

# Effectiveness of digital forensic in unveiling financial crime



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### Abstract

This research will focus on the effectiveness of digital forensic in unveiling financial crime. Financial crime is becoming more massive globally, particularly in Indonesia. At this time, the sophistication of information technology makes financial crime in both government and corporations are increasing that significantly affect the business process. Forensic accounting is the forefront to understand the financial crime flow as well as this profession been experienced with information system analysis skills. Several public accountant firms provide the forensic services in Indonesia, but I will study at big four public accounting firms (KPMG, PricewaterhouseCoopers, Deloitte, and Ernst and Young), which already been experienced in handling the significant financial crime issues in Indonesia. This research will cover their procedures in investigating using a well-structured interview to collect some information which is relevant to financial crime investigation.

### Introduction

Forensic accounting is an accounting application that applies financial skills and focuses on investigative mentality to undisclosed issues, by collecting some relevant evidence (Arokiasamy and Cristal, 2009). The demand for forensic accounting is increasing in the modern business. Forensic accounting emerges from both technical error or fraud that deliberately perpetrated by the human. Forensic accounting is a new business in Indonesia, and the public accounting firms who offer forensic services are still limited.

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Singleton and Singleton (2010) assert that a forensic accountant, as a profession, handles corporate investigations, tackles criminal litigation and support, insurance claims, and assistance in compliance with the regulations. Presently, forensic accounting offers comprehensive services and one of the modern advisory industries in Indonesia.

Financial crime has emerged as a serious issue over three decades. This concern arises due to the impact of financial crime may generate a significant threat to the nations' economic and interrupt the development. The financial crime relates to white-collar crime, corporation crime, occupational crime, and economic crime. International Compliance Association (2013, online) asserts that financial crime could involve money laundering, corruption, terrorist financing, and dishonesty or fraud crimes. However, other new topics in forensics such as digital fraud and corruption or bribery are alerted by several parties.

Financial crime is a big issue in Indonesia, and the government has been starting to eradicate this issue. It begins with establishing regulation, laws, and further investigations. Align with this the public accounting firms offer advisory services in forensics since the commercial sectors are probably involved in some criminal cases. In this case, the role of digital forensics is necessary to combat the danger of financial crime. However, the investigation of financial crime is complicated since the financial crime may be perpetrated by using information technology. This method might be more effective than using manual examination. This concern leads to comprehensive research about the digital forensic procedures in mitigating

financial crimes and assessed whether the procedures are effective within the big-four public accounting firms in Indonesia.

### Literature Review

#### The Emergence of Digital Forensic Tools

Digital forensics is a process using computer or software program to collect data and information that can be used as evidence. Investigation technique is changing today, some manual actions are gradually being handled by digital forensics. The capability of forensic technologies in data storage has improved significantly while the costs related to this are becoming more economical. Moreover, the forensic technologies advancement can collect data from new devices (i. e. laptop, tablet, etc.) becomes simpler then forensic technology is being expected to play a vital role in fraud investigation today (Kok, 2018, online).

Computer forensics is classified as IT and law-enforcement subject (Kearns, 2015). However, accountants can also be a vital resource. Accountants, in particularly auditors, are familiar with accounting information system, internal controls, competent in analytical skills. For these reasons, accountants may combine the knowledge in accounting or audit with information system and technology. The accountants can investigate significant financial data and trace the unauthorized financial activities (Kearns, 2015).

#### The Disadvantages of Digital Forensic Tools

A digital forensic tool is designed to assist the forensic accountant analysing big data and to speed up the completion and accuracy of investigations. However, the tools have a problem that there are significant differences in task performance and knowledge requirements for the completion of an investigation. For example, computer forensics requires knowledge of computing systems, log files, graphics and other formats, and other non-accounting knowledge (Cusack and Ahokovi, 2016).

Although the modernization of investigation of financial crimes using computer forensic is happening, the disadvantage is unavoidable. Digital forensics may be hacked, or it contains a bug. Garfinkel (2007) mentioned that a software bug is a weakness in a computer program generates unexpected results or may have unintended ways. Moreover, computer viruses may distract the investigation performance for forensic accountants and possibly will delete some significant electronic evidence.

Another challenge in the automation of investigation is that an automated process cannot work in all cases; automated tools can miss some evidence. If the evidence disappears, forensic accountants are not able to conclude an investigation. In mitigating this challenge, it must be checked further how well-automated tools work and in what conditions they can be utilized. Once a performance automated machines are built based on the investigation goals, weakness in automated tools may be addressed or improved.

## Financial Crimes

Financial and economic crimes can widely consist of some activities that are dealing with fraud and manipulation of the stock market or money  
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laundering (ACIC, 2018, online). The economic globalisation as supported by new technology may create new opportunities for organized crime to get profits. While there are some agreements between several countries about money laundering, tax evasion and corruption, the financial crimes still exist. Financial crime, which known as financial abuse, is a non-violent crime but results in a significant loss by financial fraud. Financial crime consists of (Aslani *et al.* , 2011):

- corruption and bribery
- tax evasion
- capital flight
- smuggling
- bank fraud
- insurance fraud
- organized crime
- terrorism financing
- pyramid schemes
- money laundering

### Impact of Financial Crimes

Financial crimes endanger not the only individual member of a society but also attack the wealth of nations, injustice, and in extreme case people moral. Moreover, financial system abuse has a negative impact on the economic performance, bad governance, and trust from global society. IMF (2001) argues that financial system abuse may have other macroeconomic consequences. For example, it can inflate the local currency exchange rates

and the volatility of international capital flow (IMF, 2001). In this era, the abuse of the financial systems results the collection of tax and law enforcement are more complicated. Another extreme case is that terrorism can emerge because the terrorists may acquire the fund from parties who commit financial abuse.

### Research Design

A research design is necessary to assist a researcher in collecting and analysing data, and the model will determine the next step of the research process (Bryman and Bell, 2015, p49). In brief, research designs discuss five types (Bryman and Bell, 2015, p53-72):

Table 1: Summary of Research Design

No	Type	Characteristic
1	Experimental design	Scarce in business research, due to the requisite level of control when dealing with organizational behaviour
2	Cross-sectional design	More than one case, at a single point of time, quantitative data, detecting the

patterns of  
association.

- |   |                     |   |
|---|---------------------|---|
| 3 | Longitudinal design | Normally covers a long-time period                                    |
| 4 | Case study design   | Focus either on a single case or multiple-case study                  |
| 5 | Comparative design  | Using more or less identical methods on two or more contrasting cases |

Based on the above characteristics, this research will be proper to use comparative as research design. Each forensic division at public accounting firms in Indonesia may have different approaches and significant cases to be investigated thus some components need to be compared and considered during the research.

Qualitative research must have credibility, transferability, dependability, and confirmability (Guba, 1985). The credibility of this research will create an indicator in selecting participants that represent their involvement in responding to the problem of financial crimes investigation. Respondent should experience in forensics division at big-four public accounting firms for more than one year and frequently use digital forensics as a tool in the investigation.

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Confirmability refers to the level that might be confirmed by other parties in other researches. In this research, the researcher attempts to present the conceptual framework including disclosing of earlier studies which relevant to this research. Data and information will be acquired directly from the employees of accounting firms thus the accuracy and completeness of information can be confirmed.

Dependability of this research will be developed by explaining the objective and the method of collecting data to the employees as respondents thus they can offer accurate information to this research. This explanation will also present the trustworthiness of research.

The transferability of this research looks at previous studies and other relevant researches. Thus the argument of this research can be found in other research contexts.

### Research Question

The competent forensic accountants perform the financial crime investigation. However, the modernization in technology makes forensic accountants gradually rely on using digital forensic tools to unveil the type of financial crimes instead of using manual tools. In this research, respondents will answer what method they use in investigating financial crimes, familiarity with digital forensics, and how they can conclude the result if using digital forensics method.

On the other hand, involving digital tools might have a risk, for example losing some vital evidence. Moreover, bug or virus might be other reason to

distract the investigation of financial crimes. If forensic accountants have missed the critical evidence, or in extreme case, the pieces of evidence are possibly hacked, the firms' reputation will be doubtful.

This research will also consider the distraction or disadvantages by using digital forensic in investigating financial crimes and how significant they can distract the performance of investigation. These issues will be critically analysed to observe the effectiveness of practical digital forensics in the investigation of financial crime with theoretical developments and with the results of recent studies.

### Methodology Research

Based on earlier studies, digital forensics may be reliable in financial crimes investigation and more effective in generating the investigation results. A comparative design is required for the case, in a qualitative study employing investigation financial crimes procedures. The best way to collect data is through a structured interview. However, there are two options:

1. A single case study of one public accountant firm in Indonesia. This research method provides more detail research information in one firm. However, each public accountant firm may have different tools and procedures to investigate, and it is predicted that the research result may not be objective, limited for generalization.
2. A comparative study of four public accountant firms in Indonesia. This method may enable the researcher to gather different perspective from some respondents thus the massive scope of generalization will be achievable.

Research Plan

This research covers a structured-interview skill which face-to-face interview is required. The information needed is susceptible and limited to specific purposes thus the researcher is required to use a planned-sequence question. The research plan is described as below:

Table 2: Research Timeline

Week No	Number	January					February					March				
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
1	Literatur e review															
2	Develop interview question s															
3	Finalizati on of interview question s															
4	Meeting															

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### Ethical Consideration

This research may have moral issues; therefore the researcher should ensure that the adverse effect of the study should be minimized. Bryman and Bell (2015, p135-143) explain at least four ethical principles, such as: harmful for respondents, lack of informed consent, privacy, and deceptive

action. The researcher should ensure that there will be no violation against ethical principles. To achieve, the steps are:

1. Respondents will be sought by direct interview to the firm.
2. Respondents may be asked to fill the written approval thus they recognize that the information given is complete.
3. Respondents will not be asked about their names. Moreover, the investigation procedures will not be shared with other firms since those are sensitive.
4. The researcher will ensure that the information given in the research report is free from misleading.

### Summary

This result of this research can be used by other researchers to support the research which dealing with digital forensic accounting. Further steps needed to complete this research consist of enhancing relevant literature and design related questions on interviews that to be circulated to participants.

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