

XBRL Standards – Mean of Improving Capital Market Information Process

Lăcrămioara Mansour¹, Elena Cerasela Spătariu² and Cristina Elena Georgescu³

¹⁾ Bucharest University of Economic Studies, Bucharest, Romania

^{2),3)} Ovidius University of Constanța, Constanța, Romania

E-mail: stoianlacramioara22@stud.ase.ro;

E-mail: ebarbu2001@yahoo.com; E-mail: cristina.georgescu95@gmail.com

Please cite this paper as:

Mansour, L., Spătariu, E.C. and Georgescu C.E., 2023. XBRL Standards – Mean of Improving Capital Market Information Process. In: R. Pamfilie, V. Dinu, C. Vasiliu, D. Pleșea, L. Tăchiciu eds. 2023. 9th BASIQ International Conference on New Trends in Sustainable Business and Consumption. Constanța, Romania, 8-10 June 2023. Bucharest: ASE, pp. 448-455

DOI: [10.24818/BASIQ/2023/09/039](https://doi.org/10.24818/BASIQ/2023/09/039)

Abstract

This article studies in a systematic way, based on specialized research literature, the benefits of the XBRL standardized reporting of the financial-accounting statements and the impact of its use on the company's relationship with the capital markets. XBRL digital reporting standards emerged as a necessity for the development of economic processes in global markets, realizing the informational link between companies and stakeholders, including investors, through information technology. The paper uses, as a foundation, the research based on the analysis of the specialized literature, highlighting the benefits of XBRL reporting within the information process of the capital markets: reducing the costs of acquiring, accessing, processing and analysing information. The responses of these markets were immediate, the analysed studies demonstrated as immediate effects of the standards implementation, the improvement of the company image among investors, the increase of the entities market value and the increase of the capital markets ensemble efficiency. Our study is primarily addressed to companies, in substantiating the decision regarding of these reporting standards implementation.

Keywords

XBRL (Extensible Business Reporting Language), capital market, regulatory norms, value relevance, digital corporate reporting

DOI: [10.24818/BASIQ/2023/09/039](https://doi.org/10.24818/BASIQ/2023/09/039)

Introduction

In order to face with the qualitative, quantitative and interoperability requirements of financial information, as a determining factor of the decision-making process with an impact on the scepticism of the information users, it is necessary to implement emerging technologies (XBRL, continuous/online/digital/e-reporting, artificial intelligence, continuous audit, big data, data analytics, internet technologies, cloud computing) (Chiu et al., 2019) alongside the standardization of reporting formats. XBRL (2019) offers the possibility of making financial-accounting reports, using an accurate description of the information and a common and universal programming language, and their detailed presentation through a standardized report that allows data processing and comparability. The efficiency of one of the most sensitive markets to the information factor - the capital market - is determined by the actuality, accuracy, quality, comparability, timeliness and sufficiency of information. Prices react, first of all, to information (Fama, 1970, Grossman, 1976) and the mechanism of their formation - that allows the optimal allocation of capital resources (G.A., 2015), depends on the informational efficiency of the national capital market (Kelly and Ljungqvist, 2012).

The study aims to treat the issue of financial reporting component by using the eXtensible Business Reporting Language (XBRL, 2007), with an emphasis on the identification in the specialized literature of

recent years of the various existing interdependence relationships between XBRL reporting and the capital markets performance indicators, as a tool to measure the market's reaction to these standards.

The motivation for choosing this research topic is based on the intention to contribute to the expansion of an innovative but, at the same time, extremely difficult research area, taking into account that reporting in the unique XBRL format is in full development process both at the level of scientific research and in the practice of European economic entities, accentuated by the requirements of the implementation of XBRL standards and, at the time of the realization of this work, the specialized literature has registered an evolution from the phase of conceptual presentation of the necessity of the standardization of reports and the XBRL theory to the analysis of the implications generated by the implementation of the standards, which gives it *relevance*. At the same time, it is mandatory to further study how local actors shape the limits in the implementation of different regulatory frameworks to determine the process by which accounting practices retain their national specificity even as they submit to the globalization process. (Albu et al., 2022).

The aim of this paper is to investigate, through the analysis of specialized literature, the reactions of the capital markets to the companies' initiatives to implement the XBRL reporting standards and, in order to achieve it, we identified two *objectives* of this work. *Objective no. 1* aims at the definition and a critical analysis of the reporting concepts under the XBRL standards, the presentation of the evolution and perspectives of integrated XBRL reporting. *Objective no. 2* aims to identify within the specialized literature, the dependences between financial reporting in accordance with XBRL standards and capital market reaction. To fulfil the objectives, we studied the specialized literature from which it emerged that XBRL reporting represents an innovative business model that integrates economic, social, environmental and governance pillars, presenting stakeholders an entire unitary information system. The methodology used to achieve the objectives consisted in the systematization and analysis of the most important articles from the specialized literature.

The paper is structured in five chapters. The first one gives a brief introduction accompanied by motivation to the chosen research topic. The second chapter summarizes the interest of the researchers regarding XBRL reporting standards, as well as the contribution of these reports to the improvement of the communication process with investors and to increasing the efficiency of information transmission in the capital markets. In chapter number three, the research methodology is described. Chapter four begins with the presentation of the international context regarding the standardization of financial reporting and it continues with a review of the relevant literature regarding the impact of the XBRL adoption on financial information of interest in investor relations in the capital markets. From all this, it reveals the extremely complex nature of this type of reporting, but also the impact it can have on the capital market's reaction and implicitly on financial stability at the global level. The last of the sections provides a synthesis of the results as well as opportunities for future research.

1. Literature review

XBRL technology was first used by the American Institute of Certified Public Accountants (AICPA) which defines the principles and terminology used in accounting reporting regulations. Currently, the International XBRL Consortium (2007) brings together the efforts of more than 170 organizations promoting this universal financial reporting language, which leads to a more efficient regulation process (Star, 2012). The success of digital solutions implementation offered by XBRL framework depends on the level of the information system development, and the main benefits of using this informatic language are represented by the speed of accessing information, increased transparency for investors and increased efficiency data analysing and this transparency and accessibility increase has the effect of reducing the companies' capital costs (Pinsker, 2008). In capital markets, exchanges play an essential role because they facilitate the market infrastructural arrangements organization (Petry, 2021). Companies listed on the capital markets must make profitable decisions that determine the maximization of value for investors (Jensen, 2001), in their capacity as private capital holders (Smith, 2003), towards which all results are directed and they must create efficient (Davies, 2018; Jessop, 2018) and profit-generating results.

In 1984, Freeman is the one who comes up with the innovative proposal to direct reporting strategies to all stakeholders in favour of the "shareholder primacy" theory (Freeman, 1984), thus balancing the all needs for information. This generates a commitment for a redefinition for companies' role and nature in the

stakeholder' communication process (Jensen, 2001), but also of the entity as a tool to achieve investors' objectives (Asher et al., 2005). Malkier (2003) defines the capital market as that market where prices reflect all known information, where even uninformed investors get the same return as experts and the inefficiencies of markets or delayed responses of prices in the efficient capital market are the result of investors inattention. (DeLong et al., 1990; Hirshleifer et al., 2013). Meanwhile, specialist studies have turned their attention to the information provided by XBRL reports, identifying a number of benefits on reducing reporting costs (Lai et al., 2015), reporting opportunities (Du & Wu, 2018), information processing costs (Blankespoor, 2019), or shareholder wealth (Chen et al., 2018; Kim et al., 2018).

Reports under the XBRL standard can store, process and exchange the data contained in financial reports in an opportune, accurate, efficient and economical time, which is translating for investors, in their capacity as beneficiaries of this information, into an improvement of the quality for the received information and into the growth of the investment comfort. Hodge et al. (2004) claims that investors - users of integrated information within XBRL reporting- are privileged to benefit from those reports ability to simplify the financial – accounting information transferring process between investors, financial analysts and regulatory bodies, which leads to a clearer understanding of corporate policies and, implicitly, into an increased quality (Baldwin et al., 2006) and relevance of information (Birt et al., 2017). XBRL can reduce the level of information asymmetry (Yoon et al., 2011), can increase the financial reporting transparency (Bartley et al., 2011), can mitigate capital market informational risk and can reduce the level of stock returns volatility (Kim & Shi, 2012; Efendi et al., 2014).

The studies according to XBRL early adoption indicate that this reporting influences investment decisions (Hodge et al., 2004; Lymer & Lowe, 2010). Early adoption of XBRL had effects on a wide range of investor relations variables: cost of capital (Liu et al., 2014), accuracy financial analysts' forecasts (Liu et al., 2014), information environment (Li & Nwaeze, 2015) or trading volume (Blankespoor, 2019). Within common law states, accounting standards determine a broader evolutionary process, contracts between investors and companies take place in an open market (Ball et al., 2000) and corporate governance arrangements is based on the model according to which investors' compliance acts as managers' monitors (Bushman & Piotroski, 2006), which determines the addressability of the reported information. Although the researches regarding the beneficiaries of digital reporting and the impact of XBRL has experienced an upward trend in recent years, especially in the sphere of the capital market, the opinions of researchers are not unanimous, there are a number of tensions regarding their findings (Guilloux et al., 2013; Locke et al., 2010; Lowe, 2012; Troshani et al., 2018). There are studies that show that the dominant perceptions among investors are that the main beneficiaries of this type of integrated digital reporting are the regulatory authorities themselves, aspects that have led to the limitation of this type of reporting in areas where it is voluntary (Bharosa et al., 2015; de Winne et al., 2011).

2. Research methods

In order to provide a broad picture of capital markets' reactions to companies' initiatives to implement XBRL standards, the present paper is built on previous literature. For this purpose, we analysed the specialized literature from the WoS, Emerald, Scopus and de Gruyter databases from 2006 to 2022 (articles, books, national, European and international legislative sources, websites of international professional bodies). In order to identify these works, we used words such as keywords "XBRL & capital market", respectively "XBRL & shareholder information" and the generated works were subjected to a content analysis. All this articles were downloaded in the PDF versions and we analysed their content and results. As a result of this analysis, a series of variables used in previous researches resulted, through which are established the relationships between the standardized XBRL reporting and the communication process with the investor parties (improving the image of the company, the value of the company, the level of trading, the volatility of the stock price) but also that this process is carried out based, in particular, on financial information. For each variable with reference to XBRL reporting and the identified capital market, we created a table in Microsoft Excel with different fields of analysis (nature of the relationship, time period analysed, regional market under research, methodology used, reference data of the article).

3. Results and discussion

In recent decades, corporations use the Internet as a channel for effective communication with stakeholders, and most companies publish their reports on their own or regulatory websites (CICA 2005, IASC 1999, FASB 2000), all for to facilitate the stakeholder access to information. All over the world, regulatory and legislative authorities have implemented several XBRL reporting standards (2007), and several software developers release applications that facilitate these reports. The USA implemented the system in 2005, when the SEC (2005) allocated \$5.5 million to develop XBRL taxonomies for companies, Japan in 2006 (The Japanese Government), Canada (Canadian Securities Administrator) and Korea (Repository of Korea's Corporate Filing) launched a voluntary submission program in 2007, the United Kingdom implemented the program system in 2010 (U.K. Government).

At the European level, there is an obligation (E.U., 2019) for companies that report according to IFRS standards to label these financial reports in a unique European format - ESEF, and beginning for the year 2020, companies listed on stock exchanges report part of the figures and information from their the consolidated financial statements in XBRL format and, starting from January 2022, the requirement extends to all the information included in the consolidated financial statements (European Parliament, 2004; ESMA, 2022). The introduction of the single reporting format (IASB, 2020) has the effect of increasing the transparency of reporting standards but also it gives the possibilities for dates to be compared regardless of language, structure or format, and this allows interested parties, including shareholders, the possibility to automatically perform different analyses. In technical terms, financial statements drawn up under XBRL standards must be prepared in xHtml language (eXtensible Hypertext Markup Language) and reports must be label. The digital reporting standard allows for the electronic information communication through computer-readable labels, similar to barcodes or ISBNs in the book identification system.

XBRL web application allows companies to convert financial reports in Word/PDF/Excel format to the ESMA reporting format, and transmit them in an operational, complete, validated way to interested institutions, which ensures the coherence and consistency of all reported documents, with a positive effect on the costs of collecting, converting, disseminating, exchanging and validating the reported data, respecting the standardized taxonomy (fig. No.1). In fact, XBRL reporting does not replace the traditional annual filing, but through these standards companies can automate the processes of collecting and disseminating information in a more efficient, better controlled, and more detailed way to improve reporting functionality (Dunne et al., 2013) and at lower costs and offers, at the same time, a number of advantages to information users, providing the possibilities for making comparisons between companies and cross-sectional analyses according of user needs (SEC, 2009; Willis, 2005). The actual influence of the adoption of XBRL standards on the reaction of the capital market has particularly attracted the attention of researchers in the states that implemented this system before the European states, there being sufficient data to carry out impact studies.

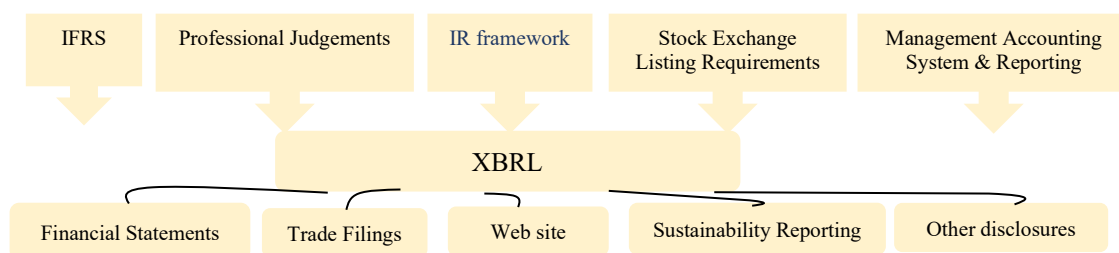


Figure No. 1 XBRL Taxonomy

Source: made by authors based on (XBRL International, 2007)

In rule-of-law countries, standards emerge and evolve through the natural processes of economies in widely open markets, depending on the needs and experience of participants (Ball et al., 2000). The links between investors and companies are made through the director boards (Bushman & Piotroski, 2006) in their capacity as monitors of management. It hence their major interest in addressing information contained in the reports, in special to capital providers. An unanimously accepted opinion in the specialized literature is that of the need to use informatic technologies in the reporting process and of the existence of a direct -

positive relationships between the adoption of XBRL standardized reporting and the improving of company image (Mousa & Ozili, 2022; Avvalone et al., 2016; Chen et al., 2021; Zhang et al., 2019; Hsieh et al., 2019; Wen, 2021). Another variable of XBRL identified within the analysed literature is represented by the company value, but here the research' results are in antithesis. Thus, while (Chen et al., 2021; Mine Aksoy et al., 2021) support a positive relationship between disclosure and the market company value, (Xing & Anderson, 2011; Kim & Shi, 2012) support the idea that the values of market reflect homogeneous fluctuations in general capital market prices and less firm-specific information.

Other studies highlight the idea that XBRL reduces investors' costs of acquiring, processing and comparing information (Blankespoor et al., 2020), it reduces investors' expectations about investment risks (Zhang et al., 2019; Chen et al., 2018) and improves the ability to manage earnings in the short, medium and long term, which has an effect on the capital markets performance as a whole (Chen et al., 2021). Regarding the opportunity of financial information provided by XBRL standards, studies (Du & Wu, 2018; Yoon et al., 2011; Weissmueller, 2014) argue that the horizons of reporting times were shortened following the XBRL mandate, creating the opportunity for financial reporting, impacting the decision-making process of investors, the timely provision of financial information and reasonable costs being essential for them. Blankespooret (2014) however draws attention to the fact that new technology creates benefits to a greater extent in favour of large companies, disfavouring SMEs, and this facts can change the dynamics of the financial market, generating the capital markets segmentation.

Conclusions

XBRL reporting using specialized software programs offers companies the possibility of automating the processes of creating, presenting, validating and disseminating metadata from financial statements in a standardized, integrated, timely and low-cost manner, in a common international language, with specific standards.

The introduction of XBRL reporting standards reduced the time and cost of transmitting financial-accounting information to the capital markets, increased comparability and the possibilities that they can be integrated within different information systems, increased the transparency and quality of information and ensured the improvement of their circulation, facilitating the communication process with the capital markets, reducing the informational asymmetry within them.

In accordance with the advantages listed by the international bodies, the results of various empirical research carried out among the states that already implemented these standards, indicate the impact of the XBRL use on the information processes and the analysis of the specialized literature reveals the immediate reactions of the capital markets following the adoption by companies of informatic reporting systems.

Re-examining the use of XBRL in order to facilitate the incorporation of the taxonomy of these standardizations and within the reporting of non-financial information, of sustainability, with social impact, could represent a new point of interest for international bodies in the field of reporting, improving the process of communication with interested parties, including shareholders and from the sustainability point of view.

As any other research work, the present paper has its own limitations primarily related to the scope and depth of the analyse data, but also to the way of their interpretation and to the relatively small number of identified articles and secondly, related to the general way of presenting the concepts, without developing an empirical study that highlights the links between the implementation of XBRL standards and communication with shareholders, respectively with the capital market. The study of the impact of the introduction of XBRL reporting on the European capital markets represents an objective that we propose to research in the next period.

References

- ACCA, 2017. *Insights into Integrated Reporting*. [online] Available at: <https://www.integratedreporting.org/wp-content/uploads/2017/04/ACCAInsights_into_Integrated_Reporting.pdf> [Accessed 27 March 2023].

- AICPA and CIMA. Retrieved from AICPA Principles and Criteria for XBRL. Available at: <<https://www.aicpa-cima.com/resources/download/aicpa-principles-and-criteria-for-xbrl>> [Accessed 16 March 2023].
- Albu, N., Albu, C.N., Cho, C.H. and Pesci, C., 2022. Not on the ruins, but with the ruins of the past – Inertia and change in the financial reporting field in a transitioning country. *Critical Perspectives on Accounting*, p.102535. <https://doi.org/10.1016/j.cpa.2022.102535>.
- Asher, C.C., Mahoney, J.M., Mahoney, J.T., 2005. Towards a property rights foundation for a stakeholder theory of the firm. *Journal of Management and Governance*, 9(1), pp. 5-32.
- Avalone, F., Ramassa, P., 2016. XBRL Extension to the Financial Statement Notes: Field-based Evidence on Unlisted Companies. *The International Journal of Digital Accounting Research*, 16, pp.61-84.
- Baldwin, A.A., Brown, C.E., Trinkle, B.S., 2006. XBRL: an impacts framework and research challenge. *Journal of Emerging Technologies in Accounting*, 3(1), pp.97-116.
- Ball, R., Kothari, S. P., Robin, A., 2000. The effect of international institutional factors on properties of accounting earnings. *Journal of Accounting and Economics*, 29(1), pp. 1-51.
- Bartley, J., Chen, A. Y. S., Taylor, E. Z. (2011). A comparison of XBRL filings to corporate 10-Ks— Evidence from the voluntary filing program. *Accounting Horizons*, 25(2), pp. 227-245.
- Bharosa, N., Van Wijk, R., De Winne, N., Janssen, M., 2015. *Challenging the Chain - Governing the Automated Exchange and Processing of Business Information*. IOS Press.
- Birt, J. L., Muthusamy, K., Birt, P., 2017. XBRL and the qualitative characteristics of useful financial information. *Accounting Research Journal*, 30(1), pp. 107-126.
- Blankespoor, E., 2019. The impact of information processing costs on firm disclosure choice: evidence from the XBRL mandate. *Journal of Accounting Research*, 57(4), pp. 919-967.
- Blankespoor, E., deHaan, E. and Marinovic, I., 2020. Disclosure processing costs, investors' information choice, and equity market outcomes: A review. *Journal of Accounting and Economics*, 70(2–3), p.101344. <https://doi.org/10.1016/j.jacceco.2020.101344>.
- Blankespoor, E., Miller, B. P., Whit, H. D., 2014. Initial evidence on the market impact of the XBRL mandate. *Review of Accounting Studies*, 19, pp.1468-1503.
- Bushman, R.M. and Piotroski, J.D., 2006. Financial reporting incentives for conservative accounting: the influence of legal and political institutions. *Journal of Accounting and Economics*, 42, pp. 107-148.
- Canadian Securities Administrator, 2007. XBRL. Retrieved from Ontario Security Commission. Available at: <<https://www.osc.ca/en/xbrl>> [Accessed 01 April 2023].
- Chen, G., Kim, J.-B., Lim, J.-H., Zhou, J., 2018. XBRL adoption and bank loan contracting: early evidence. *Journal of Information Systems*, 32(2), pp. 47-69.
- Chen, S., Guo, J., Liu, Q. and Tong, X., 2021. The impact of XBRL on real earnings management. *Review of Quantitative Finance and Accounting*, 56(2), pp.479–504.
- Chiu, V., Liu, Q., Baldwin, A.A., 2019. A bibliometric analysis of AIS journals and their emerging technologies contributions. *International Journal of Accounting Information Systems*, 32, pp.24-43.
- Davies, W., 2018. *The neoliberal state: Power against politics*. In C. M. Cahill D, *The SAGE Handbook of Neoliberalism*. London: Sage.
- de Winne, N., Janssen, M., Bharosa, N., van Wijk, R., Hulstijn, J., 2011. Transforming public-private networks. *International Journal of E-government Research*, 7(4), pp. 35-45.
- DeLong, J. B., Shleifer, A., Summers, L. H., Waldmann, R. J., 1990. Noise trader risk in financial markets. *Journal of Political Economy*, 98, pp. 703-738.
- Du, H., Wu, K., 2018. XBRL mandate and timeliness of financial reporting: do XBRL filings take longer. *Journal of Emerging Technologies in Accounting*, 15(1), pp. 57-75.
- Dunne, T., Helliar, C., Lymer, A., Mousa, R., 2013. Stakeholder engagement in internet financial reporting: the diffusion of XBRL in the UK. *The British Accounting Review*, 45, pp. 167-182.
- Efendi, J., Park, J. D., Smith, L. M., 2014. Do XBRL filings enhance informational efficiency? Early evidence from post-earnings announcement drift. *Journal of Business Research*, 67(6), pp. 1099-1105.

- ESMA, E. S., 2022. *Final Report on the draft RTS amending Delegated Regulation (EU) 2019/815 as regards the 2022 update of the taxonomy laid down in the RTS on ESEF*. [pdf] Available at: <https://www.esma.europa.eu/sites/default/files/library/esma32-60-850_final_report_draft_rts_amending_rts_on_esef.pdf> [Accessed 10 April 2023].
- European Parliament, 2019. *EUR-Lex*. [online] Available at: <<https://eur-lex.europa.eu/legal-content/ro/TXT/?uri=CELEX%3A32019L1152>> [Accessed 16 March 2023].
- European Parliament, 2004. *EUR-Lex*. [online] Available at: <<http://data.europa.eu/eli/dir/2004/109/2021-03-18>> [Accessed 16 March 2023].
- Fama, E.F., 1970. Efficient Capital Markets: A Review of Theory and Empirical Work. *The Journal of Finance*, 25(2), p.383. <https://doi.org/10.2307/2325486>.
- Repository of Korea's Corporate Filing, 2023. *DART | XBRL Financial Statements | Latest Filings*. [online] Available at: <<https://englishdart.fss.or.kr/dsbd001/main.do>> [Accessed 01 April 2023].
- Freeman, R.E., 1984. *Strategic management: a stakeholder approach*. Pitman series in business and public policy. Boston: Pitman.
- Grossman, S., 1976. On the efficiency of competitive stock markets where trades have diverse information. *The Journal of Finance*, 31(2), pp.573–585.
- Guilloux, V., Locke, J. and Lowe, A., 2013. Digital business reporting standards: mapping the battle in France. *European Journal of Information Systems*, 22(3), pp.257–277.
- Hirshleifer, D., Hsu, P.-H. and Li, D., 2013. Innovative efficiency and stock returns. *Journal of Financial Economics*, 107(3), pp.632–654. <https://doi.org/10.1016/j.jfineco.2012.09.011>.
- Hodge, F.D., Kennedy, J.J. and Maines, L.A., 2004. Does Search-Facilitating Technology Improve the Transparency of Financial Reporting? *The Accounting Review*, 79(3), pp.687–703.
- Hsieh, T.-S., Wang, Z. and Abdolmohammadi, M.J., 2019. Factors Associated with Companies' Choices of XBRL Implementation Strategies. *Journal of Information Systems*, 33(3), pp.75–91.
- IASB, I., 2023. *IFRS - IFRS Taxonomy 2020*. [online] Available at: <<https://www.ifrs.org/issued-standards/ifrs-taxonomy/ifrs-taxonomy-2020/>> [Accessed 10 April 2023].
- Jensen, M., 2001. Value maximization, stakeholder theory, and the corporate objective function. *Journal of Applied Corporate Finance*, 14(3), pp. 8-21.
- Jessop, B., 2018. *Neoliberalism and workfare: Schumpeterian or Ricardian? In C. M. Cahill D, The SAGE Handbook of Neoliberalism*. London: Sage.
- Kelly, B., Ljungqvist, A., 2012. Testing asymmetric-information asset pricing models. *Review of Financial Study*, 25(5), pp. 1366-1413.
- Kim, J. B., Shi, H., 2012. IFRS reporting, firm-specific information flows, and institutional environments: International evidence. *Review of Accounting Studies*, 17(3), pp. 474-517.
- Kim, J.B., Li, B., Liu, Z., 2018. Information-processing costs and breadth of ownership. *Contemporary Accounting Research*, 36(4), pp. 2408-2436.
- Lai, S.-C., Lin, Y.-S., Lin, Y.-H., Huang, H.-W., 2015. XBRL adoption and cost of debt. *International Journal of Accounting and Information Management*, 23(2), pp. 199-216.
- Li, S., Nwaeze, E.T., 2015. The association between extensions in XBRL disclosures and financial information environment. *Journal of Information Systems*, 3(29), pp. 73-79.
- Liu, C., Wang, T., Yao, L.J., 2014. XBRL's impact on analyst forecast behaviour: an empirical study. *Journal of Accounting and Public Policy*, 33(1), pp. 69-82.
- Locke, J., Lymer, A., Lowe, A., 2010. Digital Reporting Options for Europe: A Study of Interactive Data from the Perspective of Non-professional Investors. *Institute of Chartered Accountants*.
- Lowe, A. L., 2012. The SEC's retail investor 2.0: interactive data and the rise of calculative accountability. *Critical Perspectives on Accounting*, 23(3), pp. 183-200.
- Malkiel, B. G., 2003. The Efficient Market Hypothesis and Its Critics. *Journal Of Economic Perspectives*, 17(1), pp. 59-82.

- Mine Aksoy, M., Yilmaz, M., K., Topcu, N., Uysal, O., 2021. The impact of ownership structure, board attributes and XBRL mandate on timeliness of financial reporting: evidence from Turkey. *Journal of Applied Accounting Research*, 22(4), pp.706–731.
- Mousa, R. and Ozili, P.K., 2022. A Futuristic View of Using XBRL Technology in Non-Financial Sustainability Reporting. *Journal of Risk and Financial Management*, 16(1), p.1.
- Petry, J., 2021. From national marketplaces to global providers of financial infrastructures: Exchanges, infrastructures and structural power in global finance. *New Political Economy*, 26(4), pp. 574-597.
- Pinsker, R. and Li, S., 2008. Costs and benefits of XBRL adoption: early evidence. *Communications of the ACM*, 51(3), pp.47–50.
- S.E.C., 2005. *Sec adopts rule establishing a voluntary program for reporting financial information on edger using XBRL*. Available at: < <https://www.sec.gov/news/press/2005-12.htm> > [Accessed 01 April 2023].
- Smith, H., 2003. The shareholders vs. stakeholder debate. *MIT Sloan Management Review*, 44(4), pp. 85-90.
- Standards Business Reporting (n.d.). *Ten Countries with Open Data*. Retrieved from XBRL. Available at: < <https://www.xbrl.org/the-standard/why/ten-countries-with-open-data/> > [Accessed 16 April 2023].
- Star, M., 2012. SEC: Inside Information. *Interactive Business Reporting*, 1-12.
- The institute of Management Accountants, 2000. *First Annual XBRL Academic Competition*. [online] Available at < <http://www.xbrl.org/Education/AcademicComp-2001.htm> > [Accessed 27 March 2023].
- The Japanese Government, 2007. *Electronic Disclosure for Investors' Network*. [online] Available at: < <https://disclosure2.edinet-fsa.go.jp/WEEK0020.aspx> > [Accessed 01 April 2023].
- The U.K. Government, 2010. *XBRL guide for businesses*. [online] Available at < <https://www.gov.uk/government/publications/xbrl-guide-for-uk-businesses/xbrl-guide-for-uk-businesses> > [Accessed 01 April 2023].
- Troshani, I., Janssen, M., Lymer, A., Parker, L.D., 2018. Digital transformation of business-to government reporting: an institutional work perspective. *International Journal of Accounting*, 31, pp. 17-36.
- Titman G.A., 2015. The efficient market hypothesis: Review of specialized literature and empirical research. *Procedia Economics and Finance*, 32, pp. 442-449.
- U.E., 2019. *Eur-Lex - Access to the EU law*. [online] Available at: < <https://eur-lex.europa.eu/legal-content/RO/ALL/?uri=CELEX:32019R0815> > [Accessed 16 March 2023].
- Weissmueller, R. J., 2014. Impact of using XBRL in 10K and 10Q filings with the SEC. *Journal of Business Research and Information Technology*, 1(1), pp. 45-59.
- Wen, Y., 2021. Research on XBRL Financial Reporting Model under Big Data. *Journal of Physics: Conference Series*, 1756(1), p.012017. <https://doi.org/10.1088/1742-6596/1756/1/012017>.
- Willis, M., 2005. BRL and data standardization: transforming the way CPAs work; save time and improve reporting. *Journal of Accountancy*, 199(3), pp. 80-81.
- XBRL Inc., 2019. *XBRL Implementations*. [online] Available at: < <https://www.xbrl.org/thestandard/> > [Accessed 16 March 2023].
- Xing, X. and Anderson, R., 2011. Stock price synchronicity and public firm-specific information. *Journal of Financial Markets*, 14(2), pp.259–276
- Yoon, H., Zo, H., Ciganek, A.P., 2011. Does XBRL adoption reduce information asymmetry? *Journal of Business Research*, 64(2), pp. 157-163.
- Zhang, Y., Guan, Y., Kim, J-B., 2019. XBRL adoption and expected crash risk. *Journal of Accounting and Public Policy*, 38(1), pp. 31-52.