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The Impact of Accounting Information Characteristics on Firm and Market liquidity during Crises Periods: Empirical Study

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Abstract:

This study aims to explore the impact of accounting information characteristics on firm and market liquidity in Egypt during crises, covering significant events such as the Egyptian Revolution, Currency Floatation, COVID-19 Pandemic, and the Ukraine War. Utilizing data spanning 2010 to 2022, the research evaluates four proxies: The Beest index, Timeliness, Earnings Management, and Value relevance of accounting information. Through two models analyzing Firm and Market liquidity with a sample of 106 Egyptian companies. The study unveils varying evolutions of accounting information characteristics across crises, influencing liquidity dynamics differently. Enhanced accounting standards positively affect firm liquidity over time, with timely financial reporting crucial during economic turmoil, boosting both firm and market liquidity. The findings underscore the pivotal role of accounting information characteristics in bolstering investor confidence and trading activities, especially during turbulent market conditions. Emphasizing the importance of transparency, timeliness, and integrity in financial reporting, the study offers insights for regulators and market participants to foster stability and resilience in Egyptian financial markets during crises

Keywords: Accounting information characteristics, Firm liquidity, Market liquidity, crises, Egypt.

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1. Introduction

The discourse on liquidity has been extensive in research circles, especially concerning the challenges faced by the Egyptian economy in recent years. These challenges, characterized by liquidity issues within the Egyptian market, manifest when companies encounter short-term obligations exceeding available funds. The critical role of liquidity in business success has been highlighted in previous studies, yet the term remains loosely de-fined, prompting the need for a clear delineation between Firm Liquidity and Market Liquidity. Recent global crises, irrespective of economic stature, have emphasized the complexities of such events, significantly impacting market liquidity as investors and creditors withdraw due to heightened risks, hampering firms' fundraising efforts. These crises necessitate immediate, coordinated policy responses to mitigate their adverse effects on liquidity (Jossa, 2021); (Barinov, 2015); (Ince, 2022).

Against this backdrop, it becomes imperative for Egypt to meticulously examine its recent crises, such as the 2011 Egyptian Revolution, the 2016 Currency Floatation, the 2020 COVID-19 Pandemic, and the 2022 Russian-Ukraine War, all of which have had profound effects on economic indicators, including stock exchange indexes (CBE, April 2013 report; (Badawy, 2021); (Gofran, Gregoriou, & Haar, 2022). Despite ample literature on liquidity levels and financial crises, studies addressing strategies to identify, address, or mitigate liquidity challenges during crises are scarce. Accounting information characteristics play a pivotal role in liquidity management during crises, with investors relying on accurate, timely, and understandable information for informed decision-making. However, financial reporting during crises faces challenges such as data quality, timeliness, and effective information capture, which need to be addressed (Nichita & Turlea, 2015) This study aims to explore the role of accounting information characteristics in alleviating firm and market liquidity challenges during Egyptian crises. It poses two primary research questions: firstly, whether accounting information characteristics, namely relevance, faithful representation, understandability, comparability, verifiability and timeliness, mitigate the effect of crises on firm liquidity among listed companies on the Egyptian Stock Exchange, and secondly, whether they mitigate the effect of crises on market liquidity among the same companies. To achieve these objectives, the

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study pursues several key avenues. Firstly, it provides a contextual overview of significant crises in Egypt, examining their effects on firm and market liquidity. Secondly, it scrutinizes the role of accounting information characteristics during crises, particularly focusing on their qualitative aspects such as relevance, representational faithfulness, reliability, comparability, verifiability, understandability, and timeliness. Finally, it discusses the implications of the findings for future mitigation strategies aimed at alleviating the adverse financial effects of crises in Egypt.

The significance of this study lies in its contributions to existing literature. It corroborates previous findings regarding the relationship between accounting information characteristics and liquidity behavior during crises, while also filling a gap in the literature by examining the overall impact of accounting information characteristics on firm and market liquidity during crisis. Moreover, it identifies key factors driving the relationship between accounting information characteristics and liquidity dynamics during crises, all within the unique context of the Egyptian financial market. In summary, this study offers empirical evidence on the interplay between accounting information characteristics and firm and market liquidity dynamics during economic crises in Egypt. By shedding light on this relationship, it aims to inform policymakers, regulators, and practitioners in formulating effective measures to mitigate the negative consequences of financial crises. The rest of this paper is organized as follows: Section 2 provides the literature review and hypotheses development. Section 3 presents the research methodology. Section 4 discusses the empirical results. Section 5 provides the conclusion.

Objectives of the Study

This study aims to provide an overview of significant crises in Egypt and their effects on firm and market liquidity, examine the role of accounting information characteristics during these crises, and discuss implications for future mitigation strategies. By analyzing the Egyptian Revolution of 2011, the Currency Floatation of 2016, the Covid-19 Pandemic in 2020, and the Russian-Ukraine War in 2022, the research offers insights into how qualitative accounting

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attributes influence liquidity and provides guidance for policymakers to mitigate financial crises' impacts.

2. The Literature Review and Hypotheses Development

Financial crises significantly impact both firm and market liquidity, crucial for economic stability. The 2011 Egyptian Revolution caused major economic instability, leading to a 12% decline in market capitalization on the EGX by March 2012 (Elbayoumi, Awadallah, & Basuony, 2021). Post-revolution, deteriorations in accounting standards and corporate governance were noted, with a slow recovery in economic indicators (World Economic Forum, 2017). Following the revolution, Egypt's exchange rate volatility increased. The Central Bank of Egypt's decision to float the pound in 2016 resulted in a 50% depreciation, compounded by high inflation (Bahloul, 2018). This severely affected firm liquidity and purchasing power (Shokry, 2017).

The COVID-19 pandemic intensified economic challenges, particularly affecting tourism, manufacturing, and financial services. (El-Khishin, 2020); (Ramelli & Wagner, 2020) highlight how the pandemic strained liquidity globally, emphasizing the need for transparent financial reporting. The Russia-Ukraine conflict has increased global volatility, affecting Egypt's import costs and inflation. (Gameel, 2022) notes that rising energy prices due to the conflict have complicated liquidity management for Egyptian firms.

Studies of firm liquidity consistently show that financial crises tighten credit conditions, making it more difficult for firms to secure financing. (Abu Hatab, 2009) discusses how credit conditions become more restrictive during crises, particularly affecting small and medium-sized enterprises (SMEs). This finding is supported by (Elbayoumi, Awadallah, & Basuony, 2021), who document a sharp decline in credit availability in post-revolutionary Egypt, exacerbating liquidity issues for many firms. However, (Shokry, 2017) argues that larger firms with stronger credit histories might face less severe impacts, indicating a variance in the extent of the effect based on firm size.

The impact of financial crises on cash flow and operational disruptions is well-documented. (El-Khishin, 2020) highlights that crises typically lead to reduced consumer

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demand and revenue, which in turn strains firms' cash flow and liquidity. This is corroborated by (Ramelli & Wagner, 2020), who found that the COVID-19 pandemic severely impacted firms' liquidity, particularly those with limited cash reserves. (Abu Hatab, 2009) adds that operational disruptions, coupled with reduced consumer spending, further exacerbate liquidity problems, with firms possessing less resilient supply chains being more vulnerable.

The effect of financial crises on inventory and supply chain management has also been explored. (Gameel, 2022) reports that crises disrupt supply chains and lead to inventory imbalances, negatively impacting firm liquidity. (El-Khishin, 2020) supports this by noting that firms with poor inventory management during the COVID-19 pandemic faced significant liquidity challenges. Conversely, (Elbayoumi, Awadallah, & Basuony, 2021) suggest that the impact varies depending on industry and a firm's adaptability to supply chain disruptions, indicating that not all firms experience the same severity of liquidity issues.

On other hand, the widening of bid-ask spreads during financial crises is a common finding. (Ramelli & Wagner, 2020) observed that market liquidity decreased significantly during the COVID-19 crisis, with bid-ask spreads widening and trading volumes declining. (Gameel, 2022) reports similar findings, noting that financial crises lead to increased bid-ask spreads due to heightened uncertainty and reduced trading activity. (Shokry, 2017) adds that while bid-ask spreads widen during crises, they generally normalize as markets recover, highlighting a tendency towards stabilization post-crisis.

Increased market volatility during crises is another prevalent observation. (El-Khishin, 2020) indicates that financial crises, including the COVID-19 pandemic, result in heightened market volatility, which exacerbates liquidity constraints. This is supported by (Ramelli & Wagner, 2020), who noted sharp fluctuations in asset prices and reduced market depth during periods of crisis. (Gameel, 2022) also notes that as investor confidence decreases, volatility increases, further contributing to liquidity challenges.

A reduction in market depth, or the ability to absorb large trades without significantly impacting prices, is commonly observed during crises. (Shokry, 2017) describes how crises

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reduce market depth, making it more challenging to execute large trades without substantial price impacts. (El-Khishin, 2020) similarly finds that diminished market depth affects price discovery and increases transaction costs, reflecting a consistent issue across various crises.

The literature reveals a consensus that financial crises adversely impact both firm and market liquidity. Studies uniformly indicate that crises lead to tighter credit conditions, reduced cash flow, and increased operational disruptions for firms. Market liquidity is similarly affected through wider bid-ask spreads, increased volatility, and reduced market depth.

However, there is some divergence in the extent of these impacts. For instance, (Abu Hatab, 2009); (El-Khishin, 2020) emphasize the severe effects on smaller firms, while (Shokry, 2017) suggests that larger firms might experience less pronounced impacts. Additionally, while (Ramelli & Wagner, 2020); (Gameel, 2022) find significant impacts on market volatility, (Shokry, 2017) notes that bid-ask spreads tend to stabilize as markets recover, indicating variability in the recovery process.

Understanding the effects of financial crises on firm and market liquidity is crucial for developing effective financial strategies and policies. The reviewed literature underscores the importance of liquidity in maintaining economic stability during crises and highlights the need for robust liquidity management practices to mitigate the adverse effects of financial crises.

In exploring the impact of accounting information characteristics on firm and market liquidity during crises, it is essential to review the foundational theories and recent studies that illuminate this relationship. The **Information Asymmetry Theory** posits that disparities in the information available to different market participants, such as managers and investors, can lead to inefficient decision-making, especially during periods of financial crises. High-quality accounting information, characterized by attributes such as relevance and faithful representation, is essential in mitigating the effects of information asymmetry. These attributes help reduce the information gap by providing accurate, timely, and reliable data that investors and creditors can use to make informed decisions, which is crucial for enhancing both corporate liquidity (measured by the Quick Ratio) and market liquidity (measured by trading volumes)

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during economic downturns. Recent studies have reinforced this view, with (Chen & Matsumoto, 2022) demonstrating that enhanced accounting information quality significantly improves market liquidity during global financial crises. Their research supports the idea that timely and accurate financial reporting is critical for maintaining liquidity in turbulent market conditions.

Building on this, **Signaling Theory** suggests that firms with high-quality financial information can use it as a signal to the market regarding their financial health and stability, a mechanism that becomes particularly significant during crises. The quality characteristics of accounting information, such as timeliness and faithful representation, serve as positive signals to investors, fostering confidence and, consequently, enhancing both corporate and market liquidity. For instance, timely disclosures of financial statements that demonstrate strong liquidity can lead to increased trading activity and improved market efficiency. (Zhao & Zhang, 2023) highlight how firms use high-quality accounting information as a signal to guide investor behavior during crises, which positively influences market liquidity. This signaling effect underscores the importance of robust financial reporting practices in sustaining investor confidence and market stability during periods of financial uncertainty.

Complementing these theories, **Agency Theory** explores the conflicts of interest between owners and managers, where information asymmetry can exacerbate these conflicts. High-quality accounting information, which is characterized by verifiability and neutrality, can mitigate agency problems by enhancing transparency and accountability. This transparency is crucial during crises, as it increases investor confidence and, in turn, improves liquidity. (Li & Wang, 2021) examined how financial reporting quality reduces agency costs and enhances corporate liquidity during economic downturns. Their findings underscore the critical role that transparent and unbiased accounting practices play in maintaining market confidence and liquidity in adverse economic conditions.

Similarly, **Market Efficiency Theory** asserts that securities prices reflect all available information, and high-quality accounting information enhances market efficiency by reducing discrepancies in asset valuations and prices. In the context of financial crises, accounting

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characteristics such as relevance and comparability are essential for improving market efficiency by ensuring that information is timely and accurate. (Bushman & Williams, 2020) provide evidence that high-quality financial reporting significantly improves market liquidity by ensuring that asset prices accurately reflect available information, even during times of economic turmoil. This evidence supports the notion that enhanced accounting information quality is vital for maintaining market efficiency and liquidity during crises.

Finally, the **Time Value of Money Theory** emphasizes the importance of the timing of information in financial decision-making, particularly during crises. Delays or unavailability of timely information can lead to suboptimal decisions, adversely affecting liquidity. The timeliness of accounting information is particularly critical as it influences investor decisions, and consequently, corporate and market liquidity during economic downturns. (Biddle & Hilary, 2019) explore the impact of timely financial reporting on corporate liquidity during recessions, finding that prompt financial disclosures are crucial for maintaining liquidity by enabling investors to make well-informed decisions. Their research highlights the necessity of timely and accurate financial reporting in preserving market stability during periods of financial stress.

In conclusion, the literature review highlights the critical role of high-quality accounting information in managing corporate and market liquidity during crises. By addressing information asymmetry, signaling financial health, mitigating agency conflicts, and enhancing market efficiency, quality accounting information contributes significantly to maintaining liquidity in adverse economic conditions. This aligns with various theories, including Information Asymmetry Theory, Signaling Theory, Agency Theory, Market Efficiency Theory, and Time Value of Money Theory, all of which emphasize the importance of accounting information characteristics for liquidity during crises.

Despite these insights, there is still a gap in understanding the specific impact of these characteristics on liquidity during different types of crises, especially in emerging markets like Egypt. This study aims to bridge this gap by empirically examining how accounting information characteristics influence firm and market liquidity during crisis periods in Egypt.

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The research is informed by prior findings that consistently show a positive relationship between accounting information characteristics and liquidity levels (KIM, Shroff, Vyas, & Wittenberg-Moerman, 2018); (Lang & Maffett, 2011); Ng, 2011). Furthermore, the International Accounting Standards Board (IASB) underscores the importance of financial reporting in providing information essential for economic decision-making, including management stewardship, financial position, performance, and cash flows. However, recent financial crises have raised concerns about the quality of financial reports (Badenhorst & Ferreira, 2016), despite the IASB's definition of quality financial reporting as meeting the objectives and qualitative characteristics outlined in the Conceptual Framework for Financial Reporting. These characteristics, including relevance and faithful representation, are crucial for ensuring reliability and confidence in financial reporting, which in turn impacts liquidity management during crises.

Relevance, operationalized through predictive and confirmatory value, involves the ability of information to influence user decisions, particularly capital providers (McDaniel, Martin, & Maines, 2002); (Beest, Braam, & Boelens, 2009). Faithful representation demands accurate portrayal of economic phenomena without bias, ensuring completeness, neutrality, and freedom from material error (IASB, 2008). Although challenging to directly measure through annual reports, (Maines & Wahlen, 2006) suggest adherence to economic constructs and standards can enhance it. Enhancing qualities include understandability, comparability, verifiability, and timeliness (IASB, 2008). Understandability aids user comprehension, while comparability facilitates identification of similarities and differences across economic phenomena (Beest, Braam, & Boelens, 2009). Verifiability ensures information accurately represents economic phenomena, with cash measurements being more verifiable than others (Nobes & Stadler, 2015). Timeliness, crucial for decision usefulness, pertains to the availability of information before it becomes irrelevant (IASB, 2010).

Prior studies suggest a linkage between accounting information characteristics and liquidity, with declining liquidity associated with investor outflows during periods of high market volatility and risk aversion (Rösch & Kaserer, 2013); (Macchiavelli & Zhou, 2021). Firms

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with higher-quality of information characteristics tend to experience less fluctuation in demand during liquidity declines, as investors are more confident in their understanding of the firm's prospects (Martin & Milas, 2010). Despite this, contradictory evidence exists, with some studies showing a negative relationship between accounting information characteristics and liquidity (Hien & Hoang, 2016). Further, studies from the Egyptian market indicate mixed results regarding the impact of accounting information quality on stock liquidity (Elfarmawy, 2018) (AbdElkhalek, 2019). During crises in Egypt, studies have revealed the positive correlation between the timeliness of financial reports and the perceived quality of financial reporting during the COVID-19 pandemic (Badawy, 2021). Proxy measures have shed light on the impact of financial decisions and earnings management on stock liquidity for Egyptian companies listed on the stock exchange, both before and during the spread of the Coronavirus pandemic (Hamd Allah, 2023). In summary, prior research underscores the critical role of high-quality of accounting information characteristics in enhancing investor decision-making during crises, reducing information asymmetry, and mitigating liquidity risk. However, nuances exist in this relationship, warranting further empirical investigation to fully comprehend its dynamics.

In conclusion, while there is a significant theoretical foundation for the relationship between financial information quality and liquidity, empirical investigations have yielded mixed results. These discrepancies may stem from various factors, including differences in data sources, countries, and time periods. Thus, to provide direct evidence on the role of qualitative characteristics of accounting information in mitigating liquidity breakdowns during Egyptian market crises, the following hypotheses have been formulated:

Ha: There is a significant impact of accounting information characteristics on firm liquidity during crisis periods among companies listed on the Egyptian Stock Exchange.

Hb: There is a significant impact of accounting information characteristics on market liquidity during crisis periods among companies listed on the Egyptian Stock Exchange.

Given the diverse components of accounting information characteristics, the following hypotheses can be derived: Firstly, the relevance of accounting information plays a crucial role

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in enhancing both firm and market liquidity, especially during times of economic crises. Relevant accounting information, characterized by its predictive value, feedback value, and timeliness, directly supports effective liquidity management within firms. By providing timely and relevant financial data, firms can better anticipate their financial needs and make informed decisions regarding cash flow and financial strategies. This proactive approach enhances firm liquidity by enabling better cash management and strategic planning during periods of economic instability (Hendriksen & Breda, 2019).

In addition to supporting firm liquidity, relevant accounting information improves market liquidity. When financial reports provide clear and actionable insights, they reduce information asymmetry, which is critical for maintaining market efficiency. Investors and stakeholders can make more informed decisions, leading to increased market confidence and more active trading. This enhanced transparency contributes to market liquidity by facilitating efficient price discovery and reducing uncertainty (Laux & Leuz, 2021). Thus, the relevance of accounting information is essential for sustaining both firm and market liquidity in crisis situations. Therefore, the hypothesis will be:

Ha-1: There is a significant impact of accounting information relevance on firms' liquidity during crisis periods in listed companies on the Egyptian Stock Exchange.

Hb-1: There is a significant impact of accounting information relevance on market liquidity during crisis periods in listed companies on the Egyptian Stock Exchange.

Secondly, Faithful representation is needed in crises times under uncertainty to reflect the inclusion of a degree of caution in the exercise of the judgments needed in making the estimates, such that assets or income are not overstated, and liabilities or expenses are not understated. Faithful representation of accounting information, characterized by completeness, neutrality, and accuracy, significantly impacts both firm and market liquidity. For firms, accurate and comprehensive financial statements enhance liquidity by allowing better assessment of cash flow management and short-term financial needs, especially critical during

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economic crises when resource management is paramount (Gaffikin, 2018). This reliable information helps firms optimize working capital and meet obligations more effectively.

On the market side, faithful representation fosters investor confidence and market efficiency by reducing information asymmetry. Transparent financial reporting enables investors to make well-informed decisions, leading to more active trading and accurate security pricing, which enhances market liquidity (Barth et al., 2017). During crises, the credibility of financial information becomes even more crucial for maintaining market stability and investor trust. So, the hypothesis will be;

Ha-2: There is a significant impact of accounting information faithful representation on firms' liquidity during crisis periods in listed companies on the Egyptian Stock Exchange.

Hb-2: There is a significant impact of accounting information faithful representation on market liquidity during crisis periods in listed companies on the Egyptian Stock Exchange.

Thirdly, Understandability is the ability to know the comprehensive meaning of information during risky time. It is enhanced through proper classification as well as concise and clear presentation (Liao, Kang, Morris, & Tang, 2013). The concept of understandability in accounting information is crucial for enhancing both firm and market liquidity, particularly during times of crisis. Understandability refers to the clarity and ease with which financial information can be comprehended by its users. According to research by Li and Zhao (2016), clear and easily interpretable financial statements help reduce the cognitive load on investors and stakeholders, enabling them to make more informed decisions. This heightened clarity supports improved market liquidity by fostering greater investor confidence and reducing information asymmetry, as stakeholders can more accurately gauge a firm's financial health and stability during crises (Barth, 2006).

Furthermore, understandability contributes to firm liquidity by facilitating more effective communication between a company and its financial stakeholders. When accounting information is presented in a straightforward manner, it allows management to better explain the company's financial position and operational challenges during crises (Kothari, Leone, &

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Wasley, 2005). This enhanced communication helps in mitigating the negative impacts of a crisis on firm liquidity by improving access to capital and maintaining investor trust. Overall, the clarity of accounting information directly impacts liquidity by influencing decision-making processes and fostering an environment of transparency and trust. So, the hypothesis will be;

Ha-3: There is a significant impact of accounting information understandability on firms' liquidity during crisis periods in listed companies on the Egyptian Stock Exchange.

Hb-3: There is a significant impact of accounting information understandability on market liquidity during crisis periods in listed companies on the Egyptian Stock Exchange.

Fourthly, the concept of comparability in accounting information plays a significant role in enhancing both firm and market liquidity, especially during periods of economic uncertainty. Comparability refers to the ability to compare financial statements across different periods and companies, which helps users to identify trends and make meaningful comparisons. According to research by (Schipper, 2003), comparability in financial reporting allows investors and stakeholders to assess and compare the financial health and performance of firms more effectively, which contributes to improved market liquidity by reducing uncertainty and enhancing the reliability of financial data.

Moreover, comparability aids firm liquidity by facilitating better investment decisions and fostering confidence among investors. When accounting information is comparable, it reduces the complexity involved in financial analysis and improves the decision-making process. This transparency helps firms attract investment and maintain liquidity during crises, as investors are more likely to invest in companies with understandable and comparable financial reports (Lang & Lundholm, 2000). Overall, the ability to compare financial information directly impacts liquidity by supporting more informed investment decisions and maintaining market stability. So, the hypothesis will be;

Ha-4: There is a significant impact of accounting information comparability on firms' liquidity during crisis periods in listed companies on the Egyptian Stock Exchange.

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Hb-4: There is a significant impact of accounting information comparability on market liquidity during crisis periods in listed companies on the Egyptian Stock Exchange.

Fifthly, the timeliness of accounting information is crucial for enhancing both firm and market liquidity, particularly during periods of economic crisis. Timeliness refers to the provision of financial information in a timely manner, allowing users to make decisions based on the most current data available. Research by (Beaver, 1968) highlights that timely financial information helps investors and stakeholders react promptly to changes in a company's financial status, thereby improving market liquidity by reducing uncertainty and enabling more accurate valuation of firms. So, the hypothesis will be;

Moreover, timely accounting information supports firm liquidity by enabling better financial planning and management. When financial information is reported quickly, management can respond to liquidity challenges more effectively and make necessary adjustments to business strategies. This prompt reporting helps in maintaining investor confidence and securing necessary funding during crises (Harris, L.; Raviv, A., 1993). In essence, the timely dissemination of accounting information directly impacts liquidity by supporting informed decision-making and fostering a more transparent and responsive market environment.

Ha-5: There is a significant impact of accounting information timeliness on firms' liquidity during crisis periods in listed companies on the Egyptian Stock Exchange.

Hb-5: There is a significant impact of accounting information timeliness on market liquidity during crisis periods in listed companies on the Egyptian Stock Exchange.

Finally, the verifiability of accounting information is vital for enhancing both firm and market liquidity, especially during economic crises. Verifiability refers to the extent to which financial information can be corroborated by independent observers through various means, such as audits and third-party validation. Research by (Dechow & Schrand, Earnings Quality, 2004) indicates that verifiable financial information increases stakeholder confidence by

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ensuring that reported data accurately reflects a company's financial position, which in turn promotes market liquidity by reducing uncertainty and information asymmetry.

Moreover, verifiability contributes to firm liquidity by improving the reliability of financial statements, which facilitates access to capital and maintains investor trust. When accounting information is verifiable, it reassures investors and creditors that the financial reports are accurate and trustworthy, enabling more effective financial planning and risk management (Penman, 2007). This enhanced reliability helps mitigate the adverse effects of crises on firm liquidity by fostering a transparent and credible reporting environment. So the hypothesis will be;

Ha-6: There is a significant impact of accounting information verifiability on firms' liquidity during crisis periods in listed companies on the Egyptian Stock Exchange.

Hb-6: There is a significant impact of accounting information verifiability on market liquidity during crisis periods in listed companies on the Egyptian Stock Exchange.

3. The Methodology

3.1 Study Population and Sample

The study focuses on Egyptian companies listed on the Egyptian stock exchange, excluding those in the banking and non-bank financial services sectors, resulting in a qualified population of 208 companies. A purposive sampling method was used to select a sample of 106 companies from this population spanning the period from 2010 to 2022. This sampling approach was chosen to align with the study's objective of examining the impact of significant crises such as the Egyptian Revolution in 2011, the currency floatation in November 2016, the Coronavirus pandemic in 2019, and the Ukraine war in 2022. These crises constitute the data window for analysis.

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Table 1: Structure of the study sample

Sectors	Qualified firms	No. of firms in sample	No. of Obs.	%
Food, Beverages, and Tobacco (FOBT)	31	13	169	12.3
Real Estate (REAL)	33	12	156	11.3
Health Care & Pharmaceuticals (HLTH)	21	10	130	9.4
Basic Resources (BASC)	19	10	130	9.4
Travel & Leisure (TRVL)	19	9	117	8.5
Contracting & Construction Engineering (COCE)	18	8	104	7.6
Building Materials (BULM)	14	8	104	7.6
Shipping & Transportation Services (SHTS)	7	6	78	5.7
Textile & Durables (TEDU)	9	6	78	5.7
IT, Media & Communication Services (IMCS)	9	5	65	4.7
Industrial Goods, Services and Automobiles (IGSA)	7	5	65	4.7
Trade & Distributors (TRDB)	8	5	65	4.7
Energy & Support Services (ENGY)	3	3	39	2.8
Education Services (EDUS)	5	3	39	2.8
Paper & Packaging (PAPC)	5	3	39	2.8
Total	**208**	**106**	**1378**	**100 %**

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Therefore, the final sample includes 106 companies from 15 main sectors from Egyptian stock exchange, for thirteen years' period with a total of 1378 firm-year observations. The sample data are hand-collected from Egyptian Financial Supervisory Authority, Egypt for Information Dissemination EGID, annual reports such as board of directors' reports, corporate governance reports, and financial statements that are published on companies' websites, MetaStock's Platform data files, Investing website (www.investing.com), and the Egyptian Stock Exchange website (www.egx.com.eg).

3.2 Models

Two main regression models are developed in the current study to test the research hypotheses. This study follows Ng (2011) after modifying it to suit the Egyptian environment and incorporating the independent variable of this study (accounting information characteristics) and extend the above model to investigate whether accounting information characteristics is a determinant of firm and market liquidity during crises times.

Model (1): Accounting information characteristics and firm liquidity during crises times.

In this model, firm liquidity position is regressed on the different proxies of accounting information characteristics during crises times and control variables. Therefore, the model can be presented symbolically as follows,

$$FL_iQP_{i,t} = \beta_0 + \beta_1 AIC_t + \beta_2 SIZE_t + \beta_3 lev_{i,t} + \beta_4 Prof_{i,t} + \varepsilon_{i,t} \ldots\ldots(1)$$

Model (2): Accounting information characteristics and Market liquidity during crises times.

In this model, market liquidity during crises times is regressed on different proxies of accounting information characteristics and control variables. Therefore, the model can be presented symbolically as follows,

$$ML_iQ_{i,t} = \beta_0 + \beta_1 AIC_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 lev_{i,t} + \beta_4 Prof_{i,t} + \varepsilon_{i,t} \ldots\ldots(2)$$

Where variables in the two models as follow:

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Table 2: Operational definitions of model (1) and (2) variables

Variable	Definition	Measurement Method
Firm Liquidity $FLiQP_{i,t}$	Measurement of a firm's financial liquidity for firm (i) at time (t), (dependent variable).	Liquidity is measured using the following **Quick Ratio (QR)** =(CA−I)/CL Where CA = Current Assets, I = Inventory, CL = Current Liabilities.
Market Liquidity $MLiQ_{i,t}$	Measurement of market liquidity at time (t) (dependent variable).	Market liquidity is assessed using the logarithm of the yearly traded shares for companies.
Accounting Information Characteristics $AIC_{i,t}$	Evaluation of Accounting information characteristics for company (i) at time (t) (Independent variable). based on specific characteristics: relevance, faithful representation, understandability, comparability, timeliness, and verifiability.	Accounting information characteristics are assessed using a 35-item index based on (Beest, Braam, & Boelens, 2009), with a five-point Likert scale for each item. The dimensions include: Relevance (13 items), Faithful Representation (7 items), Comparability (6 items), Understandability (6 items), Timeliness (1 item), and Verifiability (2 items).
Firm Size $SIZE_{i,t}$	Measurement of a firm's size (i) size at time (t) (control variable).	Firm size is measured using the natural logarithm of total assets.
Leverage Levi,t	Measurement of a firm's leverage of the firm (i) in year (t) (control variable).	Leverage is measured as the ratio of total debt to total assets: LEV=Total Debt/Total Assets.

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Variable	Definition	Measurement Method
Profitability $Prof_{i,t}$	Measurement a profitability of a firm (i) in year (t) (control variable).	Profitability is measured using the Return on Assets (ROA) ratio: =Net Income/Total Assets
β_0 =	Regression constant.	
β_1: β_4 =	Regression coefficients of independent variables and control variables.	
$\varepsilon_{i,t}$=	Error.	

3.2.1 The Dependent Variables: Firm Liquidity & Market Liquidity

To answer the research questions, two measurements of Firm and Market liquidity are used with two models and different regression analyses for each model as the following:

Firm Liquidity Variable

Firm liquidity profile (Bolek & Wiliński, 2012) based on Classical financial liquidity ratios is used for liquidity measure firm. Liquidity ratio Static measurement of liquidity determines the relation between current assets and short-term liabilities. The ratios based on this relation are the relationship of various ranges of current assets with different liquidity levels to short-term liabilities. They reflect, thus, various degrees of financial liquidity of the firm (Nowak, 1996). Current ratio (CR), Quick Ratio (QR), and Acid Test (AT) are the three basic ratios of financial liquidity.

To examine Firm Liquidity, this study follows (Johansson & Hallberg, 2021) by addressing Quick Ratio (QR) which includes the most liquid of current assets to current liabilities. The rise in the value of this ratio expresses high liquidity of the company, as follow;

Quick Ratio (QR) = CA-I / CL

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Where:

CA = Current Assets

I = Inventory

CL = Current Liabilities

The least liquid element of current assets is inventory. To obtain the liquidity measure based on a group of assets which are easier to sell, we separate them from the current ratio. The quick ratio shows to what degree short-term liabilities are covered with the most liquid current assets.

Market Liquidity Variable

Market liquidity is more easily recognized than defined. A working definition is that a market is liquid if transactions can take place rapidly and with little impact on price. So defined, market liquidity has several dimensions. Tightness refers to the difference between buy and sell prices, for example the bid-ask spread in a quote-driven market (Amihud & Mendelson, 2001). Depth relates to the size of the transactions that can be absorbed without affecting prices (Friedman & Givoly, 1982). Immediacy denotes the speed with which orders can be executed, and resiliency the ease with which prices return to "normal" after temporary order imbalances (O'Hara, 2003).

The volume of trade is a measure of the market's activity and liquidity during a set period of time. Higher trading volumes are considered more positive than lower trading volumes because they mean more liquidity and better order execution.

The volume of trade is a measure of the market's activity and liquidity during a set period of time. Higher trading volumes are considered more positive than lower trading volumes because they mean more liquidity and better order execution. Previous studies mentioned several measures of trading volume, such as the number of traded shares (Harris, 1990), number of transactions (Chung, Van Ness, & Van Ness, 2004), number of trading days per year (Brennan & Subrahmanyam, 1996), trading value (Goyenko, Subrahmanyam, & Ukhov, 2009), number of traded securities logarithm (Liu, 2006), turnover ratio (O'Hara, 1995),

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logarithm of turnover ratio (Grinblatt & Keloharju, 2001), net turnover after excluding jobbing turnover (Jones, 2002), relative trading volume (Kumar & Lee, 2006), logarithm of relative trading volume (Harris, L.; Raviv, A., 1993), and market turnover (Loughran & Ritter, 2004). These measures provide various perspectives on market liquidity and activity, contributing to a comprehensive understanding of how trading volume impacts market efficiency and liquidity.

To examine market liquidity, this study follows (Afify, 2014) by employing the logarithm of the yearly ratio of traded shares for companies. Trading volume refers to the number of assets bought or sold within a specific time interval. It reflects the general interest of traders in a particular asset. The more trades conducted in the market and the larger their volumes, the higher the traders' activity. High activity determines the high liquidity and volatility of the asset.

3.2.2 The Independent Variable: Accounting Information Characteristics

The main purpose of the study is to test whether there is a significant difference in the intensity of liquidity between firms which has a higher accounting information characteristics quality and others which are not, and secondly, whether there is a significant difference in overcoming negative effects of crises between the mentioned groups of firms.

Accounting information characteristics measured by (Beest, Braam, & Boelens, 2009) (35-item index which used con-tent analysis as compound measurement tool to comprehensively assess the quality of financial reporting in terms of the underlying fundamental qualitative characteristics (i.e. relevance and faithful representation) and the enhancing qualitative characteristics (i.e. understandability, comparability, timeliness, and verifiability) as defined in 'An improved Conceptual Framework for Financial Reporting' of the FASB and the IASB (2008)). This approach allows for a thorough examination of financial reports to evaluate the adherence to various qualitative characteristics outlined in the conceptual

The accounting information characteristics assessment comprised six dimensions: relevance, faithful representation, understandability, comparability, timeliness, and verifiability. Each dimension was represented by a varying number of measurement items,

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corresponding to the construct it aimed to capture relevance (13 items), faithful representation (7 items), comparability and understandability (6 items each), timeliness (1 item) and Verifiability (2 item). In total, there were 35 measurement items across all dimensions. These items were evaluated using a five-point Likert scale, ranging from 1 to 5, as established by (Beest & Braam, 2013), to capture the extent of each FRQ dimension being assessed.

To calculate the overall score of accounting information characteristics, each dimension—relevance, faithful representation, understandability, comparability, timeliness, and verifiability—was assessed using a set of measurement items, following the approach of (Yurisandi & Puspitasari, 2015). These items were evaluated on a five-point Likert scale, where each item received a score from 1 to 5, with 1 indicating the lowest quality and 5 indicating the highest. For each dimension, the scores of the individual items were summed to create a total score. For instance, if a dimension had 5 items with scores of 4, 5, 3, 4, and 5, the total score for that dimension would be 21. The total scores from all six dimensions were then summed to generate an overall score for the accounting information characteristics (Heale & Twycross, 2015).

The final overall score could either be the sum of all the dimension scores or an average of the dimension scores, depending on the intended interpretation of the results (Vlachos, 2001). For example, if the maximum possible score across all dimensions was 150 and a company scored 120, its overall score would be 120/150, which could then be expressed as a percentage or retained as a raw score.

Content Validity of the FRQ Measurement Tool, pertains to the extent to which a research instrument covers the content it aims to measure, such as financial reporting quality. Authors (Beest & Braam, 2013) conducted a content validity test for their accounting information characteristics measurement tool. This involved the utilization of multiple items from previous studies and a preliminary checklist refined by three practicing auditors and a financial manager.

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The present study adopted the empirically validated (Beest, Braam, & Boelens, 2009) measurement tool developed by the Nijmegen Center for Economics (NiCE). This tool assessed financial reporting quality based on the fundamental and enhancing qualitative characteristics outlined in the IFRS conceptual framework (Beest & Braam, 2013). Initially containing 21 items, the FRQ measurement tool was later expanded to 35items, as detailed in (Appendix A). Previous studies by (Yurisandi & Puspitasari, 2015); (Osasere & Ilaboya, 2018); (Mbawuni, 2019). have utilized the same FRQ measurement tool, with variations in the number of items employed.

Reliability Testing of the FRQ Measurement, as defined by Heale & Twycross, 2015), concerns the consistency of a measurement. It ensures that when a researcher completes a research instrument intended to measure a phenomenon, consistent responses are obtained each time the test is administered. Subjective judgment, as noted by (Vlachos, 2001), poses a primary threat to reliability when completing a research instrument.

To mitigate subjectivity in the interpretation of listed companies' annual reports, two independent scorers (Chartered Accountants) evaluated both the quantitative and qualitative information in the reports to determine the measurement score. Test-retest and inter-rater reliability analyses were employed to ensure the reliability and consistency of scores between individual raters and across raters, as recommended by Braam & (Beest & Braam, 2013).

3.2.3 Control variables

This study also utilizes several indicators (Skrivanek, 2009) and control variables in addition to the independent and dependent variables. The accounting information characteristics of a firm can be influenced by various firm-specific characteristics, which must be controlled for in the estimation to ensure accurate results. Accordingly, this study considers following discussed variables an indicator and control variables:

- **Firm size ($SIZE_{i,t}$)** is applied as a control variable for the study which is explored that the larger company is involved in high accounting information characteristics because of their nature of business and market reputation (Barton & Simko, 2002); (Dechow & Dichev, 2002).

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(KIM, Shroff, Vyas, & Wittenberg-Moerman, 2018) discussed two competing views regarding the effect of firm size on the earnings management. The first view suggests that large firms are more likely to engage in earnings management due to market-driven incentives (such as meet financial analysts' expectations before IPOs and avoid political costs) its stronger management power, its greater ability to bargain with auditors or because of the complexity of its operations to be detected by the auditors and/or investors. This point of view is confirmed by several studies e.g. (Nelson, Elliott, & Tarpley, 2002); (Othman & Zeghal, 2006). The opposite view suggests that large firms usually avoid manipulating earnings because of the effectiveness of its governance and internal audit management, its follow-up by more financial analysts, the audit by large audit firms or its concern about reputation (e.g. (Dechow & Dichev, 2002); (Lee & Choi, 2002). Following (Du & Shen, 2018); (Alhadab & Clacher, 2018), natural logarithm of total assets is included as a proxy of firm size.

- **Leverage ($LEV_{i,t}$):** In general, it is argued that highly leveraged firms have stronger incentives to increase the quality of accounting information characteristics and manage earnings to avoid debt covenant violation (DeFond & Jiambalvo, 1994); Sweeny, 1994; (Cohen, D. A.; Hall, J.; Wei, J., 2008). However, (Park & Shin, 2004) document that leveraged companies are less likely to manipulate earnings due to the more monitoring of their lenders. Consistent with prior studies (e.g.) (Sohn, 2016); (Alhadab, M.; Nguyen, T., 2018), leverage is defined as total debt/total assetst-1.
    - **Profitability ($Prof_{i,t}$):** The profitability of a company can be indicated by profitability ratios. A profitability ratio is an index for companies' overall performance and measures earning capacity, growth, and the success of firms (Kabajeh et al., 2012). These ratios are widely used by investors, and they are necessary to attract investors to purchase companies' shares (Arkan, 2016). (Dechow, P.; Sloan, R. G.; Sweeney, A. P., 1998) find that ROA is a powerful variable to control for firm performance and to create a matched sample. In the same context, (Kothari, Leone, & Wasley, 2005) suggest that the non-use of return on asset (ROA) as a control variable in accounting information characteristics may lead to a biased model. Consistent with the majority of prior research (e.g.) (Sohn, 2016); (Baatour, Ben Othman, & Hussainey, 2017), ROA is added as a control variable to

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the study models and is calculated as ratio of profits before tax to total assets to indicate accounting information of profitability (Sheikh & Wang, 2013).

4. Empirical Findings

4.1 Descriptive Statistics

The study uses annual reports from 106 firms, covering 2010-2022, for a balanced panel data analysis. Descriptive statistics, including mean, median, standard deviation, minimum, and maximum values, are provided. Due to outliers, the number of observations varies across models. The descriptive statistics for models (1) and (2) are shown in Table 3, with statistical significance at the 1% level indicated by "a."

Table 3: Descriptive summary statistics, 2010-2022

	Obs.	*Mean*	*Median*	*Std. Dev.*	*Min*	*Max*	*Normality test*
Dependent Variables:							
Firm Liquidity	1378	2.065	1.288	3.654	-13.59	64.99	[982845][a]
Market Liquidity	1378	6.330	6.439	1.390	1.204	9.181	[69.3966][a]
Independent Variables:							
1) Content analysis variables							
Total quality AIC	1378	2.105	1.835	0.796	1	3.915	[107.386][a]
a. Relevance	1378	2.099	2	0.869	1	4	[109.975][a]
b. Faithful representation	1378	1.939	1.429	0.870	1	4	[128.423][a]
c. Understandability	1378	2.101	1.667	0.858	1	4	[96.2061][a]
d. Comparability	1378	2.197	2	0.833	1	4	[81.0459][a]
e. Timeliness	1378	1.351	1	0.477	1	2	[238.520][a]

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f. Verifiability	1378	2.638	3	0.909	1	4	[39.8542]ª
Control Variables:							
Firm Size	1378	53.22	8.548	183.5	4.862	883.5	[13176.2]ª
Leverage	1378	2.326	0.410	7.697	0	57.42	[30929.4]ª
Profitability	1378	0.711	0.035	3.685	-11.65	32.60	[982845]ª

***Note*:** - a indicate significance at 1%.

The statistical summary of the variables in the study reveals significant variability across all measures, with notable deviations in firm and market liquidity, indicating non-normal data distributions. *Firm Liquidity* shows high variability (mean 2.065, SD 3.654), whereas *Market Liquidity* has a narrower range (mean 6.330, SD 1.390). Accounting Information Characteristics, such as *Relevance*, *Faithful Representation*, and *Verifiability*, also display varied dispersion, impacting liquidity amid economic challenges. In addition, *Understandability* shows a mean of 2.101 and a standard deviation of 0.858, indicating moderate consistency but still significant variability, suggesting that firms' ability to produce clear and comprehensible information fluctuates, potentially affecting their liquidity. *Comparability* has a slightly higher mean of 2.197 and a standard deviation of 0.833, reflecting the degree to which financial information is comparable across different firms, which could influence market perceptions and liquidity. *Timeliness,* with the lowest mean of 1.351 and a standard deviation of 0.477, highlights challenges in promptly providing information, which is critical during periods of economic stress, as delays may increase uncertainty and thus impact liquidity. Control variables highlight diverse firm sizes (mean 53.22, SD 183.5) and leverage levels (mean 2.326, SD 7.697), underscoring the dataset's complexity and providing a foundation for further analysis.

4.2 Correlation matrix

The study used Pearson correlation analysis to evaluate the relationships among dependent, independent, and control variables, revealing their strengths and directions. The Correlation Matrix identifies interdependencies and potential multicollinearity issues. Correlations below 50% are weak, 50%-70% are moderately strong, and above 70% are strong.

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Table 4: Correlation matrix between study variables, 2010-2022

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Firm Liquidity	**(1)**	1											
Market Liquidity	**(2)**	0.029	1										
Total quality FICQ	**(3)**	-0.044	0.104[a]	1									
Time	**(4)**	0.053[c]	0.051[c]	-0.017	1								
Earning Management	**(5)**	0.124[a]	-0.028	-0.116[a]	0.040	1							
Price_Bv	**(6)**	0.005	-0.060[c]	-0.058[c]	0.031	-0.037	1						
Price_EPS	**(7)**	-0.019	0.045	-0.021	0.037	0.014	0.285	1					
Return_Bv	**(8)**	-0.047	0.010	0.006	-0.013	0.019	-0.090	0.033	1				
Return_EPS	**(9)**	0.057[c]	0.029	0.022	-0.038	0.002	-0.030	-0.119[a]	0.272[a]	1			
Firm Size	**(10)**	-0.122[a]	0.056[b]	0.038	-0.056[b]	-0.018	0.024	0.009	0.000	-0.155[a]	1		
Leverage	**(11)**	-0.161[a]	0.048[c]	0.034	-0.059[b]	-0.015	0.020	0.011	0.010	-0.099[a]	0.887[a]	1	
Profitability	**(12)**	-0.066[b]	-0.040	0.007	-0.078[a]	-0.022	0.001	0.008	0.015	-0.242[a]	0.738[a]	0.499[a]	1

***Note*:** - a, b, c indicate significance at 1%, 5% and 10% respectively.

Table 4 presents the correlation matrix for study variables from 2010 to 2022, with coefficients expressed in percentages and significance levels indicated by letters. Key findings include a slight positive correlation (2.9%) between *Firm Liquidity* and *Market Liquidity*, though not statistically significant. *Total quality AIC* shows a stronger positive correlation (10.4%) with *Market Liquidity*, significant at the 1% level, suggesting higher financial information quality

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improves market liquidity. Control variables exhibit inconsistent correlations, with *Firm Size* and *Leverage* negatively associated with *Firm Liquidity* but positively with *Market Liquidity*, while Profitability shows no significant association with *Market Liquidity*. The correlations among variables range from weak to slightly strong, with no multicollinearity detected. These insights highlight the mixed influence of accounting information on liquidity, especially during crises, necessitating careful consideration of significance levels and contextual factors.

4.3 Methodological Validation

Table 5 outlines the critical specifications tests employed to assess the adequacy of regression models. The Residual Variance Test, Breusch-Pagan Test, Hausman Test, and Time Test are utilized to determine the most suitable regression model for the data. Significant results across these tests indicate that both fixed effects and random effects models are more appropriate than the pooled ordinary least squares (OLS) model, and that time significantly influences the regression relationships studied.

Table 5: Specifications Tests used in the study model.

Tests used	Description	Null hypothesis
▪ ***Specifications Tests*:**		
Residual variance test	Test for differing group intercepts (Pooled OLS versus FEM)	Pooled OLS is adequate
Breusch-Pagan test	Test for differing group intercepts (Pooled OLS versus REM)	Pooled OLS is adequate
Hausman test	To compare between (REM versus FEM)	REM is consistent
Time test	Wald joint test on time dummies	No time effects

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- ***Diagnostic Tests*:**

Heteroskedasticity	White's test	Heteroskedasticity not present
Serial Correlation	Wooldridge test	No first-order autocorrelation
Cross-Section Dependence	Pesaran CD	No cross-sectional dependence
Normality	Jarque-Bera	Error is normally distributed
Collinearity	Variance Inflation Factors (VIF)	Values > 10 may indicate a collinearity
Structural breakpoint	Chow test	no structural break
Omit variables	Omitting variables test based on covariance matrix	Parameters are zero for the variables
Function Form	RESET test for specification	Specification is adequate
Linearity (1)	Auxiliary regression for non-linearity test (squared terms)	Relationship is linear
Linearity (2)	Auxiliary regression for non-linearity test (log terms)	Relationship is linear

The results from Table 6 confirm the statistical significance of the specifications tests conducted. For Model (1) and Model (2), significant p-values in tests such as the Residual Variance Test, Breusch-Pagan Test, Hausman Test, and Time Test underscore the superiority of the fixed effects model over random effects and pooled OLS models. This suggests that individual company differences and time factors are crucial in explaining variations in firm and market liquidity.

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Table 6: Specifications tests results.

Tests used		Model (1) (Firm Liquidity)		Model (2) (Market Liquidity)	
Residual variance test	(Pooled OLS versus FEM)	F(96, 948):	22.239 (0.000)***	F(96, 937):	61.524 (0.000)***
Breusch-Pagan test	(Pooled OLS versus REM)	Chi-square (1):	1870.6 (0.000)***	Chi-square (1):	2682.7 (0.000)***
Hausman test	(REM versus FEM)	Chi-square (7):	42.549 (0.000)***	Chi-square (7):	13.516 (0.060)*
Time test	(Time effects)	Chi-square (9):	65.533 (0.000)***	Chi-square (9):	66.884 (0.000)***

Diagnostic tests in Table 7 evaluate the quality and reliability of regression models. Significant findings in tests such as White's test for heteroskedasticity and Wooldridge test for serial correlation indicate that these issues are present in the data but can be addressed through robust statistical techniques. Moreover, tests for cross-section dependence, normality, structural breakpoint, and function form confirm the adherence of the models to statistical assumptions, ensuring the validity of regression results.

Table 8 presents the VIF test results, which assess multicollinearity among independent variables in Model (1) and Model (2). With VIF values below 10 for all regressors except firm size, which includes a squared term to capture non-linear relationships, the absence of severe multicollinearity issues is indicated. This ensures that the independent variables collectively contribute to the regression models without redundancy or undue influence from correlated predictors.

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Table 7: Diagnostic tests results.

Tests used	*Model (1) (Firm Liquidity)*	*Model (2) (Market Liquidity)*
White's test for heteroskedasticity	274.643 (0.000)***	346.576 (0.000)***
Wooldridge test for serial correlation	3.02332 (0.003)***	35.7441 (0.000)***
Pesaran CD for cross-section dependence	-1.86808 (0.062)*	12.2839 (0.000)***
Jarque-Bera for normality	228.960 (0.000)***	1476.35 (0.000)***
Chow test for structural breakpoint	19.2291 (0.316)	33.3781 (0.000)***
Omitting variables test	9.15491 (0.000)***	11.3286 (0.000)***
RESET test for function form specification	20.6784 (0.000)***	19.2139 (0.000)***
Non-linearity test (squared terms)	149.751 (0.000)***	112.215 (0.000)***
Non-linearity test (log terms)	9.84150 (0.002)***	3.59711 (0.058)*

***Note*:** ***, **, * indicate significance at 1%, 5% and 10% respectively.

Table 8: Variance Inflation Factors (VIF) test result.

Variables	*Model (1) (Firm Liquidity)*	*Model (2) (Market Liquidity)*
	VIF coefficient	*VIF coefficient*
X (in 2011 crisis)	1.110	1.110
X (in 2017 crisis)	1.054	1.054
X (in 2020 crisis)	1.074	1.074
X (in 2022 crisis)	1.027	1.027
X (in other years)	1.065	1.065
Firm Size	10.40	10.40
Leverage	6.309	6.309
Profitability	2.943	2.943

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4.4 Results

4.4.1 Firm liquidity (FL_{it}) Model

Tables (9) reports the results of Firm liquidity (FL_{it}) Model. The table shows the results of multiple regression analysis for the effect of Accounting Information characteristics measured by (Beest, Braam, & Boelens, 2009) Model on Firm liquidity measured by Quick Ratio during crises times.

Table 9: Accounting Information characteristics (content analysis) and Firm liquidity: Econometrics results

Dependent variables: *Firm Liquidity*

Method: *2-way fixed effects model with (White cross-section standard errors)*

	X = *Accounting Information characteristics*	***Dimensions of the (Accounting Information characteristics)***					
		X = Relevance	*X = Faithful representation*	*X = Understandability*	*X = Comparability*	*X = Timeliness*	*X = Verifiability*
	Reg (1)	***Reg (2)***	***Reg (3)***	***Reg (4)***	***Reg (5)***	***Reg (6)***	***Reg (7)***
X (in 2011 crisis)	**-0.1349** [-15.11]***	**-0.1108** [-13.19]***	**-0.0925** [-10.36]***	**-0.1639** [-11.35]***	**-0.1678** [-18.12]***	**-0.0674** [-2.380]**	**-0.0698** [-4.250]***
X (in 2017 crisis)	**-0.0044** [-0.346]	**-0.0078** [-0.597]	**-0.0035** [-0.259]	**0.0083** [0.825]	**-0.0088** [-0.711]	**-0.0222** [-0.703]	**-0.0222** [-2.084]*
X (in 2020 crisis)	**0.0403** [2.745]**	**0.0409** [2.909]**	**0.0331** [2.080]*	**0.0435** [2.738]**	**0.0432** [2.821]**	**0.1031** [3.936]***	**-0.0281** [-2.139]*
X (in 2022 crisis)	**0.2024**	**0.1839**	**0.1779**	**0.2065**	**0.2118**	**-0.0455**	**0.0558**

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	[18.90]***	[18.20]***	[13.45]***	[18.90]***	[16.68]***	[-1.740]	[3.620]***
X (in other years)	**-0.0068**	**-0.0055**	**-0.0072**	**-0.0076**	**-0.0007**	**-0.0261**	**-0.0105**
	[-0.650]	[-0.507]	[-0.832]	[-0.764]	[-0.074]	[-1.087]	[-0.859]
Firm Size	0.0083	0.0082	0.0084	0.0080	0.0081	0.0077	0.0079
	[8.073]***	[7.809]***	[8.218]***	[7.830]***	[8.061]***	[7.148]***	[7.071]***
Leverage	-0.0087	-0.0088	-0.0088	-0.0087	-0.0087	-0.0107	-0.0106
	[-1.851]*	[-1.883]*	[-1.883]*	[-1.895]*	[-1.864]*	[-2.176]*	[-2.276]**
Profitability	0.0336	0.0337	0.0334	0.0325	0.0324	0.0305	0.0315
	[2.842]**	[2.850]**	[2.801]**	[2.780]**	[2.795]**	[2.756]**	[2.703]**
Profitability squared	*-0.0010*	-0.0010	-0.0010	-0.0009	-0.0009	-0.0008	-0.0009
	[-2.646]**	[-2.626]**	[-2.628]**	[-2.564]**	[-2.581]**	[-2.378]**	[-2.432]**
Constant	3.6890	3.6841	3.6870	3.6930	3.6821	3.6808	3.6715
	[24.48]***	[25.02]***	[23.78]***	[24.72]***	[23.88]***	[24.39]***	[22.87]***
			Key Regression Statistics				
Obs.	1302	1302	1302	1302	1302	1302	1302
Adjusted R-squared	87.2%	87.1%	87.2%	87.2%	87.1%	86.9%	87.2%
Fisher test (F-stats.)	(71.09)***	(70.79)***	(71.56)***	(71.09)***	(70.74)***	(69.75)***	(71.06)***

Note: - ***, **, * indicate significance at 1%, 5% and 10% respectively. - Robust t-Statistic in parentheses.

Before delving into the obtained results, it is imperative to scrutinize the overarching regression statistics from Table (9) are analyzed. In Table (9), the adjusted coefficient of determination (Adjusted R-squared) (R^2) across seven regressions indicates an explanatory

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power range of 86.9% to 87.2%, effectively explaining variances in Total Accounting information characteristics. The residual component is attributed to random errors from unaccounted variables, and the Fisher test decisively rejects the null hypothesis, emphasizing statistical significance at a 1% confidence level.

5.1.1 Firm liquidity (FL_{it}) during Egyptian Revolution 2011 (2011 Crises)

In accordance with Hypothesis Ha, which posits a significant impact of accounting information characteristics on firms' liquidity during crises in listed companies on the Egyptian Stock Exchange, particularly during the 2011 Egyptian Revolution, the empirical findings presented in Table (9) reveal a substantial negative effect of total accounting information characteristics on firm liquidity during the January 2011 crisis, with a coefficient of -0.1349, statistically significant at the 1% level.

This result aligns with the findings of (Avgouleas, 2009), who emphasizes that the integrity and reliability of accounting information are critical for financial stability during periods of economic turmoil. The negative impact observed suggests that during crises, the quality of accounting information may be compromised, leading to difficulties in assessing and maintaining liquidity. This is further supported by the information asymmetry theory, which posits that during crises, increased uncertainty leads to a higher information gap between firms and stakeholders, affecting financial decision-making and liquidity (Jensen & Meckling, 1976).

Moreover, the correlation matrix supports this finding, showing a statistically significant inverse relationship of -0.044% between total accounting information characteristics and firm liquidity. This correlation suggests that as the quality of accounting information deteriorates, firms' ability to maintain liquidity is adversely affected. This observation is consistent with the agency theory, which argues that during crises, the divergence between managerial and shareholder interests can exacerbate financial instability, as accurate and timely information becomes increasingly critical (Eisenhardt, 1989).

The regression analysis indicates that traditional accounting practices failed to capture the unique characteristics of the 2011 crisis, supporting the need for adjustments in accounting

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standards. The instability and turmoil during the revolution likely disrupted normal business operations and financial reporting processes, rendering traditional accounting methods inadequate. This finding is in line with the contingency theory, which suggests that accounting practices must adapt to fit the specific circumstances and challenges faced by firms (Burns & Scapens, 2000).

Given these results, Hypothesis Ha is supported. The findings underscore the necessity for revised accounting approaches that better address the complexities of crisis situations, as traditional methods may not adequately reflect the financial realities during periods of high uncertainty.

Regarding the qualitative characteristics of accounting information, the results for relevance (-0.1108), faithful representation (-0.0925), understandability (-0.1639), comparability (-0.1678), and verifiability (-0.0698) were all statistically significant at the 1% level, while timeliness (-0.0674) was statistically significant at the 5% level. These results indicate that during the crisis, each characteristic of accounting information was compromised, affecting firms' liquidity. This aligns with the findings of (Bassiony, 2022), who suggested that the political and economic instability of the 2011 revolution led to changes in regulatory frameworks and government policies, impacting the quality and effectiveness of financial reporting.

The results also reflect the insights of (Sheikh & Wang, 2013), who noted that accounting information characteristics such as relevance and faithful representation are crucial for accurately assessing firm performance and liquidity. The significant negative coefficients for these characteristics highlight how disruptions in accounting practices during the crisis influenced financial stability. This supports the acceptance of Hypotheses Ha-1 through Ha-6, which posits that there is a significant impact of these characteristics on firms' liquidity during periods of crisis.

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5.1.2 Firm liquidity (FL_{it}) during Currency Floatation 2016 (2017 Crises)

Aligned with Hypothesis Ha, which posits a significant relationship between Accounting Information Characteristics (AICs) and Firms' Liquidity (FL) during the Currency Floatation crises of 2016 and 2017, the empirical findings presented in Table (9) reveal that the relationship between total AICs and firm liquidity is very weak and non-significant. The only notable exception is the inverse relationship between the verifiability characteristic and liquidity, with a regression coefficient of -0.0222, significant at the 10% level.

The regression results align with prior research by (ElGammal & Hussainey, 2014), which suggests that during currency crises, the utility of traditional accounting metrics can be limited. Their findings support the notion that the specific challenges and rapid changes during such crises can diminish the relevance of standard accounting information characteristics. This perspective can be linked to the Information Asymmetry Theory, which posits that during economic crises, the disparity between the information available to management and external stakeholders can increase, leading to less effective decision-making based on traditional accounting measures (Spence, 1973).

Moreover, (El-Masry, Abdelfattah, & El-Gazzar, 2018) argue that during periods of economic instability, such as currency floatation crises, factors like currency risk management, liquidity preservation, and capital allocation strategies become more critical than traditional accounting measures. This insight is consistent with the Behavioral Finance Theory, which emphasizes that investor behavior and market dynamics can shift significantly during crises, affecting how financial information is interpreted and utilized (Kahneman & Tversky, 1979). This explains why the regression results show weak relationships between total AICs and liquidity and leads to the acceptance of Hypotheses Ha -1 to Ha -5.

On the other hand, the negative relationship between verifiability and firm liquidity suggests that higher levels of verifiability in accounting information could be associated with decreased liquidity. This observation can be explained by the Information Asymmetry Theory; as increased verifiability may lead to more stringent auditing processes or higher transparency.

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These conditions might expose underlying financial weaknesses or inefficiencies within firms, which could adversely affect their liquidity (Healy & Palepu, 2001). Thus, Hypothesis Ha -6 is rejected based on these findings.

The findings of this study indicate that while total AICs show a weak and non-significant relationship with firm liquidity during the currency floatation crises, the specific characteristic of verifiability has a significant inverse impact on liquidity. These results highlight the need for a more nuanced approach to accounting information in crisis situations and support the rejection of the hypothesis regarding verifiability.

5.1.3 Firm liquidity (FL_{it}) during COVID-19 Pandemic 2020 (٢٠٢٠ Crises)

In line with Hypothesis Ha, which posits a significant impact of Accounting Information Characteristics (AICs) on Firms' Liquidity (FL) during crises times in listed companies on the Egyptian Stock Exchange during the 2020 COVID-19 pandemic, the empirical findings reveal notable relationships consistent with this hypothesis. Specifically, Total Accounting Information Characteristics (AICs) exhibit a significant positive impact on firm liquidity during the COVID-19 pandemic, with a coefficient of 0.0403, significant at the 5% level. This result underscores the beneficial influence of adaptable accounting practices on firm liquidity during crises, exemplified by reforms such as the Egyptian Accounting Standard No. 13 (2017) and international responses to prior global financial crises. These reforms aimed to enhance transparency, accuracy, and timeliness in financial reporting, thereby facilitating effective liquidity management. Consequently, Hypothesis Ha is supported.

Additionally, significant positive regression coefficients were observed for qualitative characteristics of accounting information, including relevance (0.0409), faithful representation (0.0331), understandability (0.0435), comparability (0.0432), and timeliness (0.1031), with statistical significance levels ranging from 1% to 10%. This demonstrates that high-quality financial information, characterized by these attributes, plays a crucial role in enhancing firm liquidity during the COVID-19 crisis. This finding highlights the importance of transparent and

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precise accounting practices in strengthening market confidence and encouraging trading activities. Therefore, Hypotheses Ha-1 through Ha-5 are supported.

Conversely, the regression results reveal a negative relationship between verifiability and firm liquidity, with a coefficient of -0.0281, significant at the 10% level. This negative impact can be attributed to the additional time and resources required for verifying and implementing accounting adjustments, which may temporarily affect liquidity. Thus, Hypothesis Ha-6, which posits an impact of verifiability on firm liquidity, is supported.

The positive impact of AICs on firm liquidity during the COVID-19 pandemic is consistent with prior research by (ElGammal & Hussainey, 2014), who emphasize that enhanced accounting practices positively contribute to firm performance during crises. Their findings align with Information Asymmetry Theory, which suggests that high-quality financial information reduces the information gap between management and stakeholders, thereby improving liquidity management (Spence, 1973). Furthermore, the findings are supported by Behavioral Finance Theory, which posits that stakeholders' decision-making and behavior are influenced by the availability and accuracy of financial information during periods of uncertainty (Kahneman & Tversky, 1979).

Moreover, the results resonate with Agency Theory, which highlights that transparent and timely accounting information helps in mitigating agency conflicts between managers and shareholders by providing clear insights into firm performance and financial health (Jensen & Meckling, 1976). Additionally, the findings support Signaling Theory, which posits that high-quality financial information serves as a positive signal to the market, thus enhancing firm liquidity by building investor confidence (Ross, 1977).

In summary, the findings confirm that high-quality financial information, characterized by relevance, faithful representation, understandability, comparability, and timeliness, has a significant positive impact on firm liquidity during the COVID-19 pandemic. The negative relationship with verifiability underscores the trade-offs involved in implementing comprehensive accounting adjustments. The results support the acceptance of Hypotheses Ha-1

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through Ha-6, highlighting the crucial role of adaptable accounting practices in crisis management.

5.1.4 Firm liquidity (FL_{it}) during Ukraine war 2022 (٢٠٢2 Crises)

In line with Hypothesis Ha, which posits a significant impact of Accounting Information Characteristics (AICs) on Firms' Liquidity (FL) during crises, specifically during the Ukraine war of 2022, the empirical results reveal a robust positive relationship between AICs and firm liquidity. The regression analysis shows that Total Accounting Information Characteristics (AICs) exhibit a significant positive impact on firm liquidity, with a coefficient of 0.2024 at the 1% significance level. This indicates that the adaptability of accounting practices to crisis situations significantly enhances firm liquidity.

The regression results highlight those qualitative characteristics of accounting information such as relevance (0.1839), faithful representation (0.1779), understandability (0.2065), comparability (0.2118), and verifiability (0.0558) all have significant positive coefficients at the 1% level. This indicates their crucial role in improving liquidity during crises. These findings underscore the effectiveness of crisis-oriented accounting standards and the role of information technology advancements in enhancing the ability to manage economic disruptions.

Conversely, the characteristic of timeliness showed a non-significant relationship with a coefficient of -0.0455. This result suggests a shift in focus towards the reliability and accuracy of information rather than its speed. The weakness of timeliness in this context may reflect the prioritization of the accuracy and completeness of financial information over the rapidity of its availability during high-impact crises.

The results align with the Information Asymmetry Theory, which posits that enhanced accounting information quality can reduce information gaps between firms and stakeholders, thereby improving liquidity management during crises (Spence, 1973). They also support Agency Theory, which highlights that transparent and accurate financial reporting mitigates agency conflicts and improves firm liquidity (Jensen & Meckling, 1976). Furthermore, Signaling

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Theory indicates that high-quality financial information signals stability and reliability to investors, thus positively impacting liquidity (Ross, 1977).

The findings reflect an improvement in the effectiveness of accounting standards and practices in managing liquidity during crises, compared to past crises, such as the 2017 currency floatation and the COVID-19 pandemic. This highlights the role of adaptable and high-quality accounting practices in enhancing firm resilience during economic disruptions. In summary, the empirical evidence supports Hypothesis Ha, demonstrating that AICs significantly impact firm liquidity during the Ukraine war of 2022. This emphasizes the importance of high-quality financial information in managing liquidity during crises, while the role of timeliness appears less critical in the context of comprehensive and reliable reporting.

5.1.5 Control Variables

Regarding the control variables, Table 9 indicates a homogenous effect of firm size, leverage and profitability across 7 regressions of Accounting Characteristics. Firm size positively influences firm liquidity at the 1% significance level. This implies a substantial association between higher firm size and accounting information characteristics among Egyptian firms. Leverage negatively influences firm liquidity at the 10% significance level almost. Finally, profitability positively influences firm liquidity at the 5% significance level. Additionally, the results reveal a nonlinear relationship between profitability and firm liquidity.

5.2 Market liquidity (ML_{it}) Model

Tables (10) reports the results of market liquidity (ML_{it}) Model. The table shows the results of multiple regression analyses for the effect of Accounting Information characteristics measured by (Beest, Braam, & Boelens, 2009) on market liquidity measured by Trade Volume during crises times.

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Table 4: Accounting Information characteristics (content analysis) and Market liquidity: Econometrics results

Dependent variable: *Market Liquidity*

Method: *2-way fixed effects model with (White cross-section standard errors)*

	X = Accounting Information characteristics	***Dimensions of the Accounting Information characteristics***					
		X = Relevance	*X = Faithful representation*	*X = Understandability*	*X = Comparability*	*X = Timeliness*	*X = Verifiability*
	Reg (14)	***Reg (15)***	***Reg (16)***	***Reg (17)***	***Reg (18)***	***Reg (19)***	***Reg (20)***
X (in 2011 crisis)	**0.1654** [5.685]***	**0.1459** [5.190]***	**0.1330** [5.944]***	**0.2002** [6.719]***	**0.2040** [6.311]***	**-0.2227** [-5.294]***	**0.0564** [2.450]**
X (in 2017 crisis)	**-0.0099** [-0.427]	**-0.0127** [-0.588]	**-0.0023** [-0.107]	**-0.0019** [-0.091]	**0.0018** [0.084]	**0.0946** [1.751]	**-0.0562** [-2.267]**
X (in 2020 crisis)	**-0.1284** [-4.513]***	**-0.0985** [-4.362]***	**-0.0922** [-3.054]**	**-0.0905** [-3.385]***	**-0.1282** [-4.982]***	**0.2988** [5.525]***	**-0.1233** [-4.598]***
X (in 2022 crisis)	**-0.1163** [-3.820]***	**-0.0936** [-3.270]***	**-0.1589** [-6.078]***	**-0.0829** [-2.924]**	**-0.0897** [-3.302]***	**0.0457** [0.778]	**0.0050** [0.199]
X (in other years)	**-0.0124** [-0.681]	**-0.0234** [-1.321]	**-0.0061** [-0.385]	**0.0058** [0.320]	**-0.0068** [-0.404]	**-0.0085** [-0.099]	**0.0228** [0.978]
Firm Size	-0.0017	-0.0016	-0.0018	-0.0018	-0.0018	-0.0010	-0.0014

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	[-0.739]	[-0.699]	[-0.769]	[-0.786]	[-0.782]	[-0.485]	[-0.680]
Leverage	-0.0168 [-3.209]***	-0.0169 [-3.178]***	-0.0170 [-3.315]***	-0.0163 [-3.116]***	-0.0164 [-3.205]***	-0.0143 [-2.832]**	-0.0155 [-3.100]***
Profitability	-0.0083 [-1.048]	-0.0080 [-1.002]	-0.0076 [-0.995]	-0.0091 [-1.158]	-0.0094 [-1.173]	-0.0051 [-0.723]	-0.0072 [-0.967]
Constant	6.0623 [33.93]***	6.0823 [33.61]***	6.0446 [31.68]***	6.0251 [33.78]***	6.0538 [35.93]***	6.0666 [30.49]***	5.9804 [34.94]***
Key Regression Statistics							
Obs.	1364	1364	1364	1364	1364	1364	1364
Adjusted R-squared	83.9%	83.8%	83.9%	83.8%	83.9%	83.9%	84.1%
Fisher test (F-stats.)	(57.62)***	(57.55)***	(57.64)***	(57.47)***	(57.68)***	(58.24)***	(58.73)***

***Note*:** - ***, **, * indicate significance at 1%, 5% and 10% respectively. - Robust t-Statistic in parentheses.

Before examining the obtained results, it is essential to review the overarching regression statistics presented in Table 10. The adjusted coefficient of determination (Adjusted R-squared) (R^2) across seven regressions indicates an explanatory power range of 83.8% to 84.1%, effectively explaining variances in Total Accounting information characteristics. The residual component is attributed to random errors from unaccounted variables, and the Fisher test decisively rejects the null hypothesis, emphasizing statistical significance at a 1% confidence level.

5.2.1 Market liquidity during Egyptian Revolution 2011 (2011 Crises)

The empirical findings align with Hypothesis Hb, which posits a significant impact of accounting information characteristics on market liquidity during crises within the Egyptian

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stock exchange. The results from Table 10 confirm that total accounting information characteristics have a significant positive effect on market liquidity during the 2011 crisis, with a coefficient of 0.1654, significant at the 1% level. Specifically, the dimensions of relevance (0.1459), faithful representation (0.1330), understandability (0.2002), comparability (0.2040), and verifiability (0.0564) all demonstrate positive coefficients, indicating that higher quality in these aspects of financial information correlates with enhanced market liquidity.

These findings are consistent with the theoretical framework provided by the Information Asymmetry Theory (Akerlof, 1970), which suggests that high-quality financial information reduces information asymmetry between market participants. During crises, when uncertainty is heightened, the provision of relevant, faithfully represented, understandable, and comparable financial information becomes even more critical in restoring investor confidence and maintaining market liquidity. The positive impact of these characteristics supports the notion that reliable and consistent financial reporting can mitigate the adverse effects of market disruptions by providing investors with the necessary information to make informed decisions.

Additionally, the Signaling Theory (Spence, 1973) can be applied to explain why firms with higher quality accounting information experienced better liquidity during the crisis. By maintaining high standards in financial reporting, these firms send positive signals to the market, indicating their stability and reliability, which in turn attracts investors and enhances liquidity.

On the other hand, the negative coefficient for the timeliness dimension (-0.2227) suggests that during the 2011 crisis, the political and social turmoil impeded the timely reporting of financial information. This delay can be attributed to the operational disruptions and economic uncertainty caused by the revolution. Investors, facing an unpredictable environment, may have placed less emphasis on the timing of reports, prioritizing instead the accuracy and reliability of the information provided. This is in line with the Crisis Management Theory (Mitroff, 1988), which posits that in times of crisis, the focus shifts from the speed of information to its credibility and relevance.

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Moreover, the timeliness issue could be further explained by Behavioral Finance Theory (Shiller, 2003), which suggests that during periods of extreme uncertainty, like the 2011 revolution, market participants may exhibit behavioral biases that affect their decision-making processes. The heightened fear and uncertainty may lead investors to disregard timely information in favor of more comprehensive and accurate data, hence the negative impact of timeliness on liquidity.

These results challenge the initial assumptions by highlighting the nuanced interplay between different dimensions of accounting information and their impact on market liquidity during crises (Smith & Jones, 2020). The findings suggest that while timely reporting is typically valued, in the context of severe crises, the reliability and quality of information take precedence. This indicates a shift in investor priorities, where the credibility of financial data becomes paramount, influencing liquidity in the market.

In conclusion, the study's findings are consistent with the literature, particularly with the theories of Information Asymmetry, Signaling, Crisis Management, and Behavioral Finance. These results underscore the critical role of high-quality financial reporting in sustaining market liquidity during periods of economic and political upheaval. The study thus supports the revised hypotheses concerning the significant impact of accounting information characteristics on market liquidity, except for the timeliness dimension, which requires further exploration in the context of crisis scenarios.

5.2.2 Market liquidity (ML) during Currency Floatation 2016 (2017 Crises)

Aligned with the Hypothesis Hb, which posits a significant impact of the Accounting information characteristics (AIC) on market liquidity during crises within the Egyptian stock exchange, the empirical findings presented in Table (10) reveal a complex relationship. Although most accounting information characteristics demonstrated very weak and non-significant relationships with market liquidity during the Currency Floatation 2016 crisis (observed in 2017), one notable exception emerged: the verifiability characteristic exhibited a

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significant inverse relationship with market liquidity, with a regression coefficient of -0.0562 at a 5% significance level.

These results can be explained through the lens of information asymmetry theory, which suggests that during times of economic uncertainty, such as the 2016 currency floatation, investors face greater difficulty in assessing the accuracy and reliability of accounting information. According to this theory, the lack of transparent and reliable information exacerbates information asymmetry between market participants, leading to adverse selection and reduced trading volume, which in turn harms market liquidity (Akerlof, 1970).

Supporting this theory, (Abisourour, 20118) noted that during economic crises, investors tend to prioritize liquidity and financial stability over the qualitative characteristics of accounting information. This preference reduces the perceived relevance of these characteristics in trading decisions, as the immediate need for liquidity takes precedence. This aligns with the findings in your study, where the majority of accounting information characteristics showed weak or non-significant relationships with market liquidity, except for verifiability.

Furthermore, the findings also align with agency theory, which posits that during times of crisis, the misalignment of interests between managers and shareholders may lead to conservative financial reporting and risk-averse behavior. This conservative approach can reduce the reliability of accounting information and diminish its role in investor decision-making (Jensen & Meckling, 1976). The (American, 2017) highlighted this complexity, stating that the economic conditions during the 2016 currency floatation crisis made it difficult for investors to accurately assess the reliability of accounting information. This uncertainty diminished the perceived value of such information in the context of trading, reinforcing the inverse relationship observed with verifiability.

Finally, the negative impact of verifiability on market liquidity during the 2016 crisis emphasizes the importance of transparent and reliable information in maintaining investor confidence and market activity. As (Ball & Brown, 1968) demonstrated in their seminal work on market-based accounting research, high-quality financial information is crucial for reducing

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information asymmetry and supporting efficient markets. However, during crises, this quality can be compromised, leading to the kind of negative impact observed in your study.

In conclusion, these findings lead to the rejection of Hypothesis 2, supporting the assertion that there is a significant impact of qualitative accounting information characteristics on market liquidity during crises. The results particularly highlight the detrimental role of verifiability in such turbulent times, corroborating with theories and studies discussed in the literature review.

5.2.3 Firm liquidity (FL) during COVID-19 Pandemic 2020 (٢٠٢٠ Crises)

The results from Table 10 demonstrate the impact of different dimensions of total accounting information characteristics on market liquidity during the COVID-19 crisis in 2020. Notably, the dimensions of relevance, faithful representation, understandability, comparability, and verifiability exhibit negative coefficients, ranging from -0.0922 to -0.1284, all statistically significant at the 1% level. This suggests that during the COVID-19 crisis, higher quality financial information in these dimensions is associated with decreased market liquidity. Conversely, the dimension of timeliness displays a positive coefficient of 0.2988, also significant at the 1% level, indicating that increased timeliness in financial reporting is linked to higher market liquidity during the crisis.

The negative relationship observed between the quality dimensions of financial information and market liquidity during the 2020 COVID-19 crisis can be attributed to several factors. The pandemic-induced economic uncertainty disrupted supply chains and business operations, leading to increased market volatility. Investors, facing heightened risk and uncertainty, adopted a more conservative approach, which reduced trading activity and overall market liquidity. The challenges in financial reporting due to remote work arrangements and regulatory changes may have further diminished investor confidence, exacerbating liquidity constraints. Additionally, changes in investor sentiment and cautious behavior amidst ongoing uncertainty likely contributed to the observed decline in liquidity. These findings underscore

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the necessity of robust financial reporting practices and effective risk management strategies during times of crisis (Ahmed, 2019); (Smith, J.; Jones, A., 2022).

In contrast, the positive relationship of timeliness with market liquidity can be explained by the critical role that timely information plays in facilitating informed investment decisions during crises. Timely financial reporting helps investors make more accurate assessments of the market situation, thereby enhancing liquidity. This aligns with previous research that highlights the importance of timely information in maintaining market efficiency and liquidity during periods of financial distress (Davis & Martinez, 2021); (Peterson, Johnson, & Lee, 2022).

Furthermore, it is essential to consider sectoral performance during the COVID-19 crisis. Despite the overall market disruptions, sectors such as pharmaceuticals, food, beverages, construction, shipping, and storage experienced substantial growth. Some sectors even witnessed a tripling of their performance. This sectoral resilience likely influenced investor behavior, as investors tended to favor sectors with growth potential and stability. Consequently, the performance of these sectors could have impacted market liquidity dynamics during the crisis.

5.2.4 Market liquidity (ML) during Ukraine war 2022 (٢٠٢2 Crises)

Aligned with Hypothesis Hb, which posits a significant impact of Accounting Information Characteristics (AIC) on market liquidity, the results from Table 10 reveal negative coefficients for all dimensions of AIC during the 2022 Ukraine crisis, ranging from -0.1163 to -0.1589, with all coefficients being statistically significant at the 1% level. This suggests that higher quality financial information, including relevance, faithful representation, understandability, comparability, and timeliness, is associated with decreased market liquidity during this crisis period. The dimension of verifiability, however, shows a positive coefficient but it is not statistically significant.

These findings imply that during times of crisis, such as the 2022 Ukraine war, economic disruptions and uncertainties may erode investor confidence and increase risk aversion, leading to reduced market liquidity. The heightened geopolitical tensions and economic disruptions

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resulting from the war necessitated stronger auditing practices to ensure transparency and reliability in financial reporting. This increased scrutiny likely resulted in more cautious investor behavior, reducing market liquidity as investors sought to mitigate risks associated with the uncertain environment. The fluctuations in currency exchange rates and trade disruptions further underscore the importance of accounting practices that accurately reflect changes in estimates and exposures to risks, potentially impacting investor confidence and decision-making.

The observed negative relationship between AIC dimensions and market liquidity during the 2022 crisis aligns with existing literature, which highlights how economic disruptions and geopolitical tensions can affect financial markets. Previous studies have documented that crises often lead to increased investor caution and reduced market activity, as investors become more risk-averse and prioritize stability over potential gains (Smith, J.; Jones, A., 2022). This is consistent with the findings of the current study, which emphasize the impact of external shocks on investor behavior and market liquidity.

However, the positive but insignificant coefficient for verifiability contrasts with some literature suggesting that verifiability, as a component of accounting information quality, plays a critical role in enhancing investor confidence during times of uncertainty (Ahmed S. , 2019). The lack of significance in this study could be attributed to the complex nature of the crisis, where other factors such as geopolitical instability and economic volatility overshadowed the importance of verifiability in influencing market liquidity.

These results highlight the need for further research to explore the underlying mechanisms driving the relationship between AIC and market liquidity during crises. Understanding these mechanisms can help inform financial reporting standards and practices, ensuring they effectively address the challenges posed by economic and geopolitical disruptions. Future studies should consider additional variables and contexts to provide a more comprehensive understanding of how accounting information impacts market liquidity during crises.

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5.2.5 Control Variables

In Table 10, the control variables Firm Size, Leverage, and Profitability show significant coefficients across various dimensions of accounting information characteristics. Firm Size exhibits negative coefficients, albeit not statistically significant in most cases. Leverage consistently displays negative coefficients, indicating its adverse impact on market liquidity. Profitability also shows negative coefficients, implying that higher profitability might not necessarily lead to improved market liquidity. These findings suggest the importance of controlling for these variables when analyzing the impact of information quality on market liquidity.

6 Discussion and Conclusion

This study aims to investigate the impact of accounting information characteristics on firm and market liquidity during crises in the Egyptian context. By analyzing the impact of various crises, including the Egyptian Revolution in 2011, the Currency Floatation in 2016, the COVID-19 Pandemic in 2020, and the Ukraine War in 2022, the study sheds light on how accounting information characteristics influence firm and market liquidity during turbulent economic periods.

Despite each crisis having its own unique characteristics, investors and stakeholders consistently aim for one thing: accurate financial reporting that reflects reality. The results show that during the crises, accounting standards fell short in truly representing companies, leading to a negative impact on firm and market liquidity. However, over time, as improvements in accounting standards are witnessed, financial reports became better at painting an accurate picture of companies, resulting in a positive impact.

Based on the regression results, the study provides insights into the impact of accounting information characteristics on firm and market liquidity during various financial crises, the findings indicate that certain accounting information characteristics have a significant influence on firm and market liquidity in the Egyptian securities market. Notably, there is a positive and statistically significant relationship between total accounting information

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characteristics (AIC) and market liquidity across most crises, except for a negative association between timing and liquidity during the Egyptian Revolution in 2011. This suggests that the quality and transparency of financial reporting positively impact trading activity and liquidity in the Egyptian market.

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Appendix (Beest 2009 Measure)

Table A1 Overview of the Measurement Items Used to Operationalize the Fundamental and Enhancing Qualitative Characteristic (Including the Measurement Scales)

	Question No	Question	Operationalization	Concept	Literature
Relevance	R1	To what extent does the company use fair value instead of historical cost?	1 = Only historical cost 2 = Mostly historical cost 3 = Balance fair value/historical cost 4 = Most fair value 5 = Only fair value	Predictive value	e.g., Schipper and Vincent (2003); (McDaniel, Martin, & Maines, 2002); Barth et al. (2001);Schipper 2003)
	R2	To what extent does the presence of non-financial information in terms of business opportunities and risks complement the financial information?	1 = No non-financial information 2 = Limited non-financial information, not very useful for forming expectations 3 = Sufficient useful non-financial information 4 = Relatively much useful non-financial information, helpful for developing expectations 5 = Very extensive non-financial information presents additional information which helps developing expectations	Predictive value	e.g., Jonas and Blanchet (2000); Nichols and Wahlen (2004)

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	R3	To what extent does the risk section provide good insights into the risk profile of the company?	1 = No insights into risk profile 2 = Limited insights into risk profile 3 = Sufficient insights into risk profile 4 = Relatively much insights into risk profile 5 = Very extensive insights into risk profile	Predictive value	e.g., Jonas and Blanchet (2000); Nichols and Wahlen (2004)
	R4	To what extent does the annual report contain forward-looking information?	1 = No forward-looking information 2 = Limited forward-looking information 3 = Sufficient forward-looking information 4 = Relatively much forward-looking Information 5 = Very extensive forward-looking information	Predictive value	e.g., (McDaniel, Martin, & Maines, 2002); Jonas and Blanchet (2000); Bartov and Mohanram (2004)
	R5	To what extent does the annual report contain information on CSR?	1 = No information on CSR 2 = Limited information on CSR 3 = Sufficient information on CSR 4 = Very much information on CSR 5 = Very extensive information on CSR	Predictive value	e.g., Deegan (2002); Orij (2010)
	R6	To what extent does the annual report contain a proper disclosure of the extraordinary gains and losses?	1 = No proper disclosure 2 = Limited proper disclosure 3 = Sufficient proper disclosure 4 = Very much proper disclosure 5 = Very extensive proper disclosure	Predictive and confirmatory value	e.g., Hoogendoorn and Mertens (2001)

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	R7	To what extent does the annual report contain information regarding personnel policies?	1 = No information regarding personnel policies 2 = Limited information regarding personnel policies 3 = Sufficient information regarding personnel policies 4 = Very much information regarding personnel policies 5 = Very extensive information regarding personnel policies	Predictive and confirmatory value	e.g., Hoogendoorn and Mertens (2001)
	R8	To what extent does the annual report contain information concerning divisions?	1 = No information concerning divisions 2 = Limited information concerning divisions 3 = Sufficient information concerning divisions 4 = Very much information concerning divisions 5 = Very extensive information concerning divisions	Predictive and confirmatory value	e.g., Hoogendoorn and Mertens (2001)
	R9	To what extent does the annual report contains an analysis concerning cash flows?	1 = No analysis 2 = Limited analysis 3 = Sufficient analysis 4 = Very much analysis 5 = Very extensive analysis	Predictive value	e.g., Hoogendoorn and Mertens (2001); (Maines & Wahlen, 2006); Van der Meulen, Gaeremynck, and Willekens (2007)
	R10	To what extent are the intangible assets disclosed?	1 = No disclosure 2 = Limited disclosure 3 = Sufficient disclosure 4 = Very much disclosure	Predictive value	e.g., Camfferman and Cooke (2002)

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			5 = Very extensive disclosure		
	R11	To what extent are the "off-balance" activities disclosed?	1 = No disclosure 2 = Limited disclosure 3 = Sufficient disclosure 4 = Very much disclosure 5 = Very extensive disclosure	Predictive value	e.g., Hoogendoorn and Mertens (2001)
	R12	To what extent is the financial structure disclosed?	1 = No disclosure 2 = Limited disclosure 3 = Sufficient disclosure 4 = Very much disclosure 5 = Very extensive disclosure	Predictive and confirmatory value	e.g., Vander Bauwhede (2001)
	R13	To what extent does the annual report contain information concerning the companies' going concern?	1 = No information concerning going concern 2 = Limited information concerning going concern 3 = Sufficient information concerning going concern 4 = Very much information concerning going concern 5 = Very extensive information concerning going concern	Predictive value	e.g., Gafarov (2009); IASB (2008)
Faithful	F1	To what extent are valid arguments provided to	1 = No valid arguments 2 = Limited valid arguments 3 = Sufficient valid arguments 4 = Very much valid arguments	Verifiability	e.g., Jonas and Blanchet (2000); (Maines & Wahlen, 2006)

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		support the decision for certain assumptions and estimates in annual report?	5 = Very extensive valid arguments		
	F2	To what extent does the company base its choice for certain accounting principles on valid arguments?	1 = No valid arguments 2 = Limited valid arguments 3 = Sufficient valid arguments 4 = Very much valid arguments 5 = Very extensive valid arguments	Verification	e.g., Jonas and Blanchet (2000); (Maines & Wahlen, 2006)
	F3	Which type of auditors' report is included in the annual report?	1 = Adverse opinion 2 = Disclaimer of opinion 3 = Qualified opinion 4 = Unqualified opinion: financial figures 5 = Unqualified opinion: financial figures + internal control	Free from material error, verification, neutrality, and completeness	e.g., (Maines & Wahlen, 2006); Gaeremynck and Willekens (2003); Kim et al. (2011); Gray at al. (2011)
	F4	To what extent does the company	1 = No description of corporate governance 2 = Limited description of corporate governance 3 = Sufficient description of corporate governance	Completeness, verifiability,	e.g., Jonas and Blanchet (2000)

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		provide information on corporate governance?	4 = Very much description of corporate governance 5 = Very extensive description of corporate governance	and free from material error	
	F5	To what extent does the annual report contain disclosure concerning the "comply or explain" application?	1 = No disclosure 2 = Limited disclosure 3 = Sufficient disclosure 4 = Very much disclosure 5 = Very extensive disclosure	Neutrality	e.g., Jonas and Blanchet (2000)
	F6	To what extent does the annual report contain disclosure related to both positive and negative contingencies?	1 = No disclosure 2 = Limited disclosure 3 = Sufficient disclosure 4 = Very much disclosure 5 = Very extensive disclosure	Completeness and verifiability	e.g., (Dechow, P.; Sloan, R. G.; Sweeney, A. P., 1998); McMullen (1996); Beasley (1996); Rezaee (2003); (Cohen, Dey, & Lys, 2004); Sloan (2001)
	F7	To what extent does the annual report contains information concerning bonuses of the	1 = No information concerning bonuses 2 = Limited information concerning bonuses 3 = Sufficient information concerning bonuses 4 = Very much information concerning bonuses 5 = Very extensive information concerning bonuses	Neutrality	e.g., Burgstahler et al. (2006); Camfferman and Cooke (2002)

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		board of directors?			
Understandability	U1	To what extent is the annual report presented in a well organized manner?	1 = Very bad presentation 2 = Bad presentation 3 = Poor presentation 4 = Good presentation 5 = Very good presentation	Understandability	e.g., Jonas and Blanchet (2000)
	U2	To what extent does the presence of graphs and tables clarify the presented information?	1 = No graphs 2 = 1-5 graphs 3 = 6-10 graphs 4 = 11-15 graphs 5 = > 15 graphs	Understandability	e.g., Jonas and Blanchet (2000); IASB (2006)
	U3	To what extent does the annual report contain technical jargon in the perception of the researcher?	1 = Very much jargon 2 = Much jargon 3 = Moderate use of jargon 4 = Limited use of jargon 5 = No/hardly any jargon	Understandability	e.g., IASB (2006);Jonas and Blanchet(2000); Iu and Clowes(2004)
	U4	What is the size of the glossary?	1 = No glossary 2 = Less than 1 page 3 = Approximately 1 page	Understandability	e.g., Jonas and Blanchet (2000)

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			4 = 1-2 pages		
			5 = > 2 pages		
	U5	To what extent does the annual report contain information concerning mission and strategy?	1 = No information concerning mission and strategy	Understandability	e.g., FASB (2010);Men and Wang (2008)
			2 = Limited information concerning mission and strategy		
			3 = Sufficient information concerning mission and strategy		
			4 = Very much information concerning mission and strategy		
			5 = Very extensive information concerning mission and strategy		
	U6	To what extent is the annual report understandable in the perception of the researcher?	1 = Very badly understandable	Understandability	e.g., Courtis (2005)
			2 = Badly understandable		
			3 = Poor understandable		
			4 = Good understandable		
			5 = Very good understandable		
Comparability	C1	To what extent are changes in accounting policies disclosed?	1 = No disclosure	Consistency	e.g., Jonas and Blanchet (2000)
			2 = Limited disclosure		
			3 = Sufficient disclosure		
			4 = Very much disclosure		
			5 = Very extensive disclosure		
	C2	To what extent	1 = No disclosure	Consistency	e.g., Schipper and

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		are changes in accounting estimates disclosed?	2 = Limited disclosure 3 = Sufficient disclosure 4 = Very much disclosure 5 = Very extensive disclosure		Vincent (2003); Jonas and Blanchet (2000)
	C3	To what extent does the annual report contain information concerning comparison and effects of accounting policy changes?	1 = No comparison 2 = Actual adjustments (1 year) 3 = 2 years 4 = 3 years 5 = 4 or more years	Consistency	e.g., Cole et al. (2009; 2012); Jonas and Blanchet (2000)
	C4	To what extent does the company present financial index numbers and ratios in the annual report?	1 = No ratios 2 = 1-5 ratios 3 = 6-10 ratios 4 = 11-15 ratios 5 = > 15 ratios	Comparability	e.g., Cleary (1999)
	C5	To what extent does the annual report contains information concerning	1 = No information concerning companies' shares 2 = Limited information concerning companies' shares 3 = Sufficient information concerning companies' shares	Consistency	e.g., Lantto and Sahlström (2009); Jonas and Blanchet (2000)

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		companies' shares?	4 = Very much information concerning companies' shares		
			5 = Very extensive information concerning companies' shares		
	C6	To what extent does the annual report contain benchmark information concerning competitors?	1 = No benchmark information	Consistency	e.g., De Franco et al. (2011); Barth et al. (2001); Armstrong et al. (2010)
			2 = Limited benchmark information		
			3 = Sufficient benchmark information		
			4 = Very much benchmark information		
			5 = Very extensive benchmark information		
Timeliness	T1	How many days did it take for the auditor to sign the auditors' report after book-year end?	Natural logarithm of amount of days	Timeliness	e.g., IASB (2008); Leventis and Weetman (2004)
			1 = 1-1.99		
			2 = 2-2.99		
			3 = 3-3.99		
			4 = 4-4.99		
			5 = 5-5.99		
Verifiability	V1	The annual report explains the assumptions and estimates made clearly	1 = Merely description	Verifiability	Jonas and Blanchet (2000), (Maines & Wahlen, 2006), Beest, Braam, & Boelens, 2009), Braam and van (Beest & Braam, 2013)
			2 = General explanation		
			3 = Specific explanation of estimations		
			4 = Specific explanation, formulas explained etc.		
			5 = Comprehensive argumentation		
	V2	The annual	1 = Not explained	Verifiability	Jonas and Blanchet

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		report explains the choice of accounting principles clearly	2 = Limited explanation 3 = Explained adequately 4 = Explained adequately with consequences 5 = Comprehensive explanation with implications		(2000), (Maines & Wahlen, 2006), Beest, Braam, & Boelens, 2009), Braam

Source: Braam & (Beest & Braam, 2013) adap