

THE ROLE OF FORENSIC ACCOUNTING SUPPORTED INTERNAL AUDIT IN THE PREVENTION AND DETECTION OF FINANCIAL FRAUDS: A CASE STUDY OF PUNJAB NATIONAL BANK (PNB)

FİNANSAL DOLANDIRICILIĞIN ÖNLENMESİ VE TESPİTİNDE ADLİ MUHASEBE DESTEKLİ İÇ DENETİMİN ROLÜ: PUNJAB ULUSAL BANKASI (PNB) ÖRNEĞİ

Burçak KIZILTAN IŞIK ^{a*}

^{a*} Assist. Prof. Başkent University Faculty of Commercial Sciences, bkiziltan@baskent.edu.tr, ORCID ID: 0000-0003-1277-679X

ARTICLE INFO

Article history:

Received 04.08.2025

Revised 14.08.2025

Accepted 05.09.2025

Key Words: Internal Audit, Financial Fraud, Forensic Accounting, PNB Scandal, Corporate Governance
Jel Codes: M41,M42, G21, K42

RESEARCH ARTICLES

BENZERLİK/ PLAGIARISM

Ithenticate: %3

MAKALE BİLGİLERİ

Makale Tarihçesi:

Gönderilme Tarihi 04.08.2025

Düzenleme Tarihi 14.08.2025

Kabul Tarihi 05.09.2025

Anahtar Kelimeler: İç Denetim, Finansal

ABSTRACT

In this study, the Punjab National Bank (PNB) fraud case was analyzed from a forensic accounting perspective to examine the role of internal audit in preventing financial fraud. The qualitative case analysis method was used to evaluate relevant literature and sources through descriptive content analysis. The analysis resulted in recommendations such as strengthening technological and internal control systems, structuring internal audit with forensic accounting techniques, and implementing employee rotation. The PNB scandal highlighted the importance of internal audit supported by forensic accounting, especially in cases of significant financial crimes originating from top management. It has been emphasized that the legal recognition, education, and integration of forensic accounting into corporate governance in countries like Turkey will enhance financial reliability. Specifically, SWIFT–CBS integration should be made mandatory in all banks, internal audit units should be established, and mandatory staff rotation should be implemented for sensitive positions.

ÖZET

Çalışmada, Punjab National Bank (PNB) dolandırıcılık vakası adli muhasebe perspektifinden analiz edilerek iç denetimin finansal dolandırıcılığı önlemedeki rolü incelenmiştir. Nitel vaka analizi yöntemi kullanılarak ilgili literatür ve kaynaklar betimsel içerik analiziyle değerlendirilmiştir. Analiz sonucunda, teknolojik ve iç kontrol sistemlerinin güçlendirilmesi, iç denetimin adli muhasebe teknikleriyle yapılandırılması ve çalışan rotasyonu gibi öneriler geliştirilmiştir. PNB skandalı, özellikle üst düzey yönetim kaynaklı büyük finansal suçlarda, adli

APA STİLİ KAYNAK KULLANIMI: Kızıltan Işık, B. (2025). THE ROLE OF FORENSIC ACCOUNTING SUPPORTED INTERNAL AUDIT IN THE PREVENTION AND DETECTION OF FINANCIAL FRAUDS: A CASE STUDY OF PUNJAB NATIONAL BANK (PNB), *Muhasebe ve Finans İncelemeleri Dergisi*, 8(2), 361 – 385. DOI: 10.32951/mufider.1758340

Dolandırıcılık, Adli Muhasebe,
PNB Skandalı, Kurumsal
Yönetişim
Jel Kodları: M41,M42, G21,
K42

muhasabeyle desteklenmiş iç denetimin önemini ortaya koymuştur. Türkiye gibi ülkelerde adli muhasebenin yasal olarak tanımlanması, eğitimle desteklenmesi ve kurumsal yönetime entegre edilmesinin finansal güvenilirliği artıracakı vurgulanmıştır. Somut olarak, SWIFT–CBS entegrasyonunun tüm bankalarda zorunlu hale getirilmesi, iç adli denetim birimlerinin kurulması, hassas pozisyonlarda zorunlu personel rotasyonu uygulanması önerilmektedir.

1. INTRODUCTION

Financial crimes continue to increase globally due to the ongoing geopolitical tensions worldwide and the challenges of mixed and flexible working models in the wake of the COVID-19 pandemic and increasingly diverse and complex transactions (Kroll, 2023). Scandals and irregularities in the financial sector threaten economic stability on a global scale and lead to a loss of confidence in the markets. In recent years, increasing fraud cases, especially in the banking sector, have become an important problem that undermines the reliability of the financial system. The 2018 Punjab National Bank (PNB) fraud case was one of the biggest scandals in Indian banking history and attracted global attention. The fraudulent transaction of approximately 14,000 crore INR (2.105 billion USD, 2018 1 USD = 66.5 INR) went undetected for 7 to 8 years due to failures in the bank's internal mechanisms (Gangwani, 2020). It is considered particularly instructive because it combines the magnitude of contingent liabilities, a systemic breakdown in SWIFT–CBS integration, and subsequent regulatory interventions that reshaped sectoral practices, thus offering valuable insights into how forensic accounting can be integrated with internal audit.

Considering the erosion of trust and economic impact of the PNB scandal on the banking system, this study aims to analyze the case from the internal audit perspective, supported by forensic accounting techniques. The scandal's circumstances, internal control and internal audit gaps, and corporate governance deficiencies that enabled the misconduct are examined. It provides a framework for why the PNB scandal was chosen and why it is important, and emphasizes the importance of forensic accounting in detecting, preventing, and uncovering financial fraud. The study concludes with recommendations for integrating forensic accounting practices into internal audit and corporate structures to prevent similar large-scale frauds and strengthen risk management mechanisms in the banking sector. In this respect, the aim is to contribute to the literature at the theoretical and practical levels through the findings obtained in the context of the PNB scandal.

2. CONCEPTUAL FRAMEWORK

2.1 Definition of Forensic Accounting

Today, the deepening of global economic and financial crises caused by fraud and financial crimes, increased competition, and pressure to increase profitability has significantly increased the need for forensic accounting (Utama & Basuki, 2022). The inadequacy of traditional accounting methods in responding to these crises has led to more comprehensive analyses that go beyond compliance requirements to detect fraud and deception and provide lawful and concrete evidence in court. In particular, innovative and flexible approaches must be developed to combat internet-based fraud. Although businesses have been trying to develop innovative strategies to prevent fraud for many years, the rapid change in technological developments and the adaptation of criminals to this change limit the effectiveness of existing prevention methods. This makes the monitoring and control of financial crime more complex.

United States of America (USA) based forensic accounting is a nexus connecting the accounting system to the legal system, bridging the accounting and legal systems. Forensic accounting can be defined as accounting used before judicial authorities, including the application of accounting theory, principles, and calculations to concrete or theoretical issues in legal proceedings (Narayanan, 2020). Forensic accounting has emerged as a critical tool in detecting and addressing fraudulent activities, combining accounting expertise with investigative techniques. In other words, forensic accounting, also called investigative accounting, is a discipline

that combines accounting and forensic sciences. At the same time, forensic accounting plays a crucial role in protecting corporate integrity (Pratama et al., 2024).

Forensic accounting is the integration of accounting, auditing, and investigative skills. The word forensic means “Forensic informatics service, a cyber security service that reports audio, image, video, and message content data used in electronic media to be presented as evidence in courts”. Forensic accountants aim to ensure that their analyses and reports are accepted as evidence in court processes (Okoye & Gbegi, 2013).

In developed countries, forensic accounting is widely practiced by professional accountants and private businesses. In the US, it is widely accepted and included in most university curricula (Huber, 2012). In the United Kingdom, it is reported that the acceptance of forensic accounting as a profession is increasing, and the principles in this field are integrated into the education system (Hegazy et al., 2017).

2.2. Activity Areas and Techniques of Forensic Accountants

Forensic accounting is a discipline that is rapidly gaining importance in emerging economies. The lack of professional accountants with sufficient skills and technical knowledge in this field is one of the main challenges that hinder the effective implementation of forensic accounting (Ehioghiren & Atu, 2016; Akinbowale et al., 2023). Forensic accounting is an integral part of the accounting profession, which undertakes the task of uncovering internal and external fraud cases related to the activities of businesses (Modugu & Anyaduba, 2013). In other words, forensic accounting consists of a set of traditional techniques that form the basis for preventing and detecting fraud and irregularities (Clavería & Carrasco, 2023).

Kent et al. (2006) proposed a framework covering information gathering, analysis, and reporting processes so businesses can develop forensic accounting capabilities that are appropriate to their needs. Alsheikh et al. (2023) emphasized the importance of imparting forensic accounting skills and knowledge sets to higher education students regarding fraud detection and prevention. The primary focus of forensic accounting is to detect and examine fraudulent activities and to understand the true intentions behind these activities. In this context, forensic accounting uncovers cheating and fraudulent activities using document review, interviews, and analysis of electronic documents (Karwai, 2004; Clayton, 2006). In addition, forensic accounting involves not only analyzing historical financial data but also structuring this information to contribute to the resolution of legal inconsistencies and disputes. Forensic accountants examine statements of financial position, income statements, and cash flow statements to detect anomalies, inconsistencies, or irregular patterns that may indicate financial mismanagement or fraudulent activities (Matar, 2023).

It plays a critical role in detecting financial crimes and supporting legal proceedings against them by providing in-depth analysis of financial records and transactions. Joshi (2003) states that forensic accounting provides a court-appropriate accounting analysis that forms the basis of argument and debate in dispute resolution. Forensic accountants at the intersection of legal and financial processes analyze historical financial data in detail and present their findings in a legal context. Forensic accounting, an interdisciplinary field combining the primary methods used in fraud detection, is structured around four main functions: accounting, auditing, fraud investigation, and litigation support. Forensic accounting processes include the examination of financial evidence, fraud analysis, the development of high-tech applications, and the presentation of these findings in reports. In addition, forensic accountants can significantly assist forensic authorities by explaining complex financial issues in a much simpler way (Ramaswamy, 2005).

Forensic accounting relies heavily on digital technology. In the literature, digital forensic accounting practices are referred to as cyber forensic accounting, which focuses on investigating and preventing online financial fraud activities such as hacking, phishing, and theft, and ultimately on fraud risk assessment and management (Pham & Vu, 2024; Akinbowale et al., 2023). Emerging technologies are reshaping the field of

forensic accounting and fraud detection. From artificial intelligence and machine learning to the use of blockchain and advanced data analytics, these technologies require forensic accountants to keep abreast of these technological developments to identify and prevent financial fraud (Odeyemi et al., 2024).

Forensic accounting practitioners aim to uncover errors, ambiguities, and poorly recorded transactions before they become fraudulent. The main functions of forensic accounting include detecting fraud, identifying fraudulent transactions, and detecting forgery activities. Investigation and Analysis: detailed examination and analysis of financial records. Legal Reporting: preparing detailed and reliable reports to be presented in court. Litigation Support: Providing expert opinion and evidence support in legal proceedings. Forensic accounting is applied not only in fraud investigations, but also in a wide range of legal and financial disputes such as business valuations, divorce proceedings, asset tracing, compensation claims in work and traffic accidents with injuries, claims for consequential damages and losses, partnership and corporate disputes.

Forensic accounting practitioners seek to obtain information from suspects by analyzing cheating and fraud schemes using techniques such as structured interviews, document reviews, and data mining. Interviews are conducted to obtain confessions or preliminary information from suspects to make them feel safe. This is one of the solid foundations of fraud detection and prevention strategies (Clayton, 2006; Golden & Dyer, 2006). Forensic accountants' skills include using effective communication and investigative techniques to obtain relevant information and uncover details that may not be apparent from financial documents (Odeyemi et al., 2024).

2.3.The Role of Forensic Accounting in Detecting Fraud

Fraud and fraudulent activities cause deep erosion of the reputation of organizations by negatively affecting public trust and investor confidence (Odelabu, 2014). Discipline provides an important support mechanism for detecting and punishing fraud (Clayton, 2006). In particular, the complexity of accounting records facilitates cheating and fraudulent activities, paves the way for increased financial crimes within organizations, and causes low conviction rates in cases related to financial crimes due to inadequacies in legal processes. Forensic accounting is a discipline that provides full support to the effective investigation and prosecution of criminals by analyzing financial data and values, and using accounting information for legal purposes (Rezaee et al., 2016).

According to ACFE's (2020) report, business fraud falls into three main categories: Asset Misappropriation occurs when an employee misuses or steals an organization's resources. Such activities include cash theft, fraudulent invoicing schemes, or overstated expense reports, and also refer to the employee's direct or indirect personal gain by violating fundamental principles in business processes, contracts, or procurement activities. Corruption is often associated with bribery and conflicts of interest. Financial statement fraud occurs when employees intentionally present false, misleading, or incomplete information in an entity's financial reports. This includes fictitious revenues, billing for goods or services not provided, double-billing, manipulating coding to increase payments, misstating records, or overstating or understating final reports.

Forensic accounting's primary role is to serve as an effective tool in detecting and monitoring financial crimes. This discipline is critical in analyzing financial data, uncovering fraudulent activities, and proving crimes. In addition, the discipline not only identifies existing fraudulent activities but also enables the development of a strategic approach to reducing high crime rates (Hibshi et al., 2011; Grubor et al., 2013). Accordingly, it is critical to identify appropriate forensic accounting techniques and integrate them into an effective economic crime-fighting policy.

Financial crimes are often committed and covered up through technological infrastructures like the Internet. The Internet has transformed both business and social life while at the same time providing new opportunities for fraudulent activities. While organizations improve their operational processes by investing in Internet technologies, criminals use them to promote financial crimes (Izedonmi & Okoeguale, 2012; Arachchilage & Love, 2014).

Forensic accountants can identify potential fraudulent acts by analyzing financial records and integrating these findings into legal processes. The successful implementation of forensic accounting practices prevents fraud and provides a robust and sustainable solution that prevents the spread of such crimes among financial institutions. According to Al-Qadi and Al-Dmour (2022), one of the main objectives of forensic accounting is to restore confidence in the reliability and transparency of financial reports. With a similar approach, Owojori and Asaolu (2009) stated that forensic accounting requires the application of accounting concepts and techniques and emphasized the importance of organizing the reports prepared under the principles of transparency and accountability and accepting them as evidence in court.

Forensic accounting is critical in detecting financial crimes and supporting legal proceedings against them through in-depth financial records and transaction analysis. Joshi (2003) states that forensic accounting provides a court-appropriate accounting analysis that forms the basis for the discussion and settlement processes in dispute resolution. In this context, forensic accountants, being at the intersection of legal and financial processes, analyze historical financial data in detail and present their findings in a legal context.

Forensic accounting plays a key role in aligning the internal control system with operational control systems that ensure the efficiency and effectiveness of operations. This integration enables not only the detection of fraud and deceit but also the enhancement of risk management capacities in organizations. Forensic accounting involves analyzing, interpreting, and reporting unresolved legal and financial issues within the rules of evidence (Zysman, 2004; Gbegi & Adebisi, 2014). The integration of Vutumul's Forensic Accounting Theory with the internal control system contributes positively to issues such as creating an environment of trust, increasing the frequency of digital fraud investigations, supporting sustainable management systems, strengthening the applicability of ethical philosophy, improving the reporting quality obtained from accounting records and improving the frequency of system review (Vutumul et al., 2025).

Odelabu (2014) proved that using forensic accounting techniques significantly impacts financial change and performance in commercial banks in Nigeria. Similarly, in a study conducted in Bangladesh, Islam et al. (2011) concluded that forensic accounting plays a strategic role as a fraud detection and investigation tool. Forensic auditing is an important tool for effective and efficient control of financial fraud, which is equally important for financial institutions and commercial enterprises (Adesina et al., 2020). Fraud is a threat that seriously challenges businesses' internal control mechanisms and corporate governance systems. These processes should aim not only to reduce fraud but also to increase the risk management capacity of businesses. The practical application of forensic accounting not only contributes to the resolution of fraud cases but also supports the maintenance of investor confidence by protecting the business's reputation. Therefore, integrating forensic accounting with organizational control systems and developing professional standards of practice offers a sustainable strategy in the fight against crime.

3. RELATED LITERATURE REVIEW

Narang (2019) stated that banks must maintain their trust and reputation in the eyes of the public by having their employees take immediate action when they encounter suspicious situations. He pointed out that senior bank officials or auditors are definitely behind major frauds and emphasized the importance of forensic accounting techniques in his study in terms of detecting financial inconsistencies and fraud.

Kukreja and Gupa (2019) emphasized that internal and external auditors did not detect fraudulent transactions in the PNB scandal. The study states that the emergence of this situation is based on five main reasons. First, rules and legal regulations were not sufficiently followed. Second, the functioning of risk management systems was not reviewed. Third, credit, market, and operational risks were not adequately assessed. Fourth, bank auditors and regulators lacked the necessary knowledge and skills. Finally, shortcomings in the government's policy-making process lead to systemic failures.

Alfify and Faiyyaz (2020) analyzed financial crimes such as theft, embezzlement, and credit card fraud, the main commercial frauds, and stated that bank fraud cases have increased by more than 93% in the last twelve years. This number will continue to increase, and the old fraud prevention and control techniques are ineffective in combating fraud. Therefore, his work clearly emphasizes that forensic accounting techniques will be necessary to prevent and control fraud in the future.

Singh et al. (2020) examined the effects of fraud on the banking sector and the stock market based on the PNB scandal. The study's results emphasize that strict supervision of all financial transactions, training bank employees on fraud, increasing the effectiveness of internal control and audit mechanisms, and adopting rigorous policies in the fundraising processes of non-bank businesses are critical in preventing fraud.

In this study, Mishra et al. (2020) drew attention to the role of forensic accounting in credit control by analyzing the data collected through survey sampling. The survey of 160 bank employees revealed that empirical evidence shows that forensic accounting has an important role in reducing non-performing loan assets (NPAs).

In his study, Gangwani (2020) stated that forensic accounting techniques should be applied to prevent and detect fraud after various fraudulent transactions in banks such as Punjab National Bank, Maharashtra Cooperative Bank, Yes Bank, ICICI Bank, and Infrastructure. The study, which utilized both primary and secondary sources, stated that the proactive approach of forensic accounting can overcome the auditors' inadequacies in detecting fraud in the banking sector.

Alzoubi (2023) examined internal auditors working in service organizations in Jordan and investigated the impact of forensic accounting and corporate governance on internal control systems. The study results showed that corporate governance and forensic accounting directly and positively impact internal control effectiveness. Forensic accounting and corporate governance have a critical role in ensuring the effectiveness of these systems and establishing a robust internal control system.

In their study, Aashima et al. (2023) stated that forensic accounting can create a new paradigm in uncovering banking fraud in India. They examined the role of forensic accounting practitioners in utilizing big data to detect fraud. The study concluded that forensic accounting practitioners must be experts in many disciplines, including auditing, accounting, statistics, information technology, legislation, and people skills. It was also stated that forensic accounting is a method that can be applied to uncover bank fraud in India, and that forensic accounting should not only be used as a post-mortem approach but should also be actively used to detect fraud.

Baylan and Shas (2024) stated in their study that forensic accountants offered expertise in uncovering financial irregularities for banks after the adversities experienced in the Indian banking sector, and that the amount of financial irregularities in the banking sector decreased in 2023-2024 compared to 2019-2020 after the appointment of forensic accountants in the Central Bank of India became mandatory. It is also underlined in their study that forensic accounting has a protective function to prevent misconduct.

According to Jamal and Singh's (2025) survey of seventy respondents, including forensic experts and lawyers, eighty percent indicated that banking fraud cases continue to increase, even though the measures the government and regulatory authorities put in place appear to be effective. The study emphasized that integrating forensic accounting practices into banks' operations could provide more effective protection of the banking sector against fraud.

4. METHOD

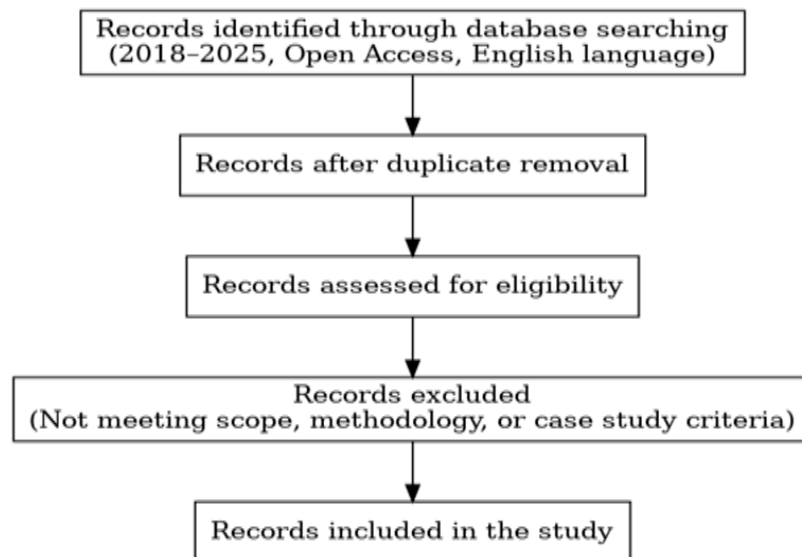
A literature review was conducted on 12 May 2025, exclusively in the Web of Science database, in order to identify records appropriate for the study's objectives. The Boolean operators "forensic accounting" OR "forensic audit" AND "Punjab National Bank" OR 'PNB' OR "Nirav Modi" were utilised in the searches.

The selection criteria were determined based on inclusion and exclusion conditions. Consequently, the inclusion criteria were as follows: publications published between 2018 and 2025, open access, in English, and focusing on the prevention and detection of financial fraud, forensic accounting-supported internal auditing, or case studies. Exclusion criteria include studies published outside the specified time frame, in languages other than English, and those deemed to be outside the scope of the study.

Following a comprehensive review of the total records obtained during the extraction and screening process, it was determined that specific titles were of particular significance. These include studies focusing on the prevention and detection of financial fraud (n=549), research examining the role of forensic accounting-supported internal auditing (n=109), duplicate records (n=100), and publications addressing the role of forensic accounting-supported internal auditing through case studies (n=98). This distribution reveals the areas in which the relevant literature is concentrated and the topics that are most frequently repeated in the studies.

It was determined that duplicate records should be identified and subsequently combined under a single heading. Consequently, the evaluation was based exclusively on unique records. The subsequent records were methodically reviewed in accordance with the established inclusion and exclusion criteria. During the course of this process, factors such as subject scope, methodological suitability, and case study content were given due consideration. In the final stage, studies that met the specified criteria were selected. The selection process was visualised using the PRISMA flow diagram in accordance with the principles of transparency and reproducibility.

Figure 1. Prisma Flow Diagram



Source: Created by the author.

The data obtained were classified using a descriptive approach and analyzed within the internal audit and forensic accounting concepts framework. This multi-sourcing enabled the development of a comprehensive and holistic perspective on the case. Throughout the research, the data were analyzed using descriptive content analysis, and the findings were interpreted from the perspectives of forensic accounting, internal audit, and corporate governance to examine the causes and consequences of the PNB scandal in depth.

The PNB scandal was chosen as a case study because it has an important place in the financial fraud literature, forensic accounting techniques were directly applied in the resolution process, and contributed to the institutionalization of forensic accounting practices and internal audit in the banking and finance sector after the incident. The mentioned scandal reveals the structural weaknesses of the banking sector within the financial system, and it constitutes a remarkable example in understanding the dynamics of similar fraud cases and developing practical implications for forensic accounting techniques.

Adopting case analysis as a methodology enabled the PNB scandal to be examined from a comprehensive and holistic perspective within its context, thus paving the way for developing generalizable principles and policy recommendations based on a single case study. In this context, while analyzing the scandal, gaps in the accounting and auditing fields, internal audit and corporate governance deficiencies, and forensic accounting application techniques in the literature were related; thus, an integrated link was established between the study's theoretical framework and the case analysis findings.

This study is mainly literature-based and relies on indirect data. Because the review focuses only on the PNB scandal, it is limited in its ability to draw direct conclusions about similar fraud cases or different sectors. Since there is no original field data or primary empirical observations, causal relationships are discussed with theoretical consistency but cannot be experimentally verified. As a result, the generalizability of the findings is limited to the context of Indian public banking and the period covered by the study.

Regarding data sources, the databases and publicly available primary documents used may not include all relevant material. Access to specific audit and investigation reports, as well as court documents, was restricted. Banking secrecy, commercial confidentiality, and ongoing legal cases also limited the use of detailed primary documents. These factors increased the risk of reporting bias and verification challenges; relevant findings were cross-checked with official press releases and secondary sources whenever possible. Additionally, since the study primarily relies on Turkish and English sources, documents and news reports in Hindi and regional languages may be underrepresented. Due to the lack of quantitative data and statistical analysis, the practical success of the recommendations could not be measured or empirically validated.

As a limitation, the impact assessment was conducted only within the banking sector. Since regulatory frameworks, organizational culture, and incentive structures differ significantly across countries and sectors, the findings here should not be automatically applied to other sectors and countries. Future research should aim to broaden the scope through multi-case and multi-sector comparative studies, secure access to verified primary records, employ multilingual screening strategies, improve methodological transparency with pre-registered protocols, and supplement the process monitoring approach with quantitative tests. Moreover, strengthening the triad with anonymized transaction data, expert interviews, and regulatory timelines—while adhering to ethical and legal standards—will improve the robustness of the results.

5. THE PNB SCANDAL: CASE STUDY

5.1. PNB's History and Organizational Structure

Punjab National Bank (PNB), one of India's oldest and largest public sector banks, was established on May 19, 1894, in Lahore during the British India period, in what is now Pakistan. PNB was founded with Indian capital, led by local industrialists and politicians, and from the beginning played an important role in the national economy as part of the “*Swadeshi*” movement to promote the use of domestic goods (Mehrotra & Kopula, 2024). In 1947, during India's independence and subsequent partition, PNB had to relocate its head office from Lahore to Indian territory. However, in the following years, with the Indian government's moves to nationalize the banking sector, PNB reinforced its identity as a public bank. The government owns 65.01% of its equity as of March 31, 2017 (PNB, 2017). According to the Top Banker 2017 report of Dun and Bradstreet, the PNB ranks third among all Indian banks and second among the Indian public sector banks in terms of business size, which exceeds USD 160 billion as of March 31, 2017 (Dun & Bradstreet, 2017).

Today, PNB is one of the core businesses in India's financial and banking sector, with an extensive branch network and customer base. As of 2021, the bank has over 11,000 branches nationwide, offering various

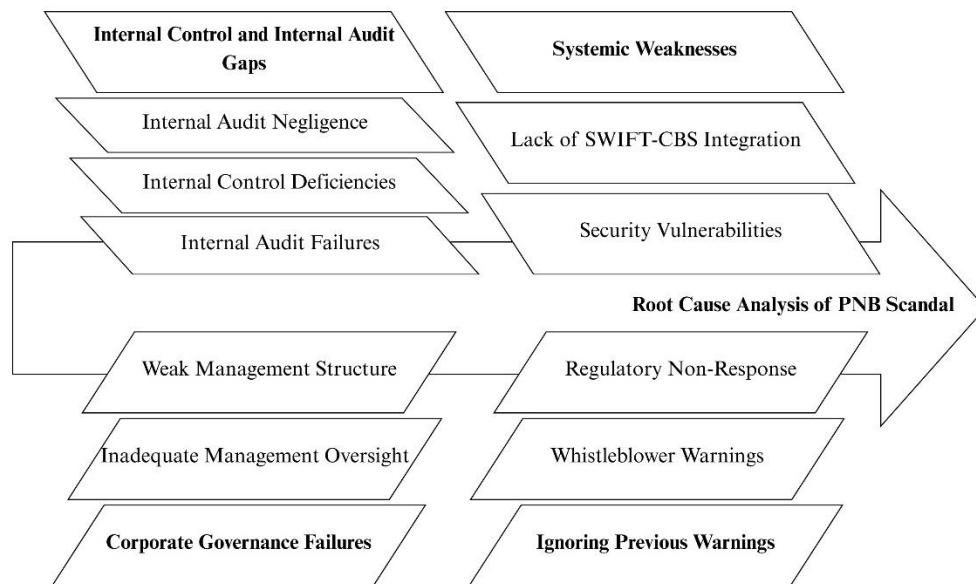
services from retail banking to SME lending. In addition to its traditional commercial banking activities, PNB is active in trade finance, foreign exchange operations, and international banking through its subsidiaries in other countries. This extensive range of activities has given PNB a key position in the Indian economy. By 2018, PNB was the country's second-largest public sector bank in terms of asset size and business volume, serving approximately 180 million customers. PNB is recognized as a bank whose corporate mission is to increase financial inclusion nationwide and provide banking services to all segments (Singh et al., 2020).

5.2. Development of the Scandal and Detection Period

The main topics identified based on the root cause analysis are presented in a holistic perspective in the figure below, which categorizes the main problem areas that emerged as a result of the analysis period and visually expresses the interrelationships of these topics.

The main topics identified based on root cause analysis are presented below from a holistic perspective. This diagram classifies the main problem areas that emerged as a result of the analysis process and visually illustrates the relationships between these topics.

Figure 2. Root Cause Analysis Of The Pnb Scandal



Source: Created by the author.

The PNB fraud scandal, which emerged in early 2018, is related to the fact that some employees at the bank's Brady House branch in Mumbai issued forged Letters of Undertaking (LoU) in favor of world-renowned jewelry dealer Nirav Modi and his associates. According to a statement issued by the Ministry of Finance (MOF), PNB had issued as many as 41,178 LoUs since 2011 (Ministry of Corporate Affairs, 2018). Modi and his associates used these documents as collateral to obtain large loans from banks in other countries. They obtained loans from banks of approximately 11,000 crore INR (1.65 billion USD, 2018 rate) between 2011 and 2017 (Sravanthi & Bhargavi, 2023). These letters of guarantee were forwarded to Hong Kong-based lenders through PNB's correspondent bank accounts abroad. When Nirav Modi's companies defaulted on their loans, foreign banks demanded payment from PNB as guarantors (Narang, 2019; Srivastava & Mishra, 2024). In early 2018, PNB headquarters became aware of the situation after a request revealed that the letters of guarantee in question did not exist in the bank's records and were unapproved, fraudulent transactions (Singh et al., 2020). On January 31, 2018, the Central Bureau of Investigation (CBI) registered FIR No. RCBD1/2018/E/0003 in

New Delhi, creating the first official criminal record related to the issuance of fake LoUs linked to Nirav Modi and Mehul Choksi (CBI, 2018). PNB management immediately filed a criminal complaint with the Central Bureau of Investigation (CBI), which exposed the scandal (Gayathri & Mangaiyarkarasi, 2018). PNB fraudulently paid 6,500 crore INR (977 million USD, 2018 rate) to seven credit institutions for letters of undertaking and foreign letters of credit issued in its name (Times of India, 2018). In addition to these payments, PNB plans to pay 11,400 crore INR (1.71 billion USD, 2018 rate) worth of bank letters of guarantee to State Bank of India, Allahabad Bank, and Union Bank in installments (Singh et al., 2020).

The bank's internal control system did not promptly detect fraudulent transactions in the PNB scandal. This situation shows that the main objectives of internal control systems, which are to carry out activities effectively and efficiently, ensure the reliability of financial reporting, ensure compliance with legislation, and protect assets, were not fulfilled.

Firstly, the objective of conducting operations effectively and efficiently was hampered. The failure to regularly review the bank's risk management systems led to serious weaknesses in operational periods. Secondly, the reliability of financial reporting systems was not ensured. The lack of adequate analysis of credit, market, and operational risks prevented the financial statements from reflecting the truth. Thirdly, the bank failed to adequately fulfill its obligation to comply with applicable regulations, particularly in its negligence in following the legal framework. Fourth, safeguarding the bank's assets failed because the internal audit and regulatory departments lacked sufficient expertise, knowledge, and skills. Fifth, the failure to implement an effective and adequate internal audit process prevented the early detection of irregularities and thus contributed to the late emergence of the scandal (Kukreja & Gupta, 2019).

The revelation of the PNB scandal had a shocking impact on the Indian financial and banking sector. Immediately after the scandal, legal and administrative measures were swiftly implemented. PNB management initiated the investigation by filing a formal complaint with the CBI on January 29, 2018. Subsequently, the Indian Police Force and the Enforcement Directorate (ED) conducted large-scale operations against Nirav Modi and his associates. In February 2018, Nirav Modi's offices and homes in Mumbai were searched. The ED seized diamonds, gold, and jewelry worth approximately 5,700 crore INR (857 million USD, 2018 rate). In the same period, more than 100 shell companies allegedly used by Nirav Modi and his partner/relative Mehul Choksi for illegal money transfers were identified and included in the scope of the investigation (Reuters, 2018). It was revealed that the proceeds were laundered through fraudulent fund movements through these shell companies.

In February 2018, branch employees Gokulnath Shetty and Manoj Kharat were arrested for their direct involvement in the scandal. Subsequently, more than 20 PNB employees were detained or arrested, including Rajesh Jindal, PNB's Mumbai regional manager and deputy general manager, and internal auditors who audited the Brady House branch at different times (Reuters, 2018). These arrests demonstrate that managers who were negligent and careless are also being held accountable, in addition to the criminal liability of bank staff implicated in the crimes.

PNB recognized losses from fraudulent transactions in its financial statements and announced the highest quarterly loss in Indian banking history at the end of March 2018. In the first quarter of the 2018 financial year, PNB's net loss amounted to 13,417 crore INR (2.02 billion USD, 2018 rate). This was the most considerable single-quarter loss by any Indian bank to date. Naturally, investor confidence took a serious hit, and PNB shares plummeted on the stock market. In February 2019, a year after the scandal broke, PNB's market capitalization was 27% lower than a year earlier (Srivastava & Mishra, 2024). The bank's value eroded by close to a quarter. Although PNB took steps to return to profitability in subsequent quarters, it posted a modest profit for the first time since the Nirav Modi case by the end of 2018 (Narang, 2019). PNB needed capital support from the Indian government to compensate for its financial losses. Indeed, as part of its program to capitalize state-owned banks, the government provided PNB with additional capital to maintain its solvency.

In the aftermath of the scandal, the Central Bank of India (CBI) issued a circular in February 2018, giving all banks until April 30, 2018, to integrate their SWIFT systems with their core banking systems, and mandating stricter internal controls against risks that may arise in the use of SWIFT (Reuters, 2018). This is an

urgent measure to close the system gap across the sector, which was the root cause of the fraud at PNB. The RBI also decided in mid-March 2018 to completely ban the export of letters of guarantee and similar commitment letters used by banks for overseas commercial loans. This decision was a direct consequence of the Nirav Modi scandal and aimed to prevent the abuse of similar mechanisms in the banking system (Times of India, 2018; NDTV, 2018). In addition, in coordination with the Indian Banks' Association and the Ministry of Finance, special audits have been launched to scrutinize large loans and letters of guarantee in banks.

After the scandal, PNB management implemented measures to repair the bank's reputation and prevent similar incidents. Management and control processes within the bank were reviewed, risk management units were strengthened, and operational changes were introduced, including staff rotation. In particular, the responsibilities of staff in the international operations unit were redefined, and the principle of dual control was introduced. PNB also commissioned an external audit and advisory firm, BDO India, to conduct a comprehensive forensic review of the accounts of groups of companies affiliated with Nirav Modi (Reuters, 2018). As a result of the forensic accounting investigations, a detailed analysis of the ways and means by which the PNB scandal was carried out was conducted, and all elements and financial transactions of the fraud mechanism were identified.

5.2.1. Internal Control and Internal Audit Gaps

One of the factors that contributed to the PNB scandal was gaps in the bank's internal control and internal audit mechanisms. In particular, the branch staff involved in the fraud were found to have exploited a vulnerability in the bank's electronic systems. The lack of integration between PNB's SWIFT messaging system for international money transfers and the bank's Core Banking System (CBS) allowed transactions to be carried out without being reflected in the bank's accounting records (Gayathri & Mangaiyarkarasi, 2018). Gokulnath Shetty, the deputy branch manager, and Manoj Kharat, the teller, who were among the officials involved in the fraud, sent fake letters of guarantee messages to the counterpart banks through SWIFT for years and issued letters of guarantee in favor of Nirav Modi's companies, enabling them to obtain loans from foreign banks without providing any collateral and without appearing in the bank system. These guarantee messages, sent over SWIFT, were not registered in PNB's GIS system nor detected in daily bank reconciliations or the audit process. Due to a critical system control deficiency, bank officials were not aware of the execution of transactions other than large-volume transactions. An analysis report prepared for PNB clearly states this situation. At the related branch, this situation has been detected as *“The SWIFT message system operated bypassing the core banking system; the lack of proper internal coordination, control, and monitoring processes led to such an operational risk”* (Singh et al., 2020).

Another important issue is the inadequacies identified in PNB's internal audit mechanism. Over many years, the bank's internal auditors and inspection teams failed to uncover irregular transactions at the Brady House branch. An effective internal audit system could easily and timely detect the provision of ever-increasing amounts of external loan guarantees to a particular group of related clients. Internal audit processes failed to detect these transactions due to a lack of integration between the bank's SWIFT system and the central banking system, the CBS. In addition, the scandal also revealed that audit protocols were not adequate to catch such misconduct. In the investigations carried out after the scandal broke out, the CBI arrested B. Mishra, the internal auditor of the Brady House branch between 2011 and 2015, and M.K. Sharma, the post-2015 auditor, for negligence of duty in March 2018 due to the suspicion of negligence or possible collusion of some officials responsible for the internal audit of the branch during the period in question (Reuters, 2018). This is one of the most important indicators that the bank's internal control system not only functions at the operational level but also at the audit level. Following the NB scandal, the Reserve Bank of India (RBI) issued a circular on February 20, 2018, requiring all banks to integrate their SWIFT systems with the Core Banking System (CBS) by April 30, 2018. This regulation aimed to address fundamental control gaps, such as the execution of fraudulent LoU transactions through SWIFT without appearing in the bank's accounting records. Additionally, the circular

requires “dual authorization” and “real-time monitoring mechanisms” for SWIFT transactions to reduce operational risk. This intervention demonstrates that the PNB case was not merely a bank-specific issue but a turning point in strengthening internal control and audit standards across the entire sector (Reserve Bank of India Circular, 2018).

Another striking point about the PNB scandal is that earlier warnings were not taken into account by the institution. In 2015, a financial analyst and “whistleblower” named Hari Prasad disclosed that he had detected abnormal financial movements in Gitanjali Gems, a company in which Nirav Modi was a partner, and that he reported this to various relevant authorities in India (including the CBI, Finance Ministry officials, and the Prime Minister's office). However, Prasad claims these reports went unanswered at the time and the necessary investigations were not carried out (Shekhar, 2020; Singh et al., 2020). In this context, the RBI's “Master Directive on Other Remittance Facilities” (2016, as amended in 2018) is particularly important. This regulation not only sets an annual limit of USD 250,000 under the Liberalized Remittance Scheme but also tightens KYC/AML obligations for authorized banks. The gaps exposed in the PNB scandal—particularly the misuse of SWIFT messages outside the Core Banking System—clearly demonstrate why such regulatory guidelines are critical in preventing systemic failures and aligning internal audit mechanisms with the RBI's compliance framework (The Reserve Bank of India, 2016). The lack of adequate internal whistleblowing mechanisms can be considered a managerial failure that can be added to the internal control gaps in the PNB. When all these internal control and internal audit gaps are considered together, it can be said that the environment that made the scandal possible was primarily caused by deficiencies and failures in internal control systems and negligence in internal audit processes (Mehrotra & Kopula, 2024).

5.2.2. Corporate Governance Failures

Another factor that led to the growth of the PNB scandal was the inadequacies and weaknesses in the bank's corporate governance structure. Corporate governance is a broad concept that encompasses an organization's governance bodies, control mechanisms, and cultural values. In the PNB scandal, the fact that two low-level bank employees could deceive the bank for an extended period by cooperating with outside clients shows that there were failures at various levels, starting from the bank's top management to the general audit and supervision functions.

The lack of management oversight in the PNB scandal is striking. It is a significant problem that senior management or the board of directors failed to recognize the accumulation of risk within the bank, which reached a value of hundreds of millions of dollars due to the issuance of guarantees. One of the basic principles of effective corporate governance is that the board of directors closely monitors risk management and internal control processes (Khalique & Srivastava, 2024). However, due to its status as a state-owned bank, this process did not work in PNB, and the bank's senior management was weak in controlling the risks related to branch operations. In his post-scandal remarks, India's Finance Minister Arun Jaitley harshly criticized the weaknesses of high-level oversight in banks regarding the PNB scandal. Jaitley emphasized that *“the fact that the fraud perpetrated by a few corrupt employees was able to grow to such a scale was due to institutional failures in supervision and control mechanisms...”* and held the bank management responsible (Reuters, 2018). This finding indicates that the PNB board and supervisory mechanisms failed to prevent operational risks.

Another corporate governance problem is related to business ethics and corporate culture. In the PNB scandal, the involvement of bank employees in misconduct indicates that the organization's ethical values and employee awareness of honesty are not adequately established. In cases where corporate governance and ethical culture are weak, employees may be more willing to take advantage of audit gaps. Successful corporate governance practices should include preventive measures such as periodic reassignment of key employees, segregation of duties, or requiring the joint approval of two people for critical transactions. In PNB's Brady House branch, the fact that G. Shetty, a staff member in the same position for many years, has been continuously handling letter of guarantee transactions as the assistant branch manager without any rotation or control indicates a lack of corporate governance. This proves that the dual control principle was not implemented or operated at PNB. Indeed, after the revelation of the incident, the Central Bank of India (RBI)

proposed regulations recommending that banks implement staff rotation in critical positions and similar controls (Shekhar, 2020).

Another failure in corporate governance is the failure of transparency and accountability principles. These fraudulent transactions, which could not be detected in internal periods, were not reflected in PNB's financial reports. Therefore, investors and regulators were not aware of the situation for a long time. The actual loss remained hidden in the financial statements until the fraudulent transactions were uncovered. This situation shows a management failure and weakness in the bank's financial reporting processes. According to corporate governance principles, significant risks and unusual liabilities should be disclosed in financial reports with appropriate disclosures. In the PNB scandal, the bank had to pay vast amounts of foreign loans as guarantor, the existence of which was previously unknown. The sharp decline in PNB's market capitalization and stakeholder confidence when this was revealed was a consequence of the violation of the transparency principle.

When the PNB scandal is evaluated as a whole, the corporate governance failures that paved the way for the incident can be summarized as follows:

- Lack of effective oversight at senior management and board level, weak risk culture,
- Communication gaps between internal control units and management,
- Ethical standards are not sufficiently established, and accountability mechanisms are not functioning.

Inadequacies in corporate governance led to the growth of fraud attempts within the bank without the necessary deterrent mechanisms (Saxena et al., 2024). The PNB scandal also demonstrated, through bitter experience, how vital it is to act according to corporate governance principles and good governance practices in banking.

5.2.3. The Role of Forensic Accounting Practices in the PNB Scandal

After the PNB scandal broke, forensic accounting practices were put in place and played a critical role in the damage assessment and investigation processes. Following the revelation of the scandal, the Bank's management commissioned BDO India, an independent forensic audit firm, to conduct a comprehensive forensic review of the accounts of Nirav Modi and groups of companies affiliated with his partners. Following the scandal, PNB management appointed BDO India to conduct an independent forensic audit. The report, prepared in 2018, revealed that Nirav Modi and his affiliated companies transferred funds through more than 100 shell companies, manipulated bank records through transactions outside the SWIFT–CBS integration, and used systematic money laundering mechanisms. The full text of the report is not publicly available, as it was submitted only to authorized institutions such as PNB, RBI, CBI, and the Enforcement Directorate, and was used as evidence in court proceedings due to its nature as a commercial secret and investigation evidence. Therefore, academic studies can only refer to the summary findings reported in the press. This forensic investigation revealed the shell companies used to carry out the fraudulent transactions, the methods of transfer of funds, and the addresses to which the related assets were transferred. In the US, a forensic audit conducted during Nirav Modi's bankruptcy filing process identified tens of millions of dollars in fraudulent diamond sales from Modi's companies to some “*shadow companies*” and the smuggling of funds (Business Today, 2018). Such findings make it clear that forensic accounting techniques can be used internationally to help unravel the fraud network. Nirav Modi's US companies, Firestar Diamond, A. Jaffe, and Fantasy Inc., filed for Chapter 11 bankruptcy in the US Bankruptcy Court for the Southern District of New York in 2018 following the PNB scandal. During this process, independent auditors appointed by the court uncovered fraudulent diamond trading conducted through the companies. (U.S. Bankruptcy Court, SDNY, Case No. 18-10509) By analyzing financial transactions through over 100 shell companies uncovered in the PNB scandal, forensic accounting practitioners

have significantly contributed to illuminating the money laundering routes followed by Nirav Modi and his associates on a global scale. This investigation goes beyond the traditional banking supervisory functions and is a specialized money-tracing discipline. In the PNB scandal, financial investigators and forensic accountants within the ED and CBI identified and substantiated suspicious transaction patterns using financial data analytics techniques. Following these findings, ED attached assets worth 1.725 crore INR (259 million USD 2018, rate) belonging to the Nirav Modi Group, underscoring the scale of financial irregularities and the role of forensic evidence in enabling asset recovery (ED, 2019). SWIFT message traffic between Nirav Modi's companies and recipients in Hong Kong was analyzed, documenting a cycle of repeated loan requests and non-repayment at short intervals (Singh et al., 2020). Forensic accountants also scanned PNB's financial statements and accounts retrospectively to calculate the non-bank liabilities of these transactions and to reveal the scale of the total losses incurred by the bank.

The PNB scandal has also demonstrated the importance of forensic accounting findings in legal proceedings. In ongoing cases, the evidence of Nirav Modi and his associates' guilt is primarily based on forensic audit reports. These reports make complex financial transactions understandable and guide the judicial authorities to make the right decision. A forensic expert report on the PNB scandal revealed that Nirav Modi's companies used short-term credit cycles as a “Ponzi scheme” to pay off the interest on old debts with new loans, thus continuing the cycle (Singh et al., 2020). This investigation constitutes critical evidence in the court process in defining the relevant crime as a planned and qualified fraud.

5.3. Sectoral Impacts and Systemic Consequences

The effects of the PNB scandal were not limited to a single bank but left lasting scars on the Indian banking sector and the general public. First, the succession of banking frauds severely undermined public confidence in the banking system. The PNB scandal shook the long-held belief in India that “it is safest to entrust money to a state-owned bank”. It created anxiety among depositors and investors. During this period, the Indian government and the RBI had to take various confidence-building steps to restore confidence in banks (Narang, 2019).

The PNB scandal has been brought to the attention of not only regulatory bodies but also legislative bodies. In 2018, numerous questions were raised in the Rajya Sabha (Indian Parliament), the upper house of the Indian Parliament, and the Ministry of Finance was forced to make statements regarding supervisory weaknesses in public banks (Rajya Sabha, 2018). These discussions indicate that the government acknowledges the need for stricter oversight and accountability mechanisms in the governance structures of public banks, in addition to technical measures such as the SWIFT–CBS integration.

The PNB scandal raised awareness in the banking and financial sector. Immediately after the scandal, other banks scrutinized their internal operations and investigated whether similar vulnerabilities existed. In one of the Mumbai branches, fraudulent transactions amounting to USD 1.77 billion were carried out (Shetty et al., 2019). In the Calcutta branch of this bank, some internal staff were found to have carried out irregular transactions via SWIFT. This revelation resulted from internal investigations triggered by the PNB scandal and showed that there could be a systemic problem in the banking sector. Similarly, financial scandals that came to the fore at the time, such as the Mumbai-based PMC Bank's fraud in 2019, have also drawn attention to internal audit and governance gaps in the banking sector in general (Narang, 2019).

At the regulatory and supervisory agencies' level, the PNB scandal brought the need for comprehensive reforms to the agenda. The RBI issued new guidelines to strengthen risk management and internal audit practices in banks, in addition to steps such as SWIFT integration and the ban on letter of guarantee systems as mentioned above (Shekhar, 2020). Banks were required to provide more detailed reporting on large loans and international transactions, and information systems audits were made mandatory at each bank. Criminal sanctions were added to the framework of the Indian Banking Regulation Act, and the RBI added a special section on fraud risk in its inspections and assessed banks in this regard. Following the PNB scandal, RBI

auditors started to conduct unannounced inspections at high-risk banks' branches and retrospectively screened SWIFT transactions (Kukreja & Gupta, 2019).

Regarding corporate governance, the PNB scandal led banks to reshape their governance structures. Both state-owned and private banks reviewed the role of audit committees on their boards and internal control systems. Many banks have begun to appoint independent directors with expertise in fraud and operational risk. The Central Bank of India has mandated banks to employ staff trained in forensic accounting, continuously monitor internal transactions, and report suspicious activity to senior management. Despite the increase in fraud cases, the downward trend in fraud reveals that the policies implemented by the Central Bank of India in forensic accounting were effective (Balyan & Shah, 2024). Thus, changes were made in human resources and organizational structure to prevent a recurrence of the PNB scandal.

Perhaps one of the most important effects of the PNB scandal has been the increased importance given to the field of forensic accounting. Various reports and expert opinions prepared after the scandal emphasized that forensic accounting practices should be integrated into the corporate governance system to prevent fraud in the banking sector. The Banks Association started to organize training programs to increase forensic accounting awareness in the sector. Independent audit firms were invited to provide banks with proactive "fraud detection" services (Jamal & Singh, 2025). The PNB scandal profoundly and multidimensionally impacted the Indian banking sector. Consequences were observed at all levels, from undermining public confidence in banks to triggering sectoral reforms. This scandal has again demonstrated that adequate internal control, strong internal audit, and sound banking and financial sector governance are indispensable for the financial system's health (Mehrotra & Kopula, 2024).

6. FINDINGS

The Punjab National Bank (PNB) fraud scandal has important lessons and key takeaways for financial institutions and regulatory authorities. In this context, the effective use of internal audit, supported by forensic accounting techniques, plays a critical role in preventing and detecting financial fraud. In order to detect early warning signs in financial statements and transactions, forensic accounting experts must use advanced analytical techniques such as Benford analysis, data mining, forensic data analytics, and digital forensics in an integrated manner with internal audit processes. Moreover, the effective integration of these experts into banks' internal control systems and their continuous and proactive cooperation with regulatory authorities will help enhance the overall reliability and transparency of the financial system and significantly reduce the risk of recurrence of similar large-scale frauds.

6.1. Strategic Contribution of Forensic Accounting Approach in Making Internal Audit Proactive

Auditing is a systematic activity carried out to evaluate, control, improve, and develop an organization's internal and external processes. It is fundamentally about increasing the reliability of businesses (Karkacier, 2023). Internal audit is the process that plans, organizes, and directs the actions necessary to develop risk management for businesses and to achieve predetermined goals and objectives (Prasetyo et al., 2024). The PNB scandal can be considered a case where internal audit practices were both felt lacking and subsequently stepped in and made significant contributions. However, financial frauds emerge from reactive rather than proactive actions (Simeunovic et al., 2016). The absence of a proactive internal audit mechanism at PNB during 2011-2017, when the fraud occurred, resulted in the fraud taking a long time to be detected. If the bank had periodically conducted in-depth audits by internal auditors using forensic accounting techniques and approach, the anomalous letter of guarantee transactions at the Brady House branch could have been detected earlier. At this point, the PNB scandal demonstrates the importance of integrating forensic accounting techniques into internal audit. Introducing forensic accounting expertise in banks can help prevent the recurrence of incidents

like this scandal. Therefore, the structural transformation of internal audit into a more proactive, preventive, and analytical structure is no longer a choice but a necessity.

Internal audit not only audits the compliance of business activities with the relevant legislation but also fulfills basic functions such as protecting the financial health of the business, ensuring the accuracy of financial reporting, and ensuring the effectiveness of control mechanisms to prevent fraud. However, the purpose of internal audit is not only to detect errors and irregularities, but also to contribute to corporate governance principles, which include the rules and practices that regulate the management structure, processes, and relations of an organization with its stakeholders. Internal audit provides information and recommendations to managers by improving risk assessment and control processes (Görmen, 2021; Süklüm, 2020). While internal audit contributes to the establishment of democratic values such as equality, responsibility, accountability, and transparency in the corporate structure, at the same time, this audit process is built on the principles of accountability, transparency, efficiency, and sustainability. This concept allows businesses to manage risks per their long-term value creation goals (Atabay et al., 2022).

Perhaps one of the most important lessons of the PNB scandal is that forensic accounting should be a reactive technique or discipline and a proactive prevention mechanism (Gangwani, 2020). In other words, it was stated that forensic accounting is a method that can be applied to uncover bank fraud in India and that forensic accounting should not only be used as a post-mortem approach but should also be actively used in the detection of fraud (Aashima et al., 2023). In the aftermath of the scandal, the evaluations made in the sector have favored making forensic accounting practices an integral part of the internal audit mechanisms of banks.

Forensic accounting techniques are not only for detecting fraudulent transactions; they also enable businesses to establish robust audit mechanisms and promote a culture of transparency and accountability (Wahyuandari, 2025). In other words, forensic accounting is not only a discipline that conducts post-fraud investigations. It also has a structure that analyzes complex financial transactions, focuses on anomaly detection, and models fraud possibilities in advance (Dunaev et al., 2021). While financial indicators and historical trends are at the forefront of traditional risk assessments, forensic accounting deepens this data with event-based analysis and digital tracing methods (Demirović et al., 2021). For the internal audit process to gain a preventive function, knowledge and skills in various fields such as accounting, statistics, informatics, law, and human behavior should be used (Tiwari & Debnath, 2017). In addition to these skills, forensic accountants should have strong instincts and be able to identify key indicators that can reveal the possibility of fraud when necessary. Businesses can provide stronger protection against financial fraud by integrating forensic auditing practices into broader organizational frameworks (Wahyuandari, 2025). This gives internal audit a strategic role that monitors current risks, anticipates future fraud, and restructures the control environment.

The role of technology in this period cannot be ignored. Forensic accounting tools such as big data analytics, AI-driven detection mechanisms, and digital trace analytics enable internal audits beyond traditional control testing (Ma, 2024; Eguando, 2023). In this way, it becomes measurable not only whether the procedures are implemented, but also whether they eliminate risks. In this context, forensic accounting provides a more in-depth and comprehensive approach to internal audit processes. The importance of this discipline lies in its ability to fill gaps that traditional audits fail to identify. Forensic auditing utilizes specialized techniques and methods such as data analytics and fraud risk assessment to uncover inconsistencies often overlooked by traditional audit methods (Wahyuandari, 2025).

This combination makes a significant contribution not only at the operational level but also in governance and corporate ethics. Integrating internal audit and forensic accounting contributes to increased corporate transparency, more realistic reporting for senior management, and a more robust ethical culture throughout the organization (Wahyudi et al., 2024). This integration makes visible not only the errors but also the systemic gaps that give rise to these errors (Sudarmadi, 2022). Internal audit's proactivity is critical for organizations to manage current risks and future threats.

This approach plays a vital role in protecting the integrity of the banking and financial sector and promoting a more favorable economic environment by detecting and resolving financial fraud. It protects banks'

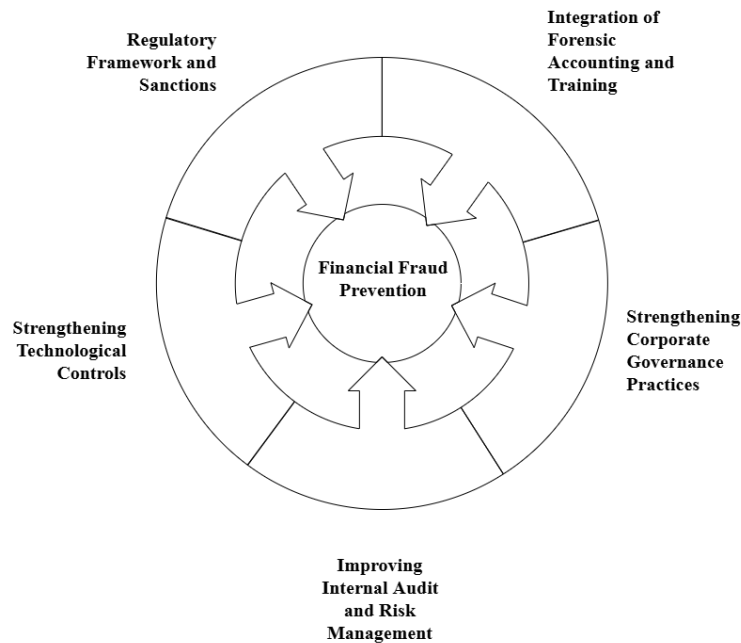
financial sustainability by providing a preventive approach to fraud prevention and detection. Forensic accounting practitioners also contribute to a culture of transparency and accountability as they specialize in uncovering financial irregularities. Mandatory forensic audits reduce the likelihood of fraudulent activities in the banking sector by creating a barrier for potential criminals (Jamal & Singh, 2025).

The PNB scandal is a fraud case that highlights both the absence of and the need for forensic accounting. This scandal has revealed the necessity of forensic accounting experts and techniques in the banking sector. Indeed, supervisory and regulatory authorities and industry experts have stated that forensic accounting practices should become mandatory in India and be part of a sustainable corporate governance system to prevent similar scandals. It is reported that the PNB scandal has significantly increased the need for forensic accounting practitioners, and banks have started to employ experts in this field (Jamal & Singh, 2025). These developments show that forensic accounting is moving towards a central point in the fight against financial fraud.

6.2. Key Takeaways and Preventive Strategies

In line with the findings, the leading causes of the problem areas are visualized below. Figure 2 presents the main problem categories and their sub-causes in a hierarchical structure, allowing for a holistic assessment by revealing the interrelationships and structural connections of the problems.

Figure 3. Financial Fraud Prevention



Source: Created by the author.

Integration of Forensic Accounting Integration and Training: A key takeaway from the Punjab National Bank (PNB) scandal is the importance of making forensic accounting practices mandatory in the banking sector. In this context, it is recommended that banks establish units consisting of experts familiar with forensic accounting techniques and internal audit practices. These units' duties should include continuous

financial data monitoring, using software to detect anomalies, and conducting rapid investigations in suspicious cases. Where banks do not have the resources to establish such units, forensic audit teams could be formed based on a standard pooling system across the sector. Training existing internal audit and inspection staff in forensic accounting techniques is essential. Audit teams should be equipped with advanced methods such as Benford analysis, data mining, and forensic data analytics to detect fraud in financial statements and transactions. In this way, many fraudulent acts can be prevented before they occur or detected early, thereby minimizing potential damage. As stated in the literature, there is a strong and positive relationship between forensic accounting techniques and fraud detection (Dewayanto, 2023). Therefore, it is recommended that certified forensic accounting training programs for financial auditors in the banking sector be organized. Internal audit specialists assigned to banks must initiate rapid investigation processes within the organization by immediately notifying the relevant authorities in case of suspected irregularities.

Strengthening Corporate Governance Practices: Banks' boards of directors and senior management should place the risk of financial fraud high on their corporate agenda. Audit and risk committee members on the board of directors should perform a practical oversight function within the bank. The occasional problem of delayed intervention, especially in state-owned banks, should be overcome. Top management should pursue suspected fraud, even at the cost of making difficult decisions. As an element of corporate governance, a culture that protects and incentivizes whistleblowers should be created. In the PNB scandal, the failure of the whistleblowing mechanism to work resulted in huge losses. When employees or third parties in banks report fraud, these reports and warnings should be taken seriously. To do this, banks can set up effective and anonymous whistleblowing hotlines and have independent units to assess incoming reports. Management should place honesty and integrity at the center of the corporate culture. Employee performance evaluations should be based not only on financial targets but also on ethical and compliance criteria. Senior management should adopt the principle of "zero tolerance" for unethical actions and behaviors and make it clear to the entire business that those involved in fraud will be punished swiftly, while whistleblowers will be protected.

Improving Internal Audit and Risk Management: Banks' internal audit functions should go beyond the traditional compliance audit role to include a fraud audit perspective. The role of a traditional compliance audit is to assess the compliance of banks' internal processes and activities with applicable laws, regulations, policies, and procedures, and to identify and remedy deficiencies. The primary focus is ensuring that the bank's activities comply with internal and external regulations, preventing potential regulatory violations, and minimizing risks. Today, audits conducted only from a traditional compliance perspective are not sufficient for banks. Internal audit units should go beyond this traditional approach and take on a broader and proactive role, including a fraud audit perspective. This means the following:

- **Identifying Fraud Risks:** Proactively identify and assess fraud and misconduct risks that may be encountered in the Bank's operations.
- **Preventive Audit Approach:** Developing control mechanisms to anticipate and take precautions against potential fraud, not just actual incidents.
- **Fraud Investigations and Reviews:** Identifying suspicious transactions and situations, ensuring they are thoroughly investigated, and taking necessary measures.
- **Awareness and Training:** Organizing training and awareness programs to raise awareness and educate the Bank's personnel on fraud and misconduct, abuse risks.

Strengthening Technological Controls: The internal control infrastructure in banks must be brought up to date. In particular, the vulnerabilities caused by non-integrated systems, which emerged as a weakness in the PNB scandal, should be closed. All banks should integrate international payment messaging systems like SWIFT with their core banking software and ensure real-time data flow. It is necessary to ensure that this is fully implemented. In addition, multiple approval mechanisms should be in place for large or unusual transactions, and no single official should be allowed to conduct transactions independently. Such mechanisms will make it significantly more difficult for internal misconduct to occur. Rotating personnel in sensitive

positions at regular intervals reduces the likelihood of misconduct by preventing prolonged tenure in the same role and the formation of extensive professional relationships (Shekhar, 2020). Advanced data analytics and artificial intelligence-based fraud detection systems should be established by utilizing the opportunities offered by technology. Today, with big data analysis, it is possible for banks to scan millions of transactions in real time and flag those that appear risky. Machine learning algorithms can determine whether there is an abnormal situation by comparing transactions in a branch with historical data (Saxena et al., 2024). Similarly, suppose an out-of-routine pattern is detected in the transactions carried out by employees in the system; these out-of-routine transactions can be detected instantly and serve as a warning. Such proactive systems can integrate with forensic accounting teams to stop fraud attempts before they happen.

Regulatory Framework and Sanctions: The regulatory steps taken in India after the PNB scandal must be sustained and improved. Banks may be required to report regularly against the risk of fraud and to implement additional approval procedures for transactions of a specific size. Letters of guarantee above a certain amount could be required to be reported to a central registry. In this way, commitments such as letters of guarantee given by a bank would be visible throughout the sector, and duplicate attempts to obtain loans would be prevented. In addition, deterrent sanctions should be imposed for fraud detected in banks. Similarly, sanctions can be imposed on audit institutions if they are at fault. To foster a culture of transparency in the sector, regulatory and supervisory authorities could publish available “fraud reports” so that the public knows which banks have been involved in which types of misconduct and what sanctions have been imposed. Such a shaming mechanism would also encourage banks to be more careful.

Implementing the above-mentioned recommendations will not only help prevent PNB-like scandals but also enhance the overall credibility of the banking system and contribute to its sustainable growth. Noting that combating financial fraud requires comprehensive countermeasures, Saxena et al. emphasize the importance of investing in advanced technologies and building a strong ethical culture, in addition to steps such as strengthening the regulatory framework, improving corporate governance, and increasing transparency (Saxena et al., 2024). Thus, the key takeaways of the PNB scandal are universal and point to the multifaceted approach needed to make the financial system safer.

6.3. Harmonization and Implementation Recommendations for Turkey

In the wake of the PNB scandal, the need for forensic accounting practices in India has not been limited to the banking sector; institutional steps have also been taken to establish professional standards. In this context, the Institute of Chartered Accountants of India (ICAI) has developed the Proposed Forensic Accounting and Investigation Standards (FAIS). These standards aim to provide a framework acceptable to both courts and regulatory authorities by regulating the methods, reporting principles, and ethical rules of forensic accounting investigations. The goal is to reduce the oversight and reporting deficiencies observed in the PNB case and enhance the evidential value of forensic accounting reports in judicial proceedings (ICAI, 2024).

The current state of forensic accounting practices in Turkey has not yet reached the desired level in preventing fraud and misconduct in the banking and finance sector. Our country's awareness of forensic accounting, its legal basis, and application areas is still limited. Significant deficiencies have been found in the dissemination of forensic accounting. Various scandals and frauds in Turkey's banking and finance sector are concrete indicators of weaknesses in this area. First, forensic accounting training has not become a standard part of corporate training programs in Turkey. Banks' internal audit teams often have a classical accounting and regulatory compliance perspective and are not adequately trained in fraud detection and forensic accounting techniques. Certified forensic accounting training for banks' internal audit staff has not yet been adopted as a standard practice, unlike examples abroad.

Data analytics, artificial intelligence-supported anomaly detection software, and machine learning algorithms, which are widely used in developed economies, are still limited in Turkey. The lack of technological infrastructure makes it difficult to detect suspicious transactions early. This situation delays fraud detection, causing losses to grow and become difficult to recover. It is observed that forensic accounting is not sufficiently supported in terms of legislation and regulatory framework in Turkey. Transparency-enhancing practices, such as public “fraud reports” to be published by regulatory and supervisory authorities, are not yet common in Turkey. Therefore, accountability and public oversight mechanisms among institutions are not sufficiently developed.

Another problem is the limited effectiveness of whistleblowing mechanisms in Turkey. Although banks have generally established anonymous whistleblower hotlines, there are problems with the effective operation of these systems and the protection of whistleblowers. It is observed that the understanding of whistleblower protection is not yet fully embedded in the corporate culture and that whistleblowing mechanisms are not actively used due to employee reservations and complaints. Considering all these shortcomings, forensic accounting practices in Turkey need to be strengthened. In this context, it is important to provide comprehensive and continuous forensic accounting training to banks' internal audit teams, improve the technological infrastructure, increase sectoral coordination by regulatory bodies, and establish public transparency mechanisms. Thus, detecting and preventing financial fraud more effectively will be possible.

The PNB case shows that internal control failures grew beyond technical gaps in SWIFT–CBS integration, due to agency problems and institutional ‘decoupling’ of their operations. Weaknesses in board oversight and the design of critical roles without rotation provided individual actors with continuity and discretion, accelerating the disconnect between formal compliance processes and actual implementation. Therefore, our recommendations (dual approval, separation of duties, full integration, rotation, whistleblower protection) are not merely operational measures but institutional reforms that address misaligned incentives and enhance governance capacity.

7. CONCLUSION AND DISCUSSION

In the context of the evolving financial system, the role of forensic accounting practices is becoming ever more critical. With digitalization and the proliferation of complex financial instruments, the methods used by malicious actors are becoming increasingly sophisticated. At this point, forensic accounting fills an important gap with its capacity to detect financial anomalies using interdisciplinary techniques and advanced data analytics. In developed countries, financial institutions are strengthening their internal audit functions by investing more in forensic accounting expertise to combat fraud. Therefore, in the modern financial ecosystem, combining forensic accounting practices with internal audit is essential to detect and prevent fraud as an early warning system.

Large-scale banking misconduct often results from the involvement of senior bank staff, and in such cases, employees must take immediate action at the slightest suspicion. The PNB scandal also confirms this observation. Despite years of misconduct by some officials within the bank, the fact that no one within the organization noticed and intervened promptly demonstrated the lack of a culture of taking immediate action in the financial sector. Therefore, the knowledge and application of forensic accounting techniques and training by banking employees are vital for the early detection of similar misconduct. The PNB scandal has revealed five main reasons for its occurrence. These reasons include weak compliance with rules and regulations, ineffective risk management systems, inadequate assessment of credit and operational risks, a lack of expertise and skills among auditors and regulators, and deficiencies in policy-making processes. In particular, bank management's lack of proactive supervision in preventing fraud, ineffective whistleblowing systems, weaknesses in the control environment, and inadequacies in the supervision of regulatory authorities paved the way for the scandal.

Another important dimension of the PNB scandal is the lessons on corporate governance, risk management, and internal audit mechanisms. The analysis of the PNB scandal offers important insights into the dynamics of financial misconduct and preventive strategies. An in-depth analysis of a single case shows the

necessity of a two-tier audit approach of “internal audit + forensic accounting” in the banking sector. The findings support the concepts and recommendations previously emphasized in the literature and provide a new case-based perspective. In financial institutions, the capacity to minimize the risk of fraud is largely directly proportional to the robustness of that organization's internal audit and corporate governance structures. The happenings in the PNB scandal have demonstrated that combining forensic accounting techniques with internal audit practices and strengthening corporate governance mechanisms are essential for financial reliability.

The findings in this study suggest that the internal control and audit weaknesses in the PNB scandal cannot be solely attributed to technical flaws. Instead, they should also be assessed in terms of organizational incentive structures and governance. Within the framework of Agency Theory, conflicts of interest between top management and shareholders have contributed to lax risk management and oversight. From the perspective of Corporate Governance theories, the board of directors and audit committees have been found lacking in information flow, independence, and accountability. Additionally, from the viewpoint of Regulatory Compliance theory, the failure of supervisory authorities to detect risky processes early has led to regulations remaining ineffective. It has paved the way for regulatory capture. In this context, proposed measures such as dual approval mechanisms, staff rotation, SWIFT–CBS integration, and effective whistleblowing systems should be viewed not just as operational controls but as structural reforms that realign incentives, improve accountability, and foster a stronger ethical culture within the company.

When the study is approached especially in Turkey, although forensic accounting practices have been on the agenda in academic and professional discussions in recent years, they have not yet reached a legal basis. The title of “forensic accountant” or certification is not defined in the existing legal infrastructure, and those studies in this field are generally carried out within the framework of independent auditors and expert witness practices. However, the financial scandals in Turkey and worldwide underline the need for forensic accounting expertise in Turkey. The irregularities encountered, especially in banking and capital markets, make adding forensic accounting techniques to the classical audit mechanisms mandatory. Institutionalization and legalization of forensic accounting practices in Turkey will provide significant gains in detecting and preventing financial crimes. In this context, forensic accounting training programs should be expanded, professionals should be encouraged to specialize in this field, and relevant legal regulations should be made. Thus, healthier and more reliable results can be achieved by obtaining expert support in internal fraud investigations and financial disputes referred to the judiciary. This study aims to contribute to the literature and provide guidance for practitioners by discussing the theoretical and practical measures that can be taken to prevent similar fraud cases.

Ethics Committee Declaration

Ethics committee declaration is not required for the study.

Author Contributions

All stages of the study were carried out by Burçak KIZILTAN IŞIK.

Conflict of Interest

The authors declare no conflict of interest.

Financial Support

The authors declared that this study has received no financial support.

REFERENCES

- Aashima, Mohanty, B. & Kedia, N. (2023). Evaluating the significance of forensic accounting in fraud detection in the Indian banking sector: A systematic literature review. *Gurukul Business Review*, 19(1). <https://doi.org/10.48205/gbr.v19.10>.
- Adesina, K., Erin, O., Ajetunmobi, O., Ilogho, S. & Asiriwuwa, O. (2020). Does forensic audit influence fraud control? Evidence from Nigerian deposit money banks. *Banks and Bank Systems*, 15(2), 214–229. [https://doi.org/10.21511/bbs.15\(2\).2020.19](https://doi.org/10.21511/bbs.15(2).2020.19).
- Akinbowale, O. E., Mashigo, P. & Zerihun, M. F. (2023). Integrating forensic accounting and big data technology frameworks for internal fraud mitigation in the banking industry. *Cogent Business and Management*, 10(1). <https://doi.org/10.1080/23311975.2022.2163560>.
- Alfify, M. & Faiyyaz, A. G. (2020). The relevance of forensic accounting in the dynamic financial system of India: A study. *International Research Journal of Modernization in Engineering, Technology and Science*, 2(8), 1513–1519.
- Al-Qadi, S. & Al-Dmour, A. H. (2022). Forensic accounting methods and reducing creative accounting practices: Evidence from Jordan. *Jordan Journal of Business Administration*, 18(4). <https://doi.org/10.35516/jjba.v18i4.460>.
- Alsheikh, A. H., Alsheikh, W. H. & Kareem, H. M. (2023). Factors influencing the successful implementation of forensic accounting: An empirical study on academicians and practitioners. *Humanities and Social Sciences Letters*, 11(1), 10–21.
- Alzoubi, A. B. (2023). Maximizing internal control effectiveness: The synergy between forensic accounting and corporate governance. *Journal of Financial Reporting and Accounting*, 23(1), 404–416.
- Arachchilage, N. A. G. & Love, S. (2014). Security awareness of computer users: A phishing threat avoidance perspective. *Computers in Human Behavior*, 38, 304–312.
- Association of Certified Fraud Examiners. (2020). Report to the nations: 2020 global study on occupational fraud and abuse. <https://legacy.acfe.com/report-to-the-nations/2020/> Accesed date:10.05.2025.
- Atabay, N., Yılmaz, E. & Kılıç, A. (2022). İç denetimin kurumsal yönetim üzerindeki rolü: Türkiye bankacılık sektörüne yönelik bir değerlendirme. *Muhasebe ve Denetime Bakış Dergisi*, 21(3), 102–117.
- Balyan, M. V. K. & Shah, H. M. (2024). Need of forensic accounting to detect and prevent frauds in banking industry of India. *Asian Journal of Management and Commerce*, 5(2), 554–559. <https://doi.org/10.22271/27084515.2024.v5.i2g.397>
- Business Today. (2018). PNB fraud: US bankruptcy court examiner nails Nirav Modi's aides. *Business Today*. <https://www.businesstoday.in/latest/economy-politics/story/pnb-fraud-us-bankruptcy-court-examiner-nails-nirav-modi-associates-108935-2018-08-30> Access date: 14.08.2025.
- Central Bureau of Investigation CBI, (2018). Access date: 22.08.2025 <https://cbi.gov.in/press-releases/pnb-fraud-case>.
- Clavería Navarrete, A., y Carrasco Gallego, A. (2023). Forensic accounting tools for fraud deterrence: A qualitative approach. *Journal of Financial Crime*, 30(3), 840–854. <https://doi.org/10.1108/JFC-03-2022-0068>
- Clayton, M. M. (2006). Investigative Techniques. In T. W. Golden, S. L. Skalak, and M. M. Clayton (Eds.), *A guide to forensic accounting investigation* (pp. 295–311). John Wiley and Sons.
- Demirović, L., Isaković-Kaplan, Š., and Proho, M. (2021). Internal audit risk assessment in the function of fraud detection. *Journal of Forensic Accounting Profession*, 1(1), 35–49. <https://doi.org/10.2478/jfap-2021-0003>
- Dewayanto, T. (2023). The role of forensic accounting in the detection and fraud prevention: A systematic literature review. *Fokus Ekonomi: Jurnal Ilmiah Ekonomi*, 18(1), 241–259.
- Dun & Bradstreet. (2017). India's Top Banks 2017. Accessed date: 22.08.2025 <http://www.dnb.co.in/Publications/topbanks2017/TopBanks2017.pdf>
- Dunaev, M., Плікис, І., Otroshchenko, L. & Zhukova, T. (2021). Forensic accounting: Concepts and prospects of application in Ukraine. *Visnik Sums'kogo Derzhavnogo Universitetu*, 2021(3). <https://doi.org/10.21272/1817-9215.2021.3-11>
- ED (2019). Accessed date: 20.08.2025 <https://enforcementdirectorate.gov.in/press-release>
- Eguando, T. (2023). Technological forensic auditing and financial crime detection in Nigeria: A study of selected deposit money banks. *African Journal of Accounting and Financial Research*, 6(4), 70–80. <https://doi.org/10.52589/ajaf-gu8bxjad>
- Ehioghien, E. E. & Atu, O. E. (2016). Forensic accounting and fraud management: Evidence from Nigeria. *Igbinedion University Journal of Accounting*, 2, 246–308.
- Gangwani, M. (2020). Suitability of forensic accounting in uncovering bank frauds in India: An opinion survey. *Journal of Financial Crime*, 28(1), 284–299.
- Gayathri, S. & Mangaiyarkarasi, T. (2018). A critical analysis of the Punjab National Bank scam and its implications. *International Journal of Pure and Applied Mathematics*, 119(12), 14853–14866.
- Gbegi, D. O. & Adebisi, J. F. (2014). Forensic accounting skills and techniques in fraud investigation in the Nigeria public sector.

Mediterranean Journal of Social Sciences, 5(3), 243–252.

- Golden, T. W. & Dyer, M. T. (2006). The art of the interview. In T. W. Golden, S. L. Skalak, and M. M. Clayton (Eds.), *A guide to forensic accounting investigation* (pp. 349–364). John Wiley and Sons.
- Görmen, M. (2021). Fraud risk management from an internal audit point of view. *Uluslararası İktisadi ve İdari Bilimler Dergisi*, 7(1), 92–103.
- Grubor, G., Ristić, N. & Simeunović, N. (2013). Integrated forensic accounting investigative process model in a digital environment. *International Journal of Scientific and Research Publications*, 3(12), 1–9.
- Hegazy, S., Sangster, A. & Kotb, A. (2017). Mapping forensic accounting in the UK. *Journal of International Accounting, Auditing and Taxation*, 28, 43–56.
- Hibshi, H. A., Vidas, T. & Cranor, L. (2011). Usability of forensics tools: A user study. In 2011 Sixth International Conference on IT Security Incident Management and IT Forensics (pp. 81–91). IEEE Computer Society.
- Huber, W. D. (2012). Is forensic accounting in the United States becoming a profession? *Journal of Forensic and Investigative Accounting*, 4(1), 255–284.
- Institute of Chartered Accountants of India (ICAI). (2024). Accessed Date: 22.08.2025. <https://www.icai.org/post/forensic-accounting-and-investigation-standards-board>
- Islam, M. J., Rahman, M. H. & Hossan, M. T. (2011). Forensic accounting as a tool for detecting fraud and corruption: An empirical study in Bangladesh. *ASA University Review*, 5(2), 77–85.
- Izedonmi, F., & Okoeguale, I. P. (2012). Forensic accounting and financial crimes – Adopting the inference, relevance, and logic solution approach. *African Research Review*, 6(4), 125–139.
- Jamal, A. & Singh, H. (2025). Examining forensic accounting's role in safeguarding Indian banking integrity. *Financial and Credit Activity Problems of Theory and Practice*, 1(60), 63–80.
- Joshi, M. S. (2003). Definition of forensic accounting. Accessed Date:14.08.2025. Retrieved from <http://www.forensicaccounting.com>.
- Karkacıer, A. (2023). Kurumsal yönetim bağlamında iç denetim ve bilgi ifşası ilişkisi. *Enderun*, 7(2), 293–312.
- Karwai, M. (2004). *Forensic accounting and fraud investigation for non-experts*. John Wiley and Sons.
- Kent, K., Chevalier, S., Grance, T. & Dang, H. (2006). *Guide to integrating forensic techniques into incident response* (NIST Special Publication 800-86). National Institute of Standards and Technology.
- Khalique, F. & Srivastava, S. (2024). Nirav Modi: A case study on banking frauds and corporate governance. *Lloyd Business Review*, 1–16.
- Kroll. (2023). 2023 fraud and financial crime report: Can technology stop the threat of economic, crypto and ESG crime? Retrieved from Accessed Date:14.08.2025.<https://www.kroll.com/en/insights/publications/fraud/2023-global-fraud-and-financial-crime-report>.
- Kukreja, G. & Gupa, S. (2019). Gem of the Indian banking fraud: A case of systemic control failures at Punjab National Bank. *Journal of Forensic and Investigative Accounting*, 11(2), 366–379.
- Ma, Y. (2024). Research on the optimization of the internal audit process in the background of big data. *SJEMR*, 6(8), 36–39. <https://doi.org/10.54691/9jmwz089>
- Matar, O. (2023). The role of forensic accounting strategies in reducing financial and administrative corruption cases. *American Academic and Scholarly Research Journal*, 91(1), 12–25. <https://aasrc.org/aasrj/index.php/aasrj/article/view/2198>
- Mehrotra, S. & Kopula, S. (2024, August). The big bank scam: Failure of corporate governance. *International Journal of Indian Management*. <https://doi.org/10.1177/ijim.241237348>
- Mishra, K., Azam, M. K. & Junare, S. O. (2020). Role of Forensic Audit in reducing NPAs in Indian Banks. *Journal of Critical Reviews*, 7(13), 3472–3477.
- Ministry of Corporate Affairs. (2018). Constitution of the National Financial Reporting Authority. Accessed date: 22.08.2025 <http://www.mca.gov.in/SearchableActs/Section132.htm>
- Modugu, K. P. & Anyaduba, J. O. (2013). Forensic accounting and financial fraud in Nigeria: An empirical approach. *International Journal of Business and Social Science*, 4(7), 281–289.
- Narang, M. N. (2019). The increasing incidence of banking scams. *Bodh: BPIT's International Journal of Technology and Management*, 5(2).

- Narayanan, H. (2020). Forensic accounting and fraud examiner – An inquiry. *Mukt Shabd*. ISSN NO: 2347–3150.
- NDTV. (2018). RBI discontinues issuance of LoUs after PNB fraud case. NDTV. Accesed Date:14.08.2025. <https://www.ndtv.com/india-news/rbi-discontinues-issuance-of-lous-after-pnb-fraud-case-1823424>.
- Odelabu, A. T. (2014). Effect of Forensic Accounting on the Financial Performance of Commercial Banks in Nigeria. *Research Journal of Finance and Accounting*, 5(8), 103–109.
- Odeyemi, O., Ibeh, C. V., Mhlongo, N. Z., Asuzu, O. F., Awonuga, K. F. & Olatoye, F. O. (2024). Forensic accounting and fraud detection: A review of techniques in the digital age. *Finance and Accounting Research Journal*, 6(2), 202–214.
- Okoye, E. I. & Gbegi, D. O. (2013). Forensic accounting: A tool for fraud detection and prevention in the public service (A study of selected ministries in Kogi State). *International Journal of Academic Research in Business and Social Sciences*, 3(3), 1–18.
- Owojori, A. A. & Asaolu, T. O. (2009). The role of forensic accounting in solving the vexed problem of corporate world. *European Journal of Scientific Research*, 29(2), 183–187.
- Pham, Q. H. & Vu, K. P. (2024). Optimization of accounting information systems in the public sector for sustainable risk management under big data analytics: Do forensic accountants' skills generate differences? *Foundations of Management*, 16(1), 67–82.
- PNB. (2017). Annual Report. Year ended March 31, 2017. Accessed date: 22.08.2025 https://www.pnbindia.in/document/annual-report/PNB_Annual_Report_2017%20_Full_Version.pdf
- Prasetyo, Y., Riyani, E. I. & Nugraheni, N. (2024). Detection of accounting fraud: Role of the internal auditor and whistleblowing data system in the study literature. *Indonesian Journal of Business Analytics*, 4(2), 503–516.
- Pratama, C. W. A., Hasibuan, A. H. & Anggriyani, W. (2024). Maintaining integrity: The importance of professional ethics in the world of work. *Instal: Jurnal Komputer*, 16(03), 186–191.
- Ramaswamy, V. (2005). Corporate governance and the forensic accountant. *CPA Journal*, 75(3), 68–70.
- Rajya Sabha. (2018). Accessed date: 22.08.2025 <https://sansad.in/rs/search>.
- Reuters. (2018). Developments in the \$2 billion Punjab National Bank fraud case. Reuters. Retrieved from <https://www.reuters.com/article/business/developments-in-the-2-billion-punjab-national-bank-fraud-case-idUSKCN1GK15U/> Accesed Date:14.08.2025.
- Rezaee, Z., Lo, D., Ha, M. & Suen, A. (2016). Forensic accounting education and practice: Insights from China. *Journal of Forensic and Investigative Accounting*, 8(1), 106–119.
- Saxena, A., Shaikh, Z. A. & Verma, M. (2024). Unveiling the global and Indian landscape of fraud: Investigating financial, geopolitical, and ecological consequences and countermeasures. *Commerce Research Review*, 1(2), 76–83.
- Shekhar, D. (2020). Banking frauds: About the PNB scam. SSRN. <https://doi.org/10.2139/ssrn.3687748>
- Shetty, A. S., Nagendra, B. V., Jeevananda, S. & Divakar, G. M. (2019). Imperative of revisiting the operational risk control architecture in public sector banks (PSBs) in India: A qualitative analysis. *Banks and Bank Systems*, 14(1), 137–146. [https://doi.org/10.21511/bbs.14\(1\).2019.12](https://doi.org/10.21511/bbs.14(1).2019.12)
- Simeunović, N., Grubor, G. & Ristić, N. (2016). Forensic accounting in the fraud auditing case. *The European Journal of Applied Economics*, 13(2).
- Singh, G., Srivastav, S., Gupta, A. & Garg, V. (2020, January). An analysis of financial fraud through the PNB bank scam and its technical implications. In 2020 International Conference on Computation, Automation and Knowledge Management (ICCAKM) (pp. 436–442). IEEE. <https://doi.org/10.1109/ICCAKM46823.2020.9051484>
- Sravanthi, M. & Bhargavi, C. (2023). A comprehensive study on socio-economic implications concerning banking scams and frauds in India. *International Journal of Research in Applied Management, Science and Technology*, 8(2).
- Srivastava, A. & Mishra, S. (2024). Behind the facade: The rise and fall of Nirav Modi and the PNB fraud case. *International Journal of Creative Research Thoughts*, 12(4), n302–n310. <https://www.ijcrt.org/papers/IJCRT24A4531.pdf>
- Sudarmadi, D. (2022). Disclosure of money laundering through investigative audit and forensic accounting. *JASA (Jurnal Akuntansi Audit dan Sistem Informasi Akuntansi)*, 6(2), 118–129. <https://doi.org/10.36555/jasa.v6i2.1930>
- Süklüm, N. (2020). Çevrenin sürdürülebilirliğinde iç denetimin rolünün turizm sektörü kapsamında incelenmesi. *Uluslararası Türk Dünyası Turizm Araştırmaları Dergisi*, 5(2), 216–229.
- The Times of India. (2018, March 13). RBI scraps bank LoUs in the aftermath of PNB fraud. Times of India. Accessed date:10.05.2025. <https://timesofindia.indiatimes.com/business/india-business/rbi-scraps-bank-lous-in-the-aftermath-of-pnb-fraud/articleshow/63287397.cms>
- The Reserve Bank of India. (2016). Master Direction- Other Remittance Facilities. Accessed date 20.08.2025. <https://rbidocs.rbi.org.in/rdocs/notification/PDFs/04MD5127742FD0914D54B5EC4ECA8076F325.PDF>.
- The Reserve Bank of India Circular, 2018. Integration of SWIFT with the Core Banking System to be mandatory. Accessed date

20.08.2025. https://rbi.org.in/Scripts/BS_CircularIndexDisplay.aspx?Id=11116.

- Tiwari, R. K. & Debnath, J. (2017). Forensic accounting: A blend of knowledge. *Journal of Financial Regulation and Compliance*, 25(1), 73–85.
- U.S. Bankruptcy Court, SDNY, Case No. 18-10509. Accessed Date: 20.08.2025. <https://pacer.uscourts.gov/>
- Utama, A. A. G. S. & Basuki, B. (2022). Exploration of themes based Twitter data in fraud-forensic accounting studies. *Cogent Business and Management*, 9(1). <https://doi.org/10.1080/23311975.2022.2135207>
- Vutumul, A., Oshota, S. O. & Akinteye, A. S. (2025). Forensic accounting, internal control impact on Nigerian public sector fraud prevention: A descriptive analysis. *Open Journal of Business and Management*, 13(2), 781–808.
- Wahyuandari, W. (2025). The role of forensic auditing in detecting and preventing financial fraud in organizations. *The Journal of Academic Science*, 2, 212–221.
- Wahyudi, R., Martini, R., Ramadhana, R., Sari, K. & Amri, D. (2024). Internal controls, investigative audits, and forensic accounting can help prevent fraud. In *Proceedings of the 1st International Conference on Economics, Business, Social, and Humanities (ICEBSH 2023)* (pp. 48–52). Atlantis Press. https://doi.org/10.2991/978-2-38476-220-0_6
- Zysman, A. (2004). Forensic accounting demystified. In *World investigators network standard practice for investigative and forensic accounting engagements—Canadian Institute of Chartered Accountants*.