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Implementation of international financial reporting standards (IFRS) for small and medium-sized companies (SMEs) in Colombia

Implementación de las normas internacionales de información financiera (NIIF) para las pequeñas y medianas empresas (Pymes) en Colombia

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Abstract

This paper analyzed the impacts of the implementation of IFRS SMEs in 17 financial indicators of 16,217 Colombian companies, belonging to 18 economic sectors. The literature evidence case studies that explain the impacts of IFRS implementation, but this paper goes further by analyzing the financial indicators calculated with financial information prepared under the generally accepted local accounting principles as under IFRS SMEs, which represents an added value. The mean difference was calculated with the Mann-Whitney U test taking the applied accounting standard as an independent variable and the 17 financial indicators as dependent variables, to determine the existence of statistically significant differences between them. The results were dissimilar, not being able to show impacts in groups of indicators or economic sectors, however, the Real Estate and Financial sectors stand out, and the indicator net operating working capital with the highest findings.

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Resumen

El presente trabajo analizó los impactos de la implementación de las NIIF Pymes en 17 indicadores financieros de 16,217 empresas colombianas, pertenecientes a 18 sectores económicos. La literatura evidencia estudios de caso que explican los impactos de la implementación de las NIIF, pero este documento va más allá analizando los indicadores financieros calculados con información financiera preparada bajo los principios de contabilidad generalmente aceptados locales como bajo NIIF Pymes, lo cual representa un valor agregado. Se calculó la diferencia de medias con la prueba U de Mann-Whitney tomando como variable independiente la norma contable aplicada y como variables dependientes los 17 indicadores financieros, para determinar la existencia de diferencias estadísticamente significativas entre los mismos. Los resultados fueron disimiles, no pudiéndose evidenciar impactos en grupos de indicadores o sectores económicos, no obstante, sobresalen los sectores Inmobiliarias y Financiero, y el indicador capital de trabajo neto operativo con mayores hallazgos.

Código JEL: M41, G19, M49
Palabras clave: ratios financieros; análisis financiero; NIIF para las pymes; convergencia contable

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Introduction

The standardization of the principles under which financial information is prepared and disseminated results from financial globalization, characterized by free trade agreements, the total opening of borders, and access to international capital markets. Consequently, a strategic commitment of the business community is to speak the same financial language, hence the relevance of adopting the International Financial Reporting Standards —IFRS.

The globalization of business and the new international financial architecture accelerated the adoption of IFRS in many countries (Salazar, 2013), in addition to the support for the International Accounting Standards Board —ASB by regional and national accounting regulations issuers and Big 4 auditing firms (Carneiro, Rodrigues, & Craig, 2017).

In the context of emerging economies, accounting measures and regulations are designed to help them develop their knowledge of a specific subject in their social and physical environment (Chua, 1986) in order to mediate their needs with those of their environment and influence their decision-making behavior (Gaffikin, 2006). Accordingly, adopting a new system, whether regulatory or voluntary, constitutes a change in accounting practice, subject to various factors and approaches that compel or drive change (Al-Htaybat, 2017).

These requirements motivated much of the global village to initiate convergence processes. Table 1 shows the total number of jurisdictions in the world that require IFRS, grouped by 5 regions (Europe, Africa, Middle East, Asia-Oceania, and the Americas), with Europe and Africa, respectively,

having the highest number of countries with IFRS requirements and the highest percentages of countries that require the standard concerning the total number of jurisdictions per region. Regarding IFRS for SMEs, 86 jurisdictions permit or require them, 11 are currently considering their application, and in 70, they are not used or are under consideration (IFRS, 2022). In Colombia, they have been required since 2015.

Table 1
Use of IFRS standards in the 150 jurisdictions profiled by world region

Region	A	B	C	D	E	F
Europe	44	26%	43	98%	1	0
Africa	38	23%	36	95%	1	1
Middle East	13	8%	12	92%	1	0
Asia-Oceania	35	21%	28	80%	2	5
Americas	37	22%	26	70%	9	2
Totals	167	100%	145	86.8%	14	8
as a % of 167	100%		86.8%		8.4%	4.8%

A: Jurisdictions in the region
B: Total percentage
C: Jurisdictions that require IFRS standards for all or most of the publicly accountable domestic entities
D: Jurisdictions requiring IFRS standards as % of total jurisdictions in the region
E: Jurisdictions that permit or require IFRS standards for at least some (but not all or most) publicly accountable domestic entities.
F: Jurisdictions that do not require or permit IFRS Regulations for publicly accountable domestic entities
Source: Adapted from International Financial Reporting Standards —IFRS (2022)

Accordingly, the accelerated process of IFRS adoption around the world, often originated intending to obtain legitimacy (Aboagye-Otchere & Agbeibor, 2012), raises questions about the effect on local economies (Milanés, Albarrán, & Pérez, 2011), mainly on the financial situation of companies. Regarding this, De George, Li, and Shivakumar (2016) state that the introduction of IFRS seems to have had a substantial effect on the financial statements reported by companies. Therefore, studying the impact of IFRS implementation is useful, as it can be used to assess whether its implementation improves the quality of the information disclosed or changes the information that explains the risk (Boz, Menéndez, Orgaz, & Prior, 2015).

In Colombia, Decree 3022 of 2013 regulated the process of implementation of IFRS for SMEs, establishing the schedule for the application of the technical regulatory framework for Group 2 financial

information preparers[1], which established 2015 as the transition period[2]. Thus, national entities had to account for their operations under two regulatory accounting frameworks: the local one, based on Decrees 2649 and 2650 of 1993, and under the new technical regulatory framework (IFRS for SMEs) issued in July 2009.

Based on the above approaches, the present research originated, which examined the impact of the implementation of IFRS on the financial indicators of Colombian SMEs during the convergence process in 2015. Its relevant aspect is that the analysis was carried out for the same economic-financial reality, measured and valued with two different accounting regulatory frameworks. The work is part of a broader project that seeks to examine the impact of the implementation of IFRS (both Full and SMEs) on the financial situation of Colombian companies in the years before and after the application of this accounting standard.

The document consists of a review of the relevant literature where different aspects of implementing IFRS are studied, including the determining factors in the effects originated by this process in different countries. Subsequently, the methodology used is explained, along with an explanation of the indicators calculated and the descriptive statistics of the data used. The results are then presented, followed by a discussion and conclusions.

Review of the literature

Accounting regulations have varied from country to country due to differences in the economic and social forces that have interacted in the past to determine the accounting regulations of today's countries (Brown, 2011). This fact seems to be in the past because more and more companies and countries have adopted or considered replacing their national standards with IFRS (Kim & Shi, 2012; Chen, Tang, Jiang, & Lin, 2010). The widespread adoption of IFRS and their related convergence initiatives have led to numerous studies examining their implications (Armstrong, Bath, Jagolinzer, & Riedl, 2010; DeFond, Hu, Hung, & Li, 2011; Daske, Hail, Leuz, & Verdi, 2008). The results of various investigations are contradictory (Puerta, Vergara, & Huertas, 2018; Guevara, Castaño, & Quirós, 2018). A considerable number of studies

[1] In Colombia, the authorities regulated the implementation of IFRS in a differential manner for three groups of users: Group 1 (issuers of securities, public interest entities and large entities) which must apply Full IFRS; Group 2 (small and medium-sized companies) which must apply IFRS for SMEs; and Group 3 (micro companies) which must apply simplified accounting.

[2] It was the year prior to the application of the new technical regulatory framework during which accounting for all legal purposes had to be kept in accordance with current regulations (local GAAP) and, simultaneously, information had to be obtained in accordance with the new financial reporting regulatory framework (IFRS), in order to enable the construction of financial information that can be used for comparative purposes in the financial statements in which the new technical regulatory framework is applied for the first time (Decree 3022 of 2013).

have found positive associations (Barth, Landsman, & Lang, 2008; Devalle, Onali, & Magarini, 2010; Clarkson, Hanna, Richardson, & Thompson, 2011; Rodríguez, Cortez, Méndez, & Garza, 2017) and others negative ones (Hung & Subramanyam, 2007; Van der Meulen, Gaeremynck, & Willekens, 2007).

IFRS adoption remains a recent phenomenon in Latin America and, consequently, is less explored. Initial studies have provided evidence of an improved information environment related to IFRS, but in isolation; nevertheless, there is a lack of literature on IFRS adoption (Santana, Rathke, Lourenço, & Dalmácio, 2014).

According to Abad, Cutillas, Sánchez, and Yagüe (2017), there is an ongoing debate in the recent accounting literature as to whether post-IFRS market benefits have been driven by the change in accounting regulations per se or by other related factors that include: (a) institutional factors such as the level of country compliance and the extent of compliance changes made to support IFRS implementation; (b) incentives for corporate reporting; and (c) the degree of similarity between IFRS and previous local generally accepted accounting principles (GAAP).

Table 2 summarizes the analysis of seven determining factors in the effects studied by implementing IFRS in various countries worldwide, according to the scientific literature collected. A brief description of each factor is included (transparency of financial information, comparability of financial statements, access to sources of financing, increase in foreign investment, access to international markets, financial analysis, and accounting information), with positive and negative aspects.

On the other hand, the adoption of IFRS by many countries raises interesting issues when examining financial indicator-based agreements. Changes in contract structure and errors exposed in pre-IFRS contracts are the subjects of some recent studies (Beiruth, Lopes, Dal, Feres, & Brugni, 2017).

In Colombia, applied research on the impact of IFRS implementation on the financial situation of companies through financial analysis is focused on the development of undergraduate and graduate degree works, which generally analyze micro sectors of specific cities or conduct case studies. Accordingly, there is no research on this subject at the national level and by the macro sectors of the local economy. The work of Guevara *et al.* (2018), who analyzed the financial effects of implementing the new regulatory technical frameworks through financial indicators of liquidity, profitability, and indebtedness in the telecommunications sector, stands out.

Another important contribution is that of Puerta, Vergara, and Huertas (2018), who argue that the implementation does not change the formulas for applying financial indicators. Nonetheless, implementing a new technical regulatory framework, partially with accounting principles different from those applied locally (changes in the measurement, recognition, classification, preparation, and presentation of financial information), changes how financial information is interpreted. Various research

projects mostly focused on liquidity[3] and profitability, show contradictory results regarding the impact of IFRS implementation on indicators (Guevara *et al.*, 2018). For example, concerning liquidity, Daske *et al.* (2008) found increases after IFRS implementation, whereas Lantto and Sahlström (2009) show that it decreases.

Due to the preceding arguments, the following hypothesis is proposed:

H_1: The results of the financial indicators presented statistically significant differences regarding the implementation of IFRS for SMEs in Colombian companies.

[3] Including analysis with financial indicators such as Tobin's Q

Table 1
Determining factors in the effects of IFRS implementation in various countries around the world

Factor	Description	Positive Aspect	Negative Aspect
Transparency of financial information	According to IFRS (2017), IFRS is a unique set of high-quality, understandable, and enforceable global accounting standards requiring high-quality, transparent, and comparable information in financial statements and other financial reports to assist participants in the world's capital markets and other users in making economic decisions.	Research (Barth et al., 2008; Chen et al., 2010; Christensen, Lee, Walker, & Zeng, 2015; Abad et al., 2017) shows that the voluntary adoption of IFRS improves the quality of accounting for European Union countries. For Latin America, the benefits of IFRS include better analysis for decision-making (Ramanna & Sletten, 2011) and information transparency, which improves companies' governance (Amar, Humeres, & Castro, 2009) and reduces risk for investors (Ramanna & Sletten, 2011).	Among the unfavorable aspects is the fact that the application of the IFRS for SMEs is subject to professional judgment, which generates a risk of divergence in its implementation (Barroso, 2009) According to Kavame (2017), IFRS is not a good fit for the United States because IFRS is principles-based, while US GAAP is rules-based. She also explains that IFRS is not a good cultural fit.
Comparability of financial statements	In order to enable comparability and harmonization of information globally, IFRS seeks to create a uniform structure for the management of financial and accounting information of companies through more detailed disclosures (Kim, Tsui, & Cheong, 2011; Chen, Chin, Wang, & Yao, 2015; Florou & Kosi, 2015; García, Dueñas, & Mesa, 2017).	Analyst forecast accuracy improves after mandatory IFRS adoption (Horton, Serafeim, & Serafeim, 2012), while analyst hedge increases as standards between the company's country and the analyst's country are eliminated (Tan, Wang, & Welker, 2011). Finally, the "simplifying spirit of the IFRS for SMEs regulation" based on "simplifying rules" or "accounting shortcuts" is highlighted when putting accounting theory into practice, avoiding unjustified efforts and costs (Barroso, 2009)	Standards may be implemented differently, and real convergence and harmonization are unlikely without adequate enforcement mechanisms (Ball, 2006). For Lang, Maffett, and Owens (2010), it does not increase comparability since it does not improve for IFRS adopters relative to a control group of non-adopters. Beneish, Miller, and Yohn (2010) state that IFRS does not provide comparability benefits in securities markets. According to Rodriguez et al. (2017), regulators in different countries are unwilling to bear the resulting costs since standards are not comparable across countries.
Access to financing sources	The use of IFRS by private companies may have a different impact on bank financing compared	From this point of view, economic globalization leads to a convergence of traditionally national accounting regulations to facilitate cross-border	According to Ball, Li, and Shivakumar (2015), Chen, Chin, Wang, and Yao (2015), and Florou and Kosi (2015), mandatory IFRS adoption does not have positive effects on

	to the effects found for listed firms (Balsmeier & Vanhaverbeke, 2006) Most arguments favoring the positive and negative effects of using IFRS by public companies also apply to private companies (Berger & Udell, 2006).	financing (Koning, Mertens, & Roosenboom, 2018).	debt financing. It may exert a negative impact, mainly because the emphasis on fair value accounting in IFRS decreases the verifiability and reliability of accounting measures, reducing the perception of a potential lender's credit quality.
Increase in foreign investment	The mandatory adoption of IFRS in the European Union increases foreign investment in mutual funds, which is significantly higher than in countries adopting IFRS during the same period (DeFond et al., 2011).	Both regulators and standard setters have expressed that adopting IFRS "will reduce the cost of capital and open up new opportunities for diversification and improved investment returns" (Tweedie, 2009).	According to Hope, Jin, and Kang (2006), early adopters often have weak investor protection. Likewise, Beneish et al. (2010) state that IFRS does not provide comparability benefits in stock markets since their mandatory adoption increases cross-border debt but not equity investments.
Access to international markets	For Nobes (2001), a uniform, global set of accounting standards and requirements can provide clear guidelines for all stakeholders worldwide and improve their access to international capital markets, reducing international corporate obligations and costs while eliminating complexity.	Adopting IFRS would provide European corporations with standards that would facilitate cross-listings and enable them to raise capital across country borders cost-effectively (Kavame, 2017). "Another revolutionary idea of introducing IFRS for SMEs is to improve SMEs' access to international capital through harmonized and high-quality financial statements" (Perera & Chand, 2015, p.166).	Daske et al. (2008) provide evidence that adopting IAS/IFRS does not necessarily lead to the assumed stock market benefits unless company-level reporting incentives are also aligned. They also state that, on average market liquidity increases after IFRS implementation.
Financial analysis	Blanchette, Racicot, and Girard (2011) analyze 16 financial ratios drawn from nine publicly traded companies over 12 months and suggest that most ratios have significantly higher volatility calculated under IFRS than CGAAP.	Indeed, some authors state that with the implementation of IFRS, the quality of financial information improves and thus will facilitate Financial Statement Analysis by improving comparability and transparency (Janica & Piñeiro, 2008; Karaibrahimoglu & Tunç, 2014).	According to Jin (2017), some preliminary evidence on IFRS adoption in Canada reveals a meaningful impact on financial ratios and public sector accountability. Thus, the reported ROE is lower, with a higher variance under IFRS than CGAAP. Rixon and Faseruk (2009) found that adopting IFRS by public sector companies would

	Financial statement analysis under IFRS is not only related to analytical tools and techniques (ratio analysis, vertical and horizontal analysis, etcetera) but also closely associated with the analysis of all financial and non-financial events and transactions presented in the financial statements and their notes (Özkan & Erdener, 2010).	A global financial reporting language will likely raise international comparability and global recognition for SMEs worldwide. Therefore, this change is expected to be a breakthrough for SMEs if countries recognize the perceived benefits and adopt IFRS for SMEs (Perera & Chand, 2015).	distort their financial positions and key return indicators. "the choice between the fair value model and the cost model, in the measurement of non-financial assets, affects the profitability ratios obtained from the information presented by the entities" (Castellanos, 2015, p.62).
Accounting information	Cordazzo (2013) stated that the requirement of IFRS by European countries affected many areas of accounting practice through the introduction of fair value, revenue recognition, impairment testing, deferred taxes, leases, etcetera. With the implementation of IFRS in Colombia, the procedure for recognizing, measuring, valuing, and disclosing economic facts will change, altering how financial statements and indicators (part of financial and administrative planning) are read and analyzed, and, therefore, business decision-making (Guevara & Correa, 2014).	Similarly, Latridis (2010) finds that for UK companies listed on the stock exchange during the IFRS adoption period in 2005 and pre-adoption in 2004, IFRS implementation leads to higher value relevance, and companies tend to recognize large losses timelier than under UK GAAP. Meanwhile, Christensen et al. (2015) find that voluntary IFRS adoption in German companies improves accounting quality, increasing the timeliness of loss recognition and the value relevance of earnings.	Callao, Jarne, and Laínez (2007) comment that implementing IFRS does not improve value relevance because the gap between book and market values tends to be larger when IFRS is used. Likewise, Macedo, Veras, Machado, and Cardoso (2013) note a difference in the value relevance of accounting information before and after IFRS; in particular, earnings per share have a greater impact under IFRS than book value per share.

Source: created by the authors based on various authors

Data and method

The research is quantitative, non-experimental, and cross-sectional. Intending to conduct a study covering all the Colombian companies that applied IFRS for SMEs and that reported individual financial statements to the Superintendence of Companies of Colombia (Supersociedades) in the transition period, the financial statements prepared under local GAAP and IFRS for SMEs for 2015 were consulted in the Business Information Portal. When conducting the analysis of the financial information obtained (two sets of financial statements prepared under different accounting standards) that correspond to the same economic events, it was ascertained that the impacts generated were exclusively due to the change in standards and not to other variables that may bias the analysis when conducted for different years[4].

The total number of companies that reported individual financial statements to the Supersociedades prepared under IFRS for SMEs as of December 31, 2015, was 17 757. The number of companies that reported financial statements for the same period prepared under local GAAP was 26 533. A filter was created to determine the companies that presented information under both technical regulatory frameworks; the result was 16 284. Some companies were excluded from the sample since they presented atypical data, such as reporting zero financial statements and liabilities over assets (negative equity). The database groups the companies according to their ISIC (International Standard Industrial Classification) code, broken down by economic sector. It was decided to work with economic sectors with observations greater than 10; this meant that the analysis was conducted with 16 217 companies and 18 sectors with the help of Stata 14 MP statistical software. A 1% winsorization process was also conducted to avoid measurement errors. Then, 17 financial indicators were calculated and grouped into four categories: liquidity, turnover, indebtedness, and profitability (Table 3).

Table 3
Calculated financial indicators

	Indicator	Description	Calculation	Parameter*
Liquidity	Working capital over assets - ktn	Measures the relation of the surplus monetary amount that the company has after liquidating all its short-term debts using current assets to its total assets.	Subtraction of current assets and current liabilities, divided by total assets	> 0

[4] Accordingly, the research found on the subject analyzes two or more consecutive years (different economic events), and this generates biases, given that the financial situation of the companies will be affected by other variables such as changes in the economic environment and market conditions (inflation, exchange rate, organizational changes, among others).

	Net operating working capital over assets - ktno	Measures the relation between the actual operating resources available to the company to pay off its short-term liabilities divided by its total assets.	The sum of accounts receivable and inventories less accounts payable, divided by total assets	> 0
	Current ratio - rco	Measures the company's capacity to cover its current obligations.	Current assets over current liabilities	> 1
	Acid test - pa	The company's ability to pay its current obligations, excluding the sale of inventories.	Current assets minus inventory over current liabilities	~1 (close, approximate to 1)
Turnover	Cash turnover - rotefe	Times sales are converted to cash during the year.	Sales divided by the sum of cash and cash equivalents	Associated with the company's efficiency. A minimum amount of cash is expected to generate a higher sales volume.
	Portfolio turnover - rotcar	Times the portfolio is converted to cash during the year.	Sales divided by average accounts receivable	Associated with the number of credit days
	Inventory turnover - rotinv	Times inventories are converted to cash during the year.	Cost of sales divided by average inventory	Associated with the number of days of inventory.
	Asset turnover - rotact	Establishes how much was sold per million invested in fixed assets.	Sales divided by fixed assets	Associated with the company's efficiency. A minimum amount of assets is expected to generate a higher sales volume.
	Total indebtedness - endt	Reflects the percentage of interest held by creditors in the company.	Liabilities divided by assets	Subject to sector
	Financial indebtedness - efin	Reflects how much of each million in sales is committed as a financial obligation.	Financial obligations over sales	Manufacturing: max 30% of sales Marketing: max 10% of sales
Indebtedness	Total leverage - apt	Compares the financing of liabilities with the resources the shareholders contributed and establishes which is taking the greater risk.	Total liabilities over equity	The higher these ratios are, the better for the company, as long as the debt-financed assets produce a return higher than the interest rate paid on the financing.
	Financial leverage - apfin	Measures the degree of financial commitment to the company's leverage.	Total financial liabilities over equity	> 1, provided that the ROE is greater than the cost of credit

Profitability	Return on equity - roe	Determines the return obtained by the shareholders or owners of the company on their investment.	Net income over equity	The higher the ROE percentage, the better the company's profitability.
	Return on assets - roa	The ability of the asset to produce profits regardless of how it has been financed	Net income over total assets	Likewise, an organization can compare this result with the weighted average cost of capital (WACC)
	Gross margin - marbru	Shows the % of gross profit generated by sales.	Gross profit over sales	Depending on each industry or sector, it is expected to be favorable to cover the company's other expenditures.
	Operating margin - marope	Shows the % of operating profit generated by sales.	Operating profit on sales	Indicates whether or not the business is profitable regardless of its financing.
	Net margin - marnet	Shows the % of net income generated by sales.	Net income over sales	It should be compared with the operating margin to know if the profit comes from the operation of the business or other different activities.

Source: created by the authors
* The parameter has been defined according to the consensus of renowned authors

The descriptive statistics for the group of indicators show a high standard deviation to the mean for most of them, which is evidence that the data do not follow a normal distribution (Table 4), consistent with the results of Ezzamel and Mar-Moline (1990) and Lantto and Sahlström (2009).

Lantto and Sahlström (2009) also analyzed the impact of IFRS implementation in 91 companies in Finland for 2004, applying the difference of means with the Wilcoxon test. In contrast, in the present research, the difference of means was calculated with the Mann-Whitney U test, which roughly calculates a statistic distributed according to a normal distribution of mean 0 and variance 1. To calculate this statistic, each of the observations of one of the groups is compared with all the observations of the other group, assigning a value of 1 in case the observation of the first group is superior to the observation of the second group, a value of 0.5 in case of a tie, or a value of 0 in another case. After comparing all the observations, the values obtained are summed and the statistic is calculated to test the hypothesis.

The equation is as follows:

$$U_1 = R_1 - \frac{n_1(n_1 + 1)}{2}$$

$$U_2 = R_2 - \frac{n_2(n_2 + 1)}{2}$$

Where:

U_1 = sample with the lowest number of observations

U_2 = larger sample size

R_1 y R_2 = sum of ranks for each group

n_1 y n_2 = respective sizes of each sample

Table 4
General descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Ktn	32 434	0.2242	0.2958	-0.8275	0.9974
Ktno	32 434	0.2907	0.2961	-0.7541	0.9962
Rco	32 434	7.2522	36.8241	0	993.0227
Pa	32 434	6.1142	35.3062	0	993.0227
Rotefe	32 434	235	1 507	0	66 719
Rotcar	32 434	18.8609	104.7902	0	2 273
Rotinv	32 434	13.8553	88.3505	0	7 546
Rotact	32 434	1.3299	1.9146	0	32.3600
Endt	32 434	0.5065	0.2834	0	2.0285
Efin	32 434	0.1268	0.1736	0	1.0292
Apt	32 434	3.9809	20.7581	-110.7808	405.5018
Apfin	32 434	4.9808	20.7581	-109.7808	406.5018
Roe	32 434	0.1128	0.5204	-21.2445	7.1953
Roa	32 434	0.0865	0.1751	-1.3694	2.4366
Marbru	32 434	0.4289	0.3416	-0.8209	1.0000
Marope	32 434	0.0301	1.0031	-20.9601	10.3886
Marnet	32 434	0.0458	1.4897	-26.2600	26.8139

Descriptive statistics Local GAAP					Descriptive statistics IFRS for SMEs				
Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max
16	0.2291	0.2913	-0.8275	0.9974	16 217	0.2193	0.3002	-0.8275	0.9974
16 217217	0.3653	0.2843	-0.6793	0.9962	16 217	0.2161	0.2888	-0.7541	0.9962
16 217	7.0398	35.1204	0	993.0227	16 217	7.4646	38.4522	0	993.0227
16 217	5.8798	33.5131	0	993.0227	16 217	6.3486	37.0120	0	993.0227
16 217	201.8470	1 355	0	66 719	16 217	267.5669	1 645	0	66 719

16 217	9.7101	51.8331	0	1 855	16 217	28.0117	138.2335	0	2 273
16 217	13.1386	93.1354	0	7 546	16 217	14.5719	83.2878	0	4 096
16 217	1.2286	1.4650	0	14.2879	16 217	1.4311	2.2727	0	32.3600
16 217	0.5013	0.2858	0	1.6058	16 217	0.5118	0.2809	0	2.0285
16 217	0.1473	0.1816	0	1.0292	16 217	0.1064	0.1627	0	0.9194
16 217	4.2258	21.2007	-37.5625	405.5018	16 217	3.7361	20.3036	-110.7808	405.5018
16 217	5.2257	21.2007	-36.5625	406.5018	16 217	4.7360	20.3036	-109.7808	406.5018
16 217	0.0968	0.3885	-4.5498	6.5407	16 217	0.1288	0.6247	-21.2445	7.1953
16 217	0.0720	0.1240	-1.3694	2.1281	16 217	0.1010	0.2133	-1.3694	2.4366
16 217	0.4272	0.3415	-0.8209	1	16 217	0.4306	0.3417	-0.8209	1
16 217	-0.0038	1.0022	-20.9601	1	16 217	0.0641	1.0028	-20.9601	10.3886
16 217	0.0622	1.5332	-26.2600	26.8139	16 217	0.0293	1.4448	-26.2600	26.8139

Source: created by the authors

The accounting regulation applied for the study was taken as an independent variable, and the 17 financial indicators were calculated as dependent variables. When conducting an analysis grouped by standard, similar results were found to those obtained by Blanchette, Racicot, and Girard (2011) and Jin (2017) in Canada, suggesting that most ratios have significantly higher volatility calculated under IFRS than CGAAP. For the Colombian case, according to the results of this research, the liquidity, indebtedness, and profitability indicators calculated under IFRS for SMEs showed greater standard deviation concerning those calculated under local GAAP, being more evident in the current ratio, acid test, total leverage, financial leverage, return on equity, return on assets, operating margin, and net margin. The efficiency indicators showed the opposite result, with the highest variation being in portfolio turnover and inventory.

Results

The analysis was conducted by financial indicator, group (liquidity, turnover, indebtedness, and profitability), and economic sector. The KTNO had statistically significant differences concerning implementing IFRS for SMEs in all the sectors studied with a p-value of 1 %, except for the Electricity_gas sector. The results of the other financial liquidity indicators presented dissimilar results, so a specific trend could not be demonstrated. Nevertheless, the analysis by sector indicates that Agriculture_fishing, Industrial, Commercial, Hotel_restaurant, and Financial presented statistically significant differences,

most of them at 1%, in three of the four financial liquidity indicators (especially KTNO) (Table 5). In this regard, Guevara *et al.* (2018) analyzed the telecommunications sector, concluding that the regulation change presented no significant changes in liquidity indicators. This study concludes the same as well.

Regarding the group of turnover indicators, the results are also dissimilar, but some sectors presented statistically significant differences, generally at 1 %, in three of the four indicators: Agriculture_Fishing, Construction, Commercial, Financial, and Real Estate. In the Industrial sector, they were present in this group's financial indicators, all at 1%, showing a relevant effect. The Hotel_restaurant, Professional_consulting, and Education sectors also showed some differences, but only in 2 turnover indicators.

Regarding the indebtedness indicators, the findings show that they presented fewer changes; the EFIN stands out, showing statistically significant differences at 1% in 6 of the economic sectors (Agribusiness_fishing, Industrial, Construction, Commercial, Hotel_restaurant, and Real Estate) and at 5% in the Health sector. For the ENDT, the Agricultural_fishing sector stands out with a value of 5 %, and the Financial and Real Estate sectors with a value of 1 %. In the analysis of the sectors, Real Estate showed statistically significant differences at 1% in the 4 indicators, followed by Finance with effects in 3 indicators, although not as significant as in Real Estate.

Concerning the group of profitability indicators, none of them shows a specific trend, and the MARBRU stands out with statistically significant effects, most of them at 1%, in 8 of the economic sectors (Agricultural_fishing, Industrial, Construction, Commercial, Information_communication, Financial, Real Estate and Professional_consulting), and differences at 5% in 2 sectors (Hotels_restaurant and Education). Likewise, the MAROPE presented effects at 1% in 4 sectors (Agriculture_fishing, Commercial, Transport_storage, and Real estate) and implications at 5% in 2 sectors (Financial and Administrative_Services). By sectors, the results again highlight the Real Estate sector with statistically significant differences at 1% in the 5 profitability indicators, followed by the Commercial sector with effects also at 1% in 4 of the indicators, and the Agricultural_Fishing, Industrial, Construction, and Financial sectors in 3 indicators.

Table 5
Results of the Mann-Whitney U-test application

Economic Sectors	Obs.	Ktn	ktno	Rco	pa	rotefe	rotcar	rotinv	rotact
Agriculture_fishing	1 022	0.0719	0.0000**	0.0217*	0.0082**	0.7599	0.0001**	0.0000**	0.0205*
Mining	259	0.2650	0.0000**	0.3846	0.3613	0.9460	0.0010**	0.3120	0.3771
Industrial	2 453	0.0005**	0.0000**	0.0727	0.0222*	0.0000**	0.0056**	0.0000**	0.0000**
Electricity_gas	22	0.6727	0.4248	0.7963	0.7424	0.4313	0.9438	0.6259	0.9813
Water_sanitation	28	0.4126	0.0006**	0.3851	0.1899	0.3377	0.2041	0.5654	0.3295
Construction	1 872	0.5283	0.0000**	0.6957	0.3615	0.0071**	0.0002**	0.0079**	0.3408
Commercial	4 678	0.0026**	0.0000**	0.5424	0.0404*	0.0000**	0.3582	0.0000**	0.0000**
Transportation_storage	357	0.4286	0.0000**	0.7008	0.7358	0.0322*	0.7152	0.7505	0.3682

Hotel_restaurant	332	0.0225*	0.0000**	0.0328*	0.0557	0.0019**	0.0034**	0.7560	0.2120
Information_communication	432	0.3399	0.0000**	0.1367	0.2094	0.0006**	0.1853	0.1752	0.1368
Financial	762	0.0011**	0.0000**	0.6591	0.6653	0.0048**	0.0000**	0.0757	0.0000**
Real Estate	1 744	0.0660	0.0000**	0.0939	0.1450	0.0018**	0.0000**	0.1271	0.0000**
Professional_consultancies	1 298	0.8476	0.0000**	0.4173	0.6158	0.1248	0.0000**	0.3399	0.0315*
Administrative_services	668	0.1357	0.0000**	0.3200	0.3086	0.0173*	0.2275	0.2509	0.1760
Education	84	0.6547	0.0000**	0.5134	0.6207	0.0205*	0.0278*	0.7086	0.3131
Health	60	0.6726	0.0002**	0.2547	0.2636	0.7991	0.4884	0.8871	0.4818
Recreation	62	0.4240	0.0000**	0.5047	0.4810	0.4283	0.2986	0.9507	0.1007
Other_services	84	0.6777	0.0000**	0.9191	0.9583	0.2682	0.5362	0.5367	0.9292

	endt	Efin	apt	Apfin	roe	roa	marbru	marope	marnet
Agriculture_fishing	0.0431*	0.0000**	0.1181	0.1181	0.3599	0.0000**	0.0010**	0.0000**	0.6846
Mining	0.5330	0.1286	0.9855	0.9855	0.6029	0.1140	0.0896	0.2727	0.4852
Industrial	0.1743	0.0000**	0.3111	0.3111	0.0018**	0.0000**	0.0003**	0.4745	0.7248
Electricity_gas	0.4960	0.0887	0.4960	0.4960	0.6056	0.8144	0.5259	0.6053	0.7070
Water_sanitation	0.6941	0.2028	0.3941	0.3941	0.8698	0.7555	0.5280	0.8441	0.5443
Construction	0.4044	0.0039**	0.2511	0.2511	0.0041**	0.1556	0.0000**	0.8947	0.0027**
Commercial	0.9749	0.0000**	0.3013	0.3013	0.0000**	0.3637	0.0000**	0.0000**	0.0079**
Transportation_storage	0.7667	0.1118	0.9711	0.9711	0.0512	0.0253*	0.5337	0.0014**	0.2468
Hotel_restaurant	0.3512	0.0000**	0.9958	0.9958	0.5118	0.7062	0.0145*	0.9103	0.6452
Information_communication	0.2767	0.2001	0.9296	0.9296	0.2351	0.9604	0.0021**	0.8646	0.4120
Financial	0.0048**	0.8099	0.0176*	0.0176*	0.5204	0.0000**	0.0000**	0.0486*	0.0002**
Real Estate	0.0001**	0.0049**	0.0001**	0.0001**	0.0013**	0.0000**	0.0000**	0.0010**	0.0019**
Professional_consultancies	0.2408	0.1131	0.7723	0.7723	0.1986	0.1006	0.0000**	0.7014	0.0073**
Administrative_services	0.7132	0.1032	0.5016	0.5015	0.8960	0.2960	0.5579	0.0130*	0.2084
Education	0.8304	0.3947	0.7511	0.7511	0.9646	0.5351	0.0233*	0.1567	0.0589
Health	0.9916	0.0169*	0.9916	0.9916	0.3199	0.9310	0.6080	0.2408	0.9853
Recreation	0.4687	0.0535	0.4687	0.4687	0.2504	0.4702	0.4033	0.8221	0.1610
Other_services	0.7475	0.9757	0.7487	0.7487	0.6274	0.7765	0.6841	0.6731	0.4666

** p<0.01, *p<0.05
Source: created by the authors

In general, the financial indicators that presented the most statistically significant differences by economic sector were: KTNO (17 sectors, all with p-value at 1 %), ROTEFE (10 sectors, 7 with p-value at 1 %), MARBRU (10 sectors, 8 with p-value at 1 %), ROTCAR (9 sectors, 7 with p-value at 1 %), EFIN (7 sectors, 6 with p-value at 1 %), ROTACT (6 sectors, 4 with p-value at 1 %), and MAROPE (6 sectors, 4 with p-value at 1 %). Regarding the sectors, the Electricity_gas sector was the only one with no significant differences, while the Real Estate sector was the one with the highest number of significant differences, registering 13 of the 17 indicators analyzed, followed by Financial (12), Commercial (11), Industrial (11), Agriculture_fishing (11), Construction (8) and Hotel_restaurant (7). The rest presented significant differences in 5 or fewer indicators. Finally, the greatest statistically meaningful impact generated by sectors was reflected in the group of turnover indicators (40.3%), followed by liquidity (36.1%), profitability (33.3%), and indebtedness (19.4%). Thus, the results do not enable complete confirmation of the hypothesis put forward.

Conclusions

In order to favor business, financial, and decision-making processes, the accounting homogenization process has expanded from IFRS, covering 167 countries out of the 193 as established by the United Nations Organization. This process has triggered a series of investigations worldwide, seeking to answer all the changes presented, reflecting points in favor and against such regulations or harmonization processes. Nevertheless, given the notable increase in followers, it is important to enrich this process with the results of the investigations on this matter and the solutions that emanate from them.

Any change will always generate crisis or reluctance from those who are affected. In Colombia, since 2015, organizations have been forced to change local accounting regulations characterized by some principles that no longer responded to the new business realities to be visible internationally and to handle the same accounting and financial language. Nevertheless, the process was not easy, resulting in many companies reporting their accounting figures under IFRS several years after being obligated to do so.

Given the above, it was important to carry out this research based on previous reviews of the changes that could be predicted regarding accounting and financial information, and the analysis that could be conducted on it. This analysis shows impacts in some of the financial indicators analyzed, while in others, it was null. According to Abad *et al.* (2017), this can be explained by the degree of similarity between IFRS and previous local GAAP. The mixed results are in line with the findings of Guevara *et al.* (2018).

Turnover indicators proved to have the greatest impact regarding the regulation change, followed by liquidity, profitability, and indebtedness. The main reason is the change in accounting principles for recognizing revenue from ordinary activities, including or excluding some asset items, and accounting of contingent liabilities (Callao, Jarne, & Laínez, 2007). The results do not confirm the findings of Daske et al. (2008) about liquidity indicators.

It was also concluded that the Real Estate sector was the most affected by the regulatory change, followed by the Financial, Commercial, Industrial, Agricultural_fishing, Construction, and Hotel_restaurant sectors. Thus, the importance of planning a new accounting and financial management based on new ways of measuring or recognizing the different facts and accounting transactions can be derived. These changes condition not only the analysis conducted on the financial information but also the decision-making process based on them since the change in liquidity indicators conditions or modifies the company's decisions regarding working capital requirements.

In IFRS for SMEs, a model based on principles and not on rules, the use of cash is affected by restrictions not contemplated in the local standard and the reclassification presented in some elements of the financial statements, for example, the recognition of property, plant, and equipment assets as

investment property, a topic not known in the Colombian accounting standard, or the estimation of the costs of dismantling, removal of elements and rehabilitation of the place where assets such as machinery and industrial equipment that may affect the environment operated.

Likewise, the variation in the results of the indebtedness indicators changed the parameters for making leverage decisions, so it is advisable to replicate studies that analyze the behavior of this aspect before and after implementation, as Beiruth *et al.* (2017) suggested.

On the other hand, when some variables involved in calculating profitability indicators are modified, investors' decisions will be affected. Indeed, if the results of the financial indicators change, the evaluation criteria must be reconsidered and adjusted above or below the previous ones.

This article provides a basis for research in countries where the IFRS implementation process is being put together, is under consideration, or has not been considered. In this regard, out of the 167 jurisdictions under consideration under IFRS, 86 require or enable IFRS for SMEs, 11 currently have the regulation under consideration, and 70 do not use it or have it under consideration. This situation is the case in countries in the American Continent, such as Mexico, the United States, Canada, Cuba, Haiti, and Bolivia where the regulation for SMEs is not yet mandatory or enabled. In the case of Africa, 20 countries have implemented IFRS.

As for Europe, only 7 have made implementation mandatory, and 2 have considered the process. In Asia, 21 have implemented it, and 8 jurisdictions are considering the process. Similarly, it is important to analyze the impact of the implementation of the regulation in order to identify whether such changes also originate in countries with similar economic dynamics. As Ball (2016) states, despite the substantial increase in globalization, local forces will continue to influence the actual practice of financial reporting. Thus, given the diversity in economic and institutional development across countries, the expected economic benefits of IFRS adoption may not be equally compelling for all countries. According to sociological institutionalism, the search for legitimacy is likely to be at least as important as the economic argument (Chua & Taylor, 2008).

Finally, considering that SMEs have been affected by a series of factors that curtail their presence in the market, it is necessary to study the effects caused by the entry into force of a new regulation on the indicators based on which multiple decisions are made. Future research aims to study the trend followed by financial indicators since implementing IFRS for SMEs and how the market has adapted its decision-making criteria to this new accounting reality.

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