Diffusion theory, economic consequences, and adoption of international standards on auditing around the world

Abstract

This paper examines the economic consequences of adopting the International Standards on Auditing (ISAs) from a diffusion of innovation theory perspective. Using one of the most extensive datasets (i.e., 160 countries over 20 years and generating 3,200 country-year observations), this study examines the impact of ISAs adoption on the economic consequences of adopting nations. Our findings are threefold. First, our findings show that *early* ISAs adoption has positively and significantly influenced three economic indicators of the adopting countries: (i) economic growth, (ii) foreign direct investment (FDI) inflows, and (iii) exchange rate. Second, our results show that *late* ISAs adoption has positively and significantly influenced two economic indicators: (i) exports; and (ii) interest rates, but negatively with imports. Third, our study finds a significant positive association between ISAs adoption with amendments or translation and two economic indicators: (i) FDI; and (ii) exchange rate, but negative with inflation. Finally, and by contrast, we find a negative link between *early* ISAs adoption, economic growth rate, and exports. Our findings have implications for theory and practice.

Keywords: International auditing standards; diffusion of innovation theory; economic consequences; ISAs adoption.

1. Introduction

Like the International Financial Reporting Standards (IFRS), International Standards on Auditing (ISA) aim to enhance accountability, transparency, and efficiency of global markets and trade by encouraging countries and professional accountants to commit to a common worldwide standard and quality of auditing that can ultimately lead to harmonisation, standardisation, and convergence of auditing practices worldwide (Wong, 2004). As a result, many countries have adopted ISA, albeit at different times and for various reasons, since its introduction by the International Federation of Accountants (IFAC) in 1991 (Elmghaamez et al., 2020). However, several empirical studies have demonstrated that the extent and speed with which countries adopt accounting innovations, such as ISAs, is often driven by a range of social and religious factors (Boolaky & Omoteso, 2016; Boolaky & Soobaroyen, 2017; Elmghaamez & Elmagrhi, 2022). By contrast, there is limited evidence regarding the extent to which economic factors influence the adoption of ISAs by countries worldwide.

There is much research conducted on examining the economic consequences of IFRS adoption time (Clements et al., 2010; Cormier et al., 2009; El-Helaly et al., 2020; Elmghaamez et al., 2022; Elmghaamez, 2023; Gaston et al., 2010; Platikanova & Perramon, 2012; Stent et al., 2017). However, very few studies have investigated the economic consequences of ISAs adoption at the country level (Boolaky, 2012; Boolaky& Omoteso, 2016; Boolaky & Soobaroyen, 2017). Some scholars have examined the impact of ISAs adoption time on the financial market indicators (Elmghaamez et al., 2020), while others have studied the effects of national institutional factors on facilitating the adoption of ISAs (Boolaky, 2012; Boolaky & Omoteso, 2016; Boolaky & Soobaroyen, 2017). Similarly, a recent study by Elmghaamez and Elmagrhi (2022) investigated whether country characteristics influenced the timing of ISAs adoption (early vs late). However, to our knowledge, this is the first study that examines whether the timing of ISAs adoption influences the economic consequences of adopting countries. In this regard, Haapamäki and Sihvonen (2019) report that there is an acute lack of research about the economic consequences of ISAs adoption time and identify whether there are any unintended consequences of the timing of ISAs adoption.

Consequently, this paper seeks to make two new contributions to the extant international accounting literature by examining the influence of ISAs adoption timing and extent of ISAs adoption on the economic consequences of adopting countries worldwide as it is still in its infancy. Specifically, this study addresses the following two research questions:

(i) How has ISAs adoption time (early vs late) affected the economic consequences of adopting countries?

(ii) How have ISAs' adoption extent (modification, translation, by law, gap matters and statements issued under IFRS) affected the economic indicators of adopting countries?

In this case, we focus on the economic reasons that may influence countries to adopt ISAs. Specifically, we argue that adopting ISAs benefits the global stock markets, their listed firms, and the economies in which these stock exchanges operate (Elmghaamez et al., 2020; Roussey, 1996). Notwithstanding, there is still an ongoing debate about the impact that adopting high-quality auditing standards can have on the economic performance of the adopting countries. Many countries have adopted ISAs, but often without carefully considering the impact of adopting such auditing standards on their economic needs (Fraser, 2010). Therefore, this study seeks to contribute to the current literature by examining the economic consequences for countries adopting ISAs. In this context, most prior research has employed the theoretical framework suggested by institutional theory to explain the adoption and diffusion of ISAs and their consequences (Boolaky & Omoteso, 2016; Boolaky & Soobaroyen, 2017; Haapamaki, 2019). Our study seeks to offer new insights by utilising the Diffusion of Innovation (DOI) theoretical framework to explain the economic consequences of adopting ISAs. Moreover, our study aims to extend the current academic literature on ISAs and offers new empirical contributions to the research field.

Furthermore, our study is novel since, to the best of our knowledge, it is the first to examine multiple economic factors that may explain why different countries adopt ISAs at different times. Several studies have examined the economic consequences of IFRS adoption at the macro-country level (Lasmin, 2012; Shima & Yang, 2012; Zehri & Chouaibi, 2013; Zaidi & Huerta, 2014), but very few previous studies have examined the relationship between ISAs adoption and few economic indicators, such as economic growth (Boolaky & Omoteso, 2016; Boolaky & Soobaroyen, 2017) and exports level (Boolaky & O'Leary, 2011; Boolaky & Cooper, 2015; Kellenberg & Levinson, 2019). Our study extends the existing literature in this space by including a wide range of country-level economic factors for a large sample of countries (i.e., 160 countries) and over a more extended period (i.e., 20-year period). Finally, our study provides a methodological contribution by employing a new methodological approach, namely the Prais-Winston regression, correlated Panels Corrected Standard Errors (PCSEs), which control for a serial correlation of the error terms in a linear regression model with heteroskedastic errors. We argue that countries' ISAs adoption decisions can be equivalent to adopting new products and having desirable or undesirable consequences in different parts of the globe. We, therefore, contribute to the current literature by including many countries and using a new methodological approach called Prais-Winston regression to correct for correlated errors in panel data.

Our findings report that the *early* ISAs adoption has positively and significantly influenced three economic indicators: (i) economic growth, (ii) Foreign Direct Investment (FDI) inflows, and (iii) exchange rates of adopting countries. Our results show that *late* ISAs adoption has positively and significantly influenced two economic indicators: (i) exports; and (ii) interest rate, but negatively and significantly with imports of the adopting nations. However, we find a negative relationship between *early* ISAs adoption and exports. Additionally, our findings suggest a mixed pattern of associations

between ISAs adoption status and economic indicators. The positive associations between ISAs adoption and FDI, exchange rate, exports, and imports indicate the potential benefits of ISAs adoption in countries that implemented ISAs without amendments or translation. These findings align with expectations, as ISAs are expected to facilitate international trade and attract foreign investment. However, the negative association between ISAs adoption with amendments or translation and the inflation rate seems to contradict expectations. One possible interpretation is that the amendments or translation process may introduce complexities or inefficiencies that negatively impact the inflation rate.

Overall, the diffusion of innovation theory suggests that innovations or new ideas spread through a population over time. In this context, the findings show that early adoption of ISAs positively impacts economic growth, FDI inflows, and exchange rates, thus supporting innovation spreading and influencing these economic indicators. However, the negative relationship between early ISAs adoption and exports contradicts the diffusion of innovation theory's expectation that early adopters would benefit in terms of exports. It implies that adopting ISAs might not have translated into immediate export gains for early adopters.

The rest of the paper is structured as follows. The next section presents the theoretical and empirical literature review alongside the hypotheses development. This is followed by the research methodology, data analysis and interpretation and a brief conclusion.

2. Literature Review: Theory, Empirics, and Hypotheses Development

Empirically, most prior studies have focused on the economic benefits of IFRS adoption (Lasmin, 2012; Shima & Yang, 2012; Zehri & Chouaibi, 2013; Zaidi & Huerta, 2014), while there has been less interest in studying the economic consequences of adopting ISAs (Fraser, 2010; Haapamaki & Sihvonen, 2019; Mennicken, 2008). Nevertheless, there are a few prior studies that have examined the economic benefits of ISAs adoption, although these have observable limitations, including (i) employing a few economic indicators (Abdolmohammadi & Tucker, 2002; Boolaky & Omoteso, 2016); (ii) being descriptive, or lacking an overarching theoretical framework to explain the extent of ISAs' adoption (Boolaky & O'Leary, 2011; Boolaky & Cooper, 2015); (iii) using a less robust auditing and reporting standards measure (Boolaky et al., 2013; Boolaky & Cooper, 2015); (iv) using cross-sectional rather than longitudinal data (Boolaky, 2011; Boolaky & O'Leary, 2011); and (v) sampling a limited number of countries (Boolaky & Soobaroyen, 2017), amongst others. Our study departs from much of the existing auditing literature in this space by adopting the lens of the diffusion of innovation (DOI) theory and large-scale 20-year longitudinal data drawn from 160 countries to investigate the economic effects of ISAs' adoption on a wide range of country-level economic factors. Our study, thus, seeks to contribute to the extant international auditing literature by addressing most of the limitations of these studies.

Meanwhile, some theories have been employed in the extant literature to examine the economic consequences of ISAs adoption. These include institutional theory (Boolaky & Soobaroyen, 2014, 2017), Hofstede's cultural theory (Boolaky & O'Leary, 2011; Boolaky & Omoteso, 2016), and classification theory (Boolaky, 2011; Boolaky et al., 2013; Boolaky & Cooper, 2015). Although these theories are appropriate to employ in explaining the adoption decisions of countries, they often fail to fully consider the economic, financial, and time pressures that may motivate a country to adopt accounting and auditing innovations, such as IFRSs and ISAs (El-Helaly et al., 2020; Elmghaamez et al., 2022). Under this context, other scholars (Dayyala et al., 2020; Grecco et al., 2016) have suggested applying the diffusion of innovation (DOI) theory. The DOI theory assumes that adopters of innovations (e.g., new accounting and auditing standards) by different actors (e.g., companies and countries) might be early or late depending on their economic situation and financial needs (Dayyala et al., 2020). In this case, and unlike traditional theories (e.g., Hofstede's cultural theory and institutional theory) that are based mainly on socioeconomic reasoning, the DOI theory can effectively take both time and socioeconomic factors pressures into account in explaining adoption decisions by different countries (El-Helaly et al., 2020).

2.1 Conceptual and Theoretical Framework

Figure 1 below shows the conceptual framework of this study and explains the theoretical and empirical relationships between our dependent/outcome, independent, and control variables. It presents the two aspects that the paper focuses on. First, it captures the effect of time (i.e., early versus late adoption) of ISAs on economic growth and FDI inflows. Second, it presents the extent of ISAs adoption (i.e., non-adoption to adoption without amendments) on international trade (exports and imports), exchange rate, inflation rate and interest rate. Concerning theoretical framing, first, some previous studies have sought to explain the economic advantages of ISAs' adoption by employing institutional theory (e.g., Boolaky & Soobaroyen, 2014; Boolaky & Cooper, 2015; Boolaky & Soobaroyen, 2017), while other scholars have employed economic classification theory to explain the economic development of adopting international auditing standards (Boolaky, 2011; Boolaky & O'Leary, 2011; Boolaky et al., 2013; Boolaky & Cooper, 2015). However, it has been suggested that the DOI theory can better explain the economic consequences of ISAs' adoption (Grecco et al., 2016; Elmghaamez et al., 2020). In particular, the DOI theory has a competitive advantage over traditional theories (e.g., institutional theory), including its unique ability to capture both time and socio-economic motivations for adopting ISAs by countries. Therefore, our study contributes to the theoretical literature by employing the DOI theory that is yet to be applied in studying the economic consequences of ISAs' adoption, particularly with a large sample.

Insert Figure 1 here.

We, thus, employ the theoretical framework suggested by DOI theory, which implicitly assumes a causal relationship between adopting ISAs and the economic consequences of adopting nations. Therefore, the DOI theory has a competitive advantage over other traditional theories (e.g., institutional theory) in capturing both time and socio-economic motivations of adopting ISAs for the adopting nations. Accordingly, we suggest that countries may adopt ISAs for different reasons. For example, some countries may adopt ISAs early to attract more foreign investments by showing they have adopted high-quality auditing standards. Others may adopt ISAs to enhance their international trade by importing goods and services to countries with similar auditing standards. Hence, our study contributes to the theoretical literature by employing the theoretical framework suggested by DOI theory to explain the association between ISAs adoption time, the extent, and the economic consequences for the adopting countries.

Consistent with prior studies, we argue that adopting accounting/auditing innovation (IFRS and ISAs) can be explained using the DOI theory (El-Helaly et al., 2020; Elmghaamez et al., 2020, 2022). Innovations require long periods before they can be widely adopted by potential users (Rogers, 1962). Similarly, adopting ISAs introduced in 1991 has significantly increased in different countries. This is because ISAs adoption has been substantially influenced by adopters' country-level characteristics alongside the potential benefits and costs of ISAs adoption. Hence, studying the adoption of ISAs by countries can help us better understand the economic consequences of early ISAs adoption.

DOI theory posits that innovations are communicated among members of a social system through specific channels and over time (Rogers, 1962). Specifically, the DOI theory states that adopting innovations may lead to anticipated or unanticipated financial and economic consequences (Rogers, 1962, 1983). Therefore, the expected outcomes are primarily direct and desirable, whereas unexpected effects are often indirect and undesirable (Rogers, 1995). Based on DOI theory, adopters with strong networks and effective communication channels with peers are likelier to be early adopters of innovations (Rogers, 2003). Therefore, the economic benefits of adopting innovations count on the strength of network effects among adopting nations (Ramanna & Sletten, 2014). Drawing on the DOI theory, therefore, we can classify adopters of innovations into five groups, consistent with their first-time adoption: (i) innovators, (ii) early adopters, (iii) early majority, (iv) late majority, and (v) non-adopters (Rogers, 2003; El-Helaly et al., 2020; Elmghaamez & Elmagrhi, 2022). The DOI theory argues further that adopters' economic indicators are one of the main factors that have significantly influenced the diffusion of innovations among countries (Wejnert, 2002; Zanello et al., 2016). For example, Wong (2004) reported that adopting high-quality accounting and auditing standards is critical to enhancing the countries' economic growth since it can boost the trust of local and foreign investors.

Consequently, the DOI theory postulates that late adopters are more risk-averse than early adopters of innovations, who tend to accept relatively higher risks in the form of a faster adoption (Rogers, 2003). In this regard, it has been argued that a country's economic situation may help

determine its readiness to accept high-risk tolerance by adopting new standards to improve its economic situation. For instance, countries with weak economic situations tend to accept high risks by adopting new standards to improve their current economic situation. In contrast, countries with strong economic performance tend to be risk-averse due to loss aversion when facing potential gain or loss decision situations (Taran et al., 2015). Furthermore, Rogers (1983) stated that lower-risk innovations with higher economic benefits are likely to be adopted more rapidly than higher-risky innovations.

Dayyala et al. (2020) examined the diffusion channels of IFRS using Rogers' adopter categorisations suggested by DOI theory to understand the influence of the country-level characteristics on IFRS adoption. The findings document that IFRS adoption is significantly affected by internal effects through the communication channel between countries alongside external forces through vertical communication from a centralised body, the International Accounting Standards Board (IASB). Their findings have two relevant implications for our study. First, we can also employ DOI theory to provide new insights into similar phenomena, namely, the diffusion of ISAs. DOI theory can explain the impact of internal influence on ISAs' adoption worldwide through country-level factors. Second, external forces can also affect country-level factors through communication with the IFAC. Moreover, using the adoption categories suggested by DOI theory, Elmghaamez et al. (2020) document empirical evidence that ISAs' adoption has resulted in several negative financial market consequences for the adopting nations. Their findings also have important/direct implications for our study using DOI theory to examine similar phenomena: the economic consequences of early ISAs adoption. According to DOI theory, risk-takers are more prone to receive adverse outcomes due to the high risk of adopting innovations before attempting to understand their effect without taking sufficient steps to contain the risk (Rogers, 1995). Therefore, we argue that risk-takers (countries) who adopt accounting innovations (ISAs) early might obtain adverse economic outcomes due to the high risk they face from adopting innovations.

2.3 Empirical literature review and hypotheses development

Prior literature argues that obtaining the intended benefits of IFRS adoption depends on the timing of IFRS adoption for adopting countries and their national characteristics. For example, Stent et al. (2017) investigated the motivations for the timing of IFRS adoption. They found significant differences between early and late adopters regarding the adoption benefits and the cost measures. Early adopters are market leaders. In comparison, late IFRS adoption is motivated by unfavourable consequences and uncertainty. Platikanova and Perramon (2012) studied the impact of the first-time IFRS adoption on liquidity in the European (EU) market. They reported that the first-time adoption of IFRS has increased comparability between EU nations, thus enhancing their financial reporting quality and improving market liquidity. Gaston et al. (2010) studied the impact of mandatory first-time IFRS adoption on financial reporting in Spain and the UK. The results of the research reveal that first-time IFRS adoption has a significant negative effect on financial reporting in Spain. In contrast, it has an

insignificant impact on financial reporting in the UK. Cormier et al. (2009) examined the value-relevance of the first-time adoption of IFRS in French firms in 2005. They indicated that the first-time IFRS adoption by French firms had enhanced the quality of their financial statements.

Clements et al. (2010) examined why some countries have adopted IFRS while others have chosen not to adopt it up to 2009, using data from 61 countries. The findings indicate that the timing of IFRS adoption is significantly associated with the country's size. Hence, larger countries with well-established reporting standards are less likely to adopt IFRS faster than smaller countries. Elmghaamez et al. (2022) investigated the effects of IFRS adoption time on stock market performance. The study found a positive link between the late mandatory IFRS adoption and European stock market integration. However, they found a significant negative relationship between early IFRS adoption and specific financial market indicators: (i) stock market trading volumes, (ii) stock market capitalisation, (iii) market turnover, and (iv) market return. Stent et al. (2017) report a significant association between IFRS adoption and international auditing standards ISAs. In this regard, Elmghaamez et al. (2020) found a significant positive association between ISAs adoption for financial reporting prepared under IFRS and some financial market indicators: stock market financial integration, capitalisation, stock market return and stock price volatility. Given the prior evidence on the effect of the timing of IFRS adoption on the financial and economic consequences of adopting countries (Clements et al., 2010; Cormier et al., 2009; El-Helaly et al., 2020; Elmghaamez et al., 2022; Gaston et al., 2010; Platikanova & Perramon, 2012; Stent et al., 2017), we argue that the timing of ISAs adoption can also affect the economic factors of adopting countries.

2.3.1 The economic consequences of ISAs' adoption

In terms of economic growth, we are aware of very few empirical studies, to date, that have examined the impact of ISAs' adoption on the economic growth rate of adopting countries by analysing a small number of countries (Abdolmohammadi & Tucker, 2002; Boolaky & Omoteso, 2016; Boolaky & Soobaroyen, 2017). Specifically, Abdolmohammadi and Tucker (2002) studied the association between some institutional variables, including auditing standards and Gross National Product (GNP) per capita, as a measurement of the economic growth in a country. The study finds that countries with many auditors who set auditing standards had greater GNP per capita. The study included only one economic factor – namely, GNP per capita. Likewise, using data from 50 countries from 2009 to 2012, Boolaky and Omoteso (2016) investigated the impact of Gross Domestic Product (GDP) growth on ISAs' adoption. They found a positive and significant association between the two variables. However, several limitations have arguably impaired Boolaky and Omoteso's (2016) findings. First, the sample was limited to only 50 countries due to data availability problems. Second, the study's time horizon (from 2009-2012) was relatively short. Third, the study included only one economic indicator (GDP growth rate) as an independent variable: Fourth, the study employed a combination of different regression techniques, including the Ordinary Least Square (OLS), multinomial and logistic regressions

with the categorical dependent variables, leading to an arguably spurious finding. Drawing on DOI theory, adopting innovations can eventually improve the economic growth of adopting nations, particularly in developing countries (Zanello et al., 2016).

Although Boolaky and Soobaroyen (2017) found a significant relationship between ISA adoption and the three institutional pressures: (i) coercive; (ii) mimetic; and (iii) normative isomorphisms, several limitations affected their study. First, the time horizon included in the study was relatively very short, from 2009 to 2012. Second, the sample selected covered only 89 countries worldwide that had adopted ISAs. Thirdly, they only included one economic indicator in their study: import penetration, whereas they included GDP growth rate as a control variable. Consequently, they find an insignificant relationship between ISAs adoption and the economic growth level in a country. This study, therefore, examines the impact of the early ISAs adoption on the economic growth of the adopting nations over 20 years by applying the DOI perspective using a larger sample of countries. According to the DOI theory, although the diffusion of innovations might be determined by some social and religious beliefs of the adopting nations, the contributions made by adopted innovations can considerably enhance the economic growth of the adopting countries (Moreno & Surinach, 2014). Rogers' diffusion of innovation theory suggests that adopting innovations may lead to intended or unintended outcomes. This might happen because stakeholders can reversely perceive the same innovations' effects (Oliveira & Santos, 2019). Hence, this study posits the following research hypothesis:

> *H1: The time and extent of ISAs adoption have a positive impact on the level of economic growth.*

Further, we also observed that the current literature on ISAs adoption lacks studies on the impact of such adoption on other economic indicators, such as FDI inflows of the adopting nations. Therefore, to properly position our study in that context, we explored the literature on the impact of IFRS adoption on each economic indicator. For example, results from the studies on IFRS and FDI inflows are mixed. Most of these studies show a significant positive relationship between IFRS adoption and FDI inflows in both developed and developing countries (Gordon et al., 2012; 2012; Marquez-Ramos, 2011; Pricope, 2017), while a few others show a negative relationship (Lasmin, 2012; Nnadia & Soobaroyen, 2015; Zehri & Chouaibi, 2013). DOI theory suggests that local countries adopt innovations to attract foreign investors and improve their resources, such as foreign direct investments (FDI). A country's openness can positively attract FDI and influence accounting innovation diffusion (Zanello et al., 2016). This study suggests the following research hypothesis:

> *H2: The time and extent of ISAs adoption have a positive impact on the level of FDI inflows.*

The influence of ISAs' adoption on exports of goods and services has been studied by a few scholars using small samples, often over a short period. Prior studies have used the strength of auditing and reporting standards in a country as a dependent variable rather than adoption categories of ISAs and have shown mixed results (Boolaky & O'Leary, 2011; Boolaky & Cooper, 2015; Kellenberg & Levinson, 2019). For instance, Boolaky and Cooper (2015) employed a survey conducted by the World Economic Forum to determine the strength of auditing standards for 133 countries using a sample of 72 countries. The study reports a positive and significant association between the auditing standards strength and export trading in developing countries. However, using the same survey, Boolaky and O'Leary (2011) examined the strength of auditing standards in 28 countries worldwide. They found an insignificant relationship between the strength of auditing standards and export levels.

The impact of ISAs adoption on the import and export levels has not yet been studied. Therefore, this research draws from the previous studies conducted on IFRS. Specifically, many prior studies have investigated the relationship between IFRS adoption and import levels. Most of the previous IFRS research finds that the import levels between trading countries have significantly increased after IFRS adoption (Archambault & Archambault, 2009; Judge et al., 2010; Gordon et al., 2012; Shima & Yang, 2012). However, Lasmin (2012) and Pricope (2017) find a negative and significant association between IFRS adoption and import levels. Accordingly, we propose that these findings might be influenced by the smaller sample of countries included in the prior empirical studies. Based on DOI theory, international trade can be affected by the diffusion of innovations to ensure that all countries develop relatively. Still, barriers can impact the adoption rate and lead to different outcomes. For instance, countries at the earliest stages of development may grow by adopting innovations, while countries at the latest development stages may grow by developing their innovations (Santacreu, 2015). Our study, therefore, included many countries to investigate the relationship between ISAs' adoption and the level of international trade (imports and exports) worldwide. This study, therefore, proposes the following research hypothesis:

H3: The time and extent of ISAs adoption have a negative impact on the level of international trade.

Contingency theory posits that IFRS adoption can enhance the economic development of countries, such as by reducing the inflation rate, but only if it has been modified to fit the local environment and satisfy their specific needs (Larson & Kenny, 1996). Therefore, from a contingency theory perspective, full IFRS adoption would positively influence emerging stock market development and maintain capital market stability (Othman & Kossentini, 2015). Othman and Kossentini (2015) have also emphasised the importance of using a contingency theory perspective to explain the economic effects of IFRS adoption. They indicated that partial IFRS adoption might not achieve the expected economic consequences due to the potential conflation of accounting standards nationally.

Similarly, signalling theory posits that countries conjecture that IFRS adoption enhances financial reporting quality and disclosure, which can lead to increased FDI inflows for the adopting country. However, this economic development depends on other factors, such as the exchange rate, inflation, and the level of corruption in the country (Sanjar et al., 2022). In this regard, Ajibade et al. (2019) reported that countries tend to adopt IFRS as a signal to foreign investors of their intention to provide more transparent accounting information, which is consistent with the signalling theory assumption. Nevertheless, economic factors, such as inflation rate, exchange rate, and political stability, might affect investors' decisions. Drawing on signalling theory, countries with less developed capital markets are more prone to adopt IFRS as a signal to attract foreign capital. However, inflation levels and exchange rates may hinder IFRS adoption. Hence, countries with higher inflation levels and larger capital markets are more hesitant to adopt IFRS due to the potential conversion costs (Shima & Yang, 2012). Therefore, we argue that incorporating contingency and signalling theories could complement the insufficiency of DOI theory to explain the association between ISA adoption and some economic factors, such as inflation and exchange rates.

Prior research has already investigated the association between IFRS adoption (IAS 29) and inflation rates, and they found mixed results (Agustini, 2016; Archambault & Archambault, 1999; Archambault & Archambault, 2009; Elmghaamez, 2019; El-Helaly et al., 2020). The impact of ISAs adoption on the inflation rate has not been empirically investigated. Hence, further research is needed to clarify these relationships. This can be documented by considering the timing of ISAs adoption by various countries and the other external factors that may affect the economic conditions, such as interest rates, purchasing power, and inflation rate. In this regard, Herbert and Tsegba (2013) indicated that several external factors have contributed to international differences in accounting and auditing standards among countries, such as economic development, inflation, tax method, and a country's legal system. Effendi and Agustini (2015) reported that although IFRS adoption can improve financial reporting quality, it might increase the cost of capital in countries with high inflation rates. This is because investors expect higher returns on investments with higher risk due to high inflation rates, increasing the cost of capital. Qatawneh (2013) stated that a country's level of inflation shapes the accounting and auditing standards adopted by the country. This is because investors will impose more pressure on companies to disclose the rising prices due to inflation. However, El-Helaly et al. (2020) found an insignificant association between early IFRS adoption and the change in inflation rates of non-EU countries.

The effect of ISAs adoption on the fluctuation in inflation rates has not been empirically studied. Hence, this study borrows from the current IFRS studies that examined the relationship between IFRS adoption and inflation rates. For instance, some previous IFRS studies find a positive and significant correlation between IFRS adoption and inflation rates (Archambault & Archambault, 2009; Arsoy & Gucenme, 2009). However, other scholars reported a negative and significant association

between the two variables (Shima & Yang, 2012). Yim (2020) argued that the inflation rate measured by the wholesale price index has significantly increased post-mandatory IFRS adoption due to inconsistencies between local accounting standards and regulatory standards, which increased banks' cost of equity in Europe. Based on DOI theory, adopting innovations can lead to the achievement of enhanced economic performance for the adopting country, and thus, leads to low and stable inflation rates in the country, limiting the use of a multi-currency financial system (Park & Choi, 2019).

Similarly, the influence of ISAs' adoption on foreign exchange rate fluctuation has not been empirically examined. Therefore, our study relies on the extant IFRS studies to explore the association between IFRS adoption and foreign exchange rates. Specifically, most IFRS studies show a positive and significant correlation between exchange rate changes under the IFRS and the equity market value (Ashbaugh & Pincus, 2001), while few scholars report a negative and significant association under IAS 21 and the equity market value (Goodwin et al., 2008). Based on DOI theory, reducing the exchange rate has positively affected innovation adoption, particularly in countries with more significant information flow. In contrast, exchange rate volatility harms the adoption rate due to the risk and uncertainty affecting a country's economic performance (Souto & Resende, 2018).

Likewise, the effect of ISAs adoption on the interest rate of the adopting nations has not been empirically investigated. Therefore, our study relies on the extant IFRS research that has examined the association between IFRS adoption and the interest rate level. Although very few studies exist on IFRS adoption and the level of interest rate risk, they have shown mixed results. Some IFRS research shows a positive and significant association between IFRS adoption and the interest rate of adopting nations (Chen et al., 2015; Zhang, 2008), while others find a negative and significant relationship (Gordon et al., 2012). Hence, empirical research on IFRS and ISAs adoption and its impact on inflation, foreign exchange, and interest rates show mixed results. Therefore, using a large sample, our study will contribute to the literature by exploring the association between ISA adoption and these economic factors. Additionally, the DOI theory suggests that the competitive benefits of innovations can explain the gradual diffusion of innovations worldwide, and higher adoption costs with higher interest rates could discourage innovation adoption (Shiferaw et al., 2009). Therefore, this study posits the following hypothesis:

H4: The time and extent of ISAs adoption have a positive impact on the level of inflation, foreign exchange volatility, and interest rates.

3. Research methodology

3.1 Sample selection

The population of this study covered 3,200 observations for 160 countries over the 1995 to 2014 period. Our sample is the largest to be used in any ISAs adoption study and represents 81% of the population (196 countries). This enhances the generalizability and reliability of our empirical results compared to previous studies (Yilmaz, 2013). This is consistent with the classification of ISAs adoption categories suggested by Elmghaamez et al. (2020), who classify their sample according to the first year of ISAs' adoption. Specifically, early adopters are denoted by countries that adopted ISAs by 1996. The early majority refers to countries that adopted IFRS by 2001. The late majority relates to countries that adopted ISAs after 2007. Table 1 shows our sample classification based on the first-time adoption of ISAs, as the DOI theory suggests. The DOI theory proposes five main groups as follows: (i) experiments;(ii) early adopters, (iii) early majority, (iv) late majority, and (v) laggards. Our ISAs adoption categories are consistent with the classification of ISAs employed by Elmghaamez and Elmagrhi (2022) and Elmghaamez et al. (2020). As suggested by DOI theory, they divided the ISAs adoption categories into five according to their first-time adoption to coincide with global events related to auditing standards.

Insert Table 1 about here.

Specifically, the categorisation years have been decided based on the most significant world events and global financial crises that happened in the world since the issuance of ISAs by the International Auditing and Assurance Standards Board (IAASB) in 1991. Specifically, we classified the five adoption groups suggested by the diffusion theory as follows. The experimenter's group represents those countries that adopted ISAs in the first five years from 1991 to 1995. The early adopter group represents those countries that adopted ISAs during and after the 1997 Asian financial crisis from 1996 to 2000. The early majority group represents those countries that adopted ISAs after the Enron scandal from 2000 to 2006. The late majority group represents countries that adopted the ISAs from 2007 to 2014 after the European Parliament issued Directive 2006/43/EC3 on statutory audits. The laggards group represents those countries that have not adopted ISAs by 2014 and even after Directive 2014/56/EU2 was issued in 2014, which requires statutory auditors and audit firms in EU countries to carry out statutory audits in compliance with the ISAs.

Following prior studies conducted by Elmghaamez et al. (2020) and Elmghaamez & Elmagrhi (2022), we used the classification suggested by diffusion theory, and we divided our sample into five groups experimenters, early adopters, early majority, late majority, and laggards. Using the longitudinal model that measures the before and after-effects of ISA adoption can be merely used to examine the impact of the pre-and post-adoption period if we divided our sample into two groups, early adopters

that adopted ISAs before 2006 and late adopters that adopted ISAs after 2006 after the 2006 Statutory Audit Directive on ISAs adoption 2006/43/EC3 was issued and became mandatory by law in the EU countries. However, our study employs an ordinal variable based on the time of the first ISAs adoption for a country. This ordinal variable captures the time of a country's first ISAs adoption event regardless of the extent of adoption (voluntary or mandatory). Countries classified as experimenters are those that adopted ISAs before 1995. Early adopters refer to countries that adopted ISAs from 1996 to 2000. The early majority refers to countries that adopted ISAs from 2001 to 2006. The late majority refers to countries that adopted ISAs from 2007 to 2014. Laggards refer to countries that had not adopted ISAs by 2014.

Table 2 summarises the country-level economic factors included in the ISAs' adoption consequences model. The abbreviations and the proxies used for the dependent variables (i.e. the country-level economic indicators), the independent variables (the ISAs' adoption categories suggested by DOI theory), and the ISAs' adoption extent (the basis of ISA adoption by jurisdiction provided by IFAC) are all defined and explained in Table 2. We included several control variables: geographical location, official language, and colonial history, as defined in Table 2. Moreover, we have also used year dummies for the financial crisis period of 2008 to 2009 (D08-09) to control the effect of the financial crisis on the economic performance of the adopting countries involved in our research sample.

Insert Table 2 here.

3.2 Data collection method

The data used to measure all the variables are collected from reliable sources. Specifically, the country-level economic indicators were collected from the World Bank and the International Monetary Fund (IMF) websites. Besides, data relating to ISAs adoption time are gathered from the Report on the Observance of Standards and Codes (ROSC) provided by two international organisations, the World Bank, and the IMF. The second explanatory variable (the extent of ISAs adoption) was collected from the 'Basis of ISAs Adoption by the Jurisdiction website provided by the IFAC. Finally, the control variables (social factors) included in our study are gathered from the World Factbook website established by the Central Intelligence Agency (CIA) of the United States federal government.

Consistent with previous research, some prior empirical studies have also employed the three social factors (geographical place, language, and colonial history) as control variables in their studies (Elmghaamez et al., 2020; Elmghaamez et al., 2022; Ramanna & Sletten, 2014). According to DOI theory, the adoption of innovations can be highly influenced by the environmental context of the adopters, such as geographical location, language, and political situations (Wejnert, 2002). Many factors can hinder the adoption of the ISAs, such as auditing regulations, the systems, and the official language of the adopting countries. Similarly, the harmonisation of ISAs is significantly affected by

diversity in several social factors, including language, beliefs, demands, and expectations from auditors and clients (Mennicken, 2008). Although translating accounting innovations is the best solution for non-English-speaking countries, the impact of the English translation quality is a new challenge in adopting accounting and auditing standards (Holthoff et al., 2015). The British Empire delivered its social and cultural values to its colonies, including legal, economic, language, and professional practices. Hence, most British colonies have adopted the international accounting and auditing standards only because the United Kingdom has adopted these standards (Tyrrall et al., 2007). Network effects might also occur due to geographic and colonialism influences. Therefore, countries in the same region are more prone to adopt similar accounting innovations. Likewise, colonised countries are more likely to imitate their former coloniser opting for the same accounting innovations (Ramanna & Sletten, 2014).

3.3 Data analysis technique and model specification

Since the nature of all dependent variables (economic indicators) included in our study are continuous, the multiple linear regression model is the best statistical method that estimates the cause-and-effect relationship between the outcome variables (economic indicators) and the explanatory variables, namely, the categories and extent of ISAs' adoption (Felix, 2015). Accordingly, equation (2) shows the multiple linear regression model employed to examine the effects of the ISAs' adoption categories on the economic consequences of the adopting countries. While equation (3) presents the multiple linear regression, the model used to investigate the effects of the ISAs adoption extent on the economic consequences, which are specified below in the following form:

$$\boldsymbol{ECISAs_{it}} = \boldsymbol{\alpha} \quad + \boldsymbol{\beta_1}\, \boldsymbol{ISAAC_{it}} + \sum_{i=1}^{3} \boldsymbol{\beta_i}\, \boldsymbol{CONTROLS_{it}} + \boldsymbol{\varepsilon_{it}} \qquad (2)$$

$$\boldsymbol{ECISAs_{it}} = \boldsymbol{\alpha} \quad + \boldsymbol{\beta_1}\, \boldsymbol{ISAAS_{it}} + \sum_{i=1}^{3} \boldsymbol{\beta_i}\, \boldsymbol{CONTROLS_{it}} + \boldsymbol{\varepsilon_{it}} \qquad (3)$$

Where $\boldsymbol{ECISAs_{it}}$ is the economic consequences of adopting the ISAs for a country (i) in a year (*t*), which involves a wide range of the country-level economic indicators, including economic growth, *FDI*, exports, imports, inflation rate, exchange rate, and real interest rate, α is the constant term, and βj are the coefficients on the independent variables. ISAs' adoption categories ($ISAACit$) include the five adopter categories proposed by the DOI theory. Further, the ISAs' adoption extent ($ISAASit$) comprises of the following classifications: (i) non-adopters of ISAs; (ii) ISAs are adopted with modifications; (iii) ISAs are adopted without amendments; (iv) ISAs are adopted with translation; (v) ISAs are adopted without translation; (vi) ISAs are adopted with modifications and translation; (vii) the country law requires ISAs; (viii) ISAs only apply in matters not regulated by the local standards, and (ix) financial statements issued under IFRS must be audited using ISAs. $CONTROLSit$ refers to the three social factors controlled in the model, in addition to the dummy year of crisis (D08-09), and εit refers to the error term for the country (*i*) in a year (*t*).

4. Empirical results

This section presents the empirical results from various statistical analyses described below.

4.1 Descriptive analysis

As Table 3 shows, the means for economic growth ranges from -9.82 to 25.89. The highest levels of economic growth were noted for the late majority group (25.89), followed by the non-adopters of ISAs (24.69). The highest mean is for the non-adopters (4.67), followed by the early majority group (4.54), which indicates that countries exhibit the highest levels of economic growth in the early majority category. This result supports our expectation H1, which assumes that countries with higher economic growth are more likely to fast the adoption speed and extent of ISAs. This adoption may reduce information asymmetry and enhance their economic growth swiftly. However, some countries with strong economic growth, like the US, may resist ISAs adoption due to the high cost of transition for the US. Companies. These findings are roughly comparable to figures reported by other past studies (Boolaky & Omoteso, 2016; Boolaky & Soobaroyen, 2017).

Table 3 shows that the means for foreign direct investment (FDI) range from -20.57 to 39.62. The late majority group noted the highest levels of FDI (39.62). The highest average is for the early majority group (7.92), followed by the early adopter's group (5.35), which indicates that countries in the early majority category exhibit the highest levels of foreign direct investment. This result supports our expectation H2, which suggests that countries with higher levels of FDI inflows are more likely to accelerate the speed and extent of ISAs adoption. This adoption may attract more foreign investors and enhance their FDI inflow. This result aligns with the findings reported by the current studies (Boolaky & Soobaroyen, 2017; Gordon et al., 2012; Lungu et al., 2017).

Table 3 reports that the means for the exports and imports range from (0.09 to 7.39) and (0.03 to 8.37) respectively. The highest levels of exports and imports were noted for the non-adopter group (7.39) and (8.37), respectively. The lowest average of exports and imports is for the early adopter's group (0.88) and (0.96) respectively), which indicates that countries exhibit the lowest levels of exports and imports in the early adopter's category. This result supports our expectation H3, which suggests that countries with lower levels of exports and imports are more likely to hasten the speed and extent of ISAs adoption as this adoption may enhance the export and import levels post the adoption of ISAs by adopting countries. This result is consistent with the findings reported by past studies (Boolaky & O'Leary, 2011; Boolaky & Cooper, 2015).

Table 3 indicates that the means for the inflation, exchange, and interest rates range from (-30.36 to 32.82), from (-83.83 to 82.44), and from (-59.41 to 76.99), respectively. The highest inflation levels were noted for the non-adopter group (23.82), while the highest exchange rates were for the early majority group (82.44). In contrast, the late majority group noted the highest interest rates (76.99). The highest average of inflation and interest rates is for the early adopter's group (2.30) and (13.28)

respectively), which indicates that countries exhibit the highest levels of inflation and interest rates in the early adopter's category. This result provides further support for our expectation H4, which suggests that countries with higher levels of inflation and interest rates are more likely to hasten the speed and extent of ISAs adoption as this adoption may reduce the inflation and interest rates levels post the adoption of ISAs by adopting countries and attract more investors. This result aligns with the findings reported by past studies (Boolaky & O'Leary, 2011; Boolaky & Cooper, 2015). However, Table 3 shows that the highest average exchange rate is for the non-adopters group (13.98), followed by the early adopter group (9.47), indicating that countries exhibit the highest exchange rates in the laggards and early adopters categories. This result supports our expectation of H4, which suggests that countries with higher exchange rates are more likely to hasten the adoption speed and extent of ISAs. This adoption may reduce the exchange rate volatility of adopting countries.

Insert Table 3 here.

4.2. Results and Discussion

This section presents the findings of the impact of the speed/timing and extent of ISAs adoption on country-level economic factors. We used the laggard's group as a base group.

4.2.1 Testing the OLS statistical assumptions.

We are concerned about whether our results are affected by choosing ordinary least squares regression (OLS) for our primary analysis rather than other regression techniques. Therefore, we re-run our main regressions in Equations. (1) and (2) using OLS regression while controlling for three social factors (geographical region, official language, and colonial history) to assess the assumptions of OLS regression models. We tested the four critical assumptions of OLS regression models: multicollinearity, autocorrelation, heteroskedasticity, and unit root. Our OLS regression diagnostics show that our OLS regression assumptions were violated. Therefore, we employed the Prais-Winsten regression method because it does not require a normality assumption to estimate valid coefficients. According to Dickey and Pantula (1987), the first difference estimator can mitigate the series stationary in the panel data and control for unobserved variables that might lead to biased estimates. Hence, the first difference approach will be only used with GDP, exports, and imports OLS regression models since they have non-stationary panel data.

4.2.2 The Prais-Winston Results of ISAs adoption time and economic consequences

Table 4 shows Prais-Winston regression results examining the effects of ISAs' adoption time on the economic consequences of adopting countries. According to Hagquist and Stenbeck (1998), getting a low R^2 does not mean the regression model fails to fit the data well. Regardless of the value of R^2, a researcher can still conclude the impact of the predictor variables on the response variable if there is no violation in the regression assumptions and some statistically significant predictors. Moreover, Eisenhauer (2009) reported that most previous empirical research is published with less than

20% explanatory power, which means that more than 80% of the dependent variable variation remains unexplained. However, this does not mean that their regression models are incorrect. Therefore, we argue that although the R^2 values of our models are less than 20%, we have some statistically significant explanatory variables. We have also tested the violation of our OLS regression models and found that they were violated. Due to the violation in our OLS estimations, we employed the Prais-Winston regression with corrected standard errors (PCSEs), which control for a serial correlation of the error terms in a linear regression model with heteroskedastic errors. According to Eisenhauer (2009), if the p-value of the F-test is less than a 1% significance level, this indicates that the regression model has significant explanatory power and provides a better fit than a model that does not contain independent variables. Hence, the larger the sample size or, the lower the number of explanatory variables, the less explanatory power of the regression model is required to achieve the given significance level. Therefore, we argue that our regression models have high explanatory power since we have achieved p-values for the F-test with less than 1% across all models.

Table 4 shows the results of PCSE regression to examine the impact of ISAs' adoption time on the economic consequences of the adopting countries. The coefficient (0.782; P < 0.019) of the early majority ISAs adoption is positively and significantly associated with the economic growth of the adopting countries at a 5% level. Moreover, the coefficient (1.521; P < 0.022) of the experimenters of ISAs adoption is positively and significantly associated with the economic growth of the adopting countries at a 5% level. This result supports the theoretical suggestion proposed by the DOI theory, which assumes that although the diffusion of innovations can be influenced by some country-level factors of the adopting countries, the relative economic benefits gained by adopting these innovations can eventually improve the economic growth of the adopting nations (Moreno & Surinach, 2014). Moreover, countries with similar characteristics are more prone to follow each other by adopting the same innovations to obtain intended outcomes by enhancing their economic situations (Rogers, 1995). This finding is in line with the expectations (H1) and consistent with the previous empirical research conducted to examine the link between ISAs adoption and the economic growth of adopting countries (Boolaky & Omoteso, 2016; 2002; Boolaky & Soobaroyen, 2017).

In line with the expectation (H2), Table 4 shows that the coefficient (2.730; P < 0.000) on the early majority ISAs adoption is positively and significantly linked with the FDI inflow of the adopting countries at a 1% level. Furthermore, the coefficient (7.617; P < 0.002) on the experimenters of ISAs adoption is positively and significantly associated with the FDI of the adopting countries at a 1% level. This result supports the findings reported by previous IFRS studies (Marquez-Ramos, 2011; Gordon et al., 2012; Pricope, 2017; Elmghaamez, 2023). This result also supports the DOI theory, which assumes that economic openness can attract more foreign investors, thus enhancing its FDI inflows (Zanello et al., 2016). However, Table 4 shows a negative and significant association between the early adopter group of ISAs who embrace ISAs earlier and the FDI inflows. The result is consistent with the results

reported by some scholars ((Lasmin, 2012; Zehri & Chouaibi, 2013; Nnadia & Soobaroyen, 2015). This finding aligns with the DOI theory, which assumes that risk-takers who adopt innovations early are more prone to receive adverse outcomes. This might happen due to the high risk of adopting innovations before attempting to understand their effect without taking sufficient steps to contain the risk (Rogers, 1995). This finding supports the DOI theory, suggesting that early adopters and the early majority play a crucial role in promoting the diffusion of innovation and attracting foreign direct investment. However, the negative association between early adopters of ISAs and FDI inflows highlights the potential risks of early adoption without fully understanding the implications of adopting these innovations (Taran et al., 2015).

Consistent with the expectation (H3), Table 4 reports that countries that adopted ISAs late have experienced higher export levels. In comparison, they have experienced lower levels of imports. This finding supports the suggestion proposed by the DOI theory, which assumes that countries with similar characteristics (lower levels of imports and exports) are more prone to adopt the same accounting innovations, such as international standards on auditing (ISAs), at the same time to reduce the information asymmetry among trading parties (Rogers, 1962).

According to ISA (315), the auditor's responsibility is to assess the risks related to external factors affecting the entity, such as the economic conditions, interest rates and availability of financing, and inflation or currency revaluation. Arguably, ISAs adoption can explicitly improve the economic conditions of the adopting nations and enhance the exchange and interest rates of the adopting countries, which supports the DOI theory that countries with high exchange rate volatility are more prone to adopt innovations to reduce the risk and uncertainty that can affect the country's economic performance (Souto & Resende, 2018). Consistent with expectation (H4), Table 4 shows that the coefficient (3.150; $P < 0.026$) indicates that countries with high levels of exchange rates are more likely to adopt ISAs more quickly than countries with low exchange rates. This result is consistent with the findings stated by previous IFRS studies, which report that countries with higher exchange rates are more prone to adopt IFRS more rapidly to reduce their exchange rate volatility (Ashbaugh & Pincus, 2001). This result supports the assumption made by the DOI theory that countries with high exchange rate volatility are more prone to adopt innovations to reduce the risk and uncertainty of adopting innovations that can affect the country's economic performance (Souto & Resende, 2018).

Table 4 provides evidence that countries that adopted ISAs at later times experienced higher interest rates. This finding aligns with previous IFRS studies that found a positive relationship between IFRS adoption and interest rates of adopting nations (Zhang, 2008; Chen et al., 2015). The DOI theory suggests that countries with high exchange rate volatility are more likely to adopt innovations to reduce the risk and uncertainty associated with adopting innovations that may affect their economic performance (Souto & Resende, 2018). This result also supports the idea that countries with similar

characteristics are more likely to adopt the same accounting innovations and simultaneously reduce information asymmetry among trading parties (Rogers, 1983).

Moreover, Table 4 reveals that the coefficients (-3.750; $P < 0.020$), (-11.632; $P < 0.045$), (-16.049; $P < 0.046$) on the late ISAs adoption are positively and significantly associated with the exports and imports of adopting countries, respectively, at a 5% level. This result suggests that adopting ISAs could potentially boost a country's export levels while lowering its import levels. This finding is consistent with the DOI theory, which suggests that countries with similar characteristics are more likely to adopt the same accounting innovations to reduce information asymmetry among trading parties (Rogers, 1962).

The study investigated the relationship between adopting International Standards on Auditing (ISAs) and economic consequences in different countries while controlling for variables such as geographical location, official language, and colonial history. The results showed that Europe countries that adopted ISAs had higher FDI and lower economic consequences such as economic growth, inflation rate, exchange rate, and interest rate. Latin American countries had higher international trade but lower economic growth, inflation, and exchange rates after adopting ISAs. Central and South Asian countries had lower inflation and exchange rates. East Asian and Pacific countries had higher exports and imports but lower economic growth. Middle Eastern and North African countries had higher exports, imports, and exchange rates but lower interest rates after adopting ISAs.

The country's official language also affected the economic consequences of ISA adoption. English-speaking countries had higher FDI and lower economic consequences. French-speaking countries had lower economic consequences across several indicators. Spanish-speaking countries had higher economic growth and exports but lower imports. Arabic-speaking countries had lower levels of imports and economic consequences. German-speaking countries had lower economic consequences, while Russian-speaking countries had higher inflation but lower economic growth and exchange rates.

Finally, the study found that colonial history also impacted economic consequences. Countries that were never colonised had higher exports and imports but lower economic consequences. Countries colonised by the British Empire had higher GDP, imports, and inflation. Countries colonised by the French Empire had higher levels of FDI and exchange rates but lower levels of exports, imports, and inflation. Countries colonised by the Spanish Empire had lower economic consequences across several indicators. Countries colonised by the Portuguese Empire had higher FDI but lower levels of exports, imports, and economic consequences. Countries colonised by the Dutch Empire had higher levels of economic consequences but also higher FDI and international trade. Countries colonized by the German Empire had higher inflation but lower FDI, exports, and imports. Countries colonised by the Russian Empire had higher economic growth, FDI, and imports but lower exchange rate volatility.

Insert Table 4 here.

4.2.3 The Prais-Winston results of the extent of ISAs adoption and economic consequences

Table 5 presents the results of the Prais-Winston regression analysis examining the impact of the extent of International Standards on Auditing (ISAs) adoption suggested by IFAC on the economic outcomes of adopting nations. Adopting ISAs is critical for enhancing financial reporting quality and increasing transparency in financial markets. The study findings reveal that various types of ISA adoption have different impacts on distinct economic indicators. Specifically, the table reports the results of the analysis of seven dependent variables (*ECGR, FDI, EXPO, IMPO, INFR, EXCR, and INTR*) using eight proxies for the independent variable of ISAs adoption extent (*WIAM, WOAM, WITR, WOTR, WAMT, BLAW, GMAT, and IFRSS*), providing the coefficient estimates and their corresponding p-values that demonstrate the statistical significance of the estimated coefficients.

The study finds that the adoption of ISAs with amendments (WIAM) has a positive relationship with two economic indicators, namely foreign direct investment (FDI) and exchange rates (EXCR). The role of institutions in the DOI theory can explain this result. High-quality institutions can provide a stable environment for economic activity, encouraging foreign investment. The adoption of ISAs with amendments demonstrates a commitment to enhancing financial reporting practices, which can increase the confidence of foreign investors in the local market.

However, the study also finds a negative relationship between ISAs adoption with amendments (WIAM) and interest rates (INTR), indicating that an increase in WIAM leads to a decrease in interest rates. The negative relationship between ISAs adoption with amendments (WIAM) and interest rates (INTR) could be explained by several factors. Firstly, adopting ISAs with amendments could increase audit quality and the reliability of financial statements, which could enhance the confidence of lenders and investors and lead to lower perceived risk in financial transactions. This increased confidence could result in a lower risk premium being demanded by lenders, which could translate into lower interest rates. Secondly, adopting ISAs with amendments could signal a commitment by the adopting country to improve its financial reporting and corporate governance practices, which could improve the overall health of the financial system and lead to more excellent stability. This greater stability could lead to lower interest rates as lenders and investors are less concerned about the risk of default. However, it is essential to note that the exact reasons for the negative relationship between ISAs adoption with amendments and interest rates may depend on a range of factors, including the specific context and characteristics of the countries involved (Elmghaamez & Elmagrhi, 2022).

Similarly, the study finds a positive relationship between the adoption of ISAs without amendments (WOAM) and two economic indicators, namely exports (EXPO) and imports (IMPO). This positive result can be attributed to the role of transparency in promoting trade. Transparency in financial reporting can increase trust and confidence in the market, facilitating international trade. The positive relationship between the adoption of ISAs without amendments (WOAM) and exports (EXPO)

and imports (IMPO) could be explained by the role of transparency in promoting trade. For example, when financial statements are transparent and reliable, it reduces the uncertainty and risk for international traders and investors, who can then make more informed decisions about engaging in trade with the country. This increased confidence can lead to more significant trade inflows, which in turn can boost both exports and imports. Moreover, adopting ISAs without amendments can signal a commitment to transparency and high-quality financial reporting, which can help build trust and confidence in the financial system. This, in turn, can promote more significant trade flows and facilitate international business transactions. Hence, it is essential to note that the positive relationship between ISAs adoption without amendments and exports and imports may also be influenced by other factors, such as the overall economic and political environment of the adopting country, as well as the trading partners involved (Elmghaamez & Elmagrhi, 2022).

Regarding the adoption of ISAs with translation (WITR), the study finds a positive relationship between WITR and FDI and EXCR. The positive effect of ISAs adoption with translation (WITR) on FDI can be linked to the role of language in promoting transparency and communication. In multi-lingual countries, translating financial statements into a common language can make it easier for foreign investors to understand the company's financial position, increasing their confidence in the market. However, the study also finds a negative relationship between ISAs adoption with translation (WITR) and two economic indicators, namely inflation rate (INFR) and interest rate (INTR). The negative effect of ISA adoption with amendments and translation (WAMT) on the inflation rate can be explained by the additional costs associated with compliance. Adopting ISAs with amendments and translation can require significant investment in training and technology, increasing costs for companies and increasing prices and inflation.

For the remaining variables, negative relationships were observed. For example, countries that adopted ISAs and prepared their reports under IFRS experienced a negative relationship with FDI. The negative relationship between the adoption of ISAs and the preparation of financial reports under IFRS with FDI could be due to several reasons. Firstly, IFRS adoption and ISA implementation could lead to increased transparency and disclosure, which can uncover issues or challenges in a company's financial performance. This increased scrutiny may discourage foreign investors, who might perceive the increased risk in investing in the adopting country. Secondly, IFRS adoption and ISA implementation could also increase compliance costs for firms, which may impact their profitability and competitiveness. This could discourage foreign investors from investing in the country, leading to a negative relationship between ISA adoption and FDI.

Similarly, the adoption of ISAs in gap matters (GMAT) showed a negative relationship with interest rates (INTR). The negative effect of ISAs adoption in GMAT on INTR can be linked to the complexity of compliance. When companies are faced with multiple reporting standards, it can increase

the costs and challenges associated with compliance, which can reduce the adoption of ISAs. The negative relationship between the adoption of ISAs in gap matters (GMAT) with interest rates (INTR) could be because ISA adoption in GMAT could lead to a higher cost of compliance and potentially lower profits, which could lead to reduced investment and borrowing demand. This, in turn, could lead to a decrease in interest rates as lenders reduce their rates to encourage borrowing. However, it is essential to note that the reasons for the negative relationships between ISA adoption and FDI or interest rates may depend on various factors, such as the specific context of the countries involved, the characteristics of the financial reporting environment, and the quality of financial statements (Elmghaamez, 2023).

For the ISAs adoption by law (BLAW), there was a negative relationship with the inflation rate (INFR). The negative effect of ISA adoption by law on INFR can be linked to the importance of voluntary adoption in promoting a culture of transparency. When companies adopt ISAs voluntarily, it signals a commitment to high-quality financial reporting and transparency. When ISAs adoption is mandated by law, companies may feel less incentivised to go beyond the minimum requirements, which can lead to lower levels of transparency. Overall, the regression analysis provides insights into the relationships between the variables and helps identify the factors that influence various economic indicators. The effects are not always straightforward and depend on the specific type of adoption and economic indicator being considered. The results highlight the importance of considering the context and specificities of each country when assessing the benefits and costs of ISA adoption (Elmghaamez, 2023).

The results reported in Table 5 can be linked to the Diffusion of Innovations (DOI) theory, which suggests that adopters tend to adopt innovations to obtain relative advantages (economic consequences), which in turn might be desirable for potential adopters (Rogers, 2003). The positive and significant association between the extent of ISAs adoption and FDI, exports, and imports supports the DOI theory, as it implies that countries that adopt ISAs with specific characteristics (e.g., amendments, translation) are more likely to experience positive economic consequences, such as increased FDI and trade (Rogers, 1995).

On the other hand, the negative and significant association between the extent of ISAs adoption and inflation rates and interest rates suggests that some countries that adopt ISAs may experience negative economic consequences, such as increased inflation and interest rates. This finding also supports the DOI theory, implying that potential adopters should consider these potential negative consequences before adopting ISAs. Overall, these findings suggest that the adoption of ISAs may have differential economic consequences for different countries, depending on the characteristics of their adoption and their economic context (Rogers, 2003).

Insert Table 5 here.

Table 6 below shows all variables related to both ISAs adoption timing and ISAs adoption extent, as well as their expected directions and received results.

Insert Table 6 here.

4.2.4 Additional Analysis

We utilised time Lag 1 to detect any presence of autocorrelation that may occur mainly in time series data. The results are presented in Tables 7 and 8, which demonstrate that lagged dependent variables can change the sign of some coefficients, indicating that the time series data does not have a lagged effect. Thus, our main regression models exhibit robust estimates of the effects of independent variables. Table 7 presents the outcomes of lag-1 autocorrelation estimations to examine the impact of ISAs adoption time on the economic consequences of the adopting countries, while Table 8 presents the outcomes of lag-1 autocorrelation estimations to investigate the impact of ISAs adoption extent on the economic consequences of the adopting countries.

Insert Table 7 here.

Insert Table 8 here.

5. Conclusion

Very few empirical studies have investigated the impact of ISA adoption on economic and financial consequences (Boolaky & Omoteso, 2016; Boolaky & Soobaroyen, 2017; Elmghaamez et al., 2020). Therefore, this paper uses the diffusion of innovation theory with one of the most extensive datasets to examine the economic consequences of early ISA adoption. The dataset comprises 160 countries over 20 years, with 3,200 observations and a wide range of macro-level economic indicators.

In summary, the results indicate that the early adopter of ISAs, ERADA, has a negative and statistically significant impact on economic growth (ECGR) and foreign direct investment (FDI) but a positive and statistically significant impact on the interest rate (INTR) and exchange rate (EXCR). The early majority adopter, ERMJA, has a positive and statistically significant impact on economic growth (ECGR), FDI, and inflation rate (INFR). In contrast, it has a negative and statistically significant impact on exchange rates (EXCR). Finally, the late majority adopters, LTMJA, have a positive and statistically significant impact on FDI but a negative and significant impact on the level of exports (EXPO) and imports (IMPO).

Regarding the ISA adoption extent, the study finds that countries that adopted ISAs with amendments (WIAM) experienced higher FDI inflows and exchange rates. Countries that adopted ISAs without amendments (WOAM) experienced higher import and export levels. Moreover, countries that adopted ISAs with translation (WTTR) experienced higher FDI inflows and exchange rates. On the

other hand, countries that applied ISAs only in gap matters (GMAT) experienced lower interest rates. Surprisingly, the study finds that ISA adoption negatively and significantly affected the inflation rate of countries that adopted ISAs with translation and amendments and those that adopted them under the laws of the relevant countries. Additionally, the study reports that Christian countries are more likely to adopt ISAs earlier, while Islamic countries are more likely to delay their ISA adoption decisions.

This study provides several contributions to the existing literature regarding the effects of ISAs' adoption on the economic performance of adopting countries. First, this paper offers a theoretical contribution to the extant theories that explain the economic benefits of ISAs adoption by employing a new theoretical framework suggested by DOI theory that has not yet been applied in an international auditing context. Second, our paper contributes to the current empirical literature to study the economic benefits of ISAs adoption by examining the effect of ISAs adoption on a wide range of economic indicators rather than including a few economic factors as previous research did. Finally, unlike most prior ISAs studies that have included small samples for a short period, this paper has selected a large sample selected which covers 160 countries for a relatively long period (i.e., 20 years) to examine the impact of ISAs adoption on the economic consequences of the adopting nations.

The findings of this study have significant implications for various stakeholders. For policymakers, the negative relationship between ISA adoption and certain economic indicators suggests the need for careful consideration when mandating or encouraging adoption. While ISAs can promote transparency and improve financial reporting quality, policymakers should also consider the potential costs and challenges associated with compliance, particularly for smaller companies. Additionally, policymakers could consider providing support and resources to facilitate adoption, such as training and technical assistance.

For standard-setters and governments, the study highlights the importance of ensuring that ISAs are designed and implemented in a way that balances the benefits and costs. Standard setters should consider the potential trade-offs between mandatory and voluntary ISAs adoption. The findings suggest that voluntary adoption may be more effective in promoting a culture of transparency and high-quality financial reporting, which could lead to positive economic outcomes, such as increased FDI and lower inflation rates. However, mandatory adoption may be necessary in contexts where voluntary adoption is unlikely, such as in countries with weak regulatory frameworks or lacking resources.

The study provides insights into ISA adoption's potential benefits and costs for practitioners. Companies should carefully consider the impact of adopting ISAs on their operations, compliance costs, and potential impact on economic indicators. They should also work to ensure they have the necessary resources and expertise to implement ISAs effectively. Another implication is that practitioners should consider the potential costs and challenges associated with complying with international auditing

standards. The negative relationship between ISA adoption in gap matters and interest rates suggests that companies may face higher compliance costs and increased challenges when required to comply with multiple reporting standards. Therefore, practitioners should consider ways to minimise these costs and challenges, such as using technology and automation to streamline compliance.

For academia, the study highlights the need for further research to better understand the complex relationship between ISAs and economic indicators. Future studies could explore the impact of ISAs on other economic indicators, such as unemployment and employment rates, or investigate the impact of different types of ISA adoption, such as voluntary versus mandatory. Additionally, further research could explore the impact of ISAs on different sectors of the economy. The findings suggest that further research is needed to understand better the mechanisms through which ISA adoption affects economic outcomes, such as through increased transparency and improved financial reporting quality. Additionally, researchers should explore the potential moderating factors that may influence the relationship between ISA adoption and economic outcomes, such as the level of regulatory enforcement and the strength of the institutional environment.

Regarding theory implications, our findings contribute to diffusion theory by providing empirical evidence on the impact of early and late ISAs adoption on economic indicators. This expands our understanding of the diffusion and adoption of international standards across different countries. However, the negative relationship between early ISAs adoption and exports challenges the assumption that early adoption always leads to positive outcomes in international trade. This finding calls for further exploration and refinement of theoretical models to better comprehend the complexities of ISAs adoption and its effects on trade.

Regarding practice implications, policymakers and regulatory bodies can consider the positive impact of ISAs adoption on economic growth, FDI inflows, exchange rates, and international trade when developing policies related to financial reporting and accounting standards. Countries considering ISAs adoption can learn from the experiences of countries that implemented ISAs without amendments or translation, as these adoptions resulted in positive outcomes in terms of FDI, exchange rates, exports, and imports. On the other hand, countries planning to adopt ISAs with amendments or translations should carefully assess the potential impact on economic indicators, particularly the inflation rate, and take measures to mitigate any adverse effects.

This study has contributed significantly to the literature on the economic effects of ISAs adoption. However, some limitations should be acknowledged. First, the study only considered eight economic indicators at the macro-country level. Future research could explore the impact of other economic indicators, such as wages rate, money supply, and producer price index, on ISAs adoption. Second, the sample size was limited to the first 20 years of ISAs adoption. Future research could expand

the sample size and consider different classification regimes. Third, the study focused on the economic consequences of ISAs adoption at the macro-country level and did not control for institutional factors that could affect adoption. Future research could include institutional factors such as investor protection and legal enforcement. Fourth, the study did not consider the risks and costs associated with ISAs adoption at the micro-firm level. Future research could consider these factors and provide valuable insights for policymakers and practitioners. Fifth, it is recommended to extend the analysis to specific sectors or industries that are highly regulated or require specific types of information disclosure to further explore the impact of ISAs adoption on different sectors. Sixth, it is recommended to examine the impact of cultural factors on ISAs adoption and effectiveness by exploring the relationship between language proficiency, attitudes towards technology, and the extent of ISAs adoption in different countries. Seventh, future studies could examine the impact of economic factors such as trade policies and market conditions on the effectiveness of ISAs adoption, particularly in different regions. Finally, institutional factors such as government regulations and education policies may also be essential when analysing the impact of ISAs adoption on economic outcomes.

By taking a more holistic approach to study the impact of ISAs adoption on the economic consequences, researchers can better understand the factors that influence the effectiveness of these standards in different contexts.

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Figures and Tables

Figure 1. The Conceptual framework

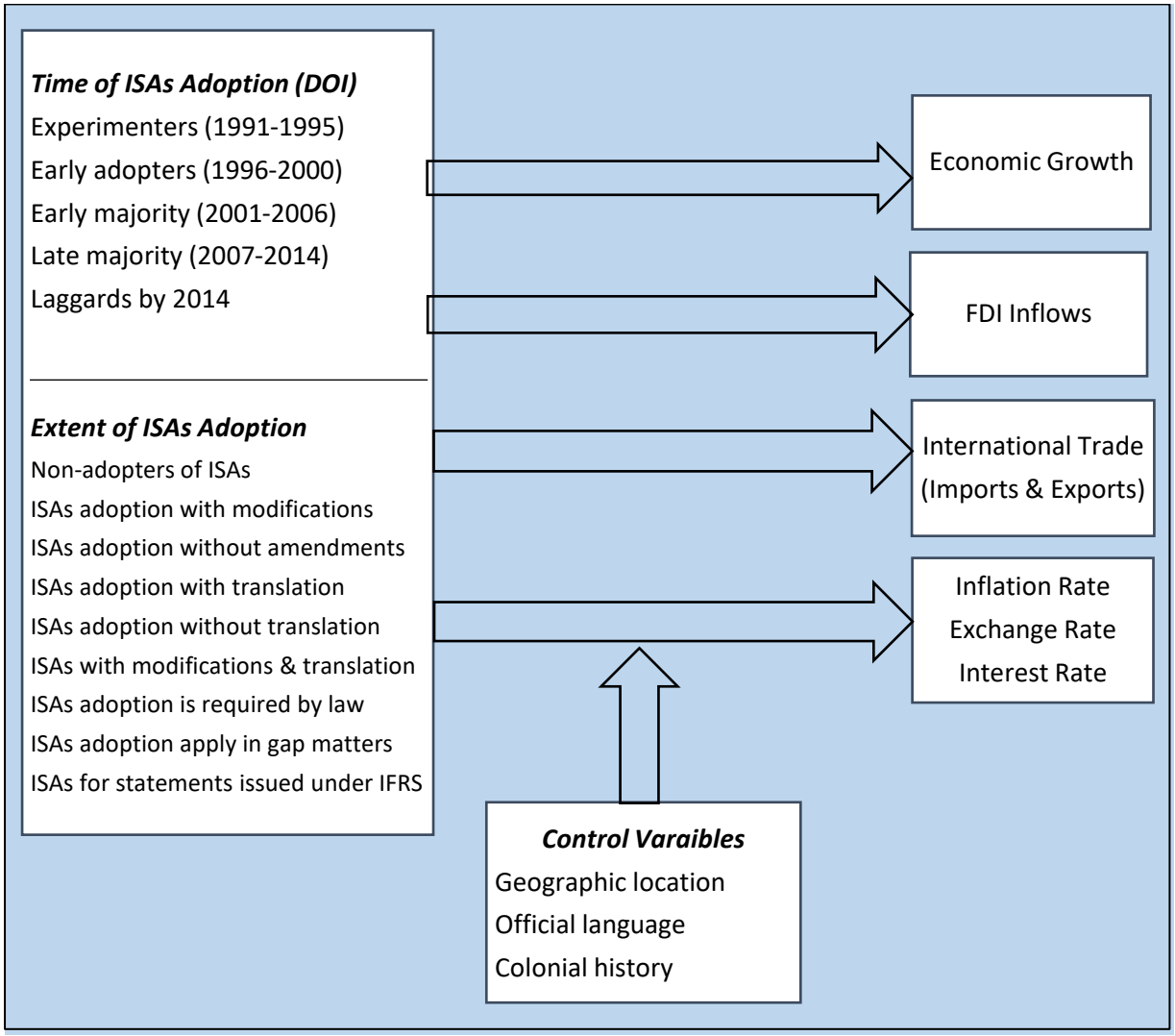

Table 1: The ISAs adoption categories for 160 countries over the period from 1995 to 2014

Experimenters (1991-1995)	Early adopters (1996-2000)	Early majority (2001-2006)		Late majority (2007-2014)		Laggards (non-adopters up to 2014)
Jordan	Armenia	Azerbaijan	Philippines	Argentina	Morocco	Afghanistan
Malta	Bangladesh	Bahrain	Russia	Albania	Namibia	Algeria
Netherlands	Denmark	Bosnia & Herzegovina	Serbia	Australia	Nigeria	Angola
Peru	Dominican Republic	Bolivia	Singapore	Austria	Pakistan	Burkina Faso
Slovenia	El Salvador	Bulgaria	South Africa	Barbados	Portugal	Burundi
Sri Lanka	Fiji	Cambodia	Tanzania	Belgium	Rwanda	Cape Verde
	France	Cameroon	Turkey	Belize	Saudi Arabia	Central African Republic
	Georgia	Canada	Ukraine	Benin	Senegal	Chad
	Kenya	Chile	UK	Botswana	Sierra Leone	Colombia
	Latvia	China	Vietnam	Brazil	Swaziland	Congo, Democratic
	Lesotho	Costa Rica	Zambia	Burma	Switzerland	Congo, Republic
	Macedonia	Czech Republic		Cote d'Ivoire	Sweden	Cuba
	Moldova	Ecuador		Croatia	Tajikistan	Ethiopia
	Mongolia	Guyana		Cyprus	Togo	Gabon
	Paraguay	Haiti		Dominica	Thailand	Gambia
	Poland	Hong Kong		Egypt	Tunisia	Germany
	Romania	Hungary		Estonia	UAE	Guinea
	South Korea	Iraq		Finland	Venezuela	Guinea-Bissau
	Trinidad & Tobago	Ireland		Ghana	Zimbabwe	Laos
	Uganda	Jamaica		Guatemala	Brunei Darussalam	Libya
	Uruguay	Kazakhstan		Honduras		Mali
		Kyrgyzstan		Iceland		Mauritania
		Lebanon		India		Mozambique
		Lithuania		Indonesia		Niger
		Luxembourg		Iran		North Korea
		Malawi		Italy		Oman
		Mauritius		Japan		Qatar
		Montenegro		Kazakhstan		Somalia
		Nepal		Greece		Sudan
		New Zealand		Kuwait		Suriname
		Nicaragua		Liberia		Syria
		Norway		Madagascar		Tonga
		Panama		Malaysia		USA
		Papua New Guinea		Mexico		Yemen
6 countries	**21 countries**	**45 countries**		**54 countries**		**34 countries**

Table 2: The definitions of the dependent, independent, and control variables used in this study and their data sources

Variables	*Definitions and measures*	*Data Sources*
Dependent variables		
ECGR (%)	Economic growth is the measure of the change of GDP at market prices from one year to the next and is based on constant local currency. Then, a country's constant local price of GDP is converted into constant 2010 U.S. Dollars to produce constant price GDP aggregates. Accordingly, the GDP growth data for all years included in this study, 1995-2014, are based on constant 2010 prices.	The World Bank national accounts data, and OECD National Accounts, accessed on 10/03/2016, available at https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG
FDI (%)	Foreign direct investments are the net inflows of new investments from foreign investors. The net inflows of new foreign investments include the sum of equity capital and the other long-term and short-term capital divided by the GDP.	The World Bank, International Debt Statistics, World Bank & OECD GDP estimates, and IMF, accessed on 10/03/2016, available at https://data.worldbank.org/indicator/BX.KLT.DINV.WD.GD.ZS
EXPO ($)	The international trade measured by the export of goods and services represents the total market value of goods and services produced in a country and shipped to the rest of the world's countries measured in current U.S. dollars to facilitate international trade among countries.	The World Bank national accounts data, and OECD National Accounts, accessed on 10/03/2016, available at https://data.worldbank.org/indicator/NE.EXP.GNFS.CD
IMPO ($)	The international trade measured by imports of goods and services represents the volume of all goods and services received from the rest of the world's countries, including transport and shipping services measured in current U.S. dollars to facilitate international trade among countries.	The World Bank and the International Monetary Fund (IMF) Website, accessed on 10/03/2016, available online at https://data.worldbank.org/indicator/BM.GSR.GNFS.CD
INFR (%)	The inflation rate refers to overall increases in the general level of core prices for goods and services, thus reducing the purchasing power of a country's local currency. Inflation is generally measured by a consumer price index (CPI) to determine the annual percentage change of the prices for goods and services over time.	The World Bank and the International Monetary Fund (IMF) Website, accessed on 10/03/2016, available online at https://data.worldbank.org/indicator/FP.CPI.TOTL.ZG
EXCR ($)	The official exchange rate refers to the annual average of local currency units based on monthly averages relative to the U.S. dollar. The official exchange rate is a fixed exchange rate system determined by national authorities where a national currency is tied to the value of the U.S.D. The floating exchange rate is a flexible exchange rate regime subject to market forces and dependent on supply and demand; thus, it fluctuates constantly.	The World Bank, the International Monetary Fund (IMF), and the International Financial Statistics (IFS) accessed on 10/03/2016, available online at https://data.worldbank.org/indicator/PA.NUS.FCRF
INTR (%)	The real interest rate is the percentage of lending interest rates adjusted for the inflation rate. The data of real interest rates are measured by deducting the expected annual inflation rate from the annual nominal (market) interest rate.	The World Bank data, International Monetary Fund (IMF), and the International Financial Statistics accessed on 10/03/2016, available at https://data.worldbank.org/indicator/FR.INR.RINR

Continuation: Table 2	***Definitions and measures***	***Data Sources***
Independent variables		
ISAAC *EXPRA* *ERADA* *ERMJA* *LTMJA* *LGGRA*	The adoption groups of ISAs suggested by DOI theory "1" = Experiments of ISAs (1991- 1995) "2" = Early adopters of ISAs (1995-2000) "3" = Early majority of ISAs (2001-2006) "4" = Late majority of ISAs (2007-2014) "5" = Laggards of ISAs (until 2014)	Reports on the Observance of Standards and Codes (ROSCs) provided by the World Bank Group, accessed on 10/03/2016, available at http://www.worldbank.org/ifa/rosc_aa.html
ISAAS *NOAD* *WIAM* *WOAM* *WITR* *WOTR* *WAMT* *BLAW* *GMAT* *IFRSS*	The extent of ISAs adoption: "0" = Non-adopters of ISAs (laggards) "1" = ISAs are adopted with modifications "2" = ISAs are adopted without amendments "3" = ISAs are adopted with translation "4" = ISAs are adopted without translation "5" = ISAs are adopted with modifications & translation "6" = ISAs are required by the country's law "7" = ISAs only apply in gap matters "8" = ISAs adopted for statements issued under IFRS	Action Plan Template – IFAC, accessed on 10/03/2016, available at https://www.ifac.org/system/files/compliance-assessment Reports on the Observance of Standards and Codes (ROSCs) – World Bank Group, accessed on 10/03/2016, available online at http://www.worldbank.org/ifa/rosc_aa.html
Control variables		
GERI *EURO* *NLSA* *CSAS* *EASP* *MENA* *AFRC*	The geographical regions "1" = The country is in Europe "2" = The country is in North, Latin, & South America "3" = The country is in Central & South Asia "4" = The country is in East Asia & the Pacific "5" = The country is in the Middle East & North Africa "6" = The country is in Sub-Saharan Africa	The World Bank website, the classification of all countries by the continental regions accessed on 10/03/2016, available at http://www.worldbank.org/en/where-we-work
OFLN *ENGL* *FRNL* *SPNL* *ARBL* *GRML* *RUSL* *OTLN*	The official language per group "1" = English is an official language in the country "2" = French is an official language in the country "3" = Spanish is an official language in the country "4" = Arabic is an official language in the country "5" = German is an official language in the country "6" = Russian is the official language in the country "7" = Other languages are official in the country	The World Factbook website established by the Central Intelligence Agency (CIA), accessed on 10/03/2016, available online at https://www.cia.gov/library/publications/the-worldfactbook/fields/2098.html
COHI *NEVC* *BRTC* *FRNC* *SPNC* *PORC* *DUTC* *GRMC* *RUSC* *OTCO*	The colonial history "0" = Never colonized countries "1" = Countries colonised by the British Empire "2" = Countries colonised by the French Empire "3" = Countries colonised by the Spanish Empire "4" = Countries colonized by the Portuguese Empire "5" = Countries colonised by the Dutch Empire "6" = Countries colonised by the German Empire "7" = Countries colonised by the Russian Empire "8" = Countries colonised by other colonists	The World Factbook website established by the Central Intelligence Agency (CIA), accessed on 10/03/2016, available online at https://www.cia.gov/library/publications/the-worldfactbook/fields/2088.html
D08-09	Year dummy for the crisis period, where ''1''= 2008-2009, ''0'' = otherwise	Year dummies from 2008 to 2009

Table 3: A summary of descriptive statistics of the country-level economic consequences

Variables	*ISAAC*	Mean	Std. D	Variance	Min	Max
ECGR (%)	*EXPRA*	3.90	4.84	23.40	-9.82	12.66
	ERADA	4.24	5.94	35.25	-12.43	17.98
	ERMJA	4.54	6.01	36.15	-15.74	23.96
	LTMJA	3.62	6.04	36.52	-15.21	25.89
	LGGRA	4.67	6.47	41.82	-17.68	24.69
FDI (%)	*EXPRA*	4.69	12.65	159.96	-26.23	38.89
	ERADA	5.35	9.34	87.15	-20.57	32.16
	ERMJA	7.92	10.57	111.72	-30.40	35.16
	LTMJA	3.20	10.10	101.94	-33.87	39.62
	LGGRA	0.97	11.65	135.82	-27.04	32.30
EXPO ($)	*EXPRA*	1.59	1.28	1.65	0.09	4.98
	ERADA	0.88	1.54	2.37	1.87	5.19
	ERMJA	1.40	1.59	2.54	1.61	7.00
	LTMJA	1.34	1.74	3.02	3.43	5.33
	LGGRA	0.13	2.04	4.17	3.75	7.39
IMPO ($)	*EXPRA*	1.66	1.31	1.72	0.03	5.00
	ERADA	0.96	1.61	2.59	1.62	5.48
	ERMJA	1.45	1.64	2.68	1.70	6.56
	LTMJA	1.36	1.86	3.45	3.56	5.67
	LGGRA	0.03	2.17	4.73	4.63	8.37
INFR (%)	*EXPRA*	-0.76	6.36	40.44	-15.42	14.74
	ERADA	2.30	7.78	60.57	-17.60	23.78
	ERMJA	2.20	9.10	82.75	-25.64	31.07
	LTMJA	0.43	8.96	80.32	-30.36	28.10
	LGGRA	1.63	10.57	111.65	-24.82	32.82
EXCR ($)	*EXPRA*	-9.84	25.92	671.95	-55.95	25.84
	ERADA	9.47	22.43	503.15	-59.25	55.17
	ERMJA	5.89	27.89	777.87	-67.91	82.44
	LTMJA	6.60	25.00	625.09	-75.75	71.84
	LGGRA	13.98	25.95	673.64	-83.83	63.87
INTR (%)	*EXPRA*	4.77	17.16	294.62	-30.46	45.79
	ERADA	13.28	18.40	338.74	-40.79	61.92
	ERMJA	7.01	19.24	370.00	-51.67	65.04
	LTMJA	6.88	19.67	368.97	-46.05	76.99
	LGGRA	10.65	22.83	521.16	-59.41	52.53

Table 4: The results of PCSEs regression models to examine the effects of ISAs adoption time on the economic consequences of the adopting countries.

Dependent variables	ECGR		FDI		EXPO		IMPO		INFR		EXCR		INTR	
PCSEs	**Coef.**	**P>t**	**Coef.**	**P>t**	**Coef.**	**P>t**	**Coef.**	**P>t**	**Coef.**	**P>t**	**Coef.**	**P>t**	**Coef.**	**P>t**
Adoption categories														
EXPRA	1.521**	(0.022)	7.617***	(0.002)	58.714	(0.127)	-12.120	(0.134)	-2.673***	(0.000)	-13.967***	(0.000)	-5.251**	(0.047)
ERADA	-1.058**	(0.029)	-2.734**	(0.012)	-15.377	(0.163)	12.724	(0.804)	0.276	(0.715)	3.150**	(0.026)	4.584***	(0.002)
ERMJA	0.782**	(0.019)	2.730***	(0.000)	16.103*	(0.089)	52.964	(0.292)	1.157***	(0.006)	0.675	(0.630)	1.367	(0.131)
LTMJA	0.625	(0.215)	3.044***	(0.000)	-11.632**	(0.045)	-16.049**	(0.046)	0.058	(0.927)	0.047	(0.983)	2.845	(0.146)
Dummy 08-09														
D08-09	-3.461***	(0.001)	0.144	(0.900)	-15.547*	(0.061)	-21.113*	(0.057)	1.385	(0.488)	-0.116	(0.868)	1.987	(0.503)
Control Variables														
Geographical region														
EURO	-4.465***	(0.000)	4.702***	(0.003)	-49.400	(0.943)	12.599	(0.166)	-7.787***	(0.000)	-24.297***	(0.000)	-12.064***	(0.000)
LNAM	-4.522***	(0.000)	-0.329	(0.819)	81.121*	(0.056)	19.488*	(0.067)	-3.832***	(0.002)	-17.706***	(0.000)	-1.643	(0.436)
CSAS	-1.300	(0.135)	-2.519*	(0.088)	-80.000	(0.874)	80.114	(0.136)	-3.034**	(0.018)	-12.617***	(0.0000	-1.291	(0.357)
EASP	-1.276**	(0.027)	0.584	(0.535)	33.370*	(0.069)	31.590*	(0.063)	-5.988***	(0.000)	-12.601***	(0.0000	-8.347***	(0.000)
MENA	-1.967	(0.192)	-7.066	(0.101)	14.625**	(0.023)	41.826*	(0.058)	-0.171	(0.923)	19.576***	(0.000)	-29.027***	(0.000)
Official language														
ENGL	-1.872***	(0.001)	4.957***	(0.000)	-84.897	(0.233)	-49.570	(0.925)	-5.455***	(0.000)	-18.112***	(0.000)	-0.557	(0.725)
FRNL	-3.279***	(0.000)	-3.428***	(0.002)	19.362	(0.717)	-21.217	(0.143)	-7.532***	(0.000)	-16.197***	(0.000)	6.856**	(0.038)
SPNL	4.303**	(0.010)	3.701***	(0.002)	-16.588	(0.132)	-32.453*	(0.061)	0.557	(0.514)	10.088***	(0.000)	3.273	(0.460)
ARBL	-1.147	(0.502)	4.550	(0.278)	-25.089**	(0.030)	-67.586*	(0.060)	-6.193***	(0.003)	-54.822***	(0.000)	14.338***	(0.001)
GRML	-1.563**	(0.011)	0.436	(0.721)	34.903	(0.247)	-37.363	(0.224)	-6.210***	(0.000)	-10.449***	(0.000)	3.711	(0.244)
RUSL	-2.964**	(0.033)	1.559	(0.454)	-18.456	(0.162)	-11.239	(0.222)	5.278***	(0.003)	-4.668*	(0.067)	-4.356	(0.344)
Colonial history														
NEVC	-0.974**	(0.036)	-0.750	(0.408)	30.522*	(0.078)	38.952*	(0.082)	-3.367***	(0.000)	-1.824	(0.404)	-5.196***	(0.000)
BRTC	0.758	(0.235)	0.648	(0.692)	-16.469	(0.582)	15.992*	(0.079)	1.734*	(0.087)	-3.438	(0.214)	-2.333	(0.156)
FRNC	1.033	(0.367)	6.213***	(0.002)	-77.084*	(0.062)	-51.382*	(0.065)	-2.352**	(0.030)	24.704***	(0.000)	1.885	(0.558)
SPNC	-3.185**	(0.038)	-0.423	(0.756)	-61.060*	(0.056)	-14.162*	(0.074)	-0.154	(0.890)	-12.309***	(0.000)	-3.049	(0.455)
PORC	0.834	(0.280)	6.182***	(0.002)	-91.696*	(0.058)	-13.925*	(0.061)	-3.669**	(0.045)	-23.166***	(0.000)	3.261	(0.162)
DUTC	1.210*	(0.083)	8.757**	(0.043)	-21.892	(0.142)	20.282	(0.303)	3.473***	(0.002)	10.887***	(0.000)	-5.692**	(0.040)
GRMC	0.145	(0.890)	-4.122*	(0.083)	-38.631	(0.123)	72.091	(0.518)	6.637***	(0.000)	2.109	(0.455)	-7.158***	(0.005)
RUSC	1.889***	(0.009)	5.211***	(0.000)	11.040	(0.135)	10.715*	(0.062)	0.899	(0.554)	-20.117***	(0.000)	5.004***	(0.009)
Cons	6.399***	(0.000)	-3.051*	(0.079)	105.881**	(0.050)	139.185*	(0.054)	6.814***	(0.000)	25.169***	(0.000)	9.033***	(0.004)
Num of observations	3200		3200		3200		3200		3200		3200		3200	
Wald chi2, Prob > chi2	270.850***	(0.000)	564.580***	(0.000)	166.730***	(0.000)	105.850***	(0.000)	641.070***	(0.000)	218.150***	(0.000)	998.070***	(0.000)
R-squared	0.126		0.115		0.099		0.124		0.125		0.212		0.111	

Note: Statistical significance level (p-values) display in parentheses *** p<0.01, ** p<0.05, * p<0.10.

Table 5: The results of PCSEs regression models to examine the effects of ISAs adoption extent on the economic consequences of the adopting countries

Dependent variables	***ECGR***		***FDI***		***EXPO***		***IMPO***		***INFR***		***EXCR***		**INTR**	
PCSEs	**Coef.**	**P>t**	**Coef.**	**P>t**	**Coef.**	**P>t**	**Coef.**	**P>t**	**Coef.**	**P>t**	**Coef.**	**P>t**	**Coef.**	**P>t**
The ISAs Extent														
WIAM	0.664	(0.338)	2.636***	(0.007)	-13.510	(0.979)	-67.777	(0.430)	-0.982	(0.326)	1.736**	(0.026)	-3.139*	(0.077)
WOAM	1.230	(0.200)	1.595	(0.212)	17.148**	(0.015)	59.478**	(0.060)	-1.497	(0.328)	0.642	(0.476)	-4.299	(0.187)
WITR	0.204	(0.777)	2.105**	(0.013)	-77.589	(0.324)	-51.291	(0.427)	-2.356*	(0.064)	1.408*	(0.083)	-4.979**	(0.047)
WOTR	2.409	(0.210)	5.936***	(0.000)	-18.042	(0.729)	-85.290	(0.877)	-8.422***	(0.001)	3.794	(0.244)	5.202	(0.307)
WAMT	-0.478	(0.543)	-1.146	(0.375)	-38.698	(0.595)	-60.524	(0.442)	-3.007**	(0.010)	0.520	(0.437)	1.635	(0.390)
BLAW	-0.486	(0.530)	0.229	(0.890)	17.510	(0.582)	-22.572	(0.959)	-1.960**	(0.050)	0.014	(0.986)	-3.344	(0.106)
GMAT	-1.935	(0.129)	-3.429	(0.278)	-40.382	(0.264)	11.335	(0.737)	0.355	(0.859)	1.342	(0.312)	-4.780*	(0.068)
IFRSS	-1.534	(0.673)	-10.367***	(0.001)	-13.292	(0.732)	64.251	(0.881)	-4.289	(0.251)	3.354	(0.455)	10.308	(0.325)
Dummy 08-09														
D08-09	-3.488***	(0.001)	0.063	(0.955)	-162.232*	(0.056)	-216.220*	(0.060)	1.575	(0.411)	-0.147	(0.827)	2.320	(0.421)
Control Variables														
Geographical region														
EURO	-3.399***	(0.000)	6.260***	(0.000)	-16.200	(0.152)	-19.883	(0.765)	-7.752***	(0.000)	-24.328***	(0.000)	-10.444***	(0.000)
LNAM	-3.938***	(0.000)	0.469	(0.745)	98.067*	(0.060)	30.863*	(0.067)	-3.695***	(0.005)	-17.156***	(0.000)	-0.678	(0.748)
CSAS	-0.506	(0.525)	-1.127	(0.430)	-20.252*	(0.076)	-75.131	(0.277)	-2.443**	(0.041)	-12.002***	(0.002)	0.046	(0.980)
EASP	-0.896	(0.134)	0.412	(0.702)	21.210	(0.125)	16.635	(0.153)	-5.104***	(0.000)	-12.005***	(0.000)	-7.858***	(0.000)
MENA	-1.356	(0.338)	-5.090	(0.238)	-14.774*	(0.064)	-31.153	(0.384)	-0.204	(0.911)	18.344***	(0.000)	-29.370***	(0.000)
Official language														
ENGL	-1.634***	(0.003)	5.031***	(0.000)	-21.346	(0.686)	11.101	(0.162)	-5.518***	(0.000)	-17.814***	(0.000)	-0.068	(0.965)
FRNL	-3.214***	(0.000)	-5.303***	(0.000)	12.020*	(0.075)	14.462**	(0.046)	-7.945***	(0.000)	-16.197***	(0.000)	5.414	(0.101)
SPNL	3.640**	(0.035)	2.784**	(0.026)	-17.754*	(0.080)	-29.248*	(0.055)	1.072	(0.289)	12.920***	(0.000)	8.220	(0.140)
ARBL	-1.426	(0.382)	1.950	(0.651)	14.920*	(0.070)	13.163*	(0.062)	-6.024***	(0.004)	-53.504***	(0.000)	14.148***	(0.001)
GRML	-1.801***	(0.007)	0.010	(0.994)	10.596*	(0.080)	75.132*	(0.070)	-6.938***	(0.000)	-9.575***	(0.000)	3.893	(0.215)
RUSL	-1.863	(0.164)	3.311*	(0.068)	30.864	(0.696)	-68.690	(0.914)	4.572***	(0.005)	-7.267**	(0.013)	-5.663	(0.238)
Colonial history														
NEVC	-0.892*	(0.058)	-0.359	(0.681)	146.971	(0.140)	174.801	(0.168)	-4.022***	(0.000)	-3.346	(0.108)	-6.268***	(0.000)
BRTC	1.028*	(0.073)	1.246	(0.443)	-208.830*	(0.074)	-115.586*	(0.087)	1.459*	(0.092)	-5.737**	(0.033)	-3.648**	(0.015)
FRNC	1.299	(0.208)	7.204***	(0.000)	-321.478*	(0.069)	-184.950	(0.103)	-2.904**	(0.013)	23.361***	(0.000)	-1.740	(0.543)
SPNC	-2.322	(0.130)	1.691	(0.201)	-989.636*	(0.060)	-281.256*	(0.071)	-0.687	(0.572)	-16.472***	(0.000)	-9.947**	(0.047)
PORC	0.796	(0.265)	4.853**	(0.014)	-287.724*	(0.085)	-271.933*	(0.092)	-4.888***	(0.008)	-24.905***	(0.000)	-2.258	(0.312)
DUTC	1.087	(0.107)	8.410*	(0.074)	-445.159*	(0.053)	-229.556**	(0.031)	2.765**	(0.018)	10.533***	(0.000)	-10.069***	(0.001)
GRMC	0.638	(0.476)	-3.372	(0.160)	-422.782*	(0.076)	-272.223*	(0.084)	5.857***	(0.000)	-0.495	(0.858)	-9.060***	(0.000)
RUSC	1.567**	(0.041)	5.680***	(0.000)	-214.10	(0.473)	167.451	(0.489)	1.974	(0.145)	-19.493***	(0.000)	4.781**	(0.013)
Constant	6.345***	(0.000)	-1.125	(0.507)	225.277*	(0.084)	677.080	(0.316)	8.249***	(0.000)	26.185***	(0.000)	14.799***	(0.000)
Num of observations	3200		3200		3200		3200		3200		3200		3200	
Wald chi2, Prob > chi2	653.99***	(0.000)	879.06***	(0.000)	162.65***	(0.000)	107.45***	(0.000)	790.98***	(0.000)	285.17***	(0.000)	304.84***	(0.000)
R-squared	0.126		0.104		0.106		0.110		0.132		0.189		0.110	

Note: Statistical significance level (p-values) display in parentheses *** p<0.01, ** p<0.05, * p<0.10.

Table 6: The expected sign and received results for all variables for both ISAs timing and extent.

Variable	Expected sign	Received Result
ISAs Timing		
Experimenter EXPRA	+	Positive association with economic growth and FDI inflow, negative significant association with inflation, exchange volatility, and interest rate.
Early Adopter ERADA	+	Negative association with economic growth and FDI inflow, positive significant association with exchange volatility and interest rate.
Early Majority ERMJA	+	Positive association with economic growth, FDI inflow, exports, and inflation rate.
Late Majority LTMJA	-	Negative association with exports and imports.
Laggard LGGRA	+	No significant association with economic indicators
ISAs Extent		
WIAM	+	Positive association with FDI and exchange volatility, negative association with inflation rate
WOAM	+	Positive association with exports and imports
WITR	+	Positive association with FDI and exchange volatility, negative association with inflation and interest rates
WOTR	+	Positive association with FDI, negative association with inflation rate.
WAMT	+	Negative association with inflation rate.
BLAW	+	Negative association with inflation rate.
GMAT	+	Negative association with interest rate.
IFRSS	+	Negative association with FDI inflows.

Table 7: The results of lag-1 autocorrelation estimations to examine the effects of ISAs adoption time on the economic consequences of the adopting countries

Dependent variables	ECGR		FDI		EXPO		IMPO		INFR		EXCR		INTR	
	Coef.	P>t	Coef.	P>t	Coef.	P>t	Coef.	P>t	Coef.	P>t	Coef.	P>t	Coef.	P>t
Adoption categories														
EXPRA	0.432	(0.522)	6.296*	(0.067)	0.188	(0.608)	0.146	(0.695)	-2.497*	(0.073)	-15.461*	(0.071)	-2.783	(0.578)
ERADA	-0.474	(0.423)	-2.623	(0.146)	-0.523*	(0.078)	-0.516*	(0.098)	-0.004	(0.998)	5.567	(0.308)	5.184**	(0.030)
ERMJA	0.866*	(0.087)	4.004***	(0.003)	0.104	(0.668)	0.117	(0.645)	1.274	(0.228)	0.457	(0.913)	0.074	(0.972)
LTMJA	0.038	(0.951)	1.495	(0.310)	0.469	(0.346)	0.532	(0.323)	-0.892	(0.490)	-0.888	(0.847)	4.225	(0.271)
Dummy 08-09														
D08-09	0.237	(0.718)	8.421***	(0.000)	1.041***	(0.000)	1.223***	(0.000)	-0.829	(0.258)	8.325***	(0.000)	-9.635***	(0.000)
Control Variables														
Geographical region														
EURO	-4.470***	(0.000)	3.226	(0.155)	1.822***	(0.000)	1.978***	(0.000)	-7.270***	(0.000)	-24.052***	(0.000)	-14.987***	(0.000)
LNAM	-4.021***	(0.000)	-0.467	(0.851)	0.821	(0.293)	0.852	(0.322)	-4.089*	(0.064)	-21.047***	(0.001)	-1.309	(0.782)
CSAS	-0.559	(0.595)	-3.699	(0.148)	1.242***	(0.008)	1.533***	(0.002)	-2.003	(0.273)	-14.468	(0.103)	-4.462	(0.400)
EASP	-1.188	(0.229)	1.377	(0.561)	1.759***	(0.001)	1.734***	(0.002)	-7.486***	(0.000)	-13.700**	(0.023)	-10.492***	(0.003)
MENA	-1.191	(0.414)	-6.111***	(0.001)	1.904***	(0.000)	1.940***	(0.000)	0.527	(0.884)	7.481	(0.579)	-29.723***	(0.000)
Official language														
ENGL	-1.725*	(0.070)	5.469**	(0.017)	0.333	(0.386)	0.375	(0.359)	-3.759***	(0.009)	-17.051***	(0.002)	0.089	(0.973)
FRNL	-3.641***	(0.000)	-1.269	(0.642)	0.712*	(0.073)	0.616	(0.140)	-6.913***	(0.003)	-18.937***	(0.008)	7.744	(0.113)
SPNL	1.575	(0.191)	4.257*	(0.099)	0.489	(0.350)	0.579	(0.293)	0.290	(0.829)	7.535	(0.446)	-3.894	(0.255)
ARBL	-1.061	(0.464)	5.580**	(0.015)	0.167	(0.735)	0.109	(0.828)	-8.587**	(0.024)	-48.706***	(0.001)	16.797**	(0.013)
GRML	-1.498**	(0.028)	2.643	(0.318)	0.915	(0.189)	0.782	(0.280)	-5.998***	(0.000)	-12.069	(0.108)	5.316*	(0.087)
RUSL	-2.202**	(0.022)	1.732	(0.620)	0.029	(0.960)	-0.249	(0.649)	4.696*	(0.078)	3.717	(0.755)	-4.645	(0.544)
Colonial history														
NEVC	-1.320	(0.101)	0.094	(0.966)	1.861***	(0.000)	1.883***	(0.000)	-4.448***	(0.003)	-2.863	(0.642)	-6.372**	(0.044)
BRTC	0.147	(0.880)	-0.078	(0.977)	-0.161	(0.692)	-0.275	(0.512)	-0.087	(0.961)	-5.857	(0.291)	-4.365	(0.240)
FRNC	0.782	(0.395)	3.648	(0.145)	-0.691*	(0.087)	-0.681	(0.103)	-2.070	(0.408)	25.543***	(0.000)	-0.032	(0.995)
SPNC	-0.965	(0.421)	-0.123	(0.964)	0.200	(0.714)	0.096	(0.864)	-0.849	(0.654)	-4.575	(0.697)	0.345	(0.939)
PORC	0.364	(0.789)	6.676**	(0.041)	0.312	(0.678)	0.204	(0.808)	-3.736	(0.268)	-20.352**	(0.014)	3.237	(0.712)
DUTC	0.936	(0.124)	2.700	(0.653)	0.210	(0.748)	0.154	(0.835)	2.125	(0.307)	14.338	(0.294)	-7.423*	(0.098)
GRMC	0.566	(0.773)	-7.648**	(0.027)	-1.663***	(0.004)	-1.598***	(0.004)	3.702	(0.106)	4.206	(0.686)	-13.375**	(0.045)
RUSC	1.672**	(0.026)	8.230***	(0.001)	-0.850**	(0.022)	-0.967***	(0.009)	-0.935	(0.605)	-16.006**	(0.032)	3.332	(0.334)
Constant	6.586***	(0.000)	-6.256**	(0.018)	-1.246***	(0.009)	-1.380***	(0.008)	15.718***	(0.000)	23.701***	(0.002)	14.709***	(0.014)
Num of observations	3200		3200		3200		3200		3200		3200		3200	
F Value, Prob > F	15.540***	(0.000)	17.380***	(0.000)	46.360***	(0.000)	71.780***	(0.000)	31.890***	(0.000)	11.170***	(0.000)	8.500***	(0.000)
R-squared	0.189		0.211		0.522		0.524		0.271		0.389		0.225	

Note: Statistical significance level (p-values) display in parentheses *** p<0.01, ** p<0.05, * p<0.10.

Table 8: The results of lag-1 autocorrelation estimation to examine the effects of ISAs adoption extent on the economic consequences of the adopting countries.

Dependent variables	***ECGR***		***FDI***		***EXPO***		***IMPO***		***INFR***		***EXCR***		INTR	
	Coef.	**P>t**	**Coef.**	**P>t**	**Coef.**	**P>t**	**Coef.**	**P>t**	**Coef.**	**P>t**	**Coef.**	**P>t**	**Coef.**	**P>t**
The ISAs Status														
WIAM	0.429	(0.541)	1.984	(0.220)	-0.125	(0.718)	-0.089	(0.812)	1.666**	(0.050)	5.558	(0.216)	2.656	(0.302)
WOAM	1.536	(0.119)	2.369	(0.298)	0.728*	(0.088)	0.748*	(0.077)	-0.259	(0.869)	3.402	(0.487)	3.155	(0.326)
WITR	0.106	(0.840)	1.828	(0.122)	0.191	(0.482)	0.184	(0.520)	-0.288	(0.772)	1.296	(0.769)	3.058	(0.305)
WOTR	0.237	(0.900)	5.053*	(0.060)	-0.612*	(0.065)	-0.854**	(0.023)	-6.504***	(0.003)	8.443	(0.548)	13.681***	(0.003)
WAMT	-0.679	(0.326)	1.774	(0.451)	-0.277	(0.276)	-0.139	(0.558)	-0.915	(0.501)	-0.752	(0.863)	4.202*	(0.068)
BLAW	-0.225	(0.720)	1.782	(0.317)	-0.146	(0.631)	-0.215	(0.505)	-0.182	(0.869)	-3.357	(0.574)	2.534	(0.351)
GMAT	-3.633**	(0.031)	-9.985***	(0.002)	1.060*	(0.056)	1.153**	(0.049)	-5.523	(0.120)	8.830*	(0.078)	-3.105	(0.327)
IFRSS	2.374	(0.228)	-10.535***	(0.002)	-0.867	(0.181)	-0.247	(0.616)	-1.542	(0.681)	-11.107	(0.127)	-2.820	(0.821)
Dummy 08-09														
D08-09	0.119	(0.872)	7.265***	(0.000)	1.011***	(0.000)	1.179***	(0.000)	-0.792	(0.335)	6.790***	(0.003)	-11.811***	(0.000)
Control Variables														
Geographical region														
EURO	-4.075***	(0.000)	4.917**	(0.041)	2.009***	(0.000)	2.174***	(0.000)	-7.422***	(0.000)	-24.364***	(0.000)	-14.352***	(0.001)
LNAM	-3.774***	(0.000)	0.267	(0.907)	0.890	(0.219)	0.925	(0.249)	-3.829*	(0.091)	-20.789***	(0.001)	-0.952	(0.848)
CSAS	-0.428	(0.658)	-2.600	(0.331)	1.198***	(0.007)	1.521***	(0.001)	-1.458	(0.429)	-15.011*	(0.098)	-4.332	(0.432)
EASP	-0.986	(0.310)	2.269	(0.356)	1.782***	(0.001)	1.769***	(0.002)	-6.870***	(0.000)	-13.711**	(0.026)	-10.233***	(0.005)
MENA	-1.004	(0.486)	-5.357***	(0.002)	2.275***	(0.000)	2.307***	(0.000)	0.012	(0.997)	6.433	(0.640)	-29.087***	(0.000)
Official language														
ENGL	-1.775*	(0.056)	5.878**	(0.012)	0.429	(0.264)	0.469	(0.248)	-4.274***	(0.002)	-17.648***	(0.002)	0.690	(0.806)
FRNL	-3.684***	(0.000)	-2.136	(0.430)	0.579	(0.171)	0.455	(0.308)	-6.566***	(0.004)	-17.561**	(0.016)	7.307	(0.126)
SPNL	1.242	(0.313)	2.780	(0.349)	0.509	(0.262)	0.583	(0.224)	-0.496	(0.743)	8.064	(0.434)	-2.259	(0.633)
ARBL	-1.140	(0.454)	5.002**	(0.014)	-0.193	(0.663)	-0.264	(0.532)	-8.041**	(0.032)	-47.508***	(0.001)	15.647**	(0.026)
GRML	-1.770**	(0.019)	1.905	(0.540)	0.723	(0.322)	0.579	(0.440)	-5.811***	(0.000)	-12.500*	(0.094)	5.683**	(0.047)
RUSL	-1.929**	(0.018)	4.187	(0.247)	0.433	(0.402)	0.066	(0.897)	4.073	(0.142)	3.620	(0.753)	-4.914	(0.523)
Colonial history														
NEVC	-1.325*	(0.091)	0.427	(0.839)	1.929***	(0.000)	1.934***	(0.000)	-4.546***	(0.004)	-4.007	(0.524)	-6.267*	(0.055)
BRTC	0.077	(0.936)	0.019	(0.994)	-0.048	(0.897)	-0.164	(0.670)	-0.518	(0.767)	-7.301	(0.192)	-4.707	(0.218)
FRNC	0.796	(0.399)	4.045	(0.116)	-0.516	(0.196)	-0.516	(0.223)	-2.528	(0.297)	23.948***	(0.001)	-1.144	(0.833)
SPNC	-0.666	(0.581)	2.182	(0.508)	0.291	(0.587)	0.203	(0.723)	-0.522	(0.780)	-6.186	(0.612)	-0.955	(0.868)
PORC	0.130	(0.924)	5.477*	(0.088)	0.189	(0.799)	0.040	(0.961)	-3.880	(0.232)	-20.632***	(0.009)	0.863	(0.921)
DUTC	0.805	(0.232)	2.359	(0.719)	0.426	(0.554)	0.347	(0.671)	1.441	(0.468)	13.101	(0.332)	-8.392*	(0.088)
GRMC	0.578	(0.765)	-7.359**	(0.025)	-1.420**	(0.025)	-1.358**	(0.026)	2.987	(0.179)	2.310	(0.829)	-14.336**	(0.037)
RUSC	1.672**	(0.019)	7.851***	(0.002)	-0.779**	(0.029)	-0.882**	(0.013)	-0.204	(0.910)	-14.637**	(0.039)	3.571	(0.299)
Constant	6.831***	(0.000)	-4.419*	(0.068)	-1.058**	(0.014)	-1.131**	(0.013)	15.703***	(0.000)	24.555***	(0.001)	18.803***	(0.000)
Num of observations	3200		3200		3200		3200		3200		3200		3200	
F Value, Prob > F	14.430**	(0.022)	20.770***	(0.000)	40.690***	(0.000)	62.890***	(0.000)	29.400***	(0.000)	14.790***	(0.000)	9.780***	(0.000)
R-squared	0.192		0.187		0.521		0.520		0.275		0.385		0.219	

Note: Statistical significance level (p-values) display in parentheses *** p<0.01, ** p<0.05, * p<0.10.