Forensic Accounting and Financial Fraud in Nigeria: Problems and Prospects

***Abstract***

*The increasing rate of frauds and financial crimes in Nigerian economy has made corporate organizations to develop means of facing these challenges with the use of forensic accounting services. The study examines the effects of forensic accounting services on fraud and financial crime detection and prevention in Nigeria. The survey designed was used in the study with a sample size of 160 consisting of Auchi Polytechnic, Edo State Ministry of Finance, Audit Firms and Federal Inland Revenue Services. The simple random technique was used as the sampling technique, while the chi- square was employed in the data analysis. The tests of hypothesis were done using Microsoft Excel 2010 version. Tests were carried out at a significant level of 5% and three degree of freedom. The paper concludes that financial crimes and fraud have serious negative effect on human capital and infrastructural development in developing economies, especially countries like Nigeria. Forensic accounting services provide corporate organizations with the necessary tools to detect and prevent frauds and financial crimes. The study therefore recommends that professional accounting bodies should constantly conduct forensic accounting training for accountants and Nigerians should embrace integrity, objectivity, fairness and accountability in their daily activities.*

***Keywords:*** *forensic accounting, fraud, financial crime, economy.*

# INTRODUCTION

The widespread frauds in modern organizations have made traditional auditing and investigation inefficient and ineffective in the detection and prevention of the various types of frauds confronting businesses world-wide. Fraud is a universal problem as no nations is resistant, although developing countries and their various states suffer the most pain. The increasing sophistication of financial fraud requires that forensic accounting be added to the tools necessary to bring about the successful investigation and prosecution of those individuals involved in criminal activities.

The Nigerian banking sector is one of the most controlled and regulated sectors. In spite of this, financial crimes such as embezzlement, bribery, bankruptcy, security fraud, among others, have taken the centre stage in the scheme of things in the sector (Adeniyi, 2016). The consequences and the effects of financial crimes in corporate organizations are very grave and it is against this background that forensic accounting emerged. It is a response to the growing sophistication and awareness of financial crimes.

Karwai (2002) maintains that the increasing wave of fraud is causing a lot of havoc in Nigeria. This is because fraud has eaten deep into every aspect of the Nigerian society to

the extent that many organizations have lost confidence of their customers. Key institutions like Independence Corrupt Practices Commission (ICPC), Economic and Financial Crime Commission (EFCC) were established to fight corruption. All these could not work effectively because of various challenges like politicization and blackmail, constitutional immunity as stated in section 308 of Nigerian constitution, public apathy and doubtful attitudes towards anti-corruption work, and slow justice.

Forensic accounting encompasses three major areas of investigation, dispute resolution and litigation support. In the light of the problem of financial crimes discussed above, this study aims at examining the problems and prospects of forensic accounting and financial fraud in Nigeria.

# LITERATURE REVIEW

## Introduction

The term forensic means suitable for use in a court of law, and it is to that standard and potential outcome that forensic accountants generally have to work. Litigation services and investigative accounting are the two main branches of forensic accounting, according to some experts (Crumbley, 2005; Coppolla, 2006).Forensic accounting is a discipline that has its own models and methodologies of investigative procedures that search for assurance, attestation and advisory perspective to produce legal evidence. It is concerned with the evidentiary nature of accounting data, and as a practical field concerned with accounting fraud and forensic auditing; compliance, due diligence; detection of financial misrepresentation and financial statement fraud (Dhar and Sarkar, 2010).

Okunbor and Obaretin (2010) reported that the spates of corporate failures have placed greater responsibility and function on accountants to equip themselves with the skills to identify and act upon indicators of poor corporate governance, mismanagement, frauds and other wrong doings. It has become imperative for accountants at all levels to have the requisite skills and knowledge for identifying, discovering as well as preserving the evidence of all forms of irregularities and fraud. Therefore, fraud requires more sophisticated approach from preventative to detection. One of the modern approaches that can be used from the prevention to detection is called forensic accounting. It touches almost all disciplines especially, accounting, auditing, investigation, law and psychology (Enofe, Agbonkpolor & Edebiri, 2015).

## The Concept of Forensic Accounting

Hopwood, Leiner, and Young (2008) define forensic accounting as the application of investigative and analytical skills for the purpose of resolving financial issues in a manner that meets standards required by courts of law. It is the integration of accounting, auditing and investigative skills (Dada, Owolabi & Okwu, 2013).

According to Curtis (2008), forensic accountants are essential to the legal system, providing expert services such as fake invoicing valuations, suspicious bankruptcy valuations, and analysis of financial documents in fraud schemes. Crumbley (2003) defined forensic science as the application of laws of nature to the laws of man. He described forensic scientists as examiners and interpreters of evidence and facts in legal cases that also offers expert opinions regarding their findings in court of law.

Dhar and Sarkar (2010) define forensic accounting as the application of accounting concepts and techniques to legal problems. It demands reporting, where accountability of

the fraud is established and the report is considered as evidence in the court of law or in administrative proceedings. Forensic accounting is a discipline that has its own models and methodologies of investigative procedures that search for assurance, attestation and advisory perspective to produce legal evidence.

Onodi, Okafor and Onyali (2015) are of the opinion that forensic investigative skills are required to uncover and establish the occurrence of financial crimes due to the incidence of fraud and misappropriation of funds in recent time that is posing a threat to traditional auditing as a branch of accounting profession. It is concerned with the evidentiary nature of accounting data, and as a practical field concerned with accounting fraud and forensic auditing; compliance, due diligence and risk assessment; detection of financial misrepresentation and financial statement fraud.

## Financial Frauds

Ehioghiren, & Atu, (2016) opined that financial crimes cannot be precisely defined but can be described. No one description suffices. Williams (2005) incorporates corruptions, bribes cronyism, nepotism, political donation, kickbacks, artificial pricing and frauds of all kinds to his description of financial crimes. Nwaze (2012) defined fraud as a predetermined as well as planned tricky process or device usually undertaken by a person or group of persons with the sole aim of cheating another person or organisation to gain ill-gotten advantage which would not have accrued in the absence of such deceptive procedure.

Karwai (2002) is of the view that financial fraud in organizations vary widely in nature, character and method of operation in general. He reported that the identification of the causes of fraud is very difficult because modern day organizations frauds usually involve a complex web of conspiracy and deception that often mask the actual cause. It was noted by Nwaze (2008) that fraud is perpetrated in many forms and usually has insiders (staff) and outsiders conniving together to successfully implement the act.

Fraud may be classified into two broad ways: nature of fraudsters and method employed in carrying out the fraud. On the basis of the nature of the fraudsters, fraud may be categorized into three groups, namely; internal, external and mixed frauds. Internal fraud relates to those committed by members of staff and directors of the organizations while external fraud is committed by persons outside the organization and mixed fraud involves outsiders colluding with the staff and directors of the organization. Although fraud affects the whole world, the magnitude of fraud in Nigeria and the extent to which the economy is affected is a call for alarm (Abiola, 2009).

Financial crimes are crime against property, involving the unlawful conversion of the ownership of property (belonging to another) to one's own personal use and benefit. Financial crimes may involve additional criminal acts, such as computer crime, elder abuse, burglary, and even violent crime such as armed robbery or murder. Financial crimes may be carried out by individuals, corporations, or by organized crime groups. Victims may include individuals, corporations, governments, and entire economies.

## Competences Required of a Forensic Accountant

A forensic accountant must possess the following characteristics/qualities: curiosity, persistence, creativity, discretion, organization, confidence, and sound professional judgement. A Forensic Accountant must be open to consider all alternatives, scrutinize

the fine details and at the same time see the big picture. In addition, a Forensic Accountant must be able to listen effectively and communicate clearly and concisely. DiGabriele (2009) identified a set of skill, prominent amongst which are:

1. Deductive analysis: The ability to identify financial contradictions that do not fit in the normal pattern of assignment. In consideration of the barrage of recent financial reporting scandals this skill appears to be necessary and essential for a forensic accountant to meet the objective of uncovering a potential financial fraud.
2. Creative thinking: The ability to differentiate between opinion and fact. The essence of being an expert witness is to be able to perform the task of discerning fact from fiction in order to maintain a credible testimony. Courses developed in this area should emphasize the ability to remove any non-corroborated opinions from expert reports and testimony.
3. Unstructured problem solving: The ability to treat each situation as inherently unique and preparedness to solve problems with an unstructured approach. Accounting education has been based around concentrating on compliance with rules and procedures. This skill is a direct contradiction to this concept.
4. Analytical proficiency: The ability to look out for what should be provided rather than what was provided. Considering the post financial fraud regulatory environment, solving a financial puzzle with less than a complete set of pieces appears to be the direction the current business environment is heading.
5. Oral and written communication: The ability to effectively communicate in speech and in writing via expert testimony and general explanation of the bases of opinion and reports, charts, graphs and schedules the bases of opinion.
6. Specific legal knowledge: The ability to understand basic legal processes and legal issues including the rule of evidence.
7. Composure: The ability to maintain a calm attitude when under pressured. The most prevalent area where this is necessary is expert testimony in either deposition or court. The composure of an expert can be an integral component in the ultimate outcome of the case.

## The Role of Forensic Accountant

The principal role of a Forensic Accountant as an expert witness is to analyse, interpret, summarize and present complex business and financial deals in a logical, understandable manner supported with facts. An expert witness is a witness, who by virtue of education, training, skill, or experience, is believed to have knowledge in a particular subject beyond that of the average person, sufficient that others may officially (and legally) rely upon the witness's specialized (scientific, technical or other) opinion about an evidence or fact issued within the scope of their expertise, referred to as the expert opinion, as an assistance to the fact-finder. The Forensic Accountant should possess the following:

1. Communicate Findings in the form of a report and supporting documents.
2. Assist in any legal proceedings.
3. Assist in obtaining documentation necessary to support or refute a claim.
4. Review of the relevant documentation to form an initial assessment of the case and identify areas of loss.
5. Assist and attend the examination for discovery including the formulation of questions to be asked regarding the financial evidence.
6. Review of the opposing expert's damages report and reporting on both the strengths and weaknesses of the positions taken.
7. Assist with settlement discussions and negotiations.
8. Attend trial to hear the testimony of the opposing expert and to provide assistance with cross- examination.

## Challenges of Forensic Accounting Application in Nigeria

With an upsurge in financial accounting fraud in the current economic scenario experienced, financial accounting fraud detection has become an emerging topic of great importance for academic, research and industries. The failure of internal auditing system of the organization in identifying the accounting frauds has led to use of specialized procedures to detect financial accounting fraud, collective known as forensic accounting (Modugu & Anyaduba, 2013).

Rezaee, Crumbley, and Elmore (2006) reveal the following challenges confronting the application of forensic accounting.

1. The task of gathering information that is admissible in a court of law.
2. The admissibility, of evidence in compliance with the laws of evidence is crucial to successful prosecutions of criminal and civil claims.
3. Globalization of the economy and the fact that a fraudster can be based anywhere in the world has led to the problem of inter-jurisdiction.
4. The law is not always up to date with the latest advancements in technology.
5. Forensic accounting is seen as an expensive service that only big companies can afford.
6. It is a new trend particularly in developing economies. Hence, accountants with adequate technical know-how on forensic issues are hardly available.

The problems identified in Nigerian economy in area of financial and economic crimes are explained thus:

1. Non-availability of the appropriate litigation support services in the court has led to misjudgement or incorrect submissions by lawyers and judges. It has been discovered that offenders are not given appropriate punishment because the gravity or extent of economic loss or damages cannot be adequately determined.
2. The increasing rate of crime and corruption in the economy most especially in the area of economic governance and in public corporations have eroded public confidence and trust in matters regarding transparency and financial probity.
3. There is weakness in traditional auditing style in curbing this socio-economic evil (economic and financial crimes) in the Nigerian economy.
4. There is problem of battered image of the nation both locally and internationally. Nigeria has recorded huge loss of fund due to the bad image; Nigeria has not been able to attract Foreign Direct Investment expected of a developing economy.

## Obstacles to Effective Prosecution of Corrupt Practices and Financial Crimes in Nigeria

Ribadu (2004) stated that corruption and other economic crimes are the bane of Nigeria economic development efforts. All the crimes harm the economy in no small measures.

Those who are saddled with the responsibility of fighting crimes will do well if they do not compromise, thereby making corruption a little monster to be crushed with ease. He however, outlined the following factors that affected the prosecuting of criminals:

1. Cooperation from persons/institutions who should furnish relevant information.
2. The quality of evidence gathered at the investigation stage.
3. The transparency of investigation of the case itself.
4. The prosecutorial competes of the prosecuting counsel.
5. The transparency and fairness of the presiding judge in the trail.
6. Inadequacy of existing procedural and evidence laws.
7. Congestion and slow pace of court proceedings.
8. Jurisdiction problems.
9. Cost of investigation and prosecution.

# METHODOLOGY

This study is empirical and descriptive, taking the Edo State as the population. The sample represents the following entities: Auchi Polytechnic, Auchi (APA), Edo State Ministry of Finance (ESMF), Audit Firms (AF) and Federal Inland Revenue Service (FIRS). A sample size of forty (40) is targeted for each respondent groups making a total of One hundred sixty (160) copies of questionnaire administered, a total of one hundred and forty four (144) copies were returned and used for analysis. This represents an overall response rate of ninety per cent (90%) for all the groups. These responses were used in providing answers to the questions raised in the study using Likert scale which measures the extent to which a person agrees or disagrees with the question. The most common scale is 1 to 5 was used as scale 1 = strongly disagree, 2 = disagree, 3 = not sure/neutral/no opinion, 4 = agree, and 5 = strongly agree.

Chi-square was used to test the hypotheses; it measures the difference between the expected and the observed frequencies and was calculated as follows:

2 = Σ(O – E) 2

E

Where

O = Observed frequency E = Expected frequency

Decision rule at any level of significance is that the null hypothesis is rejected if the calculated chi-square (χ2) is greater than or equal to the critical value from the chi-square table, otherwise the null hypothesis is retained.

## Test of research hypotheses Hypothesis One

**H01:** Litigation support services by forensic accounting cannot lead to appropriate judgment for economic and financial crime eradication in Nigerian economy.

This hypothesis states that there is no significant relationship between the litigation support services by forensic accounting and appropriate judgment for economic and financial crime eradication in Nigerian economy.

In Table 1, the Chi-Square (χ2) calculated is 22.06, while the critical value is 21.03 from the statistical table. The Chi-Square calculated value (22.06) is greater than the critical value (21.03). As a result of this, the research rejects the null hypothesis at 5% level of significance and 12 degree of freedom. It can be concluded that there is significant

relationship between the litigation support services by forensic accounting and appropriate judgment for economic and financial crime eradication in Nigerian economy. It therefore means that litigation support services by forensic accounting can lead to appropriate judgment for economic and financial crime eradication in Nigerian economy.

## Hypothesis Two

**H02:** Forensic accounting has no relationship with good corporate governance for public confidence and eradication of crime and corruption in Nigerian economy.

This hypothesis states that Forensic accounting has no relationship with good corporate governance for public confidence and eradication of crime and corruption in Nigerian economy.

In Table 2, the Chi-Square (χ2) calculated is 24.24, while the critical value is 21.03 from the statistical table. The Chi-Square calculated value (24.24) is greater than the critical value (21.03). As a result of this, the research rejects the null hypothesis at 5% level of significance and 12 degree of freedom. It can be concluded that Forensic accounting has relationship with good corporate governance for public confidence and eradication of crime and corruption in Nigerian economy. It therefore means that Forensic accounting can enhance good corporate governance for public confidence and eradication of crime and corruption in Nigerian economy.

## Hypothesis Three

**H03:** Forensic accounting cannot fill the gap created by traditional auditing style in curbing the socio- economic evil of economic and financial crimes.

This hypothesis states that there is no significant relationship between Forensic accounting and filling the gap created by traditional auditing style in curbing the socio- economic evil of economic and financial crimes.

In Table 3, the Chi-Square (χ2) calculated is 22.56, while the critical value is 21.03 from the statistical table. The Chi-Square calculated value (22.56) is greater than the critical value (21.03). As a result of this, the research rejects the null hypothesis at 5% level of significance and 12 degree of freedom. It can be concluded that there is relationship between Forensic accounting and filling the gap created by traditional auditing style in curbing the socio- economic evil of economic and financial crimes. It therefore means that Forensic accounting can fill the gap created by traditional auditing style in curbing the socio- economic evil of economic and financial crimes.

# CONCLUSION AND RECOMMENDATIONS

Financial crimes and fraud have serious negative effect on human capital and infrastructural development in developing economies, especially countries like Nigeria where the menace has become endemic. Forensic accounting services provide corporate organizations with the necessary tools to detect and prevent frauds and financial crimes. It is one of the strategic and dynamic tools for the management of all types of financial crimes. The study therefore recommended that:

1. Professional accounting bodies should constantly conduct forensic accounting training for accountants.
2. Nigerians should embrace integrity, objectivity, fairness and accountability in their daily activities.
3. The forensic accountant as an expert witness should at all times bring his education, training, skill, or experience to bear so that their specialized opinion about an evidence or fact issued within the scope of their expertise(expert opinion), as an assistance to the fact-finder.
4. The anti-graft agencies should consider engaging the services of forensic accountants to assist them in court cases involving economic or financial crimes.
5. The Institute of Chartered Accountants of Nigeria, Association of National Accountants of Nigeria and the National Universities Commission should encourage formalization and specialization in the field forensic accounting.
6. There is need for the inclusion of forensic accounting in the syllabus of all the tertiary institutions offering accountancy in Nigeria. Professional accountancy bodies should also include the course in their syllabus.

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# APPENDICES HYPOTHESIS I

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Litigation support services by forensic accounting cannot lead to appropriate judgment  for economic and financial crime eradication in Nigerian economy. | | | | | | | | | | | |
|  | **SA** | | **A** | | **N** | | **D** | | **SD** | | **TOT** |
| **RESPONDENTS** | **O** | **E** | **O** | **E** | **O** | **E** | **O** | **E** | **O** | **E** |  |
| AUCHI POLY | 3 | 6.6 | 4 | 3.2 | 2 | 4.2 | 9 | 10.8 | 20 | 13.2 | **38** |
| ESMF | 4 | 6.4 | 3 | 3.1 | 6 | 4.1 | 15 | 10.5 | 9 | 12.8 | **37** |
| AUDIT FIRMS | 9 | 5.9 | 4 | 2.8 | 6 | 3.8 | 5 | 9.7 | 10 | 11.8 | **34** |
| FIRS | 9 | 6.1 | 1 | 2.9 | 2 | 3.9 | 12 | 10.0 | 11 | 12.2 | **35** |
| **TOTAL** | **25** | **25** | **12** | **12** | **16** | **16** | **41** | **41** | **50** | **50** | **144** |

Source: Researcher’s computation using Microsoft Excel, 2010.

# HYPOTHESIS II

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Forensic accounting has no relationship with good corporate governance for public  confidence and eradication of crime and corruption in Nigerian economy. | | | | | | | | | | | |
|  | **SA** | | **A** | | **N** | | **D** | | **SD** | | **TOT** |
| **RESPONDENTS** | **O** | **E** | **O** | **E** | **O** | **E** | **O** | **E** | **O** | **E** |  |
| AUCHI POLY | 5 | 4.2 | 3 | 4.8 | 2 | 3.4 | 13 | 12.1 | 15 | 13.5 | 38.0 |
| ESMF | 2 | 4.1 | 4 | 4.6 | 1 | 3.3 | 11 | 11.8 | 19 | 13.1 | 37.0 |
| AUDIT FIRMS | 5 | 3.8 | 7 | 4.3 | 8 | 3.1 | 6 | 10.9 | 8 | 12.0 | 34.0 |
| FIRS | 4 | 3.9 | 4 | 4.4 | 2 | 3.2 | 16 | 11.2 | 9 | 12.4 | 35.0 |
| **TOTAL** | **16** | **16** | **18** | **18** | **13** | **13** | **46** | **46** | **51** | **51** | **144** |

Source: Researcher’s computation using Microsoft Excel, 2010.

# HYPOTHESIS III

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Forensic accounting cannot fill the gap created by traditional auditing style in curbing  the socio- economic evil of economic and financial crimes. | | | | | | | | | | | |
|  | **SA** | | **A** | | **N** | | **D** | | **SD** | | **TOT** |
| **RESPONDENTS** | **O** | **E** | **O** | **E** | **O** | **E** | **O** | **E** | **O** | **E** |  |
| AUCHI POLY | 3 | 3.4 | 5 | 5.5 | 2 | 3.4 | 10 | 11.1 | 18 | 14.5 | 38.0 |
| ESMF | 2 | 3.3 | 4 | 5.4 | 1 | 3.3 | 11 | 10.8 | 19 | 14.1 | 37.0 |
| AUDIT FIRMS | 5 | 3.1 | 7 | 5.0 | 8 | 3.1 | 6 | 9.9 | 8 | 13.0 | 34.0 |
| FIRS | 3 | 3.2 | 5 | 5.1 | 2 | 3.2 | 15 | 10.2 | 10 | 13.4 | 35.0 |
| **TOTAL** | **13** | **13** | **21** | **21** | **13** | **13** | **42** | **42** | **55** | **55** | **144** |

Source: Researcher’s computation using Microsoft Excel, 2010.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **HYPOTHESIS I** | | | | |  | **HYPOTHESIS II** | | | | |  | **HYPOTHESIS III** | | | | |
| **O** | **E** | **D** | **D^2** | **D^2/E** | **O** | **E** | **D** | **D^2** | **D^2/E** | **O** | **E** | **D** | **D^2** | **D^2/E** |
| 3 | 6.60 | -3.60 | 12.94 | 1.96 | 5 | 4.22 | 0.78 | 0.60 | 0.14 | 3 | 3.43 | -0.43 | 0.19 | 0.05 |
| 4 | 6.42 | -2.42 | 5.87 | 0.91 | 2 | 4.11 | -2.11 | 4.46 | 1.08 | 2 | 3.34 | -1.34 | 1.80 | 0.54 |
| 9 | 5.90 | 3.10 | 9.59 | 1.63 | 5 | 3.78 | 1.22 | 1.49 | 0.40 | 5 | 3.07 | 1.93 | 3.73 | 1.21 |
| 9 | 6.08 | 2.92 | 8.55 | 1.41 | 4 | 3.89 | 0.11 | 0.01 | 0.00 | 3 | 3.16 | -0.16 | 0.03 | 0.01 |
| 4 | 3.17 | 0.83 | 0.69 | 0.22 | 3 | 4.75 | -1.75 | 3.06 | 0.64 | 5 | 5.54 | -0.54 | 0.29 | 0.05 |
| 3 | 3.08 | -0.08 |  | 0.00 | 4 | 4.63 | -0.63 | 0.39 | 0.08 | 4 | 5.40 | -1.40 | 1.95 | 0.36 |
| 4 | 2.83 | 1.17 | 1.36 | 0.48 | 7 | 4.25 | 2.75 | 7.56 | 1.78 | 7 | 4.96 | 2.04 | 4.17 | 0.84 |
| 1 | 2.92 | -1.92 | 3.67 | 1.26 | 4 | 4.38 | -0.38 | 0.14 | 0.03 | 5 | 5.10 | -0.10 | 0.01 | 0.00 |
| 2 | 4.22 | -2.22 | 4.94 | 1.17 | 2 | 3.43 | -1.43 | 2.05 | 0.60 | 2 | 3.43 | -1.43 | 2.05 | 0.60 |
| 6 | 4.11 | 1.89 | 3.57 | 0.87 | 1 | 3.34 | -2.34 | 5.48 | 1.64 | 1 | 3.34 | -2.34 | 5.48 | 1.64 |
| 6 | 3.78 | 2.22 | 4.94 | 1.31 | 8 | 3.07 | 4.93 | 24.31 | 7.92 | 8 | 3.07 | 4.93 | 24.31 | 7.92 |
| 2 | 3.89 | -1.89 | 3.57 | 0.92 | 2 | 3.16 | -1.16 | 1.34 | 0.43 | 2 | 3.16 | -1.16 | 1.34 | 0.43 |
| 9 | 10.82 | -1.82 | 3.31 | 0.31 | 13 | 12.14 | 0.86 | 0.74 | 0.06 | 10 | 11.08 | -1.08 | 1.17 | 0.11 |
| 15 | 10.53 | 4.47 | 19.94 | 1.89 | 11 | 11.82 | -0.82 | 0.67 | 0.06 | 11 | 10.79 | 0.21 | 0.04 | 0.00 |
| 5 | 9.68 | -4.68 | 21.91 | 2.26 | 6 | 10.86 | -4.86 | 23.63 | 2.18 | 6 | 9.92 | -3.92 | 15.34 | 1.55 |
| 12 | 9.97 | 2.03 | 4.14 | 0.42 | 16 | 11.18 | 4.82 | 23.23 | 2.08 | 15 | 10.21 | 4.79 | 22.96 | 2.25 |
| 20 | 13.19 | 6.81 | 46.32 | 3.51 | 15 | 13.46 | 1.54 | 2.38 | 0.18 | 18 | 14.51 | 3.49 | 12.15 | 0.84 |
| 9 | 12.85 | -3.85 | 14.80 | 1.15 | 19 | 13.10 | 5.90 | 34.76 | 2.65 | 19 | 14.13 | 4.87 | 23.70 | 1.68 |
| 10 | 11.81 | -1.81 | 3.26 | 0.28 | 8 | 12.04 | -4.04 | 16.34 | 1.36 | 8 | 12.99 | -4.99 | 24.86 | 1.91 |
| 11 | 12.15 | -1.15 | 1.33 | 0.11 | 9 | 12.40 | -3.40 | 11.53 | 0.93 | 10 | 13.37 | -3.37 | 11.34 | 0.85 |
| **144** | **144** | **0** | **174.71** | **22.06** | **144** | **144** | **0** | **164.17** | **24.24** | **144** | **144** | **0** | **156.90** | **22.84** |

Source: Researcher’s computation using Microsoft Excel, 2010.