Accounting and Management Information Systems
Vol. 22, No. 3, pp. 554-568, 2023
DOI: http://dx.doi.org/10.24818/jamis.2023.03007

Impact of mandatory IFRS adoption on economic growth: the moderating role of Covid-19 crisis in developing countries

Azzouz Elhamma [1,a]
[a] *National School of Business and Management, Ibn Tofaîl University, Kenitra, Morocco*

Abstract

Research Question: Does Covid-19 crisis moderate significantly the relationship between mandatory International Financial Reporting Standards (IFRS) adoption and economic growth in developing countries, especially in the MENA (Middle East and North Africa) region and SSA (Sub-Saharan Africa) countries?
Motivation: Two sources of motivation are behind this study. First, research works on the impact of mandatory IFRS adoption on macroeconomic indicators such as economic growth are still scarce. Second, studying the impact of mandatory IFRS adoption on economic growth before and during the Covid-19 crisis allows to better understand this relationship in times of crisis.
Idea: This article aims to investigate the moderating role of Covid-19 crisis in the relationship between mandatory IFRS adoption and economic growth in developing countries.
Tools: The study was conducted based on panel data from 30 developing countries (15 MENA countries and 15 SSA countries) during the period 2017–2020. Collected data were analysed by using the Generalized Least Squares (EGLS/weighted cross-section) with fixed effect estimation technique.
Findings: The main results of the study show that mandatory IFRS adoption has a positive impact on economic growth of the full sample, and that this positive impact is reduced during Covid-19 crisis.
Contribution: The study results are very useful to policymakers and regulators in developing countries, especially in crisis periods.

Keywords: Mandatory IFRS adoption, Economic growth, Covid-19 crisis, developing countries, MENA region, Sub-Saharan Africa.

JEL codes: M41

[1] *Corresponding author:* National School of Business and Management (ENCG), B.P: 1420. Kenitra – 14000, Morocco. Email address: elhamma.azzouz@gmail.com

1. Introduction

Undoubtedly, improving economic growth is considered as the main objective of economists, economic researchers and policymakers. A robust economic growth can be a major driver of poverty alleviation (Thorbecke, 2013; Anand *et al.* 2014; etc.), unemployment reduction (Sadiku *et al*., 2015; Bayrak & Tatli, 2018; Xesibe & Nyasha, 2020; Hjazeen *et al*., 2021; Alabed *et al*., 2022 etc.), etc. Nowadays, many developing countries have made efforts to promote economic growth. Among these efforts, the adoption of International Financial Reporting Standards (IFRS) is largely recommended by the international organizations such as the World Bank (WB) and the International Monetary Fund (IMF) in their several Reports on the Observance of Standards and Codes (ROSC) on the Accounting and Auditing (AA). In its literature review on the economic impact of IFRS adoption, Nurunnabi (2021) indicates that the adoption of high-quality set of harmonized accounting standards (IFRS) can improve trade, foreign direct investment (FDI) and reduce information asymmetries.

During the two last decades, adoption of IFRS has known a remarkable trend (Elhamma, 2014; Bengtsson, 2021), especially after the decision of the European Union (EU) in 2002 (regulation No. 1606/2002) to require IFRS for all listed companies on EU stock markets, from 2005 onwards. According to a report by the IFRS Foundation in 2018, 144 or 87% of jurisdictions around the world require IFRS for all or most companies (IFRS foundation, 2018). To better understand the macroeconomic consequences of the mandatory IFRS adoption, some researchers have been interested on several topics such as the impact of IFRS adoption on FDI inflows (Márquez-Ramos, 2008; DeFond *et al.*, 2011; Gordon *et al.*, 2012; Akisik, 2014; Yousefinejad *et al.* 2018; Musah *et al*., 2020; Siriopoulos *et al*., 2021; Elhamma, 2023; etc.), economic growth (Oppong & Aga, 2019; Akisik *et al*., 2020; Owusu *et al.*, 2022; etc.), etc. However, accounting and economic empirical studies on the relationship between mandatory IFRS adoption and macroeconomic indicators in Covid-19 crisis period are absent. According to Rinaldi *et al.* (2020: 180), "while accounting and accountability research has developed and become more sophisticated, the challenges posed by the Covid-19 pandemic provides both a challenge and need for research in this area to become more impactful".

In this context, this study aims to examine the moderating role of Covid-19 crisis in the relationship between mandatory IFRS adoption and economic growth in developing countries, especially in the Middle East and North Africa (MENA) region and Sub-Saharan Africa (SSA). The key question in this research is therefore: *Does Covid-19 crisis moderate significantly the relationship between mandatory IFRS adoption and economic growth in developing countries, especially in MENA and SSA?*

MENA is a large region that is characterized by substantial petroleum and natural gas reserves. According to the January 1, 2009 issue of the Oil and Gas Journal, MENA countries hold 60% of the world's oil reserves and 45% of the world's natural gas reserves. Currently, seven (Algeria, Iran, Iraq, Kuwait, Libya, Saudi Arabia and United Arab Emirates) of the thirteen countries of the Organization of the Petroleum Exporting Countries (OPEC) are part of the MENA region. SSA is composed of countries located in the area that lies south of the Sahara. The United Nations Development Programme (UNDP) applies the "sub-Saharan" classification to 46 of Africa's 54 countries.

Our objective in this research is to explain the evolution of economic growth in relationship between the mandatory IFRS adoption before and during the Covid-19 crisis. In order to achieve this objective, a panel data from 30 developing countries (15 MENA countries and 15 SSA) spanning 4 years over the period 2017–2020 was used. Therefore, the full sample consists of 120 observations. Two main results should be highlighted. First, mandatory IFRS adoption has a positive and significant impact on economic growth for the full sample. Second, the interaction between mandatory IFRS adoption and Covid-19 crisis has a negative and significant impact on economic growth for all selected developing countries. This implies that Covid-19 crisis decrease significantly the positive impact of mandatory IFRS adoption on economic growth.

There are both theoretical and practical contributions of this present research. For theoretical contributions, the present study results add knowledge to the existing economic and accounting literature on the relationship between mandatory IFRS adoption and some macroeconomic indicators, especially in the crisis periods by providing some empirical evidence on the moderating effect of Covid-19 crisis on the relationship between mandatory IFRS adoption and economic growth in developing countries. To the author’s knowledge, this is the first research study to investigate the impact of mandatory IFRS adoption on economic growth by using Covid-19 crisis as a moderator. For practical contributions, this research work is very useful to policymakers and regulators in developing countries.

The remainder of the paper is structured as follows. In the second section, we provide literature review and hypotheses development. In the third section, we present our methodological choices. In the fourth section, we report the empirical results. Finally, in the fifth section, we report summary and conclusion.

2. Literature review and hypotheses development

2.1 Impact of mandatory IFRS adoption on economic growth

Research studies on the link between IFRS adoption and macroeconomics indicators such as economic growth are very limited (Elhamma, 2023). On the hand, the accounting scholars are interested more on issues at the firm level (Owusu *et al.*, 2017; Mameche & Masood, 2021). On the other hand, economic researchers investigating the drivers of economic growth have not studied IFRS mandatory adoption much (Oppong & Aga, 2019). Akisik (2013) examined the relationship between accounting regulation, financial development, and economic growth in fifty-one developed and emerging market economies over the period 1997–2009. The study results showed a positive relationship between economic growth and high-quality (international) accounting standards. In the same sense, Özcan (2016), by using a sample of 41 countries that have adopted IFRS and 29 countries that have not yet adopted IFRS during the period between 2005 and 2015, studied the relationship between adoption of IFRS and countries' economic growth. The research results showed that IFRS adoption has significantly increased countries' economic growth. Based on a sample of 28 countries in the EU and data from 2005 to 2014, Oppong and Aga (2019: 792) demonstrated that "IFRS adoption improves the economic growth and that IFRS adoption matters for developing economies than developed ones". According to these results, the authors recommended to enforce the adoption of IFRS, especially in developing economies.

Recently, Akisik *et al.* (2020), by using data from 41 African countries over the period 1997 and 2017, have shown two main results. First, the relationship between IFRS adoption and economic growth is statistically insignificant. Second, the interaction between FDI and IFRS adoption (FDI x IFRS) has a significant and positive effect on economic growth, suggesting that the adoption of IFRS "alone may not be beneficial for economic growth, the use of IFRS appears to enhance the positive impact of FDI on economic growth" (Akisik *et al.*, 2020: 11). More recently, Owusu *et al.* (2022) investigated the relationship between IFRS adoption and economic growth in 78 developing economies during the period between 1996 and 2013 and examined the role of the country-level institutional quality in this relationship. The study results show that countries that adopt IFRS experience better economic growth than non-adopting countries. Also, the findings demonstrate that the good institutions moderate significantly the relationship between IFRS adoption and economic growth. Thus we can formulate the following hypothesis:

Hypothesis H1. Mandatory IFRS adoption has a positive and significant impact on economic growth.

2.2 IFRS and Covid-19 crisis

By using the agency theory, the IFRS adoption is originally intended to reduce the informational asymmetry between managers and shareholders, and therefore it is considered as a mechanism to discipline managers and reduces agency conflicts between the two parties. The agency relationship is defined by Jensen and Meckling (1976: 308) as "an agency relationship as a contract under which one or more persons (the principal[s]) engage another person (the agent) to perform some service on their behalf which involves delegating some decision-making authority to the agent".

According to this theory, and to reduce the information asymmetry problems between firms (managers) and its investors, the financial reporting information can be used as an important mechanism by the investors. The adoption of the IFRS standards limits the discretionary accounting choices that can be used by managers and therefore reduce their opportunistic behavior (Cuijpers & Buijnik, 2005). However, the question that arises is the following: Does the adoption of IFRS have the same role in times of crisis such as that of Covid-19?

Since the end of 2019, according to the World Health Organization (2022), the Covid-19 pandemic has resulted in more than 600 million confirmed cases and about 6 million deaths globally (https://covid19.who.int). This health crisis, quickly transformed into an economic and social crisis, has produced several concerns about financial accounting. Several accounting scholars have issued calls for research for special issues or academic conferences (Rinaldi *et al.*, 2020). Certainly, the year 2020 has witnessed the economic crisis caused by the pandemic of the coronavirus (Covid-19). The high degree of uncertainty caused by Covid-19 crisis (lockdown measures for example) is certainly to trigger updates to management's operating plans. In this situation, the most entities have several difficulties in estimating some items in financial statement by using IFRS standards. For instance, "management uses projections of future cash flows when testing for impairment of non-financial assets like goodwill; recognizing and measuring the impairment of financial assets; assessing whether the going concern basis of preparation is appropriate; and measuring the fair value of financial assets" (Tokar & Kumar, 2020: 2). In front of this difficult situation, The International Organization of Securities Commissions (IOSCO) has issued in 29 May 2020 a statement acknowledging that it is possible to use imperfect information in the preparation of financial statements. According to the IOSCO, "we remind issuers of their responsibility to use the best available information in making well-reasoned and supported judgments". In addition, IOSCO insists on using Non-GAAP financial measures, also called Alternative Performing Measures (APMs) when they are presented consistently from period-to-period, defined adequately, or are used to supplement financial information (IOSCO, 2020). In this context, we can formulate the following hypothesis:
Hypothesis H2. Covid-19 crisis moderates unfavourably the relationship between mandatory IFRS adoption and economic growth.

3. Methodology and methods

3.1 Sample of the study and data

The empirical analysis covers 30 developing countries over the period between 2017 and 2020. The sample is composed of:

- 15 MENA countries: Algeria, Bahrain, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Mauritania, Morocco, Oman, Qatar, Saudi Arabia, Tunisia and the United Arab of Emirates (UAE).

- 15 sub-Saharan African countries: Burkina Faso, Burundi, Cameroon, Cote d'Ivoire, Gambia, Ghana, Kenya, Mali, Niger, Nigeria, South Africa, Tanzania, Togo, Zambia and Zimbabwe.

In this research, we use a secondary data. We obtain data especially from World Development Indicators (WDI) database published by the World Bank, World Governance Indicators (WGI), Deloite's ias.plus, and IFRS foundation website.

3.2 Measurement of variables and source of data

In this research, seven variables are used: economic growth (dependent variable), IFRS adoption (independent variable), Covid-19 crisis (moderator variable), foreign direct investment (FDI), inflation, trade openness and unemployment (control variables). Measurement and sources of data are reported in Table 1.

Table 1. Measurement of variables and source of data

Variable		Acronym	Measurement	Source of data
Dependent variable	Economic growth	lnGdpCap	Natural logarithm of annual GDP per capita in the current USD.	The WDI
Independent variable	Mandatory IFRS adoption	IFRS	IFRS adoption is measured on the ordinal scale, with "0=countries that do not require IFRS; 1=countries that require IFRS for some companies; and 2=countries that require IFRS for all companies.	Deloitte website (www.iasplus.com) and IFRS Foundation website (www.ifrs.org)
Moderator variable	Covid-19 crisis	Covid19	Dummy variable coded as "1" for during Covid-19 crisis and "0" for before Covid-19 crisis.	-
Control variables	FDI	lnFdi	Natural logarithm of FDI, net inflows (current USD).	The WDI
	Inflation	Inflat	Annual inflation rate.	The WDI
	Unemployment rate	lnUneRat	Natural logarithm of annual Unemployment rate	The WDI

Variable	Acronym	Measurement	Source of data
Trade openness	lnOpenes	Natural logarithm of trade openness (import of goods and services as % of GDP + export of goods and services as % of GDP)/2	The WDI

3.3 Empirical specification and method of estimation

To measure the impact of mandatory IFRS adoption on economic growth (H1), we use the following equation (equation 1):

$$\text{(Eq.1): } lnGdpCap_{it} = \beta 0 + \beta 1IFRS_{it} + \beta 2lnFdi_{it} + \beta 3Inflat_{it} + \beta 4lnUneRat_{it} + \beta 5lnOpenes + \varepsilon_{it}$$

Where “lnGdpCap” represents natural logarithm of annual GDP per capita (current USD); “IFRS” represents mandatory IFRS adoption; “lnFdi” represents natural logarithm of FDI net inflows (current USD); “Inflat” represents annual inflation (consumer prices-annual %); “lnUneRat” represents natural logarithm of annual unemployment rate; “lnOpenes” represents natural logarithm of trade openness; “i” denotes the country subscript; “t” is the time period; “βi” is the coefficient related to different types of variables and “ε_{it}” is the error term.

The scope of the present research is not limited to the impact of mandatory IFRS adoption on Economic growth, it explore the moderating effect of Covid-19 crisis on the relationship between mandatory IFRS adoption and economic growth. Equation 2 can be written as:

$$\text{(Eq.2): } lnGdpCap_{it}=\beta 0+ \beta 1IFRS_{it} + \beta 2Covid19_{it} + \beta 3(Covid19_{it}*IFRS_{it}) + \beta 4lnFdi_{it} + \beta 5Inflat_{it} + \beta 6lnUneRat_{it} + \beta 7lnOpenes + \varepsilon_{it}$$

Where “lnGdpCap” represents natural logarithm of GDP per capita (current USD); “IFRS” represents mandatory IFRS adoption; “Covid19” represents Covid-19 crisis; “lnFdi” represents natural logarithm of FDI net inflows (current USD); “Inflat” represents annual inflation (consumer prices-annual %); “lnUneRat” represents natural logarithm of annual unemployment rate; “lnOpenes” represents natural logarithm of trade openness; “i” denotes the country subscript. “t” is the time period. “βi” is the coefficient related to different types of variables and “ε_{it}” is the error term.

To avoid Heteroscedasticity and serial correlation in our models, the Generalized Least Squares (EGLS) method with fixed effect was employed (Hausman, 1978).

4. Results and discussion

4.1 Descriptive statistics and correlations

The main data's descriptive statistics, including mean, standard deviation, minimum and maximum values are summarized in Table 2.

Table 2. Main descriptive statistics

		Mean	St. Dv	Min	Max	Obs.
lnGdpCap	Panel A (Full sample)	8.0707	1.3484	5.4112	11.0960	120
	Panel B (MENA region)	9.0383	1.1028	7.3696	11.0960	60
	Panel C (SSA)	7.1031	0.7396	5.4112	8.8543	60
IFRS	Panel A (Full sample)	1.1917	0.8725	0	2	120
	Panel B (MENA region)	1.18333	0.9116	0	2	60
	Panel C (SSA)	1.2000	0.8396	0	2	60
lnFdi	Panel A (Full sample)	1.9693	0.4109	0.0000	3.2546	120
	Panel B (MENA region)	2.0069	0.5603	0.0000	3.2546	60
	Panel C (SSA)	1.9318	0.1539	1.7664	2.4510	60
Inflat	Panel A (Full sample)	0.1175	0.5603	-0.0320	5.5720	120
	Panel B (MENA region)	0.0554	0.1320	-0.0250	0.8490	60
	Panel C (SSA)	0.1795	0.7798	-0.0320	5.5720	60
lnUneRat	Panel A (Full sample)	1.6390	1.0534	-2.2072	3.3748	120
	Panel B (MENA region)	1.7439	1.1931	-2.2072	2.9401	60
	Panel C (SSA)	1.5341	0.8900	-0.6161	3.3748	60
lnOpenes	Panel A (Full sample)	3.4614	0.7225	2.4069	9.6589	120
	Panel B (MENA region)	3.6753	0.3782	2.8033	4.4716	60
	Panel C (SSA)	3.2479	0.9039	2.4069	9.6589	60

Notes. "lnGdpCap" represents natural logarithm of annual GDP per capita (current USD). "IFRS" represents mandatory of IFRS adoption. "lnFdi" represents natural logarithm of FDI net inflows (current USD). "Inflat" represents annual inflation (consumer prices-annual %). "lnUneRat" represents natural logarithm of annual unemployment rate. "lnOpenes" represents natural logarithm of trade openness.

In panel A for the full sample that includes MENA and SSA countries, lnGdpCap has a mean of 8.07 and IFRS has a mean of 1.19. When we compare panels B and C for MENA and SSA, lnGdpCap for MENA (9.03) is higher than that for SSA (7.10). In these countries, the comparison of lnFdi, Inflat and lnOpenes yields interesting results. The FDI for MENA countries is higher than that for SSA countries (2 vs. 1.93). This superiority is present also in terms of inflation control (5.54% vs.

17.95%) and trade openness (3.67 vs. 3.24). In terms of IFRS adoption and unemployment, these two groups resemble each other.

The results of the Pearson pairwise correlation are presented in Table 3.

Table 3. Correlations matrix

		lnGdpCap	lnFdi	IFRS	Covid19	Inflat	lnUneRat	lnOpenes
Panel A (Full sample)	lnGdpCap	1						
	lnFdi	0.18**	1					
	IFRS	0.47*	0.11	1				
	Covid19	-0.03	-0.003	0.07	1			
	Inflat	-0.10	-0.02	0.10	0.14	1		
	lnUneRat	-0.15***	0.09	-0.13	0.12	0.04	1	
	lnOpenes	0.34*	0.05	0.14	-0.09	-0.008	-0.03	1
Panel B (MENA region)	lnGdpCap	1						
	lnFdi	0.07	1					
	IFRS	0.77*	0.03	1				
	Covid19	-0.06	0.03	0.01	1			
	Inflat	-0.32**	0.13	-0.21	0.15	1		
	lnUneRat	-0.80*	0.02	-0.52*	0.17	0.25***	1	
	lnOpenes	0.54*	0.09	0.49*	-0.12	-0.40*	-0.46*	1
Panel C (SSA)	lnGdpCap	1						
	lnFdi	0.74*	1					
	IFRS	0.58*	0.50*	1				
	Covid19	-0.009	-0.12	0.14	1			
	Inflat	0.02	-0.10	0.20	0.18	1		
	lnUneRat	0.63*	0.41*	0.45*	0.05	0.04	1	
	lnOpenes	0.04	-0.03	0.01	-0.10	0.06	0.14	1

Notes. "lnGdpCap" represents natural logarithm of annual GDP per capita (current USD). "lnFdi" represents natural logarithm of FDI, net inflows (current USD). "IFRS" represents mandatory of IFRS adoption. "Covid19" represents Covid-19 crisis. "Inflat "represents annual inflation (consumer prices-annual %). "lnUneRat" represents natural logarithm of annual unemployment rate. "lnOpenes" represents natural logarithm of trade openness. Stars indicate statistical significance:*p<1%; **p<5%; ***p<10%.

The results show the absence of multicollinearity issues, the correlation among the variables is less than 0.80 (Belinda & Peat, 2014; Young, 2017). As shown in table 4, the study results show that for the full sample (Panel A) IFRS (r=0.47; p<1%), lnFdi (r=0.18; p<5%), lnUneRat (r=-0.15; p<10%) and lnOpenes (r=0.34; p<1%) are significantly associated with lnGdpCap, suggesting that FDI inflows, mandatory IFRS adoption, low unemployment rate and trade openness are crucial for promoting economic growth in developing countries. For the panel B (MENA region), lnGdpCap is significantly associated with IFRS (r=0.77; p<1%), Inflat (r=-0.32, p<5%), lnUneRat (r=-0.80, p<1%) and lnOpenes (r=0.54; p<1%), implying that mandatory IFRS adoption, low inflation, low unemployment and trade openness are important for promoting economic growth of the MENA region. For the panel C

(SSA countries), lnFdi (r=0.74; p<1%), IFRS (r=0.58; p<1%) and lnUneRat (r=0.63; p<1%) are positively and significantly correlated with lnGdpCap, suggesting that FDI inflows, IFRS adoption and unemployment are crucial for promoting economic growth of SSA countries.

4.2 Regression analysis

In this sub-section, we test the two hypotheses of the present research. Firstly, we investigate the impact of mandatory IFRS adoption on economic growth (H1), and secondly, we highlight the moderation role of Covid-19 crisis in the relationship between mandatory IFRS adoption and economic growth (H2). Table 4 shows EGLS regression results.

Table 4. Regression results-EGLS

Dependent variable	Panel A - Full sample		Panel B - MENA		Panel C - SSA	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
IFRS	0.0387**	0.0960*	0.1268*	0.1257*	0.0181	0.0279
	(0.0163)	(0.0148)	(0.0550)	(0.0387)	(0.0177)	(0.0211)
Covid19		0.0003		-0.0414		0.0280
		(0.0170)		(0.0409)		(0.0408)
IFRS*Covid19		-0.0649*		-0.0569**		-0.0616**
		(0.0110)		(0.0243)		(0.0241)
lnFdi	-0.0353	0.0314	-0.0516	-0.0030	0.0672	0.0370
	(0.0506)	(0.0351)	(0.0562)	(0.0477)	(0.1592)	(0.1326)
Inflat	-0.0025	0.0204	-0.8214*	-0.8334*	-0.0071	0.0050
	(0.0176)	(0.0149)	(0.0837)	(0.0944)	(0.0090)	(0.0051)
lnUneRat	-0.1198*	-0.0466**	-0.1121*	-0.0464***	0.2680**	0.4713*
	(0.0256)	(0.0219)	(0.0230)	(0.0243)	(0.1140)	(0.0653)
lnOpenes	-0.0023	-0.0129	0.1110***	-0.2838**	0.00009	-0.0019
	(0.0069)	(0.0079)	(0.0632)	(0.1144)	(0.0078)	(0.0084)
Constant	8.2989*	8.0345*	8.8250*	10.0934*	6.5412*	6.2949*
	(0.1106)	(0.0761)	(0.2539)	(0.3996)	(0.3989)	(0.3239)
Obs	120	120	60	60	60	60
R-Squared	0.9987	0.9994	0.9982	0.9985	0.9962	0.9970
Adjusted Squared	0.9982	0.9992	0.9974	0.9977	0.9944	0.9954
F-Statistic	2006.91*	4216.53*	1227.10*	1260.97*	555.93*	620.90*

Notes. "lnGdpCap" represents natural logarithm of annual GDP per capita (current USD). "IFRS" represents mandatory of IFRS adoption. "Covid19" represents Covid-19 crisis. "lnFdi" represents natural logarithm of FDI, net inflows (current USD). "Inflat" represents annual inflation (consumer prices-annual %). "lnUneRat" represents natural logarithm of annual unemployment rate. "lnOpenes" represents natural logarithm of trade openness. Standard errors in parentheses. Stars indicate statistical significance:*p<1%; **p<5%; ***p<10%.

As shown in table 4, and in line with the prior researches, the study results show that the impact of mandatory IFRS adoption on economic growth is positive and statistically significant for the full sample (β=0.0387; p< 5% in model 1 and β=0.0960; p< 1% in model 2). These results confirm the validation of the first research hypothesis (H1) according to which the mandatory FRS adoption affects positively and significantly economic growth in developing countries, implying that countries that have adopted IFRS experience better economic growth than non-adopting countries. Our present results confirm those obtained by some research studies (Akisik, 2013; Özcan, 2016; Oppong and Aga, 2019; Owusu *et al.*, 2022; etc.). However, the MENA region and SSA countries don't have same results. Mandatory IFRS adoption has a positive and significant impact on economic growth of the MENA region (β=0.1268; p< 1% in model 3 and β=0.1257; p< 1% in model 4). This relationship is not significant in SSA countries (model 5 and 6). These results can be explained by the fact that among the 15 SSA countries included in our sample, 6 countries are African French-speaking in the OHADA (Organization for the Harmonization of Business Law in Africa) system (Burkina Faso, Cameroon, Côte d'Ivoire, Mali, Niger and Togo). These countries have only recently adopted IFRS, exactly on January 1, 2019. This recent adoption of IFRS will not have a significant impact on economic growth in the very short run.

The interaction between mandatory IFRS adoption and Covid-19 crisis (IFRS*Covid19) has a significant negative impact on economic growth (β=-0.0649; p< 1% in model 2), this implies that the Covid-19 crisis moderates unfavorably the relationship between mandatory IFRS adoption and economic growth, especially the covid-19 crisis reduce the positive impact of IFRS adoption on economic growth. These results confirm the validation of the second research hypothesis H2. This relationship is significant for the both groups of countries (MENA and SSA), implying that Covid-19 crisis reduce the impact of IFRS adoption on economic growth in the both studied regions.

For the panel A that include the full sample, it is noteworthy that lnUneRat (β=-0.1198; p< 1% in model 1 and β=-0.0466; p< 5% in model 2) have a significant negative impact on lnGdpCap. Implying that low unemployment is crucial for improving economic growth of developing countries. This result confirms those obtained by other researchers in other contexts. Li and Liu (2012) found in China that unemployment has a negative impact economic growth. Soylu *et al.* (2017) examined the relationship between economic progress and unemployment in Eastern European Countries for the period of 1992-2014. The findings show the presence of an adverse long-term cointegration between unemployment and economic progress.

5. Summary and conclusion

This investigation was conducted to provide some empirical evidence of the moderating effect of Covid-19 crisis on the relationship between mandatory IFRS adoption and economic growth in developing countries. A panel data of 30 MENA and SSA countries covering a period of 4 years, from 2017 to 2020, was analyzed by using the Generalized Least Squares (EGLS) with fixed effect estimation technique. Our study found two main results:

- Firstly, mandatory IFRS adoption has a positive and significant impact on economic growth for the full sample.
- Secondly, the interaction between mandatory IFRS adoption and Covid-19 crisis has a negative and significant impact on economic growth, implying that Covid-19 crisis decrease significantly the positive impact of mandatory IFRS adoption on economic growth.

This study makes important contributions to both accounting and economics literature. It is among the firsts to examine the effects of mandatory IFRS adoption on economic growth in times of crisis. To the author's knowledge, this is the first research study to investigate the impact of Covid-19 crisis on the relationship between mandatory IFRS adoption and economic growth in developing countries. In addition, our results have important managerial implications for policymakers and regulators. The mandatory IFRS Adoption improves economic growth, but this positive impact is significantly reduced in times of crisis (Covid-19 crisis).

Finally, we present the study limitations alongside the directions for further research. Indeed, two main limitations should be discussed in the present investigation. First, this empirical study focused only on two regions of the world (MENA and SSA). Therefore, to better understand the relationship between mandatory IFRS adoption and economic growth in Covid-19 crisis in developing countries, future researches may be conducted to study other regions in Asia, Latin America, etc. Second, this study did not account countries that have adapted their local accounting with IFRS standards (for example Algeria, Egypt, Tunisia, etc.). These countries are considered as "non-adopters of IFRS" in this research. Future studies may be conducted to test the impact of this adaptation on economic growth in Covid-19 crisis. Although these limitations, the present study results remain very useful to both academicians and policymakers in developing countries.

References

Akisik, O. (2013) "Accounting regulation, financial development, and economic growth", *Emerging Markets Finance & Trade*, 49 (1): 33-67.

Akisik, O. (2014) *Financial reporting and foreign direct investments in Latin America, Accounting in Latin America*, Emerald Group Publishing, pp. 41-47.

Akisik, O., Gal, G. & Mangaliso, M.P. (2020) "IFRS, FDI, economic growth and human development: The experience of Anglophone and Francophone African countries", *Emerging Markets Review*, 45. https://doi.org/10.1016/j.ememar.2020.100725

Alabed, Q., Said, F.F., Karim Z.A., Zaidi M.A.S. & Mansour M. (2022) "Determinants of unemployment in the MENA Region: New evidence using dynamic heterogeneous panel analysis", In: Hassanien, A.E., Rizk, R.Y., Snášel, V., Abdel-Kader, R.F. (eds) *The 8th International Conference on Advanced Machine Learning and Technologies and Applications* (AMLTA2022). https://doi.org/10.1007/978-3-031-03918-8_34

Anand, R., Tulin, V. & Kumar, N. (2014) *India: defining and explaining inclusive growth and poverty reduction*, IMF Working Paper WP/14/63, Washington.

Bayrak, R. & Tatli, H. (2018) "The determinants of youth unemployment: A panel data analysis of OECD countries", *The European Journal of Comparative Economics*, 15(2): 231-248

Belinda, B. & Peat, J. (2014) *Medical statistics: a guide to SPSS, data analysis, and critical appraisal* (2nd edition) Wiley, UK.

Bengtsson, M.M. (2021) "Determinants of de jure adoption of international financial reporting standards: a review", *Pacific Accounting Review*, 34 (1): 156-173.

Cuijpers, R & Buijink, WFJ (2005) "Voluntary adoption of non-local GAAP in the European Union: A study of determinants and consequences", *European Accounting Review*, 14 (3): 487-524.

DeFond, M., Hu, X., Hung, M. & Li, S. (2011) "The impact of mandatory IFRS adoption on foreign mutual fund ownership: the role of comparability", *Journal of Accounting and Economics*, 51 (3): 240-258.

Elhamma, A. (2014) *Maîtriser les normes comptables internationales IAS-IFRS*, Editions Universitaires Européennes.

Elhamma, A. (2023) "Impact of mandatory IFRS adoption on foreign direct investment: the moderating role of conflict of interest regulation", *Journal of Financial Reporting and Accounting*, Vol. ahead-of-print No. ahead-of-print. https://www.doi.org/10.1108/JFRA-04-2022-0145

Gordon, L. A., Loeb, M. P., & Zhu, W. (2012) "The impact of IFRS adoption on foreign direct investment", *Journal of Accounting and Public Policy*, 31(4): 374-398.

Hjazeen, H., Seraj, M. & Ozdeser, H. (2021) "The nexus between the economic growth and unemployment in Jordan", *Future Business Journal*, 7(1):42.

IFRS Foundation report (2018) *Use of IFRS Standards around the world*, https://www.ifrs.org/content/dam/ifrs/around-the-world/adoption/use-of-ifrs-around-the-world-overview-sept-2018.pdf

IOSCO (2020) *IOSCO Statement on Importance of Disclosure about COVID-19*, IOSCO/OR/02/2020. Madrid, 29 May 2020.

Jensen, M., & Meckling, W. (1976) "Theory of the firm: Managerial behavior, agency costs and ownership structure", *Journal of Financial Economics*, 3: 305-360.

Li, C.-s., & Liu, Z.-j. (2012) "Study on the relationship among Chinese unemployment rate, economic growth and inflation", *Advance in Applied Economics and Finance*, 1-6.

Mameche, Y. & Masood, A. (2021) "Macroeconomic evidence on the impact of mandatory IFRS adoption on FDI in the Gulf Cooperation Council (GCC) countries", *Journal of Accounting in Emerging Economies*, 11 (4): 610-631. https://doi.org/10.1108/JAEE-04-2020-0084

Marquez-Ramos, L. (2008) "The effect of IFRS adoption on trade and foreign direct investments", International Trade and Finance Association Conference Papers, bepress, (19).

Musah,A. Adjeib, E. & Ahmed, I.A. (2020) "The Effect of IFRS Adoption on Foreign Direct Investment in Africa", *Journal of Applied Accounting and Taxation*, 5 (2): 117-126.

Nurunnabi, M. (2021) *Introduction – International Financial Reporting Standards (IFRS): Where are We Now, International Financial Reporting Standards Implementation: A Global Experience (Contributions to International Accounting)*, Emerald Publishing Limited, Bingley,1-10. https://doi.org/10.1108/978-1-80117-440-420211001

Oil and Gas Journal (2009) https://www.ogj.com/

Oppong, C. & Aga, M. (2019) "Economic growth in European Union: does IFRS mandatory adoption matter?", *International Journal of Emerging Markets*, 14 (5): 792-808. https://doi.org/10.1108/IJOEM-01-2018-0010

Owusu G.M.Y., Suppiah, S.D.K., Saat, N.A.M. & Law, S.H. (2022) "IFRS adoption and economic growth in developing economies", *International Journal of Economics and Accounting*, 11(1): 73-98. https://doi.org/10.1504/IJEA.2022.119613

Owusu, G. M., Saat, N. A. M., Suppiah, S. D. K., & Siong, H. L.(2017) "IFRS adoption, institutional quality and foreign direct investment inflows: a dynamic panel analysis", *Asian Journal of Business and Accounting*, 10(2): 43-75.

Özcan A. (2016) "Assessing the effects of IFRS adoption on economic growth: a cross country study", *ACU International Journal of Social Sciences*, 2 (2): 65-80.

Rinaldi, R., Cho, C., Lodhia, S., Michelon, G. & Tilt, C. (2020) "Accounting in times of the COVID-19 pandemic: a forum for academic research", *Accounting Forum*, DOI: https://doi.org/10.1080/01559982.2020.1778873

Sadiku, M., Ibraimib, A. & Sadikucal, L. (2015) "Econometric estimation of the relationship between unemployment rate and economic growth of FYR of Macedonia", *Procedia Economics and Finance*, 19: 69-81.

Siriopoulos, C., Athanasios, T., Argyr,o S. & Evangelos, D. (2021) "Foreign direct investment in GCC Countries: The essential influence of governance and the adoption of IFRS", *Journal of Risk and Financial Management*, 14 (264): 1-13.

Soylu, Ö. B., Çakmak, İ., & Okur, F. (2017) "Economic growth and unemployment issue", *Journal of International Studies*, 93-107.

Thorbecke, E. (2013) "The interrelationship linking growth, inequality and poverty in Sub Saharan Africa", *Journal of African Economies*, 22 (suppl 1): i15-i48, https://doi.org/10.1093/jae/ejs028

Tokar, M. & Kumar, S. (2020) Applying IFRS Standards in 2020-Impact of Covid-19,Available online: https://www.ifrs.org/content/dam/ifrs/news/2020/inbrief-covid19-oct2020.pdf

Xesibe, Z. & Nyasha, S. (2020) "Unemployment and economic growth in South Africa: a re-examination", *International Journal of Sustainable Economy* 12(2): 101-116.

Young, D.S. (2017) *Handbook of regression methods*, CRC Press, Boca Raton, FL, 2017, 109-136.

Yousefinejad, M., Ahmad, A., Salleh, F. M., and Rahim, R. A. (2018) "Causal Relationship between International Financial Reporting Standard (IFRS) and Foreign Direct Investment (FDI): A Panel Data Analysis of ASEAN Countries", *Asian Journal of Accounting and Governance*, 10: 61-72.

Appendix

Appendix 1. IFRS adoption status

Not adopted	Required for some companies	Required for all companies
Algeria	Burkina Faso (2019)	Bahrain (2001)
Burundi	Cameroon (2019)	Ghana (2007)
Egypt	Cote d'Ivoire (2019)	Jordan (1997)
Iran	Gambia (2013)	Kenya (1999)
Mauritania	Iraq (2016)	Kuwait (1990)
Tunisia	Mali (2019)	Lebanon (1996)
	Morocco (2008)	Nigeria (2012)
	Niger (2019)	Oman (1998)
	Togo (2019)	Qatar (2002)
		Saudi Arabia (2017)
		South Africa (2005)
		Tanzania (2004)
		UAE (2015)
		Zambia (2005)
		Zimbabwe (1996)

Source: https://www.iasplus.com and www.ifrs.org