# Transparency in utility companies listed in Latin America: Online financial disclosure

Carlos Augusto Rincón-Soto[1]
Universidad del Valle
carlos.augusto.rincon@correounivalle.edu.co

Mauricio Gómez-Villegas[2]
Universidad Nacional de Colombia
mgomezv@unal.edu.co

Yaismir Adriana Rivera-Arrubla[3]
Universidad del Valle
yaismir.rivera@correounivalle.edu.co

**Cómo citar este artículo:** Rincón-Soto, C.A.; Gómez-Villegas, M.; Rivera-Arrubla, Y.A. (2023). Transparency in utility companies listed in Latin America: Online financial disclosure. *Revista Escuela de Administración de Negocios*, (95), (páginas). DOI: https://doi.org/10.21158/01208160.n95.2023.3756

## Abstract

This paper aims at examining financial information disclosure practices by utility Companies (UCs) listed in México, Chile, Colombia, and Perú, and identify online financial information disclosure determinants. This study employed a sample of 70 listed UCs, and an Internet Financial Information Index (IFI) appropriate for the UC industry's particularities. Furthermore, a multivariate analysis by ordinary least squares is performed to identify the determinants behind the IFI disclosure results. The results show that listed UCs display an average of 67.9% IFI disclosure. The company *size* and *return on equity* variables showed a positive and meaningful relationship with IFI, while *indebtedness* and *return on assets* showed a significant yet negative relationship with it.

**Keywords:** Online financial reports; disclosure; multivariate analysis; utility companies.

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

[1]Associate Professor. Universidad del Valle, Colombia. Public Accountant and Master in Accounting. Universidad del Valle, Colombia. Master in Project Management. Universidad Iberoamericana. PhD student in Administration. Universidad del Valle, Colombia. Consultant in IFRS. ORCID: https://orcid.org/0000-0003-4710-5558

[2]Professor at the School of Administration and Public Accounting. Universidad Nacional de Colombia. Public Accountant and Master in Administration. Universidad Nacional de Colombia. Master in Accounting, Auditing and Management Control. Universidad de Valencia, España. PhD in Accounting Universidad de Valencia, España ORCID: https://orcid.org/0000-0001-9043-6358

[3]Associate Professor. Universidad del Valle, Colombia. Public Accountant and Master in Organizational Sciences. Universidad del Valle, Colombia. PhD in Accounting at the Universidad de Valencia, España. Member of the New Administrative Thinking group. Universidad del Valle, Colombia. ORCID: https://orcid.org/0000-0002-8538-4925

# Transparencia en las empresas de servicios públicos que cotizan en América Latina: Divulgación financiera en línea

**Resumen**

Este documento tiene como objetivo examinar las prácticas de divulgación de información financiera de las empresas de servicios públicos (ESP) que cotizan en México, Chile, Colombia y Perú, e identificar los determinantes de la divulgación de información financiera en línea. Este estudio empleó una muestra de 70 ESP listadas, y un Índice de Información Financiera de Internet (IFI) apropiado para las particularidades de la industria ESP. Además, se realiza un análisis multivariado por mínimos cuadrados ordinarios para identificar los determinantes detrás de los resultados de la divulgación de las IFI. Los resultados muestran que las ESP listadas muestran un promedio de 67.9% de divulgación de IFI. Las variables tamaño de la empresa y rentabilidad sobre el patrimonio mostraron una relación positiva y significativa con el IFI, mientras que el endeudamiento y la rentabilidad sobre los activos evidenciaron una relación significativa, pero negativa con este.

**Palabras clave:** informes financieros en línea; divulgación; análisis multivariado; empresas de servicios públicos.

**********************************************************************************************************

# Transparência nas empresas de serviços públicos listadas na América Latina: divulgação financeira online

**Resumo**

Este documento tem como objetivo examinar as práticas de divulgação de informações financeiras por empresas de serviços públicos (ESP) listadas no México, Chile, Colômbia e Peru, e identificar determinantes de divulgação de informações financeiras on-line. Esse estudo empregou uma amostra de 70 ESP listadas e um Índice de Informações Financeiras da Internet (IFI) apropriado para as particularidades do setor de ESP. Além disso, é realizada uma análise multivariada pelos mínimos quadrados ordinários para identificar os determinantes subjacentes aos resultados da divulgação das IFI. Os resultados mostram que as ESP listadas apresentam uma média de 67,9% de divulgação de IFI. As variáveis *tamanho* da empresa e *retorno* sobre o *patrimônio* apresentaram uma relação positiva e significativa com o IFI, enquanto o *endividamento* e o *retorno* sobre os ativos mostraram uma relação significativa, porém negativa, com o índice.

**Palavras-chave:** relatórios financeiros on-line; divulgação; análise multivariada; empresas de serviços públicos.

**********************************************************************************************************

# Transparence des entreprises de services publics cotées en Amérique latine : divulgation financière en ligne

**Résumé**

Cet article vise à examiner les pratiques de divulgation de l'information financière en ligne des entreprises de services publics (UC) cotées au Mexique, au Chili, en Colombie et au Pérou, ainsi qu'à identifier les déterminants de cette divulgation. L'étude repose sur un échantillon de 70 UC cotées en bourse et utilise un Indice de l'Information Financière en Ligne (IFI), adapté aux spécificités du secteur des services publics. En outre, une analyse multivariée par moindres carrés ordinaires a été réalisée afin d'identifier les déterminants associés aux résultats de divulgation mesurés par l'IFI. Les résultats indiquent que les UC cotées divulguent en moyenne 67,9 % de l'information définie par l'IFI. Les variables de taille de l'entreprise et de rendement des capitaux propres présentent une relation positive et significative avec l'IFI, tandis que l'endettement et le rendement des actifs montrent une relation significative mais négative avec cet indice.

**Mots-clés :** rapports financiers en ligne; divulgation; analyse multivariée; entreprises de services publics.

*********************************************************************************************************

# 1. Introduction

Financial information disclosure on the internet (IFI) is a mechanism whereby companies materialize their commitment to improving transparency to stakeholders ( Lu *et al.,* 2023; Moreno-Enguix *et al*., 2019; Yassin, 2017). Transparency is usually defined as the willingness to make the management, decisions, and other internal organizational information visible to outsiders (Hood, 2010; Pina & Torres, 2019); and Montesinos (2009) sustain that disclosing financial information over the internet improves transparency and accountability.

Alali and Romero (2012), Caba Pérez *et al.* (2008), among others, suggest that the level of access to information on the internet increases perceived trustworthiness in all *stakeholders.* For this reason, results from multiple studies have indicated that the disclosure practices of financial and non-financial reports through the internet impact the perception of corruption by promoting greater accountability, transparency, trust, and reduction of information asymmetries in companies (Leão Lyrio *et al*., 2018; Ojah & Mokoaleli-Mokoteli, 2012).

Another strategy to improve companies' transparency before *stakeholders* is homogenization and adopting international financial reporting standards (IFRS), which promise to improve information reliability and comparability across countries, economic

sectors, and business activities (Hellman *et al*., 2018; IASB, 2019). Nevertheless, Cieslewicz (2014) states that the implementation of these standards has not been homogeneous concerning financial information, as it depends on cultural and institutional mediation. Some academic studies have shown corporate transparency levels to be better in developed countries than in emerging ones (La Porta *et al*., 1998).

Biondi (2018) asserts that not all economic and business sectors are homogeneous and that standardized financial information might ignore the needs of some *stakeholders.* This would be the case of Utility companies (UCs), which provide a service of public interest and are regulated and monitored by the State and demand key financial information for setting rates, as well as for inspection and surveillance.

The projection, regulation, inspection, and monitoring of prices, quality, and coverage in the supply of Utility Services (USs) such as power, gas, telephony, aqueduct, sewerage, and sanitation, have been fundamental for countries' social and economic wellbeing (Naciones Unidas & CEPAL, 1999; Vélez *et al*., 2011). Given the importance of UCs, information transparency and disclosure should enable any knowledgeable enough citizen to contrast and challenge the grounds whereby USs regulated rates are established (Galetovic & Sanhueza, 2002). However, these processes remain opaque or inaccessible to citizens on many an occasion.

Due to the considerable economic power UCs, they often have the necessary capacity to influence state decisions to the detriment of the public interest (Boehm, 2005; Laffont & Tirole, 2001; Tirole, 2017; Viveros Zuazo, 2015; Rincón-Soto, Gomez-Villegas, 2021). Emerging countries are the ones that suffer the most from corruption, fraud, and bribery, given their weak formal and informal institutions (Hodgson & Jiang, 2008; Salama & Valier, 1995). Therefore, gearing information transparency and disclosure towards regulators or the State does not suffice, for all users must be encompassed if it is to be directed towards a democratic sense (Leão Lyrio *et al*., 2018). Thus, using the internet to give UCs information could increase transparency for all stakeholders.

Per the above, the aim of this study is to provide empirical evidence on the use UCs listed in Mexico, Chile, Colombia, and Peru make of internet to disclose financial information, identifying such companies' online financial information dissemination levels and explanatory variables. To achieve this aim, a multivariate analysis approach using ordinary least squares was employed to identify the determinants of the results of the Internet Financial Information (IFI) disclosure index in utility companies listed in Mexico, Chile, Colombia, and Peru in 2020. The study was based on an IFI adapted to the specific characteristics of the utility industry in the mentioned countries, enabling a precise evaluation of online financial information disclosure by the analyzed utility companies.

The countries studied make up the Pacific Alliance; an integration formed to promote economic and social development in the region. Furthermore, they are part of the Latin American Integrated Market (MILA), one of the most important stock market agreements in Latin America. Likewise, these countries have encouraged listed companies to implement IFRS (Chile since 2008, Peru since 2010, Mexico since 2012, and Colombia since 2015 (Mongrut & Winkelried, 2019). Consequently, their stock market integration, as well as their accounting, economic and social environments, place them in an exciting research context.

This paper is divided into seven sections to achieve the above-stated aim: this introduction being the first one. The second section presents a literature review, while the third gathers the theoretical framework and research hypotheses. The fourth section outlines the research design and methodology, and the fifth section contains the results. In section six, there will be discussions, and, lastly, section seven will display the conclusions.

## 2. Literature review

There is a wide range of literature linking Information and Communication Technologies (ICT) with private and public companies' information transparency and disclosure (Leão Lyrio *et al*., 2018; Montesinos, 2009; Pathak *et al*., 2009; Ríos Ramírez & Garro, 2017). Some of these works also suggest a relationship between dissemination on the internet and

decreased corruption (Leão Lyrio *et al.*, 2018; Shim & Eom, 2008; Zhao & Xu, 2015). Other investigations suggest a connection between accounting information and transparency (Caba Pérez *et al.*, 2008; Pivac *et al.*, 2017). For his part, Montesinos (2009) affirms that, presently, it is not possible to speak of transparency without the visualization of information through the internet.

Ashaye and Irani (2019) demonstrate a positive and significant relationship between government entities posting financial information on the internet and decreased corruption. Thus, the more *e-government is at play, the* less corrupt a country's government will be (Garcia-Murillo, 2013; Shim & Eom, 2008).

Alali and Romero (2012) examined the factors affecting online Financial and Non-Financial Information disclosure (hereinafter FI & NFI) in companies listed on the Buenos Aires Stock Exchange and found that companies only met 24% of their information requirements. In addition, they stated that company size had a positive and meaningful relationship with FI & NFI. Meanwhile, the company performance and growth variables showed a negative, albeit significant, relationship with FI & NFI disclosure. Likewise, they highlight that the effect of hiring a Big 4 was not significant.[4] These results are similar to Bowrin's (2015), who examined the determinants underpinning FI & NFI in companies listed in the Caribbean stock market. In this case, the author found that most of these companies are present on the internet and only fulfilled 63% of their compliance indicators. The author also found that the variables company size and government ownership interest significantly and positively related to the results.

Regarding the study of IFIs determinants, Andrikopoulos, *et al.* (2013), addressed these indexes' relationship with profitability and financial structure in the maritime transport industry and found company size, leverage, and corporate performance as the main determinants behind IFIs. Pinto and Ng Picoto (2016) analyze the impact of IFIs in 78 UK non-financial companies and find a positive and significant relationship between company age, risk combinations, company size, and IFIs. Likewise, Dolinšek and Lutar-Skerbinjek

---

[4] The four largest auditing and accounting firms are commonly recognized as Big 4.

(2018) analyze the effects of IFI disclosure on listed companies in Slovenia and determine a meaningful relationship between company size, ownership concentration, and the industrial sector.

For McLaughlin and Safieddine (2008), regulated companies disclose information far more than unregulated companies. A critical issue for this study is that UCs perform in an industry regulated and supervised by the State since they provide services of general interest to the community.

### 3. Theoretical Framework and Hypothesis Formulation

The results of IFI studies are generally explained by the information asymmetry and agency theories (Ball, 2001; Hodge *et al.*, 2004; Leão Lyrio *et al.*, 2018; Mokhtar, 2017; Timm Rathke *et al.*, 2016). Those theories are related to each other. The theory of information asymmetry sustains that if any of the parties to a contract possesses more and better information, that party can use it for their own benefit, thereby affecting other stakeholders' interests (Akerlof, 2002; Ayala Espino, 1999; Kim, 1985; Löfgren *et al.*, 2002). In turn, the contractual relationship between UCs and users is commonly analyzed based on the agent-principal problem or agency theory, a situation where the agent takes advantage of the principal's information asymmetry and their privileged position in decision-making to engage in opportunistic behaviors against the principal (Ayala Espino, 1999; Boehm, 2005).

The regulated sector of UCs exhibits a variety of agency relationships (Ayala Espino, 1999): 1. the relationship between UCs and the government is akin to a principal-agent relationship: the company possesses better information about service provision operations, and the government must regulate, inspect and monitor those operations, but it has partial, sporadic information. 2. The relationship between government and citizens is also explainable through agency theory: society chooses its leaders to perform for its benefit, but it has highly asymmetrical information about its leaders' interests and ability, for its officials may be corrupt or incompetent in regulation, inspection, and surveillance processes. 3. The

relationship between UCs managers and shareholders, where shareholders give up control of decision-making so that managers (agents) operate based on the principals' interests; however, they can use their privileged position to engage in opportunistic behaviors for their self-benefit. 4. The relationship between shareholders can be referred to as a principal-agent problem, where the controlling shareholders can take advantage of the non-controlling shareholders.

Loch *et al.* (2018) assert that the principal-principal conflict is another agency problem arising in regulated companies, which occurs because the government, in addition to being a regulator, in many cases is also a shareholder (Young *et al.*, 2003), that is, it regulates itself, mediating the organization's decisions to the detriment of company value maximization in many cases, affecting the provision of services (Loch *et al.*, 2018; Young *et al.*, 2008).

### 3.1. Hypothesis

Per the academic literature, the following variables capable of explaining the IFI disclosure levels were identified: company size, profitability, leverage, and auditor quality. Likewise, this work has set itself to evaluate the variables controlling party's ownership interest, government ownership interest, and seniority since they could be determining for the study context.

#### 3.1.1. Company size

The positive and significant relationship between the *company size* and the *information disclosure on the internet* has been widely accounted for in the literature (Ahmed *et al.*, 2018; Arsov and Bucevska, 2017; Cárcaba García and García García, 2008; Mokhtar, 2017; Nassreddine, 2015), with few investigations not finding a significant relationship between these variables (Aly *et al.*, 2010). The background in the literature shows that larger companies are under greater information asymmetry between managers and shareholders. Hossain *et al.* (1995) sustain that agency costs can increase in larger companies, conducive to increased surveillance and inspection.

Furthermore, the impacts derived from large companies' potential opportunisms could be harder on shareholders and the country's economy, which would lead to further visibility and vigilance (Aksu & Kosedag, 2006; Hermalin & Weisbach, 2012). This could also lead the largest companies to work on improving their online information disclosure in seeking to reduce information asymmetry and increase investors' and regulators' confidence (Ahmed *et al.*, 2017; Cárcaba García & García García, 2008). Consequently, the following hypothesis is posited:

**H1**. There is a positive relationship between the *size* of UCs listed in Mexico, Chile, Colombia and Peru, and financial disclosure on the internet.

Even though most studies measure this variable using *the assets or fixed assets' value* (Alali & Romero, 2012; Xiao *et al.*, 2004), this study will employ the *natural logarithm of the value of property, plant, and equipment* (PP&E) since this variable is decisive to specify the size in the UC industry, given the required intensive investment in PP&E. In addition, service coverage, capacity, and quality are highly dependent on PP&E investments (Küpper & Pedell, 2016; Moreira Carvalho Andrade & Martins, 2017; Orellana Fuentes & Azúa Álvarez, 2017).

### 3.1.2. Profitability

The information asymmetry and agency theories suggest that companies with better results would be more greatly incentivized to disclose financial information on the internet (Aly *et al.*, 2010; Andrikopoulos *et al.*, 2013), which, in turn, could attract investment. In contrast, the managers from less profitable companies may be less incentivized to disclose information and would rather hide or delay bad news, leading to low levels of transparency (Aksu & Kosedag, 2006; Mazzi *et al.*, 2018). In contrast, the results by Ahmed *et al.* (2017) account for a negative but meaningful relationship with profitability. Andrikopoulos *et al.* (2013) produced an akin outcome, given the relationship between profitability and ownership interest concentration. Consequently, the influence of the profitability variable gives standing to the following hypothesis:

**H2.** There is a positive relationship between UCs listed in Mexico, Chile, Colombia, and Peru profitability and financial disclosure on the internet.

Following Al-Sartawi and Reyad (2019), Alali and Romero (2012), and Ashbaugh *et al*. (1999), profitability was measured using two variables: *return on assets* (ROA) and *return on equity* (ROE).

### 3.1.3. Leverage

According to agency theory, highly leveraged companies could be prone to higher agency costs (Ahmed *et al*., 2017; Jensen & Meckling, 1976), wherefore they would require reducing debt holders' information asymmetry to generate confidence about the level of risk. Therefore, we posit that more indebted companies disclose more information on the internet, with the purpose of revealing lenders the company's ability to meet its obligations (Andrikopoulos *et al*., 2013; Cárcaba García & García García, 2008). On the other hand, Arsov and Bucevska (2017) argue that highly indebted managers will choose not to disclose such information, thus posing a significant inverse relationship. Other studies such as those by Aly *et al*. (2010) and Aksu and Kosedag (2006) failed to find a relationship between leverage and information disclosure. The influence of leverage is conducive to the following hypothesis:

**H3.** There is a positive relationship between UCs listed in Mexico, Chile, Colombia, and Peru leverage and financial disclosure on the internet.

Leverage will be measured by dividing *total liabilities* over *total assets,* following Alali and Romero (2012) and Debreceny *et al.* (2002).

### 3.1.4. Auditor Quality

For Mongrut and Winkelried (2019), auditor quality is related to greater transparency. Quality is generally associated with the Big 4's reputation and experience in their services (Bananuka, 2019; Mongrut & Winkelried, 2019). Consequently, the audit conducted by these companies would be expected to be conducive to further information disclosure. For Alali and Romero (2012), the companies more prone to agency costs will choose to contract their

audit with a Big 4 company to display greater reliability and transparency to their shareholders and regulators. The influence of the auditor's quality leads to proposing the following hypothesis:

**H4.** There is a positive association between auditor quality in UCs listed in Mexico, Chile, Colombia and Peru, and financial disclosure on the internet.

Following Alali and Romero (2012), a dichotomous variable is proposed: it will take the value of 1 if the company is audited by a Big4 and zero otherwise.

### 3.1.5. Ownership Interest Percentage

For Andrikopoulos *et al*. (2013), highly dispersed ownership would lead to limited control by minority shareholders over management. Per the agency theory, managers may be incentivized to maintain more significant information asymmetry, gaining independence for themselves, and reducing third-party control. However, Alali and Romero (2012) believe that companies with greater minority ownership would be more likely to disclose more information to incentivize, sustain and increase shareholder investment. On the other hand, Eng and Mak (2003) and Arsov and Bucevska (2017) find an inverse relationship between majority ownership and information disclosure, suggesting that majority shareholders prefer less disclosure, given relevant owners' more straightforward access to information. For their part, Alali and Romero (2012) found that the companies with the most concentrated ownership had higher information disclosure. Given the influence of ownership interest, the following hypothesis is proposed:

**H5.** There is a positive relationship between the ownership interest in UCs listed in Mexico, Chile, Colombia and Peru, and financial disclosure on the internet.

Following Andrikopoulos *et al*. (2013), the ratio of *ownership interest* over that of *the largest shareholder* will be measured.

### 3.1.6. Government Ownership Interest

In Latin America, it not uncommon for the State to be a UC shareholder together with private parties (Millán, 2006; Sanclemente-Arciniegas, 2019). Some authors claim that a higher government ownership interest might hinder information disclosure, given that greater asymmetry of information enables opportunistic behaviors, political ties, and manipulation of books (Juhmani, 2017; Mohd Ghazali & Weetman, 2006). Per Eng and Mak (2003), agency costs are higher in companies with government participation. In principal-principal theory, the State's dual role can lead to different conflicts of interest, which generally negatively affect reliability for other users (Loch *et al.*, 2018; Young *et al.*, 2003). Given the above, the following hypothesis is posited:

**H6.** There is a negative relationship between government ownership interest in UCs listed in Mexico, Chile, Colombia and Peru, and financial disclosure on the internet**.**

The ratio *of government ownership interest* over the number of shares the different entities attached to the government own will be measured (Xiao *et al.*, 2004).

### 3.1.7. Company age

The company's age has been studied as an IFI determinant, stating that it is likely that older companies disclose more financial information than younger companies (Bowrin, 2015). Pinto and Picoto (2016) found a positive and significant relationship between age and IFI indicators. Similar results were reported by Aboutera and Hussein (2017). Given the above, the following hypothesis is posited:

**H7**. There is a positive relationship between the age of UCs listed in Mexico, Chile, Colombia and Peru, and financial disclosure on the internet.

Age will be measured as of the incorporation of the company up until 2020 (Bowrin, 2015).

For synthesis, Table 1 presents a description and the measurement strategy of the IFI explanatory variables for listed UCs in Mexico, Chile, Colombia, and Peru. Furthermore, it should be borne in mind that the financial variables are published in different currencies, which this study translated to dollars.

**Table 1.** Explanation of variables

| Abbreviation | Description | Measurement |
|---|---|---|
| IFI | Index of internet financial reporting | Total score for all thirty disclosure items |
| Size | Company size | PP&E Natural logarithm |
| Leverage | Leverage | Total liabilities over total assets |
| ROA | Profitability | Return on assets |
| ROE | Profitability | Return on equity |
| Big4 | Auditor quality | Big4= 1, non-Big4= 0 |
| Majority | Ownership concentration | Largest shareholder's shareholding |
| Gshare | Government ownership interest | Government ownership interest |
| Age | Company age | Years of the company |

**Source.** Author's own.

## 4. Research design and methodology

For this study, an Internet Financial Information Index (IFI) specifically designed for the particularities of the UC industry was used. To identify the determinants of the performance of the IFI disclosure index, a multivariate analysis was carried out using the ordinary least squares (OLS) technique.

The study population consists of UCs listed on the stock exchanges of Mexico, Chile, Colombia, and Peru, in 2020 that also provide their services in the listed country. The listed UCs were chosen because they were under the surveillance of the capital markets control entities and because these are the ones more likely to be holding the most information and leading the disclosure processes in these countries (Fuertes-Callén *et al.*, 2014). Among the listed companies, there are private, mixed, and public companies. The latter are listed

because they issue debt securities. In Colombia and Peru, all Ucs are listed on the capital market and provide services in the country of listing. On the other hand, in Mexico and Chile, there are listed UCs providing their services in the country and UCs that do not provide their services in the countries; therefore, the latter are not part of the sample.

According to the established criteria, 74 UCs were found, of which a Peruvian company that had listed the provision of utility services in its statutes was ruled out because its financial information only accounted for financial income from UC shareholding. On the other hand, 2 of the companies in the initial sample were unlisted in mid-2019; another company in Peru had to be ruled out for failing to publicly disclose its financial information, making it impossible to obtain the data necessary to identify the independent variables. Thus, in the end, the analyzed sample consists of 70 listed UCs.

No sanitation services companies were found in the sample. Listed power and gas services companies make up most of the sample, which happens in Peru, Colombia, and Chile, unlike Mexico, where the provision of power services is mostly a state monopoly.

Table 2 presents the number of UCs by country, classified according to the service regarded as their primary source of income.

**Table 2.** Distribution of UCs in the study countries

| | | Service | | | | |
|---|---|---|---|---|---|---|
| | | Water | Power | Gas | Communications | **Total** |
| Country | Chile | 3 | 13 | 2 | 2 | **20** |
| | Colombia | 0 | 10 | 6 | 2 | **18** |
| | Mexico | 1 | 3 | 1 | 4 | **9** |
| | Peru | 2 | 18 | 2 | 1 | **23** |
| **Total** | | **6** | **44** | **11** | **9** | **70** |

**Source.** Author's own.

In order to establish and compare UCs' degree of financial information disclosure in the countries analyzed, an Internet Financial Reporting index (IFI) was designed, based on previous research on the subject (Ahmed *et al.*, 2017; Aly *et al.*, 2010; Andrikopoulos *et al.*,

2013; Ariff *et al*., 2018; Bananuka, 2019; Cárcaba García & García García, 2008; Kelton & Yang, 2008; Nassir Zadeh *et al*., 2018; Nurunnabi & Hossain, 2012; Ojah & Mokoaleli-Mokoteli, 2012; Pinto & Ng Picoto, 2016; Rincón-Soto, Gómez-Villegas, Rivera-Arrubla, 2021).

The index encompasses three dimensions (Nurunnabi & Hossain, 2012; Serrano-Cinca *et al*., 2007): 1. Financial Information Content in the Reports (FIC), 2. Other Financial Information (OFI), 3. Navigability, Design, and Access (NDA). Each dimension is made up, in turn, of ten items that are given a dichotomous rating of 1 if the evaluated element is present or 0 if there is no information about it. Thus, the index values may range between 0 and 30. In concurrence with the generality of the research on IFI and probity in data presentation, an unweighted index was chosen (Bowrin, 2015).

Regarding the sub-indexes that make up the IFI, the FIC dimension determines the degree of disclosure of financial information in the 2019 reports released in 2020. For its part, the OFI dimension determines the extent to which other financial information is present (Nurunnabi & Hossain, 2012). This dimension was designed by identifying specific information elements necessary for financial analyzes, which should be available to different UCs users. Finally, the NDA dimension determines the degree of accessibility, navigability, and information management on the company's *website* (Gómez-Villegas & Montesinos Julve, 2014). The sum of those three dimensions comprises the IFI index.

For hypotheses testing, an ordinary least squares (OLS) regression method was used to explain one variable's behavior with respect to others and estimate its influence level (Bananuka, 2019; Weaver & Wuensch, 2013). In addition, three IFI regression models were executed: The first one using all the independent variables in the hypotheses, and the other two were based on the *Backward linear multivariate regression model* (Andrades *et al*., 2019). The proposed models are detailed below.

**Model 1**

IFI =β0 + β1Size + β2Leverage+ β3ROA + β4ROE + β5Big4 + β6Majority + β7Gshare + β7Age + e

**Model 2**

IFI =β0 + β1Size + β2Leverage+ β3ROA + β4ROE + β5Gshare + β6Age + e

**Model 3**

IFI =β0 + β1Size + β2Leverage + β3ROE + β4Age + β5Gshare + e

## 5. Results

Table 3 shows the IFI results, including the frequency and UCs listed in the countries studied average disclosure rate. Regarding the FIC dimension, the listed UCs show an outstanding rate. The average rate of item disclosure is 81.86%, while the items with the lowest disclosure rates are the notes to the operating segments and management's certification of the financial statements: 35.71% and 47.14%, respectively. These results attest to UCs have a favorable internet disclosure of the information contained in their annual financial statements.

The results show a similar disclosure behavior for the OFI and NDA dimensions; the disclosure of other financial information (OFI), necessary for analysis by different users, displays an average rate of 61.57%. The items with the lowest disclosure rate correspond to the information regarding period rates and previous years' rates: 32.86% and 17.14%, respectively. Likewise, the item on quality indicators in the provision of services is at 38.57%. These figures attest to UCs' lack of interest in transparency in disclosing key information for users other than investors. Likewise, the results on the NDA dimension show an average disclosure rate of 60.43%. In this case, the lowest-rated items were the presentation of financial statements in different formats and various languages: 27.14% and 31.43%, respectively.

**Table 3.** IFI index design, criteria, and scores

| FIC | Financial information content provided in financial reports | Frequency | % disclosing |
|---|---|---|---|
| CIF_01 | Certification of financial statements by management | 33 | 47.14% |
| CIF_02 | Statement of financial position | 66 | 94.29% |
| CIF_03 | Income statement | 65 | 92.86% |
| CIF_04 | Other reporting period comprehensive result | 61 | 87.14% |
| CIF_05 | Cash flow statements | 65 | 92.86% |
| CIF_06 | Change in equity statement | 65 | 92.86% |
| CIF_07 | Accounting policies for the recognition and measurement of accounting items | 65 | 92.86% |
| CIF_08 | Notes to the financial statements | 65 | 92.86% |
| CIF_09 | Notes to operating segments | 25 | 35.71% |
| CIF_10 | Audit report to the financial statements | 63 | 90.00% |
| | | $\bar{x}$ FIC | **81.86%** |
| OFI | Other financial information outside the financial statements | Frequency | % disclosing |
| OIFI_1 | Annual report or management report | 60 | 85.71% |
| OIFI_2 | Annual report or management report for the two prior periods | 45 | 64.29% |
| OIFI_3 | Financial statements for the two prior periods released | 57 | 81.43% |
| OIFI_4 | Disclosure of interim reports (quarterly, semi-annual) | 54 | 77.14% |
| OIFI_5 | Information on ownership structure | 62 | 88.57% |
| OIFI_6 | Report of rates for the year released | 23 | 32.86% |
| OIFI_7 | Reports of rates for prior years released | 12 | 17.14% |
| OIFI_8 | Report on operational indicators | 39 | 55.71% |
| OIFI_9 | Report on financial indicators | 52 | 74.29% |
| OIFI_10 | Report on management indicators on service provision | 27 | 38.57% |
| | | $\bar{x}$ OFI | **61.57%** |
| NDA | Navigability, design, and access | Frequency | % disclosing |
| NDA_1 | There is a section for financial information on the website | 62 | 88.57% |
| NDA_2 | Financial information is available in different formats | 19 | 27.14% |
| NDA_3 | Selection design and search in the Financial Statements | 54 | 77.14% |
| NDA_4 | Financial reports are available in multiple languages | 22 | 31.43% |
| NDA_5 | There is a frequently asked questions section | 39 | 55.71% |
| NDA_6 | Press releases | 50 | 71.43% |
| NDA_7 | The website has a site map | 38 | 54.29% |
| NDA_8 | There is an email address to contact the company | 56 | 80.00% |
| NDA_9 | There is an online comment form available on the website (Contact us, chat) | 47 | 67.14% |
| NDA_10 | There is a search button | 36 | 51.43% |
| | | $\bar{x}$ NDA | **60.43%** |

**Source.** Author's own.

Table 4 presents the descriptive statistics of the variables used in the models. The disclosure scores for the IFI dependent variable range between 2 and 27 (30 being the highest possible value), and a mean of 20.38, equivalent to an average IFI disclosure of 67.9%. The *Gshare* variable is skewed to the right since the mean is 20.55% and the median is below 1%. The mean of the *Majority* variable shows that ownership interest in the listed UCs of the study countries is highly concentrated (70.98%). For its part, indebtedness is between a 15% minimum and a 93% maximum, with an average of 52.39%. The foregoing shows that UCs' indebtedness is above 50% of their assets' worth. Also, the behavior of the quality of the auditor variable points out that most (94%) UCs employed a *Big4* auditor.

**Table 4.** Descriptive statistics for the dependent and independent variables

| Variable | Min | Max | Mean | Median | SD |
|---|---|---|---|---|---|
| IFI | 2.00 | 27.00 | 20.3857 | 21.0000 | 4.79823 |
| % IFI | 6.67% | 90.00% | 67.95% | 70.00% | 15.99% |
| Age | 3 | 164 | 47.11 | 31.50 | 38.632 |
| Big4 | 0 | 1 | 0.94 | 1.00 | 0.234 |
| Majority | 0.13 | 1.00 | 0.7098 | 0.6863 | 0.25671 |
| Gshare | 0.00 | 1.00 | 0.2055 | 0.0000 | 0.37416 |
| Size | 5.09 | 10.81 | 8.5830 | 8.8436 | 1.08981 |
| ROA | -0.07 | 0.40 | 0.0649 | 0.0578 | 0.06290 |
| ROE | -0.61 | 0.62 | 0.1283 | 0.1306 | 0.15359 |
| Leverage | 0.15 | 0.93 | 0.5239 | 0.5155 | 0.17197 |

**Source.** Author's own.

Tables 5 and 6 provide the averages for the IFI and the study variables by country and by service. Mexico yielded the lowest IFI average (57.0%); likewise, water service companies present the lowest IFI average (57.2%). Telecommunications services companies are older on average (70.56 years). Likewise, Chile accounts for the average number of oldest companies (61.5 years), followed by Colombia (51.89 years). Concerning the Big4 variable, while multinational auditing companies audit most UCs, companies dedicated to Gas and Telecommunications services are 100% audited by these companies. In relation to the Majority variable, Peruvian companies and the UCs providing water services show a higher average regarding ownership interest concentration. As for the *Gshare* variable in Chile,

there is no state investment in the listed UCs. Regarding the variable *Size,* Peru showed a lower value than the other countries.

Concerning performance, Mexico shows the lowest ROE and ROA rates, with a negative ROE for the telecommunications sector. Considering the leverage variable, Mexico has the highest indebtedness. Likewise, telecommunications are the service with the highest rate of indebtedness, followed by water services.

**Table 5.** IFI mean and coefficients by country

| Country | n | % IFI | Age | Big4 | Majority | Gshare | LogPP&E | ROA | ROE | Leverage |
|---|---|---|---|---|---|---|---|---|---|---|
| Colombia | 18 | 73.0% | 51.89 | 1.00 | 0.69 | 0.25 | 8.79 | 0.08 | 0.19 | 0.54 |
| Mexico | 9 | 57.0% | 32.00 | 1.00 | 0.53 | 0.11 | 9.12 | 0.03 | 0.02 | 0.67 |
| Peru | 23 | 63.3% | 36.78 | 0.87 | 0.84 | 0.38 | 7.96 | 0.07 | 0.13 | 0.48 |
| Chile | 20 | 73.7% | 61.50 | 0.95 | 0.66 | 0.00 | 8.88 | 0.07 | 0.12 | 0.49 |

**Source.** Author's own.

**Table 6.** IFI mean and coefficients by service

| Services | n | % IFI | Age | Big4 | Majority | Gshare | LogPP&E | ROA | ROE | Leverage |
|---|---|---|---|---|---|---|---|---|---|---|
| Power | 44 | 71.6% | 44.73 | 0.93 | 0.74 | 0.27 | 8.63 | 0.07 | 0.14 | 0.46 |
| Gas | 11 | 62.7% | 39.91 | 1.00 | 0.60 | 0.04 | 8.14 | 0.09 | 0.20 | 0.60 |
| Water | 6 | 57.2% | 42.67 | 0.83 | 0.81 | 0.17 | 8.25 | 0,05 | 0.14 | 0.62 |
| Communications | 11 | 63.7% | 70.56 | 1.00 | 0.63 | 0.13 | 9.13 | 0.00 | -0.03 | 0.69 |

**Source.** Author's own.

Table 7 synthesizes Pearson's correlation matrix, which shows that company size, auditor quality, indebtedness, and age were statistically significant with the IFI. Company size shows the highest correlation with the level of IFI (r = 0.489 **). Likewise, it was correlated with other variables such as quality of the auditor, company age, debt, ROA, and ROE, which could indicate that it is the best IFI predictor among the study variables. Likewise, there are other significant correlations between *Gshare* and *Majority* (r=0.415**), and ROA and ROE (r=0.801**); these results did not show collinearity issues, a test that was performed on the regressions. The other coefficients did not show significant correlations.

**Table 7.** Correlation matrix and tolerance statistics

| Variables | IFI | Age | Big4 | Majority | Gshare | Size | ROA | ROE | Leverage |
|---|---|---|---|---|---|---|---|---|---|
| IFI | 1 | | | | | | | | |
| Age | 0.166 | 1 | | | | | | | |
| Big4 | 0.214 | 0.031 | 1 | | | | | | |
| Majority | -0.055 | 0.122 | -0.143 | 1 | | | | | |
| Gshare | 0.105 | 0.146 | 0.136 | 0.415** | 1 | | | | |
| Size | 0.489** | 0.232 | 0.440** | -0.051 | 0.101 | 1 | | | |
| ROA | -0.026 | -0.136 | 0.111 | 0.042 | -0.036 | -0.199 | 1 | | |
| ROE | 0.162 | -0.170 | -0.043 | -0.080 | -0.063 | -0.227 | 0.801** | 1 | |
| Leverage | -0.190 | 0.084 | -0.061 | -0.208 | -0.272* | 0.255* | -0.267* | -0.081 | 1 |

**Note.** *p=0,05 ** p=0,01 n=70

**Source.** Author's own.

## 5.1. IFI Disclosure Models Analysis and Interpretation

The scatter plots for the actual residuals, and the standardized predicted residuals were examined for the regression models, which signals a linear relationship. The Kolmogorov-Smirnov test was applied to review each model's normality, which yielded a value above 5% (p = 0.200), indicative of standard data distribution (Dolinšek *et al*., 2014; López Roldan & Fachelli, 2015). Likewise, the Durbin-Watson autocorrelation test was applied, with results ranging from 1.751 to 1.808, which is why the errors are not considered correlated (López Roldan & Fachelli, 2015). Likewise, the normality graphs and the histogram were examined, showing the same results. In addition, the VIF (*Variance Inflation Factors*) collinearity and tolerance test was performed on each model, with the highest results being 3.5 (ROA) and 3.3 (ROE). There was no evidence of multicollinearity issues in any model since none of the independent variables yielded values above 5 (Salmerón Gómez *et al*., 2016). This suggests that the regression models' assumptions of linearity, independence, homoscedasticity, and non-multicollinearity have been fulfilled.

Three regression models were applied to analyze the determinants, allowing to demonstrate the results' robustness. Model 1 in Table 8 contains all the determinants posited throughout the study. The $R^2$ Adjusted shows that the model allows explaining 52.2% of IFI's disclosure

behavior, with an F of 10.401 and a *p-value* below 0.001, which shows a sound general goodness of fit for the model. The above, taking into account that we are talking about the first investigation in the context of UCs. For model 2, the variables *Big 4* and *Majority* are discarded, for they failed to show a significant relationship in model 1. The $R^2$ Adjusted for model 2 indicates that the model is explanatory at 53.6%, with an F of 14.298 and a p below 0.001. However, the ROA variable in model 3 is also discarded, which yielded a VIF of 3.189. Even though this variable is free of multicollinearity issues, it is convenient to learn the model's fit and the changes in the results of the determinants without this variable. The $R^2$ Adjusted from model 3 is explanatory at 43%, with an F of 9.675 and a p below 0.001.

**Table 8.** Regression coefficients

| Variables | Model 1 | | | | Model 2 | | | | Model 3 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Unstandardized Coefficients | | t | Sig. | Unstandardized Coefficients | | t | Sig. | Unstandardized Coefficients | | t | Sig. |
| | B | SE | | | B | SE | | | B | SE | | |
| (Constant) | 2.829 | 3.797 | 0.745 | 0.459 | 2.758 | 3.374 | 0.817 | 0.417 | 0.254 | 3.833 | 0.066 | 0.947 |
| Age | 0.015 | 0.011 | 1.378 | 0.173 | 0.015 | 0.011 | 1.382 | 0.172 | 0.013 | 0.012 | 1.087 | 0.281 |
| Big4 | 0.452 | 2.085 | 0.217 | 0.829 | | | | | | | | |
| Majority | -0.117 | 1.823 | -0.064 | 0.949 | | | | | | | | |
| Gshare | -1.122 | 1.263 | -0.888 | 0.378 | -1.133 | 1.128 | -1.004 | 0.319 | -0.652 | 1.293 | -0.504 | 0.616 |
| Size | 2.817 | 0.453 | 6.224 | 0.000** | 2.867 | 0.394 | 7.275 | 0.000** | 2.746 | 0.452 | 6.069 | 0.000** |
| ROA | -52.594 | 12.008 | -4.380 | 0.000** | -52.069 | 11.168 | -4.662 | 0.000** | | | | |
| ROE | 26.050 | 4.741 | 5.494 | 0.000** | 25.927 | 4.486 | 5.780 | 0.000** | 9.060 | 3.052 | 2.969 | 0.004** |
| Leverage | -14.057 | 2.719 | -5.169 | 0.000** | -14.098 | 2.666 | -5.288 | 0.000** | -9.725 | 2.871 | -3.387 | 0.001** |
| $R$ | 0.760 | | | | 0.759 | | | | 0.656 | | | |
| $R^2$ | 0.577 | | | | 0.577 | | | | 0.430 | | | |
| $R^2$ Adjusted | 0.522 | | | | 0.536 | | | | 0.386 | | | |
| F-value | 10.401 | 0.000 | | | 14.298 | 0.000 | | | 9.675 | 0.000 | | |
| D_Watson | 1.751 | | | | 1.752 | | | | 1.808 | | | |
| K-Smirnov | 0.200 | | | | 0.200 | | | | 0.200 | | | |
| VIF ≤ | 3.574 | | | | 3.189 | | | | 1.190 | | | |

**Note.** Significant p=*0.05 and **0.001

**Source.** Author's own.

The determinants in table 8 show that company size presents a positive and meaningful relationship with a *p-value* below 0.001 in all three models: therefore, the results support hypothesis H1. From the above, the size would be the variable with the most robust explanatory capacity regarding IFI information disclosure for each model.

The models show that *Leverage* and *ROA* carry a meaningful relationship with a *p*-value below 0.001, but that relationship is negative, nonetheless. Therefore, we reject H3 since a positive leverage ratio was expected. Concerning H2, the ROA carries a significant negative relationship; however, ROE carries a significant positive relationship, wherefore H2 is rejected. The preceding is because a positive relationship was expected for both variables. For their part, the *Big 4, Majority*, *Gshare, and Age coefficients* were not significant; hence, hypotheses H4, H5, H6, and H7 could be neither rejected nor accepted.

## 6. Results Discussion

The study carried out yielded several exciting findings, including that the degree of disclosure of listed UCs in the study countries is 67.9%, which is much higher than the results of research in other sectors and industries in the region and other emerging countries (Bowrin, 2015; Gómez-Villegas & Montesinos Julve, 2014; Nurunnabi & Hossain, 2012). As McLaughlin and Safieddine put it (2008), this could be due because regulated companies are more transparent than non-regulated companies. However, the IFI level in this study is still deficient in transparency, even more so considering that the UCs are dedicated to the provision of public services of general interest.

Per the descriptive results, Mexico should be considered with a lower IFI percentage than the other countries studied, which may be due to higher average debt, an element that drives managers to keep high levels of information asymmetry (Aksu & Kosedag, 2006; Mazzi *et al*., 2018). On the other hand, power services showed the best IFI results, while water services yielded the lowest levels. These results could be associated with regulation and surveillance,

processes, and entities since power services are more standardized and fee-structured (Bolton & Foxon, 2015).

The regression models showed that the variable *company size,* as measured by the value of *property, plant, and equipment,* is decisive when it comes to transparency-related decisions regarding the financial information UCs disclose on the internet. This confirms the results of most investigations that suggest that larger companies could suffer from bigger agency problems, which is why the agents release more information to offer reliability to their investors (Arsov & Bucevska, 2017). An additional factor that would explain the behavior of the indexes in each model would be that UCs belong to a regulated industry mediated by regulation and surveillance entities, in addition to citizenly oversight (McLaughlin & Safieddine, 2008).

Although we expected to find a positive relationship for the *debt* variable, the results showed a negative and significant relationship with respect to IFI, which is in line with other studies, such as the Asov and Bucevska (2017), which suggests that local managers of companies with the most substantial external financing needs may not be interested in disclosing information to the public, which leads to further information asymmetry. This result could also be explained by UCs' costs of financing directly or indirectly affecting the costs and expenses structure that support business viability and tariffs, which is why managers might prefer to disclose less information to different *stakeholders* (Galetovic & Sanhueza, 2002). The results of the *performance* determinants show that the ROE variable carries a positive and meaningful relationship; meanwhile, the ROA variable carries a negative and meaningful relationship. These results are similar to those of other studies such as that by Arsov and Bucevska (2017) and Eng and Mak (2003), wherein the leverage results also showed a significant yet negative relationship, an issue that could be related to the negative ROA results.

## 7. Conclusions

The purpose of this article is to provide empirical evidence on the disclosure of financial information by Utility Companies listed in Mexico, Chile, Colombia, and Peru, identifying online financial information disclosure determinants. The study finds that listed utility companies display an average of 67.9% financial information disclosure, which is higher than in other sectors. The variables of company size and return on equity show a positive and meaningful relationship with disclosure. Additionally, the study finds that the variables of indebtedness and yield are crucial factors in explaining IFI results, despite exhibiting a significant yet opposite relationship to that expected in the hypotheses. However, other study variables such as Big4, Age, Majority, and Gshare do not yield significant results.

The results suggest that larger companies may experience greater agency problems, prompting them to release more information for investor reliability. Furthermore, the study indicates that companies with higher levels of external financing may be less inclined to disclose additional information to the public, exacerbating information asymmetry.

While regulatory and surveillance entities in emerging countries could influence disclosure levels, it is also evident that these levels are influenced by the interests of various stakeholders, particularly investors and political actors. This interplay may impact both transparency and the information requirements geared towards citizens, as well as regulatory and surveillance entities. Consequently, IFI disclosure tends to be focused on variables affecting business agents' decisions, potentially neglecting the information needs of other stakeholders.

The study underscores the significance of broadening research horizons within the utility companies listed, while also considering potential implications for non-listed public service entities and those operating in diverse geographical and contextual settings.

These findings hold implications for investors, regulators, and other stakeholders concerned with the transparency and accountability of utility companies. The insights gleaned from this study can inform strategies to enhance transparency and increase IFI disclosure levels

within the utility sector. Moreover, the study contributes to a broader understanding of internet financial reporting in emerging economies and its implications for governance and regulation in the public services sector.

## 8. References

Aboutera, L. & Hussein, A. (2017). Determinants of internet financial reporting by Egyptian companies. *Research Journal of Finance and Accounting*, *8*(10), 28-39.

Ahmed, A. H., Burton, B. M. & Dunne, T. M. (2017). The determinants of corporate internet reporting in Egypt: an exploratory analysis. *Journal of Accounting in Emerging Economies*, *7*(1), 35-60. https://doi.org/10.1108/jaee-04-2015-0024

Ahmed, A. H., Mardini, G. H., Burton, B. M. & Dunne, T. M. (2018). Is internet reporting useful? Evidence from Egypt. *Journal of Applied Accounting Research*, *19*(4), 574-591. https://doi.org/10.1108/JAAR-03-2017-0042

Akerlof, G. A. (2002). Behavioral macroeconomics and macroeconomic behavior. *American Economic Review*, *92*(3), 411-433. https://doi.org/10.1257/00028280260136192

Aksu, M. & Kosedag, A. (2006). Transparency and disclosure scores and their determinants in the Istanbul stock exchange. *Corporate Governance*, *14*(4), 277-296. https://doi.org/10.1111/j.1467-8683.2006.00507.x

Al-Sartawi, A. M. A. M. & Reyad, S. M. R. (2019). The relationship between the extent of online financial disclosure and profitability of Islamic banks. *Journal of Financial Reporting and Accounting*, *17*(2), 343-362. https://doi.org/10.1108/JFRA-11-2017-0103

Alali, F. & Romero, S. (2012). The use of the internet for corporate reporting in the Mercosur (Southern common market): The Argentina case. *Advances in Accounting*, *28*(1), 157-167. https://doi.org/10.1016/j.adiac.2012.03.009

Aly, D., Simon, J. & Hussainey, K. (2010). Determinants of corporate internet reporting: Evidence from Egypt. *Managerial Auditing Journal*, *25*(2), 182-202. https://doi.org/10.1108/02686901011008972

Andrades, J., Martínez-Martínez, D., Larran, M. & Herrera, J. (2019). Online information disclosure in Spanish municipal-owned enterprises: A study based on the compliance with transparency requirements. *Online Information Review*, *43*(5), 922-944. https://doi.org/10.1108/OIR-02-2018-0063

Andrikopoulos, A., Merika, A. A., Triantafyllou, A. & Merikas, A. G. (2013). Internet disclosure and corporate performance: A case study of the international shipping industry. *Transportation Research Part A: Policy and Practice*, *47*, 141-152. https://doi.org/10.1016/j.tra.2012.10.016

Ariff, A. M., Bin-Ghanem, H. O. & Hashim, H. A. (2018). Corporate ownership, internet penetration and internet financial reporting: Evidence from the gulf cooperation council countries. *Asian Journal of Business and Accounting*, *11*(1), 185-228. https://doi.org/10.22452/ajba.vol11no1.7

Arsov, S. & Bucevska, V. (2017). Determinants of transparency and disclosure - evidence from post-transition economies. *Economic Research-Ekonomska Istrazivanja*, *30*(1), 745-760. https://doi.org/10.1080/1331677X.2017.1314818

Ashaye, R. O. & Irani, Z. (2019). The role of stakeholders in the effective use of e-government resources in public services. *International Journal of Information Management*, *49*, 253-270. https://doi.org/10.1016/j.ijinfomgt.2019.05.016

Ashbaugh, H., Johnstone, K. M. & Warfield, T. D. (1999). Corporate reporting on the internet. *Accounting Horizons*, *13*(3), 241-257. https://doi.org/10.2308/acch.1999.13.3.241

Ayala Espino, J. (1999). *Instituciones y Economía. Una introducción al neoinstitucionalismo económico*. Fondo de Cultura Económica.

Ball, R. (2001). Infrastructure requirements for an economically efficient system of public financial reporting and disclosure. *Brookings-Wharton Papers on Financial Services*, 127-169. https://doi.org/10.1353/pfs.2001.0002

Bananuka, J. (2019). Intellectual capital, isomorphic forces, and internet financial reporting: evidence from Uganda's financial services firms. *Journal of Economic and Administrative Sciences*, *36*(2), 111-134. https://doi.org/10.1108/jeas-03-2018-0042

Biondi, Y. (2018). Fair value and the formation of financial market prices through ignorance and hazard. In Y. Biondi (Ed.). *The Routledge Companion to Fair Value in Accounting* (pp. 288-295). https://doi.org/10.4324/9781315621876-16

Boehm, F. (2005). Corrupción y captura en la regulación de los servicios públicos. *Revista de Economía Institucional*, *7*(13), 245-263. https://revistas.uexternado.edu.co/index.php/ecoins/article/view/128

Bolton, R. & Foxon, T. J. (2015). Infrastructure transformation as a socio-technical process - Implications for the governance of energy distribution networks in the UK. *Technological Forecasting and Social Change*, *90*(Part B), 538-550. https://doi.org/10.1016/j.techfore.2014.02.017

Bowrin, A. R. (2015). Comprehensiveness of internet reporting by Caribbean companies. *Journal of Accounting in Emerging Economies*, *5*(1), 2-34. https://doi.org/10.1108/jaee-08-2011-0028

Caba Pérez, C., Rodríguez Bolívar, M. P. & López Hernández, A. M. (2008). e-Government process and incentives for online public financial information. *Online Information Review*, *32*(3), 379-400. https://doi.org/10.1108/14684520810889682

Cárcaba García, A. & García García, J. (2008). Determinantes de la divulgación de información contable a través de Internet por parte de los gobiernos locales. *Revista Española de Financiación y Contabilidad*, *37*(137), 63-84. https://doi.org/10.1080/02102412.2008.10779639

Cieslewicz, J. K. (2014). Relationships between national economic culture, institutions, and accounting: implications for IFRS. *Critical Perspectives on Accounting*, *25*(6), 511-528. https://doi.org/10.1016/j.cpa.2013.03.006

Debreceny, R., Gray, G. L. & Rahman, A. (2002). The determinants of internet financial reporting. *Journal of Accounting and Public Policy*, *21*(4-5), 371-394. https://doi.org/10.1016/S0278-4254(02)00067-4

Dolinšek, T., Tominc, P. & Skerbinjek, A. L. (2014). The determinants of internet financial reporting in Slovenia. *Online Information Review*, *38*(7), 842-860. https://doi.org/10.1108/OIR-02-2014-0025

Eng, L. L. & Mak, Y. T. (2003). Corporate governance and voluntary disclosure. *Journal of Accounting and Public Policy*, *22*(4), 325-345. https://doi.org/10.1016/S0278-4254(03)00037-1

Fuertes-Callén, Y., Cuellar-Fernández, B. & Pelayo-Velázquez, M. (2014). Determinants of online corporate reporting in three Latin American markets: The role of web presence development. *Online Information Review*, *38*(6), 806-831. https://doi.org/10.1108/OIR-10-2013-0240

Galetovic, A. & Sanhueza, R. (2002). Regulación de servicios públicos: ¿hacia dónde debemos ir? *Estudios Públicos*, *85,* 101-137. https://www.estudiospublicos.cl/index.php/cep/article/view/811/1470

Garcia-Murillo, M. (2013). Does a government web presence reduce perceptions of corruption? *Information Technology for Development*, *19*(2), 151-175. https://doi.org/10.1080/02681102.2012.751574

Gómez-Villegas, M. & Montesinos Julve, V. (2014). Gobierno electrónico y transparecia financiera y presupuestal de los departamentos en Colombia. *Revista Venezolana de Gerencia*, *19*(68), 670-698. https://www.redalyc.org/articulo.oa?id=29032819004

Hellman, N., Carenys, J. & Moya Gutiérrez, S. (2018). Introducing more IFRS principles of disclosure-will the poor disclosers improve? *Accounting in Europe*, *15*(2), 242-321. https://doi.org/10.1080/17449480.2018.1476772

Hermalin, B. E. & Weisbach, M. S. (2012). Information Disclosure and Corporate Governance. *The Journal of Finance*, *67*(1), 195-233. https://doi.org/10.1111/j.1540-6261.2011.01710.x

Hodge, F. D., Kennedy, J. J. & Maines, L. A. (2004). Does search-facilittating technology improve the transparency of financial reporting? *The Accounting Review*, *79*(3), 687-703. https://doi.org/10.2308/accr.2004.79.3.687

Hodgson, G. & Jiang, S. (2008). La economía de la corrupción y la corrupción de la economía: una perspectiva institucional. *Revista de Economía Institucional*, *10*(18), 55-80. https://revistas.uexternado.edu.co/index.php/ecoins/article/view/67/53

Hood, C. (2010). Accountability and transparency: Siamese Twins, Matching parts, Awkward couple? *West European Politics*, *33*(5), 989-1009. https://doi.org/10.1080/01402382.2010.486122

Hossain, M., Perera, M. H. B. & Rahman, A. R. (1995). Voluntary disclosure in the annual reports of New Zealand Companies. *Journal of International Financial Managment & Accounting*, *6*(1), 69-87. https://doi.org/10.1111/j.1467-646X.1995.tb00050.x

IASB. (2019). *disclosure initiative - principles of disclosure principles of disclosure*. Foundation IFRS.

Jensen, M. C. & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, *3*(4), 305-360. https://doi.org/10.1016/0304-405X(76)90026-X

Juhmani, O. (2017). Corporate governance and the level of Bahraini corporate compliance with IFRS disclosure. *Journal of Applied Accounting Research*, *18*(1), 22-41. https://doi.org/10.1108/JAAR-05-2015-0045

Kelton, A. S. & Yang, Y. (2008). The impact of corporate governance on Internet financial reporting. *Journal of Accounting and Public Policy*, *27*(1), 62-87. https://doi.org/10.1016/j.jaccpubpol.2007.11.001

Kim, J. (1985). The market for "lemons" reconsidered: A model of the used car market with asymmetric information. *The American Economic Review*, *75*(4), 836-843. https://www.jstor.org/stable/1821360

Küpper, H. U. & Pedell, B. (2016). Which asset valuation and depreciation method should be used for regulated utilities? An analytical and simulation-based comparison. *Utilities Policy*, *40*, 88-103. https://doi.org/10.1016/j.jup.2016.05.001

La Porta, R., Lopez-de-Silanes, F., Shleifer, A. & Vishny, R. W. (1998). Law and Finance. *Journal of Political Economy*, *106*(6), 1113-1155. https://doi.org/10.1086/250042

Laffont, J. J. & Tirole, J. (2001). *Competition in telecommunications*. CES.

Leão Lyrio, M. V., João Lunkes, R. & Castelló Taliani, E. T. (2018). Thirty years of studies on transparency, accountability, and corruption in the public sector: The state of the art and opportunities for future research. *Public Integrity*, *20*(5), 512-533. https://doi.org/10.1080/10999922.2017.1416537

Loch, M., Marcon, R., Pruner da Silva, A. L. & Xavier, W. G. (2018). Government's impact on the financial performance of electric service providers as both regulatory and shareholder. *Utilities Policy*, *55*, 142-150. https://doi.org/10.1016/j.jup.2018.09.007

Löfgren, A. K., Persson, T. & Weibull, J. W. (2002). The contributions of George Akerlof, Michael Spence, and Joseph Stiglitz. *The Scandinavian Journal of Economics*, *104*(2), 195-211. https://www.jstor.org/stable/3441066

López Roldan, P. & Fachelli, S. (2015). *Metodología de la investigación social cuantitativa*. Universitat Autonoma de Barcelona. https://ddd.uab.cat/pub/caplli/2016/163564/metinvsoccua_a2016_cap1-2.pdf

Lu, H., Shin, J. E. & Zhang, M. (2023). Financial reporting and disclosure practices in China. *Journal of Accounting and Economics, 76*(1). https://doi.org/10.1016/j.jacceco.2023.101598

Mazzi, F., Slack, R. & Tsalavoutas, I. (2018). The effect of corruption and culture on mandatory disclosure compliance levels: Goodwill reporting in Europe. *Journal of International Accounting, Auditing and Taxation*, *31*, 52-73. https://doi.org/10.1016/j.intaccaudtax.2018.06.001

McLaughlin, R. & Safieddine, A. (2008). Regulation and information asymmetry: Evidence from the performance of industrial and utility firms issuing seasoned equity in the USA. *Journal of Financial Regulation and Compliance*, *16*(1), 59-76. https://doi.org/10.1108/13581980810853217

Millán, J. (2006). *Entre el mercado y el Estado, tres decadas de reformas en el sector eléctrico de América Latina*. Banco Interamericano de Desarrollo BID. https://publications.iadb.org/es/publicacion/16299/entre-el-mercado-y-el-estado-tres-decadas-de-reformas-en-el-sector-electrico-de

Mohd Ghazali, N. A. & Weetman, P. (2006). Perpetuating traditional influences: Voluntary disclosure in Malaysia following the economic crisis. *Journal of International Accounting, Auditing and Taxation*, *15*(2), 226-248. https://doi.org/10.1016/j.intaccaudtax.2006.08.001

Mokhtar, E. S. (2017). Internet financial reporting determinants: a meta-analytic review. *Journal of Financial Reporting and Accounting*, *15*(1), 116-154. https://doi.org/10.1108/jfra-07-2016-0061

Mongrut, S. & Winkelried, D. (2019). Unintended effects of IFRS adoption on earnings management: The case of Latin America. *Emerging Markets Review*, *38*, 377-388. https://doi.org/10.1016/j.ememar.2018.11.004

Montesinos, V. (2009). Transparencia y responsabilidad en el sector público: el papel de la información financiera en tiempos de crisis. *Asociación Española de Contabilidad y Administración de Empresas,* (87, Especial XV congreso), 26-28. https://www.aeca1.org/revistaeca/revista87/87.pdf

Moreira Carvalho Andrade, M. E. & Martins, E. (2017). Challenges with the public policy of measuring assets to set tariffs in the electricity sector: Should someone benefit, and someone be sacrificed? *Revista Contabilidade e Financas*, *28*(75), 344-360. https://doi.org/10.1590/1808-057x201703160

Moreno-Enguix, M. R., Gras-Gil, E. & Henández-Fernández, J. (2019). Relation between internet financial information disclosure and internal control in Spanish local governments. *Aslib Journal in Information Management*, *71*(2), 176-194. https://doi.org/10.1108/AJIM-06-2018-0150

Naciones Unidas & CEPAL. (1999). *Servicios públicos y regulación*. https://www.cepal.org/es/publicaciones/31230-servicios-publicos-regulacion

Nassir Zadeh, F., Salehi, M. & Shabestari, H. (2018). The relationship between corporate governance mechanisms and internet financial reporting in Iran. *Corporate Governance*, *18*(6), 1021-1041. https://doi.org/10.1108/CG-06-2017-0126

Nassreddine, G. (2015). Financial information disclosure. *Cogent Economics and Finance*, *3*(1), 1-9. https://doi.org/10.1080/23322039.2015.1038208

Nurunnabi, M. & Hossain, M. A. (2012). The voluntary disclosure of internet financial reporting (IFR) in an emerging economy: a case of digital Bangladesh. *Journal of Asia Business Studies*, *6*(1), 17-42. https://doi.org/10.1108/15587891211190688

Ojah, K. & Mokoaleli-Mokoteli, T. (2012). Internet financial reporting, infrastructures, and corporate governance: An international analysis. *Review of Development Finance*, *2*(2), 69-83. https://doi.org/10.1016/j.rdf.2012.04.001

Orellana Fuentes, C. & Azúa Álvarez, D. (2017). Aplicación del modelo de revaluación de propiedades, planta y equipo en empresas chilenas del sector energético. *Estudios Gerenciales*, *33*(142), 102-111. https://doi.org/10.1016/j.estger.2017.01.001

Pathak, R. D., Naz, R., Rahman, M. H., Smith, R. F. I. & Nayan Agarwal, K. (2009). E-Governance to cut corruption in public service delivery: A case study of Fiji. *International Journal of Public Administration*, *32*(5), 415-437. https://doi.org/10.1080/01900690902799482

Pina, V. & Torres, L. (2019). Online transparency and corporate governance in Spanish governmental agencies. *Online Information Review*, *43*(4), 653-675. https://doi.org/10.1108/OIR-03-2018-0102

Pinto, I. & Ng Picoto, W. (2016). Configurational analysis of firms' performance: Understanding the role of Internet financial reporting. *Journal of Business Research*, *69*(11), 5360-5365. https://doi.org/10.1016/j.jbusres.2016.04.138

Pivac, S., Vuko, T. & Cular, M. (2017). Analysis of annual report disclosure quality for listed companies in transition countries. *Economic Research-Ekonomska Istrazivanja*, *30*(1), 721-731. https://doi.org/10.1080/1331677X.2017.1311231

Rincón-Soto, C. A. & Gómez-Villegas, M. (2021). La medición a valor razonable en activos fijos. Caso empresas de servicios públicos domiciliarios cotizadas en Colombia. *Cuadernos de Contabilidad*, *22*. https://doi.org/10.11144/javeriana.cc22.mvra

Rincón-Soto, C. A., Gómez-Villegas, M. & Rivera-Arrubla, Y. A. (2021). The designs of financial information disclosure indices on the Internet. A systematic literature review. *Cuadernos de Administración, 34*. https://doi.org/10.11144/Javeriana.cao34.didifi

Ríos Ramírez, A. & Garro, J. E. (2017). Accountability y sociedad civil: el control político en la era digital. *Papel Político*, *22*(2), 311-337. https://doi.org/10.11144/javeriana.papo22-2.ascc

Salama, P. & Valier, J. (1995). Corrupción y pobreza. *Espiral*, *2*(4), 45-67. http://www.redalyc.org/articulo.oa?id=13820404

Salmerón Gómez, R., García Pérez, J., López Martín, M. D. M. & García, C. G. (2016). Collinearity diagnostic applied in ridge estimation through the variance inflation factor. *Journal of Applied Statistics*, *43*(10), 1831-1849. https://doi.org/10.1080/02664763.2015.1120712

Sanclemente-Arciniegas, J. (2019). El Estado accionista: gobierno de las empresas públicas en Colombia y Francia. *Revista Derecho del Estado*, *42*, 249-278. https://doi.org/10.18601/01229893.n42.09

Serrano-Cinca, C., Fuertes-Callén, Y. & Gutiérrez-Nieto, B. (2007). Online reporting by banks: A structural modelling approach. *Online Information Review*, *31*(3), 310-332. https://doi.org/10.1108/14684520710764096

Shim, D. C. & Eom, T. H. (2008). E-Government and anti-corruption: Empirical analysis of international data. *International Journal of Public Administration*, *31*(3), 298-316. https://doi.org/10.1080/01900690701590553

Timm Rathke, A. A., de Fátima Santana, V., Costa Lourenço, I. M. E. & Zóboli Dalmácio, F. (2016). International financial reporting standards and earnings management in Latin America. *Revista de Administração Contemporânea*, *20*(3), 368-388. https://doi.org/10.1590/1982-7849rac2016140035

Tirole, J. (2017). *La economía del bien común*. Taurus.

Vélez, L., Ramírez, A., Londoño, L., Giraldo, Y. & Londoño, D. (2011). Regulación y bienestar económico, evaluación de la regulación de servicios públicos domiciliarios de acueducto y electricidad en Colombia en los noventa. El caso de Empresas Públicas de Medellín. *Lecturas de Economía*, (74), 231-270.

Viveros Zuazo, A. A. (2015). El riesgo moral y la regulación de la calidad de los servicios públicos. *Revista Derecho & Sociedad*, (45), 45-52. https://revistas.pucp.edu.pe/index.php/derechoysociedad/article/view/15223

Weaver, B. & Wuensch, K. L. (2013). SPSS and SAS programs for comparing Pearson correlations and OLS regression coefficients. *Behavior Research Methods*, *45*, 880-895. https://doi.org/10.3758/s13428-012-0289-7

Xiao, J. Z., Yang, H. & Chow, C. W. (2004). The determinants and characteristics of voluntary internet-based disclosures by listed Chinese companies. *Journal of Accounting and Public Policy*, *23*(3), 191-225. https://doi.org/10.1016/j.jaccpubpol.2004.04.002

Yassin, M. M. (2017). The determinants of internet financial reporting in Jordan: Financial versus corporate governance. *International Journal of Business Information Systems*, *25*(4), 526-556. https://doi.org/10.1504/IJBIS.2017.085176

Young, M. N., Peng, M. W., Ahlstrom, D. & Bruton, G. D. (2003). Principal-principal agency. *Web Journal of Chinese Management Review*, *6*(1), 18-45.

Young, M. N., Peng, M. W., Ahlstrom, D., Bruton, G. D. & Jiang, Y. (2008). Governing the Corporation in Emerging Economies: A Principal-Principal Perspective. *Academic of Management - Proceedings*, *2002*(1), 196-220. https://doi.org/10.5465/apbpp.2002.7516497

Zhao, X. & Xu, H. D. (2015). E-Government and corruption: A longitudinal analysis of countries. *International Journal of Public Administration*, *38*(6), 410-421. https://doi.org/10.1080/01900692.2014.942736