

Chapter 2

Under the COVID Pandemic: Is It the Springtime for Forensic Accounting Field to Blossom?



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Abstract While the principle of financial fraud remains the same, new methods and means have been developed as a result of the advanced technology. Due to the large financial scandals which have been recorded throughout the history, the need for “Forensic Accounting” has dramatically increased within business sphere. The pandemic of COVID-19 breeds several challenges for both governments and business firms in alleviating corporate scams, corruption, bankruptcy, money laundering, cybercrimes, and the like. The impact of such illegal practices hits the financial reporting and ultimately leads to misleading decisions. In fact, the internal and external auditors play different roles than the forensic accountants do. Seemingly, auditing and forensic accounting function in one area, but each drives its own way. Therefore, it is vital nowadays to assign forensic accountant who is well equipped with adequate knowledge, skills, and experience. Equally, it is essential to introduce forensic accounting education to meet the existed marketplace demands. This chapter is devoted to provide an overview about the concept of forensic accounting and how the entire world has significantly affected by the white-collar crimes especially during the global lockdown. In addition, it will clear the misunderstanding between forensic accounting and auditing. Furthermore, the chapter will explain the most important knowledge and skills a Forensic Accountant should acquire in order to perform successfully despite the fact that there is a lack of offered courses and degrees in Forensic Accounting globally. Finally, there are a number of issues facing the Forensic Accounting field which will be highlighted and discussed to be improved.

Keywords Accounting · Forensic Accounting · Audit · Investigation · Fraud · Corporate Scams · Money Laundry · Corruption · White-Collar Crimes · Cybercrimes · Artificial Intelligence · Bankruptcy · Dark Web · Higher Education · Pandemic · Bahrain

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2.1 Introduction

Frauds and financial crimes are serious global problems. The COVID-19 crisis stimulates the exploitation of vulnerabilities as digitalized financial services are dramatically employed during the lockdowns. Worldwide, the operational and reputational risks significantly evolved and expanded due to the fact that the massive online presence has led to put substantial pressure on cyber resilience capabilities at different-sized enterprises. Firms are not only facing threats from external parties, but also from internal management and/ or employees. In this regard, several financial scandals, corruption and bankruptcy cases were opened during the pandemic especially when enormous layoffs addressed the instant financial desires to stay away from poverty. Individual employee who is under financial burden may be opted to exercise fraud due to divorce, gambling, or other personal issues.

In order to meet stakeholders' expectations, some firms tend to be engaged in inadequate acts such as: asset misappropriation, bonus maximization, revenue overstatement, expenses capitalization, liabilities understatement, tax evasion, and more. Dishonest financial statements create false picture for which investors and other users would make wrongful decisions about the firm. Principally, the manipulation in financial registers is associated to the core accounting cycles which are sales, purchases, payroll, inventory, and reconciliations. Inevitably, the most difficult thing is to restore general public's confidence about the disclosed financial statements that have jeopardized their trust and reliance.

This situation pushes for the immediate need of "Forensic Accountant" who strengthens the credibility of financial statements in various work environments. It is true that most financial institutions are periodically hiring auditors to prepare their annual financial statements, although the forensic accountant has more acute and critical tasks to do. Forensic accountant deals with diversified matters such as divorce, insurance claims, frauds, auditing of publication rights and terrorism via applying some financial preferences (Zadeh and Ramazani 2012).

In order to minimize the likelihood of frauds, forensic accountant creates proper frameworks, settings, and procedures by offering integrated and real-time sources of information. Normally, when theft, fraud, or embezzlement exist within the business, forensic accountant may be appointed. Thus, governments and business enterprises at the present acknowledge that it is better to hire a forensic accountant before any financial crime takes place. By the same token, Chen in 2006 confirmed that forensic accountant could turn the fraud detection process from a "passive tool to an active role."

Fraud commitment is easy when there is no solid accounting information system within the firm. Consequently, countless cases of white-collar crimes have occurred as a result of the poor internal controls and conditions inside the business. As expected, the absence of a rigid accounting structure deteriorates the financial reporting. In response to the widespread of financial dishonors all over the world, the forensic accounting boosts the corporate governance through creating a favorable working environment that leads to improved fraud deterrence (Bhasin 2013). While adhering

to this, the auditor's duty is to examine the transparency and material misstatement of financial statements which are basically given by management. Explicitly, The Sarbanes Oxley Act states that management is responsible for frauds' detection and correction, and it is not the responsibility of auditors. The auditor could appraise the internal control through testing the segregation of duty and formerly offer helpful endorsements.

The COVID pandemic allows for more national and international financial and trade regulations. Governments update and issue their guidelines that are relevant to tax, money laundry, cybersecurity, corporate scams, and other similar topics. Under this background, higher education should concentrate on such subjects to be embedded in undergraduate programs and work in parallel with forensic accounting experts in courts, organizations, and institutions to deliver the new trends and solutions to seize potential and actual financial deceits especially in our time when digitalized transactions are severely running throughout dissimilar online applications.

The volatile chaos of 2020 has carried several shocking frauds. Wirecard which is listed on the top 30 companies in Germany founded guilty for the disappearance of more than \$2 billion from its cash assets. After a sequence of forensic investigations, the company appealed that the money has been saved in Philippines' banks. Nevertheless, these banks rejected such claim. Forthwith, Ernst and Young auditors are in trouble for signing off the financial statements without autonomously confirming the actual cash assets during the suspicious period. What is more is that Wirecard Ireland and UAE are criticized for inflating their profits and sales. KPMG's further investigations in 2019 indicated that the company had not made ample information to public which unsympathetically affected the opinions of interested parties.

Another case has been filed against the famous aviation company Airbus which appointed third parties to bribe officials in different countries to purchase their planes, helicopters, and satellites. After spending nearly four years of forensic investigations, the company in 2020 arranged to pay accumulative penalties exceeding \$ 3.9 billion to be the largest fine ever in the history's memory of bribery.

Remarkably, PwC composed data from 99 territories around the world to issue the report of global economic crimes and frauds which explicated that the top kinds of frauds in 2020 were: customer fraud by 35%, cybercrime by 34%, asset misappropriation by 31%, and finally bribery and corruption by 30%. It also stated that within the financial sector, customer fraud is the top distress while governments are tremendously under the cybercrime attacks. The report advises firms to sense fraud symptoms at earlier stages so financial harms can attain quicker recovery (EastNets 2021).

Likewise, the Federal Trade Commission in the USA received more than 200,000 complaints relevant to fraud, identity theft, and spam calls costing almost \$ 145 million for the duration of the first nine months of 2020 (*The New York Times* 2020).

This chapter includes seven sections. First, it presents the concept of forensic accounting in literature, its benefits, and the theories with reference to frauds and fraud detections. Secondly, it focuses on the role of forensic accountant for which business firms and other legal entities can truly benefit from him/her. Beside this,

it distinguishes the different roles of auditor and forensic accountant where there is a common confusion between their tasks. Thirdly, it provides an overview of how artificial intelligence can significantly contribute in embracing the frameworks and methods in detecting and discouraging frauds. Moreover, the fourth section discusses the knowledge, skills, and training a forensic accountant should acquire. Fifthly, it shed the lights upon the need of higher education to go hand in hand with accounting practitioners to bridge the gap between accounting education and market-place desires. The sixth topic indicates several challenges that are facing the educational and occupational sides of forensic accounting field which can be remedied by some convenient recommendations in the last seventh section.

2.2 Literature Review

2.2.1 *Understanding the Forensic Accounting Concept*

To begin, it is vital to recognize that White-Collar crimes differ from the Blue-Collar crimes in terms of their characteristics and motives. Criminals of the first category are educated, sophisticated, and competent enough to get a job with unwatched access to financial transactions and money sources which drive them for frauds, bankruptcies, corruption, money laundry, and cyberattacks. On the other hand, criminals of the second category have more tendencies to use their physical force during theft, burglary, assault, and vandalism.

The word “Forensic” means appropriate to be used in a courtroom. Forensic accounting goes beyond numbers and reflects the business reality. It gears toward the flow and outflow of money and who is liable. Williams in 2002 defined it as a professional practice that produces valuable analysis and judgment by linking legal and economic viewpoints through certain structures, disciplines, and practices. To put it another way, it is an investigative type of accounting used to conclude if an individual or an organization has involved in any kind of illegal financial actions (Okoye and Gbegi 2013). Forensic accounting as described by the Association of Institute of Certified Public Accountants (AICPA’s 2018) is the “application of distinctive skills in accounting, auditing, finance, quantitative methods, law and research.” It also demands extraordinary skills to gather, analyze, and consider the available financial indications and evidence to exhibit and communicate findings.

To demonstrate, forensic accounting field covers the accounting frauds, forensic auditing, securities frauds, defaulting on debts, money laundry, privacy information, compliance, due diligence, procurement fraud, risk assessment, detection of financial misrepresentation and fraud, tax evasion, bankruptcy, valuation studies, expenses reimbursement, tampering, violation of accounting regulation, and economic damages (Dhar and Sarkar 2010). Furthermore, it concerns with conflict of interest, claims, accidents, financial disputes related to divorce, reconciliation, arbitration, job suicides, and so on.

In reality, there are well-known names in today's business culture. For instance, Enron, WorldCom, Tyco, Xerox, and others have been recognized for their fraud commitments that lead to disastrous losses. What is not surprising is that financial crimes and scandals are appeared in almost each and every nation whether a developed or a developing country. As usual, media pays extensive attention on fraudulent events, corruption and bankruptcies mainly in the reputable organizations.

The unceasing series of financial misconducts that drive for financial collapse in various international companies obliged the necessity for further auditing requirements. Besides, the surrounding circumstances stimulate the need for forensic accounting's profession since this specialization becomes greater over the last span. Frauds cause unknown losses since it not only deals with financial damages but also with non-financial ones in terms of eroding employee's values, ethics, and organizational culture. Hence, it is difficult to be calculated even though losses are often estimated by experts.

In case financial statements are intentionally prepared unfairly, the results and balances could not identify the actual business situation. Coupled with this, the illegal doings of overstatements, understatements, improper accounting treatments would threaten the going concern principle. The reason behind the manipulation in the accounting records is to provide better perceptions toward the firm by enhancing its financial structure and performance. For this, a number of financial firms were involved in fraudulent actions which pushed them to cheat their stakeholders and present false figures. It has been found that most organizations with no audit committee are more prone to financial crimes.

When financial firms have opted to permit forensic accounting practices, it has been initiated that there are several gains comprising of the following:

- Conveys significant improvement in the quality of frauds' detection and prevention (Houck et al. 2006).
- Greatly helps the official authorities in investigations and evidence documentation (Eliezer and Emmanuel 2015).
- Expenditures are more controllable in public and private funds.
- Corporate governance, separation of duties, and internal control increase (Ozkul and Pamukcu 2012).
- Promotes creative accounting practices.
- Evaluates the firm's financial condition and health.
- Ensures right procedures while liquidation, bankruptcy, and other legal matters are going well.

And now, what is Fraud?

Fraud is a purposeful falsification of financial information by one or multiple individuals among top management, existed employees, or third parties in order to gain undue advantage (Dandago 1997). Lately, many fraud detection theories and methods have been recognized. For example, Cressy in 1953 studied "Fraud Triangle Theory" to explore the reasons behind fraud's commitment and found that each fraudulent case should consist of the four elements below:

1. Pressure: It motivates management or employees to fraud when luxurious pleasures, addiction issues, gambling habits, and large amount bills occurred.
2. Justification (Rationalization): The one who is engaged in illegal acts finds some words to defend himself/herself in front of others once he/she gets trapped to justify the misbehavior.
3. Opportunity: Management is fully responsible for any internal gaps within the accounting and controlling system. Of course, strict governance could prevent the birth of frauds and shrink the opportunities of potential banned plans.
4. Personal Capacity: It was added by Wolfe and Hermanson in 2004 explaining that personal traits and abilities could play a core role in frauds' involvement. This extra element changes the shape of fraud triangle into "Fraud Tile" or "Fraud Diamond."

Fraud Triangle is beheld as the most chief contribution to the forensic accounting ground. However, this theory has been widely implemented by auditors to inspect if frauds are committed or not, it has been criticized and considered useless, incomplete, and biased. Dorminey et al. in 2012 believed that the fraud triangle cannot entirely understand the background of frauds or even the characteristics of other white-collar crimes neither by individuals nor by corporations. Based upon their thoughts, both researchers and practitioners in forensic accounting domain should discard the application of fraud triangle and start to cultivate new contexts, disciplines, and models to obtain a deeper thoughtful of frauds and other types of financial crimes.

In the same fashion, Ma in 2006 proposed the "Fraud Tree Theory" via classifying frauds into three divisions: Corruption, asset misappropriation, and frauds. Subsequently, those main divisions have been allocated into 60 forms rendering to fraud elements.

Unlike frauds, errors are unintentional misstatements or omissions within accounting records or practices. To illustrate, Citigroup has lost out its endeavoring to retrieve more than \$ 500 million due to a mistakenly wire transfer to several companies. Therefore, it cannot be treated as a fraudulent behavior.

2.3 Can a Forensic Accountant Truly Benefit Your Firm?

Actually, many auditing firms now have established their forensic accounting department to meet the rising demand of other firms which are suffering from financial misconducts. No wonder that FBI has recently multiplied its forensic accountants to handle innumerable white-collar crimes. It is true that forensic accountant is the one who designs, organizes, and directs the financial phases of investigation. In 2015, Oyedokun defined that forensic accounting is a preventive profession where developing profiles of individuals and corporations becomes the main duty that should be performed by forensic accountant in order to go through deep and detailed interviews for the sake of gathering evidence from witnesses. Next, the forensic accountant

should run specific financial analysis and tests to arrive at accurate conclusions about the occurred fraud so the final report can support the judgments of court as well.

In different parts of the world, forensic accountant is also known as criminal accountant, forensic expert, fraud examiner, and forensic accounting investigator. It is worth mentioning that the conventional audit plan is not designed for forensic auditing, and regular external auditors have usually restricted time to inspect year-end balances. Whereas the role of auditor is to detect errors and material misstatement, forensic accountant seeks to detect frauds and other financial crimes (Skalak et al. 2006). Despite the fact that auditors function based upon sampling selection to prepare their audit report, the forensic accountant checks the whole documents under the named problem to interpret and visualize the results to court. Although auditors and forensic accountants acquire different tasks to do, it is confirmed the correlation between the two fields in combating and preventing frauds. It can be said that forensic accounting bridge the gap in audit via adding value to its framework, procedures, and outcomes (Santos et al. 2017).

Numerous firms certify the effectiveness of controls through their internal audit department. As much as internal and external auditors conduct their responsibilities, financial crimes within the firm continue to cultivate. What bring more complications to fraud's detection and prevention is the lack of auditor's independence mainly when there is a high participation of management (Owojori and Asaolu 2009; Elali 2021; Alareeni 2019). An existed study conducted by Madan in 2013 holds that practice of forensic accounting drives for better corporate governance.

In like manner, Al-Sharairi in 2018 capitalized on the role of forensic accounting in detecting tax evasion cases in Jordan. He claimed that external auditors do not implement forensic accounting methods to identify purposive tax evasion. In addition, he stated that there is no specific governmental authority to deal with forensic accounting services in terms of monitoring industrial companies. He settled that forensic accounting scheme is successful and effective in finding out frauds which are related to tax.

Aduwo in 2016 demonstrates that forensic accounting offers substantial contributions to combat against corruption in Nigeria. It has been reported that 80% of overall criminal proceeds belong to the top 20 leading economies of the world. As known that UK has a rigid anti-money laundry system, the organized crimes cost the country a minimum of £37 billion annually (John Cusack 2019). In addition, the official information in Russia shows that there are 96,124 registered economic crimes between January and October 2020 for 302 billion rubles.

Approaching Arab World, Saudi Arabia in 2017 targeted several princes and businessmen who are engaged in corruption activities and assigned the Ritz Carlton in Riyadh to be the detention for them. The government collected from the settlement an approximate of \$13 billion in 2018.

Similarly in 2020, the public prosecution in Kuwait received complaints from local banks about a severe proliferation in the financial assets of few social media influencers. Later, Kuwaiti government started forensic investigations where travel ban decisions and immediate seizure of social media influencers' assets were imposed. During the same period, Kuwait has documented the most high-profile cases in

corruption when the Malaysian fund scandal and the case of Bangladeshi Member of Parliament have drastically disclosed in media which draws sizable attention on these matters.

Identically in December 2020, Bahrain wins the appeal in Future Bank case which has committed with other Iranian Banks in money laundry undertakings for around \$ 43 million. The court sentenced the five criminals to prison and penalized them 1 million dinars respectively with confiscation command of \$ 3 million of funds and property.

It should be remembered that stakeholders, investors, and participants can only make their rational decisions when they attain dependable financial statements. Accordingly, financial firms are expected to produce and release accurate and trustworthy information and not to hide any financial hurdles. Comparatively, governments around the world have no exception. So again, the serious need for forensic accountant in high-profile financial fraudulent crimes is considerably important to conduct the investigations to bring together the financial forensic evidences. Thus, courtrooms, financial, law and insurance firms could utilize forensic accounting to augment the subsequent activities of:

- Computer Forensics: by developing computerized applications for analysis and presentation of financial evidence.
- Litigation Consultancy: by working with advocate and their clients in terms of case preparation, evidence and strategy.
- Matrimonial Disputes: forensic accountant helps in divorce cases for matrimonial assets and liabilities.
- Dispute Settlement: for resolving cases related to contract disputes, construction claims, products liability claims, infringement of trademarks and patent, and so on.
- Insurance Claims Settlement: to assess claims of policyholders to be settled.
- Mediation/Arbitration Service: to resolve matters related to partnership and corporation disputes.
- Professional negligence: could identify professional negligence cases like non-conformation to GAAP or non-compliance to auditing practices or ethical codes of any profession.
- Criminal Investigation: by attending court to testify court hearings as expert witness and give his opinion in fraud and white-collar crimes.
- Fraud Investigation: assisting business investigations where employee involved in fraudulent activities.

Under the background of frauds, forensic accountants inspect where fraud might occur. Moreover, they endorse if clients, sales, and purchases are authentic. Into the bargain, they keep an eye on any upcoming or doubtful events that may raise the managerial motives and opportunities to manipulate. Therefore, it is important to understand the business values, ethics, management styles, strategies, reward compensation, performance reviews, and structure of top management.

While some firms encourage their employees to report any irregular behavior through diversified mechanisms of whistleblowing such as the hotline, it is originated that 82% of those employees who reported frauds were terminated or resigned under duress (Montesdeoca et al. 2019).

2.4 The Rewarding Integration Between Forensic Accounting and Artificial Intelligence

Outstandingly, the advancement of information technology has created a big challenge in identifying potential frauds amid big data. On the contrary, technology and artificial intelligence yield fruitful outcomes to enhance the operations of fraud detection. “Digital Forensic” is the way to find the desired data which can act as factual evidence in the court. The analytics of big data help to highlight red flagging transactions which are beyond the predetermined threshold (Kranacher et al. 2011). It is exhibited that each analytical tool in forensic accounting has its own advantages and disadvantages.

Nowadays, the financial frauds are fought by intelligence. Artificial intelligence is a key technology with prospective to produce real results in detecting financial crimes. Machine learning as well is widely used to predict and analyze the patterns of payments fraud. This sort of technology enhances the business intelligence approach to be more effective in compliance and legal support services. As asserted, machine learning provides the power of speed, maximizing the likelihood to tackle frauds, and quickly react to patterns where humans alone cannot execute (Irons and Lallie 2014). It is important to balance between human touch and technology by creating a convenient hybrid in order to upturn the efficiency of pinpointing financial crimes.

With the purpose of recognizing financial statements’ frauds, countless ratios, statistical models, and other professional techniques are implemented such as:

- Benford’s Law: A mathematical tool using the Z-test to spot the probable area of frauds through determining any significant variance between two populations.
- Beneish Model: It fully scans the disclosed financial statement through analyzing the ups and downs in amount from period to another.
- Relative Size Factor’s Theory (RSF): After employing specific ratio comparison, all uncommon fluctuations should be underlined and investigated.
- Computer Assisted Auditing Tools (CAATs): It is computerized programs that perform redoing tasks such as recalculation of balances, re-testing details of transactions, locating irregular and erratic fluctuations, and providing sampling for audit purposes.
- Ratio Analysis: Abundant ratios are used to predict the associations between numerous accounting records which help the forensic accountant to pinpoint promising symptoms of fraud.

- Data Mining: Large bulks of data are extracted for noticing the patterns, trends, and variations in the accounting system that benefit in the prediction of any significant deviation from the acknowledged norm. Data mining offers various tools to detect fraud such as: classification, regression, clustering, fuzzy logic, genetic algorithms, and others.
- Documentation Management: It is preferable to establish an electronic system which saves and presents all types of evidence in the legal proceedings. Several financial firms acquire “Forensic Technology Lab” which prevents the manipulation in evidence by storing them in a digital format.
- Spot the Unusual: Forensic accountant should look for the financial transactions entered during the holidays or after the normal working hours since it is a golden opportunity to exercise illegal acts.
- Know Your Employee: It is deemed necessary to verify your employees’ credentials in terms of their education, previous employments, unresolved lawsuits, criminal records, psychological and physical check.
- Corporate Intelligence: It is essential to implement “Due Diligence Check” on third parties during partnerships, strategic alliances, mergers, acquisitions to ensure the ownership structure, credit worthiness, compliance, awaiting lawsuits, senior management status, and history of fraud.
- Social Network Analysis: It is a visual analysis that provides abundant insights into the network structure by indicating the centrality of a person within the premeditated network and helps to discover the hidden activities of a certain group over a communication medium by highlighting the connection between two nodes. Consequently, the forensic investigator could determine the most and least influential parts of the fraud.

Apparently when forensic investigations are positioned through networks, the difficulty to find the location of evidence among large log files becomes bigger expressly if they are linked to firewalls and web servers. Grispos et al. in 2012 mentioned that cloud investigations have not received extensive responsiveness in research. For this reason, the available methods and guidelines are unsatisfactory to conduct suitable cloud examinations.

The proliferation uses of dark web which is accessible via particular protocols and networks embrace new numerous ways of online crimes. Phishing emails and fake SMS and websites allow criminals to steal sensitive information from individuals and companies. Malware acts can destroy compromised networks, computers, and mobiles in order to damage the recorded data within systems.

Online criminals can also fake virtual profiles and accounts of victims by abusing their identities, addresses, birthdays, and more. Dark web facilitates the money laundry through transferring illicit funds to compound unnamed accounts. Another popular method to conduct financial crime is to purchase goods or even make fake purchases via stolen credit cards. Beside this, dark web is misused by trading weapons, drugs, hacking, crypto services, and so on. It is worth mentioning that in some countries, cryptocurrencies are considered illegal whereas other countries issue specific regulations to monitor the transactions in this regard.

2.5 What Do We Need to Prepare a Forensic Accountant?

It is pertinent that forensic accountant grabs weighty attention amid global financial markets. Because of the changing aspects of business world and information technology, financial crimes and manipulation become more multifaceted than before. Being a prosperous accountant does not necessarily mean being a successful forensic accountant. As forensic accounting is a fresh branch of accounting that requires specialized knowledge and skills, further education and training courses are highly recommended. Likewise, it is indicated that forensic accountant should acquire “special talents” in auditing, finance, accounting, law, compliance, criminology, computer and web forensics, frauds detection and response, business valuation, ethical standards, and more (Gray 2008). It cannot be overlooked that the forensic accountant should have the ability to function under complex environment to reconstruct the purposeful misplaced and damaged accounting records.

By the same token, forensic accountants should be familiar with the documentation management and court procedures in terms of planning, preparing, gathering, assessing, storing, and retrieving documents and evidence so they can assist lawyers to submit their accurate, reliable, and professional verdicts and defenses toward different cases. Okoye and Akamobi in 2009 appointed that advanced oral and written communication skills are significantly important in this field.

It is imperative also to acquire adequate skills in analysis, leadership, investigation, problem solving, critical thinking, and decision-making. Uyar and Gungormus in 2011 accredited some individual traits such as curiosity, teamwork, creativity, quick response to incidents, having skeptical mind, and nonstop learning. Tempone et al. in 2012 have deliberated presentation skills, the ability to plan and being organized, technological proficiency, and problem solving to be the top characteristics a forensic accountant should possess.

Similarly, Enofe et al. in 2013 underlined the significance of human conduct to deal with disputes. Forensic accountant should attain sufficient knowledge in human psychology, social behavior, and body language to detect criminal actions amid investigative interviews, solving disputes, and gathering evidences from witnesses due to the fact that courtrooms are seeking resourceful and dependable forensic accountants (Crumbley and Smith 2009).

An empirical study about the public sector in Malaysia set by Salleh and Ab Aziz in 2014 specified that there are high ratings for five particular traits of the forensic accountant who is required to be analytical, ethical, detail-oriented, confident, and evaluative. The second objective of the study was to examine the most important core skills of forensic accountant. The findings show that investigative ability, auditing skills, strategic thinking, identifying key issues, and lastly understanding the goals of a case have recorded the maximum score. The secondary skills which are also considered essential for forensic accountant are interpreting financial statements, fraud detection, audit evidence, asset tracking, and internal controls’ competencies.

Normally, firms relied on forensic accountant in order to maintain the financial well-being of business especially after the appearance of frauds. With advanced and

complicated systems, it becomes harder to find and quantify economic damages. A forensic accountant deploys statistical packages and scientific methods to reach sound decisions. Most frauds now are going through a detailed process in computer systems. The forensic accountant knows which evidence to extract from the system in order to confirm or decline the fraud.

What is more, both independency and objectivity are crucial for forensic accountant (Ojo 2012). To say nothing that foreign forensic accountants are more favored than locals in many countries even though when they have sufficient and professional knowledge and skills in the field. For instance, the Lebanese government allotted external agency to bear forensic auditing of the Central Bank (BDL) for \$2,100,000. The bank claimed that hiring Lebanese forensic accountants might increase the biased activities and conclusions (Fakih and El-Mousawi 2021).

Today, forensic accounting profession is dramatically on the rise as the economic crimes and financial scams are increasing as well. Yet, it is not established or organized however countless public and private organizations globally are under stress of different white-collar crimes.

Next section shows that accounting graduates who have no appropriate insights to forensic accounting's concepts are no longer in demand. Hence, what can higher education do instead to produce qualified forensic accounting graduates?

2.6 Forensic Accounting in Higher Education

The accounting education supposed to produce more qualitative graduates to properly fit within the labor market. Bonita et al. in 2016 appreciates students who attain convenient forensic accounting skills and training as this arena will continue to nurture. This would meaningfully increase their hiring aptitudes and opportunities to work in law agencies, audit and consultancy firms. Empirically, hiring potential is improved when a student finalized a forensic accounting course. Thereupon, Carpenter et al. in 2011 mentioned that students who undertook a forensic accounting course acquire more professional skepticism than others who did not. In addition, Lee et al. in 2015 affirmed that participating in forensic accounting subjects yield higher levels of students' creativity.

The first studies about forensic accounting education identified four universities only which offer a separate forensic accounting course as stated by Rezaee et al. in 1996. However, by 2014, Seda and Kramer found a significant escalation to reach 447 colleges and universities inside and outside the USA with 81 dissimilar certificate or degree programs. It is clear that forensic accountant-published research in developed countries are more than the ones in developing countries such as Bahrain, UAE, Nigeria, Iran, Iraq, Turkey, Lebanon, Jordan. That is because countries such as the USA and Canada recognized the vital role of forensic accounting earlier than others and accordingly started for two decades to invest incredibly in its pedagogies whereas this field is still fresh and evolving in other regions.

Data displayed the very low level of consciousness on forensic accounting between undergraduates in Nigeria (Efiog 2012). Furthermore, accountants in Iran possess limited knowledge toward the methods and techniques of forensic accounting based upon the study of Zadeh and Ramazani in 2012.

China, in particular, established exceptional creativities to expand their financial markets to invite foreign investors. Conversely, local financial regulations do not support the investors' rights and interests. Hao in 2010 clarified that the supply of forensic accounting services is not delivered by any dedicated organization. In reality, the Chinese government controls major industries and hence forensic accounting is practiced more through its official bodies. A survey in 2016 discovered that Chinese students believed that forensic accounting education is significantly essential and would originate better opportunities after graduation. They suggested that forensic fieldwork should be combined to auditing textbooks and engagements (Rezaee et al. 2016).

As a result of experiencing catastrophic financial issues around the globe, accounting professionals, practitioners, and educators started to increase their calls for forensic accounting education (Carozza 2002). In this regard, Buckhoff and Schrader in 2000 examined the perceptions of students, practitioners, and employers about the addition of a course in forensic accounting to the curriculum. The findings of their questionnaire concluded that this would extremely benefit everybody. Another study prepared by Ananto in 2015 highlighted the meaningful phase of introducing forensic accounting subjects to undergraduate students in Indonesia. Notably in Iraq, accounting lecturers admitted the solid association between forensic accounting education and the discovery of frauds (Abdullah et al. 2014).

It can be understood the reason behind the slow response of higher education to work on embedding forensic accounting pedagogy to existed accounting curriculum or even by introducing it as a new separated degree. There is a low awareness about the magnitude and impact of fraud by educators (Bonita 2003). At this point, some academicians preferred the first option of merging forensic accounting subjects to existing courses. On the other hand, some chose separate modules due to lack of room of new topics. Indeed, the principal obstacles for bringing forensic accounting on field are curriculum and faculty as acknowledged by Abdullah and Sutan in 2014.

It is agreed that few universities are interested and concerned about forensic accounting arena. Elitas et al. in 2011 went through a study among the Turkish universities to scan the readiness of accounting instructors in providing the proper knowledge in forensic accounting. They believed that universities should deliver seminars, workshops, and training for their faculty prior to host the new program for students.

Nearly most studies on field on forensic accounting underscored that the primary issues facing the supply of forensic accounting education is the internal restrains including the faculty, administration, curriculum structure, and others. It is neither because of a supposed shortage of demands in the marketplace nor by students' interests.

As a matter of fact, that various zones in forensic accounting such as data analytics, cybercrimes, digital forensics, losses valuation, conflict resolution, and proper remedies need an expert in computers or law which a regular accounting lecturer does not own. So as to enjoy a successful forensic accounting program, universities should acquire strong enrollment and interest of students in the field, qualified faculty, and, of course, career opportunities.

Although forensic accountants commonly learn the forensic accounting analysis and disciplines over their jobs, there is a need to provide the right content of forensic accounting pedagogies in order to satisfy the global dynamics of markets. Absolutely, having one forensic accounting course at university is not sufficient to prepare future forensic accounting. Day by day, academicians and students of accounting spot the dynamic changes and improvements in this major even though forensic accounting on professional and educational levels—in Gulf countries for example—is still absent and unclear. Hence, the gap between industrial demand and forensic accounting degrees is getting wider.

It is rarely to find research about forensic accounting's applications in Gulf countries. In 2011, PWC firm estimated that the white-collar crimes including the fraudulent practices in the Middle East would go up. For example, all forensic accounting employments in Bahrain are occupied by foreign universities' graduates as this degree is not available at all. Hidayat and Al-Hadrami in 2014 initiated that the recent scenario in universities of Bahrain is "not remarkable" under the background of forensic accounting.

Bansal in 2019 claimed that the forensic accounting education in Bahrain has not received any suitable coverage. He presented that the awareness of accounting students about forensic accounting is mainly sourced by classroom lectures, workshops, textbooks, and specialized journals. The same study claimed that the demand for forensic accounting education would increase in the foreseeable future and suggested that at least one forensic accounting course should be delivered to students at senior levels to meet the industry's desires.

Excitingly, there is one more study in GCC which describes the UAE experience to combat frauds through education. The report of global economic crime survey of 2014 specified that UAE faces asset misappropriation by 78%, then cybercrime undertakings, procurement frauds, bribery acts, and corruption. Together with this, frauds reached at 31% which is above the expected average of Middle East of 22%. If financial crimes yield adverse impacts on firms' and people's lives, the auditors from Dubai Courts, Dubai Police, and other financial departments are required to study dual forensic accounting subjects at University of Wollongong in Dubai. Universities in UAE pay attention to bring such accredited courses in forensic accounting as a result of the augmented competition and innovative technology among local and international businesses (Bhavani and Anupam 2018).

If future always holds uncertainty, the USA announced that there is a shortage of nearly 190,000 analytical specialists in Big Data which is mainly employed in predictions and interpretations. For this, Rezaee and Wang in 2018 pinpointed the importance of the integration between forensic accounting and big data under the business curriculum in order to improve students' knowledge and practices.

Besides, the market demand for students with business intelligence (BI) skills is sharply developing according to Wixom et al. in 2014. By the same token, the following five years in the Middle East would require 10,000 data solution architects according to Amazon Web Services report of 2019. Under those circumstances, Bahrain and other countries in this region should dedicate significant investments in education and training in novel specializations such as forensic accounting, artificial intelligence, engineering, science, and space.

2.7 Challenges Encounter Forensic Accounting Landscape

While governments applied confinement measures and travel constraints because of the global pandemic in 2020 till now, new means for criminals generated unlawful earnings. They take advantage of COVID-19 outbreak to commit financial frauds, corporate and medical scams, money laundry, cybercrimes, asset misappropriation, fundraising for fake charities, and so on.

Generally, national authorities along with international bodies notify citizens and businesses about such illegal deeds and motivate them to report any suspicious deeds. Countless central banks announced that social engineering attacks through phishing emails and mobile messages are dramatically increasing during the pandemic by multiple spam campaigns which are directly connected to fraudulent websites which seek personal payment information.

Since the last year 2020, numerous bank workplaces were closed due to the global lockdown and turned to offer their services digitally. This perhaps exposes many customers who are less familiar with online banking to face frauds. Some criminals who exploit economic volatility and remote working conditions find different and innovative ways to bypass the financial regulations via abusing the gaps in internal controls in order to launder funds or conducting other economic crime. The “Digital Onboarding” becomes significantly challenging as there is a serious need to observe unusual flow of funds to monitor high-risk transactions and scan potential doubtful endeavors. Under those circumstances, the occurrence of forensic accounting education and profession is important exclusively in the present time where market disruption, massive layoffs, and economic uncertainty create an excellent environment for frauds to blossom.

It is equally imperative to mention that forensic accountants face dilemmas to carry on their normal tasks during the pandemic where courtrooms are closed, and face-to-face interviews and investigations are difficult to be arranged. Moreover, forensic accountant cannot go through all documents when working remotely. Furthermore, the lack of human contact remains a major problem for which forensic accountant becomes unable to sense the body language of witnesses and suspicious individuals through online platforms such as Zoom. Identically, forensic accountant works with a team of attorneys, internal auditors, experts, and others which are no longer together. The pandemic put the forensic accounting occupation on hold since various chores cannot be accomplished such as the tracing of assets.

Overall, forensic accounting service is more expensive than the regular auditing. Lack of effective internal controls and proper segregation of duties allow for more fraudulent doings inside the business firms. The fragile financial regulations and regimes create golden opportunities for criminals to exploit the gaps and perform illegally. In like manner, forensic accountant could find it difficult to tackle oversea criminals' practices. For this, there is a need to coordinate with Interpol and other international bodies to combat fraudsters. It is essential to bear in mind that forensic accountant should be updated about the new methods, trends, and means of white-collar crimes and how can they response quickly and adequately by implementing the latest business analytical systems.

Coupled with the previous concerns, when senior management put employees under pressure of meeting certain targets, the likelihood to interrupt ethics and values by engaging in white-collar crimes might rise. Thus, forensic accounting career requires special knowledge, skills, and experience to go through long, comprehensive, and complicated phases of investigations and inspections since the findings which are given to court are sensitive and should be precise as they intensely allied to the corporate's image, employees' reputations, and business sustainability.

2.8 Concerns Related to Higher Education

The COVID pandemic raised the concerns toward sustainable education, online teaching methods, learning assessments, and outcomes. With no doubt, eLearning offers flexibility in time and place for both instructors and learners. However, at the same time, it is criticized for the lack of human interactions between them. As affirmed by Aguguom et al. in 2020, the ineffective learning process and performance could lead to adverse results on students' imminent professionalism.

By focusing upon the issues related to forensic accounting in higher education, it is noticeable that distance learning needs a unique pedagogical approach to preserve the quality of teaching and learning aftermath. Liberman et al. in 2020 stated that it becomes necessary to perform more formative assessments to examine the students' understanding. Therefore, labs should be properly equipped with software and educational tools which means satisfactory infrastructure. It is remarkable that students in poor and countryside regions cannot afford the Internet which creates difficulty to access different educational platforms.

According to the current situation where the third wave of the virus is striking the world, several educational institutions call for digitizing the accounting education and look for better ways of students' assessments. Introducing an online forensic accounting course or degree for the first time required distinctive efforts to increase the enrollment of students. Beside this, it is essential to emphasize the self-efficacy of the instructors in terms of their capacity to produce the desired performance attainments especially when new topics or degree in forensic accounting subjects are launched. Accounting instructors also should know how long they need for their lecturing timing.

Recent research prepared by Sarea et al. in 2021 found that around 80% of surveyed accounting faculties among Arab World foresee that digitizing accounting courses would be the new prominent trend in universities. Further findings elucidated the significant role of both Microsoft Teams and Zoom software in leading the online teaching in the same region. It is true that familiarity with technology and low technological fears could extremely enhance the educational learning to become more reliable and efficient.

2.9 Conclusion

2.9.1 Conclusion and Recommendations

It can be concluded that this chapter provided an overview about the concept of forensic accounting basically in terms of fraud and cybercrimes. It also underscored the role of artificial intelligence to enhance the detection and prevention of white-collar crimes. Beside this, it highlighted the principal tasks that should be performed by a successful forensic accountant. Moreover, it pinpointed the type of knowledge, skills, and training which are vital to be attained by the forensic accounting. Furthermore, it mentioned the role of higher education to boost the introduction of forensic accounting courses and/or degrees. After that, it showed the risks associated with this domain on professional and educational sides. Finally, it offers recommendations to improve the forensic accounting sphere in order to promote better results for societies.

2.9.2 Recommendations

As the presence of research in forensic accounting landscape is still at its inception stage, it is greatly recommended to bear more studies on scheming and examining new methods and applications in technology which facilitate a rapid detection of fraud signals. Next to this, it is vital to diagnose the contents of forensic accounting's subjects by compiling the most relevant knowledge to the business curriculum. Here again, the research drives for better understanding of what marketplace demands post to the global pandemic and its destructive impacts on economies.

Since the last decade suffered from countless financial crimes, effective employment of resources and fair presentation of financial statements became the top priorities at every firm. There are several ways to prevent or at least minimize the potential of frauds and other financial misconducts inside the business by undertaking the following recommendations:

- Establish internal solid anti-fraud framework to reduce the risk of illegal practices.
- Keep a constant surveillance on the daily transactions and drive for zero tolerance to frauds through effective leadership.
- Document, share, and communicate the code of ethics among stakeholders on periodic basis through official meetings and online posts on the organization’s website.
- Apply and encourage the “Whistle Blower” mechanism for reporting prohibited and suspicious doings within the firm.
- Demonstrate corporate governance through ensuring segregation of duties and strengthening effective internal controls.
- Develop the knowledge and skills of your accountants by motivating them to undertake forensic accounting subjects and relevant professional certificates.
- Collaborate and coordinate with forensic accounting practitioners and educators to identify the need in marketplace.
- Embrace the role of artificial intelligence in discovering and preventing financial frauds.
- Update your system and back up necessary information regularly.
- Encourage for audit committee.
- Review your regulations continuously to find any existed gaps.
- Run ad hoc risk assessment whenever needed.
- Apply durable cyber resilience measures and increase data protection activities.
- Learn from other financial firms’ mistakes and experiences and inspire them with stories of courage.
- Prepare your crisis management and communication plans.
- Financial firms could call for “Forensic Accountant Association” to organize more events and fruitful discussions regarding this issue.
- Ensure the alignment with the country’s financial regulations and report for any probable or existed financial crime at the official authorities.

In the same fashion, higher education is recommended to:

- Adjust accounting curriculum to meet the needs of labor market.
- Conduct more research about forensic accounting through integrating education and industry.
- Deliver forensic accounting workshops, lectures, and seminars to those who are interested in order to increase the awareness about this field and to improve the faculty capabilities to teach the relevant subjects effectively.
- Ascertain the hiring potential for students and the role of forensic accounting at this time to maintain the well-being of economy by shutting down the likelihood of white-collar crimes that could severely damage the civilizations.

To end with, governments could enhance its economic crime measures through:

- Designing a study on economic regime that combats all types of economic crimes.
- Reviewing financial regulations and laws occasionally to detect any gaps which criminals could exploit to bypass their illegal doings.

- Increasing the awareness of public toward the economic crimes and its bad impacts on societies; informing them about the penalties as well.
- Encouraging people to report any doubtful acts under the umbrella of economic crimes and reward them with non-monetary incentives.
- Performing regular risk assessments for all official authorities.
- Updating effective plan for cybersecurity.
- Maintaining effective and latest systems and methods for frauds detection.
- Educating and training the concerned employees who work in auditing, anti-fraud, and compliance occupations.
- Disclosing financial crimes' cases in different media platforms so everybody learns.
- Verifying that governmental, semi-governmental, and private enterprises are functioning in safe environments.
- Responding properly to holistic economic prohibited activities.

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