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IFRS - A Pathway to Financial Development:
Assessing the Effects of International Financial Reporting Standards Adoption on Financial
Development

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Abstract

IFRS has brought better quality and more transparent financial reports for companies, which can ultimately benefit investors and the financial system as a whole. The goal of this paper is therefore to assess the contribution of the adoption of IFRS in the financial development of a country. Moreover, an in-depth examination of the origin of such effect will be conducted. It was used panel data models with fixed effects based on 34 countries and 22 years. Overall, it was found that IFRS contributes positively to financial development, with the relation deriving from improvements in financial institutions.

Keywords: IFRS; Financial Development; Institutions; Capital Markets

1. Introduction

In today's financial world firms have a tremendous responsibility regarding the disclosure of their own financial statements. These statements represent the financial position, viability and performance of a company and so it is of great interest to its vast set of users. The regulation and standards around financial reporting are then vital to a correct and fair disclosure of a firm's information to the outside world.

The International Financial Reporting Standards (IFRS), issued by the International Accounting Standards Board (IASB), address the complexity of cross-country activities, which were diffculted by the use of dissimilar national standards. According to the IFRS Foundation (2018) their purpose is to bring efficiency, transparency and accountability to financial markets all around the globe. IFRS takes a fundamental role in the preparation of financial statements, as it impacts all its elements: assets, liabilities, equity, revenues and expenses. It can be said that the adoption of the IFRS in the European Union in 2005, together with the significant number of countries that followed the same path afterwards, constituted an important change in the accounting world in this millennium. This revolution represents a turn to a new standard for accounting practices, one that it is based on a greater quality when communicating financial information and the usefulness it represents for decision makers (O'Connel, 2007). These values facilitate the investment in lucrative opportunities in capital markets as it transmits more confidence to investors.

Therefore, this paper intents to assess the influence of IFRS to the financial development of a country. More concretely it aims to understand the effect of the adoption of these standards on the improvement of financial markets and institutions. By contributing to existent similar literature it is expected to help decision makers to pursue the enforcement of the use of IFRS, if demonstrated to be significant in financial development and consequently on economic growth.

The paper is organized as follows: sections 2 and 3 consist on the literature review and theoretical conclusions derived from it. Moreover, section 3 also presents the research hypothesis. Section 4 and 5 present the methodology used for the research, as well as the research design. The summary statistics and disclosure of the model results are described in section 6 and 7, respectively. The last section is dedicated to the limitations and final conclusions of the study.

2. Literature Review

IFRS adoption and its link to financial development is a topic that has previously been discussed in numerous other articles and papers. The deliberation whether the adoption of these international standards is a factor in development is still not conclusive, despite the existence of much literature backing up the thesis that IFRS produce significant economic benefits.

Aničić and Majstorović (2017) stated that communicating financial information based on the standards of good quality, transparency and comparability reduces information asymmetry and largely reduces both investment risk and the cost of raising capital. Therefore, they concluded that greater investment and capital mobility are encouraged with the adoption of such standards, enabling a more efficient functioning of capital markets.

In 1995, Larson and Kenny investigated the consequences of enforcing IFRS on economic development, with the use of partial least squares. The analysis consisted on 27 emerging markets and it questioned whether or not there was a positive effect. However, it wasn't found any significant relation between the adoption of the standards and economic development in those countries.

Zeghal and Mhedhbi (2012) examined the association between the implementation of IFRS and the evolution of capital markets in developing nations. Basing their study on 38 developing countries and creating a measure for capital markets development, consisting on the

mean of 3 indicators: listed companies/population, market capitalization/GDP and trading volume/GDP; it was found that all 3 measures, in average, increased after the implementation of IFRS while the panel data model suggested that the adoption of the standards had positive and significant consequences for financial development.

The economic implications of IFRS adoption around the globe were investigated by Daske et al. (2008) by using panel data regression with a sample of companies from 26 countries which had implemented IFRS. The study found 2 main conclusions: using IFRS significantly increases market liquidity, while the strength of enforcement of those standards impacts the growth rate of the economy.

A study commissioned by the Association of Chartered Certified Accountants (ACCA) in 2007 concluded that since the introduction of IFRS in the European Union companies had registered a decrease of 1% in the cost of capital, while for the UK the figure reached almost 2% for the same period. The decrease of the cost of capital translates into lower interest costs and ultimately higher share prices, therefore developing capital markets.

Okpala (2012) studied the association between the implementation of IFRS and foreign direct investment (FDI) in Nigeria. It was concluded that the adoption of the international standards led to an increase in investors' confidence in the country's financial markets, which in turn resulted in an upsurge of the volume of foreign direct investment.

In 1998, Woolly compared Asian countries using IAS (an IFRS predecessor) to others using local standards, in relation to economic development. However, no significant differences between the two different set of countries were found.

Klibi et al. (2014) used data from 14 African and Middle Eastern nations to examine the effects of the adoption of IFRS in the development of stock markets. It was used a panel data regression which demonstrated that the standard's adoption significantly contributed to the development of stock markets.

Leuz and Verrecchia (2000) conducted a study around German companies with the goal of assessing the economic consequences of IFRS adoptions. The cross-sectional analysis performed shows that the use of international standards garners economic advantages, such as lower bid-ask spreads and a higher share turnover. On the other hand, Daske (2016) conducted a new study with German firms to find if the cost of capital had decreased with the adoption of IFRS. This time, the conclusion was that the implementation of these standard had not directly translated into economic benefits for those firms.

The implementation of IFRS and its relation to economic performance has also been investigated by Zaidi et al. (2014). The methods used in the study were ordinary least square and two stage least square regressions, grounded on a sample of 102 countries, 51 using IFRS and other 51 that had not adopted the standards yet. The conclusion derived from the paper was that adopting the standards boosts the growth rate of the economy. Moreover, for the countries that had implemented IFRS, a higher level of enforcement expands the economic benefits derived from the standards.

In 2013, Zehri and Abdelbaki examined the link between the use of IFRS and economy growth in emerging countries. The paper included data from 74 countries, half of which had adopted IFRS, while the other half had not. The analysis consisted on a logistic regression and the conclusion arrived was that the implementation of the international standards triggered the increase of economic growth rates for those nations.

Shroff and Li (2010) investigated if growth was facilitated by financial reporting quality. The paper was based on the concept that industries with high information uncertainty would grow faster in countries where financial reporting had a greater quality, such as the ones using IFRS. The intuition behind this rationale was that financial statements of better quality would facilitate the identification and selections of more profitable projects, contributing to a faster economic growth. The main finding of the study was that industries with high information uncertainty grew 0.12% to 0.22% faster in states where financial reporting had higher quality.

3. Theoretical conclusions and research hypothesis

After a careful analysis of the afore mentioned literature it is possible to understand with more detail what the adoption of IFRS affects. The link between the implementation of these standards and financial development is not a simple direct step, but instead it follows a whole process that connects the financial statements, the users of these statements and the consequences of the latter's decisions.

The expected consequences of the adoption of international standards begin with its influence on the firm's financial statements. The implied goal of the standards is to bring reliability and comparability to financial reporting, characteristics of great importance to investors and other users. Therefore, the expectation is that when adopting IFRS, the nation-wide financial statements improve its disclosure and increase its transparency and the confidence of investors. At the same time, it is predictable this would translate into a reduction of the uncertainty, estimation risk and agency costs. Intuitively, a reduction in the risks and costs that investors face regarding their choices is expected to drive investment to higher levels, which in turn would

signify an increase in market liquidity. Thus, it is rational to assess that the implementation of the standards is predicted to give way to more developed capital markets and institutions.

Taking the last paragraphs in consideration and the purpose of this investigation, the first research hypothesis is as follows:

H1: Does the adoption of IFRS has a positive effect on financial development?

Moreover, when analyzing the existent literature, it was noted that the general concern is only around the effect of IFRS on the financial system and not the examination of its nature and origin. Therefore, to go further beyond than the general literature, this study will also try to comprehend the source of such effects by assessing the consequences of IFRS adoption in the sub-components of financial development. So, the second research hypothesis is:

H2: What components of financial development are most affected by IFRS adoption, thus leading to the effect found in H1?

4. Methodology

The initial steps of the research were taken in the IFRS website in order to obtain the most accurate information regarding the use of IFRS by country. The dataset in the website contains information concerning the use of the standards in a country, whether they are required, permitted or not used at all. The differentiation criteria for this paper was the two-way division from countries requiring IFRS for domestic public companies or not. This decision was based on the level of enforcement, as the only way to ensure that companies use and make the most out of IFRS was to require them to report under its rules. A set of 56 countries was then chosen, with 39 IFRS adopters and 17 non-adopters. The choice attempted to be the most neutral possibly regarding geography and financial development, meanwhile the year of the adoption, for

countries using IFRS, was also retrieved from this source. After selecting the relevant variables for the model based on the literature reviewed, the subsequent step was to collect the correspondent data for all the countries. The financial development index was attained in the IMF dataset present on their website and the Rule of Law and Political Stability indexes were found within the Worldwide Governance Indicators dataset in a World Bank website. Finally, the remaining variable regarding population was retrieved from the World Bank data in their website. During the process, it was not possible to gather data for all countries selected previously and so the final sample used in the analysis was reduced to 34 nations, with 29 IFRS users and 5 non-users.

The selected statistical analysis to answer the research questions was a fixed-effects regression model. This is believed to be the best option given the panel data that derived from the data collection and given the characteristics of this method. Fixed-effects regressions can analyze the relation between dependent and predictor variables while controlling for external factors that may bias the outcome of the prediction. It then eliminates the effects of time-invariant characteristics out of the equation and evaluates the net effect of predictors on the dependent variable. Therefore, a model was constructed to assess the effects of IFRS on financial development. Later, using the same method, other models were built to comprehend more deeply the relation between standards adoption and the components of financial development. Summary and descriptive statistics were also observed and discussed throughout the process.

5. Research design

The intent of the upcoming analysis is to evaluate the relation between the adoption of IFRS and financial development, achieved through the blossoming of capital markets and institutions.

Thus, what the model will in fact study is how does the use of the international standards affects the financial development of a country.

Regarding the nature of the study and the characteristics of the collected data, the approach would be to construct a panel data model, studied over 22 periods, from 1995 to 2016. The model takes into account 34 countries across all continents, from which 29 of those are already using of IFRS, while the other 5 have never adopted such standards.

Considering the dependent variable in the model (financial development) and the identified study variable (adoption of IFRS), there is the need to understand other factors that can interfere with capital markets and that can be used as control variables in the study. Supported by previous literature and other statistical models that proved to have results, various factors/variables that contribute to the development of financial markets and institutions were found.

The identification of the variables used in the model will now be presented with due justification:

Output Variable

- Financial Development Index (FD) - The variable reflects what is expected to be affected by the adoption of IFRS, which is the development of the financial markets and its respective institutions. The measurement is an index created by the International Monetary Fund (IMF), which ranks the countries in accordance with the depth, access and efficiency of the respective financial institutions and markets. To construct the index, the indicators, further disclosed later in the paper, for each of the sub-indexes (depth, access and efficiency) are gathered and the outliers are removed through winsorization. Afterwards the indicators are aggregated for each sub-index, and the calculus of these metrics is achieved by using a weighted average, in which the weights are calculated through principal component analysis. The results are then normalized, so the indexes

range from 0 to 1 (higher values meaning higher performance). The process then replicates itself in order to obtain the financial development index. By aggregating the sub-indexes and using principal component analysis, it is calculated a weighted average of the components to find the Financial Markets Index and Financial Institutions Index. Lastly, it is the weighted average (once again with the use of principal components analysis) of these 2 components that originates the Financial Development Index.

Explanatory variable in study

- Use of IFRS (IFRS) - The relevant variable for the analysis is binary and changes over time for countries that meanwhile adopted the standards. Therefore, the variable equals 0 for an observation if for that year the country had not adopted IFRS so far; and it marks 1 after the year a certain country has started enforcing these standards. This is the variable that will help understand the contribution of the adoption of IFRS to financial development.

Control variables

- Rule of Law (RL) - This is a World Governance Indicator that reflects the agents' confidence in society's rules and their compliance towards them. More concretely it measures the confidence in contract enforcement, property rights and justice. The index goes from -2,5 to 2,5 and higher values specify a stronger performance of enforcement. The relevancy of this variable to the model derives from the findings of La Porta (1997) who inferred that Rule of Law, together with other institutional factors, was an effective predictor of growth in stock markets, in a study conducted in emerging economies. Moreover, Pagano (1993) et al. also found that institutional and regulatory features have an influence on the effectiveness of capital markets.

- Political Stability (PS) - Another World Governance Indicator which regards the level of political stability and absence of violence or terrorism in a country. To do so, it measures the perception of the probability of political instability and the occurrence of violence/terrorism moved by political causes. The index ranges from -2,5, which indicates higher likelihood of instability, up to 2,5, indicating a strong performance with lower political risk. This variable is included in the model as, according to Diamon et al. (1996) and Erb et al. (1996), political risks are linked to stock market returns. Thus, it is expectable that capital markets are more developed in nations with a higher political stability. A logical explanation for this rationale could be that the risk regarding political stability is a priced factor and that it shapes the local cost of equity.
- Population (Pop) – The number of inhabitants in a country can have a direct influence on the level of financial development within that same nation. It is not by chance that the financial centers all around the world are located in populous locations such as New York, London and Hong Kong. In 2010, Huang conducted a study regarding what factors were significant contributors of financial development. The study concluded that the population of a country was in fact a significant determinant for the development of the financial sector in a given country. Therefore, it was decided to include the variable in the model, as it is a factor that needs to be controlled for. The possible explanation for this relation was disclosed in the same study as it stated that smaller countries were linked to lower ratios of liquid liabilities.

The multivariate analysis will have the purpose of addressing the effects of IFRS adoption in the development of capital markets and its institutions. Therefore, as previously stated, a fixed-effects regression by year and by country is to be performed to analyze this relationship. The

financial development model, as it will be referred in the study, will be the main model in analysis and it is constructed as follows:

Equation 1

$$FD_{it} = \beta_0 + \beta_1 IFRS_{it} + \beta_2 RL_{it} + \beta_3 PS_{it} + \beta_4 Pop_{it} + i.country + i.year + \varepsilon_i$$

Intuitively, the output variable is the measure for the financial development, while β_1 is the effect (change in Financial Development with a unitary increase in IFRS) of the adoption of the international standards in the dependent variable. It is therefore the core effect of the study for this research, as it will enable to understand whether the research hypothesis is verified or not. β_0 and ε_i are the correspondent intercept and error term of the model, basic concepts present in every linear regression. The coefficients β_2 to β_4 reflect the effect that the control variables in the model have regarding financial development. Although not as relevant for the paper in terms of the insights they may bring, all these variables play a crucial role in the effectiveness and the quality of the model in cause. The term $i.country$ and $i.year$ mark the dummy variables created for the analysis to control for the time-invariant characteristics that could have an influence in the predictor values, in other words, these are the variables that create the fixed effects by country and by year. These are simply dummy variables constructed for the panels/entities (countries) as well as for the time variable (years).

An important remark to the research design is that all the series of data collected for the different variables were posteriorly normalized so that the standard deviation within each series turned out equal to 1. The purpose of this action was to simplify the examination of the results, instead of interpreting the coefficients as the variation in the index constructed by the IMF, it can now be measured by the change in terms of standard deviations.

To obtain a better understanding of what are the factors behind financial development that are affected by the implementation of the international standards, a series of other similar models

were constructed. Following the same logic as before, regarding the statistical method to use and the sample, the difference only appears in the output variables. As for before, the goal was to understand the effect of IFRS on financial development as a whole, now it divides into financial institutions and financial markets. Moreover, this analysis will also investigate further down, subdividing each of these two financial specificities into their access, depth and efficiency. The aim is to have a more concrete vision of how IFRS may impact capital markets and financial institutions, this is to understand the whole process from the adoption of the standards to the ultimate level of financial development. All of the corresponding output variables are present in the IMF database for the financial development index. Once again, all these are indexes that range from 0 to 1, with 1 being the highest performance and 0 being the lowest. A presentation of what constitutes these indexes, which when combined form the financial development index previously used, is now going to be disclosed:

- Financial Institutions (FI) – This variable aggregates the depth, access and efficiency of the financial institutions in a nation. It's use intends to demonstrate the impact of IFRS on such institutions' development.
- Financial Markets (FM) – It aggregates the same categories as the previous variable (depth, access and efficiency) but this time concerning financial markets, so it is possible to obtain a relation between the development of such markets with the use of IFRS.
- Financial Institutions Depth (FID) – It collects data on bank credit to the private sector, mutual funds, pension funds and insurance premiums, all in relation to GDP. It is then a way of comparison between the size of financial institutions and the size of the economy as a whole.

- Financial Institutions Access (FIA) – It compiles information about the bank branches and ATM's per 100,000 adults. It allows to quantify the ability and easiness to obtain financial services from these institutions.
- Financial Institutions Efficiency (FIE) – It gathers data regarding return on equity and assets, the banking sector interest margin, spread on lending-deposits, non-interest to total income and the percentage of overhead costs to total assets. This variable reflects how well financial institutions manage their capabilities and how good is their performance.
- Financial Markets Depth (FMD) – It compounds data on stocks trades, stock market capitalization and both corporate and governmental debt securities, all in relation to GDP. It allows to compare the size of these markets to the global economy.
- Financial Markets Access (FMA) – It is a compilation of data on the market capitalization, excluding the 10 largest companies in a country and the number of debt issuers per 100,000 adults. It demonstrates the capability of entering and investing in capital markets.
- Financial Markets Efficiency (FME) – The variable gathers data relative to turnover in the stock market. This is an indicator for the easiness of buying and selling stocks and is then linked to the costs that investors face for making transactions.

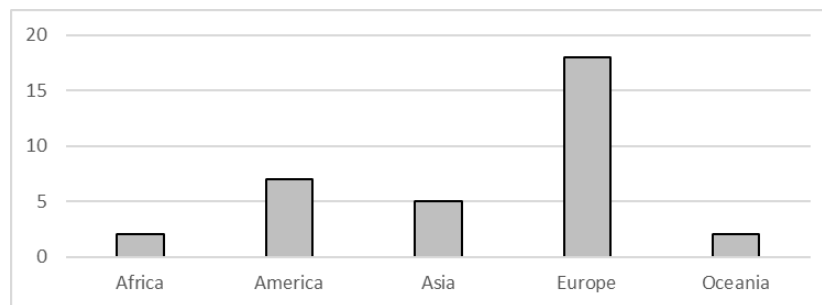
Using these indexes in the model (as output variables) will help to assess how financial development derives from the application of IFRS. It will allow to evaluate what the standards impact most within financial institutions and markets. The models design is the same as above, using a fixed-effects regression by year and country for the analysis, however the dependent variable (FD_{it}) will be replaced by each of these indexes.

6. Summary statistics

As mentioned beforehand in the paper, the sample in study is constituted by 34 different countries in total. From these, 29 have already adopted IFRS while the remaining 5 do not require the use of the standards to their public companies. The initial year for the collected data is 1995 and information for the model variables goes all the way to 2016, meaning that the analysis in cause covers 22 periods. Adding up, the models ended up with 748 observations, a number large enough to grant the robustness of the results. The financial development index has an average value 0.531, showing that the sample is well balanced regarding this indicator. The standard deviation for the sample rounds 0.222.

In this section it will be deeper discussed the timing of the adoption of IFRS across the sample used in the study. Firstly however, for a better understanding of the nations included, Figure 1 summarizes the geographical characteristics of the sample:

Figure 1

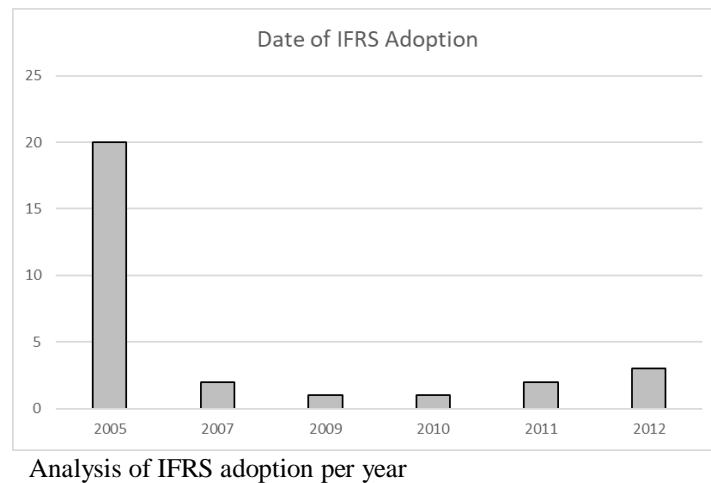


Geographical dispersion of the sample

Thus, the sample is mostly composed by European countries (18), as it is the continent where the IFRS is mostly used. America follows with 7 nations in the sample, while Asia contributes with 5 countries. Lastly, the sample also contains 2 countries from Africa and other 2 from Oceania. Despite the use of IFRS not being a common practice in Africa at the date of this study, as of 2019, a large number of African countries will start to enforce the standards.

The geographical analysis helps to introduce the examination of the timing of the adoption of IFRS throughout the sample. Figure 2 reveals the date of adoptions for the countries used for the study:

Figure 2



The first IFRS adopters in the sample began to enforce the standards as of 2005, with the vast majority of them being European nations. As expected, this is due to the decisions of the European Union, which in 2002 enacted that all public European companies must report in accordance to the standards, a law that was to be effective in the beginning of 2005. Australia and South Africa were the two other “pioneers” in the use of IFRS. Ghana and New Zealand adopted IFRS 2 years later, while Asian and American countries were getting behind. Chile was actually the first American nation in the sample using the financial standards, enforcing them in the beginning of 2009. It was only in 2011 that the sample had an Asian country in the IFRS users, when South Korea started to enforce it. 2012 saw the second largest wave of adopters in the sample, with 3 Latin American countries, Argentina, Mexico and Peru, starting to use IFRS. This pattern demonstrates that geography can be an important influence in the spread of the standards, as countries seem more eager to enforce the standards when their closer neighbors also do.

7. Results analysis

After running the model, using Stata, the first indicators seem positive in face of the research hypothesis and overall significance of the results. The linear regression with fixed-effects per country and year, using robust standards errors, showed the following results.

Figure 3

```
. regress fd ifrs rl ps pop i.country i.year, robust
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Linear regression

Number of obs = 748
 F(58, 689) = 405.44
 Prob > F = 0.0000
 R-squared = 0.9567
 Root MSE = .21668

fd	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]
ifrs	.0642763	.0321408	2.00	0.046	.0011706 .1273821
rl	.0204178	.0803145	0.25	0.799	-.1372728 .1781084
ps	-.0572763	.0277055	-2.07	0.039	-.1116737 -.0028789
pop	.6036992	.2143468	2.82	0.005	.182848 1.02455

Regressions results for FD model

When analyzing the F-test, which is used to assess the overall significance of the model, it is clear that the panel data model built is statistically significant (Prob>F=0.000). In addition, the R-square of the constructed model is quite high (0.9567), meaning that the panel is able to explain almost 96% of the changes in the financial development of a country.

The variable Rule of Law (RL) is not statistically significant at the 5% level. However, all remaining predictors are significant, with the main variable of interest (IFRS) showing a positive effect on the level of financial development.

Considering the significant variables, the IFRS dummy and population (Pop) coefficients present a positive sign, as expected. This means that the two variables contribute positively to the

level of financial development in a country. This relation between population levels and development is consistent with the studies of Huang (2010), who found that the number of inhabitants was a significant contributor to financial development. The positive association between the adoption of IFRS and financial development is also encountered in some of the literature reviewed, such as Zeghal and Mhedhbi (2012) and Klibi et al. (2014). Contrary to what was expected, Political Stability (PS) does not contribute positively to the financial development of a nation. It would be reasonable to assume that stability at the government level would raise financial development to higher levels, yet the results from the model indicate that the opposite is verified. The index used for this variable might not be the most appropriate, nevertheless it indicates that the perception of political instability or politically induced violence is not as determinant to the financial situation of a nation as political institutions might be.

Focusing now on the IFRS dummy, the variable of attention in this study, its coefficient in the model is 0.0643. This result demonstrates that a unit increase in this variable, leads to 0.0643 standard deviations increase in financial development. This can be translated as, for a country that adopts the international standards its financial development rises by 0.0643 standard deviations.

To better understand the origin of this effect of IFRS in financial development, the sub models which use as output variables the constituents of the financial development index were run. The interest here is to understand where exactly IFRS impacts the financial environment of a country, if it is more significant in the markets or institutions and if it concerns the levels of depth, access or efficiency.

It is important to remind that the models also presented the control variables used in the main model, however the intent in this study is to understand the effect of IFRS. Regarding the

overall significance of the models, the indicator Prob>F was 0.000 for every single model, demonstrating that they are significant at the 1% level. The results regarding the fit of the models, the significance and coefficient of the IFRS dummy are as follow:

Figure 4

Robust standard errors

Output variable	IFRS Coefficient	P-value	R-squared
FI	0.1063	0.001	0.9502
FM	0.019	0.697	0.9055
FID	0.0566	0.028	0.9704
FIA	0.0891	0.042	0.9199
FIE	0.1667	0.016	0.8105
FMD	0.076	0.118	0.9243
FMA	-0.0884	0.047	0.9154
FME	0.0426	0.554	0.7991

FD Components Models Regression results summary (IFRS coefficients)

Starting with the first subdivision on financial development: financial institutions (FI) and financial markets (FM); the results demonstrate that IFRS is a significant variable (5% level) concerning the prediction of development in financial institutions. However, it does not seem to be a significant contributor to the capital markets development. The models are significant and explain the variation in the respective indexes quite well, the R-squared for both models is superior to 90%. Focusing on Financial Institutions then, the outcome of the model show that the coefficient of IFRS is positive, meaning that the adoption of the standards has a positive effect on the development of such institutions. To be more precise, the coefficient of 0.1063, for the FI model, signifies that for a country adopting IFRS, the quality of its financial institutions would increase in such way that it would rise by 0.1063 standard deviations. As for financial markets, it

cannot be extrapolated any conclusion regarding the impact of the use of IFRS, despite the positive coefficient, the p-value is superior to 5% (0.697)

On to a deeper analysis into financial institutions, the results reveal that the IFRS adoption is a substantial contributor to all its 3 components: depth, access and efficiency. At the 5% level, it is possible to conclude on the effect of IFRS throughout the whole spectrum of the institutions at stake. Starting with the analysis of the FID model, it explains almost the totality of the changes in the outcome variable (Financial Institutions Depth), as the R-squared is above 97%. The coefficient of IFRS is 0.0566, which allows to infer that if a country adopts IFRS it can increase the depth of its financial institutions by 0.0566 standard deviations. Regarding the access to the financial institutions, the coefficient of IFRS permits to conclude that the use of the financial standards enables a growth 0.0891 standard deviations in access to financial institutions. This is even a more substantial increase than the one verified in the depth. The fit of the model is once again great, with a R-squared of 92%. Nevertheless, the largest effect of IFRS is in the efficiency of financial institutions. The FIE model reveals one more time a good fit, disclosing a R-squared of 81,05%, and the coefficient of IFRS indicates that when adopting the standards, a country can increase the efficiency of financial institutions by 0.1667 standard deviations.

Moving to an insight on the influence of the standards in financial markets, the effects on its depth, access and efficiency were analyzed. Once again, the models perform fairly well with R-squared ranging from 79.91% for efficiency (FME) to 92.43% for depth (FMD). However, the IFRS adoption dummy for these two models is not significant as its p-values are higher than 5% (0.118 for the depth model and 0.554 for the efficiency model). Nevertheless, IFRS is significant at the 5% level for the access model with a p-value 0.047. The model is able to explain more than 91% of the variation in financial markets access (R-squared=0.9154), yet the coefficient of the

variable of interest (IFRS) is not quite as expected. The IFRS dummy presents a coefficient of -0.0884, which means that when adopting the standards, countries decrease the access to their financial markets up to 0.0884 standard deviations. Unlike all other metrics, FMA is actually worsened by the adoption of the financial standards. This is counter intuitive with some of the theory and might display some of the limitations and problems harming the study, which will be further discussed later.

Overall the results demonstrate that the effects of IFRS are significant on the side of Financial Institutions, unlike Financial Markets which do not seem to be significantly affected by the adoptions of the standards. Inclusively, the access to these markets is even decreased. On the other hand the strongest effect of IFRS is in Financial Markets Efficiency, showing an improvement of over 0.16 standard deviations.

At this phase it is important to state that the analysis at cause and the models used are focused on the analysis of the coefficients and the respective effect of the IFRS adoption on the various output variables regarding financial development. The standard errors are not of such interest for this study and so there was not much emphasis for this metric, moreover robust standard errors were used in the regression to prevent against this type of problematics.

Nonetheless, there are still some topics that have to be addressed regarding the model. It is very difficult for any study to identify all the appropriate variables for a certain model. Omitted variable bias can occur if there are any relevant variables that are not included in the model. In other words, a misspecification of the regression model may happen and will eventually lead to an over or under estimation of the coefficients of the explanatory variables. Omitted variables may then exist for the model in the study at cause if it was left out any variable correlated with the dependent or any of the independent variables. This situation would increase the unexplained

variance of the response variable. In this research it was tried to find the best balance between assuring the largest number of relevant variables were included while not exaggerating and include variables that were not significant for the model at stake. In addition, reverse causality is also a concern to have in mind. This situation relates to the correct direction of causality between dependent and independent variables. For example, in this situation, reverse causality could be an issue if IFRS adoption does not in fact influences financial development, but instead the opposite happens. This scenario would lead to a biased conclusion. Both the issues discussed before are possible causes for endogeneity, meaning that an independent variable could be correlated with the error term. The ultimate consequence of this would be biased and unreliable coefficient estimates for the explanatory variables in the study.

8. Limitations and Final Conclusions

Reaching the final section of this paper, a retrospective insight at the research indicates that the study suffered from some limitations. Firstly, the time constraint was a factor throughout the investigation, as not only there was a deadline to meet, but the time dedicated to the project itself was greatly reduced due to professional reasons. Moreover, regarding available data, the research started with a sample of countries that was shortened as the research moved forward. This was due to the facts that for some variables to be used in the models, data was not available for every country. The situation particularly affected the number of countries not using IFRS for which was verified a greater difficulty to collect the necessary data. A greater sample could provide more accurate results. However, it has to be acknowledged the contribution of the NOVA SBE's advisor, Francisco Queiró, for the guidance and aid it provided for the development of this paper.

At this point there is no doubt that IFRS led to an increase in the transparency of financial reports, as well as an overall improvement on its quality and disclosure. To better identify the ultimate effects from such, the analysis was based on a sample of 34 countries, from which 29 were adopters of IFRS, while the remaining 5 did not enforce the use of the standards in domestic public companies. The time range for the collected data was between 1995 and 2016. This yielded a total of 748 observation for the panel data model, which guarantees the robustness of the results.

The hypotheses put at stake in this study regarded the effect of IFRS in financial development and if existent, where did it derive from. The results indicate that there is in fact a positive contribution of the adoption of the standards to the improvement of the financial situation in a given country. So, countries that embrace the standards can expect a rise in the development of its financial sector. Unlike other studies, the analysis went further beyond than just identify the effect on financial development, as it analyzed the nature of it. It was concluded that the development originated from one of the two components of financial development: financial institutions. It is due to an upsurge in financial institutions that IFRS adoption leads to an increase in financial development. A deeper insight to the case studied the relation of IFRS and each of the components of such institutions. It was then identified that the adoption of the international standards led to an upgrade in all 3 metrics of these institutions, contributing to advancements in their depth, access and efficiency. On the other hand, it was noted that overall, there is no significant contribution of the standards to the development of financial markets. In fact, only the access to these markets is affected by them and not as one could expect. The use of IFRS leads to a downgrade in this metric, contrarily to the predicted by the theory.

Summing up, the use of IFRS contributes positively to financial development, an ultimate effect that is originated due to enhancements in the easiness to obtain services from financial

institutions (financial institutions access), the expansion in size of financial institutions when compared to the general economy (financial institutions depth) and also in the levels of their performance (financial institutions efficiency). Therefore, it is recommended for countries not using IFRS that should consider the option to do so. It could drive their financial development levels upwards and they would join an already vast community of users.

The findings extend the literature related to the financial and economic effects of IFRS use, by going beyond the identification of the effect and up to the comprehension of its nature. Concerning future researches, they will have more objects of study as a large number of mainly African countries will adopt the standards in 2019. Moreover, major changes in IFRS, with the introduction of IFRS 9 and IFRS 15, were implemented as of 2018. Together with IFRS 16, which will be implemented in 2019, these new standards can influence even more the financial and economic scenario of the countries and can serve of good research topics for future studies.

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Attachments

Attachment 1

```
. regress fi ifrs rl ps pop i.country i.year, robust
```

Linear regression

Number of obs = 748
F(58, 689) = 390.33
Prob > F = 0.0000
R-squared = 0.9502
Root MSE = .23228

fi	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]
ifrs	.1063298	.0325755	3.26	0.001	.0423707 .1702889
rl	.1552143	.0602431	2.58	0.010	.0369322 .2734964
ps	.0292314	.0299602	0.98	0.330	-.0295929 .0880556
pop	.3118002	.178725	1.74	0.082	-.0391107 .6627112

Regression results for FI model

Attachment 2

```
. regress fm ifrs rl ps pop i.country i.year, robust
```

Linear regression

Number of obs = 748
F(58, 689) = 234.51
Prob > F = 0.0000
R-squared = 0.9055
Root MSE = .32012

fm	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]
ifrs	.0189717	.0486531	0.39	0.697	-.0765544 .1144979
rl	-.0976454	.12757	-0.77	0.444	-.348118 .1528271
ps	-.1227488	.0419923	-2.92	0.004	-.2051971 -.0403005
pop	.7645749	.2860491	2.67	0.008	.2029424 1.326207

Regression results for FM model

Attachment 3

```
. regress fid ifrs rl ps pop i.country i.year, robust
```

Linear regression

```
Number of obs = 748  
F( 58, 689) = 1158.06  
Prob > F = 0.0000  
R-squared = 0.9704  
Root MSE = .17924
```

fid	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
ifrs	.0566359	.0257995	2.20	0.028	.0059809	.107291
rl	.0400689	.0433978	0.92	0.356	-.0451389	.1252767
ps	-.0442908	.0194281	-2.28	0.023	-.0824362	-.0061454
pop	.0250075	.1444601	0.17	0.863	-.2586274	.3086423

Regression results for FID model

Attachment 4

```
. regress fia ifrs rl ps pop i.country i.year, robust
```

Linear regression

```
Number of obs = 748  
F( 58, 689) = 336.35  
Prob > F = 0.0000  
R-squared = 0.9199  
Root MSE = .29475
```

fia	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
ifrs	.0891355	.0436923	2.04	0.042	.0033495	.1749215
rl	.1518517	.0760944	2.00	0.046	.002447	.3012565
ps	.0471054	.0388445	1.21	0.226	-.0291624	.1233732
pop	.5828957	.3078602	1.89	0.059	-.0215611	1.187353

Regression results for FIA model

Attachment 5

```
. regress fie ifrs rl ps pop i.country i.year, robust
```

```
Linear regression                               Number of obs =    748
                                                F( 58,   689) =    80.13
                                                Prob > F      =    0.0000
                                                R-squared    =    0.8105
                                                Root MSE    =    .45323
```

fie	Robust		t	P> t	[95% Conf. Interval]	
	Coef.	Std. Err.				
ifrs	.1666587	.0689682	2.42	0.016	.0312457	.3020717
rl	.2911484	.1197708	2.43	0.015	.0559888	.526308
ps	.1316011	.0597167	2.20	0.028	.0143526	.2488496
pop	.0648809	.2909689	0.22	0.824	-.5064111	.636173

Regression results for FIE model

Attachment 6

```
. regress fmd ifrs rl ps pop i.country i.year, robust
```

```
Linear regression                               Number of obs =    748
                                                F( 58,   689) =   260.30
                                                Prob > F      =    0.0000
                                                R-squared    =    0.9243
                                                Root MSE    =    .28652
```

fmd	Robust		t	P> t	[95% Conf. Interval]	
	Coef.	Std. Err.				
ifrs	.0760401	.0486068	1.56	0.118	-.0193952	.1714754
rl	-.1050933	.0990147	-1.06	0.289	-.2995001	.0893135
ps	-.1179206	.0360788	-3.27	0.001	-.1887582	-.047083
pop	.9147517	.2842851	3.22	0.001	.3565828	1.472921

Regression results for FMD model

Attachment 7

```
. regress fma ifrs rl ps pop i.country i.year, robust
```

Linear regression

```
Number of obs = 748  
F( 58, 689) = 284.15  
Prob > F = 0.0000  
R-squared = 0.9154  
Root MSE = .30287
```

fma	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
ifrs	-.0884039	.0444509	-1.99	0.047	-.1756795	-.0011284
rl	-.0112312	.0780634	-0.14	0.886	-.164502	.1420396
ps	-.0585298	.0314919	-1.86	0.064	-.1203614	.0033019
pop	.3576717	.2429029	1.47	0.141	-.1192469	.8345904

Regression results for FMA model

Attachment 8

```
. regress fme ifrs rl ps pop i.country i.year, robust
```

Linear regression

```
Number of obs = 748  
F( 58, 689) = 198.50  
Prob > F = 0.0000  
R-squared = 0.7991  
Root MSE = .46672
```

fme	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
ifrs	.0425766	.0719231	0.59	0.554	-.0986381	.1837914
rl	-.1130767	.1825879	-0.62	0.536	-.4715722	.2454188
ps	-.1184299	.0623111	-1.90	0.058	-.2407723	.0039125
pop	.5560077	.3753422	1.48	0.139	-.1809441	1.292959

Regression results for FME model

Attachment 9

_cons	-1.235749	.1780158	-6.94	0.000	-1.585268	-.8862307
_cons	-1.22885	.1023754	-12.00	0.000	-1.429855	-1.027844
_cons	-1.060853	.2924828	-3.63	0.000	-1.635117	-.4865882
_cons	-1.288447	.0840355	-15.33	0.000	-1.453444	-1.123451
_cons	-.9380686	.1405771	-6.67	0.000	-1.21408	-.6620576
_cons	-.6739715	.2344826	-2.87	0.004	-1.134358	-.2135852
_cons	-1.582811	.2208405	-7.17	0.000	-2.016412	-1.149209
_cons	.2120972	.1592084	1.33	0.183	-.1004946	.5246891
_cons	-1.058946	.4424659	-2.39	0.017	-1.92769	-.190203

Constant coefficients of the models in the following order: FD; FI; FM; FID; FIA; FIE; FMD; FMA; FME