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## Article

The moderating effect of professional boards on the influence of external audit services on IPSAS implementation in Tanzania : the accountants' perspectives

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## **The Moderating Effect of Professional Boards on the Influence of External Audit Services on IPSAS Implementation in Tanzania: The Accountants' Perspectives**

**Neema Kiure Mssusa<sup>1</sup>, Henry Chalu<sup>2</sup> and Sylvia Temu<sup>3</sup>**

### **ABSTRACT**

*The study assessed accountants' perspectives on the moderating effect of professional boards on the influence of external audit services on International Public Sector Accounting Standards (IPSAS) implementation. IPSAS are standards used by Public Sector Entities (PSE) when preparing their financial statements. The objective of IPSAS is to improve the accountability of PSE. The objective of professional boards is to serve the public interest by ensuring competent practice within an occupation. The boards typically have substantial power, which enables them to impact knowledge to individual practitioners, members of the public, and the profession as a whole. Tanzania PSE started using IPSAS in 2004 after it was adopted by the National Board of Accountants and Auditors (NBAA), the accountancy professional board in Tanzania. The study used primary data collected from 379 PSE respondents, comprising 306 financial accountants, 36 external auditors, and 37 internal auditors. Questionnaires were used to collect the data. The data analysis techniques employed were means, percentages, standard deviation, and structural equation modeling. Institutional Theory was used to assess the influence of professional boards on the financial reporting practices of Public Sector Entities (PSE). The findings revealed that professional boards have a significant positive moderating effect on the influence of external audit services regarding IPSAS implementation. However, the study's use of a cross-sectional design may have prevented the researcher from making certain pertinent observations. This study is unique in its approach of analyzing the impact of professional boards on PSE financial statements. **Key words:** Professional Boards, External Audit Services, IPSAS, Implementation of IPSAS, Public Sector Entities*

### **INTRODUCTION**

The International Federation of Accountants (IFAC) and Chartered Institute of Public Finance and Accountancy (CIPFA) expect sixty-five percent of governments worldwide, i.e. ninety-eight governments, to be reporting accrual financial information by 2023 (IFAC & CIPFA, 2018). The Accrual-based International Public Sector Accounting Standards (IPSAS), issued by the International Public Sector Accounting Standards Board (IPSASB), have become the international benchmark for evaluating government accounting practices worldwide (Chan, 2008; Parker & Bean, 2012). The empirical literature argues that the level of stakeholder engagement explains why various governments have failed to implement IPSAS successfully (Huweish & Alshujairi, 2014; Rossi et al., 2016). Stakeholder engagement encompasses the inclusion of not only the external stakeholders in the IPSAS implementation efforts but also the internal stakeholders (Lüder, 1992). External stakeholders include external auditors, consultants and organizations representing professional interests, such as professional boards, whereas internal stakeholders include the producers of information, such as the central agencies, the managers of these agencies, Public

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Sector Entities (PSE) financial accountants, and internal auditors (Christensen, 2002). The National Board of Accountants and Auditors (NBAA) is an accountancy professional board in Tanzania, operating under the Ministry of Finance and Planning. A professional board refers to a group of members of a particular profession who are responsible for maintaining the specialty standards and certification of new members in the field of interest, through the examination and documentation of continued competency (Millstein, 1995). The profession is characterized by conformity to the ethical standards of a profession. The professional boards are expected to guide both financial accountants and auditors during the introduction of accounting changes (INTOSAI, 2016; Ryan, Dunstant and Brown, 2002). NBAA therefore require PSE to prepare their financial statements in compliance with the IPSAS requirements. Furthermore, the Controller and Auditor General, the external auditors of PSE, should report to the parliament regarding whether or not the PSE financial statements are in compliance with IPSAS (NBAA, 2009).

Pitulice (2013) analysed accrual accounting adoption in the Romanian public sector and noted that the adoption process consists of three main stages; namely, initiation, the adoption decision and implementation. NBAA initiated IPSAS discussions with the stakeholders, including the Ministry of Finance and Planning, in early 2000, and adopted the standards in 2004 (NBAA, 2009). Tanzania is in the implementation stage. IPSAS implementation is a structured, orderly exercise, aimed at producing IPSAS-compliant, general-purpose financial statements (Bellanca & Vandernoot, 2014). Athukorala and Reid (2003) investigated accrual accounting in developing countries and noted that governments face challenges related to: the treatment of property, plant and equipment; training and capacity building; personnel skills and numbers; and computerized accounting systems. The challenges noted by PSE in Tanzania include: the recognition and measurement of inventories in the accounting system; the impairment of non-financial assets; the disclosure of related party transactions and balances; and the actuarial valuation of employees' defined benefit plans (NAOT, 2017). The annual external audit opinion on the consolidated financial statements of the Government of Tanzania for the year ended 30 June 2013 to 30 June 2019 have continued to highlight areas where PSE might improve compliance with the IPSAS requirements (ACGEN, 2019). External auditing services, provided by external auditors, can be used to address the skills shortages that have impeded IPSAS implementation hitherto (Brusca and Martínez, 2016). External auditors can provide the technical capability required to improve the performance of PSE and provide an enabling context for IPSAS implementation (Mbelwa, Adhikari & Shahadat, 2019).

External audit services refer to the accumulation and evaluation of evidence to determine and report on the degree of correspondence between the information and established criteria, performed by a competent, independent person (Arens, Randal and Beasley, 2012). Arens et al. (2012) grouped external audit services into three categories; namely, assurance services, attestation services and non-audit services, also known as consulting services. Assurance services aim to confirm whether entities' financial statements comply with the requirements of accounting standards such as IPSAS (Kandemir, 2016). Through these services, external auditors create an awareness of the deficiencies existing within the accounting system and internal controls of the organisation and provide recommendations for improvement (Saleh, 2008). Furthermore, external auditors give their opinion, i.e. an unqualified or modified audit opinion, on whether or not the financial statements comply with the applicable financial reporting framework (Ahmad, 2016; Harun & Robinson, 2010; Hepworth, 2010; Mhaka, 2014). It is argued that users of financial statements react differently to different types of audit opinion (Pei and Hamill, 2013).

Additionally, attestation services include the verification of financial information to ensure compliance with IPSAS and the verification of the internal controls over financial reporting (Arens, et al., 2012). External auditors can be engaged to confirm whether or not the management has rectified any non-compliance with IPSAS that has been noted during previous audits, or provide clarification on accounting treatment to ensure consistency within IPSAS application. The parliament can use the external auditors' attestation reports to demand accountability and improve the governance of PSE (Schelker, 2013). Additionally, through offering consulting services, external auditors can provide other services, such as training, network provision, capacity building, on-the-job support, and knowledge bases (Jacobson, Butterill, & Goering, 2005).

It follows, therefore, that the professional boards have a significant role to play in IPSAS implementation. The success of New Zealand and Australia regarding the implementation of accrual accounting emanates from the existing framework, that addresses the professional abilities and relevance of individuals in the profession according to the existing and emerging international standards (Bellanca & Vandernoot, 2014; Champoux, 2006). Chartered Accountants Australia and New Zealand and the Institute of Certified Public Accountants of Australia addressed the training and technical support of its members within the countries (IFAC, 2018). However, empirical studies reflect the mixed reactions regarding the professional boards. For instance, the Institute of Chartered Accountants of Ghana (ICAG) seems to suffer from shortcomings that have led to a delay in the full implementation of the IPSAS reporting requirements. The country reported a skills shortage and need for training at both the municipality and state levels, a role that ICAG is meant to fulfill (Agyemang & Yensu, 2018). On the other hand, while the Institute of Certified Public Accountants of Uganda (ICPAU) adopted fully accrual-based IPSAS as its accounting framework in 2006, the implementation of the standards has been delayed (Ekelot, 2016). Saleh (2008) noted that the professional boards appear to show little interest in public sector accounting and more interest in private sector accounting.

Considering the IPSAS implementation challenges noted by existing studies and the usefulness of external audit services, it was considered important to investigate the moderating impact of professional boards on the influence of external audit services regarding IPSAS implementation. The study assessed IPSAS implementation regarding the presentation of financial statements, the related party disclosure, and tangible assets. The presentation of financial statements comprises IPSAS 1 Presentation of Financial Statements, IPSAS 2 Cash Flow Statements, and IPSAS 3 Accounting Policies, Changes in Accounting Estimates and Errors; the related party disclosures comprise IPSAS 20 Related Party Transactions; and tangible assets comprise IPSAS 12 Inventories, IPSAS 17 Property, Plant and Equipment and IPSAS 21 Impairment of Cash Generating Assets. These standards were selected based on the status of IPSAS implementation issues reported in the external audit reports. The IPSAS which were most frequently questioned in the audit reports are IPSAS 12, IPSAS 17, and IPSAS 21; the IPSAS which was sometimes questioned in the audit reports is IPSAS 24; and the IPSAS which were rarely questioned in the external audit reports are IPSAS 1, IPSAS 2, and IPSAS 3. The accountancy professional boards, being responsible for maintaining the specialty standards for both auditors and financial accountants, may be one of the important mechanisms for improving accountability within the public sector, if the findings demonstrate their moderating effect on the influence of external audit services regarding IPSAS implementation.

## **THEORETICAL BACKGROUND AND REVIEW OF THE LITERATURE**

### *Theoretical Perspective*

The institutional theory stresses that factors related to both the internal and external organizational expectations and values can serve as a primary motivation for changes designed to improve efficiency and effectiveness (Meyer & Rowan, 1977). The institutional theory seeks to explain the isomorphism of organizations, a key feature of which is that organizations may accept certain characteristics in order to appear legitimate when, in fact, there are no technical economic efficiency gains from doing so (DiMaggio & Powell, 1983; Opanyi, 2016). The Institutional Theory addresses the role of institutional pressure in shaping the organizational practices and actions of countries that seek to adopt global practices in order to legitimate their national practices (Judge, Li and Pinsker, 2010). Judge et al. (2010) argue that institutional pressures result in a country's isomorphism. According to DiMaggio and Powell (1983), normative isomorphism results from changes to the professional standards for a given area. Professionalism connotes what the members of a given profession collectively deem to be appropriate behaviour. Individuals within a given occupation tend to adhere to certain norms and cultural actions, which create legitimacy. Normative pressure is diffused through the involvement of prospective professionals with training and educational institutions and professional print media, such as trade magazines. DiMaggio and Powell (1983) further argued that mechanisms for diffusing the normative pressure are essential if organizational norms are to emerge. Furthermore, Galaskiewicz (2006) investigated the professional networks and institutionalization of a single mind-set and found that, when individuals face ambiguity, they develop an inclination to seek assistance from their professional network and strengthen their ties with the network members, which enables them to understand how to act in any given situation. This implies that the individual's conformity to normative pressure can prompt organizations to undertake structural changes in order to align themselves with the institutionally-acceptable norms (Slack & Hinings, 1994).

The Institutional Theory is relevant to this study because it explains the factors which can influence the acceptance of international accounting standards, such as IPSAS. Thus, the Institutional Theory provides insights into the factors that account for the differences in IPSAS implementation. It explains how the external audit services may serve as a mechanism for diffusing global practices – IPSAS – in PSE in Tanzania. From the theory, it is apparent that the professional boards facilitate the liaison between the actors in PSE and external auditors who are interested in improving the quality of the financial reporting within Tanzania's public sector.

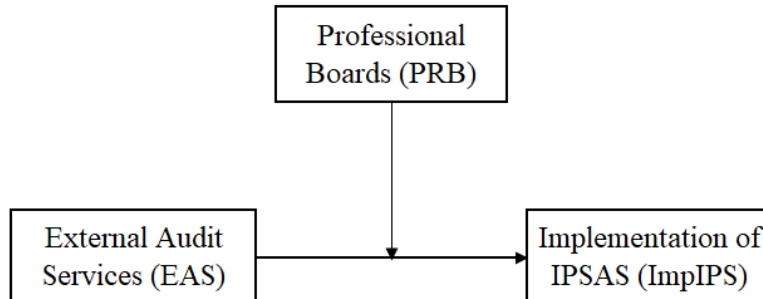
### *Empirical Literature and Study Hypothesis*

Iliya Nyahas, Munene, Orobia and Kigongo Kaawaase (2017) considered the influence of professional norms on voluntary disclosure, and concluded that coercive and normative mechanisms are significant in explaining voluntary disclosure. Abdullah (2014) assessed how to improve government accounting and financial management reporting in Iraq and concluded that it is necessary for the accounting bodies to adopt international accounting standards to improve significantly government transparency and accountability as a means of promoting financial sustainability. Rossi et al. (2016) investigated the harmonization of public sector accounting in Europe and concluded that IPSAS resulted from the quest for internationally relevant and comparable financial information from PSE, and that there is no uniform approach to the application of these standards. Akhidime and Ekiomado (2014) evaluated the challenges and implications related to the implementation of the International Financial Reporting Standards (IFRS) in Nigeria. The research concluded that there is low and inadequate capacity-building by

the Nigerian external auditors because of the poor professional development programs being offered by the two professional accountancy bodies in Nigeria, and the local challenges posed by the non-amendment of Nigeria’s corporate financial reporting laws in recognition of IFRS. According to IFAC (2014), countries can adopt IPSAS as their local accounting standards or use them as a framework for developing their own local standards. In some countries, that lack a well-developed accounting profession, the international standards have become the local accounting standards. Based on Kaya and Koch (2015)’s argument, one would expect that, if a country lacks local accounting standards, it is more likely to use international standards to regulate the public sector accounting. Indeed, there have been instances, such as in the United Arab Emirates and Barbados, where the difficulties associated with developing local accounting standards have led to the use of global standards (IASB, 2016).

IPSAS implementation is thus a strategy for conforming to the forces of globalization because it helps to harmonize the accounting practices within the public sector and ensures consistency within accounting regarding transactions that occur anywhere around the globe. In addition, when the public sector ensures that its financial reporting practices adhere to the highest levels of transparency and comparability, it becomes easy for a country to increase its foreign direct investment inflows and enhance its global competitiveness. IPSAS resulted from the quest for internationally relevant, comparable financial information from PSE, and there is no uniform approach to the application of these standards. The study has developed a conceptual framework, based on the various literature reviewed. Figure 1 summarizes the proposed study model.

**Figure 1: Conceptual Framework**



Source: Developed from the Literature

Christensen (2002) considered the key actors of change to include the professional boards as the promoters of change. Accountancy professional boards can provide training, seminars, and certification to financial accountants and auditors, hence ensuring that they possess the necessary skills to implement IPSAS (IFAC, 2018). Professional boards can also institute other requirements, such as the need for directors to sign and provide the external auditors with a letter of representation during the audit, the need for engagement letters to be signed before any audit engagement begins, and the need for the head of finance and accounts to provide a declaration that the financial statements follow the IPSAS requirements. From this, the following hypothesis was developed:

*H<sub>1</sub>: Professional boards positively moderate the influence of external audit services on IPSAS implementation*

## RESEARCH METHODOLOGY

The study used the positivism paradigm and a cross-sectional design as the research design, while the deductive approach was used as the research approach. The study was conducted in Tanzania, to cover PSE. As on 30 June 2017, there were 594 PSE in Tanzania using IPSAS. The financial accountants and internal auditors of the PSE using IPSAS were randomly selected to be included in the study. Included in the 594 entities was the National Audit Office Tanzania (NAOT). The external auditors from the NAOT were randomly selected for inclusion in the study. The population of the study consisted of financial accountants, external auditors, and internal auditors from Tanzania's PSE. There were 5,869 financial accountants, 686 external auditors, and 707 internal auditors in PSE (ACGEN, NAOT and IAG Records, 2018). The units of enquiry were financial accountants, external auditors and internal auditors who were expected to possess adequate information regarding IPSAS implementation and the use of assurance services. This is supported by Huweish and Alshujairi (2014), who argue that financial accountants and auditors are the best informed individuals regarding an entity's accounting systems. This study applied Taro Yomane's formula (i.e.  $S = n / (1+n(e)^2)$ ), as cited by Ahuja (2001), to determine the sample size, which was calculated at a 5% margin error and 95% confidence interval in order to identify the maximum sample size.

This study used quantitative data collection instruments. A questionnaire was used to collect the data, based on a 5-point Likert Scale (1 = strongly disagree to 5 = strongly agree). Many scales have been developed and used to measure people's perceptions of a given research variable (Hinkin, 1995). However, a 5-point Likert scale was adopted because increasing the scale from five to seven or nine points does not improve the reliability of the ratings (Elmore & Beggs, 1975). The study solely relied upon the perceptions and views of government entities' financial accountants, external auditors, and internal auditors as the primary data from which to draw its conclusion. This is due to the fact that they are directly involved in IPSAS implementation. Also, the study considered the construct reliability (CR), which mainly examines the reliability measurement and internal consistency of the variables that form the latent construct. According to Hair *et al* (2010), the CR must be at least 0.6 in order to accept that it exists among the variables. However, other authors, such as Anderson and Gerbing (1988) and Bagozzi and Yi (1988), assert that the CR should be at least 0.7. This study adopted the argument that CR should be at least 0.7 to claim that construct reliability is present because, the larger the coefficient, the higher the construct reliability.

This study assessed the construct validity in order to examine the quality of the structural equation model. The construct validity includes the convergent validity and discriminant validity. The convergent validity simply examines whether the items included in the construct do not meet at the same construct (Bagozzi & Baumgartner, 1994). The discriminant validity examines whether the measures of the variables that are unrelated do not correlate among themselves (Fornell & Larcker, 2006). It is attained when the interfactor correlations are less than the square root of AVE (*ibid*). Bagozzi & Baumgartner (1994) explain that the convergent validity is attained when the Average Variance Extracted (AVE) is at least 0.4, while other authors, like Fornell and Larcker (2006), depict that AVE should be at least 0.5 in order to claim that convergent validity has been attained. This study considered that AVE should be at least 0.5 in order to claim that convergent validity has been attained because the greater the value of AVE, the higher the convergent validity.

This study applied Means (M), Percentages (%), Standard Deviations (SD), and Structural Equation Modeling (SEM) analysis to the data. Mean scores were applied in order to rank the key

variables with their specific items while percentages were used to analyze the respondents and government entities' profiles. The Coefficient of Variation (CV) was computed, which is the ratio of the standard deviation to the mean. The higher the coefficient of variation, the greater the level of dispersion around the mean. The lower the value of the CV, the more precise the estimate. In using SEM, the researcher assessed the goodness of fit indices; namely, the absolute fit indices, incremental fit indices and parsimony fit indices. The absolute fit indices include the Goodness of Fit Index (GFI) and Root Mean Square Error Approximation (RMSEA), that were used to examine the extent to which the prior model fits the data (McDonald & Ho, 2002). The recommended GFI is 0.90 (Byrne, 2013) or the value closer to 0.90 (Thadani & Cheung, 2011). On the other hand, the recommended RMSEA should be less than 0.08 (Hoe, 2008; Steiger, 2007). However, Browne & Cudeck (1992) argue that the RMSEA value of 0.08 indicates that the model fits the data fairly well. The incremental fit indices basically compare the Chi square value and baseline model to demonstrate the fitness of the good model (Miles & Shevlin, 2007). The incremental fit includes the Adjusted Goodness of Fit Index (AGFI), which is obtained by adjusting the GFI based on the degree of freedom (Tabachnick & Fidell, 2012). The Comparative Fit Index (CFI) is one of the incremental Fit Indices that assesses the extent of the lack of correlation of the latent variable and attempts to compare the sample covariance matrix (ibid). The CFI's recommended index is at least 0.90 (Hair et al., 2010), while the AGFI should be at least 0.80 (Chau & Hu, 2007). In the case of a parsimony fit, the CMIN was calculated in order to examine the goodness fit of the model. It is calculated by dividing the chi-square ( $\lambda^2$ ) with the degree of freedom (df), and is recommended to be less than 5.0 (Bollen, 2006; Ullman, 2006).

**Table 1: Operationalization of the Research Variables**

No.	Category	Research Variable	Measurement	Reference
1	Independent variable	External Audit Services (EAS)	<b>Assurance Services (ASS)</b> Audit procedures performed Awareness of the issues raised in the management letter Types of Audit Opinion (Likert Scale: 1 – 5)	Baker et al. (2006); Mbelwa et al. (2019; Ahmad (2016)
			<b>Attestation Services (ATS)</b> Verification of amounts reported Review of the financial statements Clarification of accounting treatment Presentation of issues to the PAC Verification of internal controls (Likert Scale: 1 – 5)	Fargher and Gramling (1996); Yunchen et al. (2015)
			<b>Consulting Services (COS)</b> IPSAS training offered by consultants Network provided by consultants Capacity building activities by consultants IPSAS support offered by consultants IPSAS training materials provided by consultants (Likert Scale: 1 – 5)	Ciconte III et al. (2014); Joe and Vandervelde (2007)
2	Moderating variable	Professional Boards (PRB)	Impact of seminars offered to members Provision of IPSAS certification IPSAS Declaration by the head of finance Signing of engagement letters Signing of letter of representation (Likert Scale: 1 – 5)	Abdullah (2014); Akhidime and Ekiomado (2014); Christiaens et al. (2015); Iliya Nyahas et al. (2017)



No.	Category	Research Variable	Measurement	Reference
3	Dependent variable	Implementation of IPSAS (ImpIPS)	<b>Presentation of Financial Statements (PFS)</b> Consistency in presentation of financial statements Presentation of comparative information Classification of cash flows items Use of direct method in cash flow presentation Disclosure of accounting policies Disclosure of measurement bases for items in the financial statements. (Likert Scale: 1 – 5)	Bellanca and Vandernoot (2013; Olayinka et al. (2016)
			<b>Related Party Disclosures (RPD)</b> Disclosure of: <ul style="list-style-type: none"> <li>• controlling entity</li> <li>• nature of related party relationships</li> <li>• amounts of related party transactions</li> <li>• types of related party transactions</li> <li>• elements of the related party transactions</li> <li>• key management remuneration</li> </ul> (Likert Scale: 1 – 5)	Ariff and Hashim (2013)
			<b>Tangible Assets (TAN)</b> Disclosure of <ul style="list-style-type: none"> <li>• how inventories are measured</li> <li>• when inventories are expensed</li> <li>• information regarding components of the carrying value of PPE</li> <li>• information on derecognition of PPE</li> <li>• how impairment losses are recognized</li> <li>• classes of assets affected by impairment losses</li> </ul> (Likert Scale: 1 – 5)	Bellanca and Vandernoot (2013; Olayinka et al. (2016)

## RESEARCH FINDINGS

### *Demographic Characteristics of the Respondents*

In the process of collecting the data, 379 self-administered questionnaires were distributed to the respondents throughout the PSE in Tanzania. The respondents were 306 (80.7%) financial accountants, 37 (9.8%) internal auditors, and 36 (9.5%) external auditors. 379 questionnaires were collected from the respondents, giving a 100% response rate. This high response rate could be a result of using email to distribute the questionnaires and the subsequent follow-up calls. As all PSE financial accountants and auditors have access to email, the process of responding to the questionnaires was simplified. Furthermore, the prior relationships with the respondents and the fact that the questionnaire was blinded could have influenced the response rate. In terms of professional qualifications, 259 (68.3%) respondents are Certified Public Accountants (CPA), five (1.3%) respondents are Certified Chartered Accountants by the Association of Certified Chartered Accountants (ACCA), two (0.5%) respondents are Certified Management Accountants (CMA), and one (0.3%) respondent is a Certified Internal Auditor (CIA) by the Institute of Internal Auditors (IIA). 65 (17.2%) respondents hold an IPSAS Diploma, and two (0.5%) respondents hold an IFRS Diploma. This shows that the respondents were professionally qualified and so possessed adequate knowledge regarding the relationship between the professional boards, external audit services, and IPSAS implementation.

### *Descriptive Results*

Mean scores were used to describe and rank the key variables of this study. The study applied the categories of Mean results, as proposed by Graham and Oxford (2006) and Oxford and Burry-Stock (1995). Mean results have been categorized into three groups i.e. low (Mean score = 1.0 to 2.4), medium (Mean score = 2.5 to 3.4), and high (Mean score = 3.5 to 5.0).

The moderating effect of professional boards regarding the influence of external audit services on IPSAS implementation was high, with a mean of 4.09, an SD of 0.519, and a CV of 0.127. Specifically, PRB01: seminars, offered by professional boards, aim to update the knowledge of external auditors to ensure that they continuously check IPSAS compliance during the audit (M = 4.15, SD = 0.558, CV = 0.134), PRB02: IPSAS certification by professional boards aims to equip external auditors with the appropriate skills to verify compliance with IPSAS requirements during the audit (Mean = 4.15, SD = 0.571, CV = 0.138), PRB03: a declaration by the head of finance influences the external auditor to review the procedures that the head of finance has completed to ensure IPSAS compliance (Mean = 4.16, SD = 0.682, CV = 0.164), PRB04: engagement letters authorizing the external auditors to review the procedures that those charged with governance have taken to ensure IPSAS compliance (Mean = 4.02, SD = 0.701, CV = 0.174), and PRB05: a letter of representation that influences external auditors to review the procedures that the management has taken to confirm that the financial statements comply with the IPSAS requirements (M = 3.96, SD = 0.723, CV = 0.183). The mean results hence showed that the professional boards have a positive impact in ensuring that the members comply with the required standards.

### *Multicollinearity*

The study also examined whether a collinearity problem existed within the data. It used the Value Inflated Factor (VIF) and Tolerance Value (TV) to detect the collinearity problem. The VIF in all predictors should be less than ten (10) and the TV should be greater than 0.1 to indicate that there is no collinearity problem among the variables (Vatcheva and Lee, 2016). The calculated VIFs and TVs showed that there was no collinearity problem among the variables because the VIF for all factors was less than 10 and the TV were greater than 0.1, as shown in Table 2 below:

**Table 2: The Collinearity Statistics**

S/N	Variable	Collinearity Statistic	
		VIF	TV
1	External Audit Services (EAS)	1.364	0.733
2	Professional Boards (PRB)	2.138	0.468

Source: Field Data, 2018

### *Confirmatory Factor Analysis*

The study's hypotheses were to be tested using SEM. However, before testing the hypotheses, it was important to assess the goodness of fit indices in each initial model to conclude whether or not they fitted the data well.

A confirmatory factor analysis for the professional boards was performed. The professional boards were explained as five (5) items that were coded from PRB01 to PRB05 to indicate the first to fifth item. Initially, the model produced poor goodness of fit indices that required modification. In the initial model, the chi-square = 16.221; df = 5, P = 0.006; CMIN/df = 3.244; GFI = 0.982, AGFI = 0.947, CFI = 0.988 and RMSEA = 0.077. The standardized regression weights and squared multiple correlations were examined. The model was modified by deleting the fifth item (PRB05) because its squared multiple correlation fell below the recommended level. After modifying the

model, it produced a chi-square of 2.953 and P-Value of 0.228. The Chi-square value was insignificant, which indicated that there was no statistically significant difference between the default and the saturated models. The goodness of fit indices, namely CMIN/df, GFI, AGFI, CFI and RMSEA, all lay within the recommended values, which indicated that the model fitted the data well.

*Hypotheses Testing*

The SEM results showed that external audit services positively influence IPSAS implementation. Furthermore, the results showed that professional boards have a significant positive moderating effect on the relationship between the external audit services and IPSAS implementation ( $\beta = 0.157$ , Significant at 0.001). Therefore, professional boards strengthen the role of the external audit services to ensure smooth compliance with the IPSAS requirements.

**Table 3: The Regression Weights for the Moderating Effect**

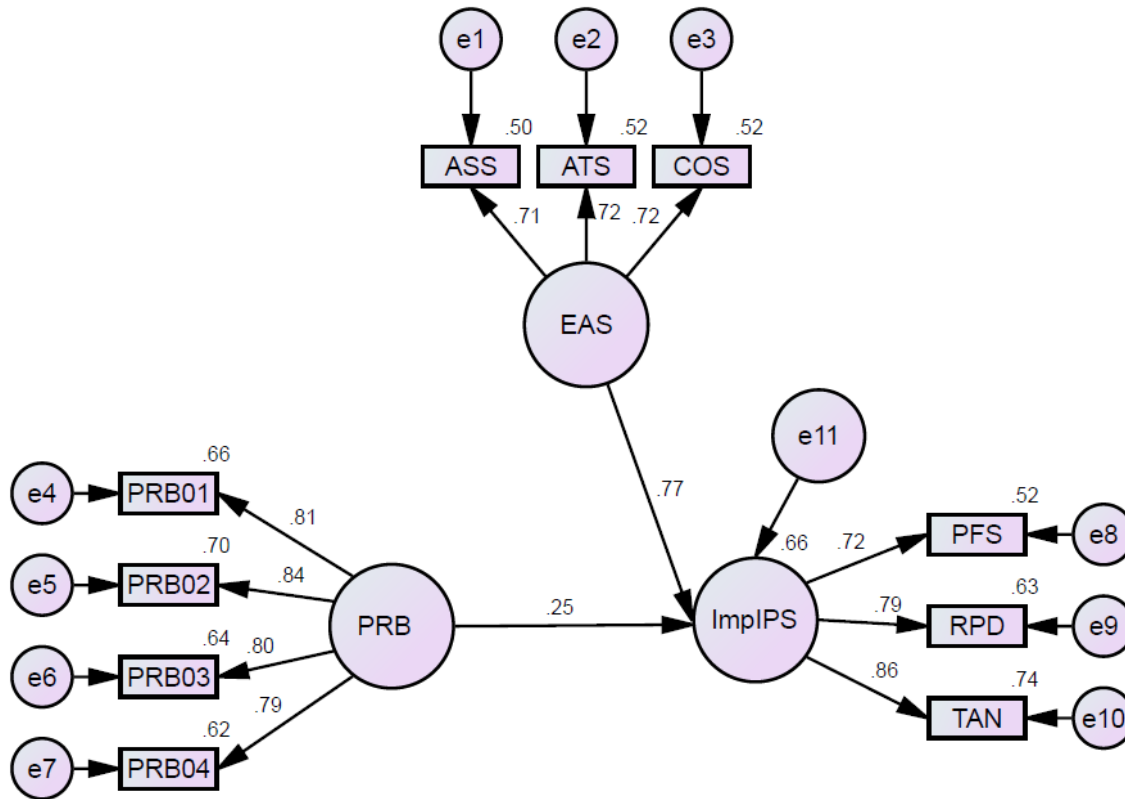
Path	Estimate	S.E.	C.R.	P	Label
ImpIPS <--- PRB	0.157	0.032	4.879	***	

\*\*\* means it is significant at 0.001

Source: Field Data (2018)

The developed model shows the moderating effect of professional boards on the relationship between external audit services and IPSAS implementation. As nothing can be predicted perfectly, there is always a residual error (e), as shown by  $e_1$  to  $e_{11}$  in the developed model. The residual error shows the variance that is unexplained by the independent variable.

**Figure 2: Moderating Effect of the Professional Boards on IPSAS Implementation**



**DISCUSSION OF THE FINDINGS**

The study examined the moderating effect of professional boards on the influence of external audit services regarding IPSAS implementation. The descriptive results reveal that the seminars offered by the professional boards, IPSAS certification, requirements for the head of finance to declare that the financial statements prepared by the entity comply with IPSAS, requirements for external auditors to issue engagement letters and obtain letters of representation from PSE influence compliance with the professional standards, and hence compliance with IPSAS. On performing the confirmatory factor analysis, the factor that letters of representation influence external auditors to review the procedures that the management has taken to confirm that the financial statements comply with the IPSAS requirements was dropped. This raises questions regarding the importance that the auditors have placed on these letters of representation. The quantitative results indicated that professional boards have a significant positive moderating effect regarding the influence of external audit services on IPSAS implementation. The findings support earlier studies by Galaskiewicz (2006) and Brusca and Martínez (2016), who concluded that professional boards are important stakeholders in IPSAS implementation. The findings are also in line with the institutional theory, which explains that professional boards can create normative or mimetic isomorphism, which may lead to compliance with the professional standards.

**CONCLUSION AND RECOMMENDATIONS**

The study concluded that professional boards have a significant positive moderating effect on the influence of external audit services on IPSAS implementation. An accountancy professional board offers IPSAS seminars and workshops to ensure that financial accountants and auditors understand the IPSAS requirements and so facilitate smooth compliance. Furthermore, professional boards

offer IPSAS certification to both financial accountants and auditors to equip them with the knowledge required to perform their duties. Moreover, the professional requirements require the PSE management to submit representation letter to the external auditors, and the head of the accounts section to provide a declaration that the financial statements that they are submitting for audit comply with the IPSAS requirements. The engagement letter, signed by both the external auditors and the management, aims to ensure that both parties understand their responsibilities with respect to the audit engagement, specifically the preparation of financial statements in compliance with IPSAS and the issuing of audit opinions on those financial statements.

According to the institutional theory, professional boards have a positive impact on IPSAS implementation. Based on the empirical literature, professional boards are important stakeholders in IPSAS implementation (Brusca & Martínez, 2016). The positive relationship between the existence of professional boards and IPSAS implementation attests to the three ways in which professional boards influence IPSAS implementation. Professional boards offer training to PSE personnel and bridge any skills deficiencies that could potentially undermine IPSAS implementation. In addition, professional boards help their members to update their skills set in response to the changes in IPSAS. Independently, PSE are unlikely to recognize the need to change their accounting policies and procedures so, without the initiatives of the professional boards, the level of IPSAS implementation in these entities could remain low. Thus, professional boards play an important role in providing the impetus for IPSAS implementation in PSE.

Professional boards also set the standards that their members should observe when formulating their accounting policies and designing their accounting systems and procedures. They also update these standards regularly in order to keep them in line with the emerging trends and developments. As already noted, PSE probably lack the capability to initiate the systems' changes that precede IPSAS implementation, so professional boards help them to fill this gap arising from the lack of this capability. By adhering to and updating the standards established by the professional boards, the level of IPSAS implementation increases. Professional boards also enforce compliance with the standards they have set, which explains the positive relationship between professional boards and IPSAS implementation. PSE managers who fail to conform to the professional boards' standards are likely to face punitive measures, such as the revocation of their membership of professional boards, and thus the professional boards provide a strong incentive for IPSAS implementation. Consequently, one should expect to observe differences in IPSAS implementation in PSE whose managers are members of professional boards and compared with entities whose managers are not members of such boards. The study recommends that accountancy professional boards should continue to strengthen their role of ensuring that their members are always equipped with up-to-date knowledge regarding IPSAS in order to improve PSE accountability. The Controller and Auditor General report for the year ended 30 June 2018 noted that the implementation status of issues raised in relation to IPSAS compliant financial statements showed inadequate improvements compared to previous years, owing to insufficient management follow-up to address the outstanding audit recommendations.

While this study focused on the moderating effect of professional boards on the influence of external audit services on IPSAS implementation, there could exist other factors that determine the level of IPSAS implementation in PSE. For instance, the size of an entity could influence the amount of resources that it receives so, in turn, the resource allocation determines the accountability pressures facing the entity's managers. The nature of service that PSE provides could also influence the scale of the accountability pressures facing it and, therefore, the need for

it to implement IPSAS. The study did not examine the differences in the level of IPSAS implementation. The disaggregation of the study participants in accordance with their level of IPSAS implementation could reveal important insights into the factors at play at a given level of IPSAS implementation. Several factors might be significant at low levels of IPSAS implementation, but lose their significance at higher levels. The failure to account for the differences in the level of IPSAS implementation amounted to a fundamental error in the conceptualization of the entities under study. In the absence of the separation of these entities, the study findings could mask important dynamics underlying the observed trends.

## REFERENCES

- Abdullah, A. (2014). Improving Government Accounting and Financial Management Reporting in Iraq. *British Journal of Accounting, Auditing and Finance Research*, 1(1), 69–83.
- ACGEN. (2019). *The Consolidated Financial Statements of the Government of Tanzania for the year ended 30 June 2018*. Dar es Salaam: United Republic of Tanzania.
- Agyemang, J. K., & Yensu, J. (2018). Accrual-Based International Public Sector Accounting Standards: Implementation Challenges Facing the Metropolitan, Municipal and District Assemblies in the Ashanti Region of Ghana. *International Journal of Accounting and Financial Reporting*, 8(2), 59–75. <https://doi.org/10.5296/ijafr.v8i2.12860>
- Ahmad, N. N. (2016). Investigating the Factors Influencing Users' Resistance towards Accrual Accounting. *Procedia Economics and Finance*, 35(October 2015), 17–26. [https://doi.org/10.1016/S2212-5671\(16\)00005-8](https://doi.org/10.1016/S2212-5671(16)00005-8)
- Ahuja, R. (2001). *Research Methods* (1st Ed). New Delhi: Rawat Publications.
- Akhidime, A. E., & Ekiomado, E. B. (2014). Adoption and implementation of International Financial Reporting Standards ( IFRSs ) in Nigeria : Enduring challenges and implications. *International Journal of Development and Sustainability*, 3(11), 2090–2100.
- Anderson, J. C., & Gerbing, D. W. (1988). Structural Equation Modeling in Practice: A Review and Recommended Two-Step Approach. *Psychological Bulletin*, 103(3), 411–423. <https://doi.org/10.1037/0033-2909.103.3.411>
- Arens, A., Randal, E., & Beasley, M. S. (2012). *Auditing and Assurance Services : An integrated Approach. Fourteenth Edition*. New York: Pearson.
- Ariff, A. M., & Hashim, H. A. (2013). The Breadth and Depth of Related Party Transactions Disclosures. *International Journal of Trade, Economics and Finance*, 4(6), 388–392. <https://doi.org/10.7763/ijtef.2013.v4.323>
- Athukorala, S. L., & Reid, B. (2003). *Accrual Budgeting and Accounting in Government and its Relevance for Developing Member Countries* (Vol. 30). Manila: Asian Development Bank. [https://doi.org/10.1016/S0264-410X\(12\)01439-9](https://doi.org/10.1016/S0264-410X(12)01439-9)
- Bagozzi, R. P., & Baumgartner, H. (1994). The Evaluation of Structural Equation Models and Hypothesis Testing. In *Principles of Marketing Research*. [https://doi.org/10.1016/0167-8116\(95\)00038-0](https://doi.org/10.1016/0167-8116(95)00038-0)
- Bagozzi, R. P., & Yi, Y. (1988). On the evaluation of structural equation models. *Journal of the Academy of Marketing Science*, 16(1), 74–94. <https://doi.org/10.1007/BF02723327>
- Baker, R., & Rennie, M. (2006). Forces Leading to the Adoption of Accrual Accounting by the Canadian Federal Government: An Institutional Perspective. *Canadian Accounting Perspectives*, 5(1), 83–112. <https://doi.org/10.1506/206k-rv71-2jmn-w3d3>
- Bellanca, S., & Vandernoot, J. (2013). Analysis of Belgian Public Accounting and Its Compliance with International Public Sector Accounting Standards (IPSAS) 1, 6 and 22. *International Journal of Business and Management*, 8(9), 123–133. <https://doi.org/10.5539/ijbm.v8n9p122>

- Bellanca, S., & Vandernoot, J. (2014). International Public Sector Accounting Standards (IPSAS) Implementation in the European Union (EU) member States. *Journal of Modern Accounting and Auditing*, 10(3), 257–269. <https://doi.org/ISSN 1548-6583>
- Bollen, K. A. (2006). *Structural Equations with Latent Variables*. Journal of the American Statistical Association. New York: Wiley. <https://doi.org/10.2307/2289630>
- Browne, M. W., & Cudeck, R. (1992). Alternative Ways of Assessing Model Fit. *Sociological Methods & Research*, 21(2), 230–258. <https://doi.org/10.1177/0049124192021002005>
- Brusca, I., & Martínez, J. C. (2016). Adopting International Public Sector Accounting Standards: a challenge for modernizing and harmonizing public sector accounting. *International Review of Administrative Sciences*, 82(4), 724–744. <https://doi.org/10.1177/0020852315600232>
- Byrne, B. M. (2013). *Structural Equation Modeling with AMOS. Basic Concepts, Applications, and Programming* (2nd ed.). New York: Routledge. <https://doi.org/10.4324/9780203805534>
- Champoux, M. (2006). Accrual Accounting in New Zealand and Australia: Issues and Solutions. *Harvard Law School Federal Budget Policy Seminar Briefing Paper No.27*, (27), 1–25.
- Chan, J. L. (2008). *The Harmonization of Government and the Role of IPSAS. International Public Sector Accounting Standards: Conceptual and Institutional Issues*. Milano: McGraw-Hill Companies, Inc.
- Chau, P. Y. K., & Hu, P. J.-H. (2007). Information Technology Acceptance by Individual Professionals: A Model Comparison Approach. *Decision Sciences*, 32(4), 699–719. <https://doi.org/10.1111/j.1540-5915.2001.tb00978.x>
- Christensen, M. (2002). Accrual accounting in the public sector: the case of the New South Wales government. *Accounting History*, 7(93), 93–124. <https://doi.org/10.1177/103237320200700205>
- Christiaens, J., Vanhee, C., Manes-Rossi, F., Aversano, N., & van Cauwenberge, P. (2015). The effect of IPSAS on reforming governmental financial reporting: an international comparison. *International Review of Administrative Sciences*, 81(1), 158–177. <https://doi.org/10.1177/0020852314546580>
- Ciconte III, W. A., Knechel, W. R., & Mayberry, M. A. (2014). Non-Audit Services and Improvements in Clients' Operating Performance and Risk Management. *Journal of Economic Literature*, (August), 1–60.
- DiMaggio, P., & Powell, W. (1983). The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields. *American Sociological Review*, 48(2), 147–160.
- Ekelot, A. (2016). International Public Sector Accounting Standards (IPSAS): The Best Way for Public Institutions, (July), 1–6.
- Elmore, P. B., & Beggs, D. L. (1975). Salience of Concepts and Commitment to Extreme Judgments in the Response Patterns of Teachers. *Journal of Education*, 95(4), 325–330.
- Fargher, N. L., & Gramling, A. A. (1996). A new market for attestation services: The performance presentation standards of the association for investment management and research. *Auditing A Journal of Practice & Theory*, 15(SUPPL.), 89–91.
- Fornell, C., & Larcker, D. F. (2006). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research*, 18(1), 39–50. <https://doi.org/10.2307/3151312>
- Galaskiewicz, J. (2006). Professional Networks and the Institutionalization of a Single Mind Set. *American Sociological Review*, 50(5), 639–658. <https://doi.org/10.2307/2095379>
- Graham, M. P., & Oxford, R. L. (1993). Language Learning Strategies: What Every Teacher

- Should Know. *TESOL Quarterly*, 27(1), 121–122. <https://doi.org/10.2307/3586958>
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis. Pearson custom library*. <https://doi.org/10.1038/259433b0>
- Harun, H., & Robinson, P. (2010). *The adoption of accrual accounting in the Indonesian public sector. Research in Accounting in Emerging Economies* (Vol. 10). Elsevier. [https://doi.org/10.1108/S1479-3563\(2010\)0000010014](https://doi.org/10.1108/S1479-3563(2010)0000010014)
- Hepworth, N. (2003). Preconditions for Successful Implementation of Accrual Accounting in Central Government. *Public Money and Management*, 23(1), 37–44. <https://doi.org/10.1111/1467-9302.00339>
- Hinkin, T. R. (1995). A Review of Scale Development Practices in the Study of Organizations. *Journal of Management*, 21(5), 967–988. <https://doi.org/10.1177/014920639502100509>
- Hoe, S. (2008). Issues and procedures in adopting structural equation modeling technique. *Journal of Applied Quantitative Methods*, 3(1), 76–83.
- Huweish, M., & Alshujairi, A. (2014). Government accounting system reform and the adoption of IPSAS in Iraq. *Research Journal of Finance and Accounting*, 5(24), 1–21.
- IFAC. (2018). Professional Accountancy Organizations. Retrieved from <http://www.ifac.org/about-ifac/membership/country/australia>
- IFAC, & CIPFA. (2018). *International Public Sector Financial Accountability Index*. New York.
- INTOSAI. (2016). *INTOSAI Strategic Plan 2017 - 2022*. Vienna: International Organisation of Supreme Audit Institutions.
- Jacobson, N., Butterill, D., & Goering, P. (2005). Consulting as a strategy for knowledge transfer. *Milbank Quarterly*, 83(2), 299–321. <https://doi.org/10.1111/j.1468-0009.2005.00348.x>
- Joe, J., & Vandervelde, S. (2007). Do Auditor-Provided Nonaudit Services Improve Audit Effectiveness? *Contemporary Accounting Research*, 24(2), 467–487. <https://doi.org/10.1506/Y6H1-7895-774T-5TM1>
- Judge, W., Li, S., & Pinsker, R. (2010). National adoption of international accounting standards: An institutional perspective. *Corporate Governance: An International Review*, 18(3), 161–174. <https://doi.org/10.1111/j.1467-8683.2010.00798.x>
- Kandemir, H. K. (2016). Auditing versus Consultancy: A Critique of the EU law Reforms on the New Form of Auditing. *Journal of Governance and Regulation*, 5(3), 90–97.
- Kaya, D., & Koch, M. (2015). Countries adoption of the International Financial Reporting Standard for Small and Medium-sized Entities (IFRS for SMEs) - Early empirical evidence. *Accounting and Business Research*, 45(1), 93–120. <https://doi.org/10.1080/00014788.2014.969188>
- Lüder, K. G. (1992). A Contingency Model of Governmental Accounting Innovations in the Political- Administrative Environment. *Research in Governmental and Nonprofit Accounting*, 7, 99–127.
- Mbelwa, L. H., Adhikari, P., & Shahadat, K. (2019). Investigation of the institutional and decision-usefulness factors in the implementation of accrual accounting reforms in the public sector of Tanzania. *Journal of Accounting in Emerging Economies*, 9(3), 335–365. <https://doi.org/10.1108/JAEE-01-2018-0005>
- McDonald, R. P., & Ho, M. H. R. (2002). Principles and practice in reporting structural equation analyses. *Psychological Methods*, 7(1), 64–82. <https://doi.org/10.1037/1082-989X.7.1.64>
- Meyer, J. W., & Rowan, B. (1977). Institutionalized Organizations: Formal Structure as Myth and Ceremony. *American Journal of Sociology*, 83(2), 340–363. <https://doi.org/10.1086/226550>
- Mhaka, C. (2014). IPSAS , A Guaranteed Way of Quality Government Financial Reporting? A



- Comparative Analysis of the Existing Cash Accounting and IPSAS Based Accounting Reporting. *International Journal of Financial Economics*, 3(3), 134–141.
- Miles, J., & Shevlin, M. (2007). A time and a place for incremental fit indices. *Personality and Individual Differences*, 42(5), 869–874. <https://doi.org/10.1016/j.paid.2006.09.022>
- Millstein, I. M. (1995). The Professional Board. *Business Lawyer*, 50, 1427–1443. Retrieved from [http://heinonline.org/HOL/Page?handle=hein.journals/busl48&div=15&g\\_sent=1&collection=journals](http://heinonline.org/HOL/Page?handle=hein.journals/busl48&div=15&g_sent=1&collection=journals)
- NAOT. (2017). *The Annual General Report of the Controller and Auditor General on the Financial Statements for the Year Ended 30th June, 2016, Central Government*. Dar es Salaam: United Republic of Tanzania.
- NBAA. (2009). *Technical Pronouncement No. 3 of 2009 - Scope of the Applicability of IFRSs , IPSASs and IFRS for SMEs in Tanzania*. Dar es Salaam: United Republic of Tanzania.
- Nyahas, S. I., Munene, J., Orobia, L., & Kaawaase, T. K. (2017). Isomorphic influences and voluntary disclosure: The mediating role of organizational culture. *Cogent Business & Management*, 4(1), 1–18. <https://doi.org/10.1080/23311975.2017.1351144>
- Olayinka, E., Uchenna, L., & Nwanneka, J. (2016). International Public Sector Accounting Standards (IPSAS) Adoption and Quality of Financial Reporting In The Nigerian Public Sector. *ESUT Journal of Accountancy*, 7(2), 22–30.
- Opanyi, R. O. (2016). The Effect of Adoption of International Public Sector Accounting Standards on Quality of Financial Reports in Public Sector in Kenya. *European Scientific Journal*, 12(28), 161–187. <https://doi.org/10.19044/esj.2016.v12n28p161>
- Oxford, R. L., & Burry-Stock, J. A. (1995). Assessing the use of language learning strategies worldwide with the ESL/EFL version of the Strategy Inventory for Language Learning (SILL). *System*, 23(1), 1–23. [https://doi.org/10.1016/0346-251X\(94\)00047-A](https://doi.org/10.1016/0346-251X(94)00047-A)
- Parker, L. R., & Bean, D. R. (2012). International public sector accounting standards board aims to enhance international accountability through reporting service performance information. *International Journal of Public Sector Performance Management*, 2(1), 96–103. <https://doi.org/10.1504/IJPSPM.2012.048746>
- Pei, D., & Hamill, P. A. (2013). Do modified audit opinions for Shanghai listed firms convey heterogeneous information? *Journal of International Accounting, Auditing and Taxation*, 22(1), 1–11. <https://doi.org/10.1016/j.intaccudtax.2013.02.004>
- Pitulice, I. C. (2013). Accrual Accounting Adoption in the Romanian Public Sector. *Romanian Statistical Review*, 61(1), 66–76.
- Rossi, F. M., Cohen, S., Caperchione, E., & Brusca, I. (2016). Harmonizing public sector accounting in Europe: thinking out of the box. *Public Money and Management*, 36(3), 189–196. <https://doi.org/10.1080/09540962.2016.1133976>
- Ryan, C., Dunstant, K., & Brown, J. (2002). The Value of Public Sector Annual Reports and Annual Reporting Awards in Organisational Legitimacy. *Accounting, Accountability and Performance*, 8(1), 61–76.
- Saleh, Z. (2008). Factors that Influence the Development of Governmental Accounting in Malaysia. *Journal of Accounting Perspectives*, 1(December), 57–71.
- Schelker, M. (2013). Auditors and Corporate Governance: Evidence from the Public Sector. *Kyklos*, 66(2), 275–300. <https://doi.org/10.1111/kykl.12021>
- Slack, T., & Hinings, B. (1994). Institutional Pressures and Isomorphic Change: An Empirical Test. *Organization Studies*, 15(6), 803–827. <https://doi.org/10.1177/017084069401500602>
- Steiger, J. H. (2007). Understanding the limitations of global fit assessment in structural equation

- modeling. *Personality and Individual Differences*, 42(5), 893–898.  
<https://doi.org/10.1016/j.paid.2006.09.017>
- Tabachnick, B. G., & Fidell, L. S. (2012). *Using multivariate statistics* (6th ed.). New York: Harper and Row. <https://doi.org/10.1037/022267>
- Thadani, D. R., & Cheung, C. M. K. (2011). Online social network dependency: Theoretical development and testing of competing models. In *Proceedings of the Annual Hawaii International Conference on System Sciences*. <https://doi.org/10.1109/HICSS.2011.331>
- Ullman, J. B. (2006). Structural equation modeling: Reviewing the basics and moving forward. *Journal of Personality Assessment*, 87(1), 35–50.  
[https://doi.org/10.1207/s15327752jpa8701\\_03](https://doi.org/10.1207/s15327752jpa8701_03)
- Vatcheva, K., & Lee, M. (2016). Multicollinearity in Regression Analyses Conducted in Epidemiologic Studies. *Epidemiology: Open Access*, 6(2), 227. <https://doi.org/10.4172/2161-1165.1000227>
- Yunchen, W., Xuan, Y., Manping, T., & Ran, Y. (2015). Empirical Research on the Influence of Audit Attestation Service on the Effectiveness of Internal Control in Information Technology Industry. In *2015 International Conference on Service Science (ICSS)*. <https://doi.org/10.1109/ICSS.2015.26>