

Investigate Auditor Characteristics and their Effectiveness of Frauds Detection: Study in the Office of Finance and Development Supervisory Board of South Sumatera Province

Mukhtaruddin*, Kencana Dewi and Yunisyah Aji Putri

Faculty of Economics, Universitas Srinwijaya, Palembang Indonesia

*Corresponding author: yuditiz@yahoo.com

Received: 30 January 2020

Revised: 12 February 2020

Accepted: 13 March 2020

Publication: 15 May 2020

Abstract: *Achieving effectiveness in an investigative audit is important in the sense that it attempts to detect frauds. This attempt is not easy to do, therefore, an investigative auditor must possess certain characteristics. This research aims to identify the influence of investigative auditor characteristics in implementing their investigation in order to find frauds. In other words, their procedures were analyzed to find their effectiveness. The population of this research are all investigative auditors assigned in the Office of Finance and Development Supervisory Board (FDSB) of South Sumatera. The data are collected from questionnaires and analyzed by multiple linear regression technique. The research results show that the competence and experience of the auditors either partially and simultaneously had a positive and significant influence on their effectiveness of finding frauds. Of the two variables, their experience was more dominant to effectively find frauds. This research is limited in terms of number of sample, variables which consisted of two – competence and experience, data collection which focused on questionnaires.*

Key words: Competence, experience, investigative audit, effectiveness, and fraud

JEL codes: H61, H83, M42, D22

INTRODUCTION

1.1. Background

Economic downturn that happened in 1997-1998 indicates a weakness in Indonesia's governance system. However, this downturn also becomes a starting point for Indonesian reformation era. It is also found out that before the reformation era, there are many government officials that conduct corruption, collusion and nepotism. Corruption, collusion and nepotism are part of fraudulent acts that are often committed by irresponsible parties for personal gain and group benefits. The act of fraud is still very much felt in the Indonesian public sector, as evidenced by the many acts of fraud committed by the government officials who caused the losses of the country. The big

corruption cases that are revealed such as, the case of Fund Irregularities Bank Indonesia Liquidity Assistance, corruption case of Palembang Athletic Dormitory, Hambalang Stadium Project, Meat Import case, and currently ongoing investigation is alleged corruption by Banten Government RatuAtut. The big corruption case revealed in the media is only a small part of the corruption case that happened in Indonesia up to now. There are many other corruption cases that are not reached by the public such as corruption cases that occur in the regions. For example in South Sumatera, there are 2700 reports about alleged corruptions received by Corruption Eradication Commission (CEC) since 2004. In which, only 60% of the reports are being followed up (AntaraSumsel, 2013). Some of the corruption cases in South Sumatera that have been publicized are as follow:

Table 1
Some corruption cases in South Sumatera

<i>No</i>	<i>Case</i>	<i>Suspect</i>
1.	Authority abuse in Palembang-Tanjung Api-Api road and Muara Enim-Baturaja road project which cost the country as much as Rp42.7 billion.	Former Head of Department of Public Works Bina Marga in South Sumatra year 2004-2008 (Dharna Dachlan)
2.	Alleged corruption in South Sumatera's governor election fundas much as Rp1.36 billion.	Former Secretary of South Sumatera, Musirawas' KPU, Rahma Istiati
3.	Misappropriation of Bantuan Sosial (Bansos) funds in Banyuasin during 2007-2008, thought to have cost the country as much as Rp 2.5 billion or more (currently waiting for audit result by BPK RI).	Former Secretary of South Sumatera, Banyuasin, H.M. Robani Syahrin
4.	Alleged corruption of partial Corporate Social Responsibility (CSR) fund and procurement of furniture from PT. Pupuk Sriwidjaya by Disdikpora year 2008-2009 with Rp 257,500,000 loss to the country.	Former Head of Department of Youth Education and Sport in Palembang, Sumsel (H. Hatta Wazol, SE).
5.	Alleged mark-up corruption of medical devices' (alkes) procurement to education world in Politeknik Kesehatan (Poltekkes) Palembang state budget 2009 valued at Rp9.3 miliar. Country's loss due to the mark-up is estimated at Rp 3 billion.	Director of Poltekkes Palembang, South Sumatera (drg. Nur Adiba Hanum, M.Kes), Committing Officer (H. Hazairin Efendi), dan Syovinal.
6.	Alleged book corruption valued at Rp 3.2 billion.	Head of Sub-Department of Kindergarten and Primary School of National Education in Palembang, South Sumatera, Daud Makmun.

Source: Corruption Info (processed, 2013)

Some examples of cases of public sector fraud in the province of South Sumatra above are only a small part of which is exposed by the media. Many cases of fraud are not disclosed in the media and even suspected unproven at the investigation stage. Efforts to combat corruption are increasingly being improved. One of the realizations of this intention is the issuance of Presidential Instruction No. 5 of 2004 on the Acceleration of Eradication of Corruption, which subsequently created cooperation between FDSB, CEC, SAIs, Supreme Court and the Department of Law and Human Rights to jointly combat corruption (Indonesia Corruption Watch, 2004). When the alleged corruption acts reported these institutions will follow up these cases by ordering their Investigative auditors to detect the fraud. In this case, the role of the Investigative Auditor as an investigative expert is an important role in detection of fraudulent acts.

Fraud detection is not an easy matter. Investigative Auditor as an investigative expert often sought by mistake by the perpetrators fraud. As expressed by the Deputy Head of FDSB Field Investigation, Prof. Dr. Eddy Mulyadi Soepardi, CfrA that FDSB is often fooled by fraud perpetrators during the investigation (News about Deputy Field Investigation, 2013). This will not only adversely affect the Investigative Auditor itself, but will also harm the BPKP with the claim for material compensation filed by the plaintiff. Below is the news on BPKP Auditors that are sued by the corruptors associated with their testimony.

Tabel 2
FDSB audit report

<i>No.</i>	<i>Lawsuit Case</i>	<i>News Source</i>
1.	Indosat and IM2 filed a lawsuit to FDSB related to FDSB's audit report which states loss to the state as much as Rp 1.3 billion.	Merdeka (Berita Harian Online), Edisi Rabu, 1 Mei 2013.
2.	M. Thoriq, defendant in Ruilslag Land of Pemprov Jawa Tengah corruption case at Nyatnyono Village in Semarang Regency, filed a lawsuit to Central Java branch of FDSB for their act against the law.	Suara Merdeka (Berita Harian Online), Edisi 10 Juni 2013.
3.	Saryono (Head of Department of Public Works in Salatiga), defendant in excavation of soil and drainage corruption case, filed a lawsuit to Central Java branch of FDSB in form of civil case because according to him FDSB didn't use the standard operational procedure (SOP) in auditing JLS project in 2008.	Kompas (Berita Harian Online), Edisi Selasa, 9 Oktober 2012.

In addition to above lawsuit cases, there's a case where FDSB Sumatera Utara's Investigative Auditor named Sudirman that was fired, because he testified to alleviate three suspects of alleged corruption in building seven office of Batubara government units (Gunawan, *Tribun News*, Edisi 16 Februari 2013). The existence of cases above shows that to be an investigative auditor is not easy. Investigative auditor is demanded to act cautious, serious, and meticulous and use his professional skill in performing investigative auditing so that Result of Investigative Audit Report (RIAR) that was produced is accountable and accurate. Investigative Audit that is performed by Investigative Auditor is a distinctive audit which means the auditor that's going to do it also need characteristic which consist of certain skill and experiences in doing Investigative Audit to detect fraud while also avoiding the lawsuit filed by the fraud perpetrator. As stated in general standard in Country Financial Audit Standard (CFAS) that to be able to apply the execution and report standard effectively the auditor as an examiner must collectively have adequate professional finesse to perform the auditing task (BPK RI, 2007: 21). Said professional finesse comes in the form of competence and experience. Therefore, the general standard to perform an audit with certain purpose such as Investigation Audit, the main requirement or characteristic that must have by an Investigative Auditor is the possession of competence and experience.

In Indonesia there have been some research which study the effect of auditor characteristic that was examined by auditor's skill and auditor's experience to quality of audit produced, especially in fraud detecting. Study by Masrizal (2010) concluded that the experience of Inspectorat Aceh Auditor partially have significant effect to the region's loss finding in Inspectorat Aceh's operational audit. Similar research done by Nasution & Fitriany (2012) concluded that auditing experience have positive influence on the increase of auditor's competence to detect fraud. Another research is done by Hastuti (2012), which concluded that education, experience and training factor simultaneously have significant influence on audit skills, while partially only education factor that have influence on audit skills.

The difference between this research and previous research is in the object, dependent variable, sample, and the location of the research. In this study, the authors will limit the research object to Investigative Auditor's characteristic which is examined by the investigative auditor's experience and skill because Indonesia currently try to eradicate corruption with many methods, one of them being Investigation Audit. Dependent variable in this

study is effectiveness of fraud detection that is examined from implementation of investigation audit procedure. Sample and location of study is really different from previous research where in this case the authors will use Investigative Auditor from South Sumatera representative of FDSB as research sample.

South Sumatera branch of FDSB was picked as the sample after consideration below: (1) According to Statistics Indonesia (2010), South Sumatera province is a province with biggest land area in Sumatra Island which is 91,592.43 km² so it can be said that the supervision coverage by South Sumatera branch of FDSB is relatively wide, (2) Local Government Financial Report of South Sumatera province until the second semester of 2012 had receive the most Unqualified Opinion compared to other big provinces in Sumatra Island which indicates that assistance from FDSB run effectively. Since the aim of this research is to know the relationship between Investigative Auditor's characteristic to effectiveness of fraud detection, then the decision to pick South Sumatera branch of FDSB is very appropriate because in order to get desired result that fit said purpose, sample that have effective performance and wide coverage is needed. Below the authors listed the opinions that were received on big provinces in Sumatra Island:

Table 3
Auditor opinion in some province in Sumatera Islands

No	Province	Total of Institution	Audit Opini			
			UQO	QO-EP	QO	DO
1.	Sumatera Selatan	16	3	1	12	-
2.	Riau	13	-	2	10	1
3.	Sumatera Utara	34	2	1	22	9
4.	Nangroe Aceh Darusalam	24	2	-	22	-
5.	Jambi	12	-	-	12	-
6.	Sumatera Barat	20	-	-	19	1

Source: Supreme of Audit Institution (2013)

Where as: UQO=Unqualified Opinion, QO-EP=Qualified Opinion with Explanatory Paragraph, QO=Qualified Opinion, and DO=Disqualified Opinion

Therefore, based on research background that we have written above and some relevant research added with consideration for choosing the sample, we will develop the research in line with the research background, relevant research and sample decision.

II. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1 Competence of Investigative Auditor

Based on the general standard for auditing performed by government supervisor, auditor in doing their job must have competence in auditing and in other aspects. As for investigative auditor, there are certain skills that they must have. Those skills according to Audit Standards of Government Internal Supervisory Offices (SA-APIP) are as follow (Pusdiklatwas BPKP, 2008: 47-53): 1) Auditor's Education Background; 2) Technical Competence; 3) Functional Position Auditor Certification and Advance Education and Training; 4) Use of External Experts; 5) Professional Accuracy; 6) Compliance with Code of Conduct.

Experience of Investigative Auditor's According to Masrizal (2010), someone's work experience shows the kind of job that has been done by said person and give a big chance for someone to do a better job, work experience also give adequate expertise and work skills. Same thing happens with auditor's performance. Many research studied the influence of auditor's experience to the performance of auditor, for example Minanda & Muid (2013), stated that auditor's work experience has a significant and positive influence on consideration of materiality level. Masrizal (2010)'s research stated that auditor's experience has significant influence on detection of regional loss. While according to Minanda & Muid (2013), auditor that have different experience will view and respond the information that the auditor receives during auditing differently and will also act differently in giving audit conclusions to the object examined in the form of giving opinion. Masrizal (2010), in his research stated that experience can be measured by the time span that has been used for a job or assignment. Indicators that Masrizal (2010) gave regarding measurement of experience is through the length of time the auditor is in charge, the number of auditing activities, the number of loss findings obtained, the value said loss findings obtained, and cause of the deviation made by the auditor.

2.2 Theoretical Framework

Based on theoretical framework and hypothesis development above, authors can depict the paradigm of this research as follow:

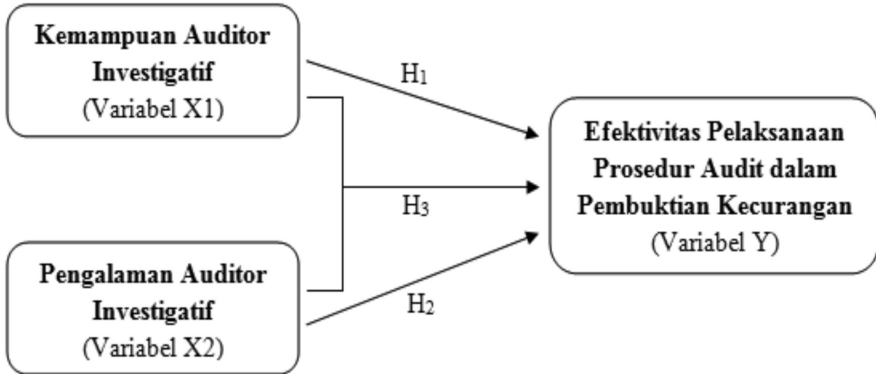


Figure 1: Theoretical Framework

2.3 Hypothesis Development

2.3.1 Competence of Investigative Auditor's Influence on Effectiveness of Fraud Detection

The goal of investigative audit (FDSB, 2008: 77), aimed to determine the truth of problem through the process of testing, collecting and evaluating relevant evidences with fraud act and to uncover fraud facts. This hard goal that relies on Investigative Auditor demands the Investigative Auditors to have certain skills compared to ordinary auditor because an Investigative Auditor must master the technique to detect signs of fraud that many fraud perpetrator did. Based on investigative audit standard, an Investigation Auditor must have certain skills such as law and concept around it, investigative audit's technique, independency, objectivity, professional skepticism, precise auditing, presumption of innocence, ability to find the modus operandi of what happened, and other skills (FDSB, 2008: 47-53). Because fraud detection is not an easy thing to do, it's obvious that implementation of investigation audit's procedure will be different than that of financial report's audit. Description above suggests that Investigative Auditor's skill is vital to effectiveness of fraud detection. The hypothesis is H_1 : Competence of Investigative Auditor has positive and significant influence on effectiveness of fraud detections.

2.3.2 Experience of Investigative Auditor's Influence on Effectiveness of Fraud Detection

According to Bologna & Robert (1997), a Fraud Auditor (Investigative Auditor) need both general and specific experience so that they have adequate amount of experience in financial audit and fraud audit. Theoretical expertise alone

won't be enough for an Investigative Auditor to detect fraud because up until now, modus operandi that was done by fraud perpetrator has many variations. As stated by Masrizal (2010) that auditor's experience has significant influence on detection of regional loss. Nasution & Fitriany (2012) also concluded that auditor's experience positively influences on increase of auditor's competence in detecting fraud. Hence, an auditor's experience also plays an important part in detecting fraud. The description above suggests that experience of Investigative Auditor also have influence on the creation of effectiveness of fraud detection. The hypothesis is H_2 : Experience of Investigative Auditor has a positive and significant influence on effectiveness of fraud detections.

2.3.3 Simultaneous Influence of Competence's of Investigative Auditor and Experience of Investigative Auditor on Effectiveness of Fraud Detection

Effectiveness of Fraud Detection can be achieved by implementing procedure of investigative audit. To achieve it, Investigative Auditor must have basic and specific skills. However, in doing its job, Investigative Auditor also needs experience. Experience which consist of general and specific experience so that they have adequate experience in both financial audit and fraud audit (Bologna & Robert, 1997). With the presence of experience during implementing investigation audit in various organization, will help Investigative Auditor by making it easier to detect fraud that's currently happening. Therefore, if both competence and experience of Investigative Auditor can be paired simultaneously, then effectiveness of fraud detection through implementation of investigation audit procedure is highly possible to be achieved. With competence and experience Investigative Auditor will easily detect sign of fraud. The hypothesis is H_3 : Competence of Investigative Auditor and Experience of Investigative Auditor have simultaneous positive and significant influence on effectiveness of fraud.

III. RESEARCH METHODOLOGY

3.1 Scope of Research

This research's scope is limited to South Sumatra's Office of the FDSB located at Jalan Bank Raya No. 2 Demang Lebar Daun, Palembang. Variables in this research is limited to influence of investigative auditor's competence and investigative auditor's experience on effectiveness of fraud detection. Next the subject of this research is limited to Auditor from FDSB South Sumatra's that works in Deputy for Investigation Division.

3.2 Data Source

In this research, data source used is primary data. Source of primary data in this research is answer from each question/statement in questionnaire that has been answered directly by respondents that is Investigative Auditor from FDSB South Sumatera's. Data collection technique of primary data that was used in this research is by giving questionnaire. Questionnaire is data collection that was done by giving a set of written question or statement for respondents to answer (Sugiyono, 2010: 199). Questionnaire will be given have a measurement scale. Measurement scale used in this research is Likert's scale. Likert's scale is used to measure attitude, opinion, and perception of a person or a group regarding a social phenomenon. The answer of each instrument item using the Likert scale to be used in the statement/question in the questionnaire has a gradation from very positive to very negative, answers can be scored as follow: Always get scored 5, Often get scored 4, Sometimes get scored 3, Almost never get scored 2, and Never get scored 1.

3.3 Population and Sample

Population in this research is all investigative auditor in South Sumatra's Office of the FDSB. All investigative auditor means Investigative Auditor currently working in Deputy for Investigation Division and FDSB auditor that had worked in Deputy for Investigation Division. Total of investigative auditor in South Sumatra's Office of the FDSB is 43 auditor with 25 auditor currently in duty and 18 auditors that had served in Investigation Deputy Division in the past. Detail of said population is available in the table below:

Table 4
Detail of Research Population

No.	Division in FDSB	Number of Investigative Auditor
1.	Investigation Deputy Division Types of Functional Auditor Position: Quality Control (Division Chief) Technical Control Expert Auditor Team Leader Expert Auditor Team Member Supervisor Auditor Skilled Auditor	1 Person 4 People 8 People 6 People 1 Person 5 People
2.	Local Government Accounting Division	8 People
3.	Central Government Agencies Division	6 People
4.	State Accountant Division	4 People
	Total of Population	43 People

Source: FDSB (processed, 2013)

Sample is a part of the number and characteristic possessed by the population (Sugiyono, 2010:116). Sampling technique used in this research is Simple Random Sampling so that every member of the population have equal chance to be a sample. While the number of sample is according to Rosque's opinion (in Sugiyono, 2010:129) that decent sample size is between 30 until 500, and if the research use multivariate analysis (correlation or multiple regression for example), then the number of sample is at least 10 times the amount of variables being studied. Therefore, the number of sample in this study is 30 investivative auditors (10 times the number of variables tested).

3.4 Operational Definition and Variable Measurement

Table 5
Measurement of variable

<i>No</i>	<i>Variabel</i>	<i>Sub Variabel</i>	<i>Indikator</i>
1.	Variable X_1 : Competence of Investigative Auditor	Auditor education background	Have education background in accounting / auditing
		Technical competencies	Have auditing expertise, skills in accounting and communicationi
			Have knowledge regarding investigative principlesf (investigation axiom)
			Have knowledge regarding criminal act of corruption
			Have knowledge regarding investigative audit's technique
			Have knowledge regarding how to collect evidence from whistleblower
			Have knowledge regarding law construction related to investigative audit
			Understand the concept of secrecy and protection of information source
			Have the ability to use computer and other aspects around it to uncover cybercrime
		Have Functional Auditor Position Certification and ongoing education and training	Have Functional Auditor Position education background
			Following ongoing education and training
		Use of External Experts	Supervise the work done by outside experts
		Professional Accuracy	Using professional consideration in performing audit assignment
Compliance with Code of Conduct	Maintain Integrity		
	Maintain Objectivity		

No	Variabel	Sub Variabel	Indikator
2.	Variable X ₂ : Experience of Investigative Auditor		1. Time served as an auditor 2. Number of audits 3. Frequency of performing similar audit tasks 4. Types of audits ever conducted 5. The length of time to complete the audit
3.	Variabel Y: Effectiveness of Fraud Detection	Audit Procedure	1. Review of preliminary information 2. Inspection planning 3. Implementation of the examination 4. Inspection report 5. Follow up examination
		Investigation Audit Technique	Physical checking, observing, requesting confirmation, checking document, analytical review, asking for verbal or written information from the auditees, recalculate.

3.5 Data Analysis Technique

This research aims to know the relationship between two independent variables and one dependent variables so the analysis method used here is Multiple Regression. Multiple Linear Regression analysis is used by researcher to analyse how big relationship or influence of two independent variable (Competence and Experience of Investigative Auditor) partially and simultaneously to one dependent variable (Effectiveness of Fraud Detection) to test predefined hypotheses H₁, H₂, dan H₃. Multiple Linear Regression Equation for two predictors is as follow (Widiyanto, 2013: 226):

$$EFD = a + b_1CIA + b_2ELA$$

Explanation:

EFD: Effectiveness of Fraud Detection (Dependent Variable), CIA: Competence of Investigative Auditor (Independent Variable), ELA: Experience of Investigative Auditor (Independent Variable), a: Constant and b₁, b₂: Estimation of Multiple linear regression parameters (regression coefficient)

IV. RESULT AND DISCUSSION

4.1. Research Result

Overview of Respondent Profile

Table 6
Respondent Profile

<i>No.</i>	<i>Description</i>	<i>Frequency</i>	<i>Percentage (%)</i>
1	Gender		
	Male	23	76.7%
	Female	7	23.3%
2	Age		
	20-30 years old	4	13.3%
	31-41 years old	4	13.3%
	> 40 years old	22	73.3%
3	Education		
	Vocational Degree	8	26.7%
	Undergraduate Degree	21	70%
	Postgraduate Degree	1	3.3%
4	Competence		
	Technical Control Auditor	7	23.3%
	Head of Team Expert Auditor	14	46.7%
	Member of Team Expert Auditor	1	3.3%
	Supervisor	3	10%
	Skilled Auditor	5	16.7%
5	Auditor Experience		
	1 – 10 years	5	16.7%
	11 – 20 years	7	27.3%
	> 20 years	18	60%
6	Training Exeperience		
	Never	10	33.3%
	1 – 3 times	14	46.7%
	> 3 times	6	20%

From the table above it can be seen that most of the respondents are male auditors (76.7%) and belong to the latest age category (> 40 years old). Most of the respondents have obtained their undergraduate degree (70%) however there is one auditor that has postgraduate degree. As for the competence, 46.7% of the respondents have the competence as head of team expert. Most of the respondents are also have more than 20 years of experience (60%) with training experience 1- 3 times (46.7%).

4.2. Multiple Linear Regression Analysis

In this section, authors analysed the relationship between competence of Investigative Auditor variable (X_1) and experience of Investigative Auditor (X_2) on effectiveness of fraud detection through multiple regression. There

are some results produced by multiple regression analysis to give a clear picture regarding the relationship between said variables. Product produced are determination coefficient, multiple regression coefficient, partial influence test (T Test) and simultaneous influence test (F Test). Here each result from multiple regression analysis will be discussed one by one.

4.3. Determination Coefficient

Determination Coefficient is used to know how big contribution of both independent variables on dependent variables. Results of determination coefficient shows how strong influence that competence and experience of Investigative Auditor on effectiveness of fraud detection. Value of the determination coefficient can be seen below:

Tabel 6
Determination Coefficient

<i>Model</i>	<i>R</i>	<i>R Square</i>	<i>Adjusted R Square</i>	<i>Std. Error of the Estimate</i>
1	.887 ^a	.787	.771	4.622

a. Predictors: (Constant), Pengalaman Auditor Investigatif, Kemampuan Auditor Investigatif

b. Dependent Variable: Efektivitas Pendeteksian Kecurangan

4.5. Multiple Regression Coefficient

Second product from multiple regression analysis is multiple regression coefficient. Multiple regression coefficient serves to explain multiple regression equation and interpretation from said equation. Below is the table of multiple regression coefficient analysis:

Table 7
Multiple regression result

<i>Model</i>		<i>Unstandardized Coefficients</i>		<i>Standardized Coefficients</i>	<i>t</i>	<i>Sig.</i>
		<i>B</i>	<i>Std. Error</i>	<i>Beta</i>		
1	(Constant)	13.204	6.619		1.995	.056
	Competence of Investigative Auditor	.350	.147	.336	2.377	.025
	Experience of Investigative Auditor	1.318	.310	.601	4.252	.000

a. Dependent Variable: Effectiveness of Fraud Detection

Based on above table, we can see in Unstandardized Coefficients column that value of constant (a) is 13.204, and then the value of Competence of

Investigative Auditor's regression coefficient is 0.350 and value of Experience of Investigative Auditor's regression coefficient is 1.318. So, the multiple linear regression equation is as follow:

$$Y = 13.204 + 0.350X_1 + 1.318X_2$$

In that regression equation, the value of constant (alpha) is 13.204 where the assumption is if all X variable (independent variable which is competence and experience of Investigative Auditor's value is 0 or none, then the value of Y variable (dependent variable or effectiveness of fraud detection) is just as big as 13.204. Value of competence of Investigative Auditor's regression coefficient (X_1) is 0.350 which means that if there's a change or increase to Competence of Investigative Auditor variable by 1 unit with the assumption other variables are constant, then effectiveness of fraud detection will increase by 0.350 or 35 percent. Next is value of experience of Investigative Auditor's regression coefficient (X_2) is 1.318 which means that if there's an increase to experience of Investigative Auditor's regression coefficient variable by 1 unit with the assumption other variables are constant, then effectiveness of fraud detection will increase by 1.318 or 131.8 percent.

Value of regression coefficients above shows that experience variable ($b_2 = 1,318$) is more dominant factor than competence variable ($b_1 = 0,350$) in terms of influencing increase of effectiveness of fraud detection.

T Test

T Test is used to discover the influence of each independent variable to dependent variable partially. Therefore, in this research, T test served to prove influence of competence of Investigative Auditor to effectiveness of fraud detection and to prove influence of experience of Investigative Auditor to effectiveness of fraud detection. Analysis result of T Test can be interpreted by comparing the value t_{count} with t_{table} , if $t_{count} > t_{table}$, then it can be stated that independent variable partially has positive influence to dependent variabel and vice versa. Significant value used in this test is 0.05 so that value of t table can be looked up from T Test statistic table at significance 0.05. t Test result analysis can be seen in the table 8:

T Test result for competence of Investigative Auditor can be seen from coefficient test of competence of investigative auditor variable and significance-based test. Below we will elaborate the result of each analysis result:

Coefficient test of competence of Investigative Auditor variable

Based on table 8 above, value of t count for competence of Investigative Auditor is 2.377. While the value of t table that has been determined is 1.703.

Table 8
t test result

<i>Model</i>		<i>Unstandardized Coefficients</i>		<i>Standardized Coefficients</i>	<i>T</i>	<i>Sig.</i>
		<i>B</i>	<i>Std. Error</i>	<i>Beta</i>		
1	(Constant)	13.204	6.619		1.995	.056
	Competence of Investigative Auditor	.350	.147	.336	2.377	.025
	Experience of Investigative Auditor	1.318	.310	.601	4.252	.000

a. Dependent Variable: Effectiveness of Frauds Detection

(Source: Primary data after processed with SPSS, 2014)

Therefore, the value of t count is bigger than t table ($2,377 > 1,703$) so it can be stated that there's a positive influence between competences of Investigative Auditor to effectiveness of fraud detection. So, the result of this analysis is competence of Investigative Auditor partially have positive influence to effectiveness of fraud detection.

Significance-based test

Significance-based test produced in T Test is determined like coefficient-based test above. If significance value of competence of Investigative Auditor variable is smaller than significance value determined which 0.05 is, then it can be stated that there's a significant influence between the two. Based on table 8, we can see that significance value of competence of Investigative Auditor variable is 0.025. Hence, significance value of competence of Investigative Auditor is smaller than 0.05 that the resulting decisions are competence of Investigative Auditor have significant influence on effectiveness of fraud detection.

Based on two testing above it can be concluded that competence of Investigative Auditor has positive and significant influence on effectiveness of fraud detection. With that, predefined H_1 has been proven. Result of T Test for experience of investigative Auditor variable can be seen from coefficient test of experience of Investigative Auditor variable and significance-based test.

Below we will elaborate the result of each test:

Coefficient test of experience of Investigative Auditor variable

From table 8 above, value of t count for experience of Investigative Auditor variable is 4.252. The value of t table is determined at 1.703. Therefore, the t count is bigger than t table ($4,252 > 1,703$) hence it can be stated that there's a positive influence between the variables. The resulting decision is the experience

of Investigative Auditor partially have positive influence on effectiveness of fraud detection.

Significance-based test

Significance-based test produced in T test determined like coefficient-based test above. Based on table 4.4 above we can see the significance value of experience of Investigative Auditor is 0,000. Therefore, the significance value of experience of Investigative Auditor is smaller than 0.05 which means that experience of Investigative Auditor has significant influence on effectiveness of fraud detection. Based on testing above it can be concluded that experience of Investigative Auditor has positive significant influence on effectiveness of fraud detection. With that, the predefined H_2 has been proven.

F Test

F test is one of the product from multiple linear regression analysis that is used to test the influence of independent variable simultaneously on dependent variable. The F test in this research aims to see how simultaneous relationship between competence of Investigative Auditor and experience of Investigative Auditor influence effectiveness of fraud detection. F test result can be seen below:

Table 9
F test result

<i>Model</i>	<i>Sum of Squares</i>	<i>Df</i>	<i>Mean Square</i>	<i>F</i>	<i>Sig.</i>	
1	Regression	2131.340	2	1065.670	49.882	.000 ^b
	Residual	576.826	27	21.364		
	Total	2708.167	29			

a. Dependent Variable: Effectiveness of Frauds Detection

b. Predictors: (Constant), Competence of Investigative Auditor, Experience of Investigative Auditor

Source: Data Processing

From table 9, we get the value of F count is 49.882. From the F statistic table above we can see that value of F table is 3.354. Independent variables simultaneously affect one dependent variable when the value of F count is larger than the value of F table. On table 9 above we can see that the value of F count at 49.882 is far larger than value of F table at 3.354. Therefore, F count (49.882) > F table (3.354) which means independent variables that is competence of Investigative Auditor and experience of Investigative Auditor simultaneously influence the dependent variable that is effectiveness of fraud detection. While viewed from significance value, significance value at table 9 is

0.000, smaller than significance value determined that is 0.05 so it supports the conclusion above that competence and experience of Investigative Auditor simultaneously influence effectiveness of fraud detection. With that H_3 that was defined has been proven, that Competence of Investigative Auditor and Experience of Investigative Auditor have simultaneous positive and significant influence on effectiveness of fraud.

4.6. Result Discussion

4.6.1 Influence of Competence of Investigative Auditor on Effectiveness of Fraud Detection

Investigation audit is a part of specific auditor what's often called audit with certain purpose where the purpose of this audit is to detect fraud that happens in an organization or public or private sector agencies. Fraud detection included detecting about what, who, where, why, and how the fraud happen which makes investigation audit to be done as effective as possible by Investigative Auditor. To reach that effectiveness of Fraud detection is not apart from the competence that its implementer has that is the Investigative Auditor. Without adequate competence, implementation of investigation audit will not be effective and even can harm others. Just like what was stated by FDSB (2008: 51-52) that other than having knowledge/skill in accounting and auditing, an Investigative Auditor must have specific knowledge such as principles, practices, and techniques of investigative audit, while also have knowledge of law enforcement, rules and other terms related to investigative audit. Therefore, effectiveness of fraud detection should be influenced by the competence of Investigative Auditor. First hypothesis in this research states that Competence of Investigative Auditor have a positive and significant influence on effectiveness of fraud detections. Based on statistical test results, value of competence of Investigative Auditor's regression coefficient is 0.350 and is at significance level lower than the probability or $0.025 < 0.05$. This result is supported by result of partial regression coefficient influence test (ttest) that produced t_{count} value larger than t_{table} ($2.377 > 1.703$); this shows that competence of Investigative Auditor has a positive and significant influence on effectiveness of fraud detection.

Result received from the analysis above, among others is caused by the background that the respondents have (Investigative Auditor from South Sumatera's branch of FDSB). The education of respondents, functional auditor position, and total of education and training in field of investigation that the respondents had been a part of. Based on table 9 dominant education

of the respondents was Undergraduate Degree (S-1). This fits with one of the requirements an Investigative Auditor must have, which requires having knowledge in the field of auditing that is reviewed with the background of formal education at least of Undergraduate degree (S-1) or equivalent in the field of accounting or auditing. Even though, there's still some auditor in Diploma level, the average auditor who served in Financial and Development Supervisory Agency is student that graduate from State Accounting College (STAN) which its credibility for accounting education has been recognized in Indonesia which means that the auditor can't be said to have low ability.

The Functional Auditor Position that each respondent has. Respondent that has Functional Auditor Position as Expert Auditor Team Leader and Technical Control Auditor is dominant. Functional Auditor Position education certification is the basic competence of an auditor that must be owned by each auditor according to their respective level before being assigned with auditing assignment. It means the respondent of this research are Investigative Auditor who has a higher education level when viewed from their Auditor Functional Position, or it can be said that respondents of this research have high ability. The number of education and training in field of investigation the respondents had been a part of. Majority of the respondents had been a part of education and training in field of investigation for 1-3 times. This fits one of the competence criteria that an Investigative Auditor must have that is they must follow education and training on an ongoing basis to continue improving their capabilities. Education and training on an ongoing basis is important because to improve their capabilities an auditor must update his knowledge along with changes that occur.

Therefore, above statement proves that competence of Investigative Auditor influence effectiveness of fraud detection. An Investigative Auditor that has high level of education, broadminded, has basic competence of audit assignment, and have both the adequate knowledge and training is the foundation used in doing investigation audit to detect fraud that happened. Fraud detection also not limited to detecting what fraud has been committed, but also to detect the amount of loss, who is responsible for it, where the fraud happen, why the fraud happen, to how the fraud can happen making implementation of investigation audit to run effectively hard to happen. This research is in line with Masrizal (2010)'s research which stated that knowledge of audit/auditor's skill of Aceh Inspectorate's Auditor partially have significant influence on detection of regional loss. Masrizal (2010) also stated that audit knowledge greatly influence detection of fraud because with enough knowledge the auditor will be more capable and faster in doing audit to find every critical

thing/problem that become fraud method that occur, and they'll also be able to finish a job effectively if supported with the knowledge they have.

The result of this research is also in line with Hastuti (2012)'s research which concluded that partially education variable influence audit skill. However, the result of this research contradicts with other Hastuti (2012)'s research which concluded that partially the training variable does not influence audit skills. The different result is expected happen because of different respondent for the research. Hastuti (2012)'s respondent was auditor from 45 Public Accountant Offices in Surabaya, while the respondent of this research is Investigative Auditor at South Sumatera's branch of FDSB. As is known now, investigation audit is dominantly implemented in government sector compared to private sector that was implemented by auditor from public accountant offices. The same goes with training program, which will happen more often in government sector compared to private sector.

Therefore, competence of Investigative Auditor does not come from formal education alone. Formal education, knowledge/insight, Functional Auditor Position, to education and training in field of investigation on an ongoing basis can support improvement of Investigative Auditor's competence. Effectiveness of fraud detection can be achieved through competence of Investigative Auditor alone. The more that competence is improved, and then the effectiveness of fraud detection will also improve.

4.6.2 Influence of Experience of Investigative Auditor on Effectiveness of Fraud Detection

Someone's experience often linked to work done by them, this also applies to an auditor. A lot of research support that an auditor experience influences his audits, including investigation audit. Along with the changing times, modus operandi that fraud perpetrator has gets varied. Theoretical skill alone is not enough to achieve the goal of investigation audit in terms of detecting fraud, so to achieve it another factor, experience factor, is needed. Second hypothesis in this research states that Experience of Investigative Auditor have a positive and significant influence on effectiveness of fraud detections. Based on statistic test result, value of experience of Investigative Auditor's regression coefficient is 1.318 and on significance level lower than probability or $0.000 < 0.05$. This result is supported by result of partial regression coefficient influence test (T Test) which produced value of t_{count} bigger than value of t_{table} ($4,252 > 1,703$). This shows that experience of Investigative Auditor has significant positive influence to effectiveness of fraud detection.

Result received from analysis above among others are caused by the background of respondents (Investigative Auditor from South Sumatra's Office of FDSB). The age of respondent and how long they've served as an auditor. Based on table 4.2 we can see that majority of the respondent is over 40 years old, indicating that these respondents have much more experience compared to young auditor. This is supported by the frequency of length of time served as auditor. Majority of respondent had served as an auditor for more than 20 years. Because of that, it can be concluded that majority of respondents have a lot of experience that it's safe to say that respondents of this research is experienced Investigative Auditor. Therefore, this proves that experience of Investigative Audit influence effectiveness of fraud detection. Experience that Investigative Auditor have will really help the auditor in performing his work. With the experience Investigative Auditor have after auditing various fraud cases, it will ease the Investigative Auditor in detecting the next fraud, in other words experienced Investigative Auditor will easily recognize modus operandi in a fraud case that in the end it will achieve effective fraud detection.

The result of this research is in line with Nasution & Fitriany (2012)'s study result which concludes that audit experience has positive influence on the increase of skill to detect fraud. The result of this research is also in line with Masrizal (2010)'s study result which concludes that audit experience has significant effect on Ache Inspectorate's Auditor in detecting regional loss. According to Masrizal (2010), audit experience greatly affects fraud detection because with experience an auditor has, the auditor will be better at determining critical things and places where fraud's or irregularities' modus operandi which cause regional loss or national loss. The skill to detect that will increase along with the increase of experience and the more the auditor audit similar cases. Experienced auditor will be able to work with better precision and speed, the same goes with implementing investigation audit. With a lot of experience that Investigative Auditor have it will be easier to detect of motive in fraud case. Thus if experience increases then the effectiveness of fraud detection will also increase.

4.6.3 Simultaneous Influence of both Competence's of Investigative Auditor and Experience of Investigative Auditor on Effectiveness of Fraud Detection

Primary goal of investigation audit is to detect fraud and describe accurately what's the motive that was done so that the result of this investigation audit can be held accountable. To reach that goal, there are factors needed in the

Investigative Auditor, the factors are competence and experience. As stated in general standard in Country Financial Audit Standard (SPKN) that to be able to apply the execution and report standard effectively the auditor as an examiner must collectively have adequate professional finesse to perform the auditing task (SAI, 2007: 21). Said professional finesse comes in the form of competence and experience (BPK RI, 2007: 21). Third hypothesis in this research states that Competence of Investigative Auditor and Experience of Investigative Auditor have simultaneous positive and significant influence on effectiveness of fraud. Based on the result of simultaneous regression coefficient influence test (F Test) which produced value of f_{count} bigger than the value of f_{table} ($49,882 > 3,354$) with significance level smaller than probability ($0,000 < 0,05$), hence this shows that competence and experience of Investigative Auditor simultaneously have positive and significant influence to effectiveness of fraud detection.

From the results of the simultaneous analysis it is known that the dominant variables affect the effectiveness of fraud detection is experience of Investigative Auditor variable which is proven with larger regression coefficient value at 1.318 compared to competence of Investigative Auditor's regression coefficient value at 0.350. This result is expected to be caused by some factors of respondents' background. Those factors are expected to be linked to respondents' education background, education and training in field of investigation the auditor had been a part of, and how long they have served as an auditor. The education, respondents who have Diploma III education (D3) is relatively large, although not dominant, while the respondents who went through master degree (S-2) is one person. And then, regarding education and training in field of investigation, respondents that have never joined education and training in field of investigation is relatively large though not dominant. This shows that not all respondent has high investigative ability if viewed from education and training and education in field of investigation they have. This is inversely proportional to the experience of the respondents where majority of the respondents have a lot of experience from serving as an auditor for more than 20 years. Consequently, analysis result received is that experience variable is more dominant in influencing effectiveness of fraud detection compared to competence of Investigative Auditor.

Even though analysis above shows that experience of Investigative Auditor variable is more dominant in influencing effectiveness of fraud detection compared to competence variable, effectiveness level of fraud detection is still possible if both factors (competence and experience) can be

used simultaneously. This is shown from the value of R Square in analysis. Value of R Square shows that competence and experience of Investigative Auditor influence effectiveness of fraud detection is 78.7%. It means if competence and experience of Investigative Auditor is used simultaneously, it will produce effectiveness of fraud detection and if both factor increase, so do the effectiveness of fraud detection.

Result of this research is in line with Masrizal (2010)'s research which concluded that experience and audit knowledge together have significant influence on detection of regional loss. According to Masrizal (2010), Auditors who are experienced and knowledgeable will be able to detect regional loss easily. The result of this research is also in line with Hastuti (2012)'s research which concluded that there's a significant influence between education, experience, and training of public accountant on auditing expertise of public accountant which means every increase on education, experience, and training of public accountant variable will cause increase in audit expertise variable as well. Therefore, competence and experience of Investigative Auditor can complement each other when used simultaneously where it will produce effectiveness of fraud detection. Even though the level of investigative skill is still relatively small, however if used together with experience then goal of investigative audit will be achieved and vice versa. Competence and experience will complement each other in creating effectiveness of fraud detection. Then, when competence and experience of Investigative Auditor increase whether simultaneously or independently, the effectiveness of fraud detection will increase as well.

V. CONCLUSION

5.1. Conclusion

Based on multiple regression which regression coefficient, shows that experience of Investigative Auditor has dominant influence compared to competence of Investigative Auditor in terms of improving effectiveness of fraud detection. Meanwhile, based on partial regression coefficient test, it is found that both competence of Investigative auditor and experience of Investigative Auditor partially have positive and significant influence on effectiveness of fraud detection. Furthermore, in simultaneous regression coefficient test, we found that that characteristic of Investigative Auditor in form of competence and experience is proven to simultaneously have positive and significant influence on effectiveness of fraud detection.

5.2. Research limitation

This study has several limitations. Therefore, researchers expect further research to minimize the limitations contained in this study. Here are some of the limitations of this study and suggestions for further research:

This research uses sample of Investigative Auditor FDSB of South Sumatera Province which only consist of 43 Investigative Auditor and that can be used as the respondent only 30 Investigative Auditor so that the result of this research can not be generalized to all existing Investigative Auditor in all area of Indonesia. Therefore, further research is expected to expand and expand the sample coverage area not only in South Sumatera Province, so that research results with higher generalization level can be obtained.

The variable characteristics of Investigative Auditors examined only competence and experience, while based on the results of the study there are 21.3% opportunities for other factors that can affect the effectiveness of fraud detection. Thus, further research is expected to add other factors besides the capabilities and experience of the Investigative Auditor.

3. In the process of obtaining the data, the researcher only uses the research instrument that the question set out in the questionnaire and the implementation of the interview only to a few people so that the results of the interview can not be used by researchers in this data analysis. Therefore, further research should use direct interview techniques to the Investigative Auditors who are the respondents.

5.3. Implication for relevant parties

Based on the conclusion that the characteristics of the Investigative Auditor as measured by the competence and experience of the Investigative Auditor which have positive and significant influence either simultaneously or partially, some suggestions can be conveyed,

For the Investigative Auditor. This study finds evidence of the importance of competence and experience in creating an effectiveness of fraud detection for an Investigative Auditor. Therefore, it is appropriate for the Investigative Auditors to always try to improve their ability and experience in order to increase a higher level of effectiveness of fraud detection.

For FDSB. This study found evidence that the competence and experience of the Investigative Auditor positively and significantly influence the effectiveness of fraud detection. Therefore, it is appropriate for FDSB to continue to motivate and improve education and training programs in the field

of investigation, as well as increasing the assignment of investigative audit so that the credibility of FDSB Investigative Auditors is increasing.

References

- Anthony, Robert N & Vijay Govindarajan. 2009. "Management Control System". Buku 1. Edisi 11. Diterjemahkan oleh: Kurniawan Tjakrawala. Jakarta: Salemba Empat.
- Arikunto Suharsimi. 2002. *Prosedur Suatu Penelitian: Pendekatan Praktek*. Edisi Revisi Kelima. Jakarta: Rineka Cipta.
- Arikunto, Suharsimi. 2006. *Prosedur Penelitian Suatu Pendekatan Praktik*. Edisi Revisi 6. Cetakan Ketigabelas. Jakarta: Rineka Cipta.
- Badan Pemeriksa Keuangan Republik Indonesia. 2007. *Standar Pemeriksaan Keuangan Negara*. Jakarta: BPK RI.
- Badan Pemeriksa Keuangan Republik Indonesia. 2013. *Ikhtisar Hasil Pemeriksaan Semester II Tahun 2012*. Buku II Pemeriksaan Keuangan. Jakarta: BPK RI.
- Badan Pusat Statistik. 2010. "Perkembangan Beberapa Indikator Utama Sosial-Ekonomi Indonesia". BPS (online), diakses pada tanggal 16 Desember 2013, dari http://www.bps.go.id/booklet/Booklet_Mei_2012.pdf
- Berita Seputar Deputy Bidang Investigasi. 2013. "Prof. Eddy Mulyadi Soepardi: BPKP Jadi Sasaran Tembak Koruptor". BPKP (online), diakses pada tanggal 6 November 2013, dari <http://www.bpkp.go.id/investigasi/berita/read/10176/0/Prof.-Eddy-Mulyadi-Soepardi-BPKP-Jadi-Sasaran-Tembak-Koruptor.bpkp>
- Bologna, G. Jack & Robert J. Lindquist. 1997. *Audit Kecurangan dan Akuntansi Forensik (Tehnik dan Cara Baru)*. Edisi Kedua. Diterjemahkan oleh: Badan Pengawasan Keuangan dan Pembangunan Perwakilan Daerah Istimewa Yogyakarta. Yogyakarta: BPKP.
- Gunawan, Hendra. 2013. "BPKP Sumut Pecat Auditor Sudirman". *Tribun News (Berita Harian Online)*, diakses pada tanggal 7 November 2013, dari <http://www.tribunnews.com/regional/2013/02/16/bpkp-sumut-pecat-auditor-sudirman>
- Handriana, Eka. 2013. "M Thoriq Gugat BPKP". *Suara Merdeka (Berita Harian Online)*, diakses pada tanggal 7 November 2013, dari <http://www.suaramerdeka.com/v1/index.php/read/news/2013/06/10/160210/M-Thoriq-Gugat-BPKP>
- Hastuti, Sri. 2012. "Dampak Beberapa Faktor terhadap Keahlian Audit (An Empiric Study At Registered Public Accounting Officer In Surabaya)". *The Indonesian Accounting Review*. Volume 2, Nomor 2, pp: 229-242.
- Idrus, Ujang. 2013. "KPK Terima Ribuan Kasus Dugaan Korupsi dari Sumsel". *Antara Sumsel (Berita Harian Online)*, edisi 9 Oktober 2013, dari <http://sumsel.antaranews.com/berita/279493/kpk-terima-ribuan-kasus-dugaan-korupsi-dari-sumsel>
- Indonesia Corruption Watch. 2004. "Diperkuat, Peran Antikorupsi BPK; Hasil Audit BPK-BPKP Bisa Langsung Digunakan Penyidik", di akses pada tanggal 11

Oktober 2013 dari <http://www.antikorupsi.org/id/content/diperkuat-peran-antikorupsi-bpk-hasil-audit-bpk-bpkp-bisa-langsung-digunakan-penyidik>

- Info Korupsi. 2013. “Korupsi di Provinsi Sumatera Selatan”, diakses pada tanggal 6 November 2013, dari <http://infokorupsi.com/id/geo-korupsi.php?ac=13&l=sumatra-selatan>
- Masrizal. 2010. “Pengaruh Pengalaman dan Pengetahuan Audit terhadap Pendeteksian Temuan Kerugian Daerah”. *Jurnal Telaah & Riset Akuntansi*. Volume 3, Nomor 2, pp: 173-194.
- Minanda, Reza & Dul Muid. 2013. “Analisis Pengaruh Profesionalisme, Pengetahuan Mendeteksi Kekeliruan, Pengalaman Bekerja Auditor, dan Etika Profesi terhadap Pertimbangan Tingkat Materialitas Akuntan Publik (Studi Empiris pada Auditor KAP di Semarang)”. *Diponegoro Journal of Accounting*. Volume 1, Nomor 1, pp: 1-8.
- Nasution, Hafifah dan Fitriany. 2012. “Pengaruh Beban Kerja, Pengalaman Audit dan Tipe Kepribadian terhadap Skeptisme Profesional dan Kemampuan Auditor dalam Mendeteksi Kecurangan. Simposium Nasional Akuntansi XV, Banjarmasin.
- Priyatno, Duwi. 2012. *Belajar Cepat Olah Data Statistik dengan SPSS*. Edisi 1. Yogyakarta: ANDI.
- Priyatno, Duwi. 2010. *Teknik Mudah dan Cepat Melakukan Analisis Data Penelitian dengan SPSS*. Edisi Pertama. Penerbit Gava Media: Yogyakarta.
- Pusat Pendidikan dan Pelatihan Pengawasan Badan Pengawasan Keuangan dan Pembangunan (Pusdiklatwas BPKP). 2008. “Fraud Auditing”. Edisi Kelima. Jakarta: BPKP.
- Pusat Pendidikan dan Pelatihan Pengawasan Badan Pengawasan Keuangan dan Pembangunan (Pusdiklatwas BPKP). 2008. “Kode Etik dan Standar Audit”. Edisi Kelima. Jakarta: BPKP.
- Putra, Idris Rusadi. 2013. “Indosat Terbukti Tak Rugikan Negara Rp 1,3 triliun”. *Merdeka (Berita Harian Online)*, diakses pada tanggal 7 November 2013, dari <http://www.merdeka.com/uang/indosat-terbukti-tak-rugikan-negara-rp-13-triliun.html>
- Siagian, Sondang P. 2001. *Manajemen Sumber Daya Manusia*. Jakarta: Bumi Aksara.
- Sugiyono. 2010. *Metode Penelitian Bisnis*. Cetakan kelima belas. Bandung: Alfabeta.
- Tuanakotta, Theodorus M. 2012. *Akuntansi Forensik dan Audit Investigatif*. Edisi 2. Jakarta: Salemba Empat.
- Utami, Fuji. 2013. “Terdakwa Korupsi Gugat BPKP Jateng”. *Kompas (Berita Harian Online)*, diakses pada tanggal 7 November 2013, dari <http://regional.kompas.com/read/2012/10/09/20055634/Terdakwa.Korupsi.Gugat.BPKP.Jateng>
- Widiyanto, Mikha Agus. 2013. *Statistika Terapan (Konsep & Aplikasi SPSS/LISREL dalam Penelitian Pendidikan, Psikologi & Ilmu Sosial Lainnya)*. Jakarta Pusat: Alex Media Komputindo.