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The relationship between the adoption of international public sector accounting standards and sources of government financing: evidence from developing countries

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ABSTRACT
We examine the association between the adoption of International Public Sector Accounting Standards (IPSAS) and the level of government financing in the context of developing countries. We draw upon signalling theory, robust econometric techniques and a sample of 54 developing countries over a 13-year period. Our results show that adopting IPSAS is significantly associated with increased financing from international sources and foreign aid. In contrast, there is no significant association for the case of domestic credit. Our results are more pronounced for developing countries that have adopted accrual-based IPSAS than for those that have adopted cash-based IPSAS. Finally, we find that the association between IPSAS and government financing remains similar regardless of the country's level of institutional quality. Our evidence implies that there is a benefit of increased debt financing after adopting IPSAS, indicative of the incremental signal international capital providers place on the availability of IPSAS-based public sector financial reports.

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Developing countries; government financing; domestic credit; foreign aid; international public sector accounting standards (IPSAS)

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1. Introduction

Over the last two decades, international institutions such as the World Bank, International Monetary Fund (IMF), African Development Bank (AfDB) and Asian Development Bank (ADB) have championed IPSAS-related reforms in developing countries. Yet the path towards comprehensive IPSAS adoption (whether on a cash or accrual basis) remains low, selective and slow (Brusca & Martínez, 2016; Liguori et al., 2012; Polzer et al., 2019; International Federation of Accountants, 2019) on account of a number of (geo)political, conceptual and practical challenges (eg, Adhikari & Gårseth-Nesbakk, 2016; Lassou, 2017; Mbelwa et al., 2019; van Helden & Uddin, 2016; Polzer et al., 2021).

A relatively more recent strand of research focuses on country-level determinants of IPSAS adoption (Christiaens et al., 2015; Sellami & Gafsi, 2019b; Boolaky-Doorgakunt et al., 2022) and its consequences. In particular, some studies suggest that IPSAS adoption leads to higher levels of disclosure and reporting practices (Beck, 2018; Sellami &

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Gafsi, 2019a), improves governance quality (Cuadrado-Ballesteros & Bisogno, 2021; Tawiah, 2022) and reduces corruption (Cuadrado-Ballesteros et al., 2019; Tawiah, 2021; Hamed-Sidhom et al., 2022). At the same time, there has been an insufficient empirical evaluation of the consequences for developing countries, notably concerning access to finance (Cuadrado-Ballesteros et al., 2020).

From the perspective of major international financial agencies, IPSAS-based financial reports and statements have been the preferred basis of accounting and reporting for some time, are integrated into sovereign credit-rating methodologies (Véron, 2011) and support the analysis and assessment of projects to be financed by sovereign-backed loans (Pattanayak, 2018; AfDB, 2008; ADB, 2019, 2015a, 2015b). This is consistent with the market-based signalling rationales underlying IPSAS adoption and the provision of comparable information for financing purposes (Nagae et al., 2022). In light of the still-evolving level of IPSAS adoption in developing countries (Polzer et al., 2021), we ask: *To what extent is a developing country's level of IPSAS adoption (cash or accrual-based) associated with the level of government financing?*

Our motivations underlying these questions are as follows. First, a reliance on government financing remains key to economic growth in most developing countries. Although such a financing gap has narrowed over time because of successful export-oriented strategies for some economies (eg, China, Vietnam, Malaysia), there remains for many developing countries a crucial reliance on external debt and foreign aid, for instance, in pursuing capital investment and economic growth objectives (Easterly, 1997; Ramzan & Ahmad, 2014). However, international financial providers (eg, WB, IMF, AfDB and ADB) remain concerned about the level of risk, comparability of information and accountability in developing countries, which explains their influential role in championing a transition to developed-country-inspired public sector reforms (Polzer et al., 2019; Sellami & Gafsi, 2019b). Therefore, one might expect the adoption of IPSAS – as a market-based signal reflecting access to better quality information and accountability (Christiaens et al., 2015; Cuadrado-Ballesteros et al., 2020; Sellami & Gafsi, 2019a) – to improve a country's ability to secure financing.

Second, many public sector accounting researchers (Adhikari & Gårseth-Nesbakk, 2016; Brusca & Martínez, 2016; Carlin & Guthrie, 2003; Lassou, 2017; Mbelwa et al., 2019; Polzer et al., 2019; van Helden & Uddin, 2016) question whether IPSAS can coherently "fit in" the developing-country context, given the challenges hindering a full (or even partial) implementation of accrual – or cash-basis IPSAS. Case studies reveal a mix of rhetorical/symbolic, loosely coupled and occasionally substantive instances of IPSAS adoption in developing countries (Polzer et al., 2019, 2021). Authors also highlight that substantial financial and human resources have been invested in the IPSAS agenda[1] by the WB/IMF and developing countries, particularly towards a focus on cash-basis IPSAS in these contexts (Adhikari et al., 2013). It seems, therefore, apt to gauge to what extent (if any) IPSAS adoption contributes to particular economic-led outcomes.

Consequently, our study investigates how IPSAS adoption influences government financing in developing countries. We consider the validity of an often-mentioned

[1]We acknowledge that similar concerns and debates about IPSAS are happening in the developed-country context (eg, Christiaens et al., 2015). However, we contend that the consequences/implications are somewhat more pronounced in the case of developing countries, hence our focus.

claim that developing countries adopt international accounting standards as means to signal their probity and financial sustainability, thereby being amenable to receiving more financing and aid (Sellami & Gafsi, 2019b; Boolaky-Doorgakunt et al., 2022; Nagae et al., 2022). We rely on a panel dataset of 54 developing countries over 13 years to examine the relationship between IPSAS adoption and government financing. We also consider how the country's institutional quality influences the effect of IPSAS adoption on government financing.

Our study addresses an important question raised by accounting researchers (Adhikari & Gårseth-Nesbakk, 2016; Brusca & Martínez, 2016; Carlin & Guthrie, 2003; Lassou, 2017; Mbelwa et al., 2019; Polzer et al., 2019; van Helden & Uddin, 2016) on whether/how IPSAS could coherently "fit in" and be of benefit to developing countries. This study, therefore, contributes to the emerging literature on the determinants and consequences of IPSAS adoption (eg, Cuadrado-Ballesteros & Bisogno, 2019; Cuadrado-Ballesteros et al., 2020; Sellami & Gafsi, 2019a, 2019b; Tawiah, 2021, 2022). In particular, our findings emphasise the specific contributory role of accounting reforms for government financing in addition to emerging evidence with regard to governance, disclosure and corruption.

The paper proceeds as follows. Section 2 presents the theoretical underpinning, prior research and relevant hypotheses. Section 3 presents the research methods. The analysis and results are set out in Section 4. Section 5 discusses the results, and finally, Section 6 provides conclusions and implications.

2. Theoretical underpinnings, prior research and hypothesis development

Prior studies argue that the adoption of international accounting standards signals significant changes to the reporting regime within a country/market, thereby enabling the supply of higher-quality information leading to improved investor/lender confidence and dampening the risk and cost of capital (Gordon et al., 2012; Nnadi & Soobaroyen, 2015). Rooted in market signalling theory (Spence, 1973, 2002; Zhang & Wiersema, 2009; Connelly et al., 2011) and the inherent existence of information asymmetry between the providers and users of financial information, the adoption of IPSAS is expected to reflect a better model of accounting and reporting to signal the provision of quality information to, and more generally to improve the comparability of information for, finance providers.

IPSAS has emerged as an international set of principles and rules that would enable the evaluation of the financial implications and consequences of government plans, priorities and activities (Christiaens & Rommel, 2008) in addition to the mainstream information gathered from budgetary systems. On top of the claimed benefits of improving democratic, state and political accountability, neo-liberal economic rationales, borne out of the increasing globalisation of economic/financial activity (Christiaens et al., 2015) have fostered a harmonisation and comparability of information agenda within the public sector accounting circles (IPSAS Board – IPSASB, 2014; Brusca & Martínez, 2016). Caperchione and Salvatori (2012) also claim that accrual-based IPSAS meets the informational needs of investors in predicting the solvency of government entities. Furthermore, Brusca and Martínez (2016) argue that one of the factors supporting IPSAS adoption in Europe has arisen from the bailout package instituted after the financial crisis as a means to improve trust, confidence and comparability about country-level public sector financial information. Therefore, IPSAS adoption is seen as

part of the process of enhancing financial transparency, reducing information asymmetry and enabling an assessment of financial stewardship, and contributes to the signalling of these outcomes to debt markets, development banks and credit rating agencies.

These implications take on a particular resonance in the case of developing countries, given their reliance on external sources of finance and foreign aid (Chan, 2006; Nagae et al., 2022). Furthermore, developing countries are often known to have weak or limited public financial management and accounting systems (Christiaens et al., 2015; Sellami & Gafsi, 2019a), and the adoption of IPSAS can signal improvements in public sector financial reporting systems. However, the International Federation of Accountants (2019) reports that only 11% of its members have fully adopted IPSAS, a tiny proportion compared with those that have adopted private sector standards – 67% for International Standard on Auditing (ISA) and 62% for International Financial Reporting Standards (IFRS) – though the harmonisation agenda started approximately at the same time for the vast constituency of developing countries.

So far, a number of factors such as political system, corruption, regulation, the experience of private sector international standards, funding, openness and salience of public sector organisations are associated with IPSAS adoption (Boolaky-Doorgakunt et al., 2022; Polzer et al., 2021; Sellami & Gafsi, 2019b). In turn, a few studies have examined the consequences of IPSAS adoption, focusing on governance and corruption. For example, Cuadrado-Ballesteros et al. (2020) found that governance quality, encompassing different elements of accountability, the effectiveness of public policies, regulation quality, the rule of law, and controlling corruption, was significantly higher for OECD[2] countries that implemented accrual-based accounting systems and/or IPSAS. Tawiah (2021) documented that the level of corruption is lower for a sample of IPSAS-adopting developing countries, while a recent study by Nagae et al. (2022) reports that mandatory IFRS adoption is positively associated with an increase in donor aid (by about 20%). What is less clear is whether and how reported benefits from IPSAS adoption translate into financing outcomes for these countries.

Government financial reports under IPSAS are endorsed by major players in international capital markets (Manes-Rossi et al., 2016) to compare a country's financial standing, its ability to meet financial obligations and the quality of project accounting and reporting (Manes-Rossi et al., 2016). For example, the AfDB (2008)'s Guidelines for Financial Management and Financial Analysis of Projects specify that information prepared on the basis of cash or accrual-based IPSAS (or equivalent standards) is expected to enable an assessment of projects financed by sovereign-backed loans. Furthermore, the emphasis on IPSAS is noted in the Asian Development Bank's *Financial Analysis and Evaluation: Technical Guidance Note* (ADB, 2019) and earlier guidance notes on financial management assessments and monitoring procedures for the evaluation/financing of national projects (ADB, 2015a, 2015b). Finally, credit rating agencies highlight the relevance of IPSAS in their assessment of sovereign creditworthiness (Véron, 2011; Pattanayak, 2018).

In this regard, and in view of a situation where IPSAS adoption remains limited or slow progressing in the developing-country context (Polzer et al., 2021), we argue that IPSAS adoption is an important signalling indicator for finance providers as to the

[2]Organisation for Economic Co-operation and Development (OECD).

willingness of national policy-makers to substantively adhere to financing requirements. While we acknowledge that the relevance of institutional pressures from supranational agencies (IMF; World Bank) do matter when it comes to IPSAS adoption (eg, Sellami & Gafsi, 2019b; Polzer et al., 2019), we also note that full adoption has not been a straightforward and systematic outcome of such pressures in the case of developing countries. In several cases, there has been a shift to cash-basis IPSAS (Adhikari et al., 2013), but it is not clear whether this would be beneficial from a government financing perspective. To this extent, therefore, and from a debt market signalling perspective, we hypothesise the following:

> H_1: The level of IPSAS adoption is associated with an increase in government debt financing and foreign aid.

Sovereign debt decision-making places an important emphasis on the quality of institutions (Weill, 2011). Vogel (2007) argues that lenders need institutions to ensure accountability and enforcement of laws to loan recoveries. The adoption of international standards is expected to improve financial reporting and is part of an assessment of the quality of a country's institutions. At the same time, some scholars argue that existing institutional structures are crucial for harnessing the full benefits of international accounting standards (Ahmed et al., 2013; Ball, 2016; Simbi et al., 2022). Bova and Pereira (2012) contend that international accounting standards (accrual basis in particular) are less beneficial for countries with weak institutions because of the discretion available in the measurement and reporting of information prepared in accordance with these international standards. For instance, preparers may take advantage of accrual estimates under IPSAS to manage financial results (Cuadrado-Ballesteros et al., 2020) if there are no effective oversight institutions (eg, auditor general, court of accounts) to monitor compliance. In this light, Bakre et al. (2017) suggest that IPSAS is not appropriate for the Nigerian system because of weak institutional structures.

In contrast, some studies have found that international accounting standards such as IPSAS serve as follow-on rules that instil discipline in financial reporting and accountability, thereby building on the institutional environment of the country (Cai et al., 2014; Houqe & Monem, 2016). From a signalling perspective, IPSAS adoption could act as an indicator for quality financial reporting, particularly in the case of countries with weak institutional structures. So far, there is only evidence from a foreign (private) investment setting, where Simbi et al. (2022) found that the positive relationship between IFRS adoption and foreign direct investment in Africa was tempered by the quality of a country's institutional framework.

Overall, if the adoption of IPSAS is expected to improve the quality of financial reporting and access to finance, then the importance of IPSAS would, in general, be more significant for countries that do not have a high-quality institutional environment. Countries with strong institutional structures (eg, Cuadrado-Ballesteros et al., 2020) are likely to already have a considerable level of reporting and oversight to attract debt and aid before adopting IPSAS. Given the above, we hypothesise the following:

> H_2 The association between the level of IPSAS adoption and government debt financing and foreign aid is stronger for developing countries with low institutional quality.

3. Research methods

3.1. Data and sampling

We initiate the sample selection from all the 130 jurisdictional profiles available on the IFAC website, focusing on developing countries. Developing countries are selected based on the United Nations (2014) country classification in the World Economic Situation and Prospects report, including those categorised as transitionary economies. After removing all countries with missing data, our final sample is 54 developing countries over a 13-year period (2005–2017).[3]

3.2. Variable description and measurement

3.2.1. IPSAS adoption status

The IFAC website provides reports from its members on the national-level adoption and implementation of each of the international accounting standards under the heading "Adoption status by country". We scrutinise the country report to ascertain the IPSAS adoption status. We also rely on other authoritative information, such as the ACCA (2017) report on IPSAS implementation around the world and announcements by governments.[4] We code the IFAC country adoption status on a three-point categorical scale, where 0 means non-adopted, 1 = partially adopted and 2 = fully adopted. Non-adoption countries are countries that do not use IPSAS in any form. Partial adoption implies using IPSAS on a cash-basis only (eg, Fiji) or refers to a particular-year version of IPSAS (eg, Guatemala). Full adoption means the use of up-to-date IPSAS as issued without modification. We do acknowledge the different approaches for partial adoption. Therefore, to test the robustness of our coding, we use sub-sampling analyses to mitigate the effect of these diverse approaches.

3.2.2 Institutional quality

We develop the institutional quality index (IQ) using Kaufmann and Kraay's (2018) six indicators, namely the World Governance Indicators (WGIs). WGIs cover six areas: control of corruption (CCT), government effectiveness (GVE), political stability and absence of violence (PST), regulatory quality (RGQ), rule of law (RUL) and voice and accountability (VAA). Each of the six indicators captures different aspects of institutional quality, but including all six indicators in the same equation creates a multicollinearity problem because of the high correlation between the six indicators. At the same time, the six indicators have the same scale and range (−2.5–2.5). Therefore, following Cuadrado-Ballesteros et al. (2020) and Tunyi et al. (2020), we use the average of the six indicators as a measure of institutional quality.

[3]We start in 2005 to avoid long pre-adoption periods. We end in 2017 because it was the most recent annual data available with WDI and the Bank for International Settlements at the time of data collection.

[4]For example, in the case of Ghana, we find the announcement about IPSAS adoption on the following site: <https://www.cagd.gov.gh/international-public-sector-accounting-standards-ipsas-launching/#:~:text=statements%20among%20countries.-,IPSAS%20In%20Ghana,of%20IPSAS%20Accrual%20in%202014.&text=The%20Institute%20of%20Chartered%20Accountants,provides%20Legal%20backing%20for%20IPSAS> retrieved 23 October 2020.

3.2.3 Dependent variables

Among the different sources of government financing in developing countries, external debt, domestic debt and foreign aid have been identified as the major sources of funding besides tax revenue (Bua et al., 2014; Easterly, 1997; Ramzan & Ahmad, 2014). Therefore, we use these three sources as our dependent variables.

3.2.4 External funding

We use outstanding international public debt securities as a measure of external funding. The external public debt covers all long-term bonds, notes and money market instruments placed on international markets.

3.2.5 Domestic funding

Domestic debt is proxy by outstanding domestic public debt securities to GDP. It covers all debt securities issued in domestic markets, including long-term bonds and notes, treasury bills, commercial papers and other short-term notes.

3.2.4. Foreign aid

We use the log of net official development assistance. Foreign aid consists of disbursements of loans made on concessional terms (net of repayments of principal) and grants by official agencies of the members of the Development Assistance Committee (DAC), by multilateral institutions and by non-DAC countries. It includes loans with a grant element of at least 25%.

3.2.5. Control variables

Based on prior studies (Beck et al., 2006; Boyd et al., 2001; Weill, 2011), we control for factors that are likely to influence the dependent variables. These variables include banking crisis, bank assets, inflation, government expenditure, interest rate, tax revenue, exchange rates, global financial crisis, savings, broad money GDP per capita, GDP growth and total debt stock.

Descriptions and sources for these variables are presented in Table 1.

Banking and global financial crises generally limit the amount of debt that financial institutions (both at home and abroad) will be willing to lend to governments. Hence, both crises are likely to negatively impact debt (Weill, 2011). Total bank assets represent the size of the banking industry, and a country's having large bank assets indicates the availability of local funding; therefore governments are less likely to take on more external debt. Similarly, more loan facilities are available from banks and financial institutions when there are more savings. In effect, we predict a positive association between savings and domestic credit. Tax revenue remains the major source of funding for all governments. Consequently, countries with more tax revenue are expected to borrow less from domestic and external sources (including foreign aid). Higher borrowing costs, including interest rate, inflation and exchange rate, will tend to discourage borrowing at both local and foreign levels. We also account for the usual economic growth using gross domestic product growth rate (GDPG), GDP per capita and government expenditure. Faced with economic expansion and growth, governments tend to pursue more debt and foreign aid (Yusuf & Mohd, 2021). Finally, fund providers consider the total debt stock of a country to

Table 1. Variable description and sources

Variable	Description	Source
IPSAS	The status of IPSAS use in a country	IFAC Website, ACCA (2017)
External credit	International public debt securities as a share of GDP (%)	Global Financial Development Database
Domestic credit	Outstanding domestic public debt securities to GDP (%)	Global Financial Development Database
Foreign aid	Net official development assistance in grants and aid as a percentage of GDP	World Development Indicators
Institutional quality	Average of the six World Governance Indicators	World Governance Indicators
Bank crisis	Banking crisis dummy (1 = banking crisis, 0 = none)	Global Financial Development Database
Bank assets	Central bank assets to GDP (%)	Global Financial Development Database
Inflation	Annual percentage change in consumer price index	World Development Indicators (WDI)
Expenditure	Gross national expenditure as a percentage of GDP	World Development Indicators
Tax revenue	Total tax revenue as a percentage of GDP	World Development Indicators
Interest rate	Annualised lending rate	World Development Indicators
Exchange rate	Official exchange rate (local currency units to US$)	World Development Indicators
Savings	Gross savings as a percentage of GDP	World Development Indicators
Broad money	Sum of currency outside banks as a percentage of GDP	World Development Indicators
Global financial crisis	Global financial crisis (binary 0 and 1)	World Development Indicators
Economic development	Log of gross domestic product per capita	World Development Indicators
Economic growth	Annual GDP growth rate	World Development Indicators
Total debt stock	Total debt stock as percentage GDP	World Development Indicators

determine whether it can pay any additional debt; hence we expect total debt stock to be detrimental to any form of borrowing (domestic or external) (Bank for International Settlements, 2011; Yusuf & Mohd, 2021)

3.3. Econometric modelling

Prior to testing our hypotheses, we conduct different pre-regression tests. The Pearson pairwise correlation matrix in Table 2 shows that there is little concern about multicollinearity, since none of the coefficients is over 0.8 (Field, 2000). Next, we perform the Hausman (1978) specification test. The untabulated results lead us to reject the null hypothesis that the random effect is consistent. Therefore, we use the fixed effect to minimise the potential misspecification.

Having established the appropriateness of the data for ordinary least square modelling, the following equations are considered for each of the three sources of funding:

$$\begin{aligned}\text{Externaldebt}_{it} &= a+\beta_1\text{IPSAS}_{it}+\beta_2\text{Bankcrisis}_{it}+\beta_3\text{Bankassests}_{it}+\beta_4\text{Inflation}_{it}\\ &+\beta_5\text{Expenditure}_{it}+\beta_6\text{Taxrevenue}_{it}+\beta_7\text{Interestrate}_{it}\\ &+\beta_8\text{Exchangerate}_{it}+\beta_9\text{Savings}_{it}+\beta_{10}\text{Broadmoney}_{it}+\beta_{11}\text{GFC}_{it}\\ &+\beta_{12}\text{GDPpercapita}_{it}+\beta_{13}\text{Growth}_{it}+\beta_{14}\text{Debtstock}_{it}\varepsilon_{it}.\end{aligned} \tag{1}$$

$$\begin{aligned}\text{Domesticdebt}_{it} &= a+\beta_1\text{IPSAS}_{it}+\beta_2\text{Bankcrisis}_{it}+\beta_3\text{Bankassests}_{it}+\beta_4\text{Inflation}_{it}\\ &+\beta_5\text{Expenditure}_{it}+\beta_6\text{Taxrevenue}_{it}+\beta_7\text{Interestrate}_{it}\\ &+\beta_8\text{Exchangerate}_{it}+\beta_9\text{Savings}_{it}+\beta_{10}\text{Broadmoney}_{it}+\beta_{11}\text{GFC}_{it}\\ &+\beta_{12}\text{GDPpercapita}_{it}+\beta_{13}\text{Growth}_{it}+\beta_{14}\text{Debtstock}_{it}\varepsilon_{it}.\end{aligned} \tag{2}$$

Table 2. Correlation matrix

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. IPSAS	1													
2. Institutional quality	0.06	1												
3. Bank crisis	0.04	−0.12	1											
4. Bank assets	−0.05	−0.11	0.04	1										
5. Inflation	0	−0.19	0.29	0.16	1									
6. Expenditure	−0.06	−0.01	−0.05	0.18	0.03	1								
7. Tax revenue	0.11	0.33	0.03	−0.02	0	0.22	1							
8. Interest rate	−0.06	−0.12	0.11	0.15	0.27	0.07	−0.02	1						
9. Exchange rate	−0.11	−0.11	−0.03	−0.07	0.04	−0.04	−0.13	0.01	1					
10. Savings	−0.06	−0.18	0	−0.34	−0.09	−0.45	−0.29	−0.13	0.11	1				
11. Broad money	−0.09	0.11	−0.07	0.38	−0.25	0.12	0.08	−0.28	0.1	0.03	1			
12. Global financial crisis	−0.1	−0.02	0.1	−0.04	0.19	0.02	0	0.07	−0.01	0.02	−0.02	1		
13. Economic development	0.01	0.61	−0.06	0.07	−0.22	−0.3	0.1	−0.15	−0.17	−0.07	0.25	−0.04	1	
14. Economic growth	−0.08	−0.16	−0.11	−0.13	0.03	−0.09	−0.15	−0.03	0.09	0.35	−0.06	−0.17	−0.26	1
15. Total debt stock	−0.01	−0.05	0.07	0.42	0.03	0.35	0.03	0.05	0.01	−0.27	0.46	−0.08	0.07	−0.16

$$\begin{aligned}\text{Foreignaid}_{it} = a &+ \beta_1\text{IPSAS}_{it} + \beta_2\text{Bankcrisis}_{it} + \beta_3\text{Bankassests}_{it} + \beta_4\text{Inflation}_{it} \\ &+ \beta_5\text{Expenditure}_{it} + \beta_6\text{Taxrevenue}_{it} + \beta_7\text{Interestrate}_{it} \\ &+ \beta_8\text{Exchangerate}_{it} + \beta_9\text{Savings}_{it} + \beta_{10}\text{Broadmoney}_{it} + \beta_{11}\text{GFC}_{it} \\ &+ \beta_{12}\text{GDPpercapita}_{it} + \beta_{13}\text{Growth}_{it} + \beta_{14}\text{Debtstock}_{it}\varepsilon_{it}. \end{aligned} \tag{3}$$

4. Empirical analysis and results

4.1. Descriptive statistics

Table 3A and 3B provide the descriptive statistics of the sample data. The statistics include the mean, median, 75th percentile, 90th percentile and standard deviation. The mean values of government financing (external debt, domestic debt and foreign aid) reveal that foreign aid is the major source of addressing a financing gap in most developing countries, with an average of 19.79%. The mean for domestic debt is 12.66%, which is higher than the external debt of 8.32%, reflecting a higher reliance on domestic borrowing by developing countries. The average total debt stock of the sample countries is about half of their GDP, with a high standard deviation indicating significant differences between them. A mean of 0.385 and a standard deviation of 0.595 reflect a high variation in the adoption/use of IPSAS and indicate that the IPSAS adoption project is still very much in progress, as discussed in recent studies (Polzer et al., 2021). There are 9 fully adopted countries; 27 partially use IPSAS, and 18 have not adopted IPSAS (see Appendix). Finally, there is a high standard deviation for institutional quality (0.508), which highlights diverse institutional settings even within the sample of developing countries.

Table 3. A: Descriptive statistics

Variable	N	Mean	Median	P75	P90	Std.
External credit	702	8.315	4.475	9.349	20.32	11.85
Foreign aid	654	19.79	20.02	20.81	21.56	1.442
Domestic credit	702	12.66	8.921	16.14	26.94	12.68
IPSAS012	702	0.385	0	1	1	0.595
Institutional quality	702	−0.230	−0.279	−0.00425	0.384	0.508
Bank assets	702	5.241	2.667	7.065	13.24	6.884
Inflation	702	6.247	5.011	8.304	12.41	5.250
Expenditure	702	104.6	104.2	111.2	119.5	11.24
Tax revenue	702	15.99	15.14	18.26	23.74	4.986
Interest rate	702	13.03	12.32	16.72	19.56	6.964
Exchange rate	702	852.7	18.90	179.2	1,508	3,013
Savings	702	21.78	21.20	27.42	32.94	9.784
Broad money	702	61.63	51.50	73.77	115.1	41.22
Economic development	702	8.296	8.320	8.922	9.516	0.913
Economic growth	702	4.406	4.479	6.357	8.147	3.776
Total debt stock	702	55.78	49.16	63.99	93.26	37.26
Number of countries	54	54	54	54	54	54

Table 3. B. Descriptive statistics of dummy variables

Variable	*N*	Proportion of 1	Proportion of 0
Banking crisis	702	0.021	0.987
Global financial crisis	702	0.154	0.846
No of countries	54	54	54

4.2. Main results

Table 4 provides the main results. We begin the analysis by considering the relationship between IPSAS adoption and external financing in column 1. The coefficient of *IPSAS* (1.067) is positive and significant, indicating a positive and significant relationship between the use of IPSAS and external funding. This result suggests that adopting IPSAS contributes to a country's attempts to secure more financing from international markets and institutions. In column 2 of Table 4, we regress foreign aid on IPSAS and find a positive and significant coefficient (0.136). The result implies that the use of IPSAS significantly drives the inflow of foreign aid and grants to developing countries and chimes with the recent findings by Nagae et al. (2022). Finally, in column 3 of Table 4, we present the estimation of IPSAS and domestic credit. Contrary to the expectation that IPSAS increase domestic debt funding, we report a negative but non-significant coefficient for IPSAS. This suggests domestic finance providers do not primarily rely on IPSAS adoption as a market signal, presumably because they may have access to other informational sources.

4.3. Institutional quality

Researching on developing countries allowed us to consider whether broader institutional structures[5] help assert the relevance of international public sector accounting standards, with specific reference to the case of government financing. Indeed, a major criticism by many public sector accounting researchers is whether IPSAS can fit within the prevailing political, economic, cultural and legal structures (Adhikari et al., 2013; Polzer et al., 2019; Lassou, 2017). Our second hypothesis contended that adopting IPSAS is more likely to be crucial for developing countries with a comparatively lower level of institutional quality.

To establish the moderating effect of institutional quality on the relevance of IPSAS to government funding, we create a two-way interaction term between IPSAS and institutional quality (IPSAS*IQ). The results are presented in Table 5. The coefficient of the two-way interaction term (IPSAS*IQ) is not significant for all three sources of financing, suggesting that institutional quality does not moderate the relationship between IPSAS adoption and government financing. In other words, IPSAS adoption in developing countries appears to contribute to government financing, irrespective of the institutional settings.

4.4. Robustness check: accounting for different modes of IPSAS adoption

The primary challenge in assessing the consequences of any international standard is how to address the different approaches countries take towards adoption. The classification becomes much more challenging in the case of IPSAS adoption, partly because of the existence of both cash-basis IPSAS and accrual-basis IPSAS, principally in the context of developing countries (Polzer et al., 2021; Cuadrado-Ballesteros et al., 2020). While our coding of countries covers the major variations for IPSAS adoption, we

[5]Although they are developing countries, the quality of institutional structures highly differs. This can be observed in the untabulated descriptive statistics for the PCA analysis and the institutional quality variable in Table 3.

Table 4. Main results

Variable	(1) External credit	(2) Foreign aid	(3) Domestic credit
IPSAS012	1.067***	0.136*	−0.393
	(0.397)	(0.0783)	(0.417)
Banking crisis	0.648	0.553*	1.476
	(1.355)	(0.322)	(1.422)
Bank assets	0.0456	−0.0310***	0.531***
	(0.0543)	(0.00866)	(0.0569)
Inflation	−0.0201	0.00939	−0.0702
	(0.0448)	(0.0100)	(0.0471)
Expenditure	−0.0711*	0.0146***	−0.0272
	(0.0380)	(0.00533)	(0.0399)
Tax revenue	−0.347***	−0.0609***	−0.406***
	(0.101)	(0.0105)	(0.106)
Interest rate	−0.233***	0.00145	0.00354
	(0.0651)	(0.00708)	(0.0683)
Exchange rate	−0.000336	1.68e-05	7.49e-05
	(0.000388)	(1.64e-05)	(0.000407)
Savings	0.0816*	0.00533	−0.0487
	(0.0461)	(0.00633)	(0.0483)
Broad money	0.0776***	0.00762***	−0.00730
	(0.0252)	(0.00175)	(0.0264)
Global financial crisis	−0.801*	−0.126	−0.364
	(0.473)	(0.132)	(0.496)
Economic development	−3.172***	−0.803***	3.795***
	(0.716)	(0.0615)	(0.752)
Economic growth	−0.0489	−0.00901	0.129**
	(0.0551)	(0.0134)	(0.0578)
Total debt stock	0.0738***	0.000427	0.0673***
	(0.0105)	(0.00155)	(0.0110)
Constant	40.06***	25.33***	−14.58*
	(7.696)	(0.952)	(8.077)
Observations	702	654	702
R-squared	0.196	0.374	0.288
Number of countries	54	54	54

Note: Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

admit that a three-way coding could generate some noise in the estimation. More precisely, classifying countries as partial adopters can be problematic because some partial adopters only use specific versions of IPSAS while others use cash-based IPSAS. Arguably, the benefit of IPSAS adoption on government financing may differ between cash-based and accrual-based IPSAS adopters, given the technical comprehensiveness and quality of the information provided on an accrual basis versus a cash basis (Adhikari et al., 2013). To test whether our findings differ between cash-basis and accrual-basis IPSAS adopters, we use the sub-sampling technique to estimate our models on three different groups: *full adopters vs non-adopters*, *cash basis vs non-adopters*, and *cash basis vs full adopters*. This estimation strategy also helps mitigate any concerns that the nature of country classification drives our earlier findings.

The results are presented in Table 6. Columns 1–3 contain the results of full adopters vs non-adopters. The coefficient is positive and significant at 1% for external debt financing and foreign aid, suggesting that the full adoption of IPSAS increases government accessibility to external debt finance and foreign aid. However, the findings on domestic credit/debt remain negative and insignificant. These results are consistent with our main findings in Table 4.

Table 5. Institutional quality

Variable	(1) External credit	(2) Foreign aid	(3) Domestic credit
IPSAS	0.941**	0.0955**	−0.216
	(0.404)	(0.0467)	(0.428)
Institutional quality	5.523***	−0.269**	−0.649
	(1.447)	(0.136)	(1.533)
IPSAS*Institutional quality	−0.600	−0.631	1.251
	(0.682)	(0.524)	(0.922)
Banking crisis	0.855	0.505	1.367
	(1.343)	(0.311)	(1.423)
Bank assets	0.0680	−0.0384***	0.533***
	(0.0541)	(0.00845)	(0.0574)
Inflation	−0.0123	0.00553	−0.0646
	(0.0446)	(0.00969)	(0.0473)
Expenditure	−0.0696*	0.0175***	−0.0244
	(0.0377)	(0.00524)	(0.0399)
Tax revenue	−0.352***	−0.0457***	−0.413***
	(0.0998)	(0.0104)	(0.106)
Interest rate	−0.222***	0.00199	0.0101
	(0.0647)	(0.00682)	(0.0686)
Exchange rate	−0.000440	2.80e-05*	0.000114
	(0.000385)	(1.59e-05)	(0.000408)
Savings	0.0589	−0.00404	−0.0476
	(0.0460)	(0.00627)	(0.0487)
Broad money	0.0639**	0.00864***	−0.00505
	(0.0252)	(0.00170)	(0.0267)
Global financial crisis	−0.780*	−0.0783	−0.396
	(0.468)	(0.128)	(0.496)
Economic development	−3.639***	−0.589***	3.850***
	(0.720)	(0.0741)	(0.762)
Economic growth	−0.0572	−0.00133	0.132**
	(0.0546)	(0.0130)	(0.0578)
Total debt stock	0.0760***	−0.000612	0.0660***
	(0.0104)	(0.00151)	(0.0110)
Constant	46.16***	23.13***	−15.61*
	(7.779)	(1.053)	(8.240)
Observations	702	654	702
R-squared	0.215	0.420	0.291
Number of countries	54	54	54

Note: Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Next, in columns 4–6, we present the results for cash-basis IPSAS adoption and non-adopters. Similar to the full adopters, we find a positive and significant impact of IPSAS on external debt finance and foreign aid. However, the relationship appears weaker because it is significant at 5%, compared with full adoption, which is significant at 1%.

In the final three columns (7–9) of Table 6, we report the results of cash-basis adoption and full adoption of IPSAS. The coefficient of all the variables of interest is positive but insignificant, except for external debt financing. Therefore, the results imply that international debt providers are more likely to place value on accrual-based accounting. While this result might be seen as unsurprising, given that accrual-based accounting is perceived to provide a more precise and timely recognition of financial position and performance (Diamond, 2006; Boolaky-Doorgakunt et al., 2022), many developing countries have considered these practices to be complex and resource heavy (Adhikari et al., 2013; Polzer et al., 2019). Yet it appears that accrual-based IPSAS generates relevant

information that debt holders require to forecast the government's ability to repay loans and interest.

Next, we present the robustness of the moderating effect of institutional quality on IPSAS and government financing. Following Konara and Shirodkar (2018) and (2020), we collapsed the six WGIs into a single composite index using the principal component analysis (PCA). The results, which are presented in columns 1–3 of Table 7, are not qualitatively different from the main results in Table 4, indicating the robustness of our findings.

4.5. Endogeneity

Prior studies (Judge et al., 2010; Sellami & Gafsi, 2019b) suggest that countries are likely to adopt international accounting standards as a result of their financial dependency on international financial institutions. Therefore, the IPSAS variable is likely to be correlated with the error term. We conduct the Durban-Wu-Hausman pre-estimation test to confirm the potential endogeneity of IPSAS. The results are presented in Tables 8–9. We use three approaches to overcome this potential endogeneity problem and the possibility of omitted variable bias. First, we follow Gordon et al. (2012) and employ the two-stage instrumental variable analysis in resolving the endogeneity problems. Kaya and Koch (2015) found that a country is more likely to adopt an international accounting standard if it uses other international accounting standards. Hence we construct a country accounting globalisation index (AGI) as the instrumental variable in the first stage of the two-stage least square (2SLS). AGI is a composite index that covers a country's adoption status for three international accounting standards: IFRS, IFRS for Small and Medium Enterprises (SMEs), and ISA. For each standard, a country is scored 1 if it has adopted it and 0 otherwise. A country AGI is the sum of all three scores. We performed different tests to check the appropriateness[6] of the instrumental variable. The results of the Cragg-Donald Wald post-estimation test are presented in Table 9. After predicting a country's IPSAS adoption decision using the instrumental variable, we include the predicted IPSAS *(PreIPSAS)* estimate into the second stage of 2SLS. The results of the second stage are presented in columns 1–3 of Table 8.

We use the linear instrumental variable general moment of methods (IV GMM) with robust standard errors as the second approach for testing endogeneity. GMM minimises unobserved heterogeneity and reverse causality (Wintoki et al., 2012). We use AGI as an instrumental variable. The results are presented in columns 4–6 of Table 8. To establish the validity and strength of the instrumental variable, the pre – and post-estimation test on the instrumental variable analysis is presented in Table 9. Although both 2SLS and GMM provide robust results, selecting appropriate instrumental variables can be problematic (Larcker & Rusticus, 2010). Therefore, we use the lag of the variables as our third approach to testing endogeneity. To do this, we include a one-year lag of the dependent variable on the right-hand side of the model. The results are presented in columns 7–9 of Table 8. These three rigorous tests for endogeneity all provide evidence that our reported

[6]The Cragg-Donald Wald F statistic of the post-estimation test for the weakness of instrumental variable was 118.63, which is larger than any of the critical values at 5% Wald test.

Table 6. Accounting for different modes of IPSAS adoption

Variable	Full adoption and non-adopters			Cash vs non-adoption			Cash vs full adopters		
	(1) External credit	(2) Foreign aid	(3) Domestic credit	(4) External credit	(5) Foreign aid	(6) Domestic credit	(7) External credit	(8) Foreign aid	(9) Domestic credit
IPSAS (full-non)	0.337***	0.994***	−0.144						
	(0.101)	(0.183)	(0.991)						
IPSAS (cash-non)				0.835**	0.402**	3.363			
				(0.410)	(0.159)	(2.465)			
IPSAS (cash-full)							1.279**	0.109	0.838
							(0.600)	(0.178)	(0.558)
Constant	40.81***	28.07***	−24.08*	32.79**	18.54***	−9.730	31.69**	32.37***	−13.21*
	(13.03)	(1.527)	(12.70)	(16.01)	(1.759)	(15.54)	(14.21)	(1.708)	(7.931)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	324	302	324	192	186	192	269	253	269
R-squared	0.346	0.581	0.388	0.364	0.670	0.601	0.370	0.142	0.374
No. of countries	25	25	25	15	15	15	21	20	21

Note: Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 7. Robustness on institutional quality

Variable	(1) External credit	(2) Foreign aid	(3) Domestic credit
IPSAS	1.097***	0.278***	−0.562
	(0.406)	(0.0793)	(0.430)
Institutional quality	1.408***	−0.0411	−0.221
	(0.369)	(0.0340)	(0.391)
IPSAS*Institutional quality	−0.131	−0.166***	0.301*
	(0.170)	(0.0313)	(0.180)
Banking crisis	0.768	0.517*	1.369
	(1.343)	(0.313)	(1.422)
Bank assets	0.0702	−0.0383***	0.532***
	(0.0542)	(0.00853)	(0.0574)
Inflation	−0.0135	0.00618	−0.0653
	(0.0446)	(0.00973)	(0.0472)
Expenditure	−0.0713*	0.0167***	−0.0253
	(0.0377)	(0.00525)	(0.0399)
Tax revenue	−0.350***	−0.0484***	−0.412***
	(0.0997)	(0.0104)	(0.106)
Interest rate	−0.224***	0.00191	0.00903
	(0.0647)	(0.00685)	(0.0685)
Exchange rate	−0.000450	2.66e-05*	0.000119
	(0.000385)	(1.60e-05)	(0.000408)
Savings	0.0578	−0.00430	−0.0467
	(0.0461)	(0.00631)	(0.0488)
Broad money	0.0650***	0.00893***	−0.00503
	(0.0251)	(0.00171)	(0.0266)
Global financial crisis	−0.781*	−0.0831	−0.388
	(0.468)	(0.128)	(0.496)
Economic development	−3.646***	−0.628***	3.882***
	(0.720)	(0.0737)	(0.762)
Economic growth	−0.0571	−0.00194	0.133**
	(0.0546)	(0.0131)	(0.0578)
Total debt stock	0.0749***	−0.000568	0.0663***
	(0.0104)	(0.00152)	(0.0110)
Constant	44.82***	23.64***	−15.61*
	(7.716)	(1.030)	(8.174)
Observations	702	654	702
R-squared	0.215	0.415	0.291
Number of countries	54		54

Note: Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

results on the relationship between IPSAS and government financing are not sensitive to endogeneity problems.

5. Discussion of results

Drawing upon two-stage least squares (2SLS) and GMM, the empirical results indicate a positive and significant relationship between IPSAS and external debt financing. Similarly, we find that IPSAS is positively and significantly associated with an increase in foreign aid. However, we did not find any significant relationship between IPSAS and domestic debt sources. Concerning institutional quality, we found that the effect of IPSAS on these sources of government financing remains similar regardless of the country's level of institutional quality. This finding implies that an increase in international capital flows can be associated with the signalling effect of the internationalisation of public sector accounting standards

Table 8. Endogeneity test

Variable	2SLS			GMM			Lagged Variables		
	(1) External credit	(2) Foreign aid	(3) Domestic credit	(4) External credit	(5) Foreign aid	(6) Domestic credit	(7) External credit	(8) Foreign aid	(9) Domestic credit
PreIPSAS	3.112**	0.320*	−0.563	3.048**	0.624***	−0.161			
	(1.450)	(0.190)	(1.438)	(1.246)	(0.207)	(1.274)			
IPSAS							0.508*	0.0675**	−0.170
							(0.264)	(0.0370)	(0.258)
L. External debt							0.771***		
							(0.0293)		
L. Foreign aid								0.872***	
								(0.0194)	
L. Domestic debt									0.915***
									(0.0291)
Constant	−28.67***	24.97***	−16.34**	−27.19***	24.64***	−16.12**	8.818	3.998***	−15.53***
	(7.350)	(1.015)	(7.290)	(7.079)	(1.180)	(7.558)	(5.725)	(0.668)	(5.487)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	702	654	702	702	654	702	648	592	648
F(14, 702;680)	13.79	12.99	13.79	16.02	17.59	16.02			
R-squared	0.468	0.368	0.732	0.459	0.367	0.719	0.650	0.868	0.747
No. of countries	54	54	54	54	54	54	54	54	54

Note: Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 9. Pre – and post-endogeneity estimation results

	Durbin-Hu-Hausman pre-estimation test of endogeneity			Cragg-Donald post-estimation statistic		
	(1) External credit	(2) Foreign aid	(3) Domestic credit	(4) External credit	(5) Foreign aid	(6) Domestic credit
Chi-Square	6.889***	5.047***	5.489***			
F (1,686)	6.686***	5.026***	5.186***			
F(1,687/1,639)				118.633***	102.906***	118.633***
Wald @5%				16.38	16.38	16.38

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0$

(Beneish et al., 2015; Boolaky-Doorgakunt et al., 2022). Given the contemporary debate on IPSAS adoption in developing countries, the sub-sampling analysis based on full adopters and cash-basis adopters shows that both adopters benefit from increased government financing, but the effect is stronger for accrual-based adopters. This is of particular interest given the current policy advice that developing countries transition to cash-based IPSAS first before proceeding to accrual-based IPSAS (Boolaky-Doorgakunt et al., 2022; Polzer et al., 2021). Our results indicate that such an approach does bring some benefits with regard to access to external financing while avoiding the significant costs and burden associated with accrual-basis accounting (Cuadrado-Ballesteros et al., 2020).

Theoretically, the results suggest that IPSAS is an important incremental indicator of high-quality accounting information, which can signal confidence and reduce uncertainty (Zhang & Wiersema, 2009; Connelly et al., 2011) among international debt and aid providers. These results thus contribute to the emerging evidence about the consequences of IPSAS adoption in addition to what has been revealed in terms of more detailed disclosures (Mnif & Gafsi, 2020) and dampening instances of corruption (Cuadrado-Ballesteros & Bisogno, 2019; Tawiah, 2021).

Furthermore, consistent with our hypothesis, foreign aid is associated with the reporting regime of the recipient country because donors demand high-level accountability and transparency. Moreover, our results are consistent with the international accounting adoption literature that suggests international financial institutions and donors tend to convince developing countries to adopt international standards to attract more aid and grants (Judge et al., 2010; Sellami & Gafsi, 2019b). The recent study by Nagae et al. (2022) highlights an association between IFRS adoption and donor aid for a large sample of developed and developing countries. However, one would argue that donor aid is largely aimed at the public (and third) sector, and our results, therefore, provide empirical evidence that the receipt of foreign aid and grants by developing countries is more likely to be predicated on the public sector financial reporting regime of the recipient country.

Contrary to the results concerning foreign aid and external debt, we did not find a significant relationship between IPSAS and domestic credit. Arguably, government borrowings from the domestic market are likely to be less sensitive to changes in accounting and reporting standards, particularly in developing countries, since most government borrowings are arranged through national/public banks. Domestic providers may rely on other sources than financial statements to gather information.

With regard to the moderating effect of institutional quality, our results add to Cai et al. (2014) and Houqe and Monem's (2016) view that adherence to international accounting standards is beneficial regardless of the institutional infrastructure of the country; that is, adoption can help alleviate concerns about the institutional framework within a developing country. Transparency and credibility are vital to the international debt market, and IPSAS is predicated on underpinning the preparation of higher-quality information than with national standards (ACCA, 2017; International Federation of Accountants, 2019). Therefore, using IPSAS may help address some concerns about weaker institutional environments.

Overall, our study makes an important contribution because we bring cross-(developing) country evidence to current debates about IPSAS implementation (Christiaens et al., 2015; Polzer et al., 2019). There are clear signs that the local benefits of IPSAS adoption and implementation in developing countries do not easily materialise, if at all (eg, Hopper et al., 2017; Polzer et al., 2019) and that rhetorical/symbolic adoption may be at play in many cases to satisfy interested audiences (eg, Brusca & Martínez, 2016; Lassou, 2017; van Helden & Uddin, 2016). Notwithstanding, IPSAS adoption appears to be (at least, and even for cash-basis adoption) an important signal from the perspective of the international debt market, and this does raise implications for policy-makers at the developing country and international level.

6. Conclusion

IPSAS adoption by countries and government entities in the developing world remains the subject of considerable debate (Polzer et al., 2021). As with other perennial debates about the global dissemination of international accounting and auditing standards, there has been a continuing suspicion that the costs of implementation far outweigh the benefits or that the benefits are limited to specific stakeholders (eg, international investors, development agencies), thereby not benefiting the local community and stakeholders (eg, Adhikari & Gårseth-Nesbakk, 2016). Implementation can be largely problematic when undergone on a large "big-bang" scale, such as accruals-based IPSAS, which can potentially unleash unintended consequences (Adhikari & Gårseth-Nesbakk, 2016; Lassou, 2017; Mbelwa et al., 2019; van Helden & Uddin, 2016; Polzer et al., 2021).

Our objective, therefore, was to consider whether IPSAS adoption could be beneficial from a broader perspective, namely in terms of facilitating access to external financing (debt and foreign aid) in developing countries. From a signalling perspective, we conclude that such adoption does convey positive information regarding a country's probity, transparency and financial sustainability, and hence it is amenable to receiving more financing in the form of debt and aid (Sellami & Gafsi, 2019b). The implication that cash-based IPSAS adoption also matters (albeit less than accrual-based IPSAS) is, in our view, timely. Finally, the absence of results about the moderating effect of institutional quality suggests that all developing countries could benefit from the IPSAS adoption agenda. To the best of our knowledge, we contend that our study is one of the first to examine the effect of IPSAS adoption on government financing and hence contributes to the literature on the macroeconomic effects and determinants of adopting international public sector accounting standards in developing countries (Sellami & Gafsi, 2019b). Notwithstanding, we acknowledge that our approach focuses on the specific

case of government financing and that it remains to be seen whether the costs of implementing and embedding such practices in government in the medium/long term can be outweighed by the benefits of accessing external financing and aid. As argued by Ridder et al. (2006) and Sellami and Gafsi (2019b), the efficient and effective application of any accrual or cash-based IPSAS system largely remains dependent on the strategic orientations of top government officials, political will/systems and resources to manage the change.

As with many other studies considering the role and impact of international accounting standards, we acknowledge that there is no well-established comprehensive model for modelling the effect of IPSAS on government financing. Nonetheless, our study relies on the available literature and data relating to the determinants/consequences of adopting international accounting standards and determinants of public sector financing as a starting point in considering the incremental effects of IPSAS adoption. Furthermore, we could not study all the developing countries because of insufficient data.

Given our comprehensive findings of IPSAS adoption on government funding, future studies can extend this line of research by looking at the effect of the implementation of different forms of IPSAS on credit and bond ratings. Another important area of research is the relationship between IPSAS adoption and the extent to which such reforms can percolate to other public financial management such as the quality of government budgeting. These studies may provide further evidence on how developing countries could harness the adoption of IPSAS in resolving their issues.

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Appendix: Sample countries and adoption status

Adopted countries	Partial adoption	Non-adopted
Barbados	Costa Rica	Albania
Chile	Côte d'Ivoire	Argentina
Dominican Republic	Fiji	Bahamas
Ghana	Guatemala	Colombia
Nigeria	Indonesia	Ecuador
Panama	Jordan	Egypt
Peru	Malaysia	El Salvador
Tanzania,	Mexico	Honduras
Kazakhstan	Mongolia	Jamaica
	Morocco	Lebanon
	Pakistan	Namibia
	Philippines	Paraguay
	Senegal	Tunisia
	Serbia,	Vietnam
	Thailand	Bahrain
	Turkey	Brazil
	Ukraine	China
	Uruguay	Trinidad and Tobago
	Zambia	
	Kenya	
	Armenia	
	Azerbaijan	
	Bolivia	
	Rwanda	
	South Africa	
	Sri Lanka	
	Botswana	