CONCEPTUAL & ECONOMIC MODELLING ON WHISTLEBLOWING DECISION-MAKING PHENOMENA

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Abstract

The whistleblower is always in a dilemma situation whenever making a decision on whether to blow or not blow the whistle after observing unethical behavior or wrongdoing. This paper provides conceptual model and an economic model for whistleblowing decision making phenomena through mixed strategies of the game theory. The instinctual issue of whistleblowing game's mixed equilibrium would be that the probabilities rest on the opponent's payoffs and not on the player's own payoffs. Even if blowing the whistle is not really definite, a satisfactorily high chance of disinterring the wrongdoing ought to discourage commission of unethical behavior.

Keywords: whistleblower, malefactor, game-theory, wrongdoing, whistleblowing, payoffs

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1 Introduction

Speaking veracity to the supremacy is not easy but must be endeavored, and even bolstered. An informal society buttresses a democratic society and a sovereign society must encourage, support and protect whistleblowers (Latimer & Brown. 2008). Whistleblowing is a practice that has dominated contemporary business and metaphysical debates and discussions for the past two decades among academics because of its controversial nature (Masaka, 2007). The first official known usage of the term dates back to 1963 when Otto F. Otepka reported about security risks in the State Department during the cold war to the American Senate sub-committee and is considered to be the first whistleblower (Peters & Branch, 1972) cited Bjorkelo (2013).

According to Trongmateerut& Sweeney (2012), importance of whistleblowing in disclosing corporate misconduct is evidenced by its role in exposing many of the financial and operational scandals that have occurred in the initial decade of the 21st century (Dyck et al, 2010). These scandals have therefore increased the salience of ethical conduct in business (Somers & Casal, 2011). Virtually, all the scholars and researchers in post 2002 period have cited the high profile financial and operational scandals which came out as a result of whistleblowing. Notorious whistleblowing cases include those at Enron, the FBI, WorldCom, US Military, Tyco, Parmalet in Italy, One Tel in Australia and others. These have seen the emerging of prominent whistleblowers; Sheron Watkins, Coleen Rowley, and Cynthia Cooper among others. These turbulent periods in USA, Italy, New Zealand and Australia which destroyed the fundamental trust in corporations and cost investors billions of dollars, motivated legislatures in numerous countries to enact whistleblowing encouraging laws. The US congress passed the Sarbanes-Oxley Act (SOX) in 2002 and the Dodd-Frank Wall Street Reform & Consumer Protection Act in 2010, (Bowen et al, 2010; Calvasina et al, 2012; Stults, 2004) and in 2001 New Zealand passed Protected Disclosure Act (PDA 2000) (Liyanarachchi & Newdick, 2008).

Whistleblowing is an act which requires a heavy decision given its consequences. Perhaps one of the most puzzling issues in famous scandals such as Enron, WorldCom and Tyco is a nagging question of how this highly unethical and immoral conduct was allowed to continue and why it was not exposed much earlier(Somers & Casal, 2011). In the case of Enron there was reluctance to blow the whistle by the audit staff despite their knowledge about the client's business, its obligations and financial affairs most likely because of collusion between the client, management and the audit partner (Alleyne et al, 2013).One former employee of Enron claimed that many employees knew about the alleged wrongdoings in the company but they kept silent and complicit rather than have the courage to disclose it. This shows that whistleblowers are faced with a dilemma of upholding the firm's confidentiality or divulging action that could affect others such as stockholders, communities, government entities and/or other employees.

The trepidation of being tagged a "creep" or a scalawag, the fright of "flouting lines" and appearing treacherous to colleagues and fear of being required to provide indisputable evidence are commanding disincentives to blow up the whistle.

Against this background therefore the objectives of the paper are:

• To conceptualize whistleblowing decision making phenomena in a model based on philosophical inquiry literature review.

• To test whistleblowing decision making phenomena through economic modeling.

2 Conceptual and empirical literature review

Vandekerckhove & Commers (2004) provided the most commonly used definition of whistleblowing by numerous researchers and scholars cited by Jubb (1999 p.83) and referred to it as "a deliberate nonobligatory act of disclosure, which gets onto public record and is made by a person who has or had privileged access to data or information of an organisation, about non-trivial illegality or other wrong doing whether actual, suspected or anticipated which implicates and is under the control of that organisation, to an external entity having potential to rectify the wrongdoing". Near & Miceli (1985) viewed whistle blowing as a process which involves at least four elements: the whistleblower, the whistleblowing act, or complaint, the party to whom the complaint is made and the organisation against which the complaint is lodged. Whistleblower is a person who tells the public or someone in authority about alleged dishonest or illegal activities (misconduct) happening in an organisation (Susmanschi, 2012).

Whistleblowing is an act which can be done in two ways, that is internally or externally. Rothschild & Miethe (1999) cited that from the view of the management internal whistleblowing may be applauded when it identifies bad apples within the company and allows for their removal before they can cost the company financial and other related losses, scathing publicity or litigation whereas external whistleblowing is condemned by management it brings adverse publicity. Internal whistleblowing report misconduct on a co-worker or superior within the company and external whistleblowing report the misconduct on outside persons or entities, such as lawyers, the media, law enforcement or watchdog agencies, or other local, state or federal agencies, being in some cases encouraged by monetary reward (Susmanschi, 2012). However, Sheron Watkins, Coleen Rowley and Cynthia Cooper (Time Magazine 2002 persons of the year) blew the whistle internally, with memos and emails to top executives and in all three cases, their correspondence was leaked to congress or the press and they found themselves forced to discuss their allegations in public (Near et al, 2004).

An examination of the social psychological literature regarding reward systems in compensation of employees indicates it may work favorably if properly structured. Monetary incentive system increases whistleblowing despite its adverse effects as it could increase false claims, the promotion of a 'snitching culture' and/or loss of group identity which eventually harms organizational efficiency (Vandenabeele & Kjeldsen, 2011). For example, on 03 June, 2014, the commission awarded a total of \$875, 000.00 shared by two whistleblowers who acted in concert to voluntarily provide information and assistance that assisted the SEC bring a successful enforcement action (SEC, 2014). This appears more attractive to the potential whistleblowers.

(2012). According Susmanschi to whistleblowing has been studied from motivational and social psychological perspectives, as a choice to blow the whistle regarding illegal/improper situations, lies in the person's verdict based on considerable motivations whether altruistic or egoistic. The desirability of valences of whistleblowing stimulates or demotivates the whistleblower. If the whistleblowing will result in a cession of wrongdoing and likely not going to get retaliation then it is desirable (Near & Miceli, 1995). Many present whistleblowers as selfless and altruistic as they allegedly take this task only at odd personal cost, while others consider whistleblowers as egoistic and malicious who are motivated solely by greed and selfinterest (Rothschild & Miethe, 1999; Dozier & Miceli, 1985). More so, some people characterize whistleblowers as selfless martyrs for public interest and organizational accountability and others perceive them as snitches who think of only attaining personal glory and fame (Susmanschi, 2012). At the end, for most of the whistleblowers, the experience of whistleblowing and its aftermath are traumatic as such their "master status" is defined by the act of whistleblowing (Rothschild & Miethe, 1999).

The level of moral development tend to influence the act of whistleblowing, individuals of high morals reasoning tend to blow the whistle more than others (Near & Miceli, 1985), and are utilitarian who are driven by their sense of integrity and social responsibility to speak out, even when under symbolic or literal pressures to keep silent (Greene & Latting, 2004). However, according to Davis (1996) on the standard theory, would be whistleblower must seek to avoid "serious and considerable harm" in order for the whistleblowing to be even morally permissible.

In some instances blowing the whistle on an organization can be viewed as an act of dissident somewhat analogous to civil disobedience (Ellinston, 1982b) cited Near & Miceli (1985). They added that observers who feel a great sense of loyalty or commitment to the organisation may choose against whistleblowing and finds it disloyal. Moreover, the norms of loyalty held by management in an organizational climate that is generally antagonistic toward exposing misconduct would increase the likelihood of silence (Rothschild & Miethe, 1999). The relationship between whistleblowing and the obligations of loyalty and obedience presents a classic case of competing moral values (Masaka, 2007). This tends to bring some indifference to the whistleblower.



Bjorkelo (2013) cited whistleblowing as a phenomenon that often portray act of audacious individuals that perform the act of reporting wrongdoing at work. The braveness to blow the whistle is stimulated by the defensive motivation, in the sense that whistleblowers fear that if they don't report the malfeasance and is later discovered it would be blamed on them (Rothschild & Miethe, 1999). Whistleblowing is therefore seen as essentially selfsacrifice; in a way they must strive to act as saints, yet being a hero or a saint requires doing more than one's responsibility (Bouville, 2007). Some whistleblowers may seek self-aggrandizement and publicity and hope for revenge for past slight or injustice (Dozier & Miceli, 1985), and are highly stimulated to whistle the blow.

Whistleblowing can be one's regular and described job. Some whistleblowers may occupy roles where such activity is prescribed for example auditors, ombudsmen and others in 'overseer' roles maybe officially required to blow the whistle organizational wrongdoings although unofficial pressure may be leveled on them to decline blowing the whistle (Near & Miceli, 1985). According to Vadera et al, (2009) findings regarding formal and informal role responsibility and whistleblowing are quite consistent, in that, observers of wrongdoing who view whistleblowing as integral to their role in the workplace are more likely to blow the whistle. On the other side, individual with an overseer role always has the choice to ignore or to cover up the wrongdoing rather than to expose it (Dozier & Miceli, 1985). Miceli & Near (2002) found out that position power the whistleblower (role prescription) of and organization's dependence on the wrongdoing (e.g. magnitude of wrongdoing) influences the extent of effectiveness.

Rothschild & Miethe (1999) postulated that professional norms and values set the stage for disclosure. Other whistleblowers may act because as professionals they feel compelled to observe certain recognized ethical standards (Dozier & Miceli, 1985). Professional ethics is in fact professional morality and it leaves no room for option or the interests of the professional, yet the dreadful retaliations against the messengers of the truth make it necessary to bring the needs of the whistleblower back into the picture (Bouville, 2007). For instance (Ghani et al, 2011) in a study carried in Malaysia the results suggested that work experience and ethics training are significantly related to whistleblowing intention.

It is reasonable to anticipate that type of wrongdoing has some stimulus on whistleblowing and that the process might not be monolithic across types of wrongdoing (Somers & Casal, 2011). Particularly, who wrongdoing related employees see to sexual harassment and legal mismanagement, violations were more likely to report it than fraud employees who observe waste, or discrimination. Mostly, for a potential whistleblower to judge that a failure ought to be reported, should perceive a non-routine problem that potentially puts the organisation, and its stakeholders, or in general public at risk of danger (Lowry et al, 2013). Somers & Casal, (2011) & Johnson et al (2004) that the nature of the wrongdoing, concerns about the seriousness of the offence and amount of the quality of evidence, has motivating effect on whistleblowing. The serious of the wrongdoing may be reflected in its frequency of occurrence or in the amount of financial resources it involves (Near & Miceli, 1986) cited Miceli & Near (1989). The whistleblower should have sufficient information to believe that the disclosure constitutes convincing evidence to a reasonable person of the occurrence of the wrongdoing and it should an indictment not informing (Arce, 2008). In a study carried by Gundlach et al (2008), the findings showed that cognitive responses to wrongdoing can have a significant impact on individuals' decisions to blow the whistle. Moreover, Near et al (2004)'s findings from a survey suggest that the type of wrongdoing was significantly related to the cost of the wrongdoing, the quality of evidence about the wrongdoing and the comprehensiveness of retaliation against the whistleblower (Near et al, 2004).

Regarding organizational climate and culture, research shows that individuals in organisations with team or friendship climates, strong ethical climates or democratic environments are more likely to engage in whistleblowing when they perceive a wrongdoing (Vadera et al. 2009). Certain organizational cultures with solid norms against dissent tend to discourage whistleblowing and supportive organizational climate decentralized structure and may support whistleblowing (Johnson et al, 2004). The moral and ethical climate of the organisation and the personal specific type of job are also crucial correlates of whistleblowing (Rothschild & Miethe, 1999). An empirical study carried in Pakstan on whistleblowing in public sector organisations revealed that culture, organizational retaliation and some unique culturally induced factors influence whistle-blower's perception and practice of whistle-blowing (Bashir et al, 2011).Nonetheless, findings from Lavena (2014) study on US Federal government suggested that although whistleblowing is a rare event within most federal agencies, its likelihood is positively associated with norm-based and effective work motives, but negatively associated with several key indicators of organizational culture, such as perceptions of respect and openness, cooperativeness and work setting flexibility, and fair treatment and trust in supervisors.

The level of expected retaliation tends to immensely influence whistleblowing act. Those who perceive low efficacy within the organisation will engage in little political behavior and observers who expect that they will suffer retaliation from management should be less likely to act (Near & Miceli, 1985). In the case of Sheron Watkins and Coleen Rowley they expressed misgivings about potential retaliation, and indeed Coleen expressly asked congress to ensure her protection under the federal whistleblowing law, despite the automatic protection provision by the law. More so, Sheron told the Time that she had been demoted and job assignments removed (Near et al, 2004). In fact it appears that most whistleblowers go public with their information only after organisations incept to cover up the misconduct and intensify their level of retaliation against the whistle blower ("circling the wagons" to discredit and fire the whistleblower), the whistleblower turns to defense in an grueling process of vindication and ultimately organisations find themselves in skirmishes and courtroom (Rothschild & Miethe, 1999). For instance, the head trader of Paradigm Capital Management reported to the SEC that the company had engaged in prohibited principal transactions. The firm engaged in a series of retaliatory actions, including changing whistleblower's job functions, stripping supervisory responsibilities and otherwise marginalization. Fortunately, the commission ordered the firm to pay \$2, 2 million to settle the retaliation and other charges (SEC, 2014).

Whistleblowers are viewed in two different perceptions; some view them as traitorous violators (disgruntled or selfish troublemakers) of organizational loyalty norms and others as heroic defenders of values (courageous heroes) considered being more important than organizational loyalty (Rothschild & Miethe, 1999; Gundlach et al, 2008). Bouville (2007) cited (Alford, 2007) that, the little man who stood up against the giant company and won is kind of a folk hero only if it is not one's moral obligation and responsibility. It is commonly framed as the ethical act of a hero, a virtuous individual following personal sense of right and wrong at great personal risk (Johnson et al, 2004). Sometimes when the attitudes towards whistleblowers (hero or rat) are reconciled with the whistleblower's reasoning for disclosure the result is an equilibrium characterization of the proportionality of chastisement (Arce, 2008). It remains a debate on whether the whistleblower is a hero who report and expose illegal and corrupt conducts, maladministration, and wastage, or traitors because s/he discloses confidential information and practices (Latimer & Brown, 2008). According to Rothschild & Miethe (1999), embattled and embittered, typical external whistleblowing is seen by management and co-workers as a loose cannon and social pariah, thereby strengthening the salience of the whistleblowing ordeal.

3 Research methodology

This paper is based on conceptual study and applies ontological tradition (Pooley-Cilliers, 2014) which emphasises concepts that identify the basic features of the whistleblowing phenomena and aims to explore how the organisations experience the reality of whistleblowing decision making phenomenon. The study unveils a conceptual framework and economic model developed through identifying and defining concepts and proposing relationships (Brink et al, 2012) between key participants (whistleblower and the malefactor). Suggested models development (conceptual and economic models) generates a different way of considering whistleblowing decision making sensation since it indicates a logical scope of current knowledge.

4 Conceptual model

Centered on the preceding philosophical conceptual and empirical literature review, the following Fig. 1 assuages the interaction of players in the game of blowing - no-blowing decision making phenomena. The model, Fig.1 gives the basis for the forthcoming interpretation of the phenomena as game theoretical model. The conceptual model Fig. 1 below depicts the malefactor as the person who commits the wrongdoing and normally reacts to the action of whistleblowing after an observation by the whistleblower. The whistleblower is the observer who is faced by a dilemma on whether to blow on notblow the whistle. The whistleblower considers a number of factors in his/her decision and therefore the decision is influenced by either determinants or payoffs as noted in Fig. 1.

5 Blowing – No Blowing Game

The Blowing - No-Blowing Game endeavours to attenuate the decision making (Fig 1. above) on whether one should blow the whistle or not on unethical behaviour or wrong doing. It is illustrated in form of economic modelling through game theory and is premised on the Run - Pass game (Easley & Kleinberg, 2010). The fundamental elements of the game include two players (whistle-blower and the malefactor); players' probable strategies (set of options for how to behave); and payoff(s) from each choice of player's strategy. In Blowing – No-Blowing Game the whistleblower can choose to blow the whistle or to keep silent on wrongdoing perpetrators, and the malefactor can opt to react on the blowing or no reaction strategy. In such a scenario the payoffs would be displayed as follows;

• The typical outcome, defining the allusion payoff zero (0) to both the whistle-blower and malefactor is that the whistle-blower selects noblowing and the malefactor chooses no reaction.

• If the whistle-blower blows the whistle and the malefactor does not react to the blow, the whistle-blower gains x

• If the whistle-blower decides no-blowing and the malefactor decides to react on blowing, the whistle-blower gains 2x

• If the whistle-blower decides to blow the whistle and the malefactor decides to react on the blowing then the whistle-blower gains 0





Figure 1. Proposed model (Author derived model)

Instinctively, blowing – no-blowing game has two players namely, whistleblower with notation (WB), and malefactor with notation (MF), and WB has a powerful choice (no-blowing) and a feeble choice (blowing), the decision making to blow or not to blow by WB is influenced by the determinants and outcomes as highlighted in the Fig.1 above.

Figure 2. Blowing-No-Blowing Game

		MIF	
		No reaction	Reaction
WB	No-blowing	0,0	2x, -2x
	Blowing	<i>x</i> , - <i>x</i>	0,0

Given the above position in Fig. 2 it shows that there is no Nash equilibrium where either player would use pure strategy. The whistle-blower and the malefactor have to randomize their unpredictable intentions.

6 Mixed-strategy equilibrium

According to Turocy, (2001), a mixed strategy of WB in this game is to blowing only with a certain probability. In the background of blowing randomizing is also a practical approach that reduces wrongdoing or unethical behaviour. Even if blowing the whistle is not really definite, a satisfactorily high chance of disinterring the wrongdoing ought to discourage commission of unethical behaviour.

Let: *r*= be the probability that the whistle-blower do not blow (no-blowing), and

s= be the probability that the malefactor does not react to no-blowing.

The mixed equilibrium is reached when the probabilities used by each whistle-blower or malefactor makes the other player indifferent between two options.

a) Assume MF chooses a probability of *s* for not reacting to no-blowing strategy of WB, and then the expected payoff to WB from no-blowing is;

$$(0)(s) + (2x)(1-s) = 2x-2xs$$

While the expected payoff to WB from blowing is;

$$(x)(s) + (0)(1-s) = xs$$

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To make WB indifferent between his/her strategies (blowing or no-blowing), set;

$$2x-2xs=xs$$
$$2/3=s$$

b) Assume WB selects a probability of r for noblow. Then the expected payoff to MF from no reaction to no-blow strategy is;

$$(0)(r) + (-x)(1-r) = xr-x$$

With the expected payoff to MF from reacting to blowing;

$$(-2x)(r)+(0)(1-r) = -2xr$$

To make MF indifferent between the two strategies (react to blowing or react to no-blowing), set;

$$xr - x = -2xr$$
$$\frac{1}{3} = r$$

Therefore, the solitary possible probability values that can appear in a mixed-strategy equilibrium are r=1/3 for WB and s=2/3 for MF, and this in fact forms an equilibrium. More so, the expected payoff to the WB with these probabilities would be 2x/3, and the corresponding expected payoff to MF is -2x/3. As a result of the asymmetric structure of the payoffs, the probabilities that appear in the mixed-strategy equilibrium are not balanced because of the indifference faced by the players.

7 Interpretation of the Blowing- No-Blowing Game

The strategic insinuations of the equilibrium probabilities are captivating and a bit nebulous (Easley & Kleinberg, 2010). Precisely, even though no-blowing strategy is WB's more dominant defence because of the payoff, WB uses the strategy less than half the time. WB places only probability r=1/3 on blowing the whistle. In the beginning it appeared counter-intuitive, because it could be reasonable to put more time and effort on powerful choices. However, if WB puts any higher probability on no-blowing strategy, then MF's best response would be to always not to react to no-blowing action, and WB would actually do worse in anticipation.

More so, presume that a greater value for r is applied such as $r=\frac{1}{2}$. Then MF will at all times not react to no-blowing strategy, and WB's expected payoff would be x/2 since it gains x $\frac{1}{2}$ the time and 0 the other $\frac{1}{2}$ the time;

$$\frac{1}{2}(0) + \frac{1}{2}(x)$$

= $x/2$

Therefore, in the preceding equilibrium probabilities, WB has an expected payoff of 2x/3>x/2. Also, since r=1/3 makes MF indifferent between the two strategies (react to blowing or react to no blowing), WB who utilizes r=1/3 is assured to get 2x/3>x/2 notwithstanding the strategy selected by MF. Nevertheless, in a blowing - no-blowing game the authentic asset of no-blowing by WB as a strategy would to identify that in the equilibrium, MF does not react to no-blowing 2/3 time, even though WB uses 1/3 of the time only. By and large, the hazard of no-blowing benefits WB.

8 Conclusion

In practice, decision-makers are archetypal risk loath, meaning they prefer the benevolent payoff of 0 to the gamble with an expectation of 0. Turocy, (2001) posit that, in a game-theoretic model with random outcomes (as in a mixed equilibrium), however, the payoff is not essentially to be construed as monetary reward. Besides, the player's (whistle-blower) attitude towards risk (retaliation, job loss, traitor label, company outcast, social life deterioration) is considered into the payoff figure also. In the blowing - no-blowing game the malefactor benefits from unethical behaviour in one way or the other, but upon revelation of the action it brings in undesirable consequences to the malefactor. For instance in the case of Enron scandal which ended up with some of the executive members and top management being imprisoned for the wrongdoing.

The payoffs in this game parodist a player's readiness to blow when fronting certain probabilities and such payoffs called expected-utility values (heroism, professional achievement, saint, social responsibility, duty satisfaction). A whistleblowing game-theoretic analysis must be done on various selections of the payoff parameters in order to assess how much they influence the outcomes despite only the whistleblowing determinants (Fig. 1). The instinctual issue of whistleblowing game's mixed equilibrium would be that the probabilities rest on the opponent's payoffs and not on the player's own payoffs. Assuming that the observer of wrongdoing does a cost-benefit analysis before revealing it s/he may decide the risk is worth to take and blow the whistle, because the payoff or the outcome increases the benefits on the other side of the reckoning.

Whistle-blowers blow the whistle because they have strong, positive outcome expectancies, i.e. they expect their potential act of whistleblowing to result in occurrences of positive outcomes and avoidance of negative outcomes. If whistle-blowers are assured to be provided with positive outcomes such as support and rewards and will not face retaliation from the malefactor for the act of whistleblowing, then are more likely to blow the whistle.



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