EVALUATION OF OCCUPATIONAL ANTI-FRAUD CYCLE:TIPS, PARAMETERS AND ENHANCEMENTS OF INDUSTRIAL AND TELECOMMUNICATION SECTORS FRAUD MANAGEMENT

Mohammad Sabri

Anti-Fraud Officer, Palestine –WestBank

Abstract:

Purpose

The purpose of this paper is to analyze the average costs and rates of fraud. It investigates the usability of greater use of more accurate measurement which if monitored and repeated can secure minimizations which could amount to a new market advantage, in this paper we aim to describe the characteristics of perpetrators of occupational fraud and their effects on organizations.

Design/methodology/approach

This paper has analyzed 420 fraud risk measurement exercises from 25 countries in a range of different sectors. The study is based on a telecommunication analysis fraud survey conducted by the Association of Certified Fraud Examiners (ACFE) using a multivariate regression analysis to explain the effect of perpetrators' characteristics on fraud losses. Eliminating those which doesn't assess a statistically valid sample which indicates the presence of fraud, error or correctness in each case within that sample; have been completed and reported; have been externally validated and have a measurable level of accuracy were included. Gathering the percentage loss rate (PLR) and the fraud frequency rate (FFR) and analyze these values using Excel to determine average rates and further comparable data.

Findings

Fraud and error losses in an organization should currently be expected to be at least 2.74 per cent, probably more than 4.94 per cent and possibly more than 9 per cent. The PLR when first measured has been found to be 5.22 per cent and 4.65 per cent when last measured. Only the perpetrator's position and collusion are statistically significant when controlling for the potential correlation among explanatory factors.

Keywords: Financial crime, Fraud, Competitive advantage, Risk analysis, Public sector, Measurement, Fraud risk measurement, Financial crime, Criminals, Occupational fraud, White-collar offenders, Prevention, Detection

Introduction:

Through today's world of business with a smaller budgets and higher competitive markets organizations are looking for new ways to reduce costs. A lot have been pursued; to achieve what is often described as "competitive advantage" (Porter, 2004; Briggs and Edwards, 2006). Investing in measures to counter fraud is one measure which is newly investigated by the vast majority of organizations to achieve this aim. Occupational fraud has enormous consequences for the victim organization, its employees, creditors, investors, and for society at large. It may lead to reduced salaries and benefits for the organization's employees, the loss of jobs or job opportunities, investment losses, lower sales volume due to an organization's tarnished reputation, an increase in sales prices, change of ownership, bankruptcy or even the liquidation of assets. In sum, it reduces the victim organization's competitiveness in the global economy. For example, if we assume a 3 percent net profit margin on sales, a store would have to sell the equivalent of $1,216.66 in additional merchandise just to compensate for the loss associated with the theft of a single $0.10 candy per day (Mishra and Prasad, 2006). Occupational fraud may also generate other indirect costs for employees and investors in the victim organization, such as pain and suffering, mental health treatment and a lower quality of life (Payne and Gainey, 2004). Introducing the appropriate strategies to measure fraud and then counter it effectively can reduce it, which in organizations with substantial budgets a few percentage points reduction in fraud losses can reap substantial financial returns, as will be shown later in this paper. In the public sector this could be released for greater resources for services or avert cuts in budgets and in the private sector, provide the source of competitive advantage.

This paper will start by examining the broad challenges of measuring crime in general and fraud in-particular based on a survey data owned by the Association of Certified Fraud Examiners (ACFE). The survey was distributed to members of the ACFE in March 2006. Each survey respondent was asked for detailed information about his or her largest investigation which met the following four criteria:

1. The case involved occupational fraud;
2. The case was investigated after January 2004;

3. The investigation was completed;
4. The ACFE member was reasonably sure the perpetrator had been identified.

It will then move on to set out the methodology used for this paper. This study also contributes to academia by measuring the statistical effect of perpetrators' characteristics on fraud losses while controlling for the potential correlation among these characteristics. Before setting out the results, the paper will briefly describe the effect of fraud on organizations then examine professional approaches to countering fraud, highlighting the importance of accurate measurement and some of the guidance and debate surrounding it. The paper will then present the key findings from the assessment of fraud risk measurement exercises before concluding on the key issues and areas for further research.

Main Text:

The measurement of crimes and fraud Crimes in general pose challenges in measurement which evoke debates over the merits of different methods used to gauge them which results in variation in evaluating the loss values. Generally the recorded crime statistics are criticized as not been accurate because of the attrition from non-reports and reports which are not recorded in the statistics (Maguire, 2007). The British Crime Survey is generally seen as more accurate because it is based upon a large statistically valid sample of the British population and records their experience of crime victimization (Maguire, 2007). The situation with fraud is even more contested (Hoare, 2007; Levi et al., 2007). Until 2006 and the passage of the Fraud Act there was no codified set of offences in England and Wales (Farrell et al., 2007). There has (and still is) much more debate over what constitutes fraud (Doig, 2006)- this results in variation in Fraud loss readings as shown in the table below.

Fraud loss per case (C$)	Frequency	Percentage	Median (C$)	Mean (C$)
1,000-9,999	6	6.7	3,850	4,717
10,000-49,999	14	15.5	25,000	27,642
50,000-99,999	12	13.3	67,500	65,183
100,000-499,999	27	30.0	195,000	205,333
500,000-999,999	8	8.9	577,500	626,215
1,000,000 and more	23	25.6	2,200,000	3,959,706

Source: Peltier-Rivest (2009)

Distribution of fraud losses

This variation in the Fraud loss ranges results from variations in the degree of authority and financial control exercised at different job levels. For example, managers, top executives and owners have greater access to company funds, assets, and confidential information than lower level employees (Wells, 2008; KPMG, 2009). Within organizations, the hierarchical position may either limit or facilitate certain types of fraud (Holtfreter,

2005).Many organizations and individuals are reluctant to report frauds and many also pursue it through the civil courts (Higson, 1999; Button et al., 2009).

Many frauds are undiscovered and therefore hidden from official returns. This means recorded statistics of fraud presented by the police and related bodies only capture the tip of the iceberg and therefore the most accurate measures are fraud risk measurement exercises. The central premise of this approach is that within a total number of transactions there will be a number of fraudulent and mistaken cases which have not been discovered.

Figure 1
Market Segmentation of Fraud

Consider the Investigation process as a circle, at the core are the small number of detected cases of error which the organization knows about. Above that are the cases of error the organization does not know about and at the outer shell is the vast majority of cases which are not fraud or error. The fraud risk measurement exercise focuses upon a specific area of activity, such as procurement, staff payrolls, expense claims to name some. Statistically valid sample is then reviewed and from this they are usually classified as fraudulent, an error or acceptable.

The important difference in this type of measurement is that by assessing a range of transactions in greater detail, those undertaking the review are able to discover a sample of cases of fraud and error which otherwise would not have been discovered. From this it is then possible to extrapolate on the actual levels of fraud (to a specific statistical confidence level). To return to the shape in Figure 1 the aim is to uncover the size of the inner two tiers of the circle. It is this latter type of measurement which will be the focus of this paper.

Methodology

This paper covers different types of expenditure totaling almost $800 billion, in 44 organizations from 25 countries. The value of the expenditure examined has not been uprated to 2009 values. The paper has excluded figures resulting from surveys of opinion and some loss measurement exercises where it is clear that they have not met the standards described below. It has included exercises which have considered a statistically valid sample of income or expenditure –based on the International rules of fair Operational statistics (KPMG, 2009) :

1. Which have sought and examined information indicating the presence of fraud, error or correctness in each case within that sample;

2. Which have been completed and reported;
3. Which have been externally validated;
4. Which have a measurable level of statistical confidence;
5. Which have a measurable level of accuracy.

Some of the exercises have resulted in estimates of the fraud frequency rate (FFR), some of the percentage of expenditure lost to fraud, and some have measured both.

To avoid skewing the overall results by including a disproportionate quantity of data from one source, only the results from the first and most recent exercises have been included. In most of these instances, fraud and error losses have been significantly reduced since the initial measurement exercises. Sometimes, once such exercises have been completed, the organizations concerned have, mistakenly in the view of the authors of this paper, decided not to publish their results. In some cases, those directly involved in countering fraud have decided, confidentially, to provide this information for wider consideration. it is important to emphasize that this research will never be complete. More evidence becomes available each year. However, the preponderance of the evidence does point clearly in one direction, as is explained later. While it is necessary to make these caveats clear, the importance of the evidence collated in this paper should not be underestimated. The evidence shows fraud and error losses can be measured – when they have been successfully measured so many times, in respect of so many different types of expenditure, in many different organizations and across the world, to assert otherwise is the modern day equivalent of arguing that the world is flat! However, even more important is that the evidence shows that losses to fraud and error represent a significant, damaging and, crucially, unnecessary business cost.

Countering fraud: a professional approach

Organizational responses to fraud vary significantly from sector to sector and country to country. Generally in most areas of commerce the commitment to countering fraud is not high enough. For example, a study of UK FTSE 100 companies found a significant number of those surveyed (ten of 32) did not have a counter fraud strategy. Other surveys have also highlighted gaps in organizations' strategies to counter fraud (Bussmann and Werle, 2007; Fraud Review Team, 2006; Ernst & Young, 2006) and some of the most common issues include:

1. Reluctance to accurately measure the size of the problem;
2. A reluctance to report cases of fraud when they are discovered;
3. The lack of a counter fraud strategy which includes the key areas expected;

4. Lack of resources to counter the problem;
5. Lack of capacity of staff to counter fraud.

While there has not hitherto been any legal requirement, there is a growing understanding that the key to successful loss reduction is to understand the nature and scale of the problem. For example, in Europe, the European healthcare fraud and corruption declaration of 2004, agreed by organizations from 28 countries states that:

The development of a European common standard of risk measurement, with annual statistically valid follow up exercises to measure progress in reducing losses to fraud and corruption throughout the EU (European Healthcare Fraud and Corruption Network, 2004).

The range of types of income and expenditure where losses have been measured include Payroll, procurement, housing, education, social security, healthcare, insurance, tax credits, pensions, transport, and construction. Two types of figures have been produced:

1. Percentage loss rate (PLR, i.e. the proportion of expenditure lost to fraud and error).
2. FFR (i.e. frequency of fraud and error).

The same exercise can produce different PLR and FFR figures. This is because the items of expenditure where fraud is found to be present may be either greater or lesser than the average value of all of the items of expenditure. For example, it may be that fraud tends to affect items of expenditure that are higher than the average value – this will result in the PLR being higher than the FFR. Indeed, to some extent the findings of this research, in general, show just that. An analysis of the figures has also been produced for where losses in the same area of expenditure have been measured and re-measured. This outlines:

1. The level of losses when first measured and the level of losses when last measured after efforts to reduce them.
2. sector-based analysis shows:
    a. The level of losses in key sectors where the most data exists healthcare and social security.

Fraud and error losses

It would now seem appropriate to explore some of the findings from the analysis of the fraud measurement exercises studied, this time the target will be communication companies,

The types and severity of fraud attacks will primarily revolve around the market environment the CSP is operating within and will relate to the range of products and services

being offered or planned for. CSPs have business plans in place to determine the innovative products they will provide to the respective customer segments (corporate, business and residential). The criminal fraternity are also actively determining their own "business strategy" for defrauding what is provided.

The first area is the PLR. The exercises found the PLR was found to be between 0.13 and 10.60 per cent with an average PLR of 4.57 per cent as shown in Figure 2. To further analyze this we will break this down into exercises showing less than 3, 3-8 and over 8 per cent. As Figure 2 shows 66 per cent of the exercises showed PLR figures of more than 3 per cent with almost 19 per cent with a PLR over 8 per cent.

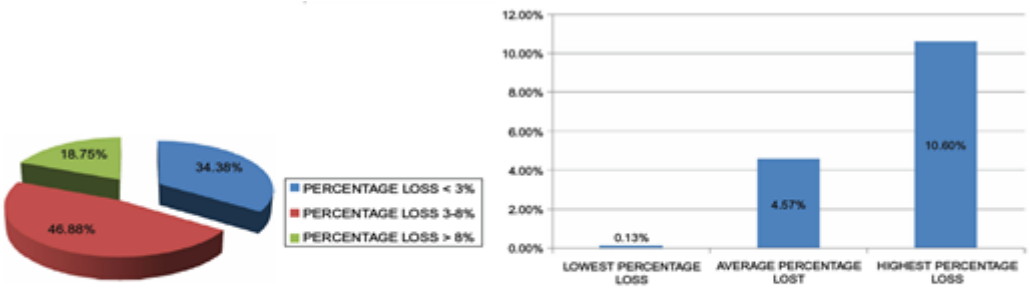

Figure 2
Average percentage losses to fraud and error

The next criteria assessed were the FFR. The range of FFR was found to be between 0.47 and 9.6 per cent with an average FFR of 4.28 per cent as shown in Figure 3. There was a much more common grouping on this criterion with 90 per cent of exercises assessed recording an FFR of 3-8 per cent, only 1.67 per cent over 8 per cent. Given the dominance of the 3-8 per cent this may suggest that a fraud and error rate of between 3 and 8 per cent is the norm.

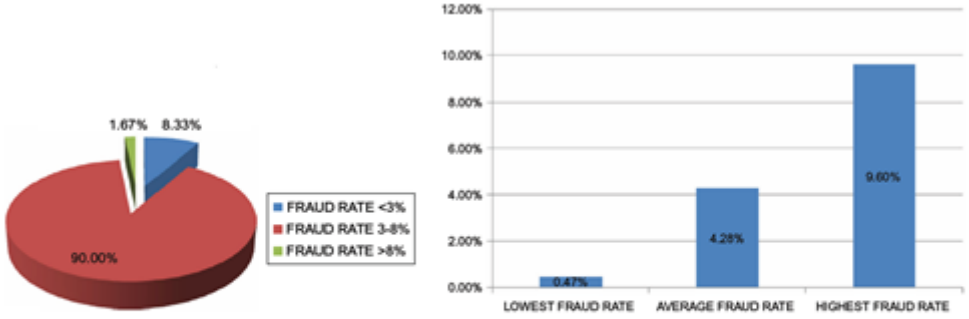

Figure 3
Average FFRs

A significant finding was that organizations that repeated the fraud measurement exercises tended to a show a reduction in the PLR. The average PLR when first measured has been found to be 5.40 per cent; the average PLR when last measured was found to be 4.61 per cent . This represents an average reduction of just fewer than 15 per cent. Which means once an organization discovers an accurate measure of fraud losses this acts as an incentive and spur to introduce measures to reduce fraud losses. It also shows fraud can be reduced and that in many organizations a saving of 15 per cent fraud losses would amount to a significant sum of money.

On the basis of the evidence, it is clear that fraud and error losses in any organization should currently be expected to be at least 3 per cent, probably more than 5 per cent and possibly more than 9 per cent. However, it would be wrong to go too much further in terms of predicting where in this range, losses for each type of expenditure measured, will be. This is because, other than in respect of healthcare and social security, the volume of data does not warrant this. Also, each organization will have either relatively stronger or relatively weaker counter fraud arrangements. This factor will affect where within the range of expected losses, a particular organization will find itself. The authors intend to publish further research assessing the effectiveness of organizations to counter fraud based upon 28 key aspects of a counter fraud strategy as advocated by the CIPFA guidance.

Factors of Anti-Fraud Measures:

What needs to be considered is that fraud can result from failures within technology, the method used to deploy and deliver services or through organizational and procedural weaknesses. However, these very same areas of concern should also be the key elements for formulating the defense mechanisms as there is no single solution to the fraud problem. What is needed is a balanced approach that takes into consideration Technology, People and Processes working together to create an effective Fraud Strategy. The purpose of a Fraud Strategy is to ensure an appropriate mix of people, processes and tools are in place, supported by Executive Level Management. This will enable effective defense mechanisms to be deployed in the right places at the right time. Based on Presidium’s extensive international experience of assessing the fraud risk across all technologies in CSPs ranging from Tier 1 to Tier 3, there is still a degree of uncertainty with regard to what exactly constitutes fraudulent behavior. This position reflects largely on the areas Fraud Teams are asked to focus on, their overall remit and areas of responsibility and on the level of authority they have to act in the best interests of the business. These considerations differ greatly from CSP to CSP and even considering different Telecoms Group approaches to managing fraud – there is no definitive

right or wrong way. CSPs will not find a defined template or an all-encompassing industry model. There is definitely not a „one size fits all" model for fraud management.

Another crucial factor is Education since employment opportunities may depend on education requirements, the education level of the perpetrator (i.e. high school diploma, some college education or a university degree) may play an important role in increasing fraud losses (Holtfreter, 2005, 2008). A higher education level may also provide a greater technical ability to perpetrate sophisticated fraud schemes (ACFE, 2010). While education level is positively associated with moral development (i.e. the ability to discriminate between right and wrong), a business degree may in fact reduce moral development by increasing self-interested behaviors, thus encouraging unethical practices (Zahra et al., 2007). The table below examines the effect of the perpetrator's education on fraud losses. The results indicate that perpetrators with the highest education level (i.e. a university degree) commit the largest frauds, with a median loss of C$1,000,000 and a mean loss of C$2,003,085.

Education	Frequency	Percentage	Median loss (C$)	Mean loss (C$)
High school or less	25	41.0	150,000	261,583
Some college	13	21.3	100,000	287,825
University degree	23	37.7	1,000,000	2,003,085

However, the table below also shows a significant positive correlation between holding the position of executive/owner and having a university degree. The multivariate analyses shown in a later section of this paper will control for the correlation between the perpetrator's position and education level.

	Manager	Executive /owner	Collusion	Tenure 5-9	Tenure ≥10	Male	Some college	University degree
Manager[a]	1.000 (0.00)	−0.39 (0.00)	0.16 (0.14)	0.21 (0.06)	−0.06 (0.60)	−0.02 (0.87)	−0.02 (0.90)	−0.01 (0.92)
Executive /owner[b]		1.000 (0.00)	0.21 (0.05)	−0.07 (0.50)	0.08 (0.46)	0.31 (0.00)	−0.04 (0.76)	0.25 (0.05)
Collusion[c]			1.000 (0.00)	0.06 (0.61)	−0.11 (0.32)	0.20 (0.06)	−0.12 (0.34)	0.15 (0.25)
Tenure 5-9[d]				1.000 (0.00)	−0.51 (0.00)	0.04 (0.72)	0.08 (0.55)	−0.15 (0.26)
Tenure ≥ 10[e]					1.000 (0.00)	0.09 (0.43)	−0.07 (0.61)	0.07 (0.62)
Male[f]						1.000 (0.00)	−0.26 (0.04)	0.21 (0.10)
Some college[g]							1.000 (0.00)	−0.40 (0.00)
University degree[h]								1.000 (0.00)

One last factor that is found through this paper investigation is Multivariate analyses In which multivariate regression analysis is used to study the effect of the perpetrator's position and the effect of collusion on total occupational fraud losses. In this regression analysis, we also employ the victim organization's annual sales as an additional independent variable to control for the potential effect of size on total fraud losses. Because of the large range of values in the total fraud loss and the annual sales variables, we use the natural log transformation of these two variables to reduce the range of values and attenuate the effect of

outliers on the regression results. The table below shows that the perpetrator's position (especially when he/she is an executive or owner) and collusion are significantly associated with occupational fraud losses. A higher job level and the presence of collusion tend to increase occupational fraud losses. The model's explanatory power is rather high for these explanatory models. In fact, 33 percent of the variation in occupational fraud losses is explained by the variation in the explanatory variables included in the model.

	Dependent variable = Ln (total loss)[a]		
Independent variable	Parameter estimate	*t*-test[b]	*p*-value
Intercept	8.14	5.91	0.000
Manager[c]	0.86	1.56	0.062
Executive/owner[d]	2.42	3.73	0.000
Collusion[e]	1.39	3.04	0.002
Ln (sales)[f]	0.14	2.03	0.047
F-statistics = 8.87[g]			
p-value < 0.0001			
Adjusted $R^2 = 0.33$[h]			
$n = 65$			

Most organizations do not undertake regular fraud risk measurement exercises (Brooks et al., 2009). There are therefore lots of bodies who do not know the true extent of their fraud losses. This means there is expenditure been made which does not need to be, which if discovered and dealt with could be released for other services or provide greater profitability. If organizations accurately measure the costs of fraud and error on a regular basis it clearly incentivizes an organization to manage that cost, like any other cost. Fraud and error are clearly problems that any organization would want to reduce. Therefore, the papers finding that those who do regularly measure fraud tend to show a reduction in it is not surprising. Accurately measuring fraud and error clearly provides a basis for reaping a competitive advantage.

Anti-Fraud Management:

Once we were able to measure fraud and errors clearly a management process should be used; to effectively manage fraud and underpin the implementation of an effective strategy, there are 3 key elements that must be aligned – the people employed to detect and prevent fraud, developing clearly defined processes and the use of effective technology. By combining these elements into their fraud management requirements CSPs will have an ability and realistic opportunity to win the battle.

People: recruiting experienced fraud personnel can be a difficult task, especially in countries where fraud functions are relatively new areas.

Process: processes must be defined initially at a strategic level to demonstrate the key stages of detecting, managing and preventing fraud.

Tools: to be effective, the Fraud Management System (FMS) has to be used in conjunction with Fraud Analysts that have sufficient skills to understand the FMS output.

Benefits of a Fraud Management System:

Effective fraud management is not only about detecting and preventing fraud, it's also about being able to sell, educate, report and promote the requirement for it throughout the business, plus with it you can ensure Automation, Volume and Quality of Data, Flexibility, Dashboard and Case Management.

However, the system is an overhead to the business like any other department and includes:

1. Cost of resources
2. Cost of technology.
3. Cost of time and resources of other business supporting areas.

The Fraud Team needs to be seen as the in-house experts on fraud management and by taking this approach, support and appreciation of the Fraud Team will increase. This can be achieved by:

1. Selling the concept of fraud from the 'top down' – promoting the key benefits and attributes of the Fraud Team
2. By aligning the fraud strategy and objectives with those of the company – common goals and objectives
3. Educating the business on the role the Fraud Team plays – raising the levels of awareness including successes and where relevant stumbling blocks.
4. Effective management reporting of the facts and figures – ensuring visibility especially of high impact or organized fraud attacks.
5. Measuring the success of the department - KPIs to maximize productivity.
6. Being recognized as Subject Matter Experts in Fraud Management – open door approach

Conclusion:

The accurate measurement of losses has been considered either impossible or too difficult. It proves that this is wrong. Losses to fraud and error can now be treated as a business cost like any other – to be tracked and reduced. It is also the case that works to measure losses can be highly cost effective. The extent to which efforts to reduce losses are helped by greater knowledge about the problem is shown by the significantly lower (15 per

cent) average level of losses where they have been re-measured over a period of time, in the same area of expenditure.

There are a number of key findings which emerge from this research. First, losses to fraud and error can be measured – and cost effectively. Second, on the basis of the evidence it is likely that losses in any organization and any area of expenditure will be at least 3 per cent, probably more than 5 per cent and possibly more than 9 per cent.

The battle against fraudsters will never be won due to the fast moving industrial environment and the drive to launch more complex products and services quickly to attract market share and maintain a competitive advantage.

Our results should encourage organizations to reinforce their internal controls at the upper job levels to minimize fraud risks and losses. Designing and implementing controls which mitigate the risk of collusion to reduce the increased losses that normally result from such frauds is essential for organizations. Future research efforts should also examine the effectiveness of anti-fraud controls, especially in the context that such controls may be interrelated. Most prior research analyzes anti-fraud controls in isolation, not controlling for their possible correlation, yet some internal controls may be more expensive to implement than others. Organizations would benefit from understanding more about the relative effectiveness of various anti-fraud controls.

Finally, with the benefit of accurate information about their nature and extent, fraud and error can be reduced significantly. In a troubled economic climate, not to consider the financial benefits of making relatively painless reductions in losses to fraud and error seems rather foolhardy. Fraud should be treated like any other cost a holistic approach introduced to counter it and this can reap financial benefits which in some sectors could amount to a new competitive advantage.

References:

ACFE (2008), Report to the Nation on Occupational Fraud and Abuse, Association of Certified Fraud Examiners, Austin, TX.

ACFE (2010), Report to the Nations on Occupational Fraud and Abuse, Association of Certified Fraud Examiners, Austin, TX.

ACFE and Peltier-Rivest, D. (2007), Detecting Occupational Fraud in Canada: A Study of Its Victims and Perpetrators, Association of Certified Fraud Examiners, Austin, TX.

COSO (1992), Internal Control-Integrated Framework, The Committee of Sponsoring Organizations of the Treadway Commission, Inyo County, CA.

COSO (2004), Enterprise Risk Management-Integrated Framework, The Committee of Sponsoring Organizations of the Treadway Commission, Inyo County, CA.

Cressey, D.R. (1973), Other People's Money: A Study in the Social Psychology of Embezzlement,Patterson Smith, Montclair.

Geis, G.T. (2010), "The great american economic meltdown (Part 2): Ponzi's offspring dupes investors", Fraud Magazine, Vol. 24 No. 1, pp. 24-6 (see also pp. 44-47).

Holtfreter, K. (2005), "Is occupational fraud 'typical' white-collar crime? A comparison of individual and organizational characteristics", Journal of Criminal Justice, Vol. 33 No. 4,pp. 353-65.

Holtfreter, K. (2008), "Determinants of fraud losses in nonprofit organizations", Nonprofit Management and Leadership, Vol. 19 No. 1, pp. 45-63.

KPMG (2009), Profile of a Canadian Fraudster, KPMG LLP, Calgary. Mishra, B.K. and Prasad, A. (2006), "Minimizing retail shrinkage due to employee theft",International Journal of Retail & Distribution Management, Vol. 34 No. 11, pp. 817-32.

Payne, B.K. and Gainey, R.R. (2004), "Ancillary consequences of employee theft", Journal ofCriminal Justice, Vol. 32, pp. 63-73.

Peltier-Rivest, D. (2009), "An analysis of the victims of occupational fraud: a Canadian perspective", Journal of Financial Crime, Vol. 16 No. 1, pp. 60-6.

Wells, J.T. (2008), Principles of Fraud Examination, Wiley, Hoboken, NJ. Zahra, S.A., Priem, R.L. and Rasheed, A.A. (2007), "Understanding the causes and effects of top management fraud", Organizational Dynamics, Vol. 36 No. 2, pp. 122-39.

ACFE (2007), 2006 ACFE Report to the Nation, available at: www.acfe.com/documents/2006- rttn.pdf (accessed January 28, 2008).

Briggs, R. and Edwards, C. (2006), The Business of Resilience, Demos, London. Brooks, G., Button, M. and Frimpong, K. (2009), "Policing fraud in the private sector: a survey of FTSE 100 companies in the UK", International Journal of Police Science and Management,Vol. 11, pp. 493-504.

Bussmann, K.D. and Werle, M.M. (2007), "Addressing crime in companies first findings from a global survey of economic crime", British Journal of Criminology, Vol. 46, pp. 1128-44.

Button, M. and Brooks, G. (2009), "'Mind the gap', progress towards developing anti-fraud culture strategies in UK central government bodies", Journal of Financial Crime, Vol. 16, pp. 229-44.

Button, M., Lewis, C. and Tapley, J. (2009), Fraud Typologies and the Victims of Fraud Literature Review, National Fraud Authority, London.

CIPFA (2006), Managing the Risk of Fraud Actions to Counter Fraud and Corruption Red Book 2,CIPFA, London.

Department for Work and Pensions (2007), Fraud and Error in the Benefits System April 2005 toMarch 2006, Department for Work and Pensions, London.

Doig, A. (2008), Fraud, Willan, Cullompton.Ernst & Young (2006), 9th Global Fraud Survey, available at: www.ey.com/Global/download.nsf/Ireland_EOY_E/Thought_Leadership_Fraud_Survey/$file/EY_Fraud_Survey_June2006.pdf (accessed January 28, 2008).

Journal of Financial Crime Vol. 19 No. 1, 2012 pp. 65-75 q Emerald Group Publishing Limited 1359-0790 DOI 10.1108/13590791211190731

European Healthcare Fraud and Corruption Network (2004), "The European healthcare fraud and corruption declaration", available at: www.ehfcn.org/media/documents/Declaration_UK.asp (accessed March 3, 2010).

Farrell, S., Yeo, N. and Ladenburg, G. (2007), Blackstone's Guide to the Fraud Act 2006,Oxford University Press, Oxford. Fraud Review Team (2006), Final Report, The Legal Secretariat to the Law Officers, London.

Gee, J., Button, M. and Frimpong, K. (2009), The Resilience to Fraud of UK Plc, MacIntyreHudson/CCFS, London.

Journal of Financial Crime Vol. 19 No. 1, 2012 pp. 54-64 q Emerald Group Publishing Limited 1359-0790 DOI 10.1108/13590791211190722

Higson, A. (1999), The Fraud Advisory Panel Working Party Paper: Why is Management Reticent to Report Fraud?, available at: www.fraudadvisorypanel.org/newsite/PDFs/research/Why%20is%20Mgt%20Reticent%20to%20Report%20Fraud.pdf (accessed March 30,2008).

HM Treasury (2003), Managing the Risk of Fraud A Guide for Managers, HM Treasury, London. Hoare, J. (2007), "Deceptive evidence: challenges in measuring fraud", in Hough, M. and Maxfield, M. (Eds), Crime Prevention Studies Volume 22: Surveying Crime in the 21st Century, Criminal Justice Press, London, pp. 263-79.

KPMG (2009), "Record number of fraud cases in first half of 2009", available at: http://rd.kpmg.co.uk/search.asp (accessed April 20, 2010).

Levi, M., Burrows, J., Fleming, H. and Hopkins, M. (2007), The Nature, Extent and Economic Impact of Fraud in the UK, ACPO, London.

Maguire, M. (2007), “Crime data and statistics”, in Maguire, M., Morgan, R. and Reiner, R. (Eds),The Oxford Handbook of Criminology, Oxford University Press, Oxford.

National Audit Office (2003), Good Practice in Tackling External Fraud, HM Treasury, London. NHSCFSMS (2007), Countering Fraud in the NHS: Protecting Resources for Patients. 1999-2006 Performance Statistics, CFSMS, London.

Porter, M.E. (2004), Competitive Advantage, The Free Press, New York, NY.United States Department of Agriculture (2002), Performance and Accountability Report FY 2002,availableat:www.ocfo.usda.gov/usdarpt/par2002/pdf/par2002.pdf(accessedApril20,2010).

United States Department of Agriculture (2003), Annual Report for Fiscal Year 2003 Report on Performance and Accountability, available at: www.ocfo.usda.gov/usdarpt/par2003/pdf/par2003.pdf (accessed April 20, 2010).

United States Department of Agriculture (2004), 2004 Performance and Accountability Report, available at: www.ocfo.usda.gov/usdarpt/par2004/pdf/par2004.pdf (accessed April 20,2010).

United States Department of Education (2001), Fiscal Year 2001 Accountability Report, available at: www2.ed.gov/about/offices/list/ocfo/FY2001AccountabilityRpt.pdf (accessed April 20,2010).

United States Department of Education (2005), FY 2005 Performance and Accountability Report, available at: www2.ed.gov/about/reports/annual/2005report/edlite-index.html (accessed April 20, 2010).

White House (n.d.), Implementation Guidance for the Improper Payments Act of 2002, P.L.107-300, available at: www.whitehouse.gov/omb/memoranda/m03-13-attach.pdf(accessed February 18, 2010).