THE DETERMINANTS of IAS/IFRS ADOPTION by EMERGENT COUNTRIES

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ABSTRACT

The aim of this paper is to identify both micro and macro economic variables affecting the decision to adopt IFRS by developing countries. Previous studies showed that IFRS adoption is explained by agency theory, corporate governance theory, signal theory and behavioral theories. Our sample consists of 74 emerging countries (37 adopting IFRS and 37 non adopting) until 2008. The results are conclusive and show that the probability to adopt IFRS is consistent with both micro economic and macro economic factors. Specifically, larger firms adopting IFRS have Anglo-Saxon culture, higher economic growth, higher educational system, a *common low* legal system and finally are audited by Big Four firms. However, leverage ratio, political system, financial market, foreign operations and international listing status seem have no effect on the decision to adopt IFRS by developing countries. One limit of our study is the lack of data such as environmental variables and the limitative extent of the information disclosed in companies' financial report. Future research should be interested to answer the following question: what are the effects of these new standards on accounting practices for developing countries?

Keywords: IRFS adoption, Developing Countries, Culture, Economic Growth, Legal System, Educational System.

Introduction

The accounting history through the last decades shows a significant change made gradually as human civilizations have developed. Accounting is a social science so influenced by environmental factors (economic, social and cultural ...) of each country. Moreover, these factors explain why accounting practices currently differ from one country to another. The study of the role of environmental factors on the development of accounting also attempts to explain the reasons for the differences between the various accounting systems in the world. Indeed, knowledge of the accounting environment and its evolution is a prerequisite for a better understanding of its various systems. Many researchers consider that any change in accounting is a resultant of its environment (Gray *et al* 1997, Belkaoui, 1983). The development of accounting is closely related to the development of the accounting profession and its educational system. Therefore, this development arises from the objective to satisfy external and internal users of financial reporting. In other words, accounting produces financial information for decision making (Hassab *et al* 2003, Mueller 1968).

The traditional features of financial information become insufficient in the context capital markets' globalization, which in turn enhances the usefulness of international accounting standards. IAS/IFRS are developed by private accounting organization IASB with the objective of developing and publishing international accounting standards and to promote their use and their generalization worldwide.

Currently, over 100 countries have adopted or expressly declared their intention to adopt or converge with international accounting standards. On July 19th, 2002, the European Parliament adopted the Regulation which requires, as of 2005, the application of international financial reporting for consolidated accounts of listed companies, including banks and insurance companies. On February 27th, 2006, the IASB issued a memorandum confirming the shared objective of the board is to develop common high quality accounting standards to be used on international capital markets.

The aim of our research is to identify environmental factors that encourage the adoption of international accounting standards by developing countries. Using a panel of 74 developing countries and 700 companies, we explore the extent to which environmental factors affect the adoption of IFRS. Specifically, we try to answer the following question: *What are the determinants of the adoption of international accounting standards IAS/IFRS by developing countries?.* Our study differs from previous researches. In fact, while those researches focus on a specific region and context, we use a broad sample including 74 emerging countries and 700 firms.

Our methodology is based on a binary logistic regression to identify both macro and micro economic determinants that influence the decision to adopt IAS / IFRS. Our research hinges many interests: First, a theoretical interest which allows researchers and professionals to understand the environmental factors influencing the decision to adopt IFRS by developing countries. Second, a practical interest which presents an analysis of the adoption of IAS/IFRS by emerging countries, and proposes a model that attempts to answer several issues in accounting. Third, our study is of interest for developing countries as it allows them to determine their decision to adopt international accounting standards.

Our paper is organized as follow: First, we present the theoretical background, objectives of international accounting standards and outlines the adoption of these standards around the world[1] (Section 1). Second, we develop our hypotheses related to both macro and micro economic determinants of the decision to adopt IFRS (Section 2). Third, we present our sample, variable's definition and econometric issues (Section 3). Fourth, we interpret our results (Section 4). Finally, we conclude the paper, present some limits and raise future research perspectives (Section 5).

Section 1: Theoretical background

A. IFRS adoption in a context of agency theory

1. IFRS as regulatory mechanisms of the owner-manager relationship

As argued by Jensen and Meckling (1976), the agency theory requires a delegation of authority from the principal to the agent. Each party is assumed to act so as to maximize his utility function. In this case, the decision to adopt IFRS could be a mechanism to reduce conflicts of interest between the two parties.

On the one hand, shareholders have interest to adopt IFRS since the introduction of these standards limits the discretionary accounting choices held by managers and reduced then their opportunistic behavior (Cuijpers and Buijnik 2005). The shareholders interest is also to create wealth and reach beneficial results. To this purpose, the application of international accounting standards can lead to a positive increase in equity and reported income. For example, Jermalowicz (2004) argued that the application of IFRS in Belgium lead to a significant change in shareholders' equity and net income. Similarly, Omrod and Taylor (2004) showed that the application of IFRS in Great Britain has increased the volatility of accounting figures both in the income statement and balance sheet.

A survey conducted by Jemakowicz and Tomaszewski (2006) focused on the study of the impact of IFRS adoption by 112 European companies. For most of these companies, the application of IFRS has a positive impact on equity despite the importance of liabilities and expenses initially recorded under IFRS. Moreover, the authors identified the following factors that have contributed to the increased earnings volatility and equity:

[1] With the evolution of IFRS and the increased movement of international convergence to IFRS, two scenarios are currently being discussed by professionals. Should ***Adapt*** or ***Adopt***? The first option is to restart the process of convergence of local standards with international standards. The second solution is to replace rather by local standards with international accounting standards. However, the cost of implementing IFRS could be disproportionate to the benefits. The fair value orientation of IFRS could be an obstacle to the application of IFRS in particular for countries with no market developed and scholarships.

- Recognition of assets and financial liabilities (including derivatives) at fair value.
- Tougher rules on consolidation of entities.
- More rigorous approach in terms of impairment tests.
- Recognition of gains and losses as a result of actuarial.

Not only the adoption of IFRS may promote the interests of shareholders, but it is beneficial also for mangers. Indeed, managers have some latitude in the choice of accounting options as they look for utility maximization. To avoid opportunistic behavior against shareholders' interest; a percentage of their compensation should be indexed to the firm financial performance. Therefore, they will be more likely to choose IFRS, since these standards have a positive effect on book values. If a portion of executive compensation consists of stock options, they tend to use options to increase the book value of equity.

2. IFRS as regulatory mechanisms of shareholder-creditor relationship

As part of the agency relationship, the application of IFRS could be justified by two main reasons. On the one hand, IFRS adoption is advantageous for shareholders by loan contracts subject to covenants. Indeed, shareholders can make transfers of wealth to their detriment. For this reason, they require contracts with covenants limiting shareholders' opportunistic behavior against creditors' interest. As an example, shareholders can pursue a policy of excessive dividends. They can affect equity that is considered as a guarantee for creditors. On the other hand, the adoption of IFRS by companies strengthens the confidence of creditors and increase external funding sources for the company.

B. IFRS and political costs management

The political context can affect the level of wealth through tax levies or by imposing new taxes (Watts and Zimmerman (1978)). The magnitude of these political costs can be measured using the firm size. Thus, larger groups are more visible and thus undergo more pressure from the government. The political cost hypothesis stipulates that larger firms are more sensitive to political pressures than smaller ones. So, they are supposed to have a tendency to underestimate the amount of accounting data such as reported earnings and equity. In this context, the application of IFRS could be a solution to avoid additional political costs. Thus, Dumontier and Raffournier (1998) argued that it is the political costs and pressure from foreign capital markets to explain the voluntary use of Swiss firms with IAS/IFRS. The declining political costs of larger firms can be an incitation to adopt IFRS.

C. IFRS adoption in the context of corporate governance theory

To meet these international concerns, new financial regulations emphasize the importance of corporate governance to influence the behavior of managers and to minimize the presentation of irregular accounting items by certain companies. Corporate governance is defined as the set of organizational mechanisms that have the effect of delineating the powers and influence management decisions, i.e. that govern their conduct and define their discretionary space Charreaux (1997). In what follows, we will present IFRS as a mechanism of corporate governance through their contributions to the reduction of information asymmetry, improving financial reporting and the introduction of control rules along with best practices.

1. IFRS contribute to the reduction of information asymmetry

The magnitude of information asymmetry is a constraint for powerful governance structures. It creates opportunistic behavior at the entity. In such concern, IFRS, producing richer information, present an efficient solution to attenuate information asymmetry problem. Leuz and Verrecchia (2000) showed that the voluntary adoption of IAS reduces information asymmetry and the cost of capital for German companies.

Based on a sample of firms that have adopted IFRS in advance between 1999 and 2002, Dumontier and Maghraoui (2007) analyzed the impact of the adoption of international accounting standards on the information content of accounting figures. Information asymmetry between managers and outsiders is measured by the *bid ask spread*. Results show that, ceteris paribus, the adoption of IFRS leads to a reduction of the structural bid ask spread reduction. This suggests that the adoption of IFRS led to the production of accounting numbers whose information content is higher than reports prepared in accordance to local standards. Results also show that the widespread application of IFRS for all listed European Companies would have a beneficial effect in terms of information asymmetry reduction. These effects depend, however, on the information environment and the in formativeness of accounting numbers.

2. IFRS improve the quality of financial information

Most of the researches show that the quality of financial information is a guarantee of good governance. The quality of financial information is an important way to protect shareholders against managers' opportunistic behavior.

In this context, IFRS can improve the quality of disclosed information. They incorporate a new accounting feature revealed through additional transparency. In fact, most economic financial information is reflected by the introduction of the fair value concept. As stated earlier, this concept aims to shift from a legal view of the company to an economic view. Recognition must be carried out following the economic reality (substance) but not only the legal form (appearance). This vision makes information more transparent and rich. To achieve the goal of transparency, the IASB has decided to reduce the accounting choices and requires disseminating information that was previously only available to executives as segment or fair value. IFRS requires, in general, a unique method for the recognition of a class of operations.

A much more detailed financial information since the information requirements in IFRS are particularly numerous, relevant and detailed. In this context, IFRS 8 (which replaces IAS 14 Segment reporting) requires companies to disclose sensitive information on profitability by activity (product or geographic area). IFRS 7 also requires detailed information on the business risks (credit risk, liquidity risk and market risk), how to manage these risks, hedging and investment strategies. Such information is relevant to investors, enabling them to assess how risk management by the company and the level of risk assumed by investors.

According to many users of financial statements of the European Union, IFRS accounts are very clear and easy to understand. Many of these users believe that they are more useful than statements prepared according to U.S. GAAP, and that in recent years the quality of financial reporting in the European Union has been greatly improved.

A study conducted by Ole-Kristan *et al.* (2006) who examined thirty eight companies that have adopted IFRS in 2004 mainly in Europe, concluded that IFRS adoption improve the quality of information published and to further protect minority shareholders, contributes to foreign investment flows and therefore accelerates the economic growth of a country.

A second study conducted by Beckman *et al.* (2007) showed that German companies adopting IFRS report more relevant, less predictable but more cautious incomes. Harris and Muller (1999) also examined the relationship between market capitalization and financial information reported under IFRS and U.S. GAAP. Their sample consists of 89 German companies listed by the SEC which prepare their financial statements with reconciliation to IFRS and US-GAAP for the period 1992-1996. Both studies concluded that the financial information under IFRS is more relevant in the U.S. markets and the IFRS financial statements are more informative compared to the financial statements prepared in accordance to US GAAP.

This improvement in the quality of financial information reduces the discretionary behavior of managers and abuses which lead to good governance structures at the firm level. In the Swiss context, Lapointe *et al*. (2006) showed that the phenomenon of smoothing is mitigated for firms that adhere to international standards and the abnormal accruals (accounting manipulations) are less valued by the stock market in Switzerland. In the same vein, Barth *et al*. (2005) concluded that companies adopting IFRS are less likely to smooth earnings in order to reach estimated budgets (target) and are more likely to recognize a loss, which increases the relationship between the financial reporting and profitability.

Section 2: Hypotheses development

A - Macroeconomic impact on the decision to adopt IFRS

The macro-environment is the general environment of the company. The macro-environment can be described using the PESTEL model[2] that will break it down into six

[2] In strategic management, PEST analysis (or PESTEL) is a conceptual field that examines the impact (positive or negative) that macro-environment factors can impact a firm. Such factors include:

- Political
- Economic
- Social

subsets: a political, an economic, a cultural, a technology framework, an ecological and finally a legal framework. In our paper, we try to check the impact of some macroeconomic variables on the decision to adopt IFRS namely: culture, economic growth, capital markets, education, foreign operating, legal system and the political system. The choice of these factors is strongly derived from the accounting literature that demonstrates the strategic importance of these variables on the decision to adopt international accounting standards IAS/IFRS.

Culture

The concept of culture has always attracted a large number of researchers and studies in different fields. Hofstede (1980) defined culture as "collective mental programming and it is this part of our conditioning that we share with other members of our nation, but also our region, our group, and not with those of other nations, other regions". Hofstede (1980) identified four cultural dimensions including: power distance, individualism vs collectivism, masculinity vs femininity and uncertainty avoidance.

Using the conceptual framework of Hofstede (1980), Gray (1988) identified the first cultural theory in accounting. He used four dimensions in accounting including conservatism, consistency, discretion and professionalism. An association matrix was developed by Gray (1988) establishing the correlation between the theoretical framework of Hofstede (1980), accounting concepts, accounting practices and cultural dimensions.

In the same vein, Baydoun (1995) added that a country, whose culture is oriented against uncertainty, where uniformity is very high, where there is a large power distance, and where individualism is average, shows a conservative accounting system based on social status, and taking into account the views of professionals. Thus, culture can influence judgments of professionals and therefore accounting practices to implement.

Table 1. The relationship between cultural and accounting values (Gray 1988)

Cultural Values	**Professionnalism**	**Uniformity**	**Conservatism**	**Discretion**
Power distance	-	+	?	+
Uncertainty	-	+	+	+
Individualism	+	-	-	-
Masculinity	?	?	-	-

- Technology
- Environnemental
- Legal

Nobes (1998) found that countries influenced by the same cultural values adopt the same standards. Thus, the decision to adopt IFRS is motivated by the influence of similar cultural values. Chamisa (2000), Hove (1986) argued that the decision to adopt IFRS is easier for developing countries with Anglo-Saxon culture through the influence of the latter on the work of the IASB and the development of international standards. Also, Khasharmeh (2006) discussed the relevance of IFRS for UAE companies. His sample includes 110 companies listed locally. The parametric and nonparametric tests were used to identify factors that could affect the adoption of IFRS and assess the relevance of these factors for the (UAE). The authors showed that companies examined have adopted IFRS and that 87% of these companies disclose financial information in English making it easy to adopt IFRS.

In addition, Omneya *et al.* (2003) studied the effect of the language on the first adoption of IFRS in Egypt. Their sample includes 72 companies listed locally. The model shows that Egyptian companies have faced many difficulties in the transition to IFRS, since the concept of international accounting standards encompass very different cultural values. So, our first hypothesis can be stated as follow:

H1. Developing countries with Anglo-Saxon culture are more inclined to adopt IFRS than other countries.

Economic growth

The social role of accounting standards depends on the level of economic growth. Lowe (1967) noted that the development of accounting is an evolutionary process that is related to the development of the economy. In fact, countries where economic matters are considered as accounting sophisticated. However, accounting systems will be less developed in countries where the level of economic development is low (Doupnik and Salter, 1995).

Al-Akra *et al*. (2009) studied the development of accounting regulation in Jordan. They analyzed the influence of economic, political, legal and cultural factors on the development of accounting. They found that the political and economic factors mainly contribute to this development. Thereby, the level of economic growth has a positive impact on the development of accounting practices. Muller (1968) suggested that the level of economic development and the type of the economy have an impact on the accounting practices for a given country. Specifically, Adkari and Tondkar (1992) showed that the level of economic growth has a positive influence on the development of accounting systems.

Since the creation of the IASB, numerous countries have tried to improve their accounting systems using IFRS. These standards are developed and prepared by an international accounting standard body which is strongly influenced by developed countries. Indeed, the standardization board consists mainly of western developed countries with active stock markets, while developing countries are not really presented. Representation of developing countries remains low, given that the meeting of directors appoints the members of the IASB is composed mainly of representatives of developed countries. At this level, Zeghal *et al.* (2006) showed that the decision to adopt IFRS is easier for developing countries with stronger economic growth.

However, in Asian context, Woolley (1998) concluded that there are no significant differences in economic growth among countries that adopt IFRS and those who apply their local standards. Larson (1993) tried to determine whether there is a difference between the economic growth for African countries that adopt IASB standards with or without modification, and countries that do not adopt these standards. Results suggest that if IFRS are adapted to local conditions of a country, they can improve its economic growth. Based on previous arguments, our second hypothesis can be stated as follow:

H2. The higher the economic growth for a country, the more it will tend to adopt IFRS

The existence of a capital market

Multinationals generally tend to be listed on more than one stock market. This forces them to comply with accounting and financial standards of those countries. Such compliance is not without disadvantages in terms of information credibility and costs. In this case, the main goal of IFRS adoption is to facilitate financial transactions and comparability. Weissenberger *et al*. (2004) showed that the decision to voluntary adopt an international framework is primarily motivated by the goal of reducing the cost of access to foreign markets for 81 German companies.

The quality of financial information is a major ingredient in the development and efficiency of the capital market. In this sense, Gray *et al.* (1997) argued that investors need sophisticated information to analyze investment opportunities and optimize their choice. Chamisa (2000) studied the usefulness of IFRS in developing countries. He analyzed the role of international standards in improving the quality of financial information disclosed to capital markets. He noted that these standards are particularly important for developing countries with an emerging financial market. Jemakowicz (2006) showed that countries with opened financial markets have more opportunities to adopt IFRS. Given that the financial information is basic for investment decisions, the adoption of IFRS facilitates comparability of information between different financial markets and thus reduces the cost of the decision to investors. Our third hypothesis can be stated as follows:

H3. The likelihood that developing countries adopt IFRS increases with the existence of a financial market.

Educational system

Education has long been recognized as one of the pillars in the fight against poverty and a source of national development. It has an influence on scientific, technological, and economic environments. Radebaugh (1975) and Mueller (1968) suggested that the level of education in a given country affects the existing accounting practices. The appreciation of accounting concepts is not the same for experienced and non-experienced members. As we argued earlier, IFRS are made on the basis of professional competence and practical experience of IASB members. Thus, the degree of acceptance requires a fairly level of expertise of these standards. In this sense, Doupnik and Salter (1995), Streets (2002) argued that the adoption of IFRS is a strategic decision. Understanding, interpretation and use of these standards require a higher level of education combined to technical skills. Thus, our fourth hypothesis can be stated as follows:

H4. The higher the level of the educational system in a developing country, the higher the country will adopt IFRS.

Foreign operations

The success of countries to integrate developments in international trade has made free trade an important condition for promoting their growth and development. According to Cook and Wallace (1990), the more the economy is open to outside; the more it will be exposed to international pressures. These pressures are reflections of complex volumes of business. For example, the Asian newly industrialized countries have a narrow market (not enough consumers) but cheap labor and qualified workers. They represent a comparative advantage in labor costs. These benefits are likely to attract investors and thus expand their economic activities. Thus, it is very advantageous to adopt internationally recognized standards to facilitate international transactions. Hence our fifth hypothesis can be stated as follows:

H5. The more the country is open to foreign operations, the higher it will adopt IFRS.

Legal system

Accounting literature has emphasized the importance of the legal system as a predictor of several accounting phenomena (Nobes (1983)). The legal system of a given country can be divided into two categories: a codified legal system and legal system of *customary law*. In countries of written or coded law, accounting data should be relevant to priority creditors of the company. The need for reliable data, determines the economic intervention of the state. For this reason, the accounting rules (chart of accounts) replace the conceptual accounting framework. Unlike the conceptual framework, the accounting law is characterized by the high rigidity of the accounting process. The Euro Continental accounting model considers that the company is a legal entity more than a production tool. This vision focuses first on legal considerations and then determines the scope of the assessment.

In common law countries' system (also known as Anglo-Saxon orientation countries), the predominant mode of governance is the financial market. This ensures in particular the financing of companies. The main feature of this model is that accounting framework gives interest primarily to investors and creditors. This is basically the role of financial accounting. Accordingly, the State is not a privileged user of accounting data, which leads to a disconnection between tax rules and/or accounting regulations. In addition, the role of the state is to develop a regulatory framework for the proper functioning of capital markets.

The second feature of the accounting model is the existence of a conceptual framework which differs from accounting standards or rules. Colasse (2000) defined a conceptual framework as: "a coherent system of goals and principles related, may lead to standards ..." This important feature of the accounting model "capitalism Fellow" is decisive:

it implies that the preparers of accounting data are not constrained with rigorous regulatory framework, but they enjoy a reasonable level of flexibility, subject to overall philosophy adopted by the conceptual framework in terms of objectives and principles. Whether our goal is to check for the determinants of IFRS adoption by developing countries, we expect that countries with Anglo-Saxon accounting model are more likely to adopt IFRS. Our sixth hypothesis can be stated as follow:

H6. Developing countries with a legal system "common low" are more likely to adopt IFRS than other ones.

Political system

The disclosure of accounting standards is the product of a political strategy as well as the application of a scientific and an empirical logic. Zeff (1988) noted that accounting rules are not a neutral instrument for measuring but they are the results of a trial policy determined by the economic interests of stakeholders. Hassab *et al* (2003) added that political freedom in a given country is predominant for the development of accounting. In addition, Belkaoui (1983) stated that the level of political freedom presents a critical factor in the development of accounting practices. He suggested that if a country has a low level of political freedom, citizens can not choose the members of a democratic government and even they cannot conduct an influence on government policies. Therefore, it is not possible that these people can succeed in creating a developed accounting system. By contrast, a favorable based democracy political environment positively affects the development of accounting.

Scott (1991) studied the early adoption of SFAS 87 on accounting for pension plans. The sample is composed of 279 companies and its model includes ten variables: three political variables (rate regulation, lawsuits and firm size), four agency variables (recovery of interest, dividend policy, leverage, plan incentives of managers) The model explains 81% of the early adoption of the new standard and reveals the importance of political factors and the impact on reported earnings.

Sami and Welsh (1992) added the importance of financial constraints on the decision to adopt a new standard. In the light of previous studies, we state our seventh hypothesis as follow:

H7. The more the country has a democratic system, the more it tends to adopt IFRS.

B-Micro Economic Influences on the decision to adopt IFRS

The micro environment is the close or the immediate environment of the company. We call it also specific because it is unique for each company or industry. It includes the variables that will have a direct impact on the company but that the company will also act as: the size of the company, the firm performance, the level of debt, the ownership structure and the industry sector.

In the following, we try to develop the relationship between some microeconomic determinants including: firm size, internationality, debt, foreign operations, the performance of the company with the decision to adopt IFRS.

Foreign operations

Multinationals always seek for foreign resources such as consumer products, materials, providers of capital, technology, etc. The attraction of international partners requires a massive disclosure of information. This leads firms to generate additional costs. Thus, the use of a disclosure in accordance with IAS/IFRS reduces their cost of capital and helps them get better financing (Dumontier and Raffournier 1998, Leuz and Verrecchia 2000).

Several studies find that internationality, that is to say, having significant operations abroad is positively associated with voluntary adoption of international standards. Dumontier and Raffournier, (1998), Murphy (1999) concluded that the level of activity with foreign (outside sales and trading) is the factor that clearly differentiates companies that have adopted IAS / IFRS voluntarily and those who have not.

The study of Marta Silva *et al.* (2008) analyzed the adoption of IFRS by Portugal. Their sample consists of 56 companies listed locally. Results show that companies with high activity with outside are more likely to adopt IFRS. In addition, El-Gazzar *et al.* (1999) and Cuijpers and Buijinik (2005) examined the characteristics of firms that voluntarily adopt international standards or U.S. GAAP. Their sample consists of 174. The results show that firms using international standards in the preparation of their financial statements are listed on a greater number of stock markets. In the light of these studies, we propose the following hypothesis:

H.8 The more the company is listed on foreign markets; the more it will adopt IFRS.

Leverage

Affes and Callimaci (2007) studied the choice of early adoption of international standards (IAS/IFRS) by 106 German and Austrian firms. Results indicate that the relationship between debt and early adoption of IAS / IFRS seems to have a little impact for highly leveraged firms since it is possible that creditors require compliance with covenants based on specific calculations. Murphy (1999) examined the adoption of IFRS by Swiss companies. Their sample consists of 44 companies listed on the Swiss Stock Exchange with 22 companies applying IFRS and 22 do not apply. Both ANOVA and discriminate analysis showed that there is a significant difference between the two groups and that the debt variable has no significant relationship with the adoption of IFRS.

By contrast, adopting the agency theory, Meek *et al.* (1995) suggested that voluntary disclosure of information increases with leverage as the most indebted firms have higher agency costs and seek to minimize them by revealing more useful information to their creditors. Indeed, the most indebted companies try to establish good relationship network with their creditors by ensuring a satisfactory quality of the information disclosed. Our ninth hypothesis can be stated as follow:

H.9 Higher leveraged companies are more likely to adopt IFRS.

C. Control variables

Firm size

The size of the firm plays a crucial role in the development and implementation of its strategy. Practically, we can distinguish four categories: very small enterprises, small and medium enterprises, large companies and very large companies. Classification of these businesses depends on several criteria such as number of employees, the annual turnover, total assets etc.

Studies related to the determinants of IFRS adoption have considered the importance of the size factor. Leuz and Verrechia (2000) investigated accounting choices of German companies listed on the DAX index for the year 1998. According to them, the adoption of IAS or U.S. GAAP means opting for increasing financial disclosure, reducing information asymmetry and, consequently, a decreasing in the cost of capital. The Probit model shows that the size of the business, financing needs and firm financial performance have a positive impact on the adoption of IAS standards.

Similarly, Gassen and Sellhorn (2006), by using a Logit regression model for a sample of 354 German firms, stated that early adoption of IFRS is explained by the size of the firm. Another survey carried by Trembley (1989) who studied the characteristics of 53 American high tech firms, including 14 who opted for the early adoption of SFAS 86 (capitalization of software development). The choice of the adoption has been reviewed according to the size of the company. In addition, Affes and Callimaci (2007) highlighted the incentives for early adoption of IAS/IFRS by German and Austrian listed groups. Using the logistic model and a sample of 106 German and Austrian firms, the results show that the probability of early adoption of IAS/IFRS increases with the size of the company. Larger firms are more dependent on external funds and seek to differentiate themselves in the market by providing financial reporting quality. Marta Silva Guerreiro *et al.* (2008), based on a sample of 56 companies listed on the Portugal Stock Exchange, showed that smaller firms are less inclined to abandon their national accounting standards. By contrast, larger companies applied higher quality accounting policies even before the formal adoption of IFRS.

Profitability

Empirical results regarding to the relationship between profitability and IFRS adoption are mixed. For example, Dumontier and Raffournier (1998) identified factors for listed companies who voluntarily apply IFRS. The study tests the association between IFRS use and business characteristics (internationality, size, ownership structure, capital, reputation of the firm auditor and profitability). The results indicate that there is no significant relationship between IFRS adoption and business performance (See also Affes and Callimaci (2007). By contrast, Marta Silva Guerreiro *et al.* (2008) showed that firms with a high level of profitability adopt IFRS to show that their profits are determined reliably.

Audit quality

Al-Basteki (1995) examined the characteristics of 26 listed firms on Bahrain and who choose to disclose information according to IAS. These characteristics include: the reputation of the external auditor, the industry sector, the company size, the extent of foreign operations and the degree of dependence on external financing. The results show that the decision to adopt IFRS is strongly influenced by the type of the external auditor (Big 4). Similarly, Joshi and Ramadhan (2002) examined the accounting practices and the degree of IFRS adoption for SMEs in Bahrain. The study sample includes 36 companies. The results show that 86% of the companies applying IFRS are audited by a Big Four auditor.

Section 3. Research methodology

To test the relationship between *macroeconomic factors* and the adoption of IFRS by developing countries, we use a sample of developing countries (DCs) that were selected from the IAS website (www.iasplus.com/country/country.htm) and a section named *"use of IFRS by jurisdiction"*. Taking into account the information available, we selected 74 developing countries classified into two groups. The first group includes 37 developing countries that have adopted IFRS (with or without modification) and the second group includes also 37 developing countries, but who, until 2008, did not adopt IFRS. The list of countries belonging to each group is shown in Annexe 1. These companies were selected by Global Industry Classification Standard (GICS) for the S&P Emerging Markets Database published in 31/07/2008.

1. **Data collection**

Table 2 displays a description of data sources used in our study.

Table 2. Data sources

Variables	Data sources
Capital markets Economic growth Foreign listing Educational system	World Bank - World Development Indicators (WDI):
Culture Legal system	Specific countries-based information
Firm's characteristics	Firm's annual reports
Political characteristics	Freedom House

Table 3 shows that most of the companies under study operate in the financial sector (32.83%), 14.50% are industrial firms, 11.83% of the companies operate in the energy sector, 6.33% in health care sector and 6.66% are high tech companies.

Table 3. Distribution of firms by sector

Sector	**Industry**	**Energy**	**Equip**	**Finance**	**Healthcare**	**High Tech**	**Telecom**	**Others**
%	14.50%	11.83%	13.33%	32.83%	6.33%	6.66%	9%	5.5%

2. Variables' definition

The dependent variable: IFRS adoption in 2008

Most studies including Affes and Callimaci (2007), Zeghal and Mhedhbi (2006), Hope *et al*. (2006) measured the adoption of IFRS as a dichotomous variable that takes the value 1 if the country adopts IFRS and 0 otherwise. In our research, we will assign the value 1 for countries adopting IFRS in 2008 and 0 otherwise.

The explanatory variables

Two sets of variables are used in our analysis, namely macroeconomic and microeconomic variables.

The macroeconomic variables

Culture (CULT)

Zeghal and Mhedhbi (2006) used the value of 1 for countries with Anglo-Saxon culture and 0 for other countries. We adopt the same measure for the culture concept. Such measure is derived also from Gray (1988) findings.

Legal system (LS)

The type of legal system is generally treated empirically as a binary variable that takes the value of 1 for common low system and zero otherwise.

Educational system (EDUC)

The role of education on the adoption of IFRS is confirmed in many studies. In our study, and based on Zeghal and Mhedhbi (2006) findings, we measured the level of education using literacy rates[3].

Political system (PS)

The influence of the political system on the adoption of IFRS can be measured by the Gastil index 1978, which takes the values 1 to 7 (Belkaoui 1983). A low value of the Gastil index means that the country is characterized by a democratic political system.

Foreign operations (FO)

This variable is measured using the ratio of foreign direct investments to gross domestic products.

[3] Literacy rates are available at : http://en.wikipedia.org/wiki/List_of_countries_by_literacy_rate

Economic growth (ECO)

The influence of economic growth on the adoption of IFRS has been tested and validated by several studies. Two measures of economic growth are widely used in empirical studies: The Human Development Index (HDI) and the Gross Domestic Product (GDP). For the first indicator, it is a composite index that measures the average degree of success of a country taking into account three dimensions of human development. First, the possibility of having a long life and good health. Second, the level of knowledge and finally the standard of living. This Proxy is used by Belkaoui (2002). The second indicator GDP *per capita* was used in many studies including Belkaoui (1983), Cooke and Wallace (1990) and Zeghal and Mhedhbi (2006). In our study, we use GDP per capita.

Capital Market (CM)

Capital market has been defined in different ways by the accounting literature. For example, Zeghal and Mhedhbi (2006) assigned the value of 1 for countries with capital markets and 0 otherwise. While Ole-Kristian *et al* (2006) measured the capital market by market capitalization of shareholders of the gross domestic product. In our research, we retain the dichotomous variable used by Zeghal and Mhedhbi (2006). Table 4 summarizes macroeconomic variables used in our study, their respective measures and their eventual impact on the decision to adopt IFRS.

The microeconomic variables

The size of the firm (SIZE)

There is no consensus on a single measure for firm size. For example, Murphy (1999) measured the size of the business by the book value of total assets. Hope (2003) used the logarithm of total sales as a proxy for size. Miller and Piotroski (2000) used the logarithm of the market value of the firm is the most appropriate measure of size. In our study, we also approximate the size of the company by the logarithm of total assets.

The level of indebtness (LEV)

Several studies confirm the impact of debt levels on the decision to adopt IFRS. Indeed, Murphy (1999), El-Gazzar *et al.* (1999) measured the level of debt by the ratio of total debt to shareholders' equity. Whereas Affes and Callimaci (2007) used the ratio of total debt to total assets as a measure of leverage. In our study, we use the ratio of long term debt divided by total assets to approximate for the level of indebtedness of the company.

The company's performance (ROE)

Several indicators can reflect the company's performance (rate of return, profit margin, growth rate etc). In our study, we use ROE as an independent variable representing the firm financial performance. (Street 2002, Marta Silva Guarneri *et al.*, 2008, Affes and Callimaci 2002).

The international listing (INTER)

The influence of the internationality of firms adopting IFRS has been tested by several researchers. There are many measures for internationality. Indeed, Street (2002), Marta Silva Guerreiro *et al.* (2008), El-Gazzar *et al.* (1999) measured the internationality of the company by the ratio of total foreign sales to total sales. Murphy (1999) identified internationality by the listing of companies on foreign capital markets. Affes and Callimaci (2007) measured internationality as a dichotomous variable distinguishing between listed companies only on a single market (Cota = 0) and those listed on several markets (Cota = 1). In our study, we use the latter measure to proxy for internationality.

Audit quality (AUDIT)

Many studies found a significant relationship between auditor quality and IFRS adoption. These studies have found that the type of audit is a dichotomous variable that takes the value 1 if the auditor is a big Four firm and zero otherwise. In our study, we apply the same measure, knowing that large firms are Big 4 (Deloitte and Touche, Ernest & Young, KPMG and Price Water House Coopers).

Table 4. List of the explanatory variables

	Variable	Measure	Expected sign
Macro-economic variables	**CULT** : Culture	1 if the country has an anglo saxon culture and zero otherwise	(+)
	ECO : Economic growth	Gross domestic product per capita	(+)
	CM : Capital market	1 if the country has a capital market and zero otherwise	(+)
	EDUC : Educational system	literacy rate (derived from Wikipedia)	(+)
	FO : Foreign operations	Foreign direct investment / GDP	(+)
	LS : Legal system	1 if the country has a common law system and zero otherwise	(+)
	PS : Political system	Gastil index 1978. A scale ranging from 1 to 7	(+)
Micro-economic variables	**INTER** : Foreign listing	1 if the company is listed on many capital markets and 0 otherwise	(+)
	LEV : Leverage ratio	Long term debt / Total equity	(+)
	ROE : Return on equity	Net income / capital equity	(+)
	SIZE : Firm size	Logarithm of total assets	(+)
	AUDIT : Audit quality	1 if the firm is audited by a big four auditor and zero otherwise	(+)

3. Econometric issues

In our study, we use two kinds of analysis. A set of univariate tests along with a multivariate analysis. We use a binomial logistic regression. This choice is motivated by two reasons at least: On the one hand, the dependent variable is dichotomous. This makes the use of ordinary least square approach inappropriate. On the other hand, the use of logistic regression is common in research that is part of the positive accounting theory. Thus, Raffournier (1990) noted that “The methodology is generally used Probit or Logit analysis to estimate, based on characteristics, the probability that a firm chooses one of two methods”. In a review of the literature on accounting choices, Hand and Skantz (1999) used a logistic regression approach for accounting choices and proxies such as firm size, debt ratio, operating income and earnings forecasts. The logistic regression model has been adopted by the majority of the studies focusing on the adoption of IFRS, including Zeghal and Mhedhbi (2006), Ole Kristia *et al*. (2006).

Univariate analysis

In this stage, we tend to identify the impact of each variable separately on IFRS adoption. This analysis allows us to compare the two groups of countries. Two tests were used: the parametric Student t-test and the Mann Whitney non parametric test.

Multivariate analysis

The purpose of our study is to check the influence of environmental factors on the adoption of IFRS by developing countries. We use an empirical logistic regression which takes into account both macroeconomic and macroeconomic variables. The dependant variable is a dummy variable which takes the value of 1 if the country adopts IFRS until 2008 and zero otherwise.

$$\mathbf{LOGIT\ [Adopt = 1] = \alpha_0 + \alpha_1 CULT + \alpha_2\ ECO + \alpha_3\ CM + \alpha_4\ EDUC + \alpha_5\ FO + \alpha_6\ LS + \alpha_7\ PS + \alpha_8\ INTER + \alpha_9\ LEV + \alpha_{10}\ ROE + \alpha_{11}\ SIZE + \alpha_{12}\ AUDIT + \varepsilon}$$

Section 4. Discussion of the results

As part of this section we firstly present a descriptive analysis of our variables. Secondly, we run the univariate tests, and finally we will present and discuss our results.

1. Descriptive statistics

Table 5 shows that the average GDP per capita in our sample is 4629.649 $ with a minimum of $ 138 and a maximum of $ 27,149. Developing countries in our study have a literacy rate of 76.19% on average with a minimum of 7.04% in Rwanda and a maximum of 100% in Georgia. 52% of developing countries in our sample have Anglo-Saxon culture and legal systems of type common low. 60% of the countries have a capital market. The average index of political freedom Gastil index is 4 which means that the developing countries in our sample are characterized by a medium level of political freedom.

Table 5. Descriptive statistics of the macroeconomic variables

Variables	**ECO**	**EDUC**	**FO**	**PS**
Mean	4629.649	76.19	0.66	4.00
Median	2963.500	83.80	0.30	4.00
Maximum	27,149	100	5.90	7.00
Minimum	138	7.04	0.00	1.00
Standard deviation	5310.730	22.29	1.10	2.08
N	74	74	74	74

Table 6 allows us to conclude that the average size of our sample companies is 16.17 thousand dollars with a minimum of 7.07 and a maximum of 23. The average rate of return is equal to 17.24% and an average debt ratio of about 21.43%. Descriptive statistics also show that 36% of our companies are listed on several financial markets and 72% are audited by Big Four auditors. This means that companies used in our research are among the largest in their respective countries.

Table 6. Descriptive statistics of the microeconomic variables

Variables	**DEBT**	**ROE**	**SIZE**
Mean	21.43	17.24	16.17
Median	13.32	14.00	16.22
Maximum	96.66	97.04	23.00
Minimum	0.00	52.44	7.07
STD	22.47	17.44	3.37
N	700	700	700

Multi colinearity issues

A strong correlation between the explanatory variables may bias the estimation of variables' coefficients. To detect this problem, various tests are used. The correlation matrix based on Pearson test determines the degree of bivariate correlation between the explanatory variables. The highest correlation is between the educational system (EDUC) and the economic growth (ECO) (the coefficient is .49%). Such coefficient does not matter since it is less than .5 and not significant at conventional levels.

Table 7. Correlation Matrix

	IFRS	AUDIT	ECO	CULT	DEBT	EDUC	INTER	CM	FO	ROE	LS	PS	SIZE
IFRS	1	0.18	0.19	0.15	0.008	0.26	0.02	0.09	0.18	0.03	0.48	0.17	0.09
AUDIT	0.18	1	0.06	0.026	0.077	0.13	0.04	0.008	0.07	0.05	0.10	0.01	0.05
ECO	0.19	0.06	1	0.12	0.036	0.49	0.05	0.17	0.23	0.11	0.15	0.15	0.09
CULT	0.15	0.02	0.12	1	0.01	0.00	0.00	0.21	0.1	0.03	0.18	0.18	0.08
DEBT	0.08	0.07	0.03	0.01	1	0.08	0.04	0.12	0.04	0.00	0.04	0.04	0.09
EDUC	0.26	0.13	0.4	0.00	0.08	1	0.03	0.14	0.24	0.089	0.08	0.08	0.08
INTER	0.02	0.04	0.05	0.00	0.04	0.03	1	0.04	0.06	0.02	0.07	0.07	0.02
CM	0.09	0.008	0.17	0.21	0.12	0.14	0.04	1	0.1	0.14	0.08	0.08	0.04
FO	0.18	0.07	0.23	0.1	0.04	0.24	0.06	0.10	1	0.06	0.03	0.07	0.02
ROE	0.036	0.05	0.11	0.03	0.09	0.08	0.02	0.14	0.06	1	0.02	0.08	0.04
LS	0.46	0.1	0.15	0.18	0.04	0.37	0.07	0.08	0.03	0.02	1	0.03	0.07
PS	0.17	0.01	0.15	0.06	0.008	0.02	0.02	0.08	0.11	0.03	0.29	1	0.14
SIZE	0.09	0.05	0.09	0.08	0.12	0.08	0.03	0.44	0.02	0.04	0.07	0.14	1

Univariate analysis

In this step, we try to identify if there are significant differences between the group that have adopted IFRS (Group 1) and who did not (Group 2). In this respect, two tests are used. The Student t test for independent samples and the Mann-Whitney test. The choice of one test rather than another is based on the normality of our explanatory variables. The Kolmogorov-Smirnov test for one sample validates the normality assumption.

- **Kolmogorov-Smirnov test for normality**

The Kolmogorov-Smirnov test is used to compare the observed cumulative distribution function of a given variable with a specified theoretical distribution. For each variable tested (both for adopting and non adopting countries). Based on the Kolmogorov-Smirnov for one sample test (table 8), the ECO, CULT, LS, FO, CM verify the hypothesis of normality based on the rejection of the null hypothesis ($p > 0.05$). Therefore, the use of t-test for independent samples is more appropriate for those variables. whereas for other variables, we use the Mann-Whitney test.

Table 8. Normality for macroeconomic variables

Macro Variables	Adoption of IFRS = 0		Adoption of IFRS = 1	
	Z	SIG	Z	SIG
ECO	1.263	0.082	1.42	0.035
CULT	2.35	0.00	2.35	0.00
EDUC	0.94	0.33	1.01	0.25
PS	1.26	0.80	1.08	0.18
LS	2.60	0.00	2.85	0.00
FO	1.76	0.00	1.56	0.01
CM	2.09	0.00	2.60	0.00

For the variable SIZE, the use the Student's t test for independent samples seems to be more appropriate for this variable. Whereas for other microeconomic variables (ROE, AUDIT, DEBT and INTER) the use of Mann-Whitney seems to be more appropriate.

Table 9. Normality Test for microeconomic variables

Micro economic Variables	Adoption of IFRS = 0		Adoption of IFRS = 1	
	Z	SIG	Z	SIG
SIZE	0,90	0,38	0,84	0,47
ROE	2.53	0.00	2.71	0.00
AUDIT	7.48	0.00	9.04	0.00
DEBT	3.23	0.00	3,14	0.00
INTER	8.10	0.00	7,86	0.00

- **T-test for independent samples**

In this step, the independent samples T- test is used to help comparing the mean of a variable between two groups of observations. Table 10 shows that countries adopting IFRS differ significantly from countries that have not adopted IFRS. The comparison of mean values of the education variable EDUC shows that countries adopting IFRS are characterized by a high level of education 84.87 for adopters against 67.51 for non adopting countries and a more economic growth (5,752 against 3507).

The political system variable PS did not differ significantly between the two groups. However, comparison of the average values shows that countries adopting IFRS are characterized by a more democratic political system (3.56 < 4.48).

Table 10. Results of t-test for independent samples of macro-economic variables

Variables	Mean values					
Macro-Eco	Adoption = 1	Adoption = 0	F	SIG	T	SIG
ECO	5752.081	3507.216	3.85	0.053	1.84	0.06
EDUC	84.87	67.51	10.24	0.002	3.61	0.001
PS	3.56	4.48	0.06	0.79	1.93	0.057

The results in Table 11 show that firms in countries that have adopted IFRS differ significantly from companies that have not adopted IFRS. The comparison of mean values shows that small companies are more likely to adopt IFRS (15.84> 16.5) than larger ones.

Table 11. Results of t-test for independent samples of microeconomic variables

Variables	Mean variables					
Micro-Eco	Adoption = 1	Adoption = 0	F	SIG	T	SIG
SIZE	15,84	16,50	0,5	0,81	2.61	0.009

- **Mann-Whitney test**

The Mann-Whitney test is used to help comparing the average rank of a given variable in two groups of observations. We applied the Mann-Whitney test to all non-normal variables. Based on Table 12, results show that countries that have adopted IFRS differ significantly from countries that have not adopted IFRS with respect to the variable legal system. Comparing the values of the average rankings of this variable shows that countries that have adopted IFRS are characterized by a common law legal system. CULT variable, FO and CM did not differ significantly between the two groups. However, comparison of their average ranks shows that countries that are open to the outside having Anglo-Saxon culture and a capital market are more favorable to adopt IFRS.

Table 12. Results of the Mann-Whitney test for macroeconomic variables

Variables	Mean Ranks			
Macro-Eco	adoption = 1	adoption = 0	Z	SIG
CULT	41	34	1.61	0.10
CM	40.50	34.50	1.41	0.15
FO	37.73	37.27	0.09	0.92
LS	45.5	29.5	3.70	0.00

Table 13 displays results of the Mann-Whitney test for micro-economic variables. ROE, DEBT and INTER did not significantly differ between the two groups of companies. However, the variable AUDIT can significantly differentiate between the two groups of firms. The average rank value shows that companies audited by Big Four firms are more favorable to adopt IFRS.

Table 13. Results of the Mann-Whitney for microeconomic variables

Micro economic variables	Mean ranks		Z	SIG
	Adoption 1	Adoption 0		
ROE	341.92	359	-1.12	0.26
AUDIT	380	321	-4.85	0.00
DEBT	352	348	-0.29	0.76
INTER	355	346	-0.72	0.47

Based on univariate analysis, we conclude that countries adopting IFRS show a high level of education and economic growth, are characterized by a democratic political system, a common law legal system, an Anglo-Saxon culture, the existence of a capital market and are more open to foreign operations. However, companies in countries adopting IFRS are characterized by small size, high level of indebtedness, lower performance, are audited by larger firms and are listed on several stock markets.

1. Assessing the overall quality of the model

The χ^2 test is used to measure the reliability of the model as a whole. Indeed, the χ^2 test the null hypothesis that the coefficients of all explanatory variables are zero against the alternative hypothesis that at least one coefficient is different from zero. A large value of χ^2 and low p-values indicate that the model is globally significant. This test is equivalent to a Fisher test in a linear regression model. For our model, the χ^2 test is significant (p value = 0) meaning that at least one variable in our model is different from zero.

Two measures are used to assess the quality of the model: the Pseudo R-square and the correct classification rate. Pseudo R-square measures the proportion of variance explained by the independent variables. Referring to our results the McFadden R^2 is 30.6%. The percentage of correct classification is an indicator used to measure the predictive power of the model. The percentage of correct classification should be at least 50%. In our model, the percentage of correct classification is 75.14% (which is more than 50 %).

2. Results of the multivariate logistic regression model on IFRS determinants

Table 14 displays the coefficients of the logistic regression and the contribution of each explanatory variable to estimate the likelihood of IFRS adoption by developing countries and check the validity of our assumptions.

Table 14. Results of the logistic regression

Variables	Coefficients	Z-Statistics	Prob
AUDIT	**0.775**	**3.626**	**0.000**
ECO	**4.190**	**1.815**	**0.069**
CULT	**0.337**	**1.572**	**0.080**
DEBT	0.004	0.955	0.339
EDUC	**0.044**	**6.121**	**0.000**
INTER	-0.128	-0.616	0.537
CM	0.258	1.042	0.297
FO	0.694	6.292	0.000
ROE	-0.001	-0.308	0.758
LS	**2.249**	**10.444**	**0.000**
PS	0.065	1.277	0.201
SIZE	**0.062**	**2.122**	**0.033**
LR STATISTIC	297.494	R2 McFadden	0.306

2.1. The effect of firm characteristics

In light of the above results, it appears that the variables reflecting the micro-economic environment (ROE, DEBT) did not affect the decision to adopt IFRS. The non-significance of these variables means that developing countries do not decide to adopt IFRS based on firm performance and leverage. Findings of Affess and Callimaci (2007), Dumontier and Raffournier (1998) also show the non-significance of the variables (ROE and DEBT) for Germany, Austria and Switzerland.

Contrary to our predictions, the foreign listing INTER variable does not affect the probability of IFRS adoption. This result seems to be surprising (p value = 0.53) as foreign listing should be disclosed in accordance with international standards. As mentioned in the theoretical part, several authors including Raffournier and Dumontier (1998), Murphy (1999), Cuijpers *et al* (2002), El Gazzar *et al* (1999) found a positive and significant relationship between the variable INTER and the voluntary adoption of IFRS. The difference between our results and those of the other studies may be explained by a difference in the data. In fact, our sample includes a broad number of emergent countries and firms. Therefore the variable INTER will not have a significant impact on the decision to adopt IFRS by developing countries.

The SIZE variable has a significant influence (p value = 0.03) on the decision to adopt IFRS by developing countries. This result converges with the results of Leuz and Verrachia (2000), Affes and Callimaci (2007), Marta Silva Guerreiro *et al* (2008) indicating that larger the company, the more it tends to adopt IFRS. Companies audited by a Big Four auditor are more favorable to adopt IFRS. Therefore, auditor reputation is a crucial explanatory factor for explaining the difference between countries that adopt IFRS and those who did not. This result is justified by the fact that larger auditing firms have sufficient expertise and resources when they issue audit opinions for companies adopting IFRS/IAS.

2.2. The effect of country characteristics

Table 14 shows that macro-economic variables (PS, CULT and CM) do not have a significant impact on the decision to adopt IFRS. The non-significance of these variables means that developing countries do not base their decisions to adopt IFRS on the political system, country culture or the existence of a capital market.

The results of the logistic regression showed no significant relationship between CULT and CM variables to explain IFRS adoption. This non significant association rejects the assumptions of H1 and H3 supporting that developing countries with Anglo-Saxon culture, a capital market and a democratic political system are more likely to adopt IFRS.

EDUC, LS and ECO variables have a significant impact on the decision to adopt IFRS. The significance of these variables may imply that developing countries base their decisions to adopt IFRS on the basis of the level of economic growth, the educational system and the type of a legal system. Thus, the positive and significant coefficient of the variable economic growth shows that the probability of a developing country to adopt IFRS increases with the level of the economic growth. This result is aligned with those of Zeghal and Mhedhbi (2006), Al-Akra *et al.* (2009) Larson (1993) who showed a positive and significant economic growth for countries adopting IFRS.

Thus, the second hypothesis stating that the higher the economic level of a developing country, the higher the country will adopt IFRS is accepted. As an example, Slovenia has a GDP per capita of 27,149 dollars while Burundi (a country that has not adopted IFRS) is characterized by a very low GDP per capita (138 dollar). The EDUC variable reflecting the level of education has a positive and significant coefficient (p value = 0). This result confirms that the higher the educational level of a developing country, the higher the country will tend to adopt IFRS. This confirms our hypothesis H4. This result is consistent with Zeghal and Mhedhbi (2006), Doupnik and Salter (1995) and Street (2002). A higher level of education should exist when shifting to IFRS since the new international framework is complex and continually changing which requires higher level of practical skills and qualified accountants. For example, Georgia (a developing country that adopted IFRS) has a level of education equal to 100%, while Rwanda (a developing country that has not adopted IFRS) is characterized by a very low level of education 7.04%.

The Legal system LS is positively and significantly related to the adoption of IFRS by developing countries. This result supports the prediction that developing countries with a *common law* legal system are more likely to adopt IFRS. This result is explained by the influence of the customary legal framework on IFRS standards.

The coefficient related to foreign operations (FO) is negative and significant at conventional levels. This confirms the fact that being opened to the outside is a critical variable influencing the decision to adopt IFRS. Thus, the hypothesis which states that a developing country is more opened to foreign markets, the more it tends to adopt IFRS is confirmed. Finally, a crucial the following question should be answered: is the decision to adopt IFRS by developing countries based on macro-economic criteria rather than microeconomic variables? To deal with this concern, we study separately the effect of each set of variables on the decision to adopt IFRS by developing countries. Specifically, we test the two following logistic regressions:

$$\textbf{LOGIT } [Pi / (1 - Pi)] = ß_0 + ß_1 \text{ CULT} + ß_2 \text{ ECO} + ß_3 \text{ CM} + ß_4 \text{ EDUC} + ß_5 \text{ FO} + ß_6 \text{ LS} + ß_7 \text{ PS} + \mu_2 \qquad \text{(M2)}$$

$$\textbf{LOGIT } [Pi / (1 - Pi)] = \delta_0 + \delta_1 \text{ INTER} + \delta_2 \text{ LEV} + \delta_3 \text{ SIZE} + \delta_4 \text{ ROE} + \delta_5 \text{ AUDIT} + \mu_3 \qquad \text{(M3)}$$

Table 15. Results of the logistic regression with macroeconomic variables

Variable	**Coefficient**	**Z-Statistic**	**Prob**
EDUC	0.046	2.548	0.010
CM	0.111	0.167	0.867
FO	0.469	1.606	0.108
LS	1.929	3.140	0.001
PS	-0.05	-0.339	0.734
ECO	5.45	0.794	0.426
CULT	0.770	1.218	0.223
Intercept	-4.799	-2.736	0.006

IFRS adoption and the macroeconomic variables

For the model including only macroeconomic variables, the χ^2 test is significant (p value = 0.00), allowing us to accept the alternative hypothesis that at least one variable in our model is non-zero.

Quality of the model

To assess model quality, two measures are used: the Pseudo R-squared and the rate of correct classification. In the model including macroeconomic variables, the McFadden R^2 is 29.95% which means that 29.25%. The rate of correct classification is of about75.68%. This means that the model correctly classify the countries in our sample.

Appreciation of partial relationships within the model

From table 15, it appears that the variables (CM, PS, ECO and CULT) did not significantly affect the decision to adopt IFRS. However, the variables (EDUC, FO, LS) have a significantly impact the decision to adopt IFRS by developing countries. Therefore, we conclude that developing countries do not base their decisions to adopt IFRS on cultural, political, economic and on the existence of a capital market. The decision to adopt IFRS by developing countries is influenced by the degree of outside operations, the level of education and the legal system.

Table 16. Results of the logistic regression with microeconomic variables

Variables	**Coefficient**	**Z-Statistic**	**Prob**
AUDIT	0.793	4.615	0.000
SIZE	-0.054	-2.355	0.018
DEBT	0.0009	0.274	0.783
INTER	0.088	0.536	0.591
ROE	-0.003	-0.784	0.433
Intercept	0.340	0.776	0.437

IFRS adoption and the microeconomic variables

For the model that includes the microeconomic variables, the χ^2 test is significant (p value = 0.00), allowing thus to accept the alternative hypothesis that at least one variable in our model is significant. The model is globally significant based on Pseudo R-Square

Model quality

To test the quality of the model, two measures were used: the Pseudo R-squared and the rate of correct classification. For the microeconomic model, the McFadden R 2 is 3.14% and the rate of correct classification is 57.71%.

Appreciation of the partial relationships within the model

In light of the results above (table 16), it appears that the variables (DEBT, INTER and ROE) have no significant impact on the decision to adopt IFRS. However, the variables (AUDIT and SIZE) have a significant impact on the decision to adopt IFRS by developing countries which confirms again the results of the overall model.

Table 17. Summary of the empirical results

	Variables	Predicted sign	Actual sign	Hypothesis
Macroeconomic determinants	CULT	+	+ S	confirmed
	ECO	+	+ S	confirmed
	CM	+	+NS	rejected
	EDUC	+	+S	confirmed
	FO	+	S	Confirmed
	LS	+	+S	Confirmed
	PS	+	+NS	Rejected
Microeconomic determinants	SIZE	+	S	Confirmed
	INTER	+	-NS	Rejected
	DEBT	+	+ NS	Rejected
	ROE	+	-NS	Rejected
	AUDIT	+	+S	Confirmed

The objective of our study was carried out on a sample of developing countries to check for the determinants of IFRS adoption. The signs of the coefficients on the explanatory variables are, for the most part, as expected and aligned with theoretical literature dealing with this issue. Specifically, developing countries that are more likely to adopt IFRS have a higher economic growth, a common law system, a better educational system, FO and whose companies are audited by big Four firms. Other variables such as the existence of a capital market, the political system, the firm performance and internationality have no significant effect on the decision to adopt IFRS by developing countries.

Section 5. Summary

The globalization of financial markets requires investors to compare companies in different countries to be able to form best portfolios combinations and make rational decisions. Despite their limitations, financial statements continue to be a primary source for investors. Further, the adoption of a common set of universal accounting standards should make the comparison easier for analysts, managers and investors. The need for harmonization and comparability has ensured that IFRS have emerged as a model of financial disclosure in most countries. Thus, the main objective of our research was to assess the influence of environmental factors on the decision to adopt IFRS by developing countries. Theoretically, we try to explain the decision to adopt IFRS using agency theory along with political cost theory and corporate governance theory.

Empirically, we check the relationship between environmental and firm specific factors and the decision to adopt IFRS by developing countries. Using a logistic regression analysis, results show that the probability to adopt IFRS is consistent with both micro economic and macro economic factors. Specifically, larger firms adopting IFRS have Anglo-Saxon culture, a higher economic growth, a better educational system, a common low system and are finally audited by Big Four auditors. However, leverage ratio, political system, financial market and international listing status seem have no effect on the decision to adopt IFRS by developing countries.

Our results may be useful for standards setting bodies in developing countries deciding to shift to the international accounting standards as they provide an understanding of the environmental factors that might facilitate the adoption of IAS/IFRS by these countries. It helps also academic researchers trying to understand what factors; both at the micro-economic and macroeconomic levels; will affect the decision to adopt IFRS.

Our research presents some limitations: First, the estimated model suffers from a lack of data and some environmental variables. Indeed, studies on the relationship between the adoption of IFRS and environmental factors require many complex data often difficult to obtain such as corporate governance variables for developing countries due to lack of transparency. Another limitation is raised by the use of financial statements. If formal presentations of the reports among different companies are quite similar, the content may differ from one country to another. So, some difficulties arise when identifying information in annual reports given the differences in accounting standards. While we focuse on the determinants of IFRS adoption by developing countries, some questions should be answered: What are the effects of the new standards on accounting practice in developing countries? How the adoption of IAS/IFRS does affect the economy in these countries? We leave such issues for future research.

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Annexe 1: List of countries in the sample

IFRS adoptiong countries				IFRS non adopting countries			
Asie	**Amérique**	**Afrique**	**Europe**	**Asie**	**Amérique**	**Afrique**	**Europe**
Chine	Jamaïque	Afrique du Sd	Pologne	Bengladesh	Mexique	Nigeria	Albanie
Jordanie	Pérou	Kenya	Croatie	Inde	Argentine	Tunisie	
Sri Lanka	Dominique	Ghana	Lituanie	Indonésie	Brésil	Cote d'ivoire	
A.saoudite	Haïti	Égypte	Romania	Malaysia	Columbia	Algérie	
Turquie	Honduras	Maroc	Hongrie	Thaïlande	Chili	Mali	
Arménie	Panama	Soudan	Estonie	Pakistan	Cuba	Zimbabwe	
Cambodge	Salvador	Madagascar	Ukraine	Philippines	Uruguay	Angola	
Géorgien	Nicaragua	Ouganda	Slovénie	Vietnam	Ecuador	Burundi	
Azerbaïdjan			Macédoine	Bhoutan		Benine	
Maldives				Syrie		Burkina-Faso	
Népal				Iran		Libye	
Irak						Nigeria	
						Rwanda	
						Sénégal	
						Togo	
						Mauritanie	
						Tchad	