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Forensic Auditing and Weak Signals: A Cognitive Approach and Practical Tips

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Abstract:

Purpose: *This study aims to establish the possibility of using weak signals during forensic auditing.*
Approach/Methodology/Design: *The insights in this paper have emerged iteratively through consideration of both theory and the empirical case based on public auditors' database analysis. Such an approach is consistent with an abductive approach.*
Findings: *A detailed analysis revealed that there is a need to use weak signals in forensic auditing practices. Besides, it was found that forensic auditing is not developed by supreme audit institutions, which are the most crucial auditor in the public sector. Such situation questions the effectiveness of these organisations in the fight against irregularities in the public sector.*
Practical Implications: *The article brings several valuable information that can be the base material and reference to further research. It provides practical tips on how to plan and carry out forensic auditing using weak signals.*
Originality/Value: *There are several studies on forensic auditing or weak signals; however, the research question – how to use weak signals during forensic auditing was without an answer. It is the first such research in the World. Besides, the article presents the original definition of forensic auditing.*

Keywords: *Forensic auditing, public management, weak signals, foresight, external auditing, supreme audit institution.*

JEL Code: *M4.*

Paper Type: *A research study.*

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1. Introduction

Although forensic auditing is the subject of some research (Thornhill, 1995; Durtschi, 2003; Singleton and Singleton, 2010), there is a lack of sufficient studies on forensic auditing methods. Meanwhile, the scale of frauds, extortion and corruption is not decreasing globally. Developing countries with low wages are particularly at risk of crimes (Transparency International, 2019).

The concept of forensic auditing has made a "career", particularly in developing countries, becoming a kind of buzz word in recent decades. It is an ambiguous and axiological term, as evidenced by different meanings of this concept adopted by scientists and practitioners (Thornhill, 1995; Durtschi, 2003; Grippo and Ibex, 2003; Squires, 2003; Amanatidou *et al*., 2005; Singleton *et al*., 2006; Gray and College, 2008; Mohd and Mazni, 2008; Njanike *et al*., 2009; Kasum, 2009; Singleton and Singleton, 2010; Eiya and Otalor, 2013; Akenbor and Ironkwe, 2014). Interpretation discrepancies or defining forensic auditing as a set of description of its effects means that there is a need to define this type of audit. Therefore, there is a need to organise the conceptual apparatus and propose a universal definition of a forensic audit.

Besides, a systematic review of the literature showed that there is a research gap in the field of using the concept of weak signals during forensic auditing. Considering the fundamental need for the development of forensic auditing concept on an international level, the author of this article would like to describe the weak signal's approach in forensic auditing. The research question is the following: Is it possible to use the weak signals approach in forensic auditing? The paper proceeds as follows. First, it reviews the previous research on forensic auditing and weak signals. After that, the audit method is discussed, followed by the results of the study and conclusion.

2. Forensic Auditing

Researchers do not question the need for forensic auditing in research and practice. It is also not surprising that there are many interpretations of what this type of audit is. Depending on the scientific discipline they represent, they define forensic auditing from an accounting or legal perspective. Akenbor and Ironkwe (2014) state that a forensic audit usually examines allegations and complaints about wrongdoing involving significant federal funds or assets. The audit procedures ensure that any evidence of wrongdoing may ultimately be presented in administrative, civil, or criminal proceedings. Grippo and Ibex (2003), underline that forensic audits are more intensive than regular audits and are usually conducted in a series of steps to determine if allegations can be substantiated. Thornhill (1995) states that forensic audits require a clear and detailed audit plan that is designed to obtain information on how, when, and where the wrongdoing occurred and who committed such wrongdoing. The above generalisations do not define the essence of forensic

auditing and how such an audit differs from other types of audit, for example, performance auditing or financial auditing.

The analysis of the literature (Cicchella, 2005; Crumbley, Heitger and Smith, 2007; Russell and Gordon, 2017) has shown that forensic audit is understood as the application of accounting methods to gathering evidence, usually to prosecute crimes such as embezzlement or fraud. This type of audit is also referred to as court accounting. It focuses on detecting irregularities in bookkeeping and preparing financial statements, as well as irregularities, e.g., related to bankruptcies of companies, detection of stock exchange fraud, tax fraud, money laundering, IT fraud.

Other authors also focus their attention primarily on the effects of an investigative audit and thus distinguish it from other types of audit (Durtschi, 2003; Squires, 2003; Amanatidou *et al*., 2005; Singleton *et al*., 2006; Gray and College, 2008; Mohd and Mazni, 2008; Njanike *et al*., 2009; Kasum, 2009; Singleton and Singleton, 2010; Eiya and Otalor, 2013). Therefore, there remains an unresolved problem of what an investigative audit is. In the light of the above characteristics of the forensic audit process, it is reasonable to generalise that such audit aims at assessing whether the activity of the audited organisation is correct from the perspective of the organisation's stakeholders. Forensic audit understood in this way serves to reduce the opportunism of the parties to the contract, which may contribute to the efficiency of management.

The forensic audit is the type of audit with methods and techniques focused mainly on detecting irregularities (Dobrowolski and Kościelniak, 2018). The forensic audit is not intended to provide examples of best practice. Apart from the differences, there are also similarities of the forensic audit to other types of audit. The similarity to other types of audit stems from the forensic auditors' obligation to apply basic audit principles, such as objectivity, impartiality, due diligence, rules of writing, the presumption of innocence of the audited persons. All these rules are the same as the rules set out, among other things, in the international auditing standards (Dobrowolski and Kościelniak, 2018).

A forensic audit is used to eliminate pathological phenomena, including fraud, corruption, mismanagement in the activities of an organisation, the occurrence of which hurts its image. Thus, it concerns de facto critical issues for the strategic goals of the organisation. Early identification of threats allows for effective countermeasures. Therefore, one may generalise that forensic audit is similar to strategic control. The strategic control is understood as the process of change management by reacting to and influencing the factors determining the instability of the organisation (Lorange *et al.*, 1986). One may generalise that forensic audit is the process which helps in risk management by identification and mitigation the factors increasing the instability of the organisation.

3. Foresight and Weak Signals

Foresight is broadly presented in the literature. Researchers have pointed out that foresight not only looks into the future but also includes utilising implementations for the present (Ansoff, 1982; Martin, 1995; Barker and Smith, 1995; Cuhls, 2003; Cuhls, 2008; Georghiou *et al*., 2008; Iden *et al*., 2017; Cuhls, 2019; Dobrowolski, 2020). Foresight leads to the selection of one of the different future options and creation conclusion for the present, and decision for one of the options. Foresight is not planning. It can be seen as the bridge between past experiences, current and the future (Cuhls, 2003; Andriopoulos and Gotsi, 2006; Georghiou *et al*., 2008; Dobrowolski, 2020). Therefore, one can generalise, that foresight is the overall process of creating an understanding of information generated by looking ahead (Dobrowolski, 2020).

Foresight includes identification of weak signals, which are understood as early signs of upcoming events (Hiltunen, 2008; Saritas and Smith, 2011; Lambert and Sidhom, 2011). Weak signals are early warnings of something, which is coming (Mendonca *et al*., 2004; Smith and Dubois, 2010; Hauptman, Hoppe and Raban, 2015). The pioneer of weak signal analysis development - Ansoff defined weak signals as warnings that are too incomplete to permit an accurate estimation of their impact and to determine a complete response (1982). These events, after the occurrence, affect individuals, groups and organisations and their environment in the very indefinite future (Botterhuis *et al*., 2010; Dobrowolski, 2020). Weak signals can use to identify and prevent some pathological phenomena (Brynielsson *et al*., 2013) and can be perceived by the context of peripheral vision (Ilmola and Kuusi, 2006). Weak signals can be compared to the concept of "red flags", which is used in the audit (Dobrowolski and Kościelniak, 2018). However, unlike red flags, which relies on an analysis of experience, weak signals can emerge for the first time in an organisation.

There are several methods for identifying weak signals—first, scanning and monitoring. Next, almost every forensic audit, after establishing its scope and objectives, starts with scanning the external and internal environments for weak signals identification. Horizon scanning analyses potential challenges and likely future developments for a company or an area (Jackson, 2013). There are two types of horizon scanning: exploratory and issue-centred scanning. Exploratory scanning is focused on search by keywords, broad scanning. In the case of issue-centred scanning, the researcher should carry out the analysis of literature reviews, the analysis of additional sources related to the concrete issue (Amanatidou *et al*., 2012).

There is also social scanning available. Pang (2010) underlines that such scanning consisting of aggregating and analysing publicly available content created by someone and shared on blogs and other social software platforms.

Second, modelling, clustering, and interpretation. Researchers may use these methods for weak signals identification, assuming that there is a need to create the required model for analysis, and the forming and interpreting of groups of similar signals. The model includes three elements: object, a representant and interpretation and risk analysis. There are some software and tools for clustering data. It is worth noting that some authors (Thorleuchter and Van den Poel, 2012) propose the usage of semantic clustering approach to group documents with similar meaning for the further detection of weak signals. Third, expert's opinions obtained, among others, using heuristic methods can help identify weak signals.

Fourth, the usage of software enables data analysis to identify weak signals. For example, Yoon (2012) has used web mining, comprising an intellectual analysis of web content. Rossel proposes to create a link between data analysis and developing strategies according to the results of data analysis (2011). Researchers may use deductive or inductive data analysis to identify weak signals (Cooper *et al*., 2011).

4. The International Organization of Supreme Audit Institutions

The International Organization of Supreme Audit Institutions (INTOSAI) is an autonomous, independent, and non-political organisation established as a permanent institution. It consists of SAIs from more than 180 countries. Its purpose is to set standards for public sector auditing (NTOSAI). INTOSAI, through its work, influences on other sectors. Public auditors in many countries have the power to assess the performance of private entities using public funds and implementing public contracts (Dobrowolski, 2017).

5. Materials and Methods

The research methodology is based on the literature study and audit standards and guidelines available on the INTOSAI webpage. Author of this article has assumed that INTOSAI collects all information about the activities of SAIs in the field of auditing. Thus, the author of this research used methods and techniques appropriate to the discipline of management science, taking into accounts the epistemological pluralism strategy. The insights in this paper have emerged iteratively through consideration of both theory and the empirical case. Such an approach is consistent with an abductive approach (Lukka, 2014; Lukka and Modell, 2010).

6. Research Results and Discussion

6.1 Forensic Auditing and INTOSAI

Surprisingly INTOSAI, which is created by SAIs around the World, did not publish any guideline related to such type of audit (INTOSAI, 2020). Meanwhile, INTOSAI underlines in its strategic plan, that its mission is to "promote good governance by

enabling SAIs to help their respective governments improve performance, enhance transparency, ensure accountability, maintain credibility, fight corruption, promote public trust, and foster the efficient and effective receipt and use of public resources for the benefit of their citizens". (INTOSAI, Strategic Plan 2017-2022).

In support of the INTOSAI strategic goals, INTOSAI has identified five cross-cutting priorities. It shows how INTOSAI will focus its work to achieve its goals in the coming years. INTOSAI points out Crosscutting Priority 4, stating the necessity of creating an agile INTOSAI that is alert to and capable of responding to emerging international opportunities and risks. By now, such declaration did not go into practice even by introducing the concept of forensic auditing. The global scale of corruption presented by Transparency International (2019) or money laundering threat presented by the Basel Institute on Governance (Basel AML Index) is enormous and should be well known by INTOSAI representatives.

6.2 Forensic Auditing and Weak Signals

Like any rational action, the forensic audit should also be an organised activity. The multiplicity of factors conducive to the occurrence of illegal phenomena in the company's operations, in particular corruption and fraud, requires high flexibility in the audit procedure. One should also remember about the selectivity of the audit. Such an approach assumes that it is not worth "wasting" human and material resources on auditing issues when the risk of irregularities consisting of violating specific standards will below. On the other hand, resources (usually limited) should be focused on analysing those areas of the company's operations that are of crucial importance to its operation, as well as the most vulnerable to irregularities (Dobrowolski, 2017; Dobrowolski and Kościelniak, 2018). Two groups can be distinguished in the portfolio of forensic audit initiatives. First, systematic forensic audit initiatives are resulting from the company's strategy or remedial programs. Such initiatives appear before phenomena indicating the possibility of irregularities in the company's operations. Secondly, forensic audit initiatives result from observation of the company's activities, suggestions, expectations, among stakeholders. Both types of initiatives are aimed at preventing the occurrence of irregularities in the company's operations.

Among the methods and techniques for determining the scope of the subject and object of an audit at the planning stage, the following should be mentioned deferred valuation techniques, checklists, techniques for collecting and analysing expert opinions, surveys, interviews, text analysis, observations, morphological analysis of using the teratology method or Moles' discovery matrix. Yin and Dobrowolski aptly point out that the audit conclusion should not be developed only based on one particular audit method. Such an approach may be incorrect (Yin 1994; Dobrowolski 2017; Dobrowolski and Kościelniak, 2018). Analysing documents one may use

latent semantic indexing (LSI) for the identification of weak signals. This approach presents Thorleuchter and Van den Poe (2013).

Weak signals can be identified during the analysis of the artefacts. Artefacts provide insight into the cultural features of the observed area, including forms of behaviour. Artefacts can express how goals are formulated and achieved by management and employees of the company (Yin, 1994). Observation of people and results of their activities allows to determine, among other customs, and is not only the basis for the analysis of documentation or interviews but can also supplement the methods mentioned above. The use of specific types of observation depends on the preferences of the forensic auditor and the stage of the audit. For example, in the initial stage of the audit, when learning about phenomena, non-participant observation is recommended, allowing for the analysis of phenomena from a "distance". Likewise, the choice of the type of interview depends on the stage of the audit. For example, a non-standardised, unstructured interview helps understand the behaviour of the management and employees of the audited company. Thus, it can be used in the initial stage of the audit (Dobrowolski and Kościelniak, 2018). The author of this article applied the observation of audited individuals' behaviour to the identification of weak signal of wrongdoings when analysing the company's operations. During the first meeting with the president of this company, he formulated sentences that were a weak signal of incorrectness. Further, an audit confirmed the validity of the adopted assumption. There were numerous irregularities in the company, and the president of the company was detained and arrested.

Determining risk and materiality is essential in the process of any audit. A conclusion that the inherent risk should be determined based on the company's past performance cannot be entirely correct. There are several examples of collapses of companies listed on the stock exchange. Therefore, the legitimacy of a conclusion mentioned above raises justified doubts. A company without a history of malfunctioning may be infected with fraud or corruption. Therefore, in the case of a forensic audit, it is recommended to set the inherent risk as high when there are three risk categories low, medium, and high. In particular, the following situation should support the increase in the inherent risk: frequent changes in the positions of chief financial officer. In this case, a weak signal may be the fact that the company's management searches for information on the Internet concerning the professional career of individual people.

The examination of the proper functioning of the internal control serves to determine whether it ensures that there are no cases of misappropriation of funds, financial transactions are legal, in line with the assumptions, and booked following the applicable accounting procedures, which allows for the preparation of reliable financial statements and non-financial information. Establishing the effectiveness of internal control allows ones to limit the scope of auditing of operations and

accounting balances. Auditors have to determine the risk of failure of internal control systems, which is divided into high, medium, or low. Risk assessment is based on the experience of auditors, including the current functioning of the internal control system. Therefore, such an approach may generate secondary risk. The technique of risk estimation with the usage of "red flags" (symptoms of irregularities) may help determine the level of risk of failure of internal control systems and secondary risk assessment. Based on the author's observation, it can be concluded that a weak signal related to the improper functioning of the internal control system may be the formulation of opinions in conversations with internal auditors about scandals that occur around the world in private and public organisations.

The auditor risk results from three reasons. First, from the use of inappropriate audit planning. Secondly, from incorrect substantive preparation of auditors who do not have the knowledge and skills necessary for the proper performance of the audit task. It also indirectly results from wrong audit planning. Thirdly, unfortunately, although such a situation should not take place, it cannot be ruled out that the proper performance of tasks may be hampered by a conflict of interest or a successful attempt to corrupt the auditor. In order to minimise such risk, forensic auditors should, before starting the audit, sign a declaration of no conflict of interest, as well as demonstrate that they have the required knowledge and skills to perform the task. The tool allowing to determine whether they meet the competence condition is the test which they should solve with a complimentary assessment. Their superiors determine the conditions for passing the test. An important issue is the written justification for the risk assessment and documenting it in the forensic audit working papers. A weak signal related to the auditor's incorrect work may be his or her browsing through offers for renting attractively located apartments during the holiday season or analysing of specific car brands.

For forensic auditors, the materiality assumptions are slightly different than for other auditors. Namely, the subject of a forensic audit is not only financial statements but also other areas of activity of the audited organisations. The forensic audit report is submitted not only to the management of the audited entity. In the event of a justified suspicion that a crime has been committed, the forensic audit report together with the investigative audit files, will be material used by the relevant state authorities. Thus, the forensic auditor should consider the requirements of the future recipients of the forensic audit report when determining materiality. The forensic auditor should also assume that in the course of audit studies, acts may be revealed that infringe the welfare of the audited entity, including its image affecting public trust.

The forensic auditor may use, among others scanning and monitoring methods for identifying weak signals. In a case of expert procedures, it is worth noting that expert interviews, workshops, and Delphi requires specific experts in the case of

forensic auditing. It is not about the necessity to have specific knowledge and skills, but about the ability of participants to maintain professional secrecy and exclude conflict of interest. No doubt auditors may use brainstorming or other heuristic methods to identify weak signals collectively.

Based on literature review and author's observation carried out in the year 1992-2017 one may identify the following steps of weak signal analysis: 1) Determine goals and scope of forensic auditing; 2) Environmental scanning, which includes the creation of information and the analytical base, filtering and sorting information, the identification and clustering of weak signals, the clustering of documents and behaviours, identifying potential weak signal, the validation of weak signal and preparation of conclusions (Ponomareva and Sokolova, 2015).

Auditors should identify keywords related to audit scope through manual browsing of webpages, using specialised software and taking into accounts experts' opinion. Auditors should match different data and sources of information. For example, during the review of procurement procedures, they should start browsing of webpages to find any data related to public officials engaged in public procurement, like their holidays. The public official who spends this holiday abroad could not participate in the procurement process at the same time. It is a signal that fraudulent practices could take place during procurement.

During forensic auditing analysis of the company's stakeholders should take place, assuming that the management of the company's ventures is a product of the views, goals, and interests of various stakeholders (Freeman, 1984). The analysis allows for the determination of the actual balance of forces related to the implementation of specific projects by the company. Such an analysis may help identify weak signals related to the people who may exceed their powers or do not fulfil their obligations.

Identification of stakeholders of projects implemented or planned for implementation by companies is necessary to draw up their characteristics, and therefore to establish contact details, describe their strengths and weaknesses, interests that accompany the company's operations, identify the impact of the company's projects on these interests, define the basis for and the actual ability of stakeholders to enforce their interests. Such analysis allows determining the stakeholders' strength of influence, i.e. their disposal of means allowing for forcing actions beneficial from their point of view. The strength of stakeholders' influence should be confronted with their involvement, i.e. the scope and intensity of activities undertaken by them in order to satisfy their interests. Such analysis allows determining the importance of stakeholders for the company. Knowledge of the above is essential for the investigative auditor forgetting to know the motives of specific entities performing tasks in the audited company. Besides, attention should be paid to possible discrepancies between the assumptions of the organisational structure and its actual functioning. These differences are most often caused by

mistakes made in the process of formalisation of the structure, or most often as a result of changes in the environment. By comparing two structures (formal and existing), one can obtain information about respecting the formal organisational structure, real leadership, informal relationships, including the possible presence of nepotism or cronyism.

7. Conclusion

Seemingly, the audit focuses on the past. The auditor examines mainly activities realised in the past. However, the audit serves the purpose of prevention and educating the representatives of organisations, not only the audited ones. Thus, audit activities influence the future tasks of various organisations. In this approach, the forensic audit is critical for proper risk management.

A forensic audit, through its preventive measures, not only looks into the future but also includes utilising implementations for the present. One can generalise, that forensic audit like foresight can be perceived as the overall process of creating an understanding of information generated by looking ahead. Therefore, it should not be surprising that forensic audit may use not only risk identification methods but also early signs of upcoming events. The forensic auditors' knowledge of the methods and techniques of identifying warnings that are too incomplete to permit an accurate estimation of their multifaceted impact on organisation allows for the better accumulation of resources and a more precise organisational diagnosis. It is especially important when one realises that forensic audit concerns the identification of often criminal irregularities accompanied by collusion of silence.

Based on the research, a radical conclusion can be drawn, that without the implementation of the assumptions of a forensic audit by SAIs, it is not easy to find a real possibility of successfully implementing the INTOSAI strategy. The poor global anti-corruption or anti-money laundering record reveals that existing SAIs' audit practices are not fully effective. From the SAIs perspective, the initiative should be taken to develop INTOSAI forensic audit standards and guidelines.

While the research results concern SAIs, they may be useful to other practitioners. There is a need to protect the assets of each organisation against fraud and other irregularities. The research results, which are prolegomena, are also crucial for the development of management theory. They make it possible to determine the specific phenomena, to formulate generalisations relating to management functions and their mutual relations. The author sees the need to continue research on the use of weak signals, among other things, in audit planning and evaluation of the activities of the audited entities.

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