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The last frontier - going transparent with XBRL reporting for Sub-Saharan African listed firms

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ABSTRACT

The dearth of existing studies in sub-Saharan Africa on how eXtensible Business Reporting Language (XBRL) enhances disclosure quality necessitated this study. Thus, the purpose of this study is to provide an overview of XBRL in the financial reporting space of sub-Saharan Africa-listed firms. The study discusses the evolution of corporate financial reporting and relates it to how business reporting software enhances the quality of information disclosure and transparency. Based on previous studies, we assessed XBRL in its format for reporting and cost implications from a global perspective. The findings indicated that by reporting using XBRL, we make the case for opening up sub-Saharan African markets for investments and also improve corporate governance quality in the global investors' sight. In other words, listed firms in the sub-region currently have a periodic and manual reporting approach to financial reporting, which makes it quite difficult for investors to have an up-to-the-minute view of the listed firms for investment purposes. Researchers and business firms need to understand the availability of XBRL technology and its application to enable voluntary corporate disclosures. In addition to the information disclosed, it is important for their search to determine how the software employs information in financial reporting. To the best of our knowledge, this study is one of the few in Africa, especially in the context of sub-Saharan Africa exchanges, to use a review to understand how prior studies involved XBRL reporting to enhance the transparency of listed firms.

Introduction

Corporate disclosure and transparency are key factors investors look for in modern financial markets. Whether making inquiries about potential investment opportunities or the decision to divest or hold a company's stock or bonds, transparency, and the ability to disclose company events promptly, devoid of any opaqueness has come to be seen as a defining characteristic of "blue chip" investments, desirable and preferable for investor funds in today's investment climate. These two qualities have also defined what investors see as the litmus test of corporate governance quality. For investors outside their home countries, the market conditions in distant countries matter more than ever. Africa is one such continent with many investment opportunities, but in the view of global investors, it remains a largely unknown risk (Kariuki, 2015). The central question of this study is: How can frontier markets in Sub-Saharan Africa (SSA) assure investors to invest in its capital markets?

The age-old adage, *caveat emptor*, emphasizes the need to be wary of business transactions with third parties. This advice is relevant in global financial markets. For much of Africa, investor apprehensions about local markets are justified in multiple ways. There is no one-stop structure in place for information on investable assets (Othman & Zeghal, 2010). Again, the enforcement of contracts is problematic in judicial systems known for undue delays and corruption (Musila & Sigué, 2010; Doh, Rodriguez, Uhlenbruck, Collins, & Eden, 2003). Ngole (2012) reported a lack of improvement in corporate reporting many years after the adoption of the International

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Financial Reporting Standards (IFRS). This observation could be attributed to what Gray and Vint (1995) see as deep-seated cultural practices that accounting practitioners follow in these SSA Of course, in the investment environment of the 21st century, business is hyperlinked, as participants invest globally. Cultural norms that impede market information flow between investors and companies prevent investments from flowing into such jurisdictions.

This study seeks to resolve these problems by first recommending the adoption of XBRL in financial reporting for listed firms in SSA and then suggesting extending XBRL to include a central repository accessible to global investors. This repository will be built to facilitate information exchange via the use of eXtensible Markup Language (XML)-based technology systems. The study makes two key contributions to financial reporting in SSA. First, it finds a way around the persistent problem of thin trading of stocks listed on SSA stock exchanges. Securities trade on material information reaching the marketplace (Ivashina & Sun, 2011). Without this information, there will be no trades. By increasing information flow in the marketplace through timely reporting available at little to no cost to investors, decision-making is improved. Secondly, by reporting using XBRL, we make a case for improved corporate governance quality in the eyes of global investors. Transparency is a prop of corporate governance, especially if it is done clearly and expeditiously, devoid of any opaqueness. We believe that this has potential benefits for the markets. Tawiah and Borgi (2022) did excellent work looking at a global overview of the use of XBRL.

This study should be seen as a continuation of their work, but focused specifically on sub-Saharan Africa. Policy debates by regulators, firms, and investors on issues of enhancing financial reporting in a timely and transparent way in the sub-region, we believe, will be rekindled by this paper.

The remainder of this paper is organised as follows. What follows is an immediate exploration of the theoretical and empirical perspectives on principal-agency issues and voluntary disclosure in the context of corporate management. Then, we look at the conceptual reviews and relate them to XBRL technology. Attention now turns to empirical literature and delve into the use of XBRL in financial reporting globally and point out the missing link in SSA markets. Next, we examine the cost implications for firms that would implement reporting using this framework. The study concludes with a discussion of the implications of the findings and provides recommendations for future research.

Literature Review

Theoretical literature

Keeping firm owners informed about inside information related to their investments was a privilege until after the Great Depression of the late 1920s into the '30s (Barton & Waymire, 2004; Hawkins, 1963). Before then and thereafter, the business world has occasionally been rocked by corporate fraud. This has affected investors and wiped off huge amounts of investments (Desai, 2020). This section reviews the underpinning theories of the nature of contractual relationships between investors who are the owners of firms and management as agents.

Agency Theory

The modern firm, as we know today, is at the heart of the prosperity of nations. It aims at resolving the age-old problem of conflicts between principals and agents. The governance structure of the firm *vis-à-vis* the conflicting interests of the owners and management requires strict contracts that ensure managers of the firm conduct themselves in the best interests of the shareholders. This view is shared by Jensen and Meckling (1976) who see the firm as a collection of contracts between groups of individuals; in this case, the owners and the managers. The theoretical basis of this concept of contracting in the relationship is dated to the work of Berle and Means (1932) and was operationalised by Jensen and Meckling (1976). Again, the principal-agent concept is tied to owners' property rights as enshrined in civil law (Lähteenmäki-Uutela, Lonkila, Huttunen, & Grmelová, 2021). These authors viewed the firm as a collection of assets to be managed by third parties in the interests of owners, who may not necessarily have the requisite knowledge and skills for managing the firm. With this in mind, management is supposed to be transparent in its dealings and to report to the owners on the state of the firms at all times. Unfortunately, this is not always the case.

From Jensen and Meckling's (1976) view of the firm, various authors have used different approaches to describe the relationship between the owners and managers of firms. Agency theory envisages the relationship between shareholders and management as a principal-agent structure where the agents act in the interests of the principals. Agents are obliged to disclose firm-specific information on a voluntary or mandatory basis periodically to principals. Timely disclosure of company-specific information by agents and the ability to use this information efficiently is a public good that improves outcomes for the economy as a whole.

The centrality of this theoretical basis is transparency. Even if firms periodically report their activities, are they transparent? Does the financial report encompass all material activities of the firm? Is this information reported promptly for investors to rely on? Since investment is an ongoing activity, investors need regular updates on the health of the firms they are considering for inclusion in their portfolios. This invokes the theory of transparency attributed to Tye (2002). Investors now undertake investments in firms globally, and such trades sometimes last only a couple of seconds, as found in typically high-frequency trading. Thus, changes in firms are also rapid, and keeping investors constantly updated is a requirement for modern investing. Thus, having a repository where the investor consults and keep abreast of developments within the firm will boost investor confidence in decision-making.

Corporate Transparency and Timely Disclosure

Transparency in financial reporting is at the heart of modern business transactions, particularly for publicly listed firms with separate ownership from management. It serves to ensure accountability and stewardship of management. It provides a fair assessment of the firm's performance for the proper evaluation of the firm's value. For potential investors, transparency in reporting prevents the misallocation of capital in financial markets. Rashid, Al-Mamun, Roudaki, and Yasser (2022) see the vibrancy of a country's capital market as a function of not only the profitability of listed firms but also the transparency of reporting entities and the abundance of analysts probing financial statements and firm-related information. Chen, Cumming, Hou, and Lee (2016) point out that a lack of transparency in financial reporting can lead to fraud. For example, in the lead-up to the collapse of Enron, it was known that their financial reporting was dense, something some researchers described as 'impenetrable' (Pitt, 2011). This creates problems for investors. It is believed that most investors withdraw from capital markets in such circumstances (Kim & Zhang, 2014; Castellano, 2002). Parallels exist in the local capital markets. For example, in Ghana, Ayagre, Appiah-Gyamerah, and Nartey (2014) faulted bad financial reporting occasioned by weak corporate governance standards in the collapse of the Ghana Cooperative Bank and Bank for Housing and Construction. Bokpin, Aboagye, and Osei (2010) blamed poor disclosure and financial reporting for the illiquidity of equities on the Ghana Stock Exchange (GSE).

Barker, Penman, Linsmeier, and Cooper (2020) suggested that reporting based on primary financial statements – balance sheet, income statement, and statement of cash flows – may fall short of providing a comprehensive picture to outsiders. Moreover, such reporting is premised on minimum compliance with accounting standards. This, according to Abbott, Daugherty, Parker, and Peters (2016), might not be enough for investment decision-making. Companies have a lot of leverage in financial reporting, ranging from choices made in accounting provisions to the disclosures of insider trades and dealings needed to critically evaluate companies. The ongoing saga between HP and British firm Autonomy after the acquisition of the latter by the former is a classic case of how firm choices in financial reporting can distort the valuation of companies (Stanwick & Stanwick, 2014; Shapiro, 2013). In many SSA exchanges, retail rather than institutional investors dominate the stock market. This investor group is dispersed and disparate. As a result, they lack the power and resources to exert full control over management to disclose the information needed to make critical investment decisions. Veluvali (2019) documented global problems faced by retail investors in the capital market. Among other factors, the author identified a lack of information on the quoted companies and the absence of market transparency. These are related to problems of disclosure beyond what is reported in financial statements to outsiders. Nurunnabi (2017) uncovered interesting facts in the study of compliance with the IFRS in developing countries. The author concluded that firms with foreign ownership in various jurisdictions have higher compliance with the standards than completely locally-owned firms.

This problem can be tackled with more frequent firm disclosure mandated by law and made available to anyone interested at no cost. Currently, in the SSA subregion, the availability of financial statements and investor-related information on listed firms' websites varies according to whether the firm is locally owned or has some form of foreign ownership. The CAL Bank in Ghana, for instance, has only highlights of its financial statements on its website, whereas MTN (a regional telecom) with majority shares has its full financial reports listed from 2014 to 2022 downloadable from its site. Without such easy access, an analyst or a potential investor incurs additional costs to acquire relevant information from the companies to analyze and make an investment decision. This affects the vibrancy of the capital markets and militates against their core function of mobilizing money from savers, channeling it to borrowers for investment to create jobs and develop the country.

Voluntary Disclosure Theory

Voluntary disclosure, closely linked to the agency theory, requires management to be transparent about any material information whose disclosure will likely affect the decision to invest. The foundation of this theory was laid by Dye (1986; 1985) and Verrecchia (1990; 1983). It is predicated on firms disclosing information beyond the minimum required by law. Such information beyond financial statements provides a comprehensive view and serves as a basis for the holistic valuation of the worth of companies.

Chen, Srinidhi, Tsang, and Yu (2016) reported that voluntary disclosure enhances the quality of the information available to outsiders. Such valuations, deeply anchored in transparent company valuations, lead to optimal allocation of capital. The recent revocation of the license of UT and Capital banks in Ghana, among others, by the regulator, has been attributed wholly to the lack of disclosure of insider transactions giving rise to the huge non-performing loans on the books (Torku & Laryea, 2021; Agyenim-Boateng, Aboagye-Otchere, & Aboagye, 2020). Nigeria has also had its share of failed listed companies over the last few years, as documented in Udeh and Ugwu (2018).

XBRL Structure and Financial Reporting

The origin of XBRL can be traced to XML, a language for formatting text that enables data exchange among various technological platforms and architectures. XML itself evolved from the Standard Generalized Markup Language (SGML) created by the International Standard Organization (ISO). At some point, it was the format for the exchange of information by government agencies (Nordin, Barnard, & Macleod, 1993). XML provides a formatted structure for documents in nested tags. A more familiar version of XML is HTML. This uses tags to control the behaviour of text and images on a web page. These tags are also endowed with attributes that ensure the proper display of text, graphics, and videos.

According to O'Riain, Curry, and Harth (2012), XBRL is a worldwide framework that is freely available for the exchange of business or corporate information. Being a dialect of XML, XBRL inherits all the technologies, including the metadata found in the taxonomies required to bring out the semantics of accounting information for exchangeability and interoperability across systems. Internally, Cohen (2009) sees XBRL as the sinew of corporate enterprise resources, from human resources through manufacturing and sales. This has the potential to alter how firms report financial and non-financial news to the global public.

Conceptual Review

Financial reporting has always been part of accounting since the 1930s, when US stock markets imploded following a series of accounting malpractices attributed to fraudulent reporting by managers of listed businesses. Quarterly and annual reporting characterised this reporting regime, and for a long time, this served the accounting industry and the investing community very well.

The point of departure from this model, however, began when businesses became something of everyday trading with firms and investors, forgoing the "buy and hold" principle. Thus, the lightning speed of entering and exiting positions in the market based on technical trading rules have changed everything (Chiang, Ke, Liao, & Wang, 2012). Of course, the rise of the Internet also influenced this, as firms were able to provide firm-wide information accessible to users (Hurtt, Kreuze, & Langsam, 2001; Debreceny, Gray, & Rahman, 2002).

From Internet reporting, the world has migrated gradually to continuous reporting with XBRL as the main vehicle (Apostolou & Nanopoulos, 2009). XBRL is a standardised markup language used for tagging and exchanging financial and business information in a machine-readable format. It was developed to streamline and improve the accuracy of financial reporting, making it easier for businesses, regulators, and investors to access, analyse, and compare financial data. At the core of the XBRL architecture consists of a taxonomy, instance documents, and linkbases. The taxonomy defines the elements, concepts, and relationships that can be used to tag financial data. Taxonomies are created for specific reporting domains like US GAAP and IFRS. La Torre et al. (2018) identify XBRL taxonomy as a hierarchical classification system that categorises different financial and business concepts. It is designed to represent the relationships between elements and concepts used in financial reporting. XBRL taxonomy plays a crucial role in standardising financial reporting and facilitating the exchange and analysis of financial information. It allows organisations, regulators, and software applications to communicate financial data effectively, reducing the risk of errors and streamlining the reporting process.

The taxonomy is typically maintained and updated by standard-setting bodies and regulatory authorities to ensure it remains aligned with current accounting standards and reporting requirements. On the other hand, the instance documents are actual financial reports or statements that are tagged with elements from the taxonomy. They represent a company's specific financial data. Finally, the linkbase is a fundamental component that plays a crucial role in defining the relationships between various elements in an XBRL taxonomy.

Linkbases provide additional information on how elements in the taxonomy relate to each other and specific instance documents. In short, link bases are used to create and express these relationships, making it possible to represent complex financial reporting structures and hierarchies in a machine-readable format (Shah, 2019). By using linkbases, XBRL taxonomies can represent complex financial reporting structures, enabling financial data to be accurately and consistently exchanged, processed, and analyzed by various software applications, regulatory bodies, and organizations. This standardization is particularly valuable for financial reporting, as it promotes transparency and facilitates automated data exchange and analysis. A typical architecture integrating elements of the firm's reporting structure is shown in Figure 1.

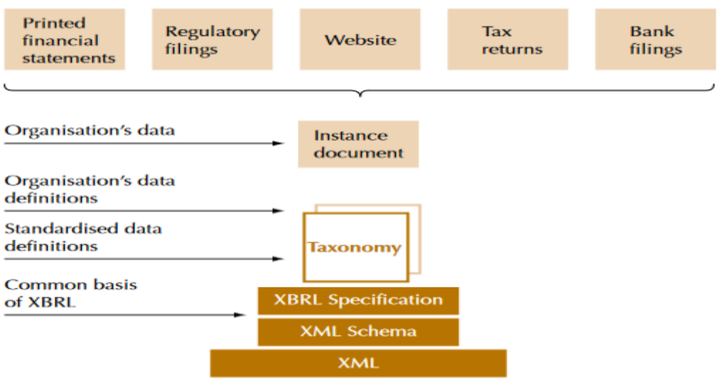

Figure 1: Typical XBRL architecture; *Source:* Tesnière, Smith & Willis (2007)

Empirical Literature

Empirical studies and reviews of XBRL have generally found benefits in terms of data accuracy, accessibility, and efficiency in financial reporting and regulatory compliance. However, challenges such as data quality and taxonomy development persist. The impact of XBRL can vary significantly based on the specific context and industry. Researchers often conduct surveys, interviews, and data analysis on the practical implications of XBRL adoption. Dunne, Helliar, Lymer, and Mousa (2013) argued for the adoption of the XBRL format for financial reporting. In addition, Dunne et al. (2013) identified the low cost of producing financial information for distribution and consumption using XBRL formats as low in terms of geographical reach. Adoption of these technologies follows the level of development of a given market.

For firms in developed and most emerging markets with strict compliance and regulatory requirements, XBRL has been mandatory, and there are requirements for the integration of reporting systems ultimately to a central repository like the EDGAR system in the US. The standardization and interoperability that come with the adoption of these taxonomies bring down the costs of the exchange of data across various platforms. For reporting units spread over diverse geographical areas across the globe, these platforms provide a one-stop location for accessing information in the aggregate. It is this structure that is generally lacking in financial reporting in SSA. Much of SSA firms are still reporting periodically – quarterly and yearly. This leaves a huge gap, particularly in non-financial information, which has the potential to influence the financial and/or investing decisions of investors. An industry leader, Dangote Industries in Nigeria, reported its year ending in 2021 financial statements using XBRL technology, the first in the West African sub-region (XBRL, 2021). By reporting financial information in XBRL format, Dangote improves accessibility for investors, and ensures uniformity across global financial platforms. This is a signal to investors of the transparency of the group.

The listed firms in the sub-region currently have a periodic and manual approach to financial reporting. This makes it difficult for investors to have an up-to-date view of listed firms for investment purposes. Several factors probably account for this state of affairs including "inertia" – holding on to a legacy of how things were done in the past. Sassi, Ben Othman and Hussainey (2023) identified several factors in a cross-country study, key among them investor protection and openness to foreign investments. Indeed, among African countries, the authors identified only South Africa as having an XBRL reporting requirement (p. 7). The adoption of the requirement of XBRL was South Africa's bid to promote ease of doing business which led the Companies and Intellectual Property Commission (CIPC) making XBRL reporting compulsory for all entities that are obligated to submit annual financial statements. Achieving these, however, required the existence of a legal reporting framework to compel listed firms to adopt this report means. In SSA, the last frontier yet to adopt XBRL reporting, such a legal framework does not exist. This state, according to Baldwin et al. (2006), militates against the goals of transparency, quality, and truthful disclosure in financial reporting. South Africa officially mandated XBRL reporting by passing the required legislation (CIPC, 2008). With the adoption of IFRS, reporting companies, thus, improved their visibility. Dhole, Lobo, Mishra, and Pal (2015) underscored the importance of XBRL adoption in promoting transparency and quality in US financial markets. Troshani, Parker, and Lymer (2015) have amply shown how these essential qualities of financial reports, transparency, and quality, are achieved through XBRL reporting.

Cost Implications

In the past, much of the discussion was on the costs associated with the adoption of XBRL. Long before the Internet became pervasive, Pinsker and Li (2008) listed this as the expense of connecting to having good bandwidth and the expertise involved in learning the technologies of the XBRL. Fortunately, for SSA firms, broadband prices have dropped substantially, coupled with the reach of the Internet to many parts of the subregion (Asongu & Nwachukwu, 2018). Moreover, most accounting software automatically generates XBRL reports (Ditter, Henselmann, & Scherr, 2011). However, securing the data's integrity remains a challenge globally. These calls for firms to invest in XBRL-compliant software and tools for creating, validating, and submitting XBRL documents. These tools can range from basic open-source software to more advanced, specialized solutions, and their costs vary accordingly.

Employees may need training to use XBRL software effectively. This training can involve hiring instructors or sending staff to training programs. Firms may need to allocate internal resources to oversee the implementation, manage data, and ensure compliance. For medium to large firms using enterprise resource planning systems, much of the output files exchanged within the various units of the firm are structured in XML format (Sun, 2017). Office tools used in routine applications also enable one to save files in XML format. These files need plug-ins to convert XML files to XBRL files to accommodate idiosyncrasies in financial information. Converting financial data into XBRL format often requires mapping existing data to the appropriate XBRL taxonomy elements. This can be a complex and time-consuming process, particularly for firms with diverse or non-standard data. Firms may need to clean and standardize their financial data to ensure it aligns with XBRL requirements. These areas need expertise and major investments.

Müller-Wickop, Schultz, and Nüttgens (2013) emphasized ongoing maintenance costs involving mainly regular updates of the XBRL taxonomies. Firms must keep their software and processes up to date to reflect these changes. Another source of these ongoing costs is mainly with data verification and validation. Continuous validation and verification of XBRL submissions are necessary to ensure data accuracy and integrity. This requires internal expertise in maintaining the XBRL schemas and staying informed about regulatory changes to make it globally compliant.

The human factors also present hidden costs in the form of resistance to the adoption of new ways of doing things. Accounting personnel, it has been reported by some authors (Schmidt, Church, & Riley, 2020; Krisko, 2017; Steenkamp & Nel, 2012), are resistant to technology. Literature is replete with stories of the accounting function fighting with management during the rise of spreadsheets for reporting (Schmidt, Riley, & Swanson Church, 2020). This resistance has its roots, in the assessment of Watty, McKay and Ngo (2016), the attitudes of accounting faculty training future accounting personnel. This would seem a particularly troubling situation for SSA where technology has yet to become pervasive across curricula in the schools. However, the adoption of legislation mandating XBRL would spur changes in attitudes. The respective accounting bodies have a responsibility to educate their members through continuing professional training on the benefits of adopting these new technologies to the profession as a whole. With the business schools, most have or are seeking accreditation with global groups like EQUIS, AACSB, EFMD and ISO 9001 for the quality of their management. These agencies have standard requirements which include the adoption of uniform training standards, incorporating time-tested technologies into the curricula of their programmes (Riley, Church, & Schmidt, 2022).

Security Implications for Firms

Accounting and financial information must be secured both when in place and critically when transmitted over the internet. Ilias, Ghani, and Azhar (2019) have documented extensively issues relating to the security of financial information and its transmission, emphasising measures to ensure the accuracy and consistency of XBRL-tagged data. Bawaneh (2018) identified the threat to data transmission with data corruption, mainly by third-party malicious hackers on public networks, as the main problem associated with information exchange. Ensuring the integrity and security of transmitting XBRL data is therefore essential to protect sensitive financial information and maintain data accuracy. Among the many measures to guarantee this, Kumar, Kumar, and Dilip (2019) recommend that firms build a secure security infrastructure involving digital signatures, secure protocols, access control, firewalls and intrusion detection/prevention systems, data encryption, and data masking. Mosteanu and Faccia (2020) and Liu, Luo, and Wang (2017) suggest complementing the above with data encryption, data masking, audit trails, security awareness training, regular updates and patch management, vendor security, compliance, regular security assessments, and incident response plans.

Firms are aware of this inherent threat and have taken the steps necessary to secure their data through the use of secure virtual channels (McCallig, Robb, & Rohde, 2019). Such facilities are already available for transmitting financial information to clients using public-private key cryptography. On skills for implementing XBRL technologies for financial reporting, Debreceny, Farewell, Scarlata and Stone (2020) claim familiarity with the taxonomy of accounting standards is far more important. This implies that the path to acquiring skills for implementing XBRL will not be a significant leap. Tadesse and Vincent (2022) recommend the acquisition of such skills via a data analytics curriculum for accountants in training. Overall, the costs involved in seamless transitioning to XBRL should be minimal.

Conclusion

Business is in the age of globalization. To be part of it, firms have to adopt practices that promote transparency across all their activities, including financial reporting. It is generally acknowledged that sound and transparent financial reporting is at the heart of investment and trading of securities in both public and private markets. The requirement for financial reports to be timely, accurate, and transparent is imperative in today's fast-moving markets. Increasingly, there are demands globally for increased transparency, improved data accuracy, and streamlined reporting processes of companies' financial and non-financial information. Investors want access to these financial statements and related firm information in a timely, accurate, and transparent manner to help in decision-making on matters related to their portfolios. XBRL benefits auditors (Shan & Troshani, 2014), reduces information asymmetry between shareholders and management (Yoon, Zo, & Ciganek, 2011; Liu, Luo, & Wang, 2017), helps allocate investor funds efficiently (Palas & Baranes, 2019; Taylor & Dzuranin, 2010) and enriches investors' decision-making processes (Chen, Wang, & Zhou, 2018). Currently, SSA countries have no legislation mandating publicly listed firms to report to a central repository for investors to access from anywhere in the world. Given the benefits of XBRL technology, the accounting profession and regulators will have to agree to legislate to move firms listed on the various exchanges towards reporting within such a framework. Conditions such as widespread broadband access across these countries and the presence of accountants skilled in IFRS reporting already exist. In conclusion, XBRL is a standardised and structured language that plays a crucial role in modern financial reporting and analysis. Its adoption continues to grow as more organisations recognise its potential to enhance transparency, accuracy, and efficiency in financial data reporting and analysis. A climate of transparency has the potential to build investor confidence and ensure SSA's financial assets are not discounted for the supposed investment uncertainties risk they carry.

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