



# Prevention and Detection of Inventory Fraud

## An Active Ethnography-Based Approach

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**Abstract:** The current business landscape highlights a growing concern with the occurrence of fraud, leading organizations to adopt proactive measures for prevention and detection. In this context, the aim of this study is to analyze the practices and methods used by companies in inventory management, focusing on their relevance in fraud prevention and detection. The research seeks to identify the tools and procedures implemented by organizations to mitigate the risk of fraud and ensure the integrity of their assets, emphasizing the impact of new technologies in this context. Through an active ethnographic methodology and a narrative literature review, this study demonstrates that the implementation of new technological tools can optimize processes and enhance the effectiveness of fraud prevention and detection, particularly in inventory management. The results also highlight that professional judgment, experience, and auditor knowledge play a crucial role in identifying and mitigating such risks.

**Keywords:** Auditor; Financial audit; Fraud; Inventory; Inventories; Prevention

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## 1 Introduction

Auditing has undergone significant transformations throughout its historical development. In the 19th century, it was primarily focused on detecting fraud and errors; today, however, it plays a strategic role in corporate governance and in ensuring organizational credibility (Almeida, 2019). Within this context, auditing aims to provide reasonable assurance regarding the accuracy of financial statements by issuing an independent opinion on their compliance, in all material respects, with the applicable financial reporting framework, in accordance with the International Standards on Auditing

(ISA) (Costa, 2018). Therefore, the reliability of financial information is essential for sound decision-making by stakeholders.

Among the various risks faced by organizations, fraud—particularly related to inventory management—remains a major concern (Zega & Irwansyah, 2023). Inventory fraud can distort financial data, compromise transparency, and undermine investor trust. To address these challenges, companies adopt diverse mechanisms for fraud prevention and detection, supported by technological tools and internal control systems (Jizi et al., 2016).

Soepriyanto et al. (2021) conduct a systematic literature review on the theories and factors influencing fraud in financial statements, also addressing aspects that are relevant to the prevention and detection of inventory fraud. Despite its significance, the topic of inventory fraud is still underexplored in the academic literature (Khaksar et al., 2022; Khelil, 2023). In particular, there is limited research on how auditors can effectively contribute to identifying and mitigating such fraud, especially in light of emerging technologies and evolving audit practices. Recent studies emphasize the increasing complexity of financial fraud and the limitations of traditional auditing techniques. Bao et al. (2020), for instance, demonstrate that machine learning models significantly outperform conventional statistical methods in detecting accounting fraud, underscoring the urgent need for innovation in audit practices and fraud detection strategies. The study reinforces the importance of technological innovation, combined with the enhancement of auditors' professional judgment, as a fundamental strategy to address the increasing risks of fraud in the corporate environment.

The study by Tobing et al. (2023) highlights the importance of implementing inventory accounting information systems as a strategic measure to improve operational efficiency and financial accuracy. The relevance of this topic is further underscored by the increasing complexity of business operations and the need to ensure the integrity of financial information. The adoption of advanced technologies, such as inventory accounting information systems, is essential to address contemporary challenges in auditing and financial management.

This study seeks to analyze the auditor's role in the detection and prevention of inventory fraud. Employing a qualitative approach grounded in ethnographic observation and a narrative literature review, the research aims to deepen the understanding of fraud schemes, their underlying causes, and the strategies available to auditors in mitigating these risks.

The structure of the article is as follows: the next section outlines the methodology and presents a review of the literature on inventory fraud and auditing practices. The final sections discuss the findings of the study and explore their implications for audit professionals and organizational governance.

## 2 Theoretical Framework

### 2.1 Auditing and the Role of the Auditor

Auditing is a rigorous process aimed at ensuring the reliability and integrity of an organization's financial information. Through the collection and careful evaluation of evidence, the auditor thoroughly examines the financial statements, cross-referencing them with the entity's documents and records (Costa, 2018). According to the International Federation of Accountants (IFAC), auditing is defined as "a verification or examination conducted by an auditor of the financial statements to enable the auditor to express an opinion on these documents in order to give them greater credibility" (Tribunal de Contas, 1999, p. 23). Almeida (2019) adds that auditing is an objective and systematic process aimed at obtaining and evaluating evidence related to assertions about economic events, enabling the issuance of a well-founded opinion.

The evolution of the concept of auditing has led to the development of various definitions. Alves (2015) describes financial auditing as a process of obtaining and evaluating evidence on a specific matter, with the objective of assessing the degree of compliance of that matter with established criteria. Currently, the auditor plays a fundamental role in expressing an independent opinion on the adequacy of an organization's financial statements, as established in International Standard on Auditing (ISA) 200 - Overall Objectives of the Independent Auditor and the Conduct of an Audit in Accordance with International Standards on Auditing (IFAC, 2018). This opinion, based on evidence obtained through a detailed analysis of accounting records and internal controls, provides financial statement users with the necessary confidence for decision-making.

In Portugal, the auditing profession is legally represented by the role of the Revisor Oficial de Contas (ROC), established by Decree-Law No. 1/72. Subsequently, the creation of the Chamber of Official Auditors (CROC) through Ordinance No. 83/74 marked a significant milestone in the organization of the profession. Currently, the profession is regulated by the Legal Framework of the Order of Official Auditors (OROC), approved by Law No. 140/2015, and the Legal Framework for Audit Supervision, established by Law No. 148/2015.

Auditors are responsible for ensuring that financial statements are free from material misstatements, whether due to error or fraud, thereby ensuring their reliability and compliance with the applicable financial reporting framework (IFAC, 2018). Paragraph 13 of ISA 200 defines the auditor as the professional or team responsible for conducting the audit, generally composed of the engagement partner and other team members.

To fulfill their role, auditors must comply with five fundamental requirements established by ISA 200 (Table 1).

**Table 1.** ISA 200 Requirements

Requirement	Description
Ethical Requirements	Adherence to the Code of Ethics and Professional Conduct.
Professional Skepticism	Maintaining a critical attitude regarding the possibility of material misstatements in the financial statements.
Professional Judgment	The ability to make decisions based on the auditor's knowledge and experience.
Sufficient and Appropriate Audit Evidence and Audit Risk	Obtaining adequate evidence to ensure the reliability of the financial statements and reducing audit risk to an acceptable level.
Conducting the Audit in Compliance with ISA	Adherence to international standards in performing the audit work.

Therefore, the auditor plays an essential role in the credibility of financial statements and the sustainability of financial markets (Almeida, 2019). In an increasingly complex and globalized business environment, trust has become a valuable asset. Society, investors, and other stakeholders expect companies to ensure that their financial information is transparent, accurate, and reliable. In this context, the auditor assumes the role of a guardian of financial information integrity, ensuring the efficiency of capital markets (Tribunella & Tribunella, 2011).

Financial auditing requires continuous monitoring of the inherent risks associated with business activities and the warning signs that may indicate irregularities. Although the primary responsibility for detecting fraud lies with the entity's management, auditors play a crucial role in identifying anomalies and mitigating financial risks (Campa et al., 2023). ISA 240 – The Auditor's Responsibilities Relating to Fraud in an Audit of Financial Statements – emphasizes that the auditor must apply appropriate procedures to identify fraud risks and assess their occurrence (IFAC, 2018).

The preparation and quality of financial statements are the responsibility of management and those charged with their preparation. However, it is the auditor's duty to issue a well-founded opinion on their compliance with the applicable reporting framework (Dimitrijevic et al., 2021). To ensure high-quality audit work, it is essential for the auditor to possess extensive knowledge of auditing standards and the prevailing legislation (ISA 200).

## 2.2 Audit Planning and Risk Assessment

Proper planning is a key determinant of the success of an audit, as established in §2 of ISA 300 – Planning an Audit of Financial Statements (IFAC, 2018). Effective planning enables the auditor to optimize their work by focusing efforts on higher-risk areas within the financial statements. In this study, the audit planning process involved several essential procedures, including:

- Understanding the business
- Analytical review
- Risk and materiality analysis

- Defining the overall audit strategy
- Evaluation of information systems
- Compliance with laws and regulations
- Testing opening balances
- Involvement of experts and internal audit
- Analysis of related and unrelated parties
- Entity control
- Accounting estimates
- Fraud risk.

ISA 265 – Communicating Deficiencies in Internal Control to Those Charged with Governance and Management – establishes that the auditor must alert management to any deficiencies identified during the audit. This approach reflects the increasing complexity of the business environment and the need for a more proactive and strategic audit (IFAC, 2018). Furthermore, §7 of ISA 300 highlights that the auditor should define an overall strategy that sets the scope, timing, and direction of the audit, guiding the development of the audit plan.

The auditor's role extends beyond merely verifying financial statements, taking on a strategic function in risk mitigation and promoting transparency in financial markets. Although the primary responsibility for fraud prevention and detection lies with the entity's management, auditors are key agents in identifying irregularities and ensuring the credibility of financial information. As a result, auditing continues to evolve to address the challenges posed by the increasing complexity of the business environment and the growing regulatory demands.

### 2.3 Fraud and Its Theories

In the era of globalization and rapid advancements in Science and Technology, organizations face increasingly complex challenges, including a significant rise in fraud cases (Zega & Irwansyah, 2023). The definition of fraud may vary depending on the perspective of the individual or entity analyzing it, making the concept multifaceted. The Priberam Dictionary of the Portuguese Language (n.d.) defines fraud as an "illegal act, punishable by law, that seeks to deceive someone or an entity or evade legal obligations." Dimitrijevic et al. (2015) further state that fraud involves the intentional concealment of financial information or manipulation of accounting data to influence or distort decisions and assessments. These practices can be carried out by managers, administrators, employees, or third parties seeking to gain an unfair or illegal advantage. Bao et al. (2020) highlight the increasing complexity of accounting frauds, which often go unnoticed by conventional auditing and data analysis approaches. This reality underscores the need for more sophisticated methods for the early detection of irregularities. The study by Ar'Reza et al. (2024) adopts a phenomenological approach to explore how internal auditors perceive and experience fraud detection, highlighting the importance of understanding the meaning attributed to fraud and the detection processes within the organizational context.

Although often confused with error, fraud is distinguished by its intentional and malicious nature, whereas errors typically result from unintentional human mistakes, such as lack of knowledge, distraction, or misinterpretation of information (IFAC, 2018, ISA 240).

According to the Association of Certified Fraud Examiners (ACFE, 2020), fraud can be categorized into three main groups:

- Fraud against individuals: Involves fraudulent actions directed at a person, such as identity theft or phishing scams.
- Internal organizational fraud (occupational fraud): Occurs when an employee, manager, or administrator misuses or diverts the organization's resources for personal gain.
- External organizational fraud: Involves fraudulent actions by external agents against the organization, such as suppliers billing for non-existent services or customers issuing bad checks.

Occupational fraud is further subdivided into three main categories:

1. Asset misappropriation – The misuse or misappropriation of an organization's resources (Seetharaman et al., 2004).
2. Corruption – Occurs when an individual improperly uses their influence to gain personal benefits in negotiations or transactions (Seetharaman et al., 2004).
3. Financial statement fraud – Involves the manipulation of an entity's financial information through falsification, omission of transactions, improper application of accounting standards, and misclassification of financial elements (Dimitrijevic et al., 2021).

The report Report to the Nation on Occupational Fraud & Abuse (ACFE, 2020) indicates that asset misappropriation is the most frequent category, accounting for 86% of the analyzed cases, although it is the least costly. In contrast, financial statement fraud occurs less frequently (10% of cases) but is the most expensive. Corruption falls at an intermediate level, representing 43% of the cases analyzed. In 2008, the ACFE estimated that companies in the United States lost approximately 7% of their annual revenue due to fraudulent financial reporting and improper application of accounting principles (Alleyne et al., 2010).

The literature emphasizes the importance of fraud prevention, as its detection often requires lengthy and costly investigations, and the resulting financial losses are often irreparable (Abdullahi & Mansor, 2015). Several theories have been developed to explain the causes of corporate fraud, with the most widely cited being the Fraud Triangle Theory and the Fraud Diamond Theory. The study by Soepriyanto et al. (2021) discusses widely recognized theories that explain fraudulent behavior, such as the Fraud Triangle and the Fraud Diamond, which identify factors like pressure, opportunity, and rationalization as motivators for fraud.

Developed by Donald Cressey (1953), the Fraud Triangle Theory identifies three essential factors for the occurrence of fraud:

1. Pressure/Motivation – Primarily associated with financial difficulties, unrealistic targets, or the need to maintain a reputation among investors and stakeholders (Kagias et al., 2022). Studies indicate that pressure is the motivating factor in approximately 95% of fraud cases (Albrecht et al., 2008).
2. Opportunity – Arises when there are weaknesses in internal control systems and corporate governance, allowing fraud to occur undetected (Kagias et al., 2022). Insufficient opportunities for supervision and auditing were identified in approximately 32% of cases (ACFE, 2020).
3. Rationalization – Refers to the internal justification of fraudulent behavior, leading individuals to feel no guilt for their illicit actions (Owusu et al., 2022).

The Fraud Triangle Theory has been widely used by auditors and has been incorporated into International Auditing Standards (Kagias et al., 2022). Zhu et al. (2023) analyzed the relationship between Corporate Social Responsibility (CSR) practices and irregularities committed by CEOs of publicly traded companies in China, concluding that increased profitability can intensify pressure on managers, creating opportunities and justifications for engaging in fraudulent practices.

Proposed by Wolfe and Hermanson (2004), the Fraud Diamond Theory expands Cressey's model by introducing a fourth element: capability. Even if pressure, opportunity, and rationalization are present, fraud will only occur if the individual possesses the necessary skills and knowledge to carry out the illicit act (Abdullahi & Mansor, 2015).

Beyond traditional theories, various authors have identified additional factors contributing to fraud. Cooper et al. (2013) suggest that four elements influence corporate fraud:

1. Individual – Personal characteristics and motivations of those involved.
2. Company – Organizational culture and internal policies.
3. Organizational activity – Governance structure and internal processes.
4. Society – External pressures and economic context.

Additionally, Artana et al. (2023) indicate that firm size may influence the occurrence of fraud. Larger companies, with high transaction volumes, tend to face greater opportunities for fraud and stronger pressure from stakeholders to achieve ambitious targets. Seetharaman et al. (2004) further highlight that factors such as age, gender, level of education, and technological advancements may increase the propensity for fraud. Although the study by Soepriyanto et al. (2021) does not focus specifically on inventory fraud, the factors discussed are directly applicable. For example, corporate governance characteristics, individual traits of managers, the presence of robust internal controls, and an ethical organizational culture are essential to prevent fraud in any area, including inventory management. Furthermore, the application of fraud theories can help identify specific vulnerabilities in inventory processes that may be exploited for fraudulent

purposes. Therefore, understanding the factors that influence fraud in financial statements, as discussed by Soepriyanto et al. (2021), is fundamental to developing effective strategies for the prevention and detection of inventory fraud.

Fraud represents a significant challenge for organizations, with severe financial and reputational impacts. Understanding its causes and mechanisms is essential for implementing effective prevention measures. The Fraud Triangle and Fraud Diamond theories provide an analytical framework for identifying the factors that drive fraud, while recent studies indicate that organizational and social factors also play a crucial role. Therefore, the implementation of effective internal control systems and robust governance policies is essential to mitigate fraud risks and ensure financial transparency.

### **3 Methodology**

This study adopts a reflective, qualitative approach grounded in Active Ethnography, which is particularly suited to exploring complex organizational dynamics and the factors influencing fraud detection within auditing firms. Data collection was based on direct observation during an internship at an auditing firm, supported by observation notes, analytical reflections, and personal research journals (Repenning & DeMott, 2025). These sources provided rich, lived experiences that enabled an in-depth understanding of the organizational context and auditor behaviors (Ar'Reza et al., 2024) related to fraud prevention and detection.

The choice of Active Ethnography as the methodological foundation allows for an immersive and participatory research experience, facilitating a nuanced examination of both explicit practices and the often-overlooked emotional and social dimensions involved in auditing work. Additionally, the study emphasizes the importance of recognizing and discussing the emotional dimensions of ethnographic research in accounting. This reflection is crucial because traditional accounting research conventions may undervalue or even silence such aspects, creating challenges for ethnographers in this field (Repenning & DeMott, 2025). By openly acknowledging these challenges, the study seeks to transform them into opportunities for intellectual and methodological growth, encouraging richer, more authentic insights.

In summary, the methodology was carefully chosen to balance rigorous qualitative inquiry with reflexivity, aiming to contribute both empirical findings and a deeper methodological understanding of fraud detection in auditing.

## **4 Results**

### **4.1 Inventory Management**

With technological advancements in the business world, effective inventory management has become a key element for corporate success. This process impacts the entire organizational structure, directly influencing operational efficiency, financial stability, and competitive advantage.

An efficient inventory management system provides several benefits, such as (Cheng, 2024) (Table 2).

**Table 2.** Inventory Management System

Key Benefit	Description
Cost Reduction	Optimizing inventory levels, minimizing manual labor, and eliminating errors significantly reduce costs, positively impacting profitability.
Increased Operational Efficiency	Efficient inventory flow management ensures streamlined processes and higher productivity.
Improved Customer Service	Constant product availability to meet consumer demand leads to greater satisfaction, loyalty, and increased sales.
Financial Stability	Effective and accurate inventory control enables better cost predictability and cash flow management, contributing to financial health.
Competitive Advantage	Implementing efficient inventory management practices differentiates the company in the market, providing a sustainable competitive edge.

#### 4.1.1. Inventory

Freeman and Waters (1993) classified inventories into three main categories: (i) raw materials, used in the production process of the final product; (ii) work-in-progress, corresponding to items undergoing transformation during the production process; and (iii) finished goods, which are ready for storage, distribution, or sale. According to § 6 of the Accounting and Financial Reporting Standard (NCRF) 18, inventories are assets acquired for the purpose of sale in the normal course of business operations, in production for future sale, or raw materials and supplies intended for consumption in production or service delivery.

The § 9 of NCRF 18 stipulates that inventories must be measured at the lower of cost and net realizable value (NRV). The cost includes purchase costs (acquisition price, transportation costs, customs duties), conversion costs (direct labor and general production overheads), and other costs necessary to bring the inventories to their present location and condition (NCRF 18, § 10). Net realizable value (NRV) is defined as the estimated selling price in the ordinary course of business, less estimated completion costs and costs necessary to make the sale (NCRF 18, § 6). If NRV is lower than cost, an impairment loss must be recognized (Almeida, 2019).

Correct inventory measurement is critical to mitigate financial losses resulting from obsolescence, damage, or price reductions (NCRF 18, § 28). The recognition of inventories as expenses occurs when the sale and the corresponding revenue are recognized (NCRF 18, § 34).

Entities may adopt two systems for inventory management: the Periodic Inventory System and the Perpetual Inventory System. Article 12 of Decree-Law No. 158/2009 mandates the use of the Perpetual Inventory System for entities that exceed two of the three thresholds defined in § 2 of Article 262 of the Commercial Companies Code (CSC):

- a) Total balance sheet: €1,500,000;
- b) Total net sales and other income: €3,000,000;

c) Average number of employees during the year: 50.

The Perpetual Inventory System requires continuous updates of the quantities and values of stock items as transactions of purchases, sales, and returns occur, allowing for more accurate and effective inventory control. In contrast, entities that do not exceed the legal limits may opt for the Periodic Inventory System, where counts are only performed at the end of the fiscal year, requiring a physical inventory to determine existing stocks (Cunha, 2022).

#### ***4.1.2. Audit Procedures for Inventories***

Inventory auditing involves procedures such as physical counts, verification of inventory communication to the Tax Authority (AT), analysis of purchase transactions, valuation tests, verification of net realizable value, and cutoff analysis of operations (Parlier & Lee, 2023).

##### ***Physical Counts***

Counts involve the systematic process of quantifying and recording an entity's inventory items to validate the correspondence between accounting records and physical reality. To perform this procedure, it is essential that the client provide written instructions detailing aspects such as the dates and locations of counts, the composition of the responsible teams, the counting methodology, and the applicable procedures for cutoff operations. Additionally, a comprehensive list of all inventory items should be available, referencing the period closing date, including descriptions, quantities, and identification codes. In companies with a significant stock volume, it is common to select a representative sample based on value and quantity criteria. For greater reliability, it is recommended that the auditor conduct random selections during the counting process. During the physical verification, the auditor should be attentive to:

- The absence of movements in warehouses during the count;
- Proper numbering and completion of counting sheets without prior indication of quantities;
- The adequacy and supervision of the teams involved;
- The implementation of mechanisms to ensure the cutoff of operations and the identification of obsolete items.

The audit of physical counts allows for the validation of assertions regarding existence, accuracy, and valuation, as stipulated in ISA 315 (IFAC, 2018).

##### ***Test of Inventory Communication to the AT***

Article 3-A of Decree-Law No. 198/2012 establishes the obligation for electronic communication of valued inventories to the Tax Authority (AT) by January 31 of the following year. This requirement applies to entities with organized accounting and obligated to prepare inventories. For companies without inventory at the period's end, the obligation remains in effect, according to Ordinance No. 2/2015. Thus, the auditor should

verify the timely submission of the inventory by the audited entity, ensuring compliance with the prevailing legislation. This procedure tests the assertions of rights and obligations (ISA 315, IFAC, 2018).

#### ***Test of Purchase Transactions***

The assessment of the goods acquisition process is carried out through a questionnaire to the audited entity about its internal procedures. Subsequently, selected invoices, purchase orders, delivery notes, and payment proofs are examined to verify the documentary process's compliance with the procedures reported by the company. This test checks the assertions of existence, accuracy, and valuation (ISA 315, IFAC, 2018).

#### ***Test of Inventory Valuation***

The goal of this test is to ensure that the inventory valuation criteria comply with the applicable Financial Reporting and Accounting Standards (NCRF). From the inventory listing as of December 31, items of higher value and quantity are selected, and their last purchase invoices are compared with the values recorded in the accounting records. This procedure ensures the correctness of unit prices. The valuation test ensures the reliability of the accuracy and valuation assertions (ISA 315, IFAC, 2018).

#### ***Test of Realization of Inventory***

This test checks whether inventories existing as of December 31 were sold in the subsequent period, ensuring stock turnover and avoiding the need for impairment recognition. This is done by analyzing the subsequent billing schedule and comparing it with the inventory of goods and finished products. The realization test validates assertions of existence, accuracy, and valuation (ISA 315, IFAC, 2018).

#### ***Test of Cutoff of Operations***

To ensure the proper periodization of inventory transactions, the auditor must confirm that all goods received were recorded in the inventory by the period-end date and that goods sold were not improperly recorded in the subsequent period. The auditor examines the last purchase and sales invoices for the period under review and the first invoices of the following period, ensuring proper recording in the accounting system.

### ***4.1.3. Technological Innovation and Inventory Control***

The ORA Mindset software, launched in September 2023, supports audit quality through real-time tracking and enhanced data security. This technological solution enables real-time tracking of work progress, ensuring that all steps are completed within the established deadlines. ORA Mindset contributes to the organization and security of data, minimizing the risks of errors and increasing transparency and efficiency in audit processes.

#### ***Inventory Control***

Effective inventory control requires staff training, careful selection of suppliers, and efficient communication with clients. Additionally, the implementation of technological solutions is crucial for the accuracy and efficiency of processes (Cheng, 2024):

- **Automated Systems:** These enable the automation of orders based on inventory levels, minimizing stockouts and optimizing replenishment.
- **Inventory Management Software:** It facilitates data analysis, identification of demand patterns, and forecasting of acquisition needs.
- **Supplier Partnerships:** These contribute to better demand forecasting and reduced operational costs.
- **Inventory Level Optimization:** Prevents excessive costs associated with high stock levels or stockouts.

Inventory management deficiencies are particularly evident in small businesses, where excessive inventory without turnover leads to high costs and liquidity issues (Atnafu & Balda, 2018). Therefore, efficient inventory management is a determining factor for the financial and operational performance of companies (Rajeev, 2008).

## 4.2 Detection and Prevention of Inventory Fraud

Inventory is one of the most crucial elements for the financial health of companies, while simultaneously being an attractive target for fraud. Inadequate manipulation or misappropriation of inventory can result in substantial financial losses and undermine stakeholder trust. Therefore, effective inventory management becomes essential not only for the financial integrity of organizations but also for maintaining a positive image with investors, auditors, and other stakeholders.

Hamilton (2017) explores the main forms of inventory fraud, highlighting the most common tactics and their consequences for the accuracy of financial statements. Financial statement manipulation is one of the most prevalent forms of fraud, where expenses are recorded as inventory in order to overstate stock levels and, consequently, artificially inflate net income for the period. Such practices can distort financial information, leading to misguided decisions by stakeholders.

Another type of fraud occurs through calendar schemes, known as the cut-off problem. In these cases, inventories are manipulated by recording returns or purchases after the actual period-end date, with the goal of inflating the final inventory value. This practice seeks to artificially improve the company's financial results but compromises the reliability of the accounting reports. Additionally, there are frauds associated with inventory valuation methods, where inventory values are deliberately overstated. This can occur through incorrect counting processes or by applying inappropriate valuation methods, such as choosing cost methods that do not reflect market price realities or the actual value of inventory. Finally, stock theft is a classic form of inventory fraud, which can occur due to incorrect recording of goods movements or collusion between employees to divert products. Such practices, if undetected, can lead to significant losses and damage confidence in the company's operations.

Inventory accounting information systems not only facilitate inventory management but also play a crucial role in the prevention and detection of fraud, providing greater transparency and control over inventory processes (Tobing et al., 2023). Therefore, the

detection and prevention of inventory fraud require the implementation of rigorous internal control practices, frequent audits, and the use of advanced technologies to monitor and verify inventory transactions and records. Auditing plays a crucial role in detecting and preventing fraud, as it involves the verification and assessment of financial information. One of the most significant aspects of this function is the deterrent effect that the possibility of fraud detection has on individuals, reducing the likelihood of fraudulent behavior (Jeppesen, 2019).

#### 4.2.1. *Fraud Detection in Inventories*

Various factors can influence the probability of detecting fraud during the audit process. A study conducted in the United States with 357 auditors examined the key factors associated with the likelihood of fraud detection during the audit process. Moyes and Hasan (1996) concluded that there is a positive relationship between fraud detection and an auditor's professional experience.

The more experienced an auditor is, the more proficient they become in identifying fraudulent activities. Similarly, audit firms that have previously encountered fraud cases tend to be more vigilant and proactively train their professionals on fraud-related issues. Experienced auditors possess enhanced capabilities to conduct thorough assessments and make more accurate decisions regarding potential fraud. This superior performance is attributed to their extensive knowledge of the audit process (Rininda, 2024). Additionally, an auditor's professional skepticism plays a crucial role in fraud detection. The initial failure to identify fraud is often linked to a lack or insufficient application of skepticism. When auditors unquestioningly accept information provided by management without proper verification, fraudulent activities may go unnoticed, hindering their detection and investigation (Dimitrijevic et al., 2021; Rininda, 2024).

The professional commitment of auditors is another key factor influencing their ability to detect fraudulent activities. A high level of commitment increases the auditor's responsibility in identifying fraud risks, enabling audited entities to implement appropriate mitigation measures (Yulianti et al., 2024).

Moreover, several studies suggest that gender is one of the factors affecting fraud detection. Women are often perceived as more alert to potential risks compared to men. They are more likely to identify and report fraud due to their heightened awareness and skeptical approach. Furthermore, women tend to exhibit a stronger ethical concern in organizational decision-making than men (Jizi et al., 2016; Nekhili et al., 2020). In summary: Auditors' Professional Experience → Professional Skepticism → Professional Commitment → Gender.

To detect fraud in inventory, it is essential to be vigilant for various signs:

- Analytical Signs: Large inventory balances, low-cost prices, reduced purchases, and capitalization of expenses.
- Accounting Signs: Incorrectly recorded transactions, end-of-period adjustments, and lack of documentary support.

- Behavioral Signs: Inconsistent responses, delays in providing information.
- Control Signs: Cancellation of previously implemented internal controls and the authenticity of inventory counts (Albrecht et al., 2009).

In addition to traditional documentary evidence, other types of evidence can be valuable for fraud detection:

- Testimonial Evidence: Interviews with internal or external individuals can reveal important information.
- Physical Evidence: Direct inspection of assets to validate their existence.
- Personal Observations: Direct observation by auditors, providing behavioral or visual evidence (Albrecht et al., 2009).

Currently, we can rely on the assistance of new technologies, which are seen as powerful tools in identifying illegal activities and protecting against corporate fraud (Rahman & Zhu, 2023). Traditionally, fraud detection was based on manual methods, limited to analyzing a restricted set of data. This approach, often slow and prone to errors, became ineffective in combating modern fraud, which incorporates advanced technologies (Odeyemi et al., 2024). Traditionally, accounting was based on a double-entry system, where each transaction was recorded as both a debit and a credit. However, the increasing complexity of business operations and the need for greater transparency and traceability have driven the demand for more secure solutions. In this context, the concept of triple-entry accounting arises, where a third entry—a cryptographic signature—ensures the immutability and security of transactions (Wiatt, 2019).

New technologies, particularly Artificial Intelligence (AI), Machine Learning (ML), and Big Data, have revolutionized fraud detection by enabling the analysis of large volumes of data quickly, accurately, and efficiently. Through sophisticated algorithms, these systems can identify patterns and anomalies that might go unnoticed by human eyes, significantly reducing the likelihood of errors and increasing the fraud detection rate (Odeyemi et al., 2024). Mrida et al. (2025) highlight that AI plays a significant role in fraud detection and risk assessment across sectors such as finance, healthcare, and manufacturing. AI contributes to the identification of anomalous patterns and suspicious behaviors, facilitating early intervention. However, the study points out challenges related to data quality, availability, and privacy issues, which still pose barriers to wider adoption of AI.

In auditing, AI is viewed as a hybrid set of technologies that complement and transform the process through a simulation of human intelligence (Al-Sayyed et al., 2021). This technology is, in fact, a tool that provides auditors with the means to enhance the effectiveness and efficiency of their work. Auditors can identify patterns, anomalies, and risks with greater precision and in less time. Additionally, it frees auditors from repetitive tasks, such as data extraction and calculations, allowing them to focus on activities that require a higher level of professional judgment and critical analysis (Al-Sayyed et al., 2021 & Lamboglia et al., 2020).

Blockchain, in contrast to traditional databases that centralize information in a single server and restrict user access to specific levels (read and write), provides each participant with a complete, immutable copy of the ledger. Thus, the information is not confined to a centralized location but is securely and transparently distributed among all network members (Pimentel & Boulianne, 2020). It is claimed that blockchain enables "triple-entry accounting," where a transaction leads not to two but to three entries: debit, credit, and a cryptographic signature to verify the validity of the transaction (Wiatt, 2019).

Roszkowska (2021) believes that the convergence of two disruptive technologies—the Internet of Things (IoT) and blockchain—promises to radically transform the way organizations manage their financial information. The technological synergy and convergence of blockchain and the Internet of Things (IoT) have the potential to transform financial management in organizations. IoT enables the precise capture of data about physical assets, while blockchain ensures the integrity and security of this information. Together, these technologies allow for an automated and transparent accounting system, minimizing errors and fraud while increasing traceability and reliability of financial information (Roszkowska, 2021). In summary, the combination of professional experience, skepticism, ethical stance, analytical signs, and new technologies provides a robust set of tools for fraud detection and prevention. Technological innovations, such as AI, ML, Big Data, IoT, and blockchain, are essential in the evolution of auditing and improving the effectiveness of fraud detection processes.

#### 4.2.2. *Fraud Prevention in Inventories*

Fraud prevention is a strategic priority to ensure the sustainability and success of businesses, with auditors playing a crucial role in this process (Abdullahi & Mansor, 2015). Various standards and approaches are essential to ensure auditors fulfill their responsibilities in preventing fraud.

According to ISA 240 - The Auditor's Responsibilities Relating to Fraud in an Audit of Financial Statements (IFAC, 2018), the auditor should adopt the following procedures in fraud prevention (Table 3).

**Table 3.** Auditor Requirements for Fraud Prevention (ISA 240)

Step	Description
1. Professional Skepticism	The attitude of professional skepticism, as defined in Article 70 of the EOROC (2023), requires the auditor to maintain a critical stance throughout the audit. This mindset must be alert to conditions that may indicate distortions due to error or fraud, without disregarding the possibility of material misstatement due to fraud.
2. Team Discussion	The auditor should encourage discussions within the audit team regarding how and when the financial statements may be susceptible to material misstatements caused by fraud. These meetings are also important for analyzing the ways in which fraud could manifest.

Step	Description
3. Risk Assessment Procedures and Related Activities	The auditor should inquire with management about the risk of fraud in the financial statements and the processes used to identify and address these risks. These processes should be implemented with the knowledge of all those responsible for governance.
4. Identification and Evaluation of Risks of Material Misstatement	The auditor should identify and evaluate the risks of material misstatement in the financial statements due to fraud, developing appropriate responses to mitigate these risks.
5. Evaluation of Audit Evidence	After performing analytical procedures, the auditor should assess whether there is a risk of material misstatement due to fraud that has not been previously identified.
6. Management's Written Representations	Management must provide a written statement confirming that internal controls have been implemented to prevent and detect fraud, as well as disclose any knowledge of fraud and present the results of its risk assessment.
7. Communications to Management and Legal and Regulatory Bodies	The auditor is obligated to communicate to management and regulators when fraud is identified or suspected.
8. Documentation	All the steps mentioned above should be documented by the auditor.

Zega & Irwansyah (2023) identify several essential tools for preventing fraud:

#### 1. Internal Auditing

Internal auditing plays a crucial role in fraud prevention by identifying risks and implementing effective controls to prevent fraudulent practices. A well-structured internal audit function helps to detect weaknesses in the organization's processes and ensures that these weaknesses are addressed promptly.

#### 2. Adequate Compensation

Proper employee compensation can reduce the incentive to engage in fraudulent activities. By offering competitive and fair compensation, organizations minimize the financial pressures that may otherwise lead employees to commit fraud.

Alazzabi et al. (2023) propose additional strategies, including:

#### 1. Implementation of Fraud Reporting Channels

Establishing effective fraud reporting channels facilitates the identification and prevention of fraud. These channels allow employees to report suspicious activities anonymously, enhancing the organization's ability to detect fraud early.

## 2. Promotion of Ethical Conduct

Disseminating ethical principles and raising awareness about fraudulent practices through training and educational programs can foster a culture of integrity within the organization. Employees are more likely to follow ethical guidelines if they understand the importance of these principles in maintaining organizational success and trust.

Seetharaman et al. (2004) emphasize the importance of a robust internal control system, which addresses multiple areas to prevent fraud:

### 1. Identification of Weaknesses

A critical analysis of existing systems allows the identification of vulnerabilities that could be exploited by fraudsters. By recognizing these weaknesses, organizations can implement corrective measures to mitigate the risks of fraud.

### 2. Implementation of Controls

The implementation or improvement of existing controls is aimed at reducing opportunities for fraud. These controls might include enhanced security protocols, approval processes, and monitoring systems to ensure that resources are adequately protected.

### 3. Control and Deterrence

Strict enforcement of internal controls acts as a deterrent to potential fraudsters. When employees know that controls are rigorous and constantly monitored, the likelihood of fraudulent behavior decreases significantly.

There are three main types of interventions that can be implemented within internal control systems (Seetharaman et al., 2004):

### 1. Technical Interventions

These include physical access controls that restrict unauthorized access to company resources, such as securing assets, equipment, or confidential data.

### 2. Formal Interventions

Formal interventions reflect the need for a well-organized hierarchical structure to enhance transparency and accountability within the organization. A clear organizational structure ensures that roles and responsibilities are well defined, reducing the potential for fraudulent behavior.

### 3. Informal Interventions

Informal interventions involve training programs that educate employees on the risks of fraud and promote an ethical and transparent organizational culture. These programs help to instill a sense of responsibility and commitment to ethical conduct among employees.

The implementation of effective fraud prevention procedures reduces significant losses, deters fraudulent activities, and increases the likelihood of early detection of fraud. This strengthens the internal control system and improves transparency within the organization (Seetharaman et al., 2004). The increasing complexity of business operations and the need to ensure the integrity of financial information make the application of advanced technologies, such as AI, essential to address contemporary challenges in auditing and financial management. The study by Mrida et al. (2025) reinforces the importance of technological innovation, combined with the enhancement of auditors' professional judgment, as a fundamental strategy to deal with the growing risks of fraud in the corporate environment. In conclusion, fraud prevention involves a comprehensive approach that includes professional skepticism, effective communication, the implementation of robust internal control systems, and the use of technology for early fraud detection. Preventive actions require a collective effort from auditors, management, and all stakeholders within the organization to ensure the long-term success and integrity of the organization.

## 5 Discussion

Effective inventory management is a critical pillar in the operational and financial stability of modern organizations. As businesses grow in complexity and scale, the strategic importance of managing inventory efficiently has increased, particularly given its direct impact on cost control, productivity, customer satisfaction, and competitive positioning (Cheng, 2024). Proper inventory management not only reduces operational expenses but also ensures that resources are allocated optimally, aligning with both financial forecasting and service-level objectives.

From a financial accounting perspective, inventory must be accurately classified and measured according to regulatory frameworks such as the Accounting and Financial Reporting Standard (NCRF) 18. Inventories encompass raw materials, work-in-progress items, and finished goods, and must be valued at the lower of cost or net realizable value. Inaccuracies in inventory valuation can lead to significant distortions in reported profits and asset values. Therefore, meticulous attention to acquisition costs, conversion overheads, and the evaluation of impairment losses is imperative (Almeida, 2019). These considerations are not merely compliance-related; they reflect fundamental principles of prudent financial reporting and risk management. The choice between periodic and perpetual inventory systems further determines the granularity and real-time availability of inventory information. While the perpetual system enhances accuracy through continuous updates, its implementation is mandatory only for entities surpassing specified thresholds outlined in Decree-Law No. 158/2009. Nonetheless, technological advancements have made perpetual systems more accessible, even for mid-sized firms, by leveraging automation and real-time data integration.

Audit procedures related to inventories are indispensable for ensuring the reliability of financial statements. International Standards on Auditing (ISA 315) stress the importance of assertions such as existence, accuracy, valuation, rights, and obligations. In this context, physical inventory counts remain one of the most critical procedures. They provide direct

evidence of asset existence and condition, especially when conducted under controlled circumstances that prevent manipulation or oversight. Supplementary procedures—such as tests of valuation, cutoff, and realizability—further strengthen the auditor’s ability to detect discrepancies or potential misstatements. The legal obligation for electronic inventory communication to the Tax Authority (AT), as per Decree-Law No. 198/2012, adds another layer of accountability and transparency to inventory management processes. Compliance with this requirement not only fulfills regulatory duties but also provides audit evidence regarding inventory completeness and proper cut-off recognition.

Technological innovations, such as the ORA Mindset platform, represent a paradigm shift in audit methodology. By enabling real-time tracking of audit processes and centralized data organization, these tools improve procedural transparency, reduce the likelihood of human error, and promote adherence to audit timelines. This digital transformation enhances both the effectiveness and efficiency of audit engagements and supports the growing demand for data-driven decision-making.

Additionally, robust inventory control depends heavily on organizational factors such as employee training, supplier relationships, and system automation. Tools like inventory management software and automated reordering systems reduce human error and facilitate better forecasting. These features are particularly vital for small businesses, where poor inventory turnover can exacerbate liquidity issues and operational inefficiencies (Atnafu & Balda, 2018). Hence, investing in structured inventory processes yields not only cost efficiencies but also strategic agility. In sum, the intersection of accounting standards, audit procedures, and digital technologies underscores the multifaceted nature of inventory management in contemporary organizations. Adopting best practices in valuation, control systems, and regulatory compliance not only enhances financial statement reliability but also reinforces a company’s overall operational resilience and market responsiveness.

Inventory fraud constitutes a significant threat to the financial integrity of organizations and demands increasingly sophisticated and integrated strategies for its detection and prevention. The literature reviewed highlights the most common fraudulent practices, such as financial statement manipulation, cut-off schemes, intentional overvaluation of inventory, and physical theft. These practices severely compromise the reliability of financial reporting and mislead stakeholders, potentially resulting in poor decision-making and loss of trust (Hamilton, 2017). As such, the accuracy and credibility of financial statements are contingent upon the auditor’s technical skills and critical mindset grounded in professional skepticism.

Several factors have been identified as pivotal to effective fraud detection during audits. Auditor experience is among the strongest predictors of fraud identification capabilities, significantly enhancing an auditor’s ability to detect irregular patterns and anomalies (Moyes & Hasan, 1996; Rininda, 2024). Additionally, the application of professional skepticism and a strong ethical commitment play crucial roles in uncovering fraud, particularly when management provides misleading or incomplete information (Dimitrijevic et al., 2021). Gender differences have also been noted in the literature, with studies suggesting that women auditors may exhibit heightened risk sensitivity and a

stronger ethical stance, leading to increased likelihood of detecting and reporting fraudulent behavior (Jizi et al., 2016; Nekhili et al., 2020). This finding carries implications for team composition and ethics training within audit firms.

In practice, the identification of fraud relies on detecting analytical, accounting, behavioral, and control-related red flags (Albrecht et al., 2009). A multi-evidence approach, including documentary, testimonial, physical, and observational evidence, strengthens the reliability of fraud detection procedures and enhances audit robustness. Concurrently, technological advances are transforming the audit landscape. Artificial Intelligence (AI), Machine Learning (ML), and Big Data tools have significantly improved auditors' ability to process large datasets and identify unusual patterns efficiently and accurately (Odeyemi et al., 2024; Mrida et al., 2025). These technologies reduce manual errors and free auditors from routine tasks, allowing greater focus on high-level analytical activities and professional judgment (Al-Sayyed et al., 2021). Emerging technologies such as blockchain and the Internet of Things (IoT) further enhance transparency, traceability, and the immutability of inventory records, mitigating opportunities for manipulation (Roszkowska, 2021; Pimentel & Boulianne, 2020).

From a prevention perspective, international standards—particularly ISA 240—outline a structured framework of auditor responsibilities, emphasizing the need for skepticism, internal team discussions, systematic risk assessment, and comprehensive documentation (IFAC, 2018). Fraud prevention measures also include internal audits, fair compensation, whistleblowing mechanisms, and ethical awareness programs that promote a culture of integrity (Zega & Irwansyah, 2023; Alazzabi et al., 2023). Moreover, Seetharaman et al. (2004) categorize internal control interventions into technical (e.g., access restrictions), formal (e.g., hierarchical structures), and informal (e.g., training and ethics promotion), which collectively strengthen organizational resilience against fraud. In conclusion, the prevention and detection of inventory fraud require a multidimensional approach that integrates human factors, technological innovation, and procedural rigor. The synergy between professional expertise, ethical conduct, audit indicators, and digital tools represents a transformative model for modern auditing. This integrated approach is essential to address the growing complexity of business operations and maintain stakeholder confidence in financial reporting.

## 6 Final Considerations

To illustrate experiences gained during an internship at a company specializing in auditing, with the aim of analyzing the practices and methods used by organizations in inventory management, focusing on their relevance in fraud prevention and detection, an active ethnographic methodology and a narrative literature review were followed.

Through direct observation and analysis of the implemented procedures, it was found that the combination of advanced technologies and robust internal controls plays a critical role in mitigating the risk of fraud. The research demonstrated that the use of integrated inventory management systems, data analysis tools, and continuous auditing

allows for more effective monitoring of stock movements, reducing the possibility of fraudulent manipulation. Additionally, the implementation of periodic reconciliation mechanisms and segregation of duties emerged as fundamental measures to ensure the reliability of accounting information and prevent intentional distortions.

However, the results indicate that technology, although a facilitating tool, does not replace the importance of professional judgment and in-depth knowledge of business processes. The effectiveness of fraud detection and prevention in inventories depends on the interaction between analytical tools and the auditors' experience, who must be able to interpret anomaly patterns and identify risk signals.

The research also highlights challenges associated with implementing these practices, such as organizational resistance to adopting new systems, the costs inherent in digitalization, and cybersecurity risks. Moreover, inventory fraud evolves alongside technological advancements, requiring continuous adaptation of control strategies.

Given the complexity of the phenomenon, future research should deepen the analysis of the impact of emerging technologies, such as artificial intelligence and blockchain, on inventory fraud detection and prevention. Additionally, quantitative studies and comparative approaches between different sectors could contribute to a broader understanding of the effectiveness of the analyzed methods and practices.

This study reinforces the importance of a holistic approach to inventory auditing, integrating technology, internal control, and professional expertise as central elements to ensure the reliability of financial information and reduce fraud-related risks.

## References

- Abdullahi, R., & Mansor, N. (2015). Fraud Triangle Theory and Fraud Diamond Theory. Understanding the Convergent and Divergent For Future Research. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 5(4), 38–45. <https://doi.org/10.6007/ijarafms/v5-i4/1823>
- Alazzabi, W. Y. E., Mustafa, H., & Karage, A. I. (2023). Risk management, top management support, internal audit activities and fraud mitigation. *Journal of Financial Crime*, 30(2), 569–582. <https://doi.org/10.1108/jfc-11-2019-0147>
- Albrecht, W. S., Albrecht, C., & Albrecht, C. C. (2008). Current trends in fraud and its detection. *Information Security Journal*, 17(1), 2–12. <https://doi.org/10.1080/19393550801934331>
- Albrecht, S. W., Albrecht, C. C., Albrecht, C. O., & Zimbelman, M. F. (2009). *Fraud examination* (3rd ed.). South-Western Cengage Learning.
- Alleyne, P., Persaud, N., Alleyne, P., Greenidge, D., & Sealy, P. (2010). Perceived effectiveness of fraud detection audit procedures in a stock and warehousing cycle: Additional evidence from Barbados. *Managerial Auditing Journal*, 25(6), 553–568. <https://doi.org/10.1108/02686901011054863>
- Almeida, B. J. M. (2019). *Manual de Auditoria Financeira: Uma análise integrada baseada no risco* (3rd ed). Editora Escolar

- Al-Sayyed, S. M., Al-Aroud, S. F., & Zayed, L. M. (2021). The effect of artificial intelligence technologies on audit evidence. *Accounting*, 7(2), 281–288. <https://doi.org/10.5267/j.ac.2020.12.003>
- Alves, J. J. dos S. (2015). *Princípios e prática de auditoria e revisão de contas* (1st ed). Edições Sílabo. ISBN:978-972-618-821-6
- Ar'Reza, I. F., Wardoyo, C., & Putri, S. F. (2020). Internal auditors' fraud detection: a phenomenological study. *International Journal of Accounting & Finance in Asia Pasific*, 3(2), 68-76.
- Artana, K. P., Diatmika, P. G., & Atmadja, A. T. (2023). The Influence of Auditor Opinion, Company Size, External Pressure on Fraud Financial Reporting with Industrial Conditions as Intervening Variables. *International Journal of Social Science and Business*, 7(1), 208–215. <https://doi.org/10.23887/ijssb.v7i1.57651>
- Association of Certified Fraud Examiners [ACFE]. (2020). Report to the Nation on Occupational Fraud & Abuse. <https://acfe-public.s3-us-west-2.amazonaws.com/2020-Report-to-the-Nations.pdf>
- Atnafu, D., & Balda, A. (2018). The impact of inventory management practice on firms competitiveness and organizational performance: Empirical evidence from micro and small enterprises in Ethiopia. *Cogent Business and Management*, 5(1), 1–16. <https://doi.org/10.1080/23311975.2018.1503219>
- Bao, Y., Ke, B., Li, B., Yu, Y. J., & Zhang, J. (2020). Detecting accounting fraud in publicly traded US firms using a machine learning approach. *Journal of Accounting Research*, 58(1), 199-235. <https://doi.org/10.1111/1475-679X.12292>
- Campa, D., Quagli, A., & Ramassa, P. (2023). The roles and interplay of enforcers and auditors in the context of accounting fraud: a review of the accounting literature. *Journal of Accounting Literature*. <https://doi.org/10.1108/jal-07-2023-0134>
- Cheng, X. (2024). Research on the Inventory Management in the Modern Business. *Advances in Economics, Management and Political Sciences*, 60(1), 1–8. <https://doi.org/10.54254/2754-1169/60/20231247>
- Cooper, D. J., Dacin, T., & Palmer, D. (2013). Fraud in accounting, organizations and society: Extending the boundaries of research. *Accounting, Organizations and Society* 38(6–7) 440–457. <https://doi.org/10.1016/j.aos.2013.11.001>
- Costa, C. B. D. (2018). *Auditoria financeira: teoria e prática* (12th ed.). Rei dos Livros
- Cunha, D. (2022). Inventários: Sistema de inventário permanente. *Contabilidade & Empresas*, 72. [https://www.occ.pt/fotos/editor2/inventarios-dcunhacee\\_jan2022.pdf](https://www.occ.pt/fotos/editor2/inventarios-dcunhacee_jan2022.pdf)
- Decreto Regulamentar n.º 25/2009 do Ministério das Finanças e da Administração Pública, Diário da República: série I (2009). <https://diariodarepublica.pt/dr/detalhe/decreto-regulamentar/25-2009-489774>
- Decreto-Lei n.º 106/98, Diário da República: série I-A (1998). <https://diariodarepublica.pt/dr/detalhe/decreto-lei/106-1998-176328>
- Decreto-Lei n.º 262/86, Diário da República: série I (1986). <https://diariodarepublica.pt/dr/detalhe/decreto-lei/262-1986-220107>

- Decreto-Lei n.º 1/72 do Ministério da Justiça, Diário do Governo: série I (1972).  
<https://diariodarepublica.pt/dr/detalhe/decreto-lei/1-291800>
- Decreto-Lei n.º 158/2009 do Ministério das Finanças e da Administração Pública, Diário da República: série I (2009). <https://diariodarepublica.pt/dr/detalhe/decreto-lei/158-2009-492428>
- Decreto-Lei n.º 198/2012 do Ministério das Finanças, Diário da República: série I (2012).  
<https://diariodarepublica.pt/dr/legislacao-consolidada/decreto-lei/2012-106458692-119667914>
- Dicionário Priberam da Língua Portuguesa. (2024). <https://dicionario.priberam.org/fraude>
- Dimitrijevic, D., Jovkovic, B., & Milutinovic, S. (2021). The scope and limitations of external audit in detecting frauds in company's operations. *Journal of Financial Crime*, 28(3), 632–646.  
<https://doi.org/10.1108/JFC-11-2019-0155>
- Dimitrijevic, D., Milovanovic, V., & Stancic, V. (2015). The Role Of a Company's Internal Control System In Fraud Prevention. *Financial Internet Quarterly*, 11(3), 34–44.  
[https://doi.org/10.14636/1734-039X\\_11\\_3\\_003](https://doi.org/10.14636/1734-039X_11_3_003)
- Estatuto Da Ordem Dos Revisores Oficiais de Contas [EOROC]. (2023). <https://www.oroc.pt/a-ordem/estatuto-da-oroc/estatuto-da-oroc/>
- Freeman, J., & Waters, C. D. J. (1993). Inventory Control and Management. *The Journal of the Operational Research Society*, 44(3), 316. <https://doi.org/10.2307/2584204>
- Hamilton, C. (2017). Inventory Fraud: Detecting, Preventing & Prosecuting. Arxis Financial, Inc. [www.arxisfinancial.com](http://www.arxisfinancial.com)
- International Federation of Accounts [IFAC]. (2018). Manual das Normas Internacionais de Controlo de Qualidade, Auditoria, Revisão, Outros Trabalhos de Garantia de Fiabilidade e Serviços Relacionadas (4th ed.). Ordem dos Revisores Oficiais de Contas [OROC]. [chrome-extension://efaidnbnmnncipcajpcglclefindmkaj/https://www.oroc.pt/uploads/normativo\\_tecnico/auditoria-normativo\\_ifac/Signed/Manual%20de%20Normas%201\\_OROC\\_2019.pdf](chrome-extension://efaidnbnmnncipcajpcglclefindmkaj/https://www.oroc.pt/uploads/normativo_tecnico/auditoria-normativo_ifac/Signed/Manual%20de%20Normas%201_OROC_2019.pdf)
- Jeppesen, K. K. (2019). The role of auditing in the fight against corruption. *British Accounting Review*, 51(5). <https://doi.org/10.1016/j.bar.2018.06.001>
- Jizi, M., Nehme, R., & Elhout, R. (2016). Fraud: auditors' responsibility or organisational culture. *International Social Science Journal*, 66(221–222), 241–255. <https://doi.org/10.1111/issj.12128>
- Kagias, P., Cheliatsidou, A., Garefalakis, A., Azibi, J., & Sariannidis, N. (2022). The fraud triangle – an alternative approach. *Journal of Financial Crime*, 29(3), 908–924.  
<https://doi.org/10.1108/JFC-07-2021-0159>
- Khaksar, J., Salehi, M., & Lari DashtBayaz, M. (2022). The relationship between auditor characteristics and fraud detection. *Journal of Facilities Management*, 20(1), 79–101.  
<https://doi.org/10.1108/JFM-02-2021-0024>
- Khelil, I. (2023). The working relationship between internal and external auditors and the moral courage of internal auditors: Tunisian evidence. *Arab Gulf Journal of Scientific Research*, 41(4), 462–477. <https://doi.org/10.1108/AGJSR-07-2022-0121>
- Lamboglia, R., Lavorato, D., Scornavacca, E., & Za, S. (2020). Exploring the relationship between audit and technology. A bibliometric analysis. *Meditari Accountancy Research*, 29(5), 1233–1260. <https://doi.org/10.1108/MEDAR-03-2020-0836>

- Lei n.º 140/2015 da Assembleia da República, Diário da República: série I (2015).  
<https://diariodarepublica.pt/dr/detalhe/lei/140-2015-70196967>
- Lei n.º 148/2015, Diário da República: série I (2015). <https://diariodarepublica.pt/dr/legislacao-consolidada/lei/2015-74094268-74090727>
- Moyes, G. D., & Hasan, I. (1996). An empirical analysis of fraud detection likelihood. *Managerial Auditing Journal*, 11(3), 41–46. <https://doi.org/10.1108/02686909610115231>
- Mrida, M. S. H., Rahman, M. A., & Alam, M. S. (2025). AI-Driven Data Analytics and Automation: A Systematic Literature Review of Industry Applications. *Strategic Data Management and Innovation*, 2(01), 21–40. <https://doi.org/10.71292/sdmi.v2i01.9>
- Narayanapillai, R. (2014). Factors discriminating inventory management performance: An exploratory study of Indian machine tool SMEs. *Journal of Industrial Engineering and Management*, 7(3), 605–621. <https://doi.org/10.3926/jiem.924>
- Nekhili, M., Gull, A. A., Chtioui, T., & Radhouane, I. (2020). Gender-diverse boards and audit fees: What difference does gender quota legislation make? *Journal of Business Finance and Accounting*, 47(1–2), 52–99. <https://doi.org/10.1111/jbfa.12409>
- Odeyemi, O., Mhlongo, N., Nwankwo, E., & Soyombo, O. (2024). Reviewing the role of AI in fraud detection and prevention in financial services. *International Journal of Science and Research Archive*, 11(1), 2101–2110. <https://doi.org/10.30574/ijrsra.2024.11.1.0279>
- Oliveira Reis e Associados [ORA]. (2023). Relatório de Transparência: Exercício de 2023. Oliveira Reis e Associados [ORA]. <https://www.orasroc.pt/index.php/relatorio-anual-de-transparencia/>
- Ordem dos Revisores Oficiais de Contas [OROC]. (2024). Estatuto da Ordem dos Revisores Oficiais de Contas. <https://www.oroc.pt/a-ordem/estatuto-da-oroc/estatuto-da-oroc/>
- Ordem dos Revisores Oficiais de Contas [OROC]. (2024). Regulamento de Formação.
- Ordem Dos Revisores Oficiais de Contas. <https://www.oroc.pt/formacao/pagina-inicial/>
- Owusu, G. M. Y., Koomson, T. A. A., Alipoe, S. A., & Kani, Y. A. (2022). Examining the predictors of fraud in state-owned enterprises: an application of the fraud triangle theory. *Journal of Money Laundering Control*, 25(2), 427–444. <https://doi.org/10.1108/JMLC-05-2021-0053>
- Parlier, J., & Lee, L. (2023). Inventory analytics: A teaching case using excel and Alteryx. *Journal of Accounting Education*, 63. <https://doi.org/10.1016/j.jaccedu.2023.100848>
- Pimentel, E., & Boulianne, E. (2020). Blockchain in Accounting Research and Practice: Current Trends and Future Opportunities. *Accounting Perspectives*, 19(4), 325–361. <https://doi.org/10.1111/1911-3838.12239>
- Portaria n.º 189/2016 das Finanças, Diário da República: série I (2016).  
<https://diariodarepublica.pt/dr/detalhe/portaria/189-2016-74950370>
- Portaria n.º 2/2015 do Ministério das Finanças, Diário da República: série I (2015).  
<https://diariodarepublica.pt/dr/detalhe/portaria/2-2015-66041392>
- Portaria n.º 83/74 dos Ministérios da Justiça e das Finanças, Diário do Governo: série I (1974).  
<https://diariodarepublica.pt/dr/detalhe/portaria/83-1974-407345>

- Rahman, M. J., & Zhu, H. (2023). Predicting accounting fraud using imbalanced ensemble learning classifiers – evidence from China. *Accounting and Finance*, 63(3), 3455–3486. <https://doi.org/10.1111/acfi.13044>
- Rajeev, N. (2008). Inventory management in small and medium enterprises: A study of machine tool enterprises in Bangalore. *Management Research News*, 31(9), 659–669. <https://doi.org/10.1108/01409170810898554>
- Regulamento (UE) n.º 537/2014 do Parlamento Europeu e do Conselho (2014). <https://www.oroc.pt/legislacao-ue/regulamento-europeu/>
- Repenning, N., & DeMott, K. (2025). Navigating the emotional challenges of ethnographic accounting research: notes from first-time ethnographers. *Qualitative Research in Accounting & Management*, 22(1), 37-64.
- Rininda, B. P. (2024). Auditor's Professional Skepticism and Experience on Fraud Detection: The Moderating Role of Professional Ethical Commitment. *JDA Jurnal Dinamika Akuntansi*, 16(1), 28–42. <https://doi.org/10.15294/jda.v16i1.4037>
- Roszkowska, P. (2021). Fintech in financial reporting and audit for fraud prevention and safeguarding equity investments. *Journal of Accounting and Organizational Change*, 17(2), 164–196. <https://doi.org/10.1108/JAOC-09-2019-0098>
- Seetharaman, A., Senthilvelmurugan, M., & Periyamayagam, R. (2004). Anatomy of computer accounting frauds. *Managerial Auditing Journal*, 19(8), 1055–1072. <https://doi.org/10.1108/02686900410557953>
- Soepriyanto, G., Meiryani, M., & Modjo, M. I. (2021, May). Theory and factors influencing fraud in financial statements: a systematic literature review. In *Proceedings of the 2021 International Conference on E-business and Mobile Commerce* (pp. 75-82).
- Tobing, K. S. L., Lantana, D. A., Digdowiseiso, K., & Jamaludin, N. (2023). The implementation of inventory accounting information systems: a systematic literature review. *Journal of Accounting Research, Utility Finance and Digital Assets*, 2(2), 748-754
- Tribunal de Contas. (1999). *Manual de Auditoria e de Procedimentos* (Vol. 1), 1-144.
- Tribunella, T. J., & Tribunella, H. R. (2011). The Effect Of Auditor Independence On International Capital Markets For eCommerce Firms. *Journal of Business & Economics Research (JBER)*, 1(2). <https://doi.org/10.19030/jber.v1i2.2972>
- Wiatt, R.G. (2019). From the Mainframe to the Blockchain. *Strategic Finance*. <https://www.sfmagazine.com/articles/2019/january/from-the-mainframe-to-the-blockchain/>
- Yulianti, Y., Zarkasyi, M. W., Suharman, H., & Soemantri, R. (2024). Effects of professional commitment, commitment to ethics, internal locus of control and emotional intelligence on the ability to detect fraud through reduced audit quality behaviors. *Journal of Islamic Accounting and Business Research*, 15(3), 385–401. <https://doi.org/10.1108/JIABR-02-2021-0076>
- Zega, W., & Irwansyah, I. (2023). The Influence of Good Corporate Governance, The Role of Internal Au-dit, The Effectiveness of Internal Controls and The Appropriate of Compensation on Fraud Trends. *International Business and Accounting Research Journal*, 7(1), 37–51. <http://journal.stebilampung.ac.id/index.php/ibarj>

Zhu, C., Zeng, R., Wang, R., & Xiao, Y. (2023). Corporate social responsibility and chief executive officer wrongdoing: A fraud triangle perspective. *Corporate Social Responsibility and Environmental Management*, *30(2)*, 874–888. <https://doi.org/10.1002/csr.2394>