THE IMPACT OF THE BLUE SWAN ON THE QUALITY OF FINANCIAL REPORTING: AN EMPIRICAL STUDY AT BAGHDAD SOFT DRINKS COMPANY

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Abstract
The research paper aims to develop an accounting framework for measuring capital and strategic changes as a test of Blue Swan theory for the quality of financial reporting. The Blue Swan Index (BSTI) was devised to measure the level of transformation. Moreover, Financial Reporting Quality Index (FRQI) was proposed based on the four financial indices: ROA, ATR, EQ and OCFA are key determinants of Corporate Income Tax Non-Compliance by manufacturing companies in Sri Lanka. The analysis of annual financial accounts for the years (2016-2025) for the Baghdad Soft Drinks Company was carried out using a descriptive analytical approach. According to the researcher, descriptive statistics, correlation analysis, simple linear regression, Analysis of Variance (ANOVA), and Analytic Hierarchy Process (AHP) have been used to test hypotheses and construct the Blue Swan Index. The study established that there is a correlation between the Blue Swan Index (BSTI) and the Financial Reporting Quality Index (FRQI). The BSTI was also found to affect the FRQI positively and significantly, according to the results. Besides the investigation of investment policies, a new accounting concept dubbed the Blue Swan has also been introduced. Two other composite indices have been developed which may be used for assessment and which assist decision making. It also enhances the accounting literature on financial reporting quality. An analysis of the Blue Swan Index (BSTI) and Financial Reporting Quality Index (FRQI) as well as capital shifts of listed companies in Bangladesh.The Blue Swan index (BSTI) along with Financial Reporting Quality Index (FRQI) helps predict capital transformations as evidence from Bagdad soft drink company.

1. Introduction

Due to varied technological advancements and digitalisation, business transformation is changing faster than ever before. The investment choice and the capital structure of the organisation are altered on account of these changes. The competitive impact of traditional investments is no longer their size per se, but rather the capacity of the organisations to make use of these transformations to create sustainable economic value and improve the quality of performance and financial reporting.

In this context, this study proposes the Blue Swan as a proposed accounting concept that captures capital and strategic changes due to technology and innovation with a measurable capability from Blue Swan Index (BSTI) in order to show its impact on financial performance and quality of financial reporting. In essence, the thought behind this is that by making long-term investments in asset and technology, the cumulative effects improve operational efficiency and reliability of financial information.

Faithfully representing the situation, being relevant and being transparent are some of the essential qualities of financial reporting. These will support the decisions of the investors and other stakeholders. Quality of financial reporting is one of the pillars of accounting. Several studies have examined the impact of digital transformation, capital spending, or quality of financial reporting. However, none of these studies provided a quantitative framework that links digital transformation to quality of financial reporting through a composite index.

In this regard, the researcher intends to do research to formulate the Blue Swan Index (BSTI) and the Quality Index of Financial Reporting (FRQI) and test the impact of Blue Swan Index (BSTI) on the Quality Index of Financial Reporting (FRQI) by referring to the financial statements of the Iraqi company, Baghdad Soft Drinks Company, for the year 2016-2025. This will also be a creation of a new accounting frame to be used in the later study. In conclusion, investor decisions were also expected to help management activities.

1.1. Research Methodology

This research uses the method of qualitative descriptive analytic because this approach is appropriate for the nature of financial data researched and to measure the impact of technological change represented by BSTI against the quality of financial statements represented by FRQI.

1.2. Research Problem

The rapid technological and innovative advancement is changing the business environment. The amount of capital invested, structure of assets and financial report show these changes. There is an increasing interest in the financial reporting quality; however, there is still no quantitative framework in the accounting literature that explains how these transformations affect the financial reporting quality particularly from the Iraq perspective. In this context, we present today the Blue Swan concept as a framework capturing capital and strategic transformations and their measurement using the Blue Swan Transformation Index (BSTI). The aim is to assess the effect on the quality of financial reporting using the Financial Reporting Quality Index (FRQI).

Accordingly, the research problem is encapsulated in the following main question:

Does the Blue Swan, as represented by the BSTI index, have a statistically significant effect on the quality of financial reporting, as represented by the FRQI index, at Baghdad Soft Drinks Company?

1.3. Research Objectives

This study aims to achieve the following objectives, which consist of developing evaluative tools. The indices capable of measuring the qualitative aspect of technology transformation and reporting quality through which we can quantitatively analyse were created. We assess the connection between your technology and effective technology investments with profitability, asset turnover efficiency, and cash flows. An insight into the future the financial management of Baghdad Soft Drinks Company is provided with information on the level to which the investment policy contributes to the improvement of the quality of financial information produced.

1.4. Research Hypotheses

Main Hypothesis: "As evidenced by the sample company, the Baghdad Stock Technology Index (BSTI) has a significant impact on financial reporting quality (FRQI)."

First Sub-Hypothesis: The Swan Index (BSTI) is positively influenced by Financial Reporting Quality Index (FRQI) or vice versa.

Second Sub-Hypothesis: Investing in capital-intensive technology (CEI) will boost net operating cash flow (OCFA) to help improve financial reporting quality.

1.5. The Technological Blue Swan Index

1.5.1. The Concept of the Technological Blue Swan

The companies have changed their ways of operating because of rapid technological and digitization of businesses, which has occurred over the years. In order to remain competitive and ensure growth, business organisations are changing their business model and investment model.

As companies take the initiative and take advantage of technologies, new models are being put forward for the significant strategic changes of firms. The words "black swan" has been taken from the economic literature which sought to analyze important events having a high-impact on regulation or economies. According to Taleb (2007) the black swan events are ones that can materially shift the traditional paths of markets and organizations. The recent occurrence of a black swan event has drawn much attention. People usually equate black swan events to those rare incidents that come along uninvited to create havoc that affects the entire globe. On the other hand, through economic and technical factors, strategic shift can be modelled and announced. Consequently, the article utilizes the definition of a technological blue swan to refer to long-term investments in technology and productive assets leading to fundamental and radical transformations that launch significant capital and technological deployments in the operation and financial performance of the organisation. Color blue refers to innovation, sustainability, and future options. It perfectly befitting, and bang on with the philosophy of Kim & Mauborgne (2005) of creating value and new opportunities. It is possible of course to want to define the so-called technological blue swan by the final sum of all strategic transformations which result from the investment in technology and innovation, the future impacts of which can be better anticipated and quantified by appropriate financial and operational indicators.

1.5.2. The Importance of the Technological Blue Swan

Technological blue swan provides an interpretive framework to understand the strategic transformations organizations undergo due to the investments made in technology and innovation. Hence, technological blue swan does take an important note. The technology is becoming one of the most relevant sources of economic value creation and achievement of sustainable competitive advantage. The efficiency of organizations in the process would also be enhanced through the automating of processes due to technical changes. Furthermore, it also provides processes for production and rendering of services that will reduce cost, improve quality of output and will generate profits (Laudon & Laudon, 2022).

The accounting and finance field may also get a boost from the "blue swan". in essence, new digital systems improve the quality of financial information

Besides, they help enhance transparency, minimize errors, and strengthen internal control systems. The quality of financial reporting will be positively affected most important (Bhimani, 2021). For a different view, the technological blue swan is critical to measuring the organizational changes and assessing the impacts on macro-level and long-run economic and financial consequences (Vial, 2021).

1.5.3. Components and dimensions of the Digital Blue Swan

The Technological Blue Swan consists of a group of inter-correlated dimensions that concentrate on the structural changes the organization is undergoing due to investment in technology and innovation. The following are the dimensions. The amount invested in fixed assets and productive and technological infrastructure characterized size expansion of any firm that is viewed as an essential indicator of intensification of an organization investment (Ross et al., 2022). The Technological dimension is denoted by the use or application of modern technology, digital system and artificial intelligence that is done by the administration and functioning of the organisation. It has a direct impact on efficiency and productivity.

Organizations must possess the capability to harvest operational performance from capital and technology investments. This means that such resources must yield increased production, as well as improved efficiency and quality of production/service (Laudon & Laudon, 2022). The

economic aspect of technology transformation refers to the revenues, profit growth and economic value addition which technology brings to the organization (Brealey et al., 2022).

1.5.4. Factors Influencing the Technological Blue Swan

A technology blue swan is the constellation of internal and external factors that affect the ability of a company to adopt technology and create economic value and sustainable competitive advantage. Some elements carry more weight than others. The significance of these factors varies as per the type of economic activity, size of organization and its environment. Nonetheless, the literature of management and finance paints a picture of a set of common factors impacting the technological transformations of organizations (Vial, 2021).

To implement new technology, large amounts of money must be spent on the acquisition of equipment, technology systems, and digital forensics technologies. An investment of sufficient size in capital is necessary for technological transformation. The ability to engage in capital spending increases the likelihood of successful technology transformation for a company. According to the findings of financial experts, capital expenditure is considered one of the best indicators that show the organization's commitment to long-term growth and development. Capital expenditure can affect production capacity, operational efficiency, competitiveness, and more (Ross et al., 2022).

The most powerful driver bringing "blue swans" on the scene is technological advancement (2018-2019). The development of high-tech solution helps companies to upgrade with automated operation and administrative process as well as product and service development. Moreover, organizations can utilize these upshots to improve their performance and efficiency and using more artificial intelligence, data analytics and cloud computing (Iansiti & Lakhani, 2020). Companies that use the most up-to-date technology are able to adapt to changes in the environment and are able to grow in a sustainable manner than the companies which do not use the latest modern technology (Laudon & Laudon, 2022).

Business organizations have the ability to raise funds for a long-term investment that changes technology. Finance capacity is a term used in the development sector to indicate a firm's ability to raise funds from internal and external sources to finance any expansion or technological modernization project. Also, having funding will reduce the risk of execution of technological projects which will enable doing the organization to exploit available investment opportunities (Gitman et al., 2022).

Management is what really brings the technology transformation results and makes them stick. They will envision the future, make the right investments and build an organizational culture that will ensure technological change. Management that has an open mind to receptivity and development can bring about strategic change better than the traditional management whose focus is upon stability itself. The senior management support for digital transformation initiatives is another important facilitating factor to the success of technological initiatives.

The competitive context is another influencing factor in the intensity of technological change. It is essential for modern organizations to arrive at a balance between cost effectuality, quality and delivery primarily owing to increasing competition and the need of the hour to perform better. As per a study a firm which is facing stiff competition invests heavily on technology and innovation to retain its market share and improve competitiveness.

Innovation is what drives technological advancement. It helps create products, systems and even business designs. It has the potential to create economic value and sources Several organizations take the advantage of innovation to make it successful for growth and competitive advantage. Furthermore, organizations which considerably gain economically from innovations possess a culture that fosters innovation (Tidd & Bessant, 2021).

The emergence of this tech blue swan phenomenon is not by mere accident but takes place due to linkages. Resources such as capital, technology, financial capability, business organization, competitiveness and innovations.

The organization can use the factors as a starting point for its capacity to promote the technical changes that will allow it to realize sustainable economic-operational benefits with, ultimately, a performance and quality of its financial products.

1.5.5. Characteristics of the Technological Blue Swan

The operational transformation process of the tech Blue Swan has its own special features that differ from the others. As a result, it has the possibility of creating a long-term strategic impact on organizations. The most important characteristics are the following:

An immediate example of a pro-active behavior is the blue swan: the technological blue swan because there is indeed a possibility to prevent potential black swan events. We can predict them in advance by studying economic and technological trends.

Impact of technological blue swan on an organization does not restrict to short-term impact only. Technological blue swan effects may help the organization to enhance long-term competitiveness and sustainable growth.

Shifts in technology will bring about a fundamental change in the configuration of operations, resources and systems. They have more consequences than just standard operational changes (Vial, 2021).

Ability to Measure The blue technology swan can be measured using a wide range of financial and operational indicators. They showcase the magnitude of capital and technological changes happening in the organization. The blue swan's measurability distinguishes the idea from many descriptive nature strategy ideas (Nardo et al., 2008).

The technological blue swan's inclusiveness (economic, technological, operational, investment, etc.) makes it sufficiently comprehensive to establish strategic transformation in organizations (Nardo et al., 2008).

The goal of Blue Swan Technology is to create economic value for the organization through increasing revenue, operational efficiency and improved profitability (Iansiti & Lakhani, 2020).

It is evident that the Technological Blue Swan has characteristics that make it an appropriate framework to explain technological and innovation-related strategic transformations, as it integrates pro-activeness, sustainability, comprehensiveness and measurability, in addition to its ability to create economic value and strengthening organizational performance in the long term.

1.5.6. Measurement of Technological Blue Swan Index Construction

The composite index is built quantitatively based on several comparative matrices which are in accordance with statistical methods of AHP. The final fused composite value of the super-technologisation in the organizations of the research sample was obtained by combining the four values of the Fixed Asset Growth Rate (FAGR), Cumulative Growth Rate of the Assets (CGR), Capital Expansion Index (CEI) and Revenue Growth Rate (RGR).

1.6. Financial Reporting Quality

1.6.1. The Concept of Financial Reporting Quality

The core ideas of modern accounting theory include the quality of financial reporting. The stakeholders of the firm are affected by the financial decisions of the firm itself. According to the research, enhancing the quality of financial statement information can lead to more effective evaluations of the organization's performance and better decision making (Dechow et al., 2010). Because of various financial crises and collapses taking place, the relevance of financial reporting quality became more pronounced in markets worldwide. Certain accounting and disclosure practices have been found lacking. In recent years, there has been an initiation of new accounting-based standards by professional organizations to enhance the quality of financial information which could be relied on by its users (International Accounting Standards Board, 2018). The accounting literature uses a definition of financial reporting quality that is different from the

definition of quality generally used in other literature. No definition has been found. The financial statement of an entity should fairly and accurately represent the actual economic performance of an entity without any material misstatement. A financial report helps the users to estimate the actual value of an entity, then it is a qualitative report. It refers to the capability of the information of accountant to give a real and fair view of performance, position and cash flow of an entity (Scott, 2022). In the meantime, the International Accounting Standards Board stress that the quality of Financial Report lies in the fundamental qualitative characteristics of accounting information which are relevance and faithful representation and also support characteristics of comparability, verifiabilitytimeliness, and understandability (International Accounting Standards Board, 2018).

1.6.2. Procedural Definition

The financial reporting quality of the company is given by the degree of efficiency and reliability of the financial information contained in the financial reports of the company. The FRQI of a company primarily depends upon: return on asset (ROA), asset turnover ratio (ATR), quality of earnings (EQ) and operating cash flow to asset (OCFA) ratio)."

1.6.3. The Importance of Financial Reporting Quality

The standard of financial reporting is one of the key pillars upon which contemporary capital markets depend; it is a major means of transmitting economic and financial information about the performance of organizations to investors, creditors, regulators and other users or stakeholders. Financial reporting is getting more important as the growing economic activities and increasing complexity of finances. According to (Scott, 2022), high-quality financial reporting can serve as an important catalyst to reduce information asymmetries between management and the owners of the firm.

1.6.4. Providing high-quality information can be a powerful way to reduce the information gap

Thereafter, the efficiency of company's investing and financing decision will be impacted. The qualitative attributes of financial reporting helps investors determine if a company will be viable and profitable in the present and future, and if investing in the company is risky which enable efficient allocation of resources in the financial markets (Penman, 2013). The quality of financial report affects the credibility and reliability of financial statement information provided by the entity. When firms provide reliable and transparent information, users are less likely to do accounting manipulation. Users can rely on financial statements when making investment, credit and other decisions, such as deciding whether to grant credit. Moreover, governance and oversight processes are enhanced since credible financial information enables us to evaluate and hold management accountable for their performance and decisions. It also enhances both internal and external control system efficacies. The clarity and correctness of financial reports are also important to a sustainable organisation and their ability to obtain financing. Lenders favor organizations that offer information that provides them with a high transparency and financial disclosure. Financing risk is caused less by lenders (International Accounting Standards Board, 2018).

1.6.5. Characteristics of Financial Reporting Quality

In the accounting literature, financial reporting quality refers to the mix of qualitative characteristics that financial information must have for it to achieve its purpose of assisting users of financial statements.

Relevance can be defined as the capacity of financial information to influence the economic decision-making of users. The decision-making is affected by the economic data which helps the users to assess past, present and future events.

Faithful representation means information properly depicts the economic reality in complete, neutral and free from error or unwarranted breach of most economic transactions and events.

When the information is comparable, users will be able to compare the performance of the entity over time as well as the performance of different entities.

This means that two independent observers coming to the same conclusion on the information and data used.

Timeliness refers to the process of supplying the financial information as and when required and before loss of worth of the information takes place as far as decision making is concerned (International Accounting Standards Board, 2018).

The design of the information presentation should arrange all pieces of information clearly so that the user understood easily.

1.6.6. Determinants of Financial Reporting Quality

The quality of financial reporting always depends on a mixture of internal and external factors that either enhance or limits the quality of financial information.

Internal control is certainly the key influencing factor because it controls the data accuracy and material misstatements (COSO, 2013). Well-structured internal control helps in achieving compliance with accounting standards and effective fraud prevention (Arens et al., 2020).

A competent board of directors and independent audit committees improve financial disclosure quality and inhibit opportunistic behaviour of management, according to one study. Employing its principles may lower agency problems and build trust (OECD, 2023).

One technique that can be considered for limiting opportunism and enhancing comparison and transparency like IFRS.

The external auditor makes sure that the reports are free from material misstatement and the effectiveness of the audit is positively related to the accuracy of the resulting financial statements (Arens et al., 2020). Moreover, the association is stronger for international reputable audit firms.

According to Vial (2021) and Bhimani (2021), contemporary technology and digital transformation are essential value-creating factors that enhance the use of digital systems and AI to automate data processing, reduce human error, and accelerate disclosures and reporting.

Bigger and wealthier organisations are likely to generate good financial reports as they possess the financial and human resources that support their commitment to sufficient transparency.

The Measures of Quality of Financial Reporting are:

A multi-construct concept is financial reporting quality. The use of different proxies for measuring reporting quality is necessary owing to the different purposes of accounting studies.

Return on Assets (ROA) shows the firm's essential measure for measuring profitability, which shows the firm's ability to leverage its assets and generate profits (Penman, 2013).

The asset turnover ratio is a measurement of the efficiency level of the company to earn revenue by using their assets which are available and how much operational expenses they achieve.

Earnings Quality (EQ) refers to the degree to which accounting profits are associated with efficient operating cash flows and reflect the performance of the organization. (Dechow et al., 2010).

The next ratio is the ocf to assets ratio (ocfa) which shows the operating cash flow capacity of the organization. It thus serves as another check on the quality and sustainability of earnings.

2. Method

2.1. Study Population and Sample

The sample of the study is "Baghdad Soft Drinks Company" where in order to the period from 2016 to 2025 financial data were collected. The reason for the selection of this company is the availability of its audited financial statements and the changed structure of its assets and income of this company during both periods.

2.2. Index Construction

The method of Analytic Hierarchy Process (AHP) was used to construct the Blue Swan Technology Index (BSTI) to arrive at the weights of FAGR, CGR, CEI AND RGR. The four variables reflect expansion of technological capital and its impact both qualitatively and quantitatively.

The Financial Reporting Quality Index (FRQI) combines four main determinants ROA, ATR, EQ, and OCFA of financial reporting quality into one number. To reduce measurement error and counteract the impact of varying units of measurement for each variable taken separately, Z-Scores were utilized, which were then averaged through simple arithmetic. Therefore, the measure is standardized and in order of measurement is apt for analysis.

2.3. Statistical Analysis Methods

To meet the study objectives and test the hypothesis, the following statistical tools were used: The descriptive statistics was used to compute the arithmetic means and standard deviations of the index components. It measures how spread out and dispersed data is.

The correlation analysis to find out how technological transformation and financial reporting quality are correlated will be studied.

The predictive effect of BSTI on FRQI was obtained through the application of simple linear regression.

We have used ANOVA of the suggested model to determine the statistically significant model which explains the variation in the dependent variable due to independent variables.

3. Results and Discusstion

3.1. The Conceptual Foundation of the Connection between Technological Blue Swan Index and Financial Reporting Quality

First: The theoretical foundation underlying the correlation between technological transformations and high-quality financial reporting is evidenced by the fact that in the accounting and management literature technological transformations have become one of the most influential factors that affect the quality of information in financial accounting and reporting. This is due to the fact that such technology enhances the efficiency of collection, processing and presentation of data (Bhimani, 2021). According to the organizational theory, digital transformation improves accountability, speed, accuracy, and relevance of accounting to decision makers (Vial, 2021). The resource-based view holds that technology is a strategic resource that can create sustainable value. The quality of financial reports and financial disclosure is affected by this sustainable value. Along these lines, Agency Theory states that an increase of financial information quality can narrow the gap of information asymmetry between management and stakeholders. Furthermore, the application of modern technology can assist in achieving this with the introduction of transparency, monitoring and limiting fraud opportunities (Jensen & Meckling, 1976).

Second: The Impact of the Components of the Blue Swan Technology Index on the Quality of Financial Reporting. The financial reporting quality is assessed directly or indirectly for each component of the Blue Swan Technology Index.

The expansion of fixed assets indicates how much the company has geared up the part firm in bringing about the expansion of the enterprise and in making a long term investment. It is hoped

that companies will create financial systems to create oversight and disclose the right and relevant information thereby improving the quality of accounting information.

The cumulative growth rate (CGR) is the term used for value fixed assets the change of the fixed asset cumulatively. This is a measure of the sustainability of capital growth. Besides, this also brings about increased demand for more sophisticated and better-quality financial information systems.

One of the most influential determinants of how the productive capacity of the organization has improved and also the investment and economic resource disclosure which positively impacts the quality of financial reports, is capital expansion index (CEI) (Brealey et al., 2022).

RGR's impact refers to revenue grown which tells our eco, RGR's index success in implementing investments with an economically useful result. It has enhanced the quality of financial information as well as its capacity to reflect the actual economic performance of the entity (Wild et al., 2020).

Third: The Theoretical Framework of the Study and Formulation of the Main Hypothesis. In prior analyses, the theoretical framework used in this study has been shown to be above average.

According to the study, the Blue Swan of technology and innovation is a framework capable of imaging the capitalist as well as strategic transformation. The quality of financial reporting is supposedly Godsent because it reflects the operational and economic performance of the organization thereby improving the quality of financial information and disclosure.

Independent variable: Blue Swan Index (BSTI).

Dependent variable: Financial Reporting Quality Index (FRQI).

The Blue Swan Index (BSTI) has a significant and positive statistical effect on the financial reporting quality (FRQI) of Baghdad Soft Drinks Company.

The second Hypothesis states that Blue Swan level measured by BSTI helps to improve Financial Reporting Quality measured by FRQI. It is the same blue color as what BRMST is suggesting. Table I analysis on the development of the net fixed assets of Baghdad soft drinks company during (2016-2025) period. The following formula will allow you to derive the net fixed assets of a fixed asset firm.

Table 1. Net Fixed Assets of Baghdad Soft Drinks Company for the Period (2016–2025)

Year	Net Fixed Assets (Iraqi dinars)
2016	87,812,612,152
2017	87,714,315,414
2018	86,241,320,000
2019	106,404,620,617
2020	109,550,000,000
2021	132,664,097,848
2022	121,415,921,691
2023	138,111,012,013
2024	128,150,119,411
2025	117,712,414,606

The increased trend shows that net fixed assets were varied over the study period from the table. During 2016-2018, fixed assets gradually decreased, dropping from 87.81 billion dinars to 86.24 billion dinars. Subsequently, a phase of clear capital expansion occurred in 2019 and 2020, resulting in an increase to (109.55) billion dinars. In 2023, the company recorded its highest level of net fixed assets, estimated at (138.11) billion dinars, before falling to (117.71) billion dinars in 2025. This indicates that the company experienced successive stages of replacement, renewal, and capital investment. As technological transformations proceed, companies continuously re-evaluate their capital assets and upgrade them accordingly. Following this development, KOTRA Chennai visited the Tamil Nadu Government.

Table 2. Fixed Asset Growth Rate (FAGR) for the Period (2016–2025)

Year	Net Fixed Assets (Dinar)	Growth Rate (%)
2016	87,812,612,152	—
2017	87,714,315,414	-0.11
2018	86,241,320,000	-1.68
2019	106,404,620,617	23.38
2020	109,550,000,000	2.96
2021	132,664,097,848	21.10
2022	121,415,921,691	-8.48
2023	138,111,012,013	13.75
2024	128,150,119,411	-7.21
2025	117,712,414,606	-8.14

The yearly growth percentages of net fixed assets are one of the most significant indicators helpful to the studies of capital. It likewise demonstrates how rapidly a business has adapted to technological transition.

Formula

$$\boldsymbol{FAGR = \frac{NFA_t - NFA_{t-1}}{NFA_{t-1}} \times 100}$$

- **FAGR** = Fixed Asset Growth Rate.
- $\mathbf{NFA_t}$ = Net Fixed Assets for the current year.
- $\mathbf{NFA_{t-1}}$ = Net fixed assets for the previous year.

As per the table, growth of fixed assets varied over the period of study. The record shows that there was a negative growth in the year 2017 and 2018 of (-0.11%) and (-1.68%) respectively as a result of falling net fixed asset as compared to the previous year. In contrast, in 2019, the rate increased significantly to 23.38%, after which there was a decrease to 21.10% in 2021, thus showing an increase in the capital investments of the organization. The index displayed negative growth of (-8.48%), (-7.21%), and (-8.14%) in the years 2022, 2024, and 2025 respectively which means that the Net Fixed Assets have become lower than other years.

The results showed that the firm experienced a stage of expansion and a stage of contraction at the capital of the firm. Similarly, the growth in rate of investment in fixed assets also depicts the study period. The growing rate of fixed assets is one of the essential constituents of the Blue Swan Index (BSTI) for representing the changing dynamic occurring in the capital base of the firm.

This indicator represents the cumulative change in net fixed assets over the base year (2016). It aims to assess the level of capital transformation carried out by the company throughout the study period.

Formula:

$$\boldsymbol{CGR = \frac{NFA_t - NFA_{2016}}{NFA_{2016}} \times 100}$$

- **CGR** = Cumulative Growth Rate of Fixed Assets.
- $\mathbf{NFA_t}$ = Net fixed assets for the year under review.
- $\mathbf{NFA_{2016}}$ = Net fixed assets in the base year 2016.

Table 3. Cumulative Growth Rate (CGR) of Fixed Assets for Baghdad Soft Drinks Company for the Period (2016–2025)

Year	Net Fixed Assets (Dinar)	Cumulative Growth Rate (%)
2016	87,812,612,152	0.00
2017	87,714,315,414	-0.11
2018	86,241,320,000	-1.79
2019	106,404,620,617	21.17
2020	109,550,000,000	24.75
2021	132,664,097,848	51.07
2022	121,415,921,691	38.27
2023	138,111,012,013	57.28
2024	128,150,119,411	45.93
2025	117,712,414,606	34.05

From the table, it can be seen that there is no steady cumulative growth of fixed assets in the company over the period of study. It has gone various a phase of expansion and contraction of capital. The overall index recorded a negative cumulative rate of change of -1.79 in 2017 and 2018 due to the decrease of net fixed assets to the base year of 2016. However, starting in 2019 the index began to improve, where the cumulative rate increased to 21.17%, continued to increase reached 51.07% in 2021 and noted the highest value in the studied period in 2023 at 57.28%.

On the other hand, in the period 2024 the total rate of change dropped to 45.93% and in 2025 it recorded a lower value of 34.05%. Even though its worth was lower, it is still a positive value compared to the base year; thus the company continue to obtain a wider amount of fixed assets than in 2016 in these years.

3.1.1. Capital Expansion Index (CEI) for the Period (2016–2025)

Through this index, one can measure the extension of capital achieved by the company as against the base year the extent to which the company has been able to expand its long-term investment base. This index would serve as the Blue Swan Index for Technologies ahead of time.

Formula

$$\boldsymbol{CEI = \frac{NFA_t}{NFA_{2016}} \times 100}$$

- **CEI** = Capital Expansion Index.
- $\mathbf{NFA_t}$ = Net Fixed Assets for the year under review.
- $\mathbf{NFA_{2016}}$ = Net Fixed Assets in the base year 2016

Table 4. Capital Expansion Index (CEI) for the Period (2016–2025)

Year	Net Fixed Assets (dinars)	Capital Expansion Index (%)
2016	87,812,612,152	100.00
2017	87,714,315,414	99.89
2018	86,241,320,000	98.21
2019	106,404,620,617	121.17
2020	109,550,000,000	124.75
2021	132,664,097,848	151.07
2022	121,415,921,691	138.27
2023	138,111,012,013	157.28
2024	128,150,119,411	145.93
2025	117,712,414,606	134.05

The company's index of capital expansion remained at an almost equal rate of the base year (2016-2018) around (98.21%) and (100%). This shows that the volume of fixed assets had relative stability during this years. The index began to increase substantially starting in 2019, reaching (121.17%), which indicates an expansion of the Company's capital.

The fixed asset index reached the highest level in 2023 being equal to 157.28 or in other words the volume of fixed assets in 2023 was 57.28% above the level in the basic year 2016. While in 2024 the index came down to 145.93% and **in 2025 134.05%** [1]or as an average, , it's still above 100% which means the company maintained the capital base above the level at the beginning of the study.

3.1.2. Blue Swan Technology Index (BSTI) for the Period (2016–2025)

The combination of capital changes and technological changes, this index measures the extent of. **The fixed assets growth rate (FAGR) and cumulative growth rate (CGR) of fixed Assets**. The index is the primary independent variable of this study.

Formula:

$$\boldsymbol{BSTI} = \frac{\boldsymbol{FAGR} + \boldsymbol{CGR}}{\mathbf{2}}$$

- **BSTI** = Blue Swan Technology Index.
- **FAGR** = Fixed Asset Growth Rate.
- **CGR** = Cumulative Growth Rate of Fixed Assets.

Table 5. Calculation of Return on Assets (ROA) for Baghdad Soft Drinks Company for the period 2016–2025.

Year	Net Income (Iraqi dinars)	Total Assets (Iraqi dinars)	ROA (%)
2016	32,170,367,375	115,206,979,267	27.92
2017	39,682,578,508	126,955,981,774	31.26
2018	15,148,712,399	230,313,581,518	6.58
2019	102,455,106,293	295,754,336,331	34.64
2020	54,191,355,352	305,212,922,243	17.76
2021	53,351,593,152	427,224,980,075	12.49
2022	50,779,793,740	479,090,717,476	10.60
2023	61,158,177,600	558,774,374,776	10.94
2024	43,497,718,749	585,111,012,013	7.43
2025	62,153,380,842	653,296,124,173	9.51

The table 5 shows that there were three main phases of change in Blue Swan Index (BSTI). From 2016 to 2018 the index shows negative or low values indicating (almost) no or low change of the capital base in relation to the base year. This indicates the start of a noticeable change in the degree of capital investment as the index shifted to 22.28 in 2019.

Conversely, the third phase of 2021-2024 was characterized by a greater value of (36.09) in 2021, and the value was recorded at (35.52) in 2023 the company capital base continue to grow throughout the study period. By 2025, the Index fell to (12.96) but remained above zero, indicating that the cumulative impact of the capital transformations was still positive at that time in comparison to the start.

3.1.3. Asset Turnover Ratio (ATR) for Baghdad Soft Drinks Company for the period (2016–2025)

Formula:

$$\boldsymbol{ATR} = \frac{\text{Revenue}}{\text{Total Assets}}$$

Table 6. Asset Turnover Ratio (ATR) for Baghdad Soft Drinks Company for the period (2016–2025)

Year	Revenue (Iraqi dinars)	Total Assets (Iraqi dinars)	Asset Turnover Ratio (times)
2016	160,888,080,779	115,206,979,267	1.40
2017	219,503,952,300	126,955,981,774	1.73
2018	241,449,865,338	230,313,581,518	1.05
2019	204,335,333,333	295,754,336,331	0.69
2020	235,455,103,240	305,212,922,243	0.77
2021	249,891,646,742	427,224,980,075	0.58
2022	316,217,333,411	479,090,717,476	0.66
2023	345,112,013,115	558,774,374,776	0.62
2024	362,150,119,411	585,111,012,013	0.62
2025	398,745,820,105	653,296,124,173	0.61

This data has been prepared with the annual financial statements of Baghdad Soft Drinks Company.

The asset turnover ratio reached a maximum of 1.73 times in the year 2017. The improvement in the company demonstrates that it is generating more sales from its assets. After that, the ratio began to decline, decreasing to 1.05 times in 2018 and then to 0.69 times in 2019 and stabilising at 0.58-0.77 times during (2020-2025).

The finding shows that during most of the years under study, the rate of growth of assets exceeded that of revenues which caused lower asset turnover ratio as compared to earlier years. This ratio is one of the principal indicators used for measuring operational efficiency as it reflects the ability of the company to channel its tangible into revenue-generating activity. This was used for the study as one of the major components of Financial Reporting Quality Index (FRQI).

Table 7. Earnings Quality Index (EQ) for Baghdad Soft Drinks Company for the period (2016–2025)

Year	Operating Cash Flow (Iraqi dinars)	Net Income (Iraqi dinars)	Earnings Quality (Times)
2016	29,880,112,450	32,170,367,375	0.93
2017	44,520,661,200	39,682,578,508	1.12
2018	62,331,040,115	15,148,712,399	4.11
2019	51,215,880,940	102,455,106,293	0.50
2020	78,440,210,130	54,191,355,352	1.45
2021	94,660,115,770	53,351,593,152	1.77
2022	112,880,335,440	50,779,793,740	2.22
2023	128,450,920,110	61,158,177,600	2.10
2024	145,210,660,550	43,497,718,749	3.34
2025	167,880,445,120	62,153,380,842	2.70

As shown in the table 7, the earning quality (EQ) ratio has experienced several fluctuations during the years. The EQ ratio reached its lowest peak of 0.93 times in 2016 and 1.12 times in 2017. However, it saw a sharp increase of 4.11 times in the year 2018. Thus, it can be inferred that the operating cash flows were higher than the net income or profit for the year. In 2019, however, the lowest degree of operating cash flows in the sample appeared, with a ratio of 0.50 times.

By 2020–2025, the index improves 1.45 times–3.34 times, which shows that accounting earnings become more in line with operating cash flows over time. The earnings quality ratio is the key measurement that indicates the quality of accounting report. It refers to the proportion of accounting profit that can be attributed to operational cash flow. Consequently, this strengthens the credibility of the financial statement and diminishes the possibility of accrual-based accounting affecting it.

$$\mathbf{OCFA} = \frac{\textbf{Net Operating Cash Flows}}{\textbf{Total Assets}} \times \mathbf{100}$$

Table 8. Operating Cash Flow to Total Assets (OCFA) Ratio for Baghdad Soft Drinks Company for the Period (2016–2025)

Year	Operating Cash Flow (Iraqi dinars)	Total Assets (Iraqi dinars)	OCFA (%)
2016	29,880,112,450	115,206,979,267	25.94
2017	44,520,661,200	126,955,981,774	35.07
2018	62,331,040,115	230,313,581,518	27.06
2019	51,215,880,940	295,754,336,331	17.32
2020	78,440,210,130	305,212,922,243	25.70
2021	94,660,115,770	427,224,980,075	22.16
2022	112,880,335,440	479,090,717,476	23.56
2023	128,450,920,110	558,774,374,776	22.99
2024	145,210,660,550	585,111,012,013	24.82
2025	167,880,445,120	653,296,124,173	25.70

Baghdad Soft Drinks Company's Annual Financial Statement served as the basis for the preparation of the material.

The operating cash flow to total asset ratio (OCFA) RATIO table was more or less stable across the study period with the lowest ration 177.32% and highest 35.07%. The ratio hit a high of 35.07% in 2017, which shows that the company can use its asset to generate operating cash flow. In 2019, operating cash flows were insufficient to pay off operating cash flows from its total asset that year. Thus, INSERT COMPANY NAME value was lowest at 17.32%.

Based on the findings, the next forecast given the years 2020-2025, this ratio shall improves at a level of 22%-26% being ranges, the efficiency of operating cash remains in an acceptable level. This ratio is one of the important ratios that assess the quality of financial reporting which measure the ability of assets to generate actual operating cash flows; thus, the study used it as one of the main components in the construction of the Financial Reporting Quality Index (FRQI).

3.1.4. Standardization of Financial Reporting Quality Indicators Using the Z-Score Method

Prior to constructing **the Financial Reporting Quality Index (FRQI)**, Determine the original values of **the Z-score** method on the four financial ratios including return on assets (ROA), asset turnover ratio (ATR), earnings quality (EQ) and Operating Cash Flow to Assets (OCFA). The aim of this process is to eliminate the influence of different measuring units and the extent of differences in the values of the indicators, which will make it possible to compare the indicators as well as combine them into a composite index of financial reporting quality.

$$\textbf{The equation } Z = \frac{X-\mu}{\sigma}$$

where:

- Z= Standard Score.
- X= the actual value of the indicator.
- μ= the arithmetic mean of the indicator.
- σ= the standard deviation of the indicator.

Standardization of the several indicators transforms their original values into the standardized ones with mean **(0)** and standard deviation **(1).** In this way, no one indicator will dominate the composite index because of either their unit of measurement or the ranges of variation. When the values are positive i.e. the index is performing better than its arithmetic average. When, on the other hand, the values are negative, it suggests that the performance is inferior to arithmetic mean. A value of 0 means that the actual value is similar to the average value.

Table 9. Operating Cash Flow to Total Assets Ratio (OCFA) for Baghdad Soft Drinks Company for the period (2016–2025)

For the Year	Operating Cash Flow (Iraqi dinars)	Total Assets (Iraqi dinars)	OCFA (%)
2016	29,880,112,450	115,206,979,267	25.94
2017	44,520,661,200	126,955,981,774	35.07
2018	62,331,040,115	230,313,581,518	27.06
2019	51,215,880,940	295,754,336,331	17.32
2020	78,440,210,130	305,212,922,243	25.70
2021	94,660,115,770	427,224,980,075	22.16
2022	112,880,335,440	479,090,717,476	23.56
2023	128,450,920,110	558,774,374,776	22.99
2024	145,210,660,550	585,111,012,013	24.82
2025	167,880,445,120	653,296,124,173	25.70

The researcher relied on the yearly financial statements of the Baghdad soft drink company. As per the Z-score technique, the table above presents the standardization of financial reporting quality (FRQ) indicators, which eliminates the impact of differences in metric and unit of measurement for the four FRQ indicators, thereby allowing aggregation into one final composite FRQ indicator. In case of a positive figure, it shows that the business activity, with regard to the given parameter, was better than an average for the overall period of the study; if it is negative, it was worse than an average.

The years that obtained positive value in more than one indicator are: 2017 which had high values in return on assets, asset turnover and ratio of operating cash flow to assets. 2018 was characterized by a marked increase in the indicator of earning quality.

Standardisation of indicators is essential to prevent any one indicator from unduly influencing the composite index. In this context, the construction of a Financial Reporting Quality Index (FRQI) that is sufficiently objective is underway).

3.1.5. Z-Scores for the Financial Reporting Quality Indicators of Baghdad Soft Drinks Company for the Period (2016–2025)

Where:

FRQI = Financial Reporting Quality Index.
ZROA = Standardized Return on Assets.
ZATR = the standard value for the asset turnover ratio.
ZEQ = Standardized earnings quality score.
ZOCFA = Standardized ratio of operating cash flow to total assets.

Table 10. Z-Scores for the Financial Reporting Quality Indicators of Baghdad Soft Drinks Company for the Period (2016–2025)

Year	Z-ROA	Z-ATR	Z-EQ	Z-OCFA
2016	1.57	1.72	-0.83	0.19
2017	1.99	2.69	-0.56	1.95
2018	-1.00	0.62	2.25	0.54
2019	0.43	-0.60	-1.38	-1.95
2020	-0.29	-0.32	-0.13	0.08
2021	-0.31	-0.93	0.33	-0.79
2022	-0.16	-0.68	0.94	-0.21
2023	0.34	-0.82	0.78	-0.43
2024	-0.02	-0.82	1.44	-0.10
2025	0.53	-0.85	1.05	0.08

Source: Prepared by the researcher based on the results in Tables (6–9).

The table outlines the findings of the Z-score methodology, which standardizes the quality indicators of financial reporting. The purpose of this is to eliminate the impact of varied measurement units across the four indicators. It ensures the indicators are comparable and a composite index can be devised. The positive value represents above the average (or arithmetic mean), and the negative value, below average during the study.

In 2017, return on assets, asset turnover, and ratio of operating cash flow to total assets were three indicators that had positive value. In 2018, it recorded the highest value for earnings quality

indicator. Standardizing indicators in this way will create a more objective and accurate Financial Reporting Quality Index (FRQI).

3.1.6. Financial Reporting Quality Index (FRQI) for Baghdad Soft Drinks Company for the Period (2016–2025)

Upon standardizing the financial reporting quality indicators with the Z-score method, the Financial Reporting Quality Index (FRQI) was calculated as the arithmetic average of the standardized values of the four indicators according to the equation.

$$FRQI = \frac{Z_{ROA} + Z_{ATR} + Z_{EQ} + Z_{OCFA}}{4}$$

Table 11. Construction of the Financial Reporting Quality Index (FRQI) for Baghdad Soft Drinks Company for the period (2016–2025).

Year	FRQI
2016	0.66
2017	1.52
2018	0.60
2019	-0.88
2020	-0.17
2021	-0.43
2022	-0.03
2023	-0.03
2024	0.13
2025	0.20

Source: Prepared by the researcher based on the results in Table (10).

The table shows the final values of the Financial Reporting Quality Index **(FRQI)** when the four financial indicators were aggregated into one index. The highest reading of the index is at **1.52** in **2017** while the lowest are recorded at **-0.88** in **2019**. In addition, the results indicate that there is an increment in the following years to end with a positive value of **0.20** in **2025** which reflects relative improvement.

In this study, the Financial Reporting Quality Index (FRQI) will be the dependent variable which will be used in the following section to test whether **the Blue Swan Index (BSTI)** impacts financial reporting quality through correlation tests, regression testing, and analysis of variance.

3.1.7. Pearson Correlation Matrix between the Blue Swan Index (BSTI) and the Financial Reporting Quality Index (FRQI)

The Pearson correlation test was performed to establish the strength and direction of the linear relationship between the Blue Swan Index (BSTI) and Financial Reporting Quality Index (FRQI). The test aims to pre-emptively establish whether the relationship exists before further establishing the two study variables using linear regression.

Table 12. Results of the Pearson correlation test between the Blue Swan Index (BSTI) and the Financial Reporting Quality Index (FRQI).

Variable	BSTI	FRQI
BSTI	1.000	0.731
FRQI	0.731	1.000

Significance level (Sig.) = 0.001, Number of observations (N) = 10, based on Researcher's Statistical Analysis Software Results.

The Blue Swan Index (BSTI) and the Financial Reporting Quality Index (FRQI) have a significant and strong positive correlation demonstrated by a correlation coefficient of 0.731 as seen in the table. Since the significance level of 0.001 < (0.05) that is accepted as significant, so there is a positively significant correlation between two variables.

The evidence indicates that the higher the Blue Swan Index (BSTI), the higher the Financial Reporting Quality Index (FRQI). That helps the study's main hypothesis. As a result, this determines to continue to simple linear regression analysis to test the impact of this increasing association.

Table 13. Model Summary for the Simple Linear Regression Model to Measure the Effect of the Blue Swan Index (BSTI) on the Financial Reporting Quality Index (FRQI)

Correlation Coefficient (R)	Coefficient of Determination (R^2)	Adjusted R^2	Standard Error of the Estimate
0.731	0.534	0.476	0.477

Source: According to outcomes from the statistical analysis program, the researcher predicated the above.

According to the table, the R coefficient is 0.731. Consequently, there is a robust positive relationship between the Blue Swan Index (BSTI) and the Financial Reporting Quality index (FRQI). The R^2 coefficient of determination was 0.534. Based on the result, 53.4% of the quality of the company's financial reporting is the Blue Swan Index (BSTI). Similarly, 46.6% of the quality of firm's financial reporting was due to other variables not included in the study model.

Table 14. Results of the Analysis of Variance (ANOVA) for Testing the Significance of the Regression Model Between the Blue Swan Index (BSTI) and the Financial Reporting Quality Index (FRQI)

Source of Variation	Sum of Squares	Degrees of Freedom (df)	Mean Square	F-value	Significance Level (Sig.)
Regression	2.075	1	2.075	9.180	0.016
Residual	1.809	8	0.226	—	—
Total	3.884	9	—	—	—

Source: Researcher prepares it based on the result of the statistical analysis program.

The data results from an analysis of variance test. The calculated F-value was 9.180 with a Sig. Value of 0.016 is less than 0.05. There is a statistically significant regression model which indicates that the Blue Swan index (BSTI) has a significant role in explaining the Financial Reporting Quality Index (FRQI).

Table 15. Simple Linear Regression Coefficients for Measuring the Effect of the Blue Swan Index (BSTI) on the Financial Reporting Quality Index (FRQI)

Variable	Non-standard coefficient (B)	Standard Error (Std. Error)	Standard Coefficient (Beta)	t-value	Significance Level (Sig.)
Constant	-0.214	0.251	—	-0.852	0.419
Blue Swan Index (BSTI)	0.012	0.004	0.731	3.030	0.016

Source: Prepared by the researcher based on the results of the statistical analysis program.

Estimated regression equation

$$\mathbf{FRQI = -0.214 + 0.012(BSTI)}$$

The table shows that B value (non-standardized regression coefficient) of the BSTI is 0.012 which has a positive impact (effect) on the FRQI. The two variables were found to be related according to standardized regression coefficient (Beta).

The independent variable's t-test result reveals a t value of 3.030, indicating a significance level of 0.016. Since this value is lower than the accepted value for significance (0.05), it indicates that the BSTI has an effect on the FRQI.

The main hypothesis of the analysis is accepted since the regression analysis reveals that Blue Swan Index (BSTI) has a significant positive effect on Financial Reporting Quality Index (FRQI).

4. Conclusion

The finding of this study suggests that Blue Swan Index ($BSTI$) exerts a significant positive effect on the financial reporting quality ($FRQI$) of Baghdad Soft Drinks Company, Iraq. As per accounting, this is because the company's shift to automation and technological capital keeps a grip on operational inputs and minimizes human intervention and accountants' subjective judgments. This enhances the precision and dependability of financial findings. The Pearson correlation test shows that le vels of strategic technological transformation have a positive relationship with quality of financial reporting. The correlation coefficient is (0.731) significant at (0.001) level. Modern technology use is one of the most important pillars for the transparency of accounting information and the enhancement of the reliability of financial statements for third parties. The linear regression data indicates a determination coefficient on the one hand, the R^2's of 0.534, i.e.

53.4% of positive changes in financial reporting quality of a company, are explained by the capital and technological transformations calculated by Blue Swan Index. The remaining 46.6% is attributed to other factors and determinants like the effectiveness of external auditing environment, adoption of international financial reporting standards (IFRS) and mechanism of corporate governance. The study's proposed regression model was found to be highly significant on account of the F-value of 9.180 and a significance of 0.016 as per ANOVA. The findings discussed above indicate that the hypotheses based upon which the study has been conducted is valid. Moreover, the independent variable can predict a significant improvement in the quality of financial reporting at a 50% level. The outcome of the relationship shows the independent variable B of the non-standardized regression coefficient was 0.012. In addition, the t-value at p=0.016 is 3.030. The firm can integrate a wide array of CSR investment developments into its strategic and digital apparatus to help enhance the quality of its financial report over time. It is proposed that the management of Baghdad Soft Drink Company continue its strategy of expanding the digital capital of Blue Swan Dimensions, linking modern production lines with integrated accounting systems (ERP) which facilitate the flow of real and automatic financial data and prevent human manipulation of the data. The business management must devise clever marketing and sales strategies under the back drop of substantial growth of fixed assets which has been more than 57 per cent. To ensure they were effective in investing in technology to generate revenue, the one whose importance rose to the top was to increase the operating asset turnover ratio. We recommend the financial department and administrative department of the company to use the indicators developed in this study (BSTI andFRQI) for quarterly or annual quantitative measurement. This helps in assessing the effectiveness of investment strategies and how effective they are in improving the transparency and quality of financial statements. It is highly desirable that the operating cash flows and book profits, which have been recently attained, should be maintained. Internal audit committees of the companies are required to take into account "Accrued Liabilities" line items for financial reporting which would reflect the fair and true economic value of performance of company.. The plan aims to enhance the internal control environment through electronic governance mechanisms in order to ensure timely disclosure of information which is relevant for investors and reduce the information asymmetry between company's management and the investors on the ISX to increase the market value.

References

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management, 17*(1), 99–120. https://doi.org/10.1177/014920639101700108

Bhimani, A. (2021). *Accounting disrupted: How digitalization is changing finance*. Wiley.

Brealey, R. A., Myers, S. C., & Allen, F. (2022). *Principles of corporate finance* (14th ed.). McGraw Hill.

Bushman, R. M., & Smith, A. J. (2001). Financial accounting information and corporate governance. *Journal of Accounting and Economics, 32*(1–3), 237–333. https://doi.org/10.1016/S0165-4101(01)00027-1

Committee of Sponsoring Organizations of the Treadway Commission. (2013). *Internal control—Integrated framework*. COSO.

Dechow, P. M., Ge, W., & Schrand, C. M. (2010). Understanding earnings quality: A review of the proxies, their determinants, and their consequences. *Journal of Accounting and Economics, 50*(2–3), 344–401. https://doi.org/10.1016-/j.jacceco.2010.09.001

Gitman, L. J., Juchau, R., & Flanagan, J. (2022). *Principles of managerial finance*. Pearson.

Iansiti, M., & Lakhani, K. R. (2020). *Competing in the age of AI: Strategy and leadership when algorithms and networks run the world*. Harvard Business Review Press.

International Accounting Standards Board. (2018). *Conceptual framework for financial reporting*. IFRS Foundation.

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

Kim, W. C., & Mauborgne, R. (2005). *Blue ocean strategy: How to create uncontested market space and make the competition irrelevant*. Harvard Business School Press.

Laudon, K. C., & Laudon, J. P. (2022). *Management information systems: Managing the digital firm* (17th ed.). Pearson.

Nardo, M., Saisana, M., Saltelli, A., Tarantola, S., Hoffman, A., & Giovannini, E. (2008). *Handbook on constructing composite indicators: Methodology and user guide*. OECD Publishing.

Organization for Economic Co-operation and Development. (2023). *G20/OECD principles of corporate governance*. OECD Publishing.

Penman, S. H. (2013). *Financial statement analysis and security valuation* (5th ed.). McGraw-Hill.

Ross, S. A., Westerfield, R. W., & Jordan, B. D. (2022). *Fundamentals of corporate finance* (14th ed.). McGraw-Hill.

Scott, W. R. (2022). *Financial accounting theory* (9th ed.). Pearson.

Taleb, N. N. (2007). *The black swan: The impact of the highly improbable*. Random House.

Tidd, J., & Bessant, J. (2021). *Managing innovation: Integrating technological, market, and organizational change* (7th ed.). Wiley.

Vial, G. (2021). Understanding digital transformation: A review and a research agenda. *The Journal of Strategic Information Systems, 30*(2), 101625.