential stakeholders, and holistic accountability as a form of accountability to a much broader range of stakeholders” (O’Dwyer and Unerman 2008, p. 803).

Hierarchical accountability is markedly instrumental and opportunistic, short term in orientation and favors accountability to those stakeholders who control access to key resources for both resource use and immediate (campaign) impacts (Ebrahim 2003a, b; Edwards and Hulme 2002a, b).

The term “holistic accountability” refers to broader forms of accountability for the impacts that a non-profit organization’s actions have, or can have, on a broad range of other entities, individuals, and the environment (Edwards and Hulme 2002a; Najam 1996). For some organizations this expands the concept of “performance” articulated within hierarchical accountability to embrace quantitative and qualitative mechanisms concerned with internal control and the grade of mission pursuit.

Regarding this topic, scholars (Ebrahim 2005; Kearns 1996) are increasingly stressing the need for greater “downward accountability” to users, the local community and other affected constituents. Specifically, these researchers have emphasized the need for organizations to pursue responsiveness in their accountability mechanisms by ensuring that governance arrangements and strategic-level decisions are aligned with the demands of a broad range of stakeholders (Weber 1999), so confirming the emerging call for intensive stakeholder involvement in decision-making processes as a critical dimension of organizational accountability.

Moreover, recent literature underlines the multi-dimensional nature of non-profit accountability. According to Brinkerhoff (2004) and to Jordan and Van Tuijl (2006), three dimensions of accountability emerge: financial, performance, and political accountability.

First, accountability as a financial tool “concerns tracking and reporting on allocation, disbursement, and utilization of financial resources, using the tools of auditing, budgeting, and accounting” and “deals with compliance with laws, rules, and regulations regarding financial control and management” (Brinkerhoff 2001, p. 10). In other terms, financial accountability concerns tracking and reporting on allocation and utilization of financial resources, using the tools of management control and auditing.

Second, accountability pertaining to performance “refers to demonstrating and accounting for performance in light of agreed-upon performance targets,” with its focus on “services, outputs, and results” (Brinkerhoff 2001, p. 10) and is strictly connected with organization’s mission, providing both “a verbal link between the presumably deeply held promises and the conduct of those representing the nonprofit” (Lawry 1995, p. 14) and a basis for evaluating organizational performance (Ebrahim 2003a). In other words, performance accountability refers to demonstrating and reporting for performance in light of agreed-upon performance targets and it focuses on inputs, outputs, outcomes, and impacts.

Third, political accountability, in a non-profit organization, relates to the procedures and mechanisms that ensure the organization fulfills the public trust, engages and involves stakeholders, responding to their legitimate expectations and needs.

From this perspective, accountability can take a number of forms: internal or external, formal or informal, vertical or horizontal, bottom-up or top-down (Molnar 2008, p. 219).

As organizations that the public trusts to care for shared artistic heritage, museums must continually re-assess and re-affirm their commitment through accountability. The community must perform a type of cost-benefit analysis, assessing the degree to which its cultural requirements have been satisfied and directing resources towards the museums with the highest performance. To this end, museum performance and objectives must be made public. Essentially, the legitimacy of a museum rests on the community's impression of its work (Carnegie and Wolnizer 1996; Kavanagh 1991; Anderson 2004; Bud et al. 1991).

Because the community does not possess the means to express a consummate and binding judgment regarding the work being performed by the museum, museum accreditation procedures have been established in some countries. The purpose of these bodies is to determine the "quality" of museum processes and the extent to which they conform to correct procedure. The codification of precise quality standards and the design of accreditation systems are aimed to legitimize the museum's work for its stakeholders (American Association of Museums 1990, 2007). The level of funding is tied to the social performance of each museum (Anderson 2004; Kavanagh 1991; West Midlands Regional Museum Council 2000).

The first accreditation models were developed for American museums in the middle of the last century. These are schema designed by sector associations to evaluate whether each museum has met minimum requisite performance levels. Beginning in 1988, museum standards were introduced in the UK via a public governmental body (the Museums and Galleries Commission). This arrangement guarantees a greater degree of penetration than a self-disciplinary code like the American one. Subsequently, other European countries such as Ireland, the Netherlands, and Denmark took inspiration from this model in designing and implementing their own accreditation systems.

Research Hypotheses

Because it is difficult to measure the number and the strength of each stakeholder, stakeholder theory assumes that these factors increase with organization size (Gray et al. 2006; Collier 2008, Weber 1999). Bigger organizations face many stakeholders that are well organized and can insist on the release of information. Moreover, larger organizations have higher agency costs (Healy and Palepu 2001).

Empirical evidence in for-profit organizations clearly confirms that disclosure levels are positively associated with firm size (Cerf 1961; Singhvi and Desai 1971;

Table 1 Selected museums by nationality

Country	No. of museums	No. of observations
Australia	15	15
Canada	16	10
France	8	8
Germany	10	10
Italy	8	8
United Kingdom	52	33
United States of America	25	22
Total	134	106

Buzby 1975; Salamon and Dhaliwal 1980; Lang and Lundholm 1993; Firth 1979; Kahl and Belkaoui 1981; Chow and Wong-Boren 1987; Cooke 1989; Wagenhofer 1990; Wallace et al. 1994; Inchausti 1997; Hossain et al. 1995). To our knowledge, in the non-profit field there is no such evidence.

Therefore, the first research hypothesis is as follows:

H1 The larger the museum, the more it communicates with the public.

Among stakeholders, those who are most "salient" are donors. Donors provide museums with the money to operate and directly carry out the museum mission. It is also believed that they are able to express and synthesize other stakeholder needs (Carnegie and Wolnizer 1996; Kavanagh 1991; Anderson 2004; Bud et al. 1991; Edson and Dean 1996; Lord and Lord 1991; Ambrose and Paine 1993).

The agency theory also gives donors an important role. Donors are considered the better proxy for the main principal, the community (Mayston 1993). Thus, grants and donations are seen as implicit judgments about the degree to which a museum has satisfied cultural demands (Reiss 2000).

Thus, grants and donations are hypothesized to be more generous at high-performing museums. Consequently, to maintain and develop donor trust, those museums must then be more accountable. This is also required based on recent public reforms (Thompson 2001; Rentschler and Potter 1996; Waters 2008).

This leads us to our second research hypothesis:

H2 The more funding the museum receives, the more it communicates with the public.

Database

To study the most homogenous phenomenon possible, we have selected all of the National Museums. Such museums have public governance structures.

Based on Wikipedia[1] resources, we have selected all the National Museums in the major developed countries: Australia, Canada, France, Germany, Italy, the

[1] http://en.wikipedia.org/wiki/National_museums.

Table 2 Type of museums selected

	Art museums	Other type of museums
Australia	4	11
Canada	4	6
France	2	6
Germany	4	6
Italy	7	1
United Kingdom	7	26
United States of America	4	18
Total	32	74

United Kingdom, and the US. In total, our database is comprised 134 museums distributed among the various countries, as shown in Table 1.

All the museums selected have websites. Some (28 out of 134) are part of the websites of their corresponding parent institutions. For this reason, there are several museums that are listed on the same website and have the same parent institution.[2] This is why the number of observations (106) is lower than the number of museums in the sample (134).

There are 32 art museums and 74 other types of museums. Their distribution by country is shown in Table 2.

Method

The web site of each museum (following the link shown by Wikipedia) has been scrutinized to measure its accountability level. We have analyzed all the pages dedicated to accountability. To do this we have conjunctively used three different criteria:

(a) scrutinize all the pages under the specific section devoted to inform the stakeholders—named in different ways, i.e., "stakeholder information", "about the museum", etc.—that can be found following the navigation bar on the homepage or looking at the map of the website;
(b) examine the annual report, if available, looking at the index and using the search tool to get the accountability information/document;
(c) use the search tool present on the homepage to get the accountability information/document that can be transmitted on generic web pages or other sections.

We have developed a classical disclosure index, selecting items deemed relevant in the main literature on museum management and accountability (Ames 1994; Beer 1994; Bowsher 1999; Bud et al. 1991; Diamond 1996; Gilhespy 1999; Edson and Dean 1996; Lord and Lord 1991; Thompson 2001). All the items are listed in

[2] For instance, six Scottish museums are part of the same website. The same is true for eight museums in Wales and five in Northern Ireland.

Table 3 Items from accountability index

Financial accountability	
	Financial statement
	Account notes
	Management commentary
	Auditor report
Performance accountability	
	Vision/mission statement
	Governance structure
	Human resource organization
	Strategic plan
	Results of research activities
	Key performance indicators
	Risk report
	Visitor survey
	Results of educational activities
Political accountability	
	President/director statement
	Management of collections and acquisition of works of arts
	Voluntary work report
	Management remunerations
	Report on donations and benefactors

Table 3 and divided into three classes according to the accountability literature recalling in section "Stakeholder theory and accountability in museums": financial, performance, and political accountability.

Our first step in measuring accountability levels is to record the items. We have used a binomial logic, assigning a value of one (1) when the item is present and zero (0) when it is absent. Then, we have calculated the arithmetic average of the scores, which was taken to represent the accountability level of the museum (ACCOUNT). We have thus measured accountability using a classical unweighted disclosure index (Cooke 1989; Beattie et al. 2004).

To test the hypotheses, we use this model:

$$\begin{aligned} \text{ACCOUNT}_i = \ & \beta_0 + \beta_1\text{SIZE}_i + \beta_2\text{FUND}_i + \beta_3\text{COUNTRY}_i + \beta_4\text{KIND}_i \\ & + \beta_5\text{COSTVIS}_i + \varepsilon_\text{i} \end{aligned} \tag{1}$$

where SIZE is the number of visitors[3] downloaded from the museum's website or collected from other national public surveys, FUND is the natural log of total grants and donations[4] for the last year, registered as both revenues in the profit and loss account and increase in capital net worth in the balance sheet, COUNTRY is a

[3] We also tried to represent SIZE using total cost or revenues, but these variables appear to be strictly correlated with the variable FUND.

[4] Natural log transformation is used to reduce the skewness of the data set (Hossain et al. 1995).

Table 4 Descriptive statistics for ACCOUNT

Mean	SD	IQ	Median	IIIQ	Min	Max
0.60	0.31	0.43	0.72	0.80	0.11	1

dummy variable representing legal and cultural origin (1, Anglo-Saxon; 0, other), KIND is a dummy variable representing the type of activity (1, art; 0, other), COSTVIS is the natural log of the cost per visitor. This variable has been calculated by dividing the total cost registered in the profit and loss account for the last year by the number of visitors (SIZE).

Different cultural and regulation environments may influence the level of museum accountability (La Porta et al. 1998; Vanstraelen et al. 2003). For this reason, museum country was chosen as a control variable.

Moreover, art museums are a key tourist attraction, and this may influence accountability (Reiss 2000). Thus, our second control variable is the type of activity carried out by the museum.

Finally, the last control variable chosen is based on signalling theory (Spence 1974). It is plausible that organizations that invest more in "typical" activities (conservation of collections and their promotion) are more interested in releasing this data.

Results

On average, the level of accountability is 0.60 (Table 4). This means that more than 11 of the 18 items that we considered are present on the websites of these organizations. Thus, accountability practices seem to be fairly well developed in the museum sector. Moreover, these practices are quite homogeneous among museums, as indicated by the standard deviation (0.31).

Mandatory documents are not always present (Table 5). Greater attention is assigned to the governance structure and vision/mission statement. There is a general lack of communication about performance (results of research activities, key performance indicators, risk report, results of educational activities).

The statistics for our independent variables are summarized in Table 6. The average number of visitors is 1,888,734, and the standard deviation of the sample is relatively high. The average amount of funding received by any one museum is approximately 15 million dollars.

We estimate Eq. 1 using an OLS multivariate model (the distribution is normal).[5] The Pearson correlations reported in Table 7 suggest that multicollinearity is unlikely to invalidate the model.

[5] The General Linear Model (GLM) was used to fit the data based on the characteristics of the dependent variables. The GLM analysis yields similar results. Hence, we conclude that the results are not sensitive to the estimation technique used.

Table 5 Mean of items of ACCOUNT

Items	Mean
Financial accountability	
Financial statement	0.83
Account notes	0.61
Management commentary	0.51
Auditor report	0.71
Performance accountability	
Vision/mission statement	0.91
Governance structure	0.92
Human resource organization	0.77
Strategic plan	0.39
Results of research activities	0.21
Key performance indicators	0.15
Risk report	0.24
Visitor survey	0.71
Results of educational activities	0.31
Political accountability	
President/director statement	0.86
Management of collections and acquisition of works of arts	0.84
Voluntary work report	0.54
Management remunerations	0.43
Report on donations and benefactors	0.77

Table 6 Descriptive statistics for SIZE and FUND

	Mean	SD	IQ	Median	IIIQ	Min	Max
SIZE	1,888,734	2,169,075	430,627	903,188	2,117,604	41,365	8,260,000
FUND	15,343,462	20,716,348	1,600,500	5,785,491	20,831,750	12,766	78,989,000

Table 7 Pearson correlation matrix

	FUND	COSTVIS	SIZE
FUND	1		
COSTVIS	−0.0197313	1	
SIZE	0.37044472	−0.20008564	1
Y	0.44117825	0.15375862	0.5193999

Table 8 shows that our model is quite strong, explaining more than 45% of the total variability with a significant p value for the F-statistic. The coefficient signs confirm our expectations.

Size is significant, as is the amount of funds received. These results confirm both of our hypotheses.

Table 8 Regression model for ACCOUNT

	Estimate	$Pr(>\|t\|)$
Coefficients		
(Intercept)	0.264831	0.3527
SIZE	0.011619	0.00835**
FUND	0.025081	0.03759*
COSTVIS	0.00121	0.38044
KIND	−0.05632	0.28294
COUNTRY	0.040462	0.33914
F-statistic	3.575, $p =$ 0.008385*	
Adjusted $R^2 = 0.4572$		

Signif codes: ** $p < 0.01$, * $p < 0.05$

Conclusions

Stakeholder theory posits that accountability systems depend on the strength and number of the stakeholders in question. To analyze the empirical validity of this assumption, we focus on museums. Museums are a specific type of non-profit organization that lacks shareholders. Additionally, museums' lack of emphasis on profit should make stakeholder relationships more manifest.

As organizations that the community (the principal) trusts to care for artistic heritage, museums (agents) must continually re-assess and re-affirm their commitment through accountability.

Because it is difficult to measure the number and the strength of each stakeholder, stakeholder theory assumes that these variables increase with organization size. This is the first hypothesis that we tested. Second, the more "salient" stakeholders in museums are donors. Thus, because they must maintain and develop donor trust, the museums that receive larger grants and donations are assumed to be more accountable. This is our second research hypothesis.

We analyzed a specific external accountability channel: web communication, the most important channel for a general stakeholder.

Using Wikipedia, we have examined all the National Museums in the major developed countries: Australia, Canada, France, Germany, Italy, the United Kingdom, and the US. Our database is composed of 134 museums.

We developed a classical unweighted disclosure index composed of 18 items following the main studies on museum management and accountability.

After controlling for type of activity, cost per visitor, and country, our OLS results show that size and the amount of funding received are two determinants of the accountability level. These results confirm our hypotheses.

We can thus conclude that accountability in the absence of shareholders is driven by the number and power of different stakeholders. This validates the stakeholder–agency theory.

From a practical point of view, our results advocate that national and international standard-setters use caution in issuing accountability standards for museums. In fact, accountability practices for smaller museums are not well developed. A general request that all museums attain high standards might cause small museums to incur great costs. Perhaps a simplifier set of standards might be developed for small museums (see IFRS for smaller firms). Furthermore, to improve the communication of performance results, greater attention could be directed toward those accountability tools, as called for in the main literature on museum management.

Our database is not representative of the overall museum population because we have focused only on National Museums, which possess certain peculiarities.

Our accountability index has certain limitations. First, the data-gathering process based on a binomial logic has the advantage of being fair, objective, and simple. This method, however, does not take into consideration the quality of the reporting activity. Furthermore, when attributing the same weight to each item (arithmetic mean) to obtain a global score, one does not take into consideration the unique role and importance of each item for users. Unfortunately, there are no studies on the interest of stakeholders in each type of information.

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