The use of whistle-blowing to detect fraud

A thesis submitted for the degree of Doctor of Philosophy of
The Australian National University by

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Statement of authorship

This thesis is an original written work that incorporates an account of research completed in the Doctor of Philosophy (Commerce) program. To the best of my knowledge, this thesis contains no material previously published or written by another person except where due reference is made. This thesis includes papers resulting from the PhD program that are co-authored with other authors. The nature and extent of my contribution to the research is stated as follows.

Study 1 – An examination of corporate whistle-blowing policies

Status: A version titled 'Companies use of whistle-blowing to detect fraud: An examination of corporate whistle-blowing policies' was published in 2013 in the *Journal of Business Ethics*, 114 (2):283-295.

A paper, co-authored with Professor Neil Fargher, was developed from this study and published in the *Journal of Business Ethics*. Fargher is the primary supervisor of Lee's PhD supervisory panel. Lee is the first author on this paper and initiated this research. The structure and nearly all the content was the original work of Lee. Lee was responsible for preparing the paper – including formulating the ideas; reviewing the literature; developing the hypotheses; collecting, analysing and interpreting the data; elaborating on the findings and implications; and writing the paper. Fargher provided guidance on the project and made editorial changes. A draft paper was presented at the 2011 Accounting and Finance Association of Australia and New Zealand (AFAANZ) Conference in Darwin. A revised paper incorporating issues raised in the AFAANZ Conference, while retaining the original structure, was submitted to the *Journal of Business Ethics*. The paper was accepted for publication on 4 May 2012.

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A paper was developed from this study, co-authored with Professor Neil Fargher. Fargher is the primary supervisor of Lee's PhD supervisory panel. Lee is the first author on this paper

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Study 3 – Does organisational complexity and audit committee quality affect the likelihood of external whistle-blowing in comparison to internal reporting?

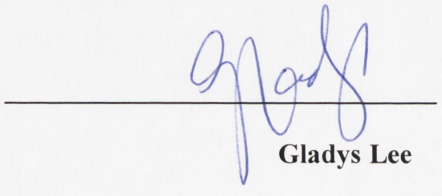
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This paper was not co-written with any other authors and is the original work of Lee. Lee was responsible for all aspects of preparing the paper, including formulating the ideas; reviewing the literature; developing the hypotheses; collecting, analysing and interpreting the data; elaborating on the findings and implications; and writing the study.

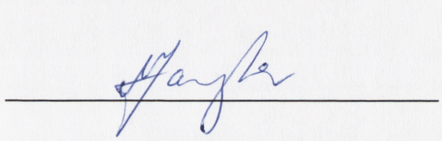
Study 4 – When does management retaliate against whistle-blowers?

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A paper was developed from this study, co-authored with Professor Neil Fargher. Fargher is the primary supervisor of Lee's PhD panel. Lee is the first author on this paper and initiated this research. The structure and nearly all the content was the original work of Lee. Lee was responsible for preparing the paper – including formulating the ideas; reviewing the literature; developing the hypotheses; collecting, analysing and interpreting the data; elaborating on the findings and implications; and writing the paper. Fargher provided guidance on the project and made editorial changes. A draft paper was presented at the American Accounting Association Forensic and Investigative Accounting Conference in New Orleans, 2013.



Gladys Lee



Professor Neil Fargher

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Abstract

This thesis presents four studies with the overarching aim of building understanding of the use of whistle-blowing to detect fraud. The first study provides a background on corporate whistle-blowing systems implemented by Australian companies through an analysis of corporate reporting policies. This study also investigates the factors that affect the implementation of corporate whistle-blowing systems, as indicated by the extent of disclosures provided in a company's whistle-blowing policy and the provision of a hotline service. The results indicate that strong internal governance and an ethical environment are important in driving the policy-making behind a corporate whistle-blowing system. The results also indicate that firms consider their legal environment and the economic costs and benefits when establishing a hotline service.

The second study examines the factors associated with the likelihood that financial misconduct results in external whistle-blowing, in comparison to internal reporting. Using a sample of alleged financial misconduct reported in the press, the likelihood that financial misconduct results in external whistle-blowing is predicted to be associated with the incentives and opportunities of using an external reporting channel. In comparison to internal reporting, the results indicate that financial misconduct is more likely to result in external whistle-blowing when an external immunity policy is provided, when the perpetrator of misconduct has greater power, and when collusion is involved. The likelihood of external whistle-blowing is lower when an internal reporting policy is provided, when the whistle-blower is an employee, and when there is greater variable compensation.

The third study examines the influence of organisational complexity and the quality of the audit committee on external whistle-blowing, in comparison to internal reporting. This study predicts that greater organisational complexity, as measured by firm diversification, increases the likelihood that financial misconduct results in external whistle-blowing. This study also predicts that a higher quality audit committee – as measured by audit committee

independence, meeting frequency and expertise – reduces the likelihood that financial misconduct results in external whistle-blowing. Using a sample of alleged financial misconduct reported in the press, the results indicate a higher likelihood that financial misconduct results in external whistle-blowing when firms are more complex. The results also indicate that greater audit committee independence reduces the likelihood of external whistle-blowing.

The fourth study examines the circumstances under which management retaliates against whistle-blowers. Whistle-blowing retaliation is the undertaking of undesirable action against a whistle-blower. Retaliation is predicted to be more likely when management is motivated to retaliate, when there is a suitable target and in the absence of a capable guardian. Using a sample of alleged financial misconduct reported in the press, the results indicate a greater likelihood of retaliation when management is allegedly involved in perpetrating misconduct, when the variable proportion of management's compensation is greater, when the firm is in a more precarious financial position, and when the whistle-blower is allegedly involved in the financial misconduct. Whistle-blowers are less likely to be retaliated against when there is greater audit committee independence and when ethical performance is a component of management's compensation.

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CHAPTER 1: INTRODUCTION AND INSTITUTIONAL BACKGROUND

1.1 Introduction

The overarching aim of this thesis is to build understanding of the use of whistle-blowing to detect fraud. Fraud is argued to be increasing globally in terms of frequency and cost (Association of Certified Fraud Examiners [ACFE] 2010). Fraud has serious consequences. Companies have to bear the losses resulting from the fraud while employees can face reputational damages and loss of jobs (Beasley 1996; Zahra, Priem, and Rasheed 2005). Fraud is further damaging because it can result in sizeable losses for investors in companies that are embroiled in financial scandals (Rezaee 2005). In light of the prevalence and increasing costs of financial misconduct (ACFE 2010), the prevention and detection of fraud has been a popular area of research among accounting academics (Davis and Pesch 2013; Hogan et al. 2008).[1]

The use of whistle-blowing is suggested to be an effective way to detect fraud (ACFE 2010; KPMG 2010), yet has received relatively less attention in the accounting literature (Read and Rama 2003). Whistle-blowing is defined as disclosing questionable practices involving the organisation or its members, internally or externally (Chiasson, Johnson, and Byington 1995, 24).[2] Despite growing support for whistle-blowing from regulators and the public, organisations 'have actively grappled with the issue of how to encourage staff to disclose perceived wrongdoing and even the difficult issue of how to protect staff from reprisals should they do so' (Brown and Wheeler 2008, 289). Research has thus emphasised the need for firms to find more effective ways to cope with and manage whistle-blowing (Barnett, Cochran, and Taylor 1993; Miceli, Near, and Dworkin 2009; Vandekerckhove and Lewis 2012).

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[1] Prior research in accounting that examines the detection of fraud has generally focused on the implementation of effective internal controls (Caplan 1999; Coram, Ferguson, and Moroney 2008; Hillison, Pacini, and Sinason 1999; Smith, Tiras, and Vichitlekarn 2000), the performance of fraud risk assessments by auditors (Bell and Carcello 2000; Brazel, Carpenter, and Jenkins 2010; Carpenter 2007; Hoffman and Zimbelman 2009; Pincus 1989), and the promotion of good corporate governance (Beasley 1996; Beasley et al. 2000; Sharma 2004).

[2] There is no precise definition of whistle-blowing in the literature (Barnett 1992) and whistle-blowing has been both broadly and narrowly defined (see Jubb 1999). A discussion of the definition of whistle-blowing used in this thesis is provided in Section 1.2.

To this end, this thesis presents four separate studies with the aim of building understanding of the use of whistle-blowing to detect fraud. This chapter is organised as follows. Section 1.2 explains the definition of whistle-blowing used in this thesis. An institutional background on whistle-blowing is provided in Section 1.3. The research questions examined in this thesis are stated in Section 1.4. The purpose and contributions of each study are discussed in Section 1.5. Section 1.6 outlines the remaining structure of this thesis.

1.2 Definition of whistle-blowing

There is no precise definition of whistle-blowing in the literature (Barnett 1992). Whistle-blowing has been both broadly and narrowly defined (Jubb 1999). Some researchers restrict the definition of whistle-blowing to reports that are made using only external channels – that is, a report of misconduct made internally within the organisation is not considered an act of whistle-blowing (Jubb 1999). Some argue that only disclosures that are predominantly motivated by public interest should be considered whistle-blowing (De Maria 1994). Others restrict the definition to exclude individuals who are role-prescribed to report, such as an internal auditor (Smith 2010), while some argue that an act should only be considered whistle-blowing when there is an intention to make information public (Elliston et al. 1985; Johnson 2003). The most commonly used definition of whistle-blowing in the extant literature is, 'the disclosure by organization members (former or current) of illegal, immoral, or illegitimate practices under the control of their employers, to persons or organizations that may be able to effect action' (Near and Miceli 1985, 4).

While various definitions of whistle-blowing exist, for the purposes of this thesis, whistle-blowing is defined as disclosing questionable practices involving the organisation or its members, internally or externally (Chiasson, Johnson, and Byington 1995, 24). This thesis also adopts the wording convention of 'internal reporting' when the whistle-blower discloses

misconduct within the firm to management,[3] and 'external whistle-blowing' when the disclosure of misconduct is made to an external party outside the organisation, such as the authorities or media. These wordings are consistent with Donkin, Smith, and Brown (2008) and Robertson, Stefaniak, and Curtis (2011).

The key difference between Near and Miceli's (1985) definition of whistle-blowing and the definition applied in this thesis is in relation to the organisational affiliation of the whistle-blower. While the definition by Near and Miceli (1985) restricts a whistle-blower to include only present or former employees, the definition used in this thesis encompasses the reporting of misconduct by non-employees, as well as employees. This perspective is consistent with Johnson et al. (2004) who 'argue that whistle-blowing may also include suppliers, vendors, or members of a professional community who have specialised knowledge' (353).[4] They contend that:

> by acknowledging former employees as whistle-blowers, this definition [Near and Miceli's (1985) definition] creates room for other kinds of whistle-blower affiliations ... [as] [o]rganizations increasingly rely on extensive relationships and networks of external groups and agencies ... Information about problems or wrongdoings is, therefore, increasingly likely to come from within these networks (Johnson et al. 2004, 353).

There are several reasons for applying this broader definition that includes both employees and non-employees. First, companies have extended the scope of their whistle-blowing policy to include non-employees, such as vendors, customers and other external third parties (Kaplan and Schultz 2006; Lewis and Kender 2010). This definition is also consistent with the intent

[3] In research as well as practice, the terms 'internal reporting' and 'internal whistle-blowing' are often used interchangeably to describe the reporting of misconduct within the firm to management (see for e.g. Chung, Monroe, and Thorne 2004; Kaplan, Pope, and Samuels 2011; KPMG 2013; Miceli and Near 2005; Nayir and Herzig 2012; Seifert et al. 2010). The term 'internal reporting' is mostly used in this thesis to avoid confusion with the term 'external whistle-blowing'.

[4] Johnson et al. (2004) state that, 'Whistle-blowing involves an individual with some level of unique or inside knowledge using public communication to bring attention to some perceived wrongdoing or problem' (353).

of legislative efforts to encourage whistle-blowing. For example, in Australia, corporate whistle-blowing protection applies to non-employees, such as contractors and their employees, under s1317AA(1)(iii) and (iv) of the *Corporations Act 2001 (Cth)*, respectively. Legislative whistle-blowing protection to non-employees is also provided in the United Kingdom (UK) and Norway (Guyer and Peterson 2013). In the United States (US), the whistle-blower reward program provided in Section 922 of the *Dodd-Frank Act (2010)* specifies that an eligible whistle-blower is any person who voluntarily provides original information about a securities violation to the Securities and Exchange Commission (SEC); the person is not required to be an employee.

Second, empirical evidence suggests that non-employees play an important role as whistle-blowers. Dyck, Morse, and Zingales (2010) documented that 82 percent of external whistle-blowers were non-employees. A global survey on fraud found that non-employees accounted for providing about half of the tips received (ACFE 2014), and Read and Rama (2003) found that 36 percent of internal auditors had received an internal report from non-employees. Regulatory agencies also recognise that non-employees, such as financial advisers, auditors and business partners are likely to witness misconduct (Australian Securities and Investments Commission [ASIC] 2013). Accordingly, non-employees can be considered important sources of whistle-blowing. Arguably, the inclusion of non-employees as whistle-blowers can broaden understanding of when individuals are more likely to report misconduct.

Third, this perspective that considers both employees and non-employees as whistle-blowers is consistent with other accounting researchers and professionals (e.g. Birnberg 2009; Chiasson, Johnson, and Byington 1995; Eaton and Akers 2007; Read and Rama 2003). Specifically, although external auditors are not organisational members of their client firm, research has examined the role of external auditors as whistle-blowers (Alleyne, Hudaib, and Pike 2013; Larsson 2005; Maroun and Gowar 2013; Vinten 1992). For example, a recent study by Alleyne, Hudaib, and Pike (2013) proposed a conceptual model on whistle-blowing

among external auditors. For the above stated reasons, a broader definition of whistle-blowing that includes employees and non-employees is applied in this thesis. The next section provides an institutional background of the development of whistle-blowing legislation.

1.3 Institutional background

1.3.1 Developments in whistle-blowing legislation worldwide

The purported effectiveness of whistle-blowing as a mechanism to expose misconduct has led to increasing legislation on whistle-blowing worldwide (Campbell 2013; Miceli, Near, and Dworkin 2008). Latimer and Brown (2008, 766) note that, since the 1990s, many countries have enacted, or are committed to enacting, whistle-blowing legislation across areas such as breaches of corporate law, workplace relations law, consumer law and financial regulation.

The US has been at the forefront of implementing whistle-blowing legislation to encourage and protect whistle-blowers in both the public and private sectors. Some of the notable whistle-blowing laws enacted in the US include anti-retaliation laws such as the *Civil Service Reform Act (1978)* and the *Whistleblower Protection Act (1989)* to protect federal employees, and the *Sarbanes-Oxley (SOX) Act (2002)* to protect corporate whistle-blowers. The *SOX Act (2002)* also introduced provisions to facilitate internal reporting by mandating that listed companies establish internal whistle-blowing systems.[5] Other laws enacted provide financial incentives to encourage whistle-blowing. These include the *False Claims Act (1986)*[6] and the *Dodd-Frank Act (2010)*.[7]

[5] Section 301 requires listed companies to establish procedures for the confidential and anonymous reporting of concerns regarding questionable accounting or auditing matters, and procedures for the receipt, retention and treatment of complaints regarding accounting, internal accounting controls or auditing matters. Section 307 also requires attorneys to report any violation of securities law to the client's management.

[6] The *False Claims Act (1986)* authorises the Department of Justice to reward individuals who blow the whistle on fraud against the federal government to receive up to 30 percent of the amount recovered (§3729).

[7] The *Dodd-Frank Act (2010)* authorises the SEC to reward whistle-blowers who voluntarily provide original information leading to a successful enforcement action to receive up to 30 percent of the amount recovered (Section 922). The Act also contains anti-retaliation provisions [15 US.C. §78u-6(h)(A)(1)].

Outside the US, whistle-blowing laws are argued to be developing at a slower rate (Dworkin and Brown 2013; Guyer and Peterson 2013). While countries such as Australia, Canada, New Zealand, Jamaica, South Africa, South Korea and the UK have enacted some form of legislation to protect whistle-blowers (Latimer and Brown 2008), these laws are generally less comprehensive than the laws in the US (Dworkin and Brown 2013; Guyer and Peterson 2013). For example, Guyer and Peterson (2013) stated that, 'most European Union nations have only a patchwork of whistleblower protections found in employment, criminal, media, and anti-corruption laws' (7). They highlighted that only six countries in Europe (Hungary, the Netherlands, Norway, Romania, Switzerland and the UK) have any form of dedicated whistle-blower legislation, and that only Norway and the UK have comprehensive whistle-blowing protection laws that extend to all workers in the public and private sectors.

Some countries outside the US offer financial incentives for whistle-blowing. These countries include Hungary,[8] Pakistan,[9] South Korea[10] and the UK,[11] and mainly provide financial rewards for whistle-blowing on anti-competitive or anti-corruption activities. Others countries have also adopted non-monetary incentives to encourage whistle-blowing. For example, leniency programs for blowing the whistle on cartel misconduct are provided in Australia, Canada, Japan, Singapore and South Africa. This thesis focuses on whistle-blowing in the Australian setting. The next section provides a background of whistle-blowing legislation in Australia.

[8] In 2010, the Hungarian Competition Authority introduced its 'Informant Rewards Program' that provides whistle-blowers who report on cartel misconduct a reward of one percent of the fine imposed, with a maximum limit of 50 million forint.

[9] In 2007, the Competition Commission of Pakistan introduced a 'Reward Payment to Informant Scheme' for whistle-blowing on cartel misconduct. The reward under the program currently offers an amount ranging from a minimum of 200,000 rupees to a maximum of five million rupees.

[10] In 2002, the Korea Fair Trade Commission introduced its reward system for cartel informants. The maximum reward to whistle-blowers has increased from 20 million won to three billion won in 2012. The Financial Services Commission, Anti-Corruption and Civil Rights Commission and National Tax Service also provide financial rewards for whistle-blowing on other types of financial misconduct.

[11] In 2008, the UK competition authority, the Office of Fair Trading, began offering financial rewards of up to 100,000 pounds for information relating to cartel misconduct.

1.3.2 The regulatory environment of whistle-blowing in Australia

In Australia, whistle-blowing legislation has generally adopted the 'anti-retaliation' model, primarily providing whistle-blowers protection against retaliation (Dworkin and Brown 2013). Whistle-blowing laws were initially enacted on the state and territories level,[12] with the Australian Capital Territory, New South Wales, Queensland and South Australia enacting whistle-blowing laws by 1994. There were no federal whistle-blowing provisions until the introduction of the *Public Service Act 1999 (Cth)*, which included a provision to prohibit the victimisation of federal employees who reported misconduct (Dworkin and Brown 2013). The *Public Interest Disclosure Act 2013 (Cth)* was recently enacted and has been suggested to provide the most comprehensive protection regime for public sector whistle-blowers in Australia (Brown 2013).

Whistle-blowing laws have generally been more focused towards the public sector rather than the private sector. For example, the *Public Interest Disclosure Act 2013 (Cth)* grants immunity to public officials from civil, criminal or administrative liability if they report misconduct to an authorised body; however, this law does not extend to individuals working in the private sector (Wilkins 2013). While there has been whistle-blowing protection legislation for public sector employees since the 1990s, provisions to protect whistle-blowers in the private sector were only introduced in 2004. Specifically, Part 9.4AAA of the *Corporations Act 2001 (Cth)* provides whistle-blowing protection to corporate whistle-blowers.

Whistle-blowing laws in the private sector, however, 'are widely accepted as badly framed, irrelevant to the day-to-day practice of companies and their chief regulator' (Brown 2011, 98). Under existing laws, an individual only qualifies for whistle-blowing protection if he or she is

[12] Australian state and territories whistle-blowing legislation includes the *Whistleblowers Protection Act 1993* in South Australia, the *Public Interest Disclosure Act 1994* in the Australian Capital Territory, the *Protected Disclosures Act 1994* in New South Wales, the *Whistleblower's Protection Act 1994* in Queensland, the *Whistleblower's Protection Act 2001* in Victoria, the *Public Interest Disclosure Act 2002* in Tasmania, the *Public Interest Disclosure Act 2003* in Western Australia, and the *Public Interest Disclosures Act 2008* in the Northern Territory.

an officer, employee or contractor (or their employee) of the company (s1317AA of the *Corporations Act 2001 [Cth]*). Other individuals who are potentially likely to observe misconduct and may be vulnerable to victimisation – such as former employees, unpaid workers, financial services providers and advisers, and business partners – would not qualify for protection (ASIC 2013). Existing laws also prevent corporate whistle-blowers who reported anonymously from claiming whistle-blowing protection (Williams 2013b). Commentators have thus noted that existing whistle-blowing protection laws in Australia are weak, and corporate whistle-blowers remain largely unprotected (Dworkin and Brown 2013; Gilligan 2013a; The Australian Collaboration 2013; Williams 2014). This has led to calls to review and strengthen existing whistle-blowing legislation in the private sector (Williams 2013a, 2014).

There is some regulation governing the implementation of corporate internal reporting systems. The Australian Securities Exchange (ASX) recommends that all listed companies and requires that the top 300 listed companies implement a policy for reporting misconduct. Specifically, Recommendation 3.1 of the ASX's (2014) Corporate Governance Principles and Recommendations recommends that listed entities have a code of conduct for their directors, senior executives and employees, and that they disclose that code or a summary of it. The ASX suggests that the code should identify the measures the organisation follows to encourage the reporting of unlawful or unethical behaviour, and refers to the Australian Standard AS 8004-2003 'Corporate Governance – Whistleblower Protection Programs for Entities' for guidance on implementing a corporate whistle-blowing system. However, unlike in the US, there is no mandatory requirement regarding the type of procedures or mechanisms that should be established.

Financial rewards for whistle-blowing are generally not provided in Australia. The Australian Competition and Consumer Commission (ACCC) does incentivise whistle-blowing by providing a leniency program, but this is limited to whistle-blowing on cartel misconduct. In

addition, immunity is only provided for civil, but not criminal, liabilities. That is, while a whistle-blower reporting on cartel misconduct is granted immunity from a civil action by the ACCC, the Director of Public Prosecution in Australia can still pursue a criminal action and the whistle-blower can face criminal penalties that can include fines and imprisonment. As a result, the effectiveness of the leniency policy could be significantly reduced (Gray, Nguyen, and Wait 2013).

Taken together, whistle-blowing legislation in Australia is generally aimed towards whistle-blowing in the public sector and not the private sector. The general approach is to eliminate the disincentives for whistle-blowing instead of providing positive incentives for whistle-blowing. In addition, while protection is offered to corporate whistle-blowers in Australia, the existing laws are relatively weak.

1.4 Aim of this thesis and key research questions

The general aim of the thesis is to build understanding of the use of whistle-blowing to detect fraud. The whistle-blowing process and the research questions addressed in this thesis are illustrated in Figure 1.1. As portrayed in this figure, whistle-blowing is a process involving the whistle-blower deciding whether or not to report misconduct, the whistle-blower choosing how to report misconduct, and the responses to the whistle-blowing report (Miceli and Near 1992). Accordingly, to understand the use of whistle-blowing to detect fraud, this thesis conducts four separate studies that address different, but related, issues on whistle-blowing.

The first study is a descriptive study that provides a background on the implementation of corporate whistle-blowing systems by Australian companies. Specifically, this study seeks to examine the whistle-blowing procedures and mechanisms that Australian companies are implementing, and the factors that affect variation in the implementation of corporate whistle-blowing systems.

The second and third studies of this thesis examine when financial misconduct results in external whistle-blowing, compared to internal reporting. Research on whistle-blowing generally examines the decision regarding whether or not to report misconduct (Stage II of Figure 1.1). There are comparatively fewer studies that examine when whistle-blowers report externally, compared to internally (Stage III of Figure 1.1). As it is generally in the firm's interest to encourage internal reporting and avoid external whistle-blowing (Barnett, Cochran, and Taylor 1993; Berry 2004), the second study focuses on identifying the incentives and opportunities of using an external, in comparison to an internal, reporting channel. The third study examines whether organisational complexity and audit committee quality affect external whistle-blowing, in comparison to internal reporting.

Another important issue is how to protect whistle-blowers against retaliation, given that retaliation discourages internal reporting and engenders external whistle-blowing (Mayer et al. 2013; Rehg et al. 2008). Thus, the fourth study examines the circumstances under which whistle-blowers are more or less likely to be retaliated against. Specifically, the research questions of each study are:

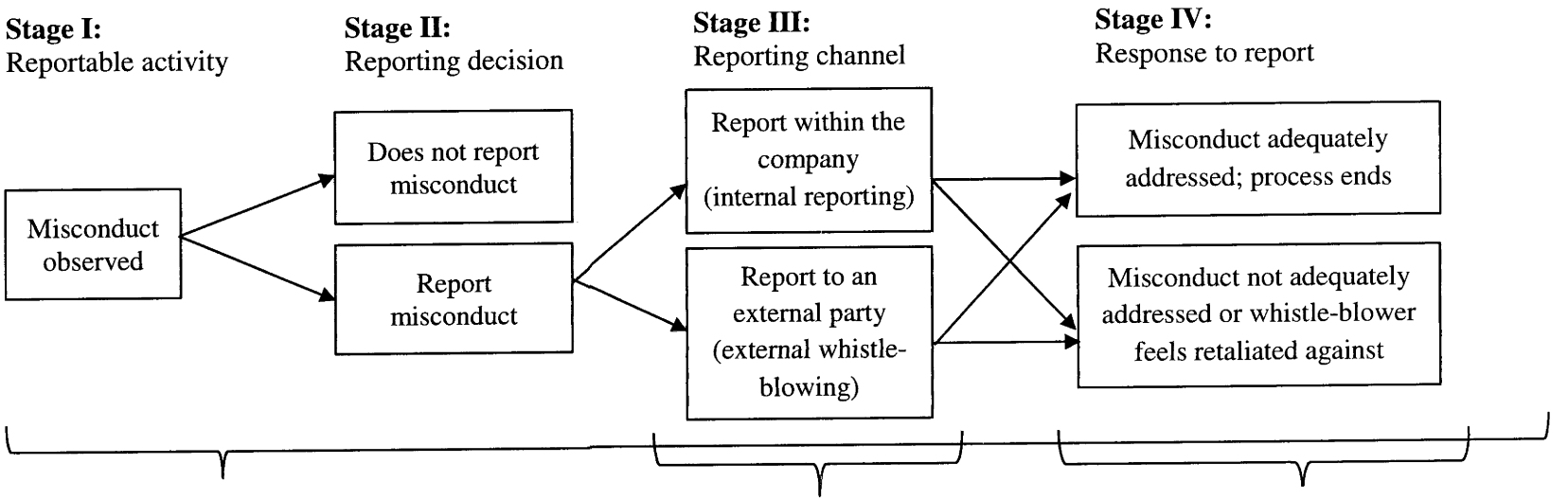
RQ 1: What whistle-blowing procedures and mechanisms are Australian companies implementing, and what factors affect variation in the implementation of corporate whistle-blowing systems?

RQ 2: What are the incentives and opportunities that affect the likelihood of external whistle-blowing in comparison to internal reporting?

RQ 3: Does organisational complexity and audit committee quality affect the likelihood of external whistle-blowing in comparison to internal reporting?

RQ 4: When does management retaliate against whistle-blowers?

While the four studies provide a cohesive overall thesis, the studies were not developed sequentially. Thus, because the studies were jointly pursued, the results from each study were not necessarily available when designing the following study.



Research questions addressed in this thesis

RQ 1: What whistle-blowing procedures and mechanisms are Australian companies implementing, and what factors affect variation in the implementation of corporate whistle-blowing systems?

RQ 2: What are the incentives and opportunities that affect the likelihood of external whistle-blowing in comparison to internal reporting?

RQ 3: Does organisational complexity and audit committee quality affect the likelihood of external whistle-blowing in comparison to internal reporting?

RQ4: When does management retaliate against whistle-blowers?

Figure 1.1: The whistle-blowing process based on the model in Miceli and Near (1992)

1.5 Purpose and contributions of each study

The purpose, research method and contributions of each study are discussed below.

Study 1: The purpose of this study is twofold. First, this study provides a background on the use of corporate whistle-blowing systems by Australian companies. Encouraging internal reporting requires a sound internal whistle-blowing system. Research has documented the whistle-blowing systems implemented in countries such as the US (Moberly and Wylie 2011), and UK (Lewis and Kender 2010), and in leading European companies (Hassink, de Vries, and Bollen 2007). There is comparatively little documented on corporate whistle-blowing systems in Australia. To better understand current practices, this study provides a descriptive analysis of the corporate whistle-blowing systems implemented in Australian companies by analysing the whistle-blowing disclosures provided in corporate reporting policies.

The second purpose of this study is to examine the factors that affect the implementation of a whistle-blowing system. Research has identified wide variation in the implementation of corporate whistle-blowing systems across companies and countries (Calderón-Cuadrado et al. 2009). The largely voluntary adoption of whistle-blowing systems in the Australian setting provides an opportunity to investigate the factors that affect the implementation of corporate whistle-blowing systems. Specifically, this study examines the factors that influence the implementation of whistle-blowing systems, as indicated by the extent of disclosures provided within corporate whistle-blowing policies, and the provision of a hotline service.

The contributions of this study are as follows. The analysis of the corporate whistle-blowing systems implemented by Australian companies provides insights to the current practices of adopting corporate whistle-blowing systems. This study also provides understanding of the factors that affect the implementation of a whistle-blowing system.

Study 2: The purpose of this study is to understand when whistle-blowers are more or less likely to use an external, compared to internal, reporting channel. Whistle-blowers can report misconduct internally to management (internal reporting) or externally to parties outside the organisation (external whistle-blowing). However, researchers have highlighted that 'we know little about how whistleblowing processes differ for internal versus external whistle-blowers, such as antecedent conditions or consequences of relying on internal versus external channels' (Dworkin and Baucus 1998, 1283), and that 'we limit our understanding of the contextual stimuli for whistleblowing when we treat internal and external whistleblowing as one phenomenon' (Kaptein 2011, 525). Accordingly, this study seeks to identify incentives and opportunities associated with the likelihood that financial misconduct results in external whistle-blowing in comparison to internal reporting. To investigate when financial misconduct results in external whistle-blowing, compared to internal reporting, this study constructs a sample based on 312 financial allegations reported in the press.

This study contributes to the literature by identifying the incentives and opportunities that influence when a whistle-blower is more or less likely to rely on an external, compared to internal, channel. The findings should be of interest because while internal reporting is generally advantageous to firms, external whistle-blowing can lead to detrimental consequences (Barnett, Cochran, and Taylor 1993; Bowen, Call, and Rajgopal 2010).

Study 3: The purpose of this study is to understand when whistle-blowers are more or less likely to use an external, compared to internal, reporting channel, by examining the influence of organisational complexity and audit committee quality. Complex firms potentially face a greater risk of external whistle-blowing because greater coordination and communication costs imposed by organisational complexity (Hutzschenreuter and Guenther 2009; Kleinbaum, Stuart, and Tushman 2009) can hamper the implementation of an effective internal reporting system. This study examines the influence of organisational complexity, as measured by firm

diversification, on the likelihood that financial misconduct results in external whistle-blowing, compared to internal reporting.

To manage firm complexity and enhance corporate control, complex firms are expected to have stronger corporate governance. This study examines one aspect of corporate governance: the quality of the audit committee. The quality of the audit committee is examined because the audit committee primarily sets the tone of the internal control environment (Hunton, Hoitash, and Thibodeau 2011; Turley and Zaman 2007) and is most commonly the recipient of internal reports involving fraud (Kaplan and Schultz 2006). This study examines the influence of audit committee quality – as measured by the independence, meeting frequency and expertise of the audit committee – on the likelihood that financial misconduct results in external whistle-blowing. To investigate the influence of organisational complexity and audit committee quality on external whistle-blowing, this study constructs a sample based on 312 financial allegations reported in the press.

This study contributes to the literature by providing understanding of the influence of organisational complexity and audit committee quality on the use of an external or internal reporting channel. The findings should be of interest because they provide insight to whether complex firms face a greater risk of external whistle-blowing, and whether the audit committee can act as an effective corporate governance mechanism to reduce the likelihood of external whistle-blowing.

Study 4: The purpose of this study is to examine when management retaliates against whistle-blowers. Whistle-blowers may experience retaliation such as job termination, denial of promotion, social confrontation and threats (Rehg et al. 2008). While legislation to protect whistle-blowers has been growing worldwide, legislation alone has not been effective in protecting whistle-blowers (Dworkin 2007; Dworkin and Brown 2013). Research has considered whistle-blowing retaliation a form of victimisation (Matthiesen, Bjørkelo, and

Burke 2010; Near and Miceli 2008). This study draws on the routine activity theory (Cohen and Felson 1979) – a theory often considered as a theory of victimisation (Bernburg and Thorlindsson 2001, 544) – to provide useful insights to the conditions that exacerbate or reduce the occurrence of a retaliation event. A mixed-method approach using qualitative and quantitative data is employed. This study initially investigates retaliation against whistle-blowers through a textual analysis of media coverage of 38 whistle-blowing retaliation events. Using data obtained from 314 press reports of alleged financial misconduct involving whistle-blowing, a logistic regression is then employed to examine the factors associated with whistle-blowing retaliation.

This study contributes to the literature by adapting a routine activity framework to the context of whistle-blowing retaliation. Specifically, while research on retaliation generally focuses on the characteristics of the perpetrator and whistle-blower, the routine activity approach considers the role of other individuals in insulating whistle-blowers against retaliation. In so doing, this study builds understanding of how whistle-blowers can be shielded against retaliation.

1.6 Thesis structure

The remainder of this thesis is structured as follows. As illustrated in Figure 1.2, this thesis involves four studies. Chapter 2 provides a background study on the corporate whistle-blowing systems implemented by Australian companies. Chapter 3 presents the second study, which examines the incentives and opportunities associated with the likelihood that financial misconduct results in external whistle-blowing, in comparison to internal reporting. The third study, presented in Chapter 4, examines the influence of organisational complexity and audit committee quality on the likelihood that financial misconduct results in external whistle-blowing compared to internal reporting. The fourth study in Chapter 5 examines the circumstances under which management retaliates against whistle-blowers. Chapter 6 concludes this thesis.

CHAPTER I: INTRODUCTION AND INSTITUTIONAL BACKGROUND	CHAPTER 2: STUDY 1 An examination of corporate whistle-blowing policies	CHAPTER 3: STUDY 2 The incentives and opportunities that affect the likelihood of external whistle-blowing, in comparison to internal reporting	CHAPTER 4: STUDY 3 Does organisational complexity and audit committee quality affect the likelihood of external whistle-blowing in comparison to internal reporting?	CHAPTER 5: STUDY 4 When does management retaliate against whistle-blowers?	CHAPTER 6: CONCLUSION

Figure 1.2: Thesis structure

CHAPTER 2: STUDY 1

An examination of corporate whistle-blowing policies[13]

2.1 Introduction

The first study of this thesis provides a background on the corporate whistle-blowing systems implemented by Australian companies through an examination of corporate whistle-blowing policies. This study also examines the cross-sectional determinants of the implementation of whistle-blowing systems, as indicated by the extent of whistle-blowing disclosures provided in a company's whistle-blowing policy and the provision of a hotline service. Specifically, this study examines the potential determinants associated with a firm's economic, legal, ethical and corporate governance environment.

This chapter is organised as follows. Section 2.2 provides a background on research on whistle-blowing systems. Section 2.3 discusses the potential determinants that affect the implementation of a whistle-blowing system. Section 2.4 describes the measures of the implementation of a whistle-blowing system. Section 2.5 presents the research model and sample. Section 2.6 provides an analysis of disclosures on corporate whistle-blowing policies in Australian companies, and presents the analysis of the factors associated with the implementation of a whistle-blowing system. Section 2.7 provides additional analysis and Section 2.8 concludes this study.

2.2 Prior research on whistle-blowing systems

Whistle-blowing is argued to be an effective mechanism to combat fraud (ACFE 2010); however, employees often do not report misconduct despite being aware of the wrongdoing (Appelbaum et al. 2006; Moberly 2006). One response that has been argued to help detect misconduct and to minimise the consequences of wrongdoing is for companies to implement an internal system to facilitate whistle-blowing (ACFE 2010; Miceli, Near, and Dworkin

[13] A version of this study, titled 'Companies use of whistle-blowing to detect fraud: An examination of corporate whistle-blowing policies', was published in 2013 in the *Journal of Business Ethics* 114 (2): 283-295.

2009; Paul and Townsend 1996). A good internal whistle-blowing system facilitates the timely detection of misconduct, thereby permitting the company to correct the wrongdoing and minimise the cost of the misconduct (Paul and Townsend 1996). In addition, because employees are encouraged to act within the code of ethics, this increases the safety and well-being of the organisation, increases the satisfaction of employees, and fosters greater work commitment and loyalty (Miceli, Near, and Dworkin 2009; Paul and Townsend 1996).

Two important components of a whistle-blowing system are the provision of a whistle-blowing policy and a hotline service. Section 2.2.1 reviews research on whistle-blowing policy disclosures, and Section 2.2.2 reviews research on reporting hotlines. Section 2.2.3 reviews research on the determinants of implementing whistle-blowing systems.

2.2.1 Whistle-blowing policy disclosures

For the whistle-blowing system to be effective in encouraging reporting, a whistle-blowing policy should be provided because disclosures explicitly communicate the rules and procedures that provide information and guide the behaviour of employees (Tenbrunsel, Smith-Crowe, and Umphress 2003).[14] Providing a whistle-blowing policy also increases perceptions of organisational support for whistle-blowing (Keenan 1990) and confidence in reporting misconduct (Brennan and Kelly 2007). Studies have found that the provision of ethical codes or policies increases reporting intentions (Barnett, Cochran, and Taylor 1993; Schwartz 2001) and reduces the incidence of wrongdoings in companies (Somers 2001).

Researchers have analysed whistle-blowing disclosures on internal whistle-blowing systems to study the implementation of such systems (Calderón-Cuadrado et al. 2009; Hassink, de Vries, and Bollen 2007; Lewis and Kender 2010). Studies that examine the reporting systems of companies across countries have documented disparities in the implementation of whistle-

[14] Disclosures further help to convey organisational values and set expectations and standards, allowing employees to internalise these values (Tenbrunsel, Smith-Crowe, and Umphress 2003). For example, Adams, Tashchian, and Shore (2001) found that employees in companies that adopted ethical codes rated themselves as being more ethical than did employees from companies without such codes.

blowing. For example, Calderón-Cuadrado et al. (2009) examined the top 150 transnational companies and found that as compared to European firms, North American firms provide more systems to report and stronger levels of protection. Hassink, de Vries, and Bollen (2007) examined the contents of the whistle-blowing policies of 56 leading European companies and found that while most firms required employees to report breaches of internal policies and external regulations, and often provided confidentiality guarantees; little information was given regarding how whistle-blowers would be treated. They also documented that, while most policies provided a general statement prohibiting retaliation, the majority restricted the types of reports that qualify for protection, and few provided a statement that guaranteed that retaliation would not occur, regardless of the type of report.

Within-country studies also document variation in the content of whistle-blowing policies. In Sweden, Svensson, Wood, and Callaghan (2010) found more disclosure on whistle-blowing procedures were provided by organisations in the private sector than in the public sector. Lewis and Kender (2010) surveyed companies in the top Financial Times Stock Exchange (FTSE) 250, and found that less than half of the respondents stated that independent advice was available to a whistle-blower, provided training to managers on how to handle concerns, or offered training. In the US, Moberly and Wylie (2011) found that even though US legislation provide little guidance, US companies have largely developed a consensus regarding the scope and contents provided in their whistle-blowing policy. However, they found that while most US companies promised no retaliation, almost half incorporated an at-will disclaimer; making enforcing the anti-retaliation promises questionable.

In summary, while whistle-blowing disclosures are important in facilitating the internal reporting of misconduct, research generally suggests there is wide variation in the content and extent of the whistle-blowing disclosures provided by companies.[15] Another important

[15] Vandekerckhove and Lewis (2012) also compared five official whistle-blowing guidelines provided by authoritative bodies and highlighted the gaps in the guidelines.

component of a sound internal whistle-blowing system is the provision of a hotline service. Research on reporting hotlines is discussed in the next section.

2.2.2 Reporting hotlines

Formal structures for reporting should be incorporated into a whistle-blowing system to facilitate the reporting of misconduct (Miceli, Near, and Dworkin 2009). A standard reporting policy may lack credibility (Hassink, de Vries, and Bollen 2007) because mere disclosures within a whistle-blowing policy do not guarantee that a good whistle-blowing system is in place (Weaver, Trevino, and Cochran 1999). For example, Weaver, Trevino, and Cochran (1999) found that the majority of firms in their sample only committed to the low cost, symbolic aspect of ethics management through adopting codes and policies, and did not ensure that the codes and policies were actually implemented and put in practice.

Dedicated reporting hotlines are suggested to be effective in detecting fraud (Bierstaker, Brody, and Pacini 2006; Holtfreter 2005). A survey found that, among anti-fraud controls, the presence of hotlines increases the numbers of cases detected by a tip, and reduces the median fraud loss by the largest percentage (ACFE 2010). Hotlines are important as a reporting mechanism for several reasons. First, a hotline channel allows the anonymous reporting of misconduct, which helps reduce the perceived risk of retaliation to a potential whistle-blower (Bierstaker, Brody, and Pacini 2006; Holtfreter 2005). Second, a 24-hour hotline permits employees to report misconduct confidentially at their own convenience and at any time (Asgary and Mitschow 2002). Hotlines can be maintained off-site; thus, employees who are located in other geographical locations can use the same reporting channel, which also increases cost-effectiveness (Bierstaker, Brody, and Pacini 2006; Calderón-Cuadrado et al. 2009). Third, the provision of a hotline service increases the potential perpetrators' perceived risk of being reported, which can help reduce unethical behaviour in the workplace (Bierstaker, Brody, and Pacini 2006). As such, the provision of a hotline service contributes to a sound internal whistle-blowing system.

Research on reporting hotlines has largely been descriptive and generally documents the implementation of such mechanisms. For example, Weaver, Trevino, and Cochran (1999) reported that 57 percent of the Fortune 1000 firms provided hotline channels,[16] and Hassink, de Vries, and Bollen (2007) documented a rate of 38 percent among 56 top European companies. Lewis and Kender (2010) documented a rate of 75 percent among the top 250 FTSE firms, and found that in comparison to their earlier study (Lewis and Kender 2007), there was a general increase (26 percent) in the provision of a reporting hotline. Calderón-Cuadrado et al. (2009) found that while 95 percent of North American companies in their sample provided reporting hotlines, only 57 percent of European companies provided such services. Together, these studies suggest some disparity in the implementation of a hotline service by companies between and across countries.

Taken together, research has largely documented the reporting systems implemented in North American and European companies, there has been little documented on the systems implemented by Australian companies. A contribution of this study is to provide a descriptive analysis of whistle-blowing systems implemented by Australian companies. Studies have also documented a wide variation in the whistle-blowing systems implemented across companies and countries (Calderón-Cuadrado et al. 2009; Hassink, de Vries, and Bollen 2007; Weaver, Trevino, and Cochran 1999). Recent studies have sought to provide understanding of factors that influence variation in the implementation of whistle-blowing systems. These studies are discussed in the next section.

2.2.3 Research on the determinants of implementing whistle-blowing systems

Studies have found that larger firms are more likely to provide a whistle-blowing policy or formal structure for reporting (Brennan and Kelly 2007; Pittroff 2014). A recent study by

[16] Weaver, Trevino, and Cochran (1999) also documented that the usage of hotlines varies across companies – 25 percent of firms received no more than one call per 10,000 employees in a month, 46 percent received more than two to nine calls, 12 percent received 10 to 19 calls and 18 percent received 20 or more calls. They suggested that the variation in call rates is partly driven by the perceived role of the hotlines. Specifically, employees are more likely to use hotlines that are oriented towards encouraging reporting behaviours than hotlines that fulfil a policing or regulating role.

Pittroff (2014) found that firms do not implement whistle-blowing systems in order to comply with the law, prevent reputational damage or reduce capital costs, but rather as a way of legitimising their activities. She also found that the implementation of a whistle-blowing system was associated with higher benefits to costs of providing such a system.

A study by Calderón-Cuadrado et al. (2009) did not find that economic determinants – such as assets, sales, number of employees, number of affiliates and the degree of internalisation – affect the implementation of whistle-blowing procedures. However, they suggested that the lack of statistical significance was due to homogeneity in their dataset, and called for more research in this area. With limited whistle-blowing provisions in the Australian private sector,[17] the mainly voluntary implementation of whistle-blowing systems provides an opportunity to investigate the factors important to establishing a sound internal reporting system. This study extends prior research by identifying other potential determinants of implementing a sound whistle-blowing system. These factors are described in the next section.

2.3 Cross-sectional determinants of implementing a whistle-blowing system

This study predicts that the costs and benefits to the firm will affect the extent of implementing a whistle-blowing system. Specifically, this study examines factors related to a firm's economic, legal, ethical, and corporate governance environment. The predictors are discussed below.

2.3.1 Economic determinants

Size

The voluntary corporate disclosure literature suggests that larger firms provide greater and higher quality disclosures than smaller firms because of competitive cost advantage (Clarkson, Van Bueren, and Walker 2006; Lang and Lundholm 1993; Meek, Roberts, and Gray 1995).

[17] Unlike in the US, the Australian legislation does not mandate the implementation of any specific whistle-blowing procedures or mechanisms in companies. There is also evidence from surveys that whistle-blowing systems have not been comprehensively implemented in Australian companies (ACFE 2010; KPMG 2009).

Holder-Webb et al. (2008) specifically found greater presence of disclosures on whistle-blowing procedures in larger companies. Calderón-Cuadrado et al. (2009) also suggested that direct control mechanisms may be less effective when companies grow larger, and thus may encourage reporting misconduct through the use of hotline channels. As larger companies have greater incentives and resources to develop a sound whistle-blowing system, it is predicted that larger companies are more likely to implement a better internal whistle-blowing system.

Inventory

A common type of fraud among employees is inventory fraud (Hillison, Pacini, and Sinason 1999; KPMG 2009). Firms with a higher level of inventory report more internal control deficiencies as they are more likely to be exposed to internal control risks relating to the proper measurement and recording of inventory, misreporting due to theft, and timely recognition of inventory obsolescence (Ashbaugh-Skaife, Collins, and Kinney Jr 2007). As firms weigh the benefits to costs when implementing a whistle-blowing system (Pittroff 2014), it is predicted that companies with larger inventories are more likely to implement a better whistle-blowing system in order to minimise the risk of fraud.

Geographical dispersion

Firms that are more geographically dispersed are likely to face greater internal control problems (Ashbaugh-Skaife, Collins, and Kinney Jr 2007). Direct monitoring may be difficult and costly with greater geographical dispersion because of language differences or the lack of a physical presence of a monitoring body. As such, there are greater incentives to implement a good reporting system. Companies that are geographically dispersed may also prefer to establish a common procedure of reporting misconduct through hotlines (Calderón-Cuadrado et al. 2009) because hotlines can help overcome geographical distances (Oldendorf 2007). It is expected that companies that operate in more geographical regions are more likely to provide a better whistle-blowing system.

2.3.2 Legal environment

The *SOX Act (2002)* requires companies listed in the US to establish procedures for the receipt, retention and treatment of complaints received regarding accounting, internal accounting controls, or auditing matters; and the confidential, anonymous submissions by employees of concerns regarding questionable accounting or auditing matter (Section 301). In achieving compliance with Section 301 of the *SOX Act (2002)*, many companies have responded by establishing hotline services (Worlton 2005). Thus, companies that are cross-listed in the US are likely to provide better internal whistle-blowing systems.

2.3.3 Ethical environment

Support for whistle-blowing

The organisational climate affects an individual's whistle-blowing decision (Chung, Monroe, and Thorne 2004; McDonald 2000; Near and Miceli 1985). Companies that are more supportive of whistle-blowing can be expected to establish better reporting systems. McDonald (2000) argued that companies that encourage whistle-blowing are more likely to implement a hotline service because hotlines facilitate open communication. Support for whistle-blowing is measured by examining whether the company explicitly state their support for whistle-blowing in their whistle-blowing policy.

Anonymous reporting

Anonymous reporting systems reduce a whistle-blower's personal costs of reporting, such as facing sanctions from their employers, being ostracised by their coworkers, experiencing verbal threats and receiving unfavourable job evaluations (Bjørkelo et al. 2011). However, a company may be reluctant to implement an anonymous reporting channel because it requires more resources and can hinder or complicate investigations (Calderón-Cuadrado et al. 2009; Hassink, de Vries, and Bollen 2007). As such, companies that permit anonymous reporting are likely to be more supportive of whistle-blowing and implement better systems to facilitate reporting. A common mechanism used to facilitate anonymous reporting is a hotline (Worlton

2005). This study predicts that companies that allow anonymous reporting are likely to provide better internal whistle-blowing systems.

2.3.4 Corporate governance determinants

The internal governance structure of a firm can influence the use of internal control mechanisms to ensure compliance, credibility and detect fraud (Coram, Ferguson, and Moroney 2008; Davidson, Goodwin-Stewart, and Kent 2005). Agency theory suggests that in order to align the interests of shareholders and management, bonding mechanisms have to be put in place (Jensen and Meckling 1976). A greater number of independent directors on the audit committee and the existence of concentrated shareholdings may increase the pressure for a better whistle-blowing system to be established for monitoring purposes (Davidson, Goodwin-Stewart, and Kent 2005). It is predicted that firms are more likely to implement a better internal whistle-blowing system when there is stronger internal governance.

In summary, the implementation of a sound whistle-blowing system is predicted to be associated with a firm's size, level of current inventory, geographical dispersion, cross-listing in the US, support for whistle-blowing, permissibility of anonymous reporting, number of independent directors on the audit committee and the concentration of substantial shareholdings. The next section describes the measures of the implementation of a whistle-blowing system.

2.4 Measures of whistle-blowing system implementation

2.4.1 The extent of whistle-blowing disclosures

This study initially assesses the extent of disclosures provided in a company's whistle-blowing policy as a measure of the implementation of a whistle-blowing system.[18] Whistle-blowing disclosures are assessed using an adapted checklist (see Table 2.4) from the

[18] In order to provide an effective whistle-blowing system, it can be expected that companies would provide employees with a high level of disclosure regarding the whistle-blowing process. This study assumes that a high level of disclosure is a necessary, but not necessarily sufficient, condition in contributing to an effective whistle-blowing system.

'Suggested Checklist of Matters to be Addressed in a Whistleblower Protection Program' recommended by Standards Australia (2003).[19] The disclosure checklist, as reported in Table 2.4, contains eighteen disclosure items on the whistle-blowing process that are likely to be important to a potential whistle-blower. For example, Standards Australia (2003) recommends that reports should be kept confidential. Based on this recommendation, an item in the checklist (item 9 in Table 2.4) examined whether a company disclosed that reports will be kept confidential. Standards Australia (2003) also recommends the provision of a whistle-blowing protection officer. Based on this recommendation, an item on the checklist examined whether companies disclosed the appointment of a whistle-blowing protection officer (item 15 in Table 2.4).

The checklist was applied to the whistle-blowing policy of each company in the sample. For each disclosure item, the existence of the disclosure is coded '1' if present and '0' otherwise. The measure of the extent of whistle-blowing disclosures is a self-constructed unweighted index (DSCORE) based on the simple sum of all disclosures made, generating an ordinal measure of the extent of whistle-blowing disclosures. Alternate scoring approaches are considered in the sensitivity analysis. Eighteen disclosure items are examined from the whistle-blowing policies of companies in the sample, giving a maximum score of 18. Higher scores represent greater overall whistle-blowing disclosure.

2.4.2 The provision of a hotline service

The provision of a hotline service is also used as a measure of whistle-blowing system implementation. The mere existence of disclosures in a whistle-blowing policy does not assure that an effective whistle-blowing system has been implemented, as the adoption of disclosures and ethical codes can be merely symbolic (Weaver, Trevino, and Cochran 1999). While a policy alone may lack credibility (Weaver, Trevino, and Cochran 1999), the use of a dedicated hotline service is highly visible and helps increase the credibility of the whistle-

[19] The ASX's (2007) Corporate Governance Principles and Recommendations refers companies to the guidelines of Standards Australia (2003) to develop a whistle-blower program.

blowing system. Providing a hotline service requires additional cost, which also signals management's commitment to whistle-blowing. As such, the provision of a hotline service is indicative of a better whistle-blowing system.

2.5 Research model and sample

This section presents the research model and sample. Section 2.5.1 presents the model. Section 2.5.2 describes the sample and descriptive statistics are provided in Section 2.5.3.

2.5.1 Research model

To analyse the extent of whistle-blowing disclosures, the following model is estimated:

$$DSCORE_{i,t} = \beta_0 + \beta_1 LTA_{i,t} + \beta_2 INV_{i,t} + \beta_3 SEG_{i,t} + \beta_4 XLIST_{i,t} + \beta_5 SUP_{i,t} + \beta_6 ANON_{i,t} + \beta_7 AUDC_{i,t} + \beta_8 SUB_{i,t} + \varepsilon_{i,t} \quad (1)$$

where, i = company, and t = year 2010. The variables in the model are defined as:

Variable	Variable description	Measurement of variable	Data source
DSCORE	Whistle-blowing disclosure score	Whistle-blowing disclosure score, measured on an 18-point scale.	Self-constructed whistle-blowing disclosure index
LTA	Firm size	Logarithm of total assets in dollars.	DatAnalysis
INV	Level of current inventory	Logarithm of the value of current inventories in dollars.[20]	DatAnalysis
SEG	Geographical dispersion	Number of geographical business segments.	Annual reports obtained from DatAnalysis
XLIST	US cross listing status	Indicator variable coded '1' if the company is cross-listed in the US, and '0' otherwise.	DatAnalysis
SUP	Organisational support for whistle-blowing	Indicator variable coded '1' if support for whistle-blowing is explicitly mentioned in the company's whistle-blowing policy, and '0' otherwise.	Corporate whistle-blowing policies obtained from corporate websites or annual reports
ANON	Permissibility of anonymous reporting	Indicator variable coded '1' if the company discloses in their whistle-blowing policy that anonymous reporting is allowed, and '0' otherwise.	Corporate whistle-blowing policies obtained from corporate websites or annual reports
AUDC	Independent directors on audit committee	Number of independent directors on the audit committee.[21]	Annual reports obtained from DatAnalysis
SUB	Concentration of substantial shareholding	Percentage held by the largest substantial shareholder.	Annual reports obtained from DatAnalysis

[20] A dollar is added to the current inventory before taking the natural log when the value of inventory is zero.

[21] An independent director is defined as one who is a non-executive and without any related party transactions with the firm (Koh, Laplante, and Tong 2007).

The model is also estimated using the provision of a hotline service as the dependent variable. An indicator variable (HOTLINE) is coded '1' if provision of a hotline service is disclosed in the company's whistle-blowing policy, and '0' otherwise.

2.5.2 Sample

The extent of governance disclosures varies significantly by company size (Holder-Webb et al. 2008). Smaller companies can find implementing a whistle-blowing system to be uneconomical; thus, this study limits the sample to the larger companies listed on the S&P/ASX 200 Index. The S&P/ASX 200 Index is a commonly used institutional benchmark in Australia to identify the largest companies listed on the ASX. This study examines the whistle-blowing policies of Australian companies in the S&P/ASX 200 Index (as of 3 September 2010).[22]

Whistle-blowing policy disclosures are sourced from the companies' corporate websites and their corporate governance statements in annual reports. The frequency and extent of the disclosure of whistle-blowing policies are presented in Table 2.1. A company is classified as having disclosed its whistle-blowing policy if it discloses the procedures for reporting misconduct. For the purposes of this analysis, a single disclosure – to the effect that misconduct should be reported to an individual – is not considered to be a whistle-blowing policy. Of the 200 companies examined, 31 do not disclose their whistle-blowing policies on their website or in the corporate governance statement of their annual report. Another 60 companies only provide cursory partial (or summarised) disclosures of their whistle-blowing policies, and full disclosures are not publicly available on their websites. These companies are excluded from the sample because the precise nature of their whistle-blowing systems is not

[22] The whistle-blowing policies of the next 100 largest companies are also examined, and there are significantly less disclosures provided by these companies. As company size appears to be the dominant determinant of non-disclosure, the sample is restricted to the largest companies with a viable choice to implement and disclose a whistle-blowing system. Alternately, using companies from only the larger S&P/ASX 100 Index results in similar coefficient estimates that are not statistically different from zero in this smaller sample.

known. The resulting sample with sufficient, publicly available whistle-blowing policies includes 107 companies. The sample size is small but comparable to prior research.[23]

Table 2.1: Sample selection

Description	Number of companies	Percentage of companies (%)
Initial selection of companies from the S&P/ASX 200 Index	200	100
Less: Companies that do not disclose their whistle-blowing policies on their website or in their corporate governance statement	(31)	15.5
Less: Companies that only provided cursory whistle-blowing policy disclosures	(62)	31.0
Final sample of companies with detailed, publicly available whistle-blowing policies	107	53.5

Table 2.1 describes the frequency of disclosure of whistle-blowing policies by large Australian companies that are part of the S&P/ASX 200 Index. The final sample size used in this study consists of the 107 companies with detailed, publicly available reporting policies from their annual report or corporate website. The sample is restricted to the S&P/ASX 200 companies because most of the smaller companies do not disclose sufficient information on whistle-blowing policies.

2.5.3 Descriptive statistics

Descriptive statistics for the sample are provided in Table 2.2. The mean and the median whistle-blowing disclosure score is nine, from a possible score of 18. Less than half of the firms (37 percent) disclose that they provide a hotline service. As expected, the companies are relatively large. The log of total assets and inventory are used to mitigate the potential effect of extreme observations on the analysis. The mean (2.57) number of geographical segments indicates that the average firm in this sample has operations outside of Australia. The majority of the firms do not explicitly state their support for internal reporting in their whistle-blowing policy (39 percent) and just half of the firms disclose that anonymous reporting is permitted (50 percent). Firms in this sample typically have three independent directors on their audit committees and their largest shareholder holds approximately 17 percent of the total amount

[23] The sample is larger than that of Hassink, de Vries, and Bollen (2007) who examined the whistle-blowing policies of 56 companies and Lewis and Kender's (2010) sample of 64 organisations. The sample is slightly smaller than Calderón-Cuadrado et al.'s (2009) sample of 153 companies.

of shares. The mean of firms cross-listed in the US is 11 percent, which is reasonably close to a sample used by Salman and Carson (2009) for firms in the ASX Top 500 (14 percent).

Table 2.2: Descriptive statistics

	Mean	Std. dev.	Median	Minimum	Maximum
DSCORE	9.03	3.121	9	4	16
HOTLINE	0.37	0.486	0	0	1
Total assets (in AUD $mil)	25,618	97,069	2,564	10.074	654,000
LTA	21.845	1.848	21.665	16.125	27.206
INV	13.349	8.518	17.997	0.000	22.557
SEG	2.57	1.311	3	1	5
XLIST	0.11	0.317	0	0	1
SUP	0.39	0.491	0	0	1
ANON	0.50	0.502	0	0	1
AUDC	3.21	1.163	3	1	9
SUB	16.667	0.113	14.030	1.040	62.200
Number of firms = 107					

This table provides descriptive statistics. DSCORE = whistle-blowing disclosure score measured on an 18-point scale, with higher scores indicating greater disclosures; HOTLINE = '1' if provision of a hotline service is disclosed in the company's whistle-blowing policy, and '0' otherwise; LTA = logarithm of total assets; INV = logarithm of current inventories; SEG = number of geographical business segments; XLIST = '1' if the company is cross-listed in the US, and '0' otherwise; SUP = '1' if support for whistle-blowing is explicitly mentioned in the company's whistle-blowing policy, and '0' otherwise; ANON = '1' if the company discloses that anonymous reporting is allowed, and '0' otherwise; AUDC = number of independent directors on the audit committee; SUB = percentage held by the largest substantial shareholder.

Table 2.3 reports the non-parametric correlations between the variables of interest. The whistle-blowing disclosure scores are positively associated with organisational support for whistle-blowing ($p < 0.001$), and permissibility of anonymous reporting ($p < 0.001$). The disclosure of the implementation of a hotline channel is positively associated with the firm's size ($p < 0.001$), level of current inventory ($p = 0.001$), number of geographical segments ($p = 0.001$), cross-listing status ($p < 0.001$), organisational support ($p < 0.001$) and permissibility of anonymous reporting ($p = 0.001$).

Table 2.3: Spearman correlations

	DSCORE	HOTLINE	LTA	INV	SEG	XLIST	SUP	ANON	AUDC
HOTLINE	0.308								
	(0.000)								
LTA	0.086	0.387							
	(0.376)	(0.000)							
INV	0.127	0.313	–0.011						
	(0.192)	(0.001)	(0.910)						
SEG	0.003	0.314	0.335	0.163					
	(0.978)	(0.001)	(0.000)	(0.094)					
XLIST	0.157	0.374	0.329	0.142	0.159				
	(0.107)	(0.000)	(0.001)	(0.143)	(0.103)				
SUP	0.458	0.414	0.280	0.133	0.115	0.155			
	(0.000)	(0.000)	(0.004)	(0.172)	(0.237)	(0.111)			
ANON	0.558	0.456	0.202	0.213	0.146	0.151	0.372		
	(0.000)	(0.000)	(0.037)	(0.028)	(0.133)	(0.121)	(0.000)		
AUDC	0.157	0.165	0.301	–0.012	0.150	0.287	0.231	0.128	
	(0.106)	(0.090)	(0.002)	(0.899)	(0.123)	(0.003)	(0.016)	(0.188)	
SUB	0.071	0.035	0.033	0.036	–0.227	–0.003	–0.114	0.030	–0.079
	(0.465)	(0.718)	(0.738)	(0.715)	(0.019)	(0.977)	(0.242)	(0.758)	(0.420)

Number of firms = 107; *p*-values are shown in parentheses, two-tailed.

This table presents the non-parametric correlations of the variables in the model. DSCORE = whistle-blowing disclosure score measured on an 18-point scale, with higher scores indicating greater disclosures; HOTLINE = '1' if provision of a hotline service is disclosed in the company's whistle-blowing policy, and '0' otherwise; LTA = logarithm of total assets; INV = logarithm of current inventories; SEG = number of geographical business segments; XLIST = '1' if the company is cross-listed in the US, and '0' otherwise; SUP = '1' if support for whistle-blowing is explicitly mentioned in the company's whistle-blowing policy, and '0' otherwise; ANON = '1' if the company discloses that anonymous reporting is allowed, and '0' otherwise; AUDC = number of independent directors on the audit committee; SUB = percentage held by the largest substantial shareholder.

2.6 Results

2.6.1 Analysis of disclosures provided in corporate whistle-blowing policies

The frequency of whistle-blowing disclosures provided by companies in the sample is reported in Table 2.4. All companies in the sample provide a statement that the scope of the whistle-blowing policy applies to employees. Only 14 percent disclose that the policy extends to non-employees. The majority of companies in the sample provide guidelines on reportable issues (98 percent), to whom an individual should report (99 percent), and the reporting procedures (96 percent). There are comparatively fewer disclosures provided on how the whistle-blowing

reports are handled. Few companies disclose that the whistle-blower will be notified on commencement of the investigation (nine percent), notified on the progress of the investigation (16 percent) or guaranteed feedback (36 percent). Few companies also disclose that they provide training on whistle-blowing (13 percent) even though it is recommended by Standards Australia (2003).

Table 2.4: Frequency of items disclosed in whistle-blowing policies

No.	Disclosure item	Frequency of item being reported
1	A statement of the entity's commitment to culture of high corporate compliance and ethical behaviour.	60%
2	Commitment to regularly review the policy	35%
3	Provision of training	13%
4	Scope applies to employees (including contractors and consultants)	100%
5	Scope applies to non-employees (customers and general public)	14%
6	Guidelines on reportable issues	98%
7	Guidelines on who to report to	99%
8	Guidelines on how to report	96%
9	A statement that reports will be treated confidentially	76%
10	A statement that different individuals will receive and investigate the report	36%
11	A statement on how the report will be handled.	41%
12	A statement on whether the whistle-blower will be notified on commencement of investigation.	9%
13	A statement on whether the whistle-blower will be notified on the whistle-blowing progress.	16%
14	A guarantee that whistle-blowers will receive feedback.	36%
15	The appointment of a welfare/whistle-blowing protection officer.	12%
16	No retaliation by the company, if the report is made in good faith	78%
17	A statement that protection is given.	56%
18	Description of the specific protection given and the actions that will be taken.	27%
Number of firms = 107		

This table reports the frequency of whistle-blowing disclosures provided by companies. The items are adapted from the 'Suggested Checklist of Matters to be Addressed in a Whistleblower Protection Program' (Standards Australia 2003). For each disclosure item, the existence of the disclosure is coded '1' if present and '0' otherwise. The primary measure of disclosure score (DSCORE) is the count of items disclosed. Alternate measures are considered in the sensitivity analysis.

The analysis provides support of the ad hoc development of whistle-blowing systems in Australia (Brown 2009). Overall, the descriptive data suggest that, even though the sample is restricted to large companies with whistle-blowing policy disclosures, most firms in the sample are not providing comprehensive disclosure of policies that are consistent with the recommendations by Standards Australia (2003).

Table 2.5: Examination of factors associated with the extent of whistle-blowing disclosure

	Predicted sign	Coefficient	Standard error	*t*-value	*p*-value
LTA	+	−0.261	0.155	−1.69	0.095
INV	+	−0.037	0.030	−1.24	0.219
SEG	+	−0.084	0.206	−0.41	0.683
XLIST	+	0.359	0.841	0.43	0.670
SUP	+	2.108**	0.541	3.89	0.000
ANON	+	3.299**	0.526	6.27	0.000
AUDC	+	0.463*	0.227	2.04	0.044
SUB	+	0.046*	0.022	2.10	0.038
Constant		10.523**	3.061	3.44	0.001
$n = 107$					
Log likelihood = −236.23					
$\chi^2 = 99.31$ ($p < 0.001$)					
Pseudo $R^2 = 0.12$					

** Significant at the 1% level; * significant at the 5% level using a one-tailed test.

This table reports the results of a Tobit regression that examines the factors predicted to be associated with the extent of disclosures provided by companies in their whistle-blowing policy (DSCORE). DSCORE = whistle-blowing disclosure score measured on a 18-point scale, with higher scores indicating greater disclosures; LTA = logarithm of total assets; INV = logarithm of current inventories; SEG = number of geographical business segments; XLIST = '1' if the company is cross-listed in the US, and '0' otherwise; SUP = '1' if support for whistle-blowing is explicitly mentioned in the company's whistle-blowing policy, and '0' otherwise; ANON = '1' if the company discloses that anonymous reporting is allowed, and '0' otherwise; AUDC = number of independent directors on the audit committee; SUB = percentage held by the largest substantial shareholder.

2.6.2 Analysis of the extent of whistle-blowing disclosures

To examine the factors associated with the extent of whistle-blowing disclosures provided, a Tobit model is employed as the whistle-blowing disclosure score is a bounded variable. As discussed in Section 2.4.1, the score is computed from disclosures provided in the company's whistle-blowing policy, using an adapted checklist based on the recommendations by

Standards Australia (2003). The results of the analysis are presented in Table 2.5. The model has significant explanatory power ($\chi^2 = 99.31$, $p < 0.001$) and a pseudo R^2 of 0.12.

Four variables are significant in this model. Two of the variables (SUP and ANON) that are significant are determinants related to the ethical environment. The coefficient on organisational support (SUP) (coefficient 2.108, $p < 0.001$) and the permissibility of anonymous reporting (ANON) (coefficient 3.299, $p < 0.001$) are positive and significant. The results are consistent with a company's ethical environment playing a role in determining the extent of disclosures provided in a company's whistle-blowing policy. The other two significant variables are determinants related to the corporate governance environment. The coefficients on the number of independent directors on the audit committee (AUDC) (coefficient 0.463, $p = 0.044$) and the percentage held by the largest substantial shareholder (SUB) (coefficient 0.046, $p = 0.038$) are positive and significant. The results suggest that stronger corporate governance is likely to increase the extent of whistle-blowing disclosures provided in the company's whistle-blowing policy. The results do not provide support for a contention that economic or legal determinants affect the extent of whistle-blowing policy disclosures provided in the company's whistle-blowing policy.

2.6.3 Analysis of the provision of a hotline service

An effective whistle-blowing system not only requires developing a good policy, but also the implementation of mechanisms in the system. In this analysis, the implementation of a whistle-blowing system is measured by the provision of a hotline service, as disclosed in a company's whistle-blowing policy. As the dependent variable is a dichotomous variable, a logistic regression is employed.[24] The results are presented in Table 2.6. The model has significant explanatory power ($\chi^2 = 61.95$, $p < 0.001$) and a pseudo R^2 of 0.44. The Hosmer-

[24] The logistic regression is a multivariate technique that differs from multiple regression in being specifically designed to predict the probability of an event occurring (Hair et al. 2010). Unlike the ordinary least squares regression, logistic regression does not make strict assumptions about the normality, linearity and homogeneity of variance for the independent variables.

Lemeshow test is insignificant (p = 0.84), indicating that the model is of a good fit. The classification rate is 82 percent, suggesting that the model predicts reasonably well.

Table 2.6: Examination of factors associated with providing a hotline service

	Predicted sign	Coefficient	Standard error	Wald	p-value
LTA	+	0.512*	0.245	4.360	0.037
INV	+	0.103*	0.048	4.627	0.031
SEG	+	0.511*	0.257	3.959	0.047
XLIST	+	3.381*	1.567	4.657	0.031
SUP	+	1.272*	0.607	4.388	0.036
ANON	+	1.340*	0.623	4.628	0.031
AUDC	+	−0.202	0.288	0.498	0.483
SUB	+	0.041	0.028	2.148	0.143
Constant		−16.280**	5.613	8.413	0.004
n = 107					
−2 Log likelihood = 79.49					
χ^2 = 61.95 (p < 0.001)					
Pseudo R^2 = 0.44					
Classification rate = 0.82					

** Significant at the 1% level; * significant at the 5% level using a one-tailed test.

Table 2.6 reports the results of a logistic regression that examines the factors predicted to be associated with the provision of a hotline service (HOTLINE). HOTLINE = '1' if provision of a hotline service is disclosed in the company's whistle-blowing policy, and '0' otherwise; LTA = logarithm of total assets; INV = logarithm of current inventories; SEG = number of geographical business segments; XLIST = '1' if the company is cross-listed in the US, and '0' otherwise; SUP = '1' if support for whistle-blowing is explicitly mentioned in the company's whistle-blowing policy, and '0' otherwise; ANON = '1' if the company discloses that anonymous reporting is allowed, and '0' otherwise; AUDC = number of independent directors on the audit committee; SUB = percentage held by the largest substantial shareholder.

The results indicate that six variables are significant in determining the provision of a hotline service. Three of the significant variables are determinants related to the economic environment. The coefficients on the size of the firm (coefficient 0.512, p = 0.037),[25] level of current inventory (coefficient 0.103, p = 0.031) and number of geographical business segments (coefficient 0.511, p = 0.047) are positive and significant. The findings suggest that economic determinants affect the provision of a hotline service. The coefficient on XLIST is

[25] An alternate measure for firm size employed is using the number of employees instead of the natural logarithm of total assets. There are no data available for two firms, leaving a sample of 105 firms for this analysis. The untabulated results of the re-estimated model are similar to the primary results.

also significant (coefficient 3.381, $p = 0.031$), suggesting that the legal environment plays a role in the provision of a hotline.

The coefficients on organisational support (coefficient 1.272, $p = 0.036$) and the permissibility of anonymous reporting (coefficient 1.340, $p = 0.031$) are positive and significant, indicating that factors related to the ethical environment are positively associated with the provision of a hotline service. The coefficients on SUB and AUDC are not significant ($p > 0.050$), indicating that factors related to the corporate governance environment do not affect the probability of providing a hotline service. Consistent with the greater time, effort and resources needed to establish a hotline service, the results suggest that considerations in establishing a hotline include economic and legal factors.

Overall, the results suggest that the extent of whistle-blowing disclosures is determined by stronger corporate governance such as a higher number of independent directors on the audit committee and more concentrated substantial shareholdings; and an ethical environment as indicated by permissibility of anonymous reporting and organisational support for whistle-blowing. The results indicate that firms are more likely to provide a hotline service when they are larger, have a higher level of current inventory, are cross-listed in the US, permit anonymous reporting and provide organisational support for whistle-blowing.

2.7 Sensitivity analysis

2.7.1 Alternate measures of disclosure score

An alternative measure of the whistle-blowing disclosure scores can be produced by grouping the scores into higher and lower disclosures scores, and re-estimating using a logistic regression. The two groups are disaggregated using the median disclosure score. Higher disclosures scores are coded '1', and lower disclosures scores are coded '0'. The untabulated results are similar to the primary results, except that the coefficient on AUDC is no longer significant at the five percent level. Another approach is to identify 10 of the (arguably) more

important disclosures (items three, four, seven, nine, 10, 13, 16, 17, 18 and 19). The untabulated results of the re-estimated model are similar to the primary results, except that the coefficient on SUB is no longer significant at the five percent level. Together, the analyses suggest that the results are robust to reasonable alternate measures of the disclosure score.

2.7.2 External auditor

The implementation of a whistle-blowing system might be influenced by other substitute mechanisms, such as the company's external auditor. A sensitivity analysis was conducted using an indicator variable (BIG4) for a Big 4 auditor. BIG4 is coded '1' if the firm was audited by a Big 4 auditor, and '0' otherwise. The untabulated results indicate no significant association with the use of a Big 4 auditor.

2.7.3 Industry effects

This study examines whether the extent of whistle-blowing disclosure and the provision of a hotline service are affected by industry. The untabulated results indicate that firms in the telecommunication industry are more likely to provide less whistle-blowing disclosures (p = 0.009); there are no other industry effects. The results do not indicate any industry effects for the provision of a hotline service. Due to the small sample this study reports the more parsimonious model without industry effects.

2.8 Discussion and conclusion

This study provides a background on the whistle-blowing systems implemented by Australian companies through a descriptive analysis of corporate whistle-blowing policies. The analysis found that most companies provide guidelines on reportable issues and reporting procedures. Few disclosed information on how the whistle-blowing report would be handled and investigated, the provision of feedback to the whistle-blower, and the provision of training for whistle-blowing. The analysis suggests that most firms are not providing comprehensive

disclosure of policies for an effective whistle-blowing system that is consistent with the recommendations of Standards Australia (2003).

This study also examines the factors that affect variation in the implementation of corporate whistle-blowing systems, as indicated by the extent of whistle-blowing disclosures provided, and the provision of a hotline service. The factors examined include the firm's size, level of inventory, geographical dispersion, cross-listing in the US, organisational support for whistle-blowing, permissibility of anonymous reporting, number of independent directors on the audit committee and existence of concentrated shareholdings.

The results indicate that the extent of whistle-blowing disclosures provided is positively associated with the number of independent directors on the audit committee, a greater concentration of substantial shareholdings, permissibility of anonymous reporting, and organisational support for whistle-blowing. The findings suggest that, with a stronger ethical environment and better corporate governance, firms provide greater disclosures on whistle-blowing. The results indicate that there is a greater likelihood of providing a hotline service when companies are larger, have a higher level of current inventory, are cross-listed in the US, permit anonymous reporting and provide organisational support for whistle-blowing. The findings suggest that the provision of a hotline service is associated with factors related to the economic, ethical, and legal environment.

The limitations to this study include the following. The results of this study may not be generalisable to smaller companies, private companies and not-for-profit entities because only larger listed companies are examined. The results also need to be interpreted with respect to the specific legislative context in Australia. In addition, consistent with other studies of this

type, this study can only examine observable disclosures made by companies, and not actual whistle-blowing practices.[26]

In summary, this chapter has presented a background on the corporate whistle-blowing systems implemented by Australian companies. This study also identified factors that affect the implementation of such systems. The findings suggest that the ethical environment and corporate governance are important in driving the policy-making behind a whistle-blowing system. While whistle-blowing has been explicitly regulated in some jurisdictions, this research suggests that companies interested in good corporate governance will voluntarily adopt policies consistent with an effective whistle-blowing system. Nonetheless, the findings also show that when implementing an effective whistle-blowing system, reliance on good corporate governance is insufficient. The results indicate that when it comes to implementing a hotline service, firms also consider their legal environment and the economic cost and benefits of establishing such a mechanism.

[26] It cannot be determined whether some companies have whistle-blowing policies not documented on their corporate website. Some companies were contacted but were unwilling to provide further information.

CHAPTER 3: STUDY 2

The incentives and opportunities that affect the likelihood of external whistle-blowing in comparison to internal reporting

3.1 Introduction

Individuals can report misconduct internally to management, or externally to parties outside the organisation, such as to authorities or media. Internal reporting is generally advantageous to a firm because it allows management to correct misconduct in a timely manner and minimise the costs of misconduct (Paul and Townsend 1996). External whistle-blowing typically occurs when internal reporting is ineffective (Miceli, Near, and Dworkin 2008) and can have detrimental effects on the company (Bowen, Call, and Rajgopal 2010) and the whistle-blower (Dworkin and Baucus 1998). As external whistle-blowing is generally less desirable to firms, there is a need to understand the situations in which individuals are more likely to report externally, as compared to internally.

Researchers, however, highlight that 'we know little about how whistleblowing processes differ for internal versus external whistle-blowers, such as antecedent conditions or consequences of relying on internal versus external channels' (Dworkin and Baucus 1998, 1283). Accordingly, the purpose of this study is to identify the factors that influence when financial misconduct results in external whistle-blowing, in comparison to internal reporting. This distinction is important because external whistle-blowing is generally less desirable to firms due to the higher cost of external whistle-blowing (Bowen, Call, and Rajgopal 2010).

This chapter is organised as follows. Section 3.2 reviews the prior research on whistle-blowing. Section 3.3 discusses the potential determinants of external whistle-blowing as compared to internal reporting. The research method and sample are described in Section 3.4. Section 3.5 presents the results. Section 3.6 reports additional analyses, and Section 3.7 concludes the chapter with a discussion of the findings.

3.2 Prior research on whistle-blowing

The purpose of this study is to examine when whistle-blowers report externally rather than internally. This review examines two related research streams. Section 3.2.1 reviews research on the predictors of whistle-blowing. Section 3.2.2 reviews research that examines the predictors of external whistle-blowing, compared to internal reporting.

3.2.1 The predictors of whistle-blowing

Research has largely drawn on two main theoretical models to predict an individual's whistle-blowing behaviour – the theory of pro-social organisational behaviour (Dozier and Miceli 1985; Miceli, Near, and Dworkin 2008; Near and Miceli 1996) and the social-information processing framework (Gundlach, Douglas, and Martinko 2003). The theory of pro-social organisational behaviour posits that an individual's decision to blow the whistle is generally directed to benefit an individual, group or organisation, and is weighed by the pros and cons of whistle-blowing (Dozier and Miceli 1985). The social information-processing framework explains that an individual's decision to blow the whistle is influenced by emotions and cognitions that are a result of processing information from the social environment (Gundlach, Douglas, and Martinko 2003; Gundlach, Martinko, and Douglas 2008).

Early research viewed internal and external whistle-blowing as related phenomena (Near and Miceli 1996). Prior reviews (Mesmer-Magnus and Viswesvaran 2005; Miceli and Near 1992, 2005; Miceli, Near, and Dworkin 2008; Near and Miceli 1996; Vadera, Aguilera, and Caza 2009) generally do not differentiate between the predictors of internal and external whistle-blowing. A review by Miceli and Near (2005, 106), however, raised the issue of: whether all types of whistle-blowing are predicted by the same variables, or whether the different types of whistle-blowing be examined separately. To this end, the studies reviewed here are categorised into general,[27] internal,[28] and external whistle-blowing studies based on the

[27] A study is classified as a 'general' whistle-blowing study when the whistle-blowing measure either does not distinguish between internal or external whistle-blowing, or uses a composite measure that captures both internal and external whistle-blowing. As reported in Appendix 3.2, the findings of studies that employed a general measure of whistle-blowing are generally comparable to internal

whistle-blowing measure employed, as illustrated in Appendix 3.1. The empirical findings of the association between whistle-blowing and the characteristics of the whistle-blower, the misconduct and the wrongdoer, the societal and legislative environments, and the organisation are summarised in Panels A, B, C and D of the table in Appendix 3.2, respectively.

Association between characteristics of the whistle-blower and whistle-blowing

Research has generally found that internal and external whistle-blowers have neither a 'typical' demographic profile (Cassematis and Wortley 2013; Rothschild and Miethe 1999) nor distinctive personality traits[29] (Bjørkelo, Einarsen, and Matthiesen 2010; Bocchiaro, Zimbardo, and Van Lange 2012; Park, Blenkinsopp, and Park 2014). Studies do find that internal reporting and external whistle-blowing are higher when the whistle-blower has favourable attitudes towards whistle-blowing (Ellis and Arieli 1999; Lin and Ding 2003; Trongmateerut and Sweeney 2013). Internal reporting is also higher when whistle-blowers are proactive (Cassematis and Wortley 2013; Miceli et al. 2012; Zhang, Pany, and Reckers 2013), have a higher level of moral or ethical reasoning and judgement (Arnold and Ponemon 1991; Brabeck 1984; Chiu and Erdener 2003; Keil and Park 2010; King and Hermodson 2000), and perceive greater responsibility (Keil and Park 2010; Schultz et al. 1993; Sonnier 2013) or ability (Jones, Spraakman, and Sánchez-Rodríguez 2014; MacNab and Worthley 2008) to blow the whistle. There are comparatively fewer studies to summarise the association of these factors on external whistle-blowing. Together, research suggests that (i) neither socio-demographics nor personality traits affect the decision to blow the whistle, and (ii) pro-social traits and favourable attitudes towards whistle-blowing generally encourage whistle-blowing.

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whistle-blowing studies. Given that individuals generally prefer and believe that internal whistle-blowing is more appropriate than external whistle-blowing (Bjørkelo et al. 2011; Callahan and Collins 1992; Chung, Monroe, and Thorne 2004; Near and Miceli 2008; Smith 2010; Somers and Casal 1994), respondents arguably indicated internal whistle-blowing intentions or behaviours when presented with a general measure of whistle-blowing. Accordingly, in the following discussion, studies that employed a general measure of whistle-blowing are regarded 'internal' whistle-blowing studies.

[28] Consistent with prior reviews on whistle-blowing (Mesmer-Magnus and Viswesvaran 2005; Near and Miceli 1996; Vadera, Aguilera, and Caza 2009), peer reporting studies are included in this review because peer reporting is considered a form of whistle-blowing (Treviño and Victor 1992). Specifically, peer reporting studies are classified as 'internal' whistle-blowing studies in this review because peer reporting is considered a specific type of internal whistle-blowing (Loyens 2013).

[29] Bocchiaro, Zimbardo, and Van Lange (2012) suggested that a possible explanation for the lack of predictive power of personality traits is due to the stronger effects of situational factors.

Association between characteristics of the misconduct and wrongdoer, and whistle-blowing

Whistle-blowers are more likely to report internally and externally when misconduct is of a greater severity (Callahan and Dworkin 1994; Curphy et al. 1998; Long et al. 2013; Schultz et al. 1993) and more frequent (Douhou, Magnus, and Van Soest 2012; Lee, Heilmann, and Near 2004). Whistle-blowers are less likely to report internally when the wrongdoer is powerful (Gao, Greenberg, and Wong 2014; Skivenes and Trygstad 2010; Taylor and Curtis 2013), more likeable and relationally closer to the whistle-blower (Curphy et al. 1998; Hwang et al. 2008; King 1997; Waytz, Dungan, and Young 2013). There are comparatively fewer studies on external whistle-blowing to summarise the association between the characteristics of the wrongdoer and external whistle-blowing. Together, research suggests the decision to blow the whistle, internally or externally, is influenced by the severity and frequency of misconduct; and a powerful and likeable wrongdoer reduces internal reporting.

Association between societal and legislative support, and whistle-blowing

Whistle-blowers are more likely to report internally and externally when there is stronger societal support such as when subjective norms are supportive of whistle-blowing (Chen, Nichol, and Zhou 2013; Ellis and Arieli 1999; Izraeli and Jaffe 1998; Oh and Teo 2010; Richardson, Wang, and Hall 2012) and greater societal expectations to report misconduct (Feldman and Lobel 2008). Legislative support – such as protection for whistle-blowing (Seifert and Stammerjohan 2008; Sonnier 2013; Sonnier and Lassar 2013), provision of financial rewards (Bowen, Call, and Rajgopal 2010), or a leniency or rewards program (Bigoni et al. 2012; Hamaguchi, Kawagoe, and Shibata 2009; Hinloopen and Soetevent 2008) – also encourages both internal reporting and external whistle-blowing. Together, these studies suggest that societal support and legislative support are important to whistle-blowers.

Association between organisational characteristics and whistle-blowing

There are comparatively few studies that examine the influence of organisational economic characteristics and structure on whistle-blowing. Existing research generally suggests that

firm characteristics and structure do not affect internal reporting, while external whistle-blowing is more likely when firms are larger, growing, downsizing, have poorer external monitoring, and provide more rank and file stock options (Bowen, Call, and Rajgopal 2010; Call, Kedia, and Rajgopal 2012). There is more research on the influence of the organisational environment. These studies have found that internal reporting is greater and external whistle-blowing is lower when there is open communication (Kaptein 2011; Miceli and Near 1985; Richardson, Wheeless, and Cunningham 2008), greater organisational support for whistle-blowing (Cassematis and Wortley 2013; Long et al. 2013; Miceli et al. 2012; Stansbury and Victor 2009), and an ethical (Bhal and Dadhich 2011; Thoroughgood, Hunter, and Sawyer 2011) and anti-retaliatory organisational climate (Arnold and Ponemon 1991; Callahan and Dworkin 1994; Kaplan et al. 2012; Liyanarachchi and Newdick 2009; Near, Baucus, and Miceli 1993). Together, these findings suggest that organisational characteristics generally have different effects on internal and external whistle-blowing.

While most studies generally examine the predictors of either internal reporting *or* external whistle-blowing, recent studies have examined whether the same predictors affect *both* the decision to report internally and externally. These studies have found that the predictors of internal reporting and external whistle-blowing are not always the same. For example, Park and Blenkinsopp (2009) documented that attitudes, subjective norms, and perceived behavioural control increase internal reporting, yet only subjective norms increase external whistle-blowing. Feldman and Lobel (2008) documented that perceptions of a positive response from management to the whistle-blowing report increase internal reporting and decrease external whistle-blowing. Brink, Lowe, and Victoravich (2013) found that evidence strength does not affect internal reporting, but increases external whistle-blowing. Kaptein (2011) examined eight dimensions of ethical culture and found that the effects on internal and external whistle-blowing were different for all eight dimensions. Together, these studies provide evidence of differences between internal reporting and external whistle-blowing, raising the question of: when do whistle-blowers report externally rather than internally.

3.2.2 The predictors of whistle-blowing externally as compared to internally

There is a need to understand the whistle-blower's choice of reporting channel because the reporting channel matters to firms. Internal reporting is advantageous to firms because it provides an opportunity for them to correct the misconduct in a timely manner and minimise the costs of the misconduct (Barnett, Cochran, and Taylor 1993; Berry 2004). In contrast, firms subjected to an external whistle-blowing allegation potentially face negative publicity, regulatory investigations and legal liability (Barnett, Cochran, and Taylor 1993), which can lead to detrimental consequences to the firm, such as negative stock return and operating performance, and a greater likelihood of a lawsuit (Bowen, Call, and Rajgopal 2010).

A study by Dworkin and Baucus (1998) highlighted differences between internal and external whistle-blowers. Specifically, they examined 33 legal cases involving internal reporting or external whistle-blowing and found that compared to internal whistle-blowers, external whistle-blowers have less organisational tenure, greater evidence of wrongdoing, experienced more extensive retaliation, and were more effective in changing organisational practices. Since then, a few recent studies have provided additional insights of circumstances that affect the choice of reporting channel by examining the factors that affect external whistle-blowing in comparison to internal reporting. A summary of these studies is presented in Table 3.1.

In comparison to whistle-blowers who reported internally, external whistle-blowers are less educated (Skivenes and Trygstad 2010), have lower levels of organisational loyalty and commitment (Chen and Lai 2014; Donkin, Smith, and Brown 2008), and have higher levels of interpersonal helping and individual initiative (Donkin, Smith, and Brown 2008). Whistle-blowers are also more likely to report externally than internally when they have lower trust in management (Donkin, Smith, and Brown 2008), perceive lower social pressure and greater potential harm (Chen and Lai 2014), and when the wrongdoer has a better performance reputation (Robertson, Stefaniak, and Curtis 2011).

Table 3.1: Studies that compare external whistle-blowing to internal reporting

Study	Variables of interest	Research methodology	Findings
Dworkin and Baucus (1998)	**Characteristics of the whistle-blower and misconduct:** Organisational tenure, gender, level of education or skills, type of misconduct (physical, economic or psychological harm), and evidence.	Analysis of 33 legal cases of internal and external whistle-blowers	As compared to internal whistle-blowers, external whistle-blowers have less tenure with the organisation and greater evidence supporting their reports of wrongdoing
Donkin, Smith, and Brown (2008)	**Characteristics of the whistle-blower:** Interpersonal helping, individual initiative, personal industry, loyal boosterism, and trust in management	Survey of 2,052 Australian public sector employees	As compared to internal whistle-blowers, external whistle-blowers have higher levels of interpersonal helping, individual initiative, lower levels of loyal boosterism and lower trust in management.
Skivenes and Trygstad (2010)	**Characteristics of the whistle-blower and misconduct:** Education, level of employment, hours of work, unionisation, manager, union representative, contact with supervisor, contact with employee representative, and position of wrongdoer	Survey of 276 Norwegian employees	Whistle-blowers who are highly educated are less likely to report externally, rather than internally.
Robertson, Stefaniak, and Curtis (2011)	**Characteristics of the wrongdoer:** Wrongdoer likeability reputation, and wrongdoer performance reputation	Experiment involving 181 senior auditors	In a supplementary analysis, Robertson, Stefaniak and Curtis (2011) found that whistle-blowers are more likely to report internally, rather than externally, when the wrongdoer has a poorer performance reputation.
Chen and Lai (2014)	**Characteristics of the whistle-blower, and misconduct:** Moral intensity (potential harm and social pressure), and organisational commitment.	Survey (scenario-based questionnaire) involving 533 participants with work experience	As compared to internal whistle-blowing, organisational commitment and social pressure decreases external whistle-blowing while potential harm increases external whistle-blowing. A higher level of social pressure reduces the use of external channels when organisational commitment is low. When perceived potential harm is high, a higher (lower) level of organisational commitment increases the use of internal (external) channels.

In summary, studies on whistle-blowing tend to focus on when individuals blow the whistle or not. There are comparatively fewer studies that examine under what circumstances whistle-blowers use an external, rather than internal, reporting channel. Studies that compare external whistle-blowing to internal reporting generally examine the characteristics of the whistle-blower and the wrongdoer. Understanding when whistle-blowers report externally rather than internally is important because external whistle-blowing is generally less desirable to firms (Bowen, Call, and Rajgopal 2010). Accordingly, this study seeks to build understanding of when whistle-blowers report using an external, compared to internal, reporting channel. Specifically, this study extends prior research by focusing on organisational and institutional factors because studies have found that organisational and institutional factors affect the decision to report misconduct.

3.3 Determinants of external whistle-blowing in comparison to internal reporting

This section discusses the circumstances under which whistle-blowers are potentially more likely to report externally rather than internally.[30] Prior research identifies that the characteristics related to the misconduct, legislative environment and organisation affect the decision to blow the whistle. It can likewise be expected that the incentives and opportunities of reporting using an external, compared to internal, reporting channel are associated with the characteristics of the misconduct, legislative environment and organisation.

3.3.1 Legislative environment

External immunity policy

Financial incentives encourage external whistle-blowing (Bowen, Call, and Rajgopal 2010). In Australia, monetary incentives are not offered to external whistle-blowers; however the Australian Competition and Consumer Commission (ACCC) does provide an immunity policy that indemnifies an individual (or company) against penalties when reporting cartel misconduct. Such a policy is likely to increase the incentive to report externally as compared

[30] The analysis is restricted to observable measures, thus the results must be interpreted with respect to this limitation. The evidence with observable measures can, however, provide insights regarding whistle-blowing in practice that can then be examined using experimental methods.

to internally. This study predicts a greater likelihood that financial misconduct results in external whistle-blowing as compared to internal reporting when there is provision of an external whistle-blowing immunity policy.

3.3.2 Characteristics of the misconduct

Power of the perpetrator

Perpetrators with greater power relative to the whistle-blower are more likely to be successful in hindering an internal investigation of the reported misconduct. When the perpetrator is a powerful individual within the organisation, the organisation is also less likely to address the problem willingly or to protect the whistle-blower because of greater reliance on the perpetrator (Near and Miceli 1995; Rehg et al. 2008). The perceived or actual lack of responsiveness of reporting internally can make external whistle-blowing more favourable. This study predicts a greater likelihood that financial misconduct results in external whistle-blowing in comparison to internal reporting when the alleged financial misconduct is perpetrated by an individual in top management.

Collusion

When multiple perpetrators within the company collude to perpetrate fraud, the higher complexity of the fraud can render internal controls and external monitoring less effective (Kranacher, Riley, and Wells 2010), and misconduct is likely to be better concealed. When misconduct is better concealed, the lack of evidence can decrease the responsiveness of management in addressing misconduct. The presence of multiple perpetrators can further increase the risk of retaliation. As such, there are more incentives and opportunities for a whistle-blower to report misconduct to an external party. This study predicts a greater likelihood that financial misconduct results in external whistle-blowing as compared to internal reporting when there is collusion.

Misconduct perpetrated internationally

When misconduct is perpetrated at a relatively far distance from the corporate head office, internal reporting channels are likely to be less clear, and thereby increase external whistle-blowing (Bowen, Call, and Rajgopal 2010). Whistle-blowers may also perceive less effective protection from management for internal reporting when misconduct is perpetrated at a further distance relative to the corporate head office. The barriers to internal reporting and the increased fear of retaliation are likely to reduce internal reporting and in turn, increase external whistle-blowing. This study predicts a greater likelihood that financial misconduct results in external whistle-blowing in comparison to internal reporting when misconduct is perpetrated internationally relative to the location of the head office.

3.3.3 Organisational factors

Variable compensation

Management implement more effective internal control systems when a greater proportion of management compensation is tied to the company's performance (Henry, Shon, and Weiss 2011). As such, providing greater variable compensation to management is likely to be associated with the implementation of a more effective internal reporting system, and thereby potentially reduces external whistle-blowing. When management compensation is tied to the company's performance, there is also a disincentive to blow the whistle externally (Call, Kedia, and Rajgopal 2012) as the damaging costs of external whistle-blowing to a firm (Bowen, Call, and Rajgopal 2010) can negatively affect remuneration.[31] This study predicts a lower likelihood that financial misconduct results in external whistle-blowing, compared to internal reporting, when there is greater variable compensation to management.

[31] The proportion of variable compensation to management is also likely to be representative of variable compensation to lower-level employees. Due to limited disclosure of employee share options in Australia prior to the introduction of AASB 2 Share-based Payment in 2005, there are insufficient data to examine variable compensation to lower-level employees.

Protection from retaliation

Studies have found that perceived or actual retaliation reduces internal reporting (Cassematis and Wortley 2013; Liyanarachchi and Newdick 2009; Mayer et al. 2013) and increases external whistle-blowing (Callahan and Dworkin 1994; Oh and Teo 2010). When management provides protection against retaliation to whistle-blowers who make an internal report, this is likely to reduce the risks and costs of internal reporting. In contrast, whistle-blowers are likely to perceive a greater risk of retaliation when there is a lack of protection by management and in turn, report externally.[32] This study predicts a lower likelihood that financial misconduct results in external whistle-blowing in comparison to internal reporting when there is corporate protection for internal reporting.

Internal reporting policy

The provision of a corporate internal reporting policy provides an opportunity to report misconduct internally, increases perceptions of organisational support for whistle-blowing (Keenan 1990) and confidence in reporting misconduct (Brennan and Kelly 2007). As a formal reporting structure can help ease the burden and difficulties of internal reporting by facilitating the internal reporting process, this reduces the costs of internal reporting and comparatively increase the costs of external whistle-blowing. Given that a corporate internal reporting policy increases the relative costs of external whistle-blowing, it is predicted that the provision of such a policy will reduce the likelihood that financial misconduct results in external whistle-blowing in comparison to internal reporting.

Employees

Employees are dependent on their company for job security and wages (Parkinson 2003), and may be remunerated based on the performance of the company. As such, as compared to non-employees, employees are more likely to have greater concern for a company's reputation,

[32] While retaliation could also potentially reduce external whistle-blowing, prior findings are not consistent with such an expectation. Specifically, Rehg et al. (2008, 277) noted that, 'If retaliation discouraged external reporting, one would expect to find a negative relationship between retaliation and external whistle-blowing...Yet none of the studies' findings were consistent with this expectation.'

performance and survival. There are greater benefits for an employee to report internally because internal reporting allows management to address financial misconduct in a timely manner, thereby minimising the costs to the company. Employees further face a greater cost of reporting externally because their act may be perceived by organisational members as dissent for violating the duty of loyalty to the company (Duska 1990; Varelius 2009). Employees who report externally may perceive a greater risk of being labelled a 'snitch', and may experience hostile reactions from other organisational members. Given that it is relatively more costly for employees to report externally, this study predicts that employees are less likely to blow the whistle externally.

3.4 Research method and sample

This section presents the research method and sample. Section 3.4.1 describes the research methodology of this study. Section 3.4.2 describes the measurement of variables and Section 3.4.3 presents the research model. Section 3.4.4 describes the sample. Section 3.4.5 provides descriptive of internal reporting and external whistle-blowing cases in the sample and Section 3.4.6 provides descriptive statistics of the sample.

3.4.1 Research methodology

This study adopts the archival approach employed by Bowen, Call, and Rajgopal (2010) and constructs a sample by gathering cases of financial allegations reported in the press. Few studies on whistle-blowing use archival data.[33] A recent study by Bowen, Call, and Rajgopal (2010) employ this approach to examine firm-level characteristics that influence external

[33] Most studies on whistle-blowing employ surveys and experiments. However, researchers have raised methodological concerns such as social desirability bias and the use of hypothetical scenarios that can threaten internal and external validity (Miceli and Near 1992; Miceli, Near, and Dworkin 2008). Survey and experimental studies also typically measure whistle-blowing intentions rather than actual whistle-blowing. This is a significant limitation because the predictors of whistle-blowing intentions do not necessarily predict actual whistle-blowing behaviour (Mesmer-Magnus and Viswesvaran 2005). An archival approach potentially provides more objective evidence than a survey or experimental approach. Studies on whistle-blowing that have employed archival data include Bowen, Call, and Rajgopal (2010), Call, Kedia, and Rajgopal (2012), Dworkin and Baucus (1998) and Dyck, Morse, and Zingales (2010).

whistle-blowing in comparison to non-reporting cases.[34] The use of press reports allows an examination of actual whistle-blowing cases which helps mitigate the limitation in surveys or experiments that capture whistle-blowing intentions, and avoids possible self-report biases associated with surveys and experiments (Dworkin and Baucus 1998). This study extends Bowen, Call, and Rajgopal (2010) by benchmarking external whistle-blowing to internal reporting cases using this archival approach.

The press plays an important role as a monitor of fraud in companies (Cohen et al. 2010, 277) and provides new information on financial allegations above and beyond that obtained from other sources (Miller 2006, 1029). However, the use of financial allegations reported in the press creates a potential bias towards misconducts that were perpetrated in larger companies and misconducts that are more sensational (Bowen, Call, and Rajgopal 2010; Miller 2006). While the size of the company and reported magnitude of the alleged misconduct are included in the analysis, the results must still be interpreted with regard to this potential source of bias.

A key difference between this study and that of Bowen, Call, and Rajgopal (2010) is while they examined only employee whistle-blowing, this study examines both employee and non-employee whistle-blowing because non-employees play an important role as whistle-blowers.[35] Johnson et al. (2004) contend that '[o]rganizations increasingly rely on extensive relationships and networks of external groups and agencies... Information about problems or wrongdoings is, therefore, increasingly likely to come from within these networks' (353). The introduction of legislation – such as the *Dodd-Frank Act (2010)* in the US and immunity for reporting on cartel misconduct in Australia and the UK – also encourages non-employees to blow the whistle. The growing recognition of non-employees as an important source of whistle-blowing is such that regulatory agencies such as ASIC have advocated the expansion

[34] Bowen, Call, and Rajgopal (2010) found that external whistle-blowing is more likely when firms are larger, growing, more successful, and have weaker corporate governance.

[35] Non-employees are often an important source of whistle-blowing reports. For example, Dyck, Morse, and Zingales (2010) found that 82 percent of external whistle-blowers were non-employees, and Read and Rama (2003) found that 36 percent of internal auditors had received an internal report from non-employees.

of whistle-blowers to include non-employees such as financial advisers, auditors and business partners that are likely to witness misconduct (ASIC 2013). Accordingly, this thesis extends Bowen, Call, and Rajgopal (2010) to consider non-employee whistle-blowing. The factors that drive employee and non-employee whistle-blowing may, however, be different (Miceli and Near 2013). As a test of robustness, the predictors of employee and non-employee whistle-blowing are also separately examined in the later analysis. The next section describes the measurement of variables in this study.

3.4.2 Measurement of variables

Dependent variable

The dependent variable measures whether a financial allegation results in external whistle-blowing or internal reporting. An indicator variable (EXTWB) is coded '1' if the alleged financial misconduct was referenced in the press to result in external whistle-blowing, and '0' when referenced to result in internal reporting. The classification of internal reporting and external whistle-blowing cases is described in Section 3.4.4.

Variables of interest

This study predicts a greater likelihood that financial misconduct results in external whistle-blowing in comparison to internal reporting when there is an external whistle-blowing immunity policy, when the perpetrator has greater power, when there are multiple perpetrators, and when misconduct is perpetrated internationally relative to the location of the head office. The ACCC first implemented its leniency and immunity policy for whistle-blowing on cartel misconduct in the year 1998. An indicator variable (IMMUNITY) is coded '1' for price-fixing allegations from the year 1998 that were reported in the press, and '0' otherwise. An indicator variable (PWRPERP) captures the power of the perpetrator and is coded '1' if the alleged financial misconduct was perpetrated by an individual in top management[36] as reported in the press, and '0' otherwise. An indicator variable (COLLUDE)

[36] Top management includes executives and directors, as referenced in press reports.

captures collusion and is coded '1' if more than one individual perpetrated the alleged misconduct as reported in the press, and '0' otherwise. An indicator variable (INTNL) captures the location of the misconduct, and is coded '1' if the alleged financial misconduct was perpetrated internationally relative to the domicile of business headquarters as reported in the press, and '0'otherwise.

This study predicts a lower likelihood that financial misconduct results in external whistle-blowing in comparison to internal reporting when there is greater variable compensation to top management, a corporate reporting policy, corporate protection for internal reporting, and when the whistle-blower is an employee. The proportion of management's variable compensation (VARCOMP) is measured as the proportion of the top five executives' remuneration that is variable over total remuneration, the year prior to the financial allegation. The variable portion of total remuneration is calculated by total remuneration less fixed salary, fixed non-cash benefits and superannuation. An indicator variable (COPROT) is coded '1' if protection for whistle-blowing is disclosed in the annual report of the year prior to the financial allegation, and '0' otherwise. An indicator variable (COPOLICY) is coded '1' if the company provided a corporate internal reporting policy as reported in the annual report, the year prior to the financial allegation, and '0' otherwise. Data on top executives' compensation, provision of a reporting policy and disclosure of corporate protection are sourced from the annual reports obtained from Morningstar's DatAnalysis and the Connect 4 database. An indicator variable (EMPLOY) is coded '1' if the whistle-blower was an employee of the company, as reported in the press, and '0' otherwise.

Control variables

The control variables include variables in the model developed by Bowen, Call, and Rajgopal (2010).[37] External whistle-blowing is greater when firms are larger, have higher growth,

[37] The model employed in Bowen, Call, and Rajgopal (2010) included capital market pressure, external monitoring, firm reputation, downsizing and internal control weaknesses. Due to the small sample, the number of explanatory variables that could be included in the model of this study is restricted. The model was re-estimated using alternate model specifications in which different control variables were

stronger past stock market performance, and have unclear internal communication channels (Bowen, Call, and Rajgopal 2010). Firm size (SIZE) is measured as the logarithm of total assets in dollars, the year prior to the financial allegation. Firm growth (GROWTH) is measured by the average change in revenue over the past three years prior to the financial allegation.[38] Stock market performance (PASTPERF) is measured as the market-adjusted buy-and-hold returns over the past one-year prior to the financial allegation. Unclear internal communication channels (UNCLRCH), as estimated in Bowen, Call, and Rajgopal (2010), is the average scaled rank of AGE, INDCONC and GEOCONC. AGE is the number of years that the firm has been listed on the ASX, as of the year of the financial allegation; INDCONC is the one minus industry segment-sales based Herfindahl index, the year prior to the financial allegation; and GEOCONC is the one minus geographical segment-sales based Herfindahl index, the year prior to the financial allegation.[39] Data for total assets, share returns, revenue, listing date on the ASX, number and revenues of a firm's business and geographical segments are obtained from Morningstar's DatAnalysis and the Connect 4 database.

External whistle-blowing increases with the severity of misconduct (Callahan and Dworkin 1994; Rehg et al. 2008). The severity of fraud is included as a control variable (FRDAMT), as measured by the logarithm of fraud amount in dollars, as reported in the press. Weaker corporate governance can increase external whistle-blowing (Bowen, Call, and Rajgopal 2010). As outside directors on the board increases the effectiveness of monitoring (Brickley and James 1987; Byrd and Hickman 1992; Weisbach 1988), the proportion of independent

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substituted for the capital market pressure and external monitoring measures. The untabulated results indicate that there are no significant associations for the capital market pressure and external monitoring measures. There are insufficient or unavailable data to include variables for firm reputation, downsizing and internal control weaknesses in this study. These variables were generally not found to be significant in the press sample employed by Bowen, Call, and Rajgopal (2010).

[38] Due to the nature of a firm's operation, sales revenue can vary significantly for some companies (such as mining companies). To mitigate the potential influence of extreme values, the GROWTH variable is winsorised at the ninety-ninth percentile. The models are re-estimated without winsorised, and the untabulated results indicate that the primary results are robust to the effects of winsorised.

[39] The Herfindahl index is computed by taking the sum of the squares of each segment's sales as a percentage of a firm's total sales.

directors[40] on the board (OUTDIR) is included as a control variable. By monitoring, auditing and reviewing the financial accounts of a company, the external auditor plays a role in preventing and detecting fraud (Moyes and Hasan 1996). To control for audit quality, an indicator variable (BIG4) captures whether or not a company was audited by a Big 4 auditor. Data on board size, number of independent directors and external auditor are obtained from annual reports in the Morningstar's DatAnalysis and the Connect 4 database.

3.4.3 Research model

As the dependent variable is a dichotomous variable,[41] a logistic regression is employed. This study models the likelihood that financial misconduct results in external whistle-blowing based on the aforementioned proxies, and include industry (based on two-digit Global Industry Classification Standard [GICS] sector code) fixed effects. The following model is estimated (with firm and year subscripts suppressed):

$$\begin{aligned}\Pr(\text{EXTWB}) = {} & \beta_0 + \beta_1\,\text{IMMUNITY} + \beta_2\,\text{PWRPERP} + \beta_3\,\text{INTNL} + \beta_4\,\text{COLLUDE} + \\ & \beta_5\,\text{VARCOMP} + \beta_6\,\text{COPROT} + \beta_7\,\text{COPOLICY} + \beta_8\,\text{EMPLOY} + \beta_9\,\text{SIZE} + \\ & \beta_{10}\,\text{GROWTH} + \beta_{11}\,\text{PASTPERF} + \beta_{12}\,\text{UNCLRCH} + \beta_{13}\,\text{FRDAMT} + \\ & \beta_{14}\,\text{OUTDIR} + \beta_{15}\,\text{BIG4} + \textstyle\sum_{k=1}^{9} \beta_{16,k}\,\text{INDUSTRY} + \varepsilon \qquad (1)\end{aligned}$$

where,

EXTWB = indicator variable coded '1' if the alleged financial misconduct was referenced in the press to result in external whistle-blowing and '0' when referenced to result in internal reporting.

IMMUNITY = indicator variable coded '1' if the firm was subjected to a policy provided by the ACCC that grants immunity to the first member of a cartel that blows the whistle to the ACCC from 1998, and '0' otherwise.

PWRPERP = indicator variable coded '1' if the alleged financial misconduct was perpetrated by an individual in top management as reported in the press, and '0' otherwise.

INTNL = indicator variable coded '1' if the alleged financial misconduct was perpetrated internationally relative to the domicile of business headquarters as reported in the press, and '0' otherwise.

[40] An independent director is defined as one who is a non-executive and without any related party transactions with the firm (Koh, Laplante, and Tong 2007).

[41] An alternate model that accounts for the dichotomous nature of the dependent variable is a probit model. The difference between a logit and probit model is that the logit model uses a logistic cumulative distribution function whereas the probit model assumes a normal cumulative distribution function. The logit and probit models generally produce similar substantive results (Cameron and Trivedi 2005; Long 1997). As a test of robustness, the model is estimated with a probit regression. Untabulated results indicate that the primary results are not sensitive to the use of a probit specification.

COLLUDE = indicator variable coded '1' if the alleged misconduct was perpetrated by more than one individual as reported in the press, and '0' otherwise.

VARCOMP = proportion of top five executives' total remuneration that is variable as reported in the annual report, for the year prior to the financial allegation.

COPROT = indicator variable coded '1' if protection for whistle-blowing is disclosed in the annual report of the year prior to the financial allegation, and '0' otherwise.

COPOLICY = indicator variable coded '1' if the company provided a corporate internal reporting policy as reported in the annual report, the year prior to the financial allegation, and '0' otherwise.

EMPLOY = indicator variable coded '1' if the whistle-blower was an employee of the company, as reported in the press, and '0' otherwise.

SIZE = logarithm of total assets in dollars, for the year prior to the financial allegation.

GROWTH = average change in revenue over the past three years prior to the financial allegation.

PASTPERF = market-adjusted buy-and-hold returns over the past one-year prior to the financial allegation.

UNCLRCH = average scaled rank of AGE, INDCONC, and GEOCONC as estimated in Bowen, Call, and Rajgopal (2010), where AGE = number of years that the firm has been listed on the ASX as of the year of the financial allegation, INDCONC = one minus the industry segment-sales based Herfindahl index for the year prior to the financial allegation, and GEOCONC = one minus the geographical segment-sales based Herfindahl index for the year prior to the financial allegation.

FRDAMT = logarithm of fraud amount in dollars as reported in the press.

OUTDIR = proportion of independent directors on the board as reported in the annual report, for the year prior to the financial allegation.

BIG4 = indicator variable coded '1' if the firm was audited by a Big 4 auditor the year prior to the financial allegation, and '0' otherwise.

INDUSTRY = indicator variables controlling for industry fixed effects, based on two-digit GICS sector code.

3.4.4 Sample

The sample is constructed by gathering cases of financial allegations in listed Australian companies that were reported in the press (Bowen, Call, and Rajgopal 2010). The cases were collected by conducting searches on Factiva using terms such as 'fraud', 'financial fraud', 'theft', 'misappropriation', 'corruption', 'defraud', 'bribery', 'kickbacks', 'rort', 'insider trading', 'money laundering', 'corporate fraud' and 'fraudulent reporting'. The searches covered the entire text of the news article, and the sample period was from 1992 to 2013. Additional information on financial allegations was also sourced from the ASIC website and from searches of company announcements made to the ASX in order to corroborate and refine the data.

For each financial allegation, related news articles were sourced and read to identify when the financial misconduct was alleged, the type of alleged financial misconduct,[42] how the misconduct was uncovered, the perpetrator(s), the cost of misconduct, and the location where the misconduct occurred. These items were coded for use in subsequent analyses.[43] Whenever there was a discrepancy in articles (such as the date of allegation, amount of misconduct or detection method), the most recent news article was used to code data. Arguably, as the amount of information uncovered on an alleged financial misconduct increases over time, the facts reported in the most recent news articles are likely to be more accurate. Where an allegation involved more than one type of financial misconduct, the classification of financial misconduct was based on the principal misconduct, as reported in the press.[44]

From press reports of alleged financial misconduct, cases of external whistle-blowing and internal reporting were identified. Figure 3.1 illustrates the types of whistle-blowing events captured in the sample. An allegation is attributed as external whistle-blowing when the whistle-blower reported misconduct outside the organisation to external parties such as the media, regulators or parliamentary members, as referenced in the press. External whistle-blowing involves either an allegation that was preceded by an unsuccessful attempt at internal reporting, or the whistle-blower directly disclosing an allegation outside the organisation. This classification – that external whistle-blowers could either have initially used an internal channel, or directly used an external channel – is consistent with Dworkin and Baucus (1998). Bowen, Call, and Rajgopal (2010) similarly stated that external whistle-blowing 'involves either an internal allegation becoming public or the whistle-blower directly disclosing an allegation outside the organisation' (1242). Illustrative examples of external whistle-blowing events identified from press reports are provided in Appendix 3.3.

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[42] An alleged wrongdoing was classified as a financial allegation based on the fraud classification by ACFE (2010).

[43] To verify the coding, an independent coder also classified a sub-sample of 10 percent of the observations. The resulting inter-rater reliability for the raters was found to be Kappa = 0.848 (p = 0.000), indicating a reasonably high level of agreement (Landis and Koch 1977).

[44] For example, one financial allegation involved a perpetrator misusing company's funds to bribe a supplier. In this case, the allegation was classified by the primary misconduct reported – 'bribery', instead of 'misuse of funds'.

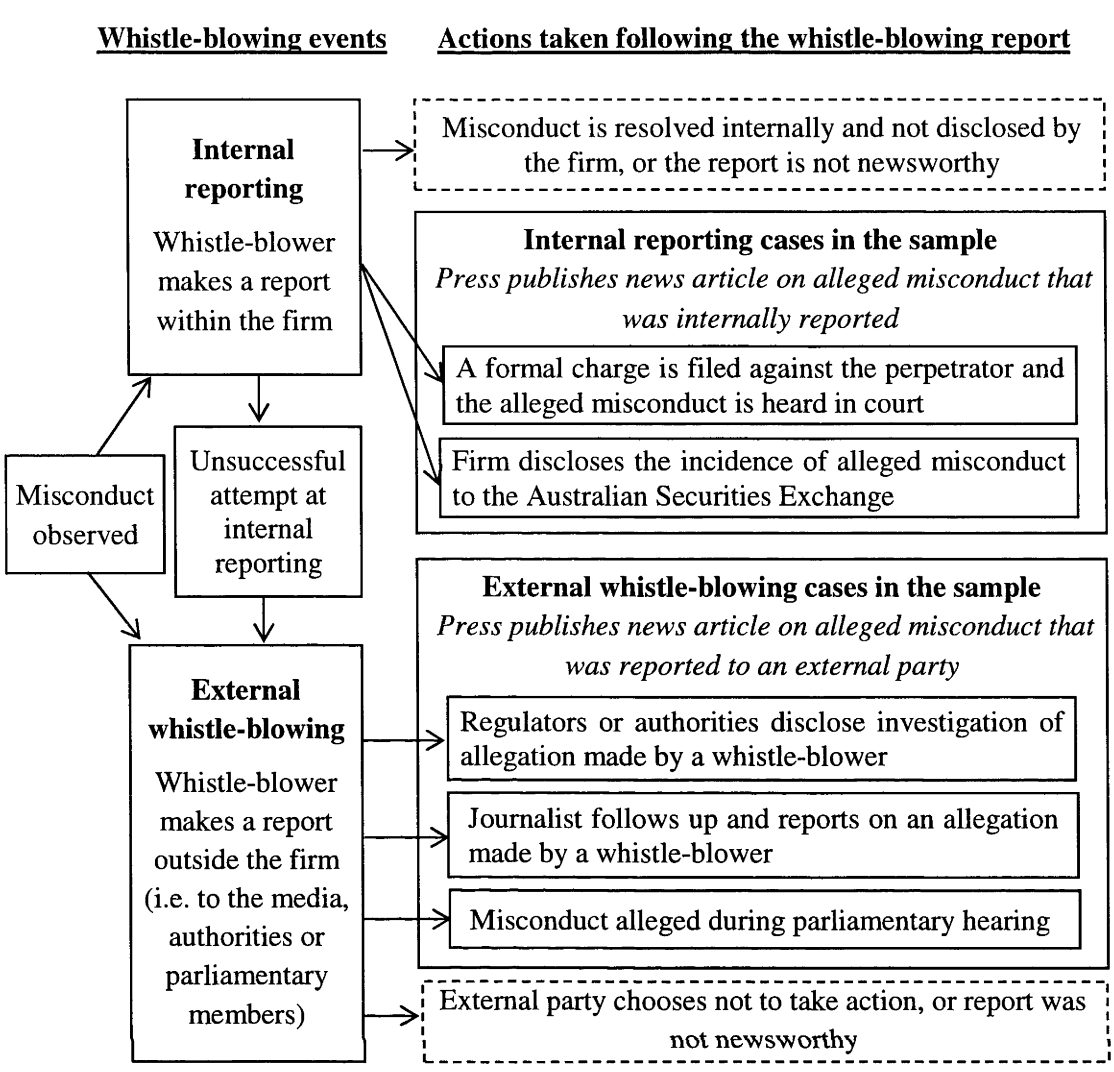


Figure 3.1: Types of whistle-blowing events captured in the sample

Note 1: Dashed-line boxes indicate that these allegations are not observable from press reports.

Note 2: The cases classified as external whistle-blowing involve the whistle-blower reporting an alleged financial misconduct to an external party. External whistle-blowing involves either an allegation that was preceded by an unsuccessful attempt at internal reporting, or the whistle-blower directly disclosing an allegation outside the organisation. The cases classified as internal reporting, while publically observable, do not involve the whistle-blower reporting to an external party.

An allegation is attributed as an internal report if the allegation was referenced in the press report as having stemmed from an internal tip, audit, review or internal investigation, or otherwise being uncovered internally by the company. These cases, while publically observable, do not involve the whistle-blower reporting to an external party, as referenced in the press. As illustrated in Figure 3.1, internally reported misconduct is observable from press reports in two situations. First, internally reported misconduct is publically observable when

the press reports on ongoing court hearings revealing internally reported misconduct.[45] An example of an internally reported misconduct revealed in court and subsequently reported by the press is provided in Appendix 3.4. Second, an internally reported misconduct is observable when the press reports news stories following a firm's disclosure to the ASX about the incidence of an internally reported misconduct. An example of an internally reported misconduct that was disclosed to the ASX and subsequently reported by the press is provided in Appendix 3.5. A limitation is that there are clearly many unobservable internal reporting events not reported by the press. The allegations reported by the press are arguably more serious, substantiated and potentially biased towards more sensational financial misconduct perpetrated in larger firms (Miller 2006). The analysis controls for the size of the company and the reported magnitude of the financial allegation, but the results must still be interpreted with respect to this potential source of bias.

Table 3.2: Sample selection

Incidence of financial allegations reported in the press (1992 to 2013)	592
Less: Insufficient information on the alleged financial misconduct from reports	44
Less: Multiple financial allegations reported in a firm in the same year	50
Less: Unavailable financial data from the Morningstar and Connect 4 databases	32
Less: Allegations not attributed to external whistle-blowing or internal reporting	154
Sample size	312

This table describes the sample selection procedure. The initial 592 cases of alleged financial misconduct were gathered from press reports by conducting searches on Factiva using terms such as 'fraud', 'financial fraud', 'theft', 'misappropriation', 'corruption', 'defraud', 'bribery', 'kickbacks', 'rort', 'insider trading', 'money laundering', 'corporate fraud' and 'fraudulent reporting'. The final sample size consists of 312 firm-year observations of financial allegations reported in the press.

The sample selection is presented in Table 3.2. A total of 592 financial allegations were obtained from searches on Factiva. There was insufficient information on the alleged financial misconduct from press reports in 44 cases. There were instances in which a company experienced more than one allegation of financial misconduct in a given year. When there were multiple observations in the same year, only one financial allegation was retained in the

[45] The internal whistle-blowing events identified in the press reports as stemming from court hearings were corroborated by sourcing and reading case judgments obtained from the Lexis Nexis database.

sample.[46] Fifty financial allegations were excluded because of multiple observations. The financial data of independent variables were obtained from the Morningstar and Connect 4 databases and 32 allegations were excluded because of insufficient financial data. Lastly, 154 financial allegations that were not attributed to external whistle-blowing or internal reporting[47] were eliminated, thereby constraining the final sample to 312 observations. The sample size is comparable to studies that have examined financial allegations reported in the press.[48] Of the 312 financial allegations, most allegations resulted in internal reporting to management (215/312, 69 percent). The remaining 31 percent of allegations (97/312) resulted in external whistle-blowing. The percentage of external whistle-blowing cases in the sample is comparable to the rate of 39 percent reported among Australian public sector employees (Brown, Mazurski, and Olsen 2008).

3.4.5 Descriptive of whistle-blowing cases in the sample

Table 3.3 provides a summary of the frequency of financial allegations in the sample by industry. The majority of alleged financial misconduct was perpetrated in financial companies (36 percent) and by companies in the consumer staples (14 percent) and materials (13 percent) sectors. This finding is comparable to Sharma (2004), who found that fraud in Australian firms occurred most frequently within the financial services sector. The incidence of financial misconduct in the financial services, consumer staples and materials industries are not disproportionate to the capitalised value of these industries on the ASX.[49] An allegation was more likely to result in external whistle-blowing, as compared to internal reporting, in the

[46] As a sensitivity analysis, the model is re-estimated by substituting the cases chosen for inclusion for the excluded cases, and retaining all excluded cases. The results from these two analyses are qualitatively unchanged from the primary results of this study.

[47] The 154 excluded cases were allegations uncovered by authorities, such as domestic regulators, the police and overseas regulators (98 cases), and private litigation (56 cases). The external whistle-blowing cases identified in the sample are a conservative representation of external whistle-blowing events. ASIC have mentioned in their media releases that some of their investigations were conducted because of tips that came from the public. It is possible that some allegations attributed to the regulators were tip offs from employees or the public, but this information was not disclosed in the press.

[48] For example, Miller (2006) examined 263 fraud cases and Cohen et al. (2010) analysed 39 corporate scandals.

[49] Based on information obtained from the ASX's website, as of 30 March 2013.

materials (p = 0.016), information technology (p = 0.017) and telecommunication services (p = 0.045) industries, and less likely in the financial industry (p = 0.002).

Table 3.3: Financial allegations reported in the press by industry

Industry sector, by GICS code	No. of allegations	Industry's ASX market capitalisation[a]	External whistle-blowing (%)	Internal reporting (%)	Differences in proportion	
					Wilcoxon z-score	p-value
Energy	11 (4%)	7%	4 (4%)	7 (3%)	-0.384	0.701
Materials	40 (13%)	21%	19 (20%)	21 (10%)	-2.398*	0.016
Industrials	35 (11%)	6%	12 (12%)	23 (11%)	-0.433	0.665
Consumer Discretionary	38 (12%)	3%	12 (12%)	26 (12%)	-0.069	0.945
Consumer staples	45 (14%)	9%	11 (11%)	34 (16%)	-1.039	0.299
Health care	12 (4%)	4%	6 (6%)	6 (3%)	-1.441	0.150
Financials	113 (36%)	42%	23 (24%)	90 (42%)	-3.082**	0.002
Information technology	5 (2%)	1%	4 (4%)	1 (0%)	-2.378*	0.017
Telecommunication services	10 (3%)	5%	6 (6%)	4 (2%)	-2.004*	0.045
Utilities	3 (1%)	2%	0 (0%)	3 (1%)	-1.167	0.243
	312		97	215		

** Significant at the 1% level; * significant at the 5% level using a two-tailed test.

[a] Data on industry market capitalisation are sourced from Standard and Poors as at 30 March 2013.

Table 3.3 presents the number of financial allegations by industry, benchmarked against market capitalisation on the ASX.

Table 3.4: Initial party who blew the whistle on the alleged financial misconduct

Identity of whistle-blower	Full sample		External whistle-blowing		Internal reporting		Differences in proportion	
	No.	%	No.	%	No.	%	Wilcoxon z-score	p-value
Employee	217	70%	29	30%	188	87%	-10.207**	0.000
Customer/supplier	26	8%	10	10%	16	7%	-0.456	0.649
Competitor	24	8%	21	24%	3	1%	-6.204**	0.000
Investor/shareholder	5	2%	2	1%	3	1%	-0.433	0.665
Media [a]	22	7%	22	22%	0	0%	-7.231**	0.000
Other third parties	18	6%	13	13%	5	2%	-3.878**	0.000
Total	312 (100%)		97 (31%)		215 (69%)			

** Significant at the 1% level; * significant at the 5% level using a two-tailed test.

[a] Similar to Dyck, Morse, and Zingales (2010), the whistle-blower is attributed as the media when a press report does not credit any other actors as the whistle-blower.

Table 3.4 summarises the parties who blew the whistle on alleged financial misconduct, as reported in the press. A financial allegation was attributed as external whistle-blowing if it was referenced in the press report that the whistle-blower reported the misconduct to an external party such as the media, regulators, or parliamentary members. An allegation was attributed as internal reporting if the allegation was referenced in the press report to have been uncovered because of an internal tip, audit, review, or internal investigation, or otherwise uncovered internally by the company.

Table 3.4 summarises the party reported to have blown the whistle on financial misconduct. As would be expected, employees are more likely to report internally than externally ($p < 0.001$). Competitors ($p < 0.001$), the media ($p < 0.001$) and other third parties ($p < 0.001$) are more likely to blow the whistle externally than internally. Non-employees (such as customers, suppliers and the media) account for reporting 70 percent of external whistle-blowing cases. This is consistent with Dyck, Morse, and Zingales (2010) who documented that non-employees account for uncovering 82 percent of external whistle-blowing cases.

Table 3.5: Financial allegations reported in the press by type of financial misconduct

	Full sample		External whistle-blowing		Internal reporting		Differences in proportion	
Type of allegation	No.	(%)	No.	(%)	No.	(%)	Wilcoxon *z*-score	*p*-value
Bribery	24	8%	17	18%	7	3%	−4.371**	0.000
Fraudulent financial reporting	26	8%	14	14%	12	6%	−2.614**	0.009
Improper disclosure	11	4%	5	5%	6	3%	−1.046	0.295
Insider trading	6	2%	2	2%	4	2%	−0.120	0.905
Market manipulation	4	1%	1	1%	3	1%	−0.264	0.791
Misappropriation of funds or assets	166	53%	5	5%	161	75%	−11.407**	0.000
Misuse of funds	41	13%	23	24%	18	8%	−3.706**	0.000
Money laundering	2	1%	0	0%	2	1%	−0.951	0.341
Price-fixing	31	10%	30	31%	1	0%	−8.312**	0.000
Tax evasion	1	0%	0	0%	1	0%	−0.672	0.502
Total	312		97		215			

** Significant at the 1% level; * significant at the 5% level using a two-tailed Fisher's exact test.

Table 3.5 reports the type of alleged financial misconduct, as reported in the press. The coding of the type of alleged financial misconduct is described as follows. Bribery: An allegation was attributed as bribery if the perpetrator(s) engaged in taking or receiving monetary or non-monetary bribes; Fraudulent financial reporting: An allegation was attributed as fraudulent financial reporting if the perpetrator(s) engaged in the manipulation of financial accounts with the intent to mislead stakeholders about the company's economic performance; Improper disclosure: An allegation was attributed as improper disclosure if the perpetrator(s) fraudulently engaged in making false or deceptive statements with the intent to defraud; Insider trading: An allegation was attributed to insider trading if the perpetrator(s) fraudulently engaged in trading of shares, or had procured someone to trade on shares on their behalf, based on inside information; Market manipulation: An allegation was attributed as market manipulation if the perpetrator(s) fraudulently engaged in the trading of shares to create artificial, false or misleading appearances of the company's share price; Misappropriation of funds or assets: An allegation was attributed as misappropriation of funds or assets if the perpetrator(s) stole, siphoned off or embezzled money or other assets; Misuse of funds: An allegation was attributed to the misuse of funds if the perpetrator(s) used company's funds other than for its intended purposes; Money laundering: An allegation was attributed as money laundering if the perpetrator(s) engaged in money laundering; Price-fixing: An allegation was attributed to price-fixing if the perpetrator(s) entered agreements with other companies to fix, control or maintain prices; Tax evasion: An allegation was attributed as tax evasion if the perpetrator(s) engaged in misconduct to evade or reduce their tax burden.

Table 3.5 reports the frequency of the type of alleged financial misconduct. In the sample, the most common type of misconduct reported in the press, is the misappropriation of funds or assets (53 percent). This is followed by the misuse of funds (13 percent) and price-fixing (10 percent). While there are no official statistics on the incidence of financial misconduct in Australia, the findings are comparable to those of a fraud survey by KPMG (2010) of firms in Australia and New Zealand, which found misappropriation of assets to be the most commonly perpetrated fraud within companies. In comparison to internal reporting, financial allegations involving bribery ($p < 0.001$), fraudulent financial reporting ($p = 0.009$), misuse of funds ($p < 0.001$) and price-fixing ($p < 0.001$) were more likely to result in external whistle-blowing. Conversely, allegations involving the misappropriation of funds or assets were more likely to result in internal reporting ($p < 0.001$).

3.4.6 Descriptive statistics

Table 3.6 presents the descriptive statistics for the sample. The average company in the sample has total assets of AUD$76.01 million, experiences positive growth (14.1 percent), provided a proportion of 34.4 percent variable compensation to top executives, and has a proportion of 78 percent independent directors on the board. In 79 percent of cases, the firm was audited by a Big 4 auditor. The reported average cost of alleged fraud was AUD$36,263,000. Thirty-six percent of financial allegations were referenced in the press to have been perpetrated by an individual in top management, 12 percent were perpetrated internationally (relative to the location of the head office), and 35 percent involved collusion. An employee reported the misconduct in 71 percent of financial allegations. An external immunity policy was provided in five percent of cases. Forty-seven percent of companies provided a corporate internal reporting policy and 22 percent provided protection for reporting misconduct, as disclosed in the annual report.

Table 3.6: Descriptive statistics

Continuous variables	Mean	Q1	Median	Q3	Std. dev.	EXTWB = 1 (n = 97)	EXTWB = 0 (n = 215)	Wilcoxon z-score	p-value
Total assets (in AUD$mil)	76,010	754	6,418	49,313	153,320	58,900	83,700	1.188	0.237
SIZE (log)	22.401	20.474	22.609	24.649	2.960	22.142	22.519	1.189	0.234
Fraud amount (in AUD$'000)	36,263	100	1,100	8,000	159,688	89,200	12,000	–7.782**	0.000
FRDAMT (log)	13.783	11.562	13.998	16.001	3.161	15.869	12.841	–7.891**	0.000
GROWTH	0.141	0.032	0.089	0.190	0.284	0.120	0.150	1.439	0.150
VARCOMP	0.344	0.144	0350	0.547	0.241	0.275	0.376	3.494**	0.001
PASTPERF	0.165	–0.168	0.042	0.230	1.608	0.438	0.042	–2.021*	0.044
UNCLRCH	0.500	0.350	0.491	0.647	0.202	0.521	0.490	–1.239	0.216
OUTDIR	0.776	0.714	0.800	0.875	0.137	0.745	0.790	2.620**	0.009
Dichotomous variables	% of '1'	'1'	'0'		Std. dev.	EXTWB = 1 (n = 97)	EXTWB = 0 (n = 215)	Wilcoxon z-score	p-value
EXTWB	0.31	97	215		0.464				
IMMUNITY	0.05	16	296		0.320	0.155	0.005	–5.551**	0.000
PWRPERP	0.36	111	201		0.480	0.763	0.172	–10.073**	0.000
INTNL	0.12	36	276		0.320	0.237	0.060	–4.513**	0.000
COLLUDE	0.35	109	203		0.478	0.845	0.126	–12.323**	0.000
COPOLICY	0.47	148	164		0.500	0.309	0.549	3.916**	0.000
EMPLOY	0.71	220	92		0.461	0.299	0.874	10.207**	0.000
COPROT	0.22	69	243		0.416	0.144	0.256	2.193*	0.028
BIG4	0.79	248	64		0.404	0.753	0.814	1.241	0.215
n = 312									

** Significant at the 1% level; * significant at the 5% level using a two-tailed test.

This table provides descriptive statistics of the variables in the model. EXTWB = '1' if the alleged financial misconduct was referenced in the press to result in external whistle-blowing and '0' when referenced to result in internal reporting; SIZE = logarithm of total assets in dollars, for the year before the financial allegation; FRDAMT = logarithm of fraud amount in dollars as reported in the press; GROWTH = average change in revenue over the past three years prior to the financial allegation; VARCOMP = proportion of top five executives' total remuneration that is variable for the year prior to the financial allegation (the variable portion is measured as total remuneration less fixed salary, fixed non-cash benefits and superannuation); PASTPERF = market-adjusted buy-and-hold returns over the past one-year prior to the financial allegation; UNCLRCH = the average scaled rank of AGE, INDCONC, and GEOCONC as estimated in Bowen, Call, and Rajgopal (2010), where AGE = number of years that the firm has been listed on the ASX as of the year of the financial allegation, INDCONC = one minus the industry segment-sales based Herfindahl index for the year prior to the financial allegation, and GEOCONC = one minus the geographical segment-sales based Herfindahl index for the year prior to the financial allegation; OUTDIR = proportion of independent directors on the board as reported in the annual report, for the year prior to the financial allegation; IMMUNITY = '1' if the firm was subjected to a policy provided by the ACCC that grants immunity to the first member of a cartel that blows the whistle to the ACCC from 1998, and '0' otherwise; PWRPERP = '1' if the alleged financial misconduct as reported in the press was perpetrated by an individual in top management, and '0' otherwise; INTNL = '1' if the alleged financial misconduct was perpetrated internationally relative to the domicile of business headquarters as reported in the press, and '0'otherwise.; COLLUDE = '1' if the alleged financial misconduct was perpetrated by more than one individual as reported in the press, and '0' otherwise; COPOLICY = '1' if the company provides an internal corporate reporting policy for whistle-blowing as reported in the annual report, for the year prior to the financial allegation, and '0' otherwise; COPROT = '1' if protection for whistle-blowing is disclosed in the annual report, for the year prior to the financial allegation, and '0' otherwise; EMPLOY = '1' if the whistle-blower was an employee of the company, and '0' otherwise; BIG4 = '1' if the firm was audited by a Big 4 auditor the year prior to the financial allegation, and '0' otherwise.

Compared to allegations that resulted in internal reporting, companies subjected to external whistle-blowing allegations have a lower proportion of independent directors ($p < 0.001$), provide a lower proportion of variable compensation to executives ($p < 0.001$), have stronger stock performance ($p = 0.022$), do not provide a corporate internal reporting policy ($p < 0.001$), do not disclose protection for reporting misconduct ($p = 0.028$) and are subjected to an external immunity policy ($p < 0.001$). In external whistle-blowing cases, the financial allegation was more often reported by a non-employee ($p < 0.001$), more often perpetrated by an individual in top management ($p < 0.001$), more often involved multiple perpetrators ($p < 0.001$), and was more costly ($p < 0.001$).

Table 3.7 reports the non-parametric correlations between the variables in the model. As might be expected, firm size is correlated with several independent variables. The highest correlation is between firm size and unclear internal communication channels ($r = 0.599$), followed by variable compensation ($r = 0.548$). The provision of an internal reporting policy and the disclosure of protection for reporting are also correlated ($r = 0.546$). The correlations between the other independent variables are all below 0.50. Multicollinearity is a potential concern because there are some significant correlations between variables. Multicollinearity is assessed by examining the variance inflation factors (VIFs). All VIFs are below the recommended threshold of 10 (Hair et al. 2010). The highest VIF is the SIZE variable at 2.45, and the mean VIF is 1.62, suggesting that severe multicollinearity is not likely to be an issue.

Table 3.7: Spearman correlations

	IMMUNITY	PWRPERP	INTNL	COLLUDE	VARCOMP	COPROT	COPOLICY	EMPLOY	SIZE	GROWTH	PASTPERF	UNCLRCH	FRDAMT	OUTDIR
PWRPERP	0.192													
	(0.001)													
INTNL	−0.039	0.214												
	(0.498)	(0.000)												
COLLUDE	0.256	0.579	0.219											
	(0.000)	(0.000)	(0.000)											
VARCOMP	0.006	−0.286	−0.010	−0.159										
	(0.917)	(0.000)	(0.862)	(0.005)										
COPROT	0.016	−0.219	0.001	−0.083	0.374									
	(0.776)	(0.000)	(0.987)	(0.145)	(0.000)									
COPOLICY	−0.046	−0.277	0.099	−0.185	0.495	0.546								
	(0.416)	(0.000)	(0.081)	(0.001)	(0.000)	(0.000)								
EMPLOY	−0.257	−0.308	−0.219	−0.392	0.094	0.084	0.099							
	(0.000)	(0.000)	(0.000)	(0.000)	(0.096)	(0.138)	(0.082)							
SIZE	0.012	−0.321	−0.027	−0.139	0.548	0.352	0.448	0.012						
	(0.835)	(0.000)	(0.633)	(0.014)	(0.000)	(0.000)	(0.000)	(0.831)						
GROWTH	−0.011	−0.153	−0.036	−0.114	0.080	0.020	−0.023	0.049	−0.011					
	(0.841)	(0.007)	(0.529)	(0.045)	(0.161)	(0.726)	(0.689)	(0.391)	(0.845)					
PASTPERF	0.010	−0.056	−0.060	−0.047	−0.001	−0.006	0.024	−0.070	0.099	0.025				
	(0.861)	(0.326)	(0.289)	(0.407)	(0.980)	(0.922)	(0.667)	(0.218)	(0.080)	(0.663)				
UNCLRCH	0.076	−0.125	0.166	−0.022	0.350	0.306	0.372	−0.024	0.599	−0.069	0.058			
	(0.181)	(0.027)	(0.003)	(0.695)	(0.000)	(0.000)	(0.000)	(0.675)	(0.000)	(0.226)	(0.304)			
FRDAMT	0.083	0.419	0.289	0.420	−0.064	−0.045	−0.093	−0.322	−0.030	−0.083	−0.126	0.029		
	(0.145)	(0.000)	(0.000)	(0.000)	(0.262)	(0.424)	(0.100)	(0.000)	(0.593)	(0.143)	(0.027)	(0.616)		
OUTDIR	0.009	−0.279	0.000	−0.186	0.248	0.130	0.204	0.065	0.483	−0.008	0.045	0.299	−0.071	
	(0.877)	(0.000)	(0.995)	(0.001)	(0.000)	(0.021)	(0.000)	(0.251)	(0.000)	(0.893)	(0.424)	(0.000)	(0.213)	
BIG4	0.082	−0.186	0.034	−0.094	0.291	0.213	0.260	0.078	0.337	−0.043	−0.074	0.229	−0.008	0.194
	(0.148)	(0.001)	(0.545)	(0.098)	(0.000)	(0.000)	(0.000)	(0.170)	(0.000)	(0.453)	(0.191)	(0.000)	(0.884)	(0.001)

Table 3.7 presents the correlations of the variables in the model (n = 312; p-values are shown in parentheses, two-tailed). For variable definitions, refer to Table 3.6.

3.5 Results

This study seeks to understand when whistle-blowers are more or less likely to report misconduct externally rather than internally. This section presents the empirical analysis of the factors associated with the likelihood that financial misconduct results in external whistle-blowing, in comparison to internal reporting. The results of Model (1) are reported in Column (1) of Table 3.8. The model is estimated with robust standard errors adjusted by clustering over firms to control for any unobserved heterogeneity across firms in the sample.[50] The model has significant explanatory power ($\chi^2 = 331.60$, $p < 0.001$) and a pseudo R^2 of 0.73. The model has a classification rate of 95 percent, suggesting the model predicts reasonably well. The Hosmer-Lemeshow test is insignificant, suggesting that the model is of a good fit.

This study predicts a greater likelihood that financial misconduct results in external whistle-blowing, compared to internal reporting, when there are more incentives and opportunities to use an external reporting channel. Consistent with predictions, the results indicate a greater likelihood that financial misconduct results in external whistle-blowing in comparison to internal reporting when an external whistle-blowing immunity policy is provided (coefficient 4.105, $p < 0.001$), when the perpetrator of the alleged financial misconduct has a powerful organisational position (coefficient 1.814, $p = 0.003$) and when there are multiple perpetrators (coefficient 2.626, $p < 0.001$). The coefficient on INTNL is in the predicted direction, but is not significant (coefficient 0.948, $p = 0.059$). The results also indicate a lower likelihood that financial misconduct results in external whistle-blowing, compared to internal reporting, when there was provision of a greater proportion of variable executives' compensation (coefficient −1.909, $p = 0.045$), a corporate internal reporting policy (coefficient −1.472, $p = 0.002$) and when the whistle-blower was an employee (coefficient −2.763, $p < 0.001$). The results do not

[50] Standard errors are clustered by firm because 'standard errors clustered by firm are unbiased and produce correctly sized confidence intervals whether the firm effect is permanent or temporary' (Petersen 2009, 475).

indicate that the disclosure of protection for internal reporting[51] (coefficient 0.251, $p = 0.343$) affects the likelihood that financial misconduct results in external whistle-blowing.

For the control variables, the results indicate a greater likelihood that financial misconduct results in external whistle-blowing in comparison to internal reporting when the firm is larger in size ($p = 0.010$), has stronger past stock performance ($p = 0.007$), and when the cost of alleged financial misconduct is higher ($p = 0.032$). The results do not indicate that the growth of the firm ($p = 0.443$), unclear internal communication channels ($p = 0.174$), proportion of independent directors on the board ($p = 0.103$) or engaging a Big 4 auditor ($p = 0.340$) affect the likelihood that financial misconduct results in external whistle-blowing.

Whistle-blowing by employees versus non-employees

To examine whether the factors that affect the likelihood of external or internal whistle-blowing are different between employees and non-employees, Model (1) is re-estimated using a sub-sample consisting only of employees ($n = 217$) and a sub-sample consisting only of non-employees ($n = 95$). The variable EMPLOY is excluded accordingly. Columns (2) and (3) in Table 3.8 report the results of the employee and the non-employee sub-sample, respectively. Consistent with the main results, the coefficients on IMMUNITY, COLLUDE, VARCOMP and COPOLICY are significant in the predicted direction for both the employee and non-employee sub-samples. The results suggest that, for employees and non-employees, there is a greater likelihood that financial misconduct results in external whistle-blowing compared to internal reporting when an external whistle-blowing immunity policy is provided and when misconduct involves multiple perpetrators, while the likelihood is lower when a greater proportion of executives' compensation is variable and when a corporate internal reporting policy is provided.

[51] As the provision of a corporate policy (COPOLICY) and disclosure of corporate protection for whistle-blowing (COPROT) are correlated ($r = 0.546$), Model (1) is re-estimated excluding COPOLICY. The untabulated results indicate that the coefficient on COPROT remains insignificant.

Table 3.8: Factors associated with the likelihood that financial misconduct results in external whistle-blowing in comparison to internal reporting

		(1) Full sample			*(2) Employee-only sample*			*(3) Non-employee sample*		
	Predicted sign	Coefficient	S.E.	*p*-value	Coefficient	S.E.	*p*-value	Coefficient	S.E.	*p*-value
Incentives and opportunities to report misconduct										
IMMUNITY	+	4.105**	0.721	0.000	3.698**	1.436	0.005	16.617**	1.403	0.000
PWRPERP	+	1.814**	0.640	0.003	3.987**	0.854	0.000	0.552	1.141	0.315
INTNL	+	0.948	0.605	0.059	0.037	1.127	0.487	2.629**	1.048	0.006
COLLUDE	+	2.626**	0.516	0.000	6.872**	2.763	0.007	2.277*	1.166	0.026
VARCOMP	–	–1.909*	1.121	0.045	–5.816*	2.641	0.014	–3.707*	2.101	0.039
COPROT	–	0.251	0.621	0.343	–3.890*	2.251	0.042	1.919	1.263	0.065
COPOLICY	–	–1.472**	0.500	0.002	–2.328**	0.966	0.008	–1.483*	0.883	0.047
EMPLOY	–	–2.763**	0.646	0.000						
Control variables										
SIZE	+	0.425*	0.181	0.010	0.678	0.712	0.171	0.613**	0.232	0.004
GROWTH	+	0.120	0.831	0.443	–5.252*	2.980	0.039	–0.205	1.441	0.444
PASTPERF	+	0.809*	0.436	0.032	0.223	0.791	0.389	1.174	1.115	0.146
UNCLRCH	+	1.209	1.289	0.174	4.267*	2.015	0.017	1.560	2.377	0.256
FRDAMT	+	0.355**	0.144	0.007	0.359*	0.166	0.015	0.420**	0.158	0.004
OUTDIR	–	–2.365	1.868	0.103	–6.693	6.098	0.136	–2.153	5.274	0.342
BIG4	–	0.333	0.806	0.340	2.357**	0.717	0.001	–1.757	1.185	0.069
Constant		–15.444**	4.641	0.001	–23.733	14.615	0.052	–17.151**	5.383	0.001
Industry fixed-effects included										
Number of observations		312			217			95		
Classification rate		0.95			0.99			0.92		
χ^2		331.60 ($p < 0.001$)			331.29 ($p < 0.001$)			1356.96 ($p < 0.001$)		
Log likelihood		–52.17			–11.99			–23.88		
Pseudo R^2		0.73			0.85			0.58		

** Significant at the 1% level; * significant at the 5% level using a one-tailed test.

This table reports the results of the likelihood that financial misconduct results in external whistle-blowing in comparison to internal reporting (EXTWB). EXTWB = '1' if the alleged financial misconduct was referenced in the press to result in external whistle-blowing and '0' when referenced to result in internal

reporting; IMMUNITY = '1' if the firm was subjected to a policy provided by the Australian Competition and Consumer Commission (ACCC) that grants immunity to the first member of a cartel that blows the whistle to the ACCC from 1998, and '0' otherwise; PWRPERP = '1' if the alleged financial misconduct as reported in the press was perpetrated by an individual in top management, and '0' otherwise; INTNL = '1' if the alleged financial misconduct was perpetrated internationally relative to the domicile of business headquarters as reported in the press, and '0'otherwise; COLLUDE = '1' if the alleged financial misconduct was perpetrated by more than one individual as reported in the press, and '0' otherwise; VARCOMP = proportion of top five executives' total remuneration that is variable for the year prior to the financial allegation (the variable portion is measured as total remuneration less fixed salary, fixed non-cash benefits and superannuation); COPROT = '1' if protection for whistle-blowing is disclosed in the annual report, for the year prior to the financial allegation, and '0' otherwise; COPOLICY = '1' if the company provides an internal corporate reporting policy for whistle-blowing as reported in the annual report, for the year prior to the financial allegation, and '0' otherwise; EMPLOY = '1' if the whistle-blower was an employee of the company, and '0' otherwise; SIZE = logarithm of total assets in dollars, for the year prior to the financial allegation; GROWTH = average change in revenue over the past three years prior to the financial allegation; PASTPERF = market-adjusted buy-and-hold returns over the past one-year prior to the financial allegation; UNCLRCH = the average scaled rank of AGE, INDCONC, and GEOCONC as estimated in Bowen, Call, and Rajgopal (2010), where AGE = the number of years that the firm has been listed on the ASX as of the year of the financial allegation, INDCONC = one minus the industry segment-sales based Herfindahl index for the year prior to the financial allegation, and GEOCONC = one minus the geographical segment-sales based Herfindahl index for the year prior to the financial allegation; FRDAMT = logarithm of fraud amount in dollars as reported in the press; OUTDIR = proportion of independent directors on the board, as reported in the annual report for the year prior to the financial allegation; BIG4 = '1' if the firm was audited by a Big 4 auditor the year prior to the financial allegation, and '0' otherwise.

The results indicate differences in the coefficients on INTNL, PWRPERP and COPROT between the employee and non-employee sub-samples. The coefficient on INTNL is significant only in the non-employee sub-sample (coefficient 2.629, $p = 0.006$). The results indicate that non-employees, but not employees, are more likely to report externally than internally when misconduct is perpetrated internationally relative to the domestic corporate office. The coefficients on PWRPERP (coefficient 3.987, $p < 0.001$) and COPROT (coefficient −3.890, $p = 0.042$) are significant only in the employee sub-sample. The results indicate that employees, but not non-employees, are more likely to report externally than internally when the power of the perpetrator is greater and when management does not disclose protection for reporting. Given that the relative power of the perpetrator (PWRPERP) and management's disclosure of protection for reporting misconduct (COPROT) are indicative of the perceived risk of retaliation, the results suggest a greater likelihood that employees would report externally when the perceived risk of retaliation is higher.

For the control variables, the results indicate that for both employees and non-employees, external whistle-blowing, compared to internal reporting, is greater when the cost of alleged financial misconduct is higher ($p < 0.010$). The results indicate that non-employees ($p = 0.004$), but not employees ($p = 0.171$), are more likely to report externally than internally when firms are larger. The results also indicate that employees ($p = 0.017$), but not non-employees ($p = 0.256$), are more likely to report externally than internally when a firm's internal communication channels are unclear.

Overall, the results indicate a greater likelihood of external whistle-blowing, compared to internal reporting, when an external immunity policy is provided, and when there are multiple perpetrators. There is a lower likelihood of external whistle-blowing, compared to internal reporting, when the whistle-blower is an employee, when there is greater variable compensation and when a corporate internal reporting policy is provided. The results also indicate that employees, but not non-employees, are more likely to report externally than

internally when the perpetrator has greater power and when protection for internal reporting is not disclosed. Non-employees are more likely to report externally than internally when misconduct is perpetrated internationally relative to the corporate head office location.

3.6 Additional analysis

3.6.1 Analysis of the consequences of external whistle-blowing

An analysis is conducted to examine the consequences of external whistle-blowing in comparison to internal reporting.[52] Bowen, Call, and Rajgopal (2010) examined and found the consequences of external whistle-blowing, as compared to no whistle-blowing events, to be more detrimental. Specifically, they found that an external whistle-blowing event resulted in greater earnings restatement, shareholder lawsuits, and negative future operating and share return performance. It is important to test these consequences among a sample of internal reporting versus external whistle-blowing events because while internal whistle-blowing is often purported to be more advantageous than external whistle-blowing (Berry 2004; Paul and Townsend 1996), there is little empirical evidence.

An external whistle-blowing allegation often portrays an organisation in the worst possible light (Barnett 1992) because it not only reveals misconduct, but also signals that the organisation was unable to stop and address the misconduct (Kaptein 2011). In contrast, internal reporting provides an opportunity for management to address misconduct in a timely manner and sends a positive signal that internal controls within the firm are effective. As such, the consequences to firms can be expected to be more detrimental when misconduct results in external whistle-blowing, rather than internal reporting.

[52] The expected detrimental consequences of external whistle-blowing as compared to internal reporting may be obvious. However to the best of my knowledge, no study has provided evidence that supports or contradicts the claim that external whistle-blowing is more damaging to the firm than internal reporting. This study documents evidence to this claim accordingly.

Subsequent stock market performance

The adverse publicity from an external whistle-blowing allegation can be financially damaging to a company because unwanted negative public attention can lead to public, media and professional sanctions and the loss of clients or customers (Barnett, Cochran, and Taylor 1993; Miceli and Near 1985). In contrast, when financial misconduct is internally reported, management can potentially minimise the cost of misconduct, avoid fines and reduce the legal costs incurred in the firm's defence (Barnett 1992; Kaptein 2011; Miceli, Near, and Dworkin 2009; Paul and Townsend 1996). This study predicts a lower share return for the firm when financial misconduct results in external whistle-blowing. Share return (SHARERET) is regressed against the external whistle-blowing variable; the cost of alleged financial misconduct; and other control variables including firm size, growth, market-to-book ratio, return on assets, price-to-earnings ratio, leverage, past stock performance, Big 4 auditor, proportion of independent directors on the board, whether the alleged misconduct involves fraudulent financial reporting, leverage and tangibles (Kouwenberg and Phunnarungsi 2013). The following model is estimated (with firm and year subscripts suppressed):

$$\begin{aligned} \text{SHARERET} = {} & \beta_0 + \beta_1 \text{EXTWB} + \beta_2 \text{FRDAMT} + \beta_3 \text{SIZE} + \beta_4 \text{MTB} + \beta_5 \text{PE} + \beta_6 \text{ROA} + \\ & \beta_7 \text{GROWTH} + \beta_8 \text{BIG4} + \beta_9 \text{OUTDIR} + \beta_{10} \text{PASTPERF} + \beta_{11} \text{FRDREP} + \\ & \beta_{12} \text{LEV} + \beta_{13} \text{TANGIBLE} + \varepsilon \end{aligned} \quad (2)$$

where SHARERET = the change in one-year market-adjusted share return from the time of the financial allegation; MTB = market-to-book ratio, for the year prior to the financial allegation; PE = price-to-earnings ratio, for the year prior to the financial allegation; LEV = total equity over total assets, for the year prior to the financial allegation; ROA = return on asset, for the year prior to the financial allegation; TANGIBLE = inverse of the ratio of property, plant and equipment to total assets ratio, for the year prior to the financial allegation; FRDREP = '1' if the alleged financial misconduct involves fraudulent financial reporting, and '0' otherwise; and EXTWB, SIZE, GROWTH, PASTPERF, FRDAMT, OUTDIR and BIG4 are as previously defined.

Column (1) of Table 3.9 reports the results. The results indicate a significant negative association between the average one-year share-return and an external whistle-blowing event (coefficient –0.114, $p = 0.040$).

Table 3.9: Consequences following an allegation of financial misconduct

	(1) SHARERET		(2) CLASSACTION		(3) DISTRESS				(4) TURNOVER		(5) NAMECHANGE	
					TAKEOVER		*WINDUP*					
	Coeff.	*p*-value	Coeff.	*p*-value	Coeff.	*p*-value	Coeff.	*p*-value	Coeff.	*p*-value	Coeff.	*p*-value
EXTWB	−0.114*	0.040	5.936**	0.000	1.771*	0.018	0.168	0.428	0.863*	0.025	1.519*	0.019
FRDAMT	0.007	0.236	0.325**	0.003	0.042	0.382	0.671**	0.001	0.184*	0.023	0.044	0.365
SIZE	0.027*	0.025	0.086	0.233	−0.225	0.134	−0.593**	0.003	−0.211*	0.030	−0.444**	0.006
PASTPERF	0.024	0.052	−0.147	0.364	1.635*	0.039	−0.052	0.472	−0.194**	0.009	−0.077	0.294
LEV	−0.137	0.145	−1.034	0.183	1.216	0.291	−1.543	0.163	0.436	0.304	−4.274*	0.010
ROA	0.598**	0.003	−0.230	0.471					−1.071	0.277	1.389	0.269
MTB	0.084*	0.044	−0.257*	0.011					−0.111	0.064	−0.447	0.243
OUTDIR	−0.264	0.209							0.008	0.498		
BIG4	0.127*	0.034										
FRDREP	−0.136	0.115										
PE	0.000	0.078			−1.332*	0.015	−0.040*	0.104				
GROWTH	0.117	0.134	0.212	0.395	4.101**	0.003	0.462	0.332			−0.878	0.154
TANGIBLE	0.102	0.189	−0.112	0.462	2.483	0.133	−10.020**	0.004			−1.427	0.227
VARCOMP			0.503	0.325								
EQUITYISSUE			−1.041*	0.045								
DIVS			1.510	0.095								
MNA			0.040	0.464					−0.618	0.175		
FCF					1.295	0.156	−0.559	0.291				
NODUALITY									1.862*	0.034		
SUBSH									−0.051	0.446		
LOSS									1.642*	0.014		
FIRMAGE											−0.585*	0.048
Constant	−0.417	0.195	−19.813**	0.000	−30.171	0.497	−16.851	0.498	−1.860	0.231	9.911*	0.010
Industry effects included												
n	283		312		312				312		312	
F/Likelihood ratio	3.58 ($p < 0.001$)		605.25 ($p < 0.001$)		109.87 ($p < 0.001$)				54.93 ($p < 0.001$)		40.96 ($p = 0.002$)	
Adjusted/Pseudo R^2	0.10		0.53		0.47				0.31		0.32	

** Significant at the 1% level; * significant at the 5% level using a one-tailed test.

Table 3.9 examines the consequences of external whistle-blowing in comparison to internal reporting. SHARERET = the change in one-year market-adjusted share return from the time of the financial allegation; CLASSACTION = '1' if the firm experienced a class action lawsuit over a one-year period from the time of the alleged financial misconduct, and '0' otherwise; DISTRESS = '1' if the firm experienced a takeover over a one-year period from the time of the alleged financial misconduct (TAKEOVER), '2' if the firm went into liquidation over a one-year period from the time of the financial misconduct, and '0' otherwise (WINDUP); TURNOVER = '1' if there was a resignation of the CEO, CFO or the chairperson of the board over a one-year period from the time of the alleged financial misconduct, and '0' otherwise; NAMECHANGE = '1' if the firm changed its name over a one-year period from the time of the alleged financial misconduct, and '0' otherwise; MTB = market to book ratio, for the year prior to the financial allegation; PE = price to earnings ratio the year before the financial allegation; LEV = total equity over total assets, for the year prior to the financial allegation; ROA = return on asset, for the year prior to the financial allegation; FRDREP = '1' is the alleged financial misconduct involves fraudulent financial reporting, and '0' otherwise; TANGIBLE = inverse of the ratio of property, plant and equipment to total assets ratio, for the year prior to the financial allegation; MNA = '1' if the firm experienced a merger or acquisition event the year of the financial allegation, and '0' otherwise; EQUITYISSUE = '1' if the firm issued equity the year of the financial allegation, and '0' otherwise; DIVS = '1' if the firm paid dividends, for the year prior to the financial allegation, and '0' otherwise; FCF = free cash flow over total assets, for the year prior to the financial allegation; LOSS = '1' if the firm reported a loss the year prior to the financial allegation, and '0' otherwise; SUBSH = logarithm of the number of substantial shareholders, for the year prior to the financial allegation; BRDSIZE = number of directors on the board, for the year prior to the financial allegation; NODUALITY = '1' if the position of CEO and chairperson of the board were held by different individuals, for the year prior to the financial allegation, and '0' otherwise; FIRMAGE = logarithm of the number of years that the firm has been listed on the ASX as of the year of the financial allegation. For other variable definitions, refer to Table 3.8.

Subsequent litigation

External whistle-blowing increases legal scrutiny (Barnett, Cochran, and Taylor 1993). In contrast, internal reporting provides an opportunity for management to address misconduct in a timely manner and firms can potentially avoid litigation (Berry 2004). This study predicts that a firm is more likely to experience a subsequent lawsuit when the alleged misconduct results in external whistle-blowing. The likelihood of a class action (CLASSACTION) is modelled as a function of an external whistle-blowing event; the cost of financial misconduct; and other controls variables including firm size, firm growth, leverage, market-to-book ratio, return on asset, past stock return, tangibles, proportion of variable compensation, the issuance of equity, the payment of dividend, and a merger and acquisition event (Peng and Röell 2008). The following model is estimated (with firm and year subscripts suppressed):

$$\begin{aligned}\Pr(\text{CLASSACTION}) = {} & \beta_0 + \beta_1 \text{EXTWB} + \beta_2 \text{FRDAMT} + \beta_3 \text{SIZE} + \beta_4 \text{GROWTH} + \beta_5 \text{MTB} + \\ & \beta_6 \text{ ROA} + \beta_7 \text{ LEV} + \beta_8 \text{ VARCOMP} + \beta_9 \text{ TANGIBLE} + \beta_{10} \text{ PASTPERF} + \\ & \beta_{11} \text{DIVS} + \beta_{12} \text{EQUITYISSUE} + \beta_{13} \text{MNA} + \sum_{k=1}^{9} \beta_{14,k} \text{INDUSTRY} + \varepsilon \qquad (3)\end{aligned}$$

where CLASSACTION = '1' if the firm experienced a class action lawsuit over a one-year period from the time of the financial allegation, and '0' otherwise; MNA = '1' if the firm experienced a merger or acquisition event the year of the financial allegation, and '0' otherwise; EQUITYISSUE = '1' if the firm issued equity the year of the financial allegation, and '0' otherwise; DIVS = '1' if the firm paid dividends, for the year prior to the financial allegation, and '0' otherwise; and EXTWB, FRDAMT, SIZE, GROWTH, MTB, ROA, PASTPERF, LEV, TANGIBLE and VARCOMP are as previously defined.

Column (2) of Table 3.9 reports the results. The results indicate a positive association between external whistle-blowing and the likelihood of a class action (coefficient 5.936, $p < 0.001$).

Subsequent corporate distress – Takeover and liquidation

The damaging economic consequences of external whistle-blowing are likely to lead to corporate distress. Research on corporate distress examines the likelihood that a firm is a takeover target, and the likelihood of liquidation using a multinomial logit model (Powell and

Yawson 2007). The likelihood of corporate distress (a takeover or liquidation event) is modelled as a function of an external whistle-blowing event; the cost of alleged misconduct; and other controls variables including firm size, leverage, growth, price-to-earnings ratio, tangibles, free cash flow, and past share performance (Powell and Yawson 2007). The following model is estimated (with firm and year subscripts suppressed):

$$\Pr(\text{DISTRESS}) = \beta_0 + \beta_1 \text{EXTWB} + \beta_2 \text{FRDAMT} + \beta_3 \text{SIZE} + \beta_4 \text{FCF} + \beta_5 \text{PE} + \beta_6 \text{LEV} + \beta_7 \text{GROWTH} + \beta_8 \text{PASTPERF} + \beta_9 \text{TANGIBLE} + \sum_{k=1}^{9} \beta_{10,k} \text{INDUSTRY} + \varepsilon \quad (4)$$

where DISTRESS = '1' if the firm experienced a takeover over a one-year period from the time of the financial allegation, '2' if the firm went into liquidation over a one-year period from the time of the financial allegation, and '0' otherwise; FCF = free cash flow over total assets, for the year prior to the financial allegation; and EXTWB, FRDAMT, SIZE, PASTPERF, GROWTH, LEV, PE, and TANGIBLE are as previously defined.

Column (3) of Table 3.9 reports the results. The results indicate that an external whistle-blowing event increases the likelihood of a takeover (coefficient 1.771, $p = 0.018$), but does not increase the likelihood of a liquidation (coefficient 0.168, $p = 0.428$).

Subsequent change in top management

When an allegation of misconduct is made externally, the negative publicity can tarnish a firm's image and reputation and lower the morale of employees (Miceli, Near, and Dworkin 2009; Paul and Townsend 1996). Firms subjected to external whistle-blowing allegations are more likely to change their internal management to restore trust and improve the organisational working environment; accordingly this study predicts a turnover of the chief executive officer (CEO), chief financial officer (CFO) or the chairperson of the board. The likelihood of a turnover of the CEO, CFO or chairperson of the board (TURNOVER) is modelled as a function of an external whistle-blowing event; the cost of alleged misconduct; and other controls variables including firm size, return on asset, leverage, whether a firm made a loss in the prior year, CEO duality, the number of substantial shareholders, board size,

proportion of independent directors on the board, past share performance (Johnson, Ryan Jr, and Tian 2009), and whether there was a merger or acquisition in the year (because such an event is likely to be associated with a board change). The following model is estimated (with firm and year subscripts suppressed):

$$\begin{aligned}\Pr(\text{TURNOVER}) = {} & \beta_0 + \beta_1\,\text{EXTWB} + \beta_2\,\text{FRDAMT} + \beta_3\,\text{SIZE} + \beta_4\,\text{ROA} + \beta_5\,\text{LOSS} + \\ & \beta_6\,\text{LEV} + \beta_7\,\text{SUBSH} + \beta_8\,\text{BRDSIZE} + \beta_9\,\text{OUTDIR} + \beta_{10}\,\text{PASTPERF} + \\ & \beta_{11}\,\text{NODUALITY} + \beta_{12}\,\text{MNA} + \sum_{k=1}^{9}\beta_{13,k}\,\text{INDUSTRY} + \varepsilon \qquad (5)\end{aligned}$$

where TURNOVER = '1' if the CEO, CFO or chairperson of the board resigned over a one-year period from the time of the financial allegation, and '0' otherwise; LOSS = '1' if the firm reported a loss the year before the financial allegation, and '0' otherwise; SUBSH = logarithm of the number of substantial shareholders, for the year prior to the financial allegation; BRDSIZE = number of directors on the board, for the year prior to the financial allegation; NODUALITY = '1' if the position of CEO and board chairperson were held by different individuals, for the year prior to the financial allegation, and '0' otherwise; and EXTWB, FRDAMT, SIZE, ROA, LEV, PASTPERF, MNA, and OUTDIR are as previously defined.

Column (4) of Table 3.9 reports the results. The results also indicate a positive association between external whistle-blowing and the likelihood of a change in the CEO, CFO or chairperson of the board (coefficient 0.863, $p = 0.025$).

Subsequent corporate rebranding

A corporate name change could be driven by a major crisis (Muzellec and Lambkin 2006). As external whistle-blowing generates adverse publicity (Barnett, Cochran, and Taylor 1993), this study expects that firms subjected to external whistle-blowing are more likely to rebuild their corporate image and, in doing so, change their name to communicate this change (Gray and Balmer 1998). This study examines corporate name changes because corporate rebranding is time consuming and costly (Koku 1997). This study models the likelihood of a change in corporate name (NAMECHANGE) as a function of an external whistle-blowing event; the cost of alleged misconduct; and other control variables including firm size, return on asset,

past share return, leverage, market-to-book ratio, sales growth, tangibles and firm age (Wu 2010). The following model is estimated (with firm and year subscripts suppressed):

$$\Pr(\text{NAMECHANGE}) = \beta_0 + \beta_1 \text{EXTWB} + \beta_2 \text{FRDAMT} + \beta_3 \text{SIZE} + \beta_4 \text{ROA} + \beta_5 \text{GROWTH} + \beta_6 \text{LEV} + \beta_7 \text{MTB} + \beta_8 \text{TANGIBLE} + \beta_9 \text{PASTPERF} + \beta_{10} \text{FIRMAGE} + \sum_{k=1}^{9} \beta_{11,k} \text{INDUSTRY} + \varepsilon \quad (6)$$

where NAMECHANGE = '1' if the firm changed its name over a one-year period from the time of the financial allegation, and '0' otherwise; FIRMAGE = logarithm of the number of years that the firm has been listed on the ASX as of the year of the financial allegation; and EXTWB, FRDAMT, SIZE, ROA, TANGIBLE, LEV, MTB, GROWTH, and PASTPERF are as previously defined.

Column (5) of Table 3.9 reports the results. The results indicate a positive association between external whistle-blowing and the likelihood of a change in corporate name (coefficient 1.519, $p = 0.019$).

3.6.2 Robustness of results to the exclusion of financial firms

The majority of firms in the sample are financial firms (36 percent). The robustness of the results to the exclusion of financial firms is examined by re-estimating Model (1) using a sub-sample (n = 199) that excludes financial firms. The results are reported in Column (1) of the table in Appendix 3.6. As compared to the primary results, the coefficient on INTNL (coefficient 1.438, p = 0.027) is significant in the predicted direction. The coefficients of the other variables of interest are qualitatively unchanged from the primary results. Together, the analysis indicates that the primary results are robust to the exclusion of financial firms.

3.6.3 Robustness of results to the exclusion of allegations involving the misappropriation of funds or assets

The majority of alleged misconduct in the sample is the misappropriation of funds or assets (53 percent). To examine the robustness of the results to the exclusion of alleged misconduct involving the misappropriation of funds or assets, Model (1) is re-estimated using a sub-

sample (n = 146) that excludes allegations involving the misappropriation of funds or assets. The results are reported in in Column (2) of the table in Appendix 3.6. As compared to the primary results, the coefficient on PWRPERP (coefficient 1.929, p = 0.053) is in the predicted direction, but is only significant at the 10 percent level. The coefficients on the other variables of interest are qualitatively unchanged from the primary results. Together, the analysis indicates that the primary results are robust to the exclusion of alleged misconduct involving the misappropriation of funds or assets.

3.6.4 Robustness of results to the cost of alleged financial misconduct

The data on the cost of alleged misconduct are positively skewed. While the logarithm of the cost of alleged misconduct was taken to reduce skewness, the results could still be potentially affected by outliers. As a test of robustness, Model (1) is re-estimated with the cost of alleged misconduct (FRDAMT) (i) censored at the one and 99 percent levels, and (ii) winsorised at the one and 99 percent levels. The untabulated results of the re-estimated models are qualitatively similar to the primary results.

3.6.5 Robustness of results to the introduction of CLERP 9

The introduction of the *Corporate Law Economic Reform Program Act* (CLERP9) (2004) provides protection for corporate whistle-blowers and potentially increases external whistle-blowing. Specifically, under Part 9.4AAA of the *Corporations Act 2001 (Cth)*, companies that victimise whistle-blowers potentially face investigation, prosecution and compensation order to the whistle-blowers. To examine whether the introduction of CLERP 9 affects external whistle-blowing, Model (1) is re-estimated with the inclusion of an indicator variable (CLERP9) that is coded '1' if the financial allegation was made in or after 2004, and '0' otherwise.[53] The untabulated results indicate that the coefficient on CLERP9 (coefficient

[53] As CLERP 9 was introduced mid-year on 1 July 2004, the model is re-estimated by coding '1' if the financial allegation was made in or after 2005, and '0' otherwise. The results are qualitatively similar.

0.210, p = 0.367) is not significant, indicating that the primary results are robust to the introduction of CLERP 9.[54] All other results are qualitatively similar to the primary results.

3.6.6 Robustness of results to the findings of Study 3

The results in Study 3 (Chapter 4) suggest that greater audit committee independence (ACIND), more substantial shareholders (SUBSH) and lower organisational complexity (COMPLEXHH) reduce the likelihood of external whistle-blowing in comparison to internal reporting. The model is re-estimated with the inclusion of COMPLEXHH, ACIND and SUBSH as control variables. COMPLEXHH is a measure of organisational complexity based on firm diversification,[55] ACIND captures the proportion of independent directors on the audit committee, and SUBSH is the logarithm of the number of substantial shareholders in a firm. The coefficients on the variables of interest in Study 2 are largely unchanged from the primary results with the exception of COPOLICY. Specifically, the coefficients on IMMUNITY, PWRPERP, COLLUDE, VARCOMP and EMPLOY are significant in the predicted direction. Consistent with the primary results, the new results suggest that the provision of an immunity policy, the power of the perpetrator, collusion in misconduct, variable compensation and being an employee of the company affect the likelihood of external whistle-blowing in comparison to internal reporting.

The coefficient on COPOLICY (p = 0.205) is not significant after including COMPLEXHH, ACIND and SUBSH as control variables. A possible explanation is potential multicollinearity issues as ACIND is significantly correlated with COPOLICY (r =0.35). When ACIND is excluded as a control variable, the coefficient on COPOLICY is significant (p = 0.046) at the five percent level. Overall, the sensitivity analysis suggests that with the exception of

[54] This finding is not unexpected given that commentators have noted that existing Australian whistle-blowing protection laws in the private sector are weak and corporate whistle-blowers remain largely unprotected (Gilligan 2013b; Williams 2013b; Williams 2014).

[55] COMPLEXHH is a measure of organisational complexity. Refer to Section 4.4.2 for variable measurement of COMPLEXHH. The model already includes UNCLRCH, a measure of unclear internal communication channel as estimated in Bowen, Call, and Rajgopal (2010). UNCLRCH is a composite measure that includes firm age, geographical complexity and industry complexity. As COMPLEXHH and UNCLRCH are highly correlated (r =0.83), UNCLRCH is not included to avoid multicollinearity issues. Similar results are obtained when substituting UNCLRCH for COMPLEXHH.

COPOLICY, the findings of Study 2 are robust to the inclusion of COMPLEXHH, ACIND and SUBSH as control variables.

3.6.7 Robustness of results to corporate failures of the early 2000s

The corporate failures of the early 2000s potentially could affect the relative proportions of external whistle-blowing or internal reporting pre- and post-2002. The model is re-estimated with the inclusion of a time indicator variable (POST2002) to control for the impact of corporate failures of the early 2000s. POST2002 is coded '1' if the allegation occurred in or after year 2002, and '0' otherwise. Untabulated results indicate that the coefficient on POST2002 ($p = 0.251$) is not significant.

3.7 Discussion and conclusion

The purpose of this study is to understand the situations in which whistle-blowers use an external, compared to an internal, reporting channel. Specifically, this study examines the incentives and opportunities – associated with the characteristics of the misconduct, legislative environment and organisation – that affect the likelihood that financial misconduct results in external whistle-blowing as compared to internal reporting. To investigate when an alleged misconduct results in external whistle-blowing as compared to internal reporting, this study constructs a sample based on 312 financial allegations reported in the press.

The results indicate a higher likelihood that financial misconduct results in external whistle-blowing in comparison to internal reporting when there is an external whistle-blowing immunity policy, when the perpetrator holds a powerful organisational position, and when multiple perpetrators are involved in the alleged misconduct. The results also indicate that financial misconduct is less likely to result in external whistle-blowing, compared to internal reporting, when the whistle-blower is an employee, when there is greater proportion of variable compensation to management and when a corporate internal reporting policy is provided.

Comparing employee to non-employee whistle-blowing, the results indicate that the power of the perpetrator and the absence of disclosure of protection for internal reporting increase external whistle-blowing for employees, but not non-employees. Given that greater relative power of the perpetrator and the absence of management's disclosure of protection for reporting are indicative of a higher perceived risk of retaliation, the results suggest that employees would report externally when the perceived risk of retaliation is higher. The results also indicate a greater likelihood that misconduct results in external whistle-blowing when the misconduct was perpetrated internationally (relative to the domestic corporate office) for non-employees, but not for employees. Together, this study provides initial evidence of differences in the predictors of employee and non-employee whistle-blowing. Research has mainly focused on employee whistle-blowing, future research is needed to examine the factors that encourage or deter non-employees from reporting misconduct given that non-employees play an important role in whistle-blowing (ACFE 2014; Dyck, Morse, and Zingales 2010).

These findings have implications for management. Management should formalise procedures for internal reporting and foster an anti-retaliatory organisational climate. To reduce the likelihood of external whistle-blowing, a greater proportion of variable compensation can be provided to management. The findings also have implications for the investigation of internal reports. There is often a trade-off between allocating resources to investigate internal whistle-blowing reports and other profit-generating projects (Hunton and Rose 2011, 13). Given that external whistle-blowing typically occurs after an unsuccessful attempt at internal reporting, the findings highlight the need for management to properly manage, handle and investigate allegations involving multiple perpetrators and perpetrators with high organisational power.

This study also examines the consequences of external whistle-blowing, as compared to internal reporting. The results indicate that the consequences of external whistle-blowing are less favourable than those for internal reporting. Specifically, following an external whistle-

blowing event, firms are more likely to experience a lower share return and have a greater likelihood of a subsequent lawsuit, takeover, change in top management or change in the company's name. Although there is an economic cost to investing and implementing a sound internal whistle-blowing system, the findings emphasise the need for management to implement such a system and actively encourage internal reporting in order to avoid the undesirable outcomes of external whistle-blowing.

The limitations of this study include the following. The many unreported internally reported frauds cannot be studied by this approach, and the results must be interpreted with respect to this limitation. By constructing the sample based on financial allegations that were referenced publically, the results pertain to larger, more newsworthy frauds. While the size of the company and the reported magnitude of the alleged fraudulent activity are included in the analysis, the results must be interpreted with respect to this potential source of bias. Another limitation of this study is that the results may not be generalisable to private companies and not-for-profit entities because only listed companies were examined.

Overall, while studies on whistle-blowing have generally focused on understanding the factors that influence the decision to blow the whistle, this study provides understanding of the factors that influence the use of an external or internal reporting channel when whistle-blowing. Specifically, this study identified incentives and opportunities of using an external reporting channel that are associated with the characteristics of the misconduct, legislative environment and the organisation. Future research is needed from a variety of methodological approaches to more fully understand the choice of reporting channel in uncovering misconduct.

CHAPTER 4: STUDY 3

Does organisational complexity and audit committee quality affect the likelihood of external whistle-blowing in comparison to internal reporting?

4.1 Introduction

The previous chapter provide understanding of when whistle-blowers are likely to use an external or an internal reporting channel by examining the incentives and opportunities of reporting using an external channel. The findings in Study 2 suggest that internal reporting mechanisms (corporate reporting policy and corporate whistle-blowing protection) influence the likelihood of external whistle-blowing as compared to internal reporting. These results suggest the importance of the internal control environment in influencing the whistle-blowing process. The audit committee primarily sets the perceived tone of the internal control environment (Hunton, Hoitash, and Thibodeau 2011; Turley and Zaman 2007). Accordingly, Study 3 examines whether audit committee quality influence the likelihood that financial misconduct is reported externally as compared to internally.

The audit committee is most commonly the recipient of internal whistle-blowing reports involving fraud (Kaplan and Schultz 2006) and thus could influence the reporting of financial misconduct. A higher quality audit committee is potentially more likely to resolve financial allegations internally, reducing the likelihood of external whistle-blowing. This study predicts that a higher quality audit committee – as measured by audit committee independence, expertise and meeting frequency – can reduce the likelihood that financial misconduct results in external whistle-blowing in comparison to internal reporting.

This study also examines whether organisational complexity influence external whistle-blowing in comparison to internal reporting. Implementing an effective internal reporting system can be a challenge for management in complex firms because operational and informational complexity can impede internal reporting. This study predicts that

organisational complexity, as measured by firm diversification (Berry et al. 2006; Bushman et al. 2004; Naveen 2006), potentially hampers the implementation of an effective internal reporting, thereby increasing the likelihood that financial misconduct results in external whistle-blowing in comparison to internal reporting.

The remainder of this chapter is organised as follows. Section 4.2 provides a review of organisational complexity and the quality of the audit committee. Section 4.3 develops the hypotheses of this study. Section 4.4 describes the research method and the sample. Section 4.5 presents the results of the influence of organisational complexity and audit committee quality on the likelihood that financial misconduct results in external whistle-blowing. Section 4.6 reports additional analyses. Section 4.7 concludes this study.

4.2 Related literature

This section reviews the literature relevant to this study. The literature on organisational complexity is reviewed in Section 4.2.1. This is followed by the literature on audit committee quality in Section 4.2.2.

4.2.1 Organisational complexity

There is extensive research on organisational complexity (Hage 1965; Hall, Johnson, and Haas 1967; Perrow 1967; Thompson 1967). Organisational complexity has been treated as a structural variable that characterises both organisations and their environments (Anderson 1999). Scholars have equated organisational complexity with the degree of ambiguity of a firm's operations (Perrow 1967); the degree of occupational specialisation within the firm (Damanpour 1996; Hage 1965); the production function of the firm (Moldoveanu and Bauer 2004); and the structure of the firm, such as the number of activities or subsystems within the firm (Daft 1992; Hall, Johnson, and Haas 1967). Consistent with prior accounting and finance studies (Berry et al. 2006; Bushman et al. 2004; Liu and Lai 2012), this study equates organisational complexity with the diversification of a firm's operation. Firms that are

complex have different activities, product divisions and locations, which are integrated and interdependent to various extents (Kostova and Zaheer 1999). With an increasing number of product lines and geographical markets, a larger number of organisational resources and processes must be managed. Accordingly the more diverse and multi-faceted a company, the greater the firm's complexity (Hutzschenreuter and Guenther 2009).

Organisational complexity associated with firm diversification imposes significant operational and informational complexity on the firm, creating substantial information asymmetries (Hitt, Hoskisson, and Ireland 1994). There is greater operational complexity when firms operate across multiple segments because divisional managers can have different and conflicting operational styles and corporate cultures (Bushman et al. 2004). The diversity of the institutional and legal environments when firms operate in multiple regions can further hamper the implementation of internal systems (Doyle, Ge, and McVay 2007). Informational complexity arises in complex firms because the quantity and diversity of information increases information-processing demands (Tushman and Nadler 1978). Higher information-processing demands can give rise to more errors (Larsen, Manning, and Pedersen 2013), lead managers to make hurried decisions that are difficult to reverse (Hutzschenreuter and Guenther 2009), and complicate resource allocation decisions (Naveen 2006). Managerial ability to process information is further strained when firms operate in multiple regions or countries because of the diversity of the local business environment, culture and legal environment (Hitt, Hoskisson, and Kim 1997; Rosenzweig and Singh 1991).

With greater operational and informational complexity, complex firms face greater communication, coordination (Hutzschenreuter and Guenther 2009; Kleinbaum, Stuart, and Tushman 2009; Rawley 2010), and monitoring costs (Bushman et al. 2004; Zajac and Westphal 1994). As a result of these costs, greater firm complexity increases the difficulties of managing the internal control environment, and research has found that complex firms face more internal control problems. For example, complex firms are more likely to disclose

internal control deficiencies (Ashbaugh-Skaife, Collins, and Kinney Jr 2007; Cullinan, Du, and Jiang 2010; Doyle, Ge, and McVay 2007; Ge and McVay 2005; Petrovits, Shakespeare, and Shih 2011), face a higher risk of financial fraud (Ndofor, Wesley, and Priem 2013), and fail to remediate (Hammersley, Myers, and Zhou 2012) or remediate material weaknesses in internal controls in a less timely manner (Goh 2009).

Taken together, research highlights that organisational complexity generates greater costs that create difficulties in managing the internal control environment. These findings are consistent with this study's contention that greater firm complexity can potentially hamper the implementation of a sound internal reporting system and thereby, engender external whistle-blowing. The closest related study to the present study is by Bowen, Call, and Rajgopal (2010). As compared to a broad sample of firms that did not experience external whistle-blowing, they found that firms with unclear internal communication channels were more likely to experience external whistle-blowing.[56] However, they did not find the measure to be significant in comparison to a sample of 'tarnished firms' (firms that faced a lawsuit or filed earnings restatement) that they emphasised for comparison (Bowen, Call, and Rajgopal 2010, 1249). A potential explanation is that the communication channels in tarnished firms are as poor as firms that experience an external whistle-blowing allegation. The present study extends Bowen, Call, and Rajgopal's (2010) findings by examining the influence of organisational complexity on external whistle-blowing in comparison to a sample of internal reporting cases, with arguably more contrasting differences in communication.

4.2.2 Audit committee quality

Complex firms mitigate problems associated with greater complexity by strengthening their corporate governance (Linck, Netter, and Yang 2008; Markarian and Parbonetti 2007). This study examines one aspect of corporate governance: the quality of the audit committee. This study examines the quality of the audit committee because the audit committee primarily sets

[56] Bowen, Call, and Rajgopal (2010) employed a composite measure of the average scaled rank of a firm's age, industry and geographical concentration as a proxy for unclear communication channels.

the tone of the internal control environment (Hunton, Hoitash, and Thibodeau 2011; Turley and Zaman 2007) and is most commonly the recipient of internal whistle-blowing reports involving fraud (Kaplan and Schultz 2006). Accordingly, the quality of the audit committee potentially affects the implementation of an internal reporting system, thereby increasing the likelihood of external whistle-blowing.

The audit committee is a sub-committee of the board of directors and 'assumes the important responsibility of representing boards of directors on oversight matters related to financial reporting, auditing and overall corporate governance' (DeZoort 1997). Following a number of high profile corporate collapses in the 1990 to 2000s, regulatory reforms that have led to increased regulations on the functioning of the audit committee worldwide include the report by the Blue Ribbon Committee (1999) and the introduction of the *SOX Act (2002)* in the US, and the report by the Cadbury Committee (1992) and the Combined Code on Corporate Governance (Financial Reporting Council 2003) in the UK.

In Australia, prior to 2003, regulators had adopted a disclosure-based approach to corporate governance (Munro and Buckby 2008) and there were no formal requirements to form an audit committee. Prior to 2003, Australian listed companies were not required to have an audit committee, but were required to disclose to the ASX whether or not they had an audit committee and if not, to explain why. In the aftermath of Australian corporate collapses and with increasing international regulatory developments in the 2000s, there were calls for reforms to the regulation of audit committee. This led to recommendations made in the Ramsay Report (2001) and a report by the Australian Federal Parliament's Joint Committee on Public Accounts and Audit (2002). A key recommendation was to mandate that all listed companies have an audit committee.

Regulatory reforms that followed include the ASX's (2003) Principles of Good Corporate Governance and Best Practice Recommendations[57] and the *Corporate Law Economic Reform Program Act* (CLERP9) (2004), which require the top 300 and top 500 listed companies on the ASX to have an audit committee, respectively. The ASX further requires the top 300 listed companies to disclose compliance with Principle 4 (which relates to the audit committee) in their annual report, and to explain any departures. The recommendations in Principle 4 state that the audit committee should have at least three members and consists only of non-executive directors with the majority being independent (including the chairperson, who should not be the chairperson of the board). Principle 4 also recommends that all members should be financially literate, with at least one member having relevant qualifications and experience. These recommendations are consistent with research that documents that the effectiveness of the audit committee is associated with independence, expertise and diligence of audit committee members (Beasley et al. 2009; Bédard and Gendron 2010; Gendron and Bedard 2006).

Independence refers to the degree of objectivity of audit committee members and their willingness to confront and probe management (Cohen, Krishnamoorthy, and Wright 2004; DeZoort et al. 2002; Gendron and Bedard 2006). Audit committees with greater independence provide higher financial reporting quality and are associated with greater earnings informativeness and quality (Vafeas 2005; Woidtke and Yeh 2013), less earnings management (Bedard, Chtourou, and Courteau 2004; Klein 2002; Xie, Davidson III, and DaDalt 2003), less financial restatements (Abbott, Parker, and Peters 2004), and lower cost of debt financing (Anderson, Mansi, and Reeb 2004). Greater audit committee independence also improves external audit quality such as reducing the influence of alumni over audit firm appointments (Lennox and Park 2007) and having less suspicious auditor switches (Archambeault and DeZoort 2001); and enhances the internal control environment by reducing the likelihood of fraud (Abbott, Park, and Parker 2000; Beasley et al. 2000; Mustafa and Youssef 2010),

[57] A second edition was released in 2007 and a third edition in 2014. There were no substantive changes made to the recommendations related to the audit committee.

lowering the incidence of internal control weaknesses (Krishnan 2005), and ensuring timelier remediation of material weaknesses in internal control (Goh 2009).

Diligence of the audit committee refers to the degree of activity and vigilance of the audit committee meetings (DeZoort et al. 2002). While diligence includes factors such as preparation, attentiveness and participation during meetings, the only factor that is publically observable is the number of meetings (Carcello et al. 2002). Diligence is thus commonly operationalised by the number of audit committee meetings held per year (DeZoort et al. 2002). Studies have found that audit committees that meet more frequently are associated with higher financial reporting quality such as better earnings quality (Vafeas 2005), less earnings management (Xie, Davidson III, and DaDalt 2003), higher intellectual capital disclosure (Li, Mangena, and Pike 2012; Li, Pike, and Haniffa 2008) and lower cost of debt financing (Anderson, Mansi, and Reeb 2004). Frequent audit committee meetings also result in higher internal and external audit quality, such as lower incidence of fraud (Beasley et al. 2000) and internal control weaknesses (Krishnan and Visvanathan 2007), greater investment in internal auditing (Barua, Rama, and Sharma 2010), and less suspicious auditor switches (Archambeault and DeZoort 2001).

Expertise refers to the relevant qualifications and experience of audit committee members (DeFond, Hann, and Hu 2005). Studies have found that audit committees with members who have accounting or finance expertise are associated with higher financial reporting quality, such as less earnings management (Bedard, Chtourou, and Courteau 2004; Carcello, Hollingsworth, and Neal 2006; Xie, Davidson III, and DaDalt 2003), more interim financial disclosures (Mangena and Pike 2005), and being less likely to allow managers to waive material misstatements (Keune and Johnstone 2012). Greater expertise in the audit committee is also associated with higher external audit quality, such as having less suspicious auditor switches (Archambeault and DeZoort 2001), and a stronger internal control environment such as having lower incidence of internal control weaknesses (Krishnan and Visvanathan 2007;

Krishnan 2005; Zhang, Zhou, and Zhou 2007), a lower occurrence of misappropriation of assets (Mustafa and Youssef 2010), and having audit committee members that probe more when investigating significant accounting decisions (Pomeroy 2010).

In Australia, surveys among auditors similarly find that independence, diligence and expertise are important attributes of an audit committee (Contessotto and Moroney 2014; Krishnamoorthy, Wright, and Cohen 2002). These attributes are associated with a stronger internal control environment. For example, audit committees in Australia with greater independence are associated with a lower incidence of fraud (Sharma 2004), audit committees that meet more frequently are associated with a reduced perceived level of audit risk (Stewart and Munro 2007) and greater expertise is associated with greater involvement in reviewing the work of the internal audit function (Goodwin 2003).

Taken together, greater independence, diligence and expertise of the audit committee enhance the oversight of the internal control environment. Given that independence, expertise, and diligence are important attributes of an audit committee, a high-quality audit committee is conventionally defined in terms of independence, expertise, and meeting frequency (as a proxy for diligence) (Fiolleau et al. 2013). Accordingly, this study measures the quality of the audit committee in terms of independence, meeting frequency and expertise of the audit committee. A higher quality audit committee potentially reduces external whistle-blowing by improving the oversight of the internal control environment. Bowen, Call, and Rajgopal (2010) provided some evidence that external whistle-blowing is less likely when the firm has stronger corporate governance, as captured by board quality and external monitoring. Studies have yet to consider the characteristics of the audit committee. This study extends prior research by examining the influence of the audit committee quality on external whistle-blowing.

4.3 Hypothesis development

4.3.1 Organisational complexity and external whistle-blowing

External whistle-blowing typically occurs when internal reporting is ineffective. In the context of whistle-blowing, greater firm complexity is likely to hamper internal reporting and exacerbate external whistle-blowing for at least three reasons. First, complex firms face greater coordination costs; accordingly, coordinating corporate policies (Denis, Denis, and Yost 2002) and internal control systems (Doyle, Ge, and McVay 2007) can become more difficult. In complex firms, differences in management style and culture within corporate divisions (Bushman et al. 2004) can lead to different attitudes towards embracing the corporate reporting policy. Legal and cultural diversity create additional barriers because differences in regulation and cultural norms can impede the implementation of a uniform internal reporting policy. With greater coordination costs, complex firms potentially face a greater challenge in implementing an effective internal whistle-blowing system, which in turn can engender external whistle-blowing.

Second, firm complexity can impede organisational responsiveness to internal reports of misconduct. When firms are complex, greater tiers of hierarchy limit information sharing (Liberti and Mian 2009) which can hamper communication relating to internal reports of misconduct or constrain the upwards transmission of the report. Limited information sharing can further impede the firm's responsiveness to an internal report because investigating reports can be more difficult and time-consuming when there is less detailed information. In addition, the allocation of resources to the investigation of internal reports often requires a trade-off with other resource allocation decisions (Hunton and Rose 2011). As decision-making becomes cognitively more difficult in complex firms because of competing resource allocation priorities, increased information-processing demands can lead to sub-optimal or erroneous decisions (Hutzschenreuter and Guenther 2009) when investigating internal reports. As such, firm complexity can hamper organisational responsiveness to internal reports, and thereby engender external whistle-blowing.

Third, firm complexity also makes monitoring the actions of managers more difficult (Bushman et al. 2004). When management is not effectively monitored, this enables management to undertake detrimental actions such as covering up and hindering internal investigations, or retaliating against the whistle-blower. When there is a lack of responsiveness or retaliation when reporting internally, whistle-blowers often go public with their information on misconduct (Callahan and Dworkin 1994; Rothschild and Miethe 1999). Insofar that greater organisational complexity increases coordination, communication, and monitoring costs and hinders management of the internal whistle-blowing system, it can be expected that external whistle-blowing will be greater in complex firms. Taking these three arguments together, the first hypothesis of this study is:

H1: The likelihood that financial misconduct results in external whistle-blowing compared to internal reporting is higher when there is greater organisational complexity.

4.3.2 Audit committee quality and external whistle-blowing

A predicted challenge for management in complex firms is an increase in external whistle-blowing (Hypothesis 1). To manage greater complexity, firms strengthen their corporate governance to enhance corporate control (Linck, Netter, and Yang 2008; Markarian and Parbonetti 2007). One aspect of improved control is a higher quality audit committee. A higher quality audit committee has been suggested to be more effective in monitoring management by providing stronger oversight of the internal control environment (Goodwin 2003; Raghunandan, Rama, and Read 2001) and by being more willing to confront and probe management (Cohen, Krishnamoorthy, and Wright 2010). Effective monitoring is likely to facilitate the implementation of an effective internal reporting system, and to reduce the likelihood that management will undertake detrimental actions, such as hindering internal investigations to cover up misconduct, or retaliating against the internal whistle-blower. With

stronger oversight, a higher quality audit committee is likely to facilitate internal reporting and thereby potentially reduces the likelihood of external whistle-blowing.

A higher quality audit committee can also enhance organisational responsiveness to internal reports. When the audit committee is of a higher quality, there are more frequent interactions with parties such as the board, management, and internal and external auditors (Cohen, Krishnamoorthy, and Wright 2010; Goodwin 2003; Goodwin and Yeo 2001). With better communication and greater information sharing, internal reports are more likely to be properly received and addressed. A higher quality audit committee is also more independent and objective, and less susceptible to management influences (Karamanou and Vafeas 2005; Li, Mangena, and Pike 2012; Spira 1999). As the audit committee commonly receives internal whistle-blowing reports involving fraud (Kaplan and Schultz 2006), a higher quality audit committee is likely to make better decisions when investigating these internal reports. When internal reports are properly managed, the outcome is more likely to be satisfactory to the whistle-blower, which can reduce external whistle-blowing. Insofar that a higher quality audit committee can provide stronger oversight of the internal whistle-blowing system, facilitate internal reporting and investigation, and curtail management from undertaking undesirable actions against the whistle-blower, having a higher quality audit committee is likely to decrease the likelihood of external whistle-blowing. Thus, the second hypothesis predicts that:

H2: The likelihood that financial misconduct results in external whistle-blowing compared to internal reporting is lower when the audit committee is of a higher quality.

4.4 Research method and sample

This section presents the research method and sample. Section 4.4.1 describes the sample. Section 4.4.2 describes the measurement of variables and Section 4.4.3 presents the research model. The diversification status of firms is reported in Section 4.4.4 and descriptive statistics are reported in Section 4.4.5.

4.4.1 Sample

This study employs the same sample as in Study 2. A summary of the sample is provided in this section. The sample selection procedure is reported in Table 4.1. The sample was constructed by gathering cases of financial allegation in listed Australian companies that were reported in the press (Bowen, Call, and Rajgopal 2010). Press reports of financial allegations were collected by conducting searches on Factiva using terms such as 'fraud', 'theft', 'misappropriation', 'corruption', 'bribery', 'kickbacks', 'rort', 'corporate fraud' and 'fraudulent reporting'. This resulted in a total of 592 unique financial allegations.[58]

Table 4.1: Sample selection

Incidence of financial allegations reported in the press (1992 to 2013)	592
Less: Insufficient information on the alleged financial misconduct from reports	44
Less: Multiple financial allegations reported in a firm in the same year	50
Less: Unavailable financial data from the Morningstar and Connect 4 databases	32
Less: Allegations not attributed to external whistle-blowing or internal reporting	154
Sample size	312

This table describes the sample selection procedure for this study. The initial 592 cases of alleged financial misconduct were gathered from press reports by conducting searches on Factiva using terms such as 'fraud', 'financial fraud', 'theft', 'misappropriation', 'corruption', 'bribery', 'kickbacks', 'rort', 'corporate fraud' and 'fraudulent reporting'. The final sample size consists of 312 financial allegations reported in the press.

The sample period is from the start of 1992 until 2013. For each allegation, related news articles were sourced and read to identify when the financial misconduct was alleged, how the misconduct was uncovered, and the cost of misconduct. These items were coded for use in subsequent analyses. In 44 cases, there was insufficient information on the alleged misconduct and these cases were excluded. A further 50 allegations were eliminated because of multiple observations in the same year,[59] and 32 cases were excluded because of insufficient financial

[58] Additional information on financial misconduct was sourced from the ASIC website and from searches of company announcements made to the ASX in order to corroborate and refine the data.

[59] Only one allegation was retained when there are multiple observations in the same year. As a sensitivity analysis, this study re-estimates the model (1) substituting the cases chosen for inclusion for

data. Another 154 allegations that were not attributed to external whistle-blowing or internal reporting were eliminated,[60] thereby constraining the final sample to 312 observations. Of the 312 financial allegations, 97 cases (31 percent) were external whistle-blowing cases.[61]

4.4.2 Measurement of variables

External whistle-blowing

The dependent variable measures whether a financial allegation results in external whistle-blowing or internal reporting.[62] The indicator variable (EXTWB) is coded '1' if the alleged financial misconduct was referenced in the press to result in external whistle-blowing. EXTWB is coded '0' when the financial allegation was referenced in the press to result in internal reporting.

Organisational complexity

Organisational complexity has been examined using several measures of firm diversification (Berry 2004; Bushman et al. 2004). Multiple measures are considered in this study. The first measure, COMPLEXHH, captures organisational complexity based on the degree of diversification, using the segment-sales based Herfindahl index (Berry et al. 2006; Bushman et al. 2004; Rose and Shepard 1994). The variable COMPLEXHH is computed as the average of industry (INDHH) and geographical (GEOHH) segment-sales based Herfindahl index,[63] where INDHH is measured using one minus the industry segment-sales based Herfindahl

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the excluded cases; and (2) retaining all excluded cases. The untabulated results of these two analyses are qualitatively unchanged from the primary results of this study.

[60] The excluded allegations were cases uncovered by the authorities (98 cases), and cases involving private litigation (56 cases).

[61] Of the external whistle-blowing cases, 30 percent (29/97) are employee whistle-blowing and 70 percent (68/97) are non-employee whistle-blowing. The higher percentage of non-employee compared to employee external whistle-blowers is consistent with Dyck, Morse, and Zingales (2010).

[62] External whistle-blowing involves the whistle-blower reporting misconduct outside the company to external parties such as the media, regulators or parliamentary members. Internal reporting allegations are cases that stemmed from an internal tip, audit, review or internal investigation, or being otherwise uncovered internally by the company. For a detailed explanation of the classification of internal and external whistle-blowing cases in the sample, refer to Section 3.4.4 of Chapter 3, and Figure 3.1.

[63] Capturing total diversification using a combined measure of product and geographical diversification is consistent with Chen, Dyball, and Wright (2009) and Liu and Lai (2012). The separate effects of industry and geographical diversification are considered later in the sensitivity analysis.

index,[64] and GEOHH is measured using one minus the geographical segment-sales based Herfindahl index. The Herfindahl index is computed by taking the sum of the squares of each segment's sales as a percentage of a firm's total sales (Berry et al. 2006; Bushman et al. 2004; Rose and Shepard 1994).[65] The one minus Herfindahl index increases as the degree of diversification rises. A higher ratio indicates greater organisational complexity.

The second and third measures capture organisational complexity based on the firm's diversification regime.[66] Firms that are neither industrially nor geographically diversified are likely to have the least complex structure while firms that are both industrially and geographically diversified are likely to have the most complex structures (Jiraporn, Kim, and Mathur 2008). Accordingly, high firm complexity is captured by an indicator variable, HIGHCOMPLEX, that is coded '1' if the firm operates in more than one industry and more than one geographical segment, and '0' otherwise. Low firm complexity is captured by an indicator variable, LOWCOMPLEX, that is coded '1' if the firm operates only in one industry and one geographical segment, and '0' otherwise. Data on firm segmentation and segment revenues are sourced from annual reports obtained from Morningstar's DatAnalysis and the Connect 4 database.

Audit committee quality

Audit committee quality is captured using measures of audit committee independence, expertise and meeting frequency. Independence (ACIND) is measured by the percentage of audit committee members who are independent (Chen, Moroney, and Houghton 2005; Lennox and Park 2007) as reported in the annual report, for the year prior to the financial allegation. An independent audit committee member is defined as one who is a non-executive and

[64] Data on industry segment captures both related and unrelated product diversification because of a lack of consistent detail in the segment data reported (Chen, Dyball, and Wright 2009). Chen, Dyball, and Wright (2009) note that most companies are likely to only separately report unrelated product diversification.

[65] The one minus Herfindahl index is sensitive to both the size distribution and number of segments, and places less weight on a segment that has fewer sales (Berry et al. 2006; Rose and Shepard 1994).

[66] Studies that measure organisational complexity based on a firm's diversification regime include Berry et al. (2006) and Liu and Lai (2012).

without any related party transactions with the firm (Koh, Laplante, and Tong 2007). Meeting frequency (ACMEET) is measured by the number of audit committee meetings (Barua, Rama, and Sharma 2010; Sharma, Naiker, and Lee 2009) as reported in the annual report, for the year prior to the financial allegation. Expertise (ACQUA) is measured by the percentage of audit committee members with professional accounting or finance qualifications (Chen, Moroney, and Houghton 2005; Goodwin-Stewart and Kent 2006) as reported in the annual report, for the year prior to the financial allegation. Data on the number, independence, and qualifications of audit committee members, and the number of audit committee meetings are obtained from annual reports in Morningstar's DatAnalysis and the Connect 4 database.

Control variables

Firms are likely to experience external whistle-blowing when they are larger, growing, have stronger past share performance, and face greater capital market pressure (Bowen, Call, and Rajgopal 2010). Firm size (SIZE) is measured as the logarithm of total assets in dollars, the year prior to the financial allegation. Stock market performance (PASTPERF) is measured as the market-adjusted buy-and-hold returns over the past one-year prior to the financial allegation. The growth of the firm (GROWTH) is measured as the average change in revenue over the past three years prior to the financial allegation.[67] Capital market pressure (CMPRESSURE), as estimated in Bowen, Call, and Rajgopal (2010), is the average scaled rank of FINNEED, M&A, and ABSDACC. FINNEED is coded '1' if the firm's free cash flow for the year prior to the financial allegation is less than –0.1, and '0' otherwise; M&A is coded '1' if the firm was involved in a merger or acquisition over the last three years prior to the financial allegation, and '0' otherwise; ABSDACC is the absolute value of discretionary accruals based on the modified Jones (1991) model for the year prior to the financial allegation.[68] Data for total assets, revenue, share return, net profit after tax excluding abnormal

[67] The GROWTH variable is winsorised at the 99th percentile to mitigate the potential influence of extreme values. The results are robust to the effects of winsorising.

[68] Specifically, discretionary accruals are the residuals estimated from the following model: $TACC_{i,t} = \beta_0 + \beta_1 CHGREV_{i,t} + \beta_2 PPE_{i,t} + \beta_3 CFO_{i,t} + \beta_4 ROA_{i,t} + \varepsilon_{i,t}$. TACC = Total accruals, as defined as net profit after tax excluding abnormal items minus cash flow from operations; CHGREV = change in revenue; PPE = net plant, property, and equipment; CFO = cash flow from operations; ROA = return on

items, free cash flow, return on asset, net property, plant and equipment, cash flow from operations, and mergers or acquisitions are sourced from annual reports obtained from Morningstar's DatAnalysis and the Connect 4 database.

Weaker corporate governance and external monitoring can increase external whistle-blowing (Bowen, Call, and Rajgopal 2010). The proportion of independent directors on the board (OUTDIR) and the logarithm of the number of substantial shareholders (SUBSH) are included as control variables. Greater variable compensation can reduce external whistle-blowing (Call, Kedia, and Rajgopal 2012). The variable proportion of the top five executives' remuneration (VARCOMP) as reported in the annual report is included as a control, for the year prior to the financial allegation. The variable portion of total remuneration is calculated by total remuneration less fixed salary, fixed non-cash benefits and superannuation. Data on the number of directors, non-independent directors, substantial shareholders, and the top five executives' compensation are sourced from annual reports obtained from Morningstar's DatAnalysis and the Connect 4 database.

Incentives to report externally can increase external whistle-blowing (Bowen, Call, and Rajgopal 2010). Since 1998, the ACCC incentivises external whistle-blowing by providing an immunity policy that indemnifies an individual (or company) against penalties when reporting cartel misconduct. An indicator variable (IMMUNITY) is coded '1' if the firm was subjected to the policy that grants immunity to the first reporters on cartel conducts to the ACCC from 1998, and '0' otherwise. The severity of misconduct increases external whistle-blowing (Dworkin and Baucus 1998; Miceli, Near, and Schwenk 1991). The severity of fraud is included as a control variable (FRDAMT), and is measured by the logarithm of fraud amount in dollars, as reported in the press. Cross-listing in the US can affect external whistle-blowing because there are more comprehensive whistle-blowing provisions in the US.[69] An indicator

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assets; i = firm; t = fiscal year. All variables are scaled by total assets at the beginning of the period.

[69] There is no predicted sign for the coefficient on USXLIST. On one hand, external whistle-blowing can be greater for US cross-listed firms because there are monetary rewards provided for whistle-

variable (USXLIST) is coded '1' if the company cross-listed in the US from 2002, and '0' otherwise.

4.4.3 Research model

A logistic regression is employed because the dependent variable is a dichotomous variable. The model estimated in this study is based on the whistle-blowing model developed by Bowen, Call, and Rajgopal (2010).[70] This study models the likelihood that financial misconduct results in external whistle-blowing as a function of organisational complexity, audit committee quality, control variables, and industry (based on two-digit GICS sector code) fixed-effect (with firm and year subscripts suppressed):[71]

$$\Pr(\text{EXTWB}) = \beta_0 + \beta_1 \text{COMPLEXITY} + \beta_2 \text{ACMEET} + \beta_3 \text{ACQUA} + \beta_4 \text{ACIND} + \beta_5 \text{SIZE} + \beta_6 \text{GROWTH} + \beta_7 \text{PASTPERF} + \beta_8 \text{CMPRESSURE} + \beta_9 \text{OUTDIR} + \beta_{10} \text{SUBSH} + \beta_{11} \text{IMMUNITY} + \beta_{12} \text{VARCOMP} + \beta_{13} \text{FRDAMT} + \beta_{14} \text{USXLIST} + \sum_{k=1}^{9} \alpha_{15,k} \text{INDUSTRY} + \varepsilon \quad (1)$$

where,

EXTWB = indicator variable coded '1' if the alleged financial misconduct was referenced in the press to result in external whistle-blowing and '0' when referenced to result in internal reporting.

COMPLEXITY = measures of organisational complexity including COMPLEXHH, HIGHCOMPLEX, and LOWCOMPLEX. COMPLEXHH is the average of INDHH and GEOHH. INDHH and GEOHH are the one minus Herfindahl index based on industry and geographical segment-sales, respectively. The Herfindahl index is computed by taking the sum of the squares of each segment's sales as a percentage of a firm's total sales. HIGHCOMPLEX is coded '1' if the firm operates in more than one industry and more than one geographical segment, and '0' otherwise. LOWCOMPLEX is coded '1' if the firm operates only in one industry and one geographical segment, and '0' otherwise.

ACMEET = number of audit committee meetings, for the year prior to the financial allegation.

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blowing (Section 922 of the *Dodd-Frank Act [2010]),* and civil remedies (Section 806 of the *SOX Act [2002]* allows for immediate reinstatement, back pay and compensation for whistle-blowers) and criminal penalties (Section 1107 of the *SOX Act*) for retaliation. On the other hand, external whistle-blowing can be lower because provisions under the *SOX Act (2002)* encourage internal reporting. Specifically, Section 301 requires listed companies in the US to establish procedures for the confidential and anonymous reporting of concerns regarding questionable accounting or auditing matters, and to establish procedures for the receipt, retention and treatment of complaints regarding accounting, internal accounting controls or auditing matters. Section 307 also requires attorneys to report any violation of securities law to the client's management.

[70] The model employed in Bowen, Call, and Rajgopal (2010) included firm reputation, downsizing and internal control weaknesses. While there is insufficient data to include these variables in this study, these variables were generally not significant in their press sample.

[71] An alternate model that accounts for the dichotomous nature of the dependent variable is a probit model. The untabulated results indicate the results are not sensitive to the use of a probit specification.

ACQUA = percentage of audit committee members with professional accounting or finance qualifications, for the year prior to the financial allegation.

ACIND = percentage of independent audit committee members, for the year prior to the financial allegation.

SIZE = logarithm of total assets in dollars, for the year prior to the financial allegation.

GROWTH = average change in revenue over the past three years prior to the financial allegation.

PASTPERF = market-adjusted buy-and-hold returns over the past one-year prior to the financial allegation.

CMPRESSURE = average scaled rank of FINNEED, M&A, and ABSDACC. FINNEED is coded '1' if the firm's free cash flow for the year prior to the financial allegation is less than –0.1, and '0' otherwise. M&A is coded '1' if the firm was involved in a merger or acquisition over the last three years prior to the financial allegation, and '0' otherwise. ABSDACC is the absolute value of discretionary accruals based on the modified Jones (1991) model, for the year prior to the financial allegation.

OUTDIR = proportion of independent directors on the board, for the year prior to the financial allegation.

SUBSH = logarithm of the number of substantial shareholders, for the year prior to the financial allegation.

IMMUNITY = indicator variable coded '1' if the firm was subjected to a policy provided by the ACCC that grants immunity to the first member of a cartel who reports to the ACCC from 1998, and '0' otherwise.

VARCOMP = proportion of top five executives' remuneration that is variable, for the year prior to the allegation.

FRDAMT = logarithm of fraud amount in dollars as reported in the press.

USXLIST = indicator variable coded '1' if a firm is cross-listed in the US from 2002, and '0' otherwise.

INDUSTRY = indicator variables controlling for industry fixed effects, based on two-digit GICS sector code.

4.4.4 Diversification status of firms

Table 4.2 reports the diversification status of firms in the sample. Most firms are both industrially and geographically diversified (57 percent). This is followed by firms that are only industrially diversified (25 percent), and firms that are only geographically diversified (10 percent). Firms that are neither industrially nor geographically diversified comprise the remaining eight percent of the sample. The firms have a mean of 4 industry segments and 3 geographical segments. The average one minus Herfindahl index by industry segments is 0.407, and 0.280 by geographical segments. In comparison to internal reporting, firms that experience external whistle-blowing have more industry segments ($p = 0.013$) and a greater degree of industry diversification, as indicated by a higher one minus industry sales-based Herfindahl index ($p < 0.001$).

Table 4.2: Diversification status of firms

Panel A: Diversification status, by diversification regime

Diversification regime	No. of firms (%)	External whistle-blowing (%)	Internal reporting (%)	Wilcoxon *z*-score	*p*-value
Neither industrially nor geographically diversified	26 (8%)	6 (6%)	20 (9%)	0.920	0.357
Only geographically diversified	32 (10%)	6 (6%)	26 (12%)	1.589	0.112
Only industrially diversified	77 (25%)	23 (24%)	54 (25%)	0.266	0.790
Both industrially and geographically diversified	177 (57%)	62 (64%)	115 (54%)	−1.718	0.086
Total	312	97	215		

Panel B: Diversification status, by industry and geographical segments and concentration

	Mean	Median	External whistle-blowing	Internal reporting	Wilcoxon *z*-score	*p*-value
Number of industry segments	3.602	4	4.031	3.409	−2.478*	0.013
Number of geographical segments	2.577	2	2.660	2.540	−0.805	0.421
1 – industry sales-based Herfindahl index	0.407	0.465	0.494	0.368	−3.625**	0.000
1 – geographical sales-based Herfindahl index	0.280	0.280	0.300	0.270	−1.043	0.297

** Significant at the 1% level; * significant at the 5% level using a two-tailed test.

Table 4.2 reports the diversification status of firms in the sample.

4.4.5 Descriptive statistics

Table 4.3 presents the descriptive statistics for the sample. The firm characteristics are similar to previous Australian studies (Aldamen et al. 2012; Christopher, Sarens, and Leung 2009). The audit committee met an average of five times a year, the mean percentage of independent audit committee members is 84 percent and 38 percent of audit committee members have professional accounting or finance qualification. The average firm in the sample has AUD$76,010 million in total assets, and experiences growth of 14.1 percent. The average proportion of variable compensation of top executives is 34 percent, and five percent of firms are cross-listed in the US. In comparison to the internal reporting cases, firms that experience external whistle-blowing have audit committees that met less often (p = 0.025), have audit committees with fewer members holding professional accounting or finance qualifications (p = 0.003), have a lower proportion of independent audit committee members (p < 0.001), have a lower proportion of independent directors on the audit committee (p < 0.001) and on the board (p = 0.004), provide less variable compensation (p = 0.003), have stronger stock performance (p = 0.022), and are often subjected to an immunity policy (p < 0.001).

Table 4.3: Descriptive statistics

Continuous variables	Mean	Q1	Median	Q3	Std. dev.	External whistle-blowing (n = 97)	Internal reporting (n = 215)	Wilcoxon z-score	p-value
COMPLEXHH	0.344	0.219	0.339	0.502	0.209	0.397	0.319	−3.021**	0.003
No. of audit committee members	3.647	3	4	4	1.383	3.381	3.767	2.146*	0.032
ACMEET	4.965	3.000	5.000	6.000	2.679	4.454	5.195	1.968*	0.049
ACQUA	0.380	0.250	0.333	0.500	0.272	0.312	0.411	2.724**	0.007
ACIND	0.838	0.750	1.000	1.000	0.276	0.731	0.886	4.737**	0.000
Total assets (in AUD$mil)	76,010	754	6,418	49,313	153,320	58,900	83,700	1.188	0.237
SIZE (log)	22.401	20.474	22.609	24.649	2.960	22.142	22.519	1.189	0.234
Fraud amount (in AUD$'000)	36,263	100	1,100	8,000	159,688	89,200	12,000	−7.782**	0.000
FRDAMT (log)	13.783	11.562	13.998	16.001	3.161	15.869	12.841	−7.891**	0.000
GROWTH	0.141	0.032	0.089	0.190	0.284	0.120	0.150	1.439	0.150
VARCOMP	0.344	0.144	0350	0.547	0.241	0.275	0.376	3.494**	0.001
OUTDIR	0.776	0.714	0.800	0.875	0.137	0.745	0.790	2.620**	0.009
No. of substantial shareholders	3.205	2	3	4	1.408	3.124	3.242	0.960	0.337
SUBSH (log)	1.056	0.693	1.099	1.386	0.516	0.996	1.083	1.020	0.308
CMPRESSURE	0.500	−0.352	−0.489	0.644	0.167	0.479	0.510	1.437	0.151
PASTPERF	0.165	−0.168	0.042	0.230	1.608	0.438	0.042	−2.021*	0.044

Dichotomous variables	% of '1'	'1'	'0'	Std. dev.	External whistle-blowing	Internal reporting	Wilcoxon z-score	p-value
EXTWB	0.31	97	215	0.464				
HIGHCOMPLEX	0.57	177	135	0.496	0.639	0.535	−1.718	0.086
LOWCOMPLEX	0.08	26	286	0.277	0.062	0.093	0.920	0.357
USXLIST	0.05	16	296	0.221	0.052	0.051	−0.014	0.989
IMMUNITY	0.12	36	276	0.320	0.155	0.005	−5.551**	0.000

n = 312

** Significant at the 1% level; * significant at the 5% level using a two-tailed test.

Table 4.3 reports the descriptive statistics of firms in the sample. EXTWB = '1' if the alleged financial misconduct was referenced in the press to result in external whistle-blowing and '0' when referenced to result in internal reporting; COMPLEXHH is the average of INDHH and GEOHH, where INDHH = one minus the industry segment-sales based Herfindahl index and GEOHH = one minus the geographical segment-sales based Herfindahl index, with a higher ratio indicates greater organisational complexity; HIGHCOMPLEX = '1' if the firm operates in more than one industry and more than one geographical segment, and '0' otherwise; LOWCOMPLEX = '1' if the firm operates only in one industry and one geographical segment, and '0' otherwise; ACMEET = number of audit committee meetings held the year prior to the financial allegation, as reported in the annual report; ACQUA = percentage of audit committee members with accounting or finance qualifications as reported in the annual report, for the year prior to the financial allegation; ACIND = percentage of independent audit committee members as reported in the annual report, for the year prior to the financial allegation; SIZE = logarithm of total assets in dollars, for the year prior to the financial allegation; GROWTH = average change in revenue over the past three years prior to the financial allegation; PASTPERF = market-adjusted buy-and-hold returns over the past one-year prior to the financial allegation; CMPRESSURE = the average scaled rank of FINNEED, M&A, and ABSDACC, as estimated in Bowen, Call, and Rajgopal (2010) where FINNEED is coded '1' if the firm's free cash flow for the year prior to the financial allegation is less than −0.1, and '0' otherwise; M&A is coded '1' if the firm was involved in a merger or acquisition over the last three years prior to the financial allegation, and '0' otherwise; ABSDACC is the absolute value of discretionary accruals based on the modified Jones (1991) model for the year prior to the financial allegation; OUTDIR = proportion of independent directors on the board as reported in the annual report, for the year prior to the financial allegation; SUBSH = logarithm of the number of substantial shareholders as reported in the annual report, for the year prior to the financial allegation; VARCOMP = proportion of top five executives' remuneration that is variable as reported in the annual report, for the year prior to the financial allegation (the variable portion is measured by total remuneration less fixed salary, fixed non-cash benefits and superannuation); IMMUNITY = '1' if the firm was subjected to a policy that grants immunity to the first member of a cartel that blows the whistle to the ACCC from 1998, and '0' otherwise; FRDAMT = logarithm of fraud amount in dollars as reported in the press; USXLIST = '1' a firm is cross-listed in the US from 2002, and '0' otherwise.

Table 4.4: Spearman correlations

	EXTWB	COMPLEXHH	HIGHCOMPLEX	LOWCOMPLEX	ACMEET	ACQUA	ACIND	SIZE	GROWTH	PASTPERF	CMPRESSURE	OUTDIR	SUBSH	VARCOMP	IMMUNITY	FRDAMT
COMPLEXHH	0.171															
	(0.002)															
HIGH COMPLEX	0.097	0.733														
	(0.086)	(0.000)														
LOW COMPLEX	−0.052	−0.469	−0.345													
	(0.358)	(0.000)	(0.000)													
ACMEET	−0.112	0.339	0.261	−0.262												
	(0.049)	(0.000)	(0.000)	(0.000)												
ACQUA	−0.154	−0.031	−0.062	0.001	0.113											
	(0.006)	(0.589)	(0.277)	(0.993)	(0.046)											
ACIND	−0.269	0.210	0.219	−0.190	0.358	0.245										
	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)										
SIZE	−0.067	0.507	0.467	−0.330	0.620	0.028	0.444									
	(0.235)	(0.000)	(0.000)	(0.000)	(0.000)	(0.620)	(0.000)									
GROWTH	−0.082	−0.037	−0.033	0.103	0.069	0.150	0.023	−0.011								
	(0.150)	(0.511)	(0.558)	(0.071)	(0.222)	(0.008)	(0.691)	(0.845)								
PASTPERF	0.025	−0.022	0.004	−0.091	0.046	−0.026	0.136	0.099	0.025							
	(0.654)	(0.703)	(0.950)	(0.107)	(0.420)	(0.643)	(0.016)	(0.080)	(0.663)							
CM PRESSURE	−0.081	−0.005	0.029	0.048	0.110	0.184	0.113	0.256	−0.007	−0.021						
	(0.151)	(0.931)	(0.605)	(0.394)	(0.051)	(0.001)	(0.047)	(0.000)	(0.223)	(0.719)						
OUTDIR	−0.149	0.211	0.188	−0.142	0.279	0.081	0.268	0.483	−0.008	0.045	0.104					
	(0.009)	(0.000)	(0.001)	(0.012)	(0.000)	(0.156)	(0.000)	(0.000)	(0.893)	(0.424)	(0.067)					
SUBSH	−0.058	0.133	0.120	−0.081	−0.130	−0.046	0.275	−0.012	−0.129	0.007	−0.181	−0.037				
	(0.309)	(0.019)	(0.035)	(0.152)	(0.022)	(0.416)	(0.000)	(0.834)	(0.023)	(0.900)	(0.001)	(0.519)				
VARCOMP	−0.198	0.246	0.206	−0.173	0.362	0.130	0.356	0.548	0.080	−0.001	0.105	0.248	0.101			
	(0.000)	(0.000)	(0.000)	(0.002)	(0.000)	(0.021)	(0.000)	(0.000)	(0.161)	(0.980)	(0.060)	(0.000)	(0.076)			
IMMUNITY	0.315	0.033	0.027	−0.018	−0.086	−0.075	−0.045	0.012	−0.011	0.010	−0.118	0.009	0.010	0.006		
	(0.000)	(0.567)	(0.634)	(0.758)	(0.128)	(0.185)	(0.430)	(0.835)	(0.841)	(0.861)	(0.037)	(0.877)	(0.865)	(0.917)		
FRDAMT	0.447	0.117	0.047	0.009	−0.054	−0.095	−0.169	−0.030	−0.083	−0.126	0.075	−0.071	−0.044	−0.064	0.083	
	(0.000)	(0.039)	(0.413)	(0.880)	(0.343)	(0.095)	(0.002)	(0.593)	(0.143)	(0.027)	(0.188)	(0.213)	(0.438)	(0.262)	(0.145)	
USXLIST	0.001	0.207	0.203	−0.070	0.049	0.077	0.163	0.288	0.056	0.057	0.109	0.188	0.183	0.251	0.012	0.034
	(0.989)	(0.000)	(0.000)	(0.217)	(0.390)	(0.176)	(0.004)	(0.000)	(0.326)	(0.319)	(0.054)	(0.001)	(0.001)	(0.000)	(0.835)	(0.546)

Table 4.4 presents the correlations of the variables in the model (n = 312; p-values are shown in parentheses, two-tailed). For variable definitions, refer to Table 4.3.

Table 4.4 reports the non-parametric correlations between the variables in the model. As might be expected, firm size is correlated with most variables and the audit committee variables are also correlated. The highest correlation is between firm size and the number of audit committee meetings (0.620). The associations between the other independent variables are all below 0.60. The VIFs are estimated for each model in this study. The highest VIF is 2.82 for the SIZE variable. The mean VIFs range from 1.40 to 1.45, and are below the suggested threshold of 10 (Hair et al. 2010; Kennedy 2003), indicating that severe multicollinearity is not likely to be issue.

4.5 Results

This section presents the analysis that examines the influence of organisational complexity and audit committee quality on the likelihood that financial misconduct results in external whistle-blowing in comparison to internal reporting. Three measures of firm complexity are examined. Columns (1), (2) and (3) of Table 4.5 report the results when complexity is measured by COMPLEXHH, HIGHCOMPLEX and LOWCOMPLEX, respectively. The models are estimated with robust standard errors adjusted by clustering over firms to control for any unobserved heterogeneity across firms in the sample.[72] The models have significant explanatory power ($p < 0.001$). The pseudo R^2s (0.48 to 0.51), and the classification rates (0.87 to 0.88), suggest that the models predict reasonably well. The Hosmer-Lemeshow test is insignificant in all three models ($p > 0.050$), indicating that the models are of a good fit.

Hypothesis 1 predicts that greater firm complexity increases the likelihood that financial misconduct results in external whistle-blowing, compared to internal reporting. Consistent with this prediction, the coefficients on COMPLEXHH (coefficient 4.589, $p = 0.001$) and HIGHCOMPLEX (coefficient 0.898, $p = 0.040$) are significant in the predicted positive direction. The coefficient on LOWCOMPLEX is also significant in the predicted negative

[72] Standard errors are clustered by firm because 'standard errors clustered by firm are unbiased and produce correctly sized confidence intervals whether the firm effect is permanent or temporary' (Petersen 2009, 475).

direction (coefficient −1.594, p = 0.025). Together, the results indicate that greater firm complexity increases the likelihood of external, compared to internal, whistle-blowing.

Hypothesis 2 predicts that a higher quality audit committee, as measured by audit committee independence, meeting frequency and expertise, decreases the likelihood that financial misconduct results in external whistle-blowing, compared to internal reporting. In all three models, the coefficients on ACIND are significant in the predicted direction ($p < 0.010$). The results suggest that greater audit committee independence reduces the likelihood of external whistle-blowing in comparison to internal reporting. The coefficients on ACMEET and ACQUA are not significant ($p > 0.050$) in all three estimated models. The results indicate that neither audit committee meeting frequency nor expertise influence the likelihood that financial misconduct results in external whistle-blowing.

The results for the control variables are similar across all three models. External whistle-blowing is greater when the firm is larger ($p < 0.010$), past stock performance is stronger ($p < 0.010$), an external immunity policy is provided ($p < 0.001$) and misconduct is more costly ($p < 0.001$). The likelihood of external whistle-blowing is lower when there is a greater proportion of independent directors on the board ($p < 0.010$), and a greater proportion of variable compensation provided to top executives ($p < 0.050$). Firm growth, capital market pressure, number of substantial shareholders and US cross-listing status do not influence the likelihood that financial misconduct results in external whistle-blowing.

Overall, the results provide support for Hypothesis 1. The results indicate that greater firm complexity increases the likelihood that financial misconduct results in external whistle-blowing. Hypothesis 2 is partially supported. The results indicate that greater audit committee independence reduces the likelihood that financial misconduct results in external whistle-blowing, but meeting frequency and expertise do not.

Table 4.5: Examination of organisational complexity and audit committee quality on the likelihood that financial misconduct results in external whistle-blowing

COMPLEXITY =		(1) COMPLEXHH		(2) HIGHCOMPLEX		(3) LOWCOMPLEX	
	Predicted sign	Coefficient	*p*-value	Coefficient	*p*-value	Coefficient	*p*-value
Variables of interest							
COMPLEXHH	+	4.589**	0.001				
HIGHCOMPLEX	+			0.898*	0.040		
LOWCOMPLEX	−					−1.594*	0.025
ACMEET	−	−0.102	0.119	−0.061	0.247	−0.097	0.154
ACQUA	−	−0.043	0.482	−0.082	0.466	−0.047	0.479
ACIND	−	−2.633**	0.001	−2.604**	0.001	−2.776**	0.000
Control variables							
SIZE	+	0.355**	0.005	0.452**	0.001	0.500**	0.000
GROWTH	+	−0.986	0.086	−0.717	0.153	−0.566	0.193
PASTPERF	+	0.956**	0.001	0.881**	0.003	0.865**	0.002
CMPRESSURE	+	−0.106	0.471	−0.804	0.287	−0.386	0.394
OUTDIR	−	−3.835**	0.006	−3.742*	0.013	−3.674*	0.010
SUBSH	−	−0.777*	0.036	−0.591	0.094	−0.495	0.119
VARCOMP	−	−2.144*	0.021	−2.169*	0.030	−2.235*	0.032
IMMUNITY	+	5.248**	0.000	4.769**	0.000	4.776**	0.000
FRDAMT	+	0.553**	0.000	0.556**	0.000	0.560**	0.000
USXLIST	+/−	0.147	0.411	0.038	0.474	0.097	0.434
Constant		−13.691**	0.000	−14.833**	0.000	−15.588**	0.000
Industry fixed-effects included							
$n = 312$							
Classification rate		0.87		0.87		0.88	
Log likelihood		−95.05		−99.75		−99.47	
χ^2		311.28 ($p < 0.001$)		279.55 ($p < 0.001$)		257.35 ($p < 0.001$)	
Pseudo R^2		0.51		0.48		0.49	

** Significant at the 1% level; * significant at the 5% level using a one-tailed test.

This table reports the results of organisational complexity and audit committee quality on the likelihood of external whistle-blowing (EXTWB). EXTWB = '1' if the alleged financial misconduct was referenced in the press to result in external whistle-blowing and '0' when referenced to result in internal reporting; COMPLEXHH is the average of INDHH and GEOHH, where INDHH = one minus the industry segment-sales based Herfindahl index and GEOHH = one minus the geographical segment-sales based Herfindahl index, with a higher ratio indicates greater organisational complexity; HIGHCOMPLEX = '1' if the firm operates in more than one industry and more than one geographical segment, and '0' otherwise; LOWCOMPLEX = '1' if the firm operates only in one industry and one geographical segment, and '0' otherwise; ACMEET = number of audit committee meetings held the year prior to the financial allegation; ACQUA = percentage of audit committee members with accounting or finance qualifications, for the year prior to the financial allegation; ACIND = percentage of independent audit committee members, for the year prior to the financial allegation; SIZE = logarithm of total assets in dollars, for the year prior to the financial allegation; GROWTH = average change in revenue over the past three years prior to the financial allegation; PASTPERF = market-adjusted buy-and-hold returns over the past one-year prior to the financial allegation; CMPRESSURE = the average scaled rank of FINNEED, M&A, and ABSDACC, where FINNEED = '1' if the firm's free cash flow for the year prior to the financial allegation is less than −0.1, and '0' otherwise; M&A = '1' if the firm was involved in a merger or acquisition over the last three years prior to the financial allegation, and '0' otherwise; ABSDACC = absolute value of discretionary accruals based on the modified Jones (1991) model for the year prior to the financial allegation; OUTDIR = proportion of independent directors on the board, for the year prior to the financial allegation; SUBSH = logarithm of the number of substantial shareholders, for the year prior to the financial allegation; VARCOMP = proportion of top five executives' remuneration that is variable, for the year prior to the financial allegation; IMMUNITY = '1' if the firm was subjected to a policy that grants immunity to the first member of a cartel that blows the whistle to the ACCC from 1998, and '0' otherwise; FRDAMT = logarithm of fraud amount in dollars as reported in the press; USXLIST = '1' a firm is cross-listed in the US from 2002, and '0' otherwise.

4.6 Additional analysis

4.6.1 Examination of employee versus non-employee external whistle-blowing

To examine whether there are differences in the results between whistle-blowing by employees and non-employees, the sample is partitioned into a sub-sample that includes only employees (n = 217), and another that includes only non-employees (n = 95). The results are reported in Table 4.6. For the employee sub-sample, the coefficients on COMPLEXHH (p = 0.011), HIGHCOMPLEX (p = 0.008), LOWCOMPLEX (p = 0.019) and ACIND (p < 0.010) are significant in the predicted direction. The results indicate that employees are more likely to report externally than internally when there is greater firm complexity, and are less likely when there is greater audit committee independence. For the non-employee sub-sample, the coefficients on COMPLEXHH (p = 0.005) and HIGHCOMPLEX (p = 0.046) are significant in the predicted direction, but the coefficient on LOWCOMPLEX is not significant (p = 0.218). The results provide some evidence that non-employees are more likely to blow the whistle externally than internally when there is greater firm complexity. For the non-employee sub-sample, the coefficients on ACIND, ACMEET and ACQUA, are not significant (p > 0.050) across all three models, thereby indicating that audit committee quality does not affect the likelihood that financial misconduct results in external whistle-blowing by non-employees.

4.6.2 Examination of the sources of organisational complexity

An analysis is conducted to examine the sources of organisational complexity (industry or geographical diversification) that affect the likelihood that financial misconduct results in external whistle-blowing. Industry diversification is measured using the logarithm of the number of industry segments (logIND) (Nam et al. 2006) and the degree of industry diversification (INDHH) (Bushman et al. 2004). Geographical diversification is measured using the logarithm of the number of geographical segments (logGEO) (Duru and Reeb 2002) and the degree of geographical diversification (GEOHH) (Bushman et al. 2004).[73]

[73] As might be expected, the measures of geographical diversification, logGEO and GEOHH (r = 0.82, p < 0.001), and industry diversification, logIND and INDHH (r = 0.79, p < 0.001), are significantly correlated. To avoid multicollinearity problems in the model, the measures are estimated separately.

Table 4.6: Examination of external whistle-blowing by employees and non-employees

		COMPLEXITY = COMPLEXHH				COMPLEXITY = HIGHCOMPLEX				COMPLEXITY = LOWCOMPLEX			
		(1) Employee sub-sample		(2) Non-employee sub-sample		(3) Employee sub-sample		(4) Non-employee sub-sample		(5) Employee sub-sample		6) Non-employee sub-sample	
	Predicted sign	Coefficient	*p*-value	Coefficient	*p*-value	Coefficient	*p*-value	Coefficient	*p*-value	Coefficient	*p*-value	Coefficient	*p*-value
COMPLEXHH	+	6.531*	0.011	7.324**	0.005								
HIGHCOMPLEX	+					3.288**	0.008	1.270*	0.046				
LOWCOMPLEX	–									–3.033*	0.019	–1.388	0.218
ACMEET	–	0.150	0.214	–0.203	0.128	0.330	0.058	–0.182	0.108	0.047	0.397	–0.079	0.315
ACQUA	–	–1.638	0.185	0.315	0.439	–2.073	0.137	–0.272	0.431	–0.436	0.400	–0.545	0.391
ACIND	–	–3.682*	0.022	–1.898	0.193	–4.460*	0.011	0.481	0.347	–3.497*	0.024	–1.415	0.233
Control variables													
SIZE	+	0.090	0.386	0.383	0.077	–0.036	0.457	0.080	0.322	0.421	0.088	0.517**	0.006
GROWTH	+	–3.876*	0.022	–2.088	0.128	–3.662*	0.026	1.205	0.190	–3.822*	0.021	–1.311	0.190
PASTPERF	+	0.729	0.261	0.260	0.259	0.430	0.333	0.611	0.147	0.620	0.236	0.130	0.099
CMPRESSURE	+	5.639*	0.037	–2.352	0.287	6.284*	0.027	–1.387	0.253	6.045*	0.032	–2.293	0.240
OUTDIR	–	–6.695*	0.011	–6.659*	0.043	–6.468*	0.018	–4.077	0.098	–6.825**	0.009	–4.309	0.139
SUBSH	–	–1.815*	0.023	0.424	0.303	–1.952*	0.020	0.446	0.215	–1.518*	0.040	0.539	0.220
VARCOMP	–	–0.412	0.416	–2.448	0.147	0.943	0.331	–3.151*	0.039	–0.921	0.321	–2.441	0.120
IMMUNITY	+	4.965	0.178	19.318**	0.000	3.818	0.148	18.191**	0.000	3.631	0.157	19.673**	0.000
FRDAMT	+	0.843**	0.000	0.649**	0.001	0.898**	0.000	0.366**	0.002	0.866**	0.000	0.680**	0.000
USXLIST	+/–	–15.820	0.499	16.931**	0.000	–15.578	0.498	17.592**	0.000	–15.849	0.499	17.238**	0.000
Constant		–30.528	0.498	–13.656	0.002	–28.728	0.496	–2.651	0.255	–35.784	0.496	–17.198**	0.000
Industry effects included		*n* = 217		*n* = 95		*n* = 217		*n* = 95		*n* = 217		*n* = 95	
Classification rate		0.92		0.85		0.94		0.82		0.93		0.85	
χ^2		111.52 ($p < 0.001$)		1519.42 ($p < 0.001$)		112.24 ($p < 0.001$)		1323.57 ($p < 0.001$)		110.62 ($p < 0.001$)		1262.35 ($p < 0.001$)	
Pseudo R^2		0.65		0.54		0.66		0. 34		0.65		0.50	

** Significant at the 1% level; * significant at the 5% level using a one-tailed test.

This table reports the results that examines whether organisational complexity and audit committee quality affect the likelihood of external whistle-blowing (EXTWB) by employees, and external whistle-blowing by non-employees. For variable definitions, refer to Table 4.5.

The results reported in Table 4.7 indicate that the coefficients on INDHH (p = 0.001) and logIND (p = 0.001) are positively associated with a greater likelihood that financial misconduct results in external whistle-blowing. The coefficients on GEOHH (p = 0.340) and logGEO (p = 0.294) are not significant. Together, the results suggest that financial misconduct is more likely to result in external whistle-blowing, rather than internal reporting, when firms have greater industry, but not geographical, diversification.

Table 4.7: Sources of organisational complexity (n = 312)

COMPLEXITY =		(1) INDHH		(2) GEOHH		(3) logIND		(4) logGEO	
Predicted sign		Coeff.	p-value	Coeff.	p-value	Coeff.	p-value	Coeff	p-value
COMPLEXITY	+	3.684**	0.001	0.410	0.340	1.664**	0.001	0.244	0.294
ACMEET	–	–0.106	0.110	–0.084	0.168	–0.086	0.186	–0.082	0.175
ACQUA	–	–0.423	0.341	0.112	0.451	–0.220	0.409	0.067	0.471
ACIND	–	–2.354**	0.003	–2.712**	0.000	–2.380**	0.002	–2.725**	0.000
SIZE	+	0.399**	0.003	0.530**	0.000	0.387**	0.004	0.515**	0.000
GROWTH	+	–0.638	0.181	–0.604	0.185	–0.513	0.243	–0.606	0.188
PASTPERF	+	0.958**	0.001	0.845**	0.004	0.894**	0.001	0.832**	0.005
CMPRESSURE	+	0.183	0.446	–0.734	0.303	–0.014	0.496	–0.807	0.283
OUTDIR	–	–4.203**	0.005	–3.698*	0.013	–4.417**	0.007	–3.609*	0.014
SUBSH	–	–0.530	0.105	–0.464	0.134	–0.565	0.086	–0.479	0.130
VARCOMP	–	–2.634**	0.008	–2.293*	0.023	–2.290*	0.022	–2.285*	0.023
IMMUNITY	+	5.413**	0.000	4.722**	0.000	5.163**	0.000	4.741**	0.000
FRDAMT	+	0.577**	0.000	0.544**	0.000	0.607**	0.000	0.547**	0.000
USXLIST	+/–	–0.106	0.425	0.047	0.468	–0.198	0.382	0.085	0.441
Constant		–14.979**	0.000	–15.900**	0.000	–14.991**	0.000	–15.785**	0.000
Industry fixed-effects included									
Classification rate		0.88		0.86		0.88		0.86	
χ^2		296.01 ($p < 0.001$)		276.97 ($p < 0.001$)		323.32 ($p < 0.001$)		274.84 ($p < 0.001$)	
Pseudo R^2		0.53		0.48		0.52		0. 48	

** Significant at the 1% level; * significant at the 5% level using a one-tailed test.

This table reports the results that examine the sources of organisational complexity on the likelihood of external whistle-blowing (EXTWB). EXTWB = '1' if the alleged financial misconduct resulted in external whistle-blowing as reported in the press, and '0' otherwise; INDHH is measured using one minus the industry segment-sales based Herfindahl index and GEOHH is measured using one minus the geographical segment-sales based Herfindahl index, where the Herfindahl index is computed by taking the sum of the squares of each segment's sales as a percentage of a firm's total sales; logIND = logarithm of the number of a firm's business segments, for the year before the financial allegation; logGEO = logarithm of the number of a firm's geographical segments, for the year before the financial allegation. For other variable definitions, refer to Table 4.5.

4.6.3 Examination of the degree of complexity in complex firms

The primary results find that external whistle-blowing is higher when firms are complex. There are potentially unobservable characteristics between complex firms and non-complex firms. A robustness test is conducted to control for potential unobserved effect of endogeneity

by examining the influence of the degree of complexity (COMPLEXHH) on external whistle-blowing in a sub-sample (n = 177) that only includes firms that are both industrially and geographically diversified (that is firms coded HIGHCOMPLEX = 1). The results are reported in Appendix 4.1. Consistent with earlier results, the coefficient on COMPLEXHH (p = 0.044) and INDHH (p = 0.001) are significant in the predicted positive direction, while the coefficient on GEOHH is not significant. Together, the results indicate that greater firm complexity – specifically industry diversification – increases the likelihood that financial misconduct results in external whistle-blowing in comparison to internal reporting.

4.6.4 Alternate measures of organisational complexity

The primary measures of organisational complexity are based on firm segmentation. As a test of robustness, alternate measures of organisational complexity are examined. Mergers and acquisitions are complex organisational activities (Larsson and Finkelstein 1999). The indicator variables M&A1YR and M&A3YR capture whether the firm was involved in a merger or acquisition event one year prior to, or within the past three years prior to the financial allegation, respectively. The number of subsidiaries also affects organisational complexity (Bedard, Ettredge, and Johnstone 2008; Klein and Saidenberg 2010). The variables CHGSUB1YR and CHGSUB3YR capture the percentage change in the number of subsidiaries the year prior to, or in the past three years prior to the allegation, respectively. The results reported in Appendix 4.2 indicate that the coefficients on M&A1YR (p = 0.004), M&A3YR (p = 0.001), CHGSUB1YR (p = 0.018) and CHGSUB3YR (p = 0.047) are significant and positively associated with a greater likelihood that financial misconduct results in external whistle-blowing. Together, the analyses indicate that the primary results are robust to the use of alternate measures of organisational complexity.

4.6.5 Robustness of results to the change in segment reporting standard

The primary measures of organisational complexity are based on segment reporting disclosures by companies. Within the period examined in this study, there were several

revisions in the segment reporting standard. Appendix 4.3 presents a summary of these changes. One major difference is the change in the definition and identification of a reporting segment under AASB 8, introduced in 2009. As compared to the 'risk and returns' approach applied in prior standards, AASB 8 focuses on a 'management approach', where an operating segment exists if the operating results of that segment are provided to the chief operating decision maker. That is, under AASB 8's definition of a reportable segment, companies do not necessarily have to identify geographic segments as an operating segment. Despite the changes, there has been little change in the nature of segment disclosures provided, and many companies still disclose geographical segment information even though they are not technically required to do so (Kang and Gray 2013). Nonetheless, as a test of robustness, the model is re-estimated with a sub-sample (n = 235) that excludes observations from 2009. The results, reported in Appendix 4.4, indicate that the coefficients on the measures of complexity are significant ($p < 0.050$) and in the predicted direction. The analysis indicates that the primary results are robust to the change in segment reporting standard under AASB 8.

4.6.6 Alternate measures of audit committee quality

The primary results indicate that audit committee independence affects external whistle-blowing, but meeting frequency and expertise do not. An analysis is conducted to test the robustness of the results to alternate measures of audit committee independence, meeting frequency and expertise. Alternate measures of audit committee meeting frequency include whether the audit committee met at least four times a year (Carcello et al. 2011) and the logarithm of the number of audit committee meetings (Raghunandan and Rama 2007). Alternate measures of audit committee expertise include the number of audit committee members with professional accounting or finance qualifications (Song and Windram 2004) and the percentage of audit committee members with accounting or finance experience (Chen, Moroney, and Houghton 2005). Alternate measures of audit committee independence include whether the majority of audit committee members are independent (Bedard, Chtourou, and

Courteau 2004), whether the audit committee is wholly independent (Goh 2009), and whether the audit committee chairperson is independent (Aldamen et al. 2012).

The results are reported in Appendix 4.5. Consistent with the primary results, the results indicate that the coefficients on the alternate measures of audit committee independence are significant and negatively associated with the likelihood that financial misconduct results in external whistle-blowing (MAJIND, $p < 0.001$; WHLIND, $p = 0.037$; INDCHAIR, $p = 0.004$). The alternate measures of audit committee expertise or meeting frequency are not significant. Together, the analysis indicates that the results are robust to alternate measures of audit committee independence, meeting frequency and expertise.

4.6.7 Robustness of results to time period examined

There were significant changes to audit committee regulations with the introduction of the ASX's Principles of Good Corporate Governance and Best Practice Recommendations in 2003. To examine the robustness of the results to changes in audit committee regulation, the model was re-estimated using two sub-samples: pre-2003 ($n = 97$)[74] and post-2003 ($n = 215$). The results are reported in Appendix 4.6. The coefficient on audit committee independence is significant ($p < 0.001$) in the pre-2003 sub-sample, but not significant ($p = 0.070$) in the post-2003 sub-sample. The insignificant result is potentially due to the lack of variation in audit committee independence post-2003.[75] The coefficients on meeting frequency and expertise are not significant in either period ($p > 0.050$).

The model was also estimated with the inclusion of a time indicator variable (POST2003) to control for changes in audit committee regulation post-2003. POST2003 is coded '1' if the allegation occurred in or after year 2003, and '0' otherwise. Untabulated results indicate that the coefficient on POST2003 is not significant. Key recommendations to improve audit

[74] The coefficient on USXLIST cannot be estimated when the model is estimated in the pre-2003 period because of collinearity.

[75] The mean of ACIND is 0.751 in the period pre-2003 and 0.878 in the period post-2003 ($p < 0.001$).

committee effectiveness were also made in the Ramsay Report (2001). The model is accordingly also re-estimated by including a time indicator variable (POST2001). POST2001 is coded '1' if the allegation occurred in or after year 2001, and '0' otherwise. Untabulated results indicate that the coefficient on POST2001 is not significant.

4.6.8 Robustness of results to the introduction of CLERP 9

The introduction of CLERP 9 provides protection for corporate whistle-blowers under Part 9.4AAA of the *Corporations Act 2001 (Cth)*. To examine whether the introduction of CLERP 9 affected external whistle-blowing, the model is re-estimated with the inclusion of an indicator variable (CLERP9) that is coded '1' if the financial allegation was made in or after 2004, and '0' otherwise.[76] The untabulated results indicate that the coefficient on CLERP9 is not significant ($p > 0.050$), suggesting that the introduction of CLERP 9 has no significant effect on the likelihood of external whistle-blowing.

4.6.9 Robustness of results to the findings of Study 2

The results in Study 2 (Chapter 3) suggest that the power of the perpetrator (PWRPERP),[77] collusive misconduct (COLLUDE), provision of a corporate reporting policy (COPOLICY), and being an employee (EMPLOY) affect the likelihood of external whistle-blowing in comparison to internal reporting. The model is re-estimated with the inclusion of PWRPERP, COLLUDE, COPOLICY, and EMPLOY as control variables. The results for the variables of interest in Study 3 are consistent with the primary results. Specifically, the coefficients on COMPLEXHH ($p = 0.004$) and ACIND ($p = 0.044$) are significant in the predicted direction, and the coefficients on ACMEET and ACQUA are not significant ($p > 0.050$). Consistent with the primary results, the analysis indicates that greater firm complexity increases the likelihood that financial misconduct results in external whistle-blowing in comparison to

[76] As CLERP 9 was introduced mid-year on 1 July 2004, the model is re-estimated by coding '1' if the financial allegation was made in or after 2005, and '0' otherwise. The results are qualitatively similar.

[77] When financial misconduct is perpetrated by top management a whistle-blower is more likely to report externally unless there is an independent audit committee. The model is also re-estimated with the inclusion of an interaction term between PWRPERP and ACIND. Untabulated results indicate that the coefficients on ACIND and PWRPERP are significant ($p < 0.001$) but the interaction between ACIND and PWRPERP is not significant.

internal reporting; while greater audit committee independence reduces the likelihood that financial misconduct results in external whistle-blowing.

4.7 Discussion and conclusion

The purpose of this study is to examine whether organisational complexity and audit committee quality influence the likelihood that financial misconduct results in external whistle-blowing. To investigate whether organisational complexity and audit committee quality affect the likelihood that financial misconduct results in external whistle-blowing in comparison to internal reporting, a sample is constructed from 312 financial allegations reported in the press.

This study predicts that organisational complexity, as measured by firm diversification, will increase the likelihood that financial misconduct results in external whistle-blowing. The results indicate a higher likelihood that financial misconduct results in external whistle-blowing, in comparison to internal reporting, when there is greater organisational complexity. The findings highlight the need for management in complex firms to develop and implement a sound internal reporting system. An avenue for future research is to examine other dimensions of organisational complexity, such as the number of activities, number of subsystems or degree of occupational specialisation within the firm.

This study also predicts that a higher quality audit committee – as measured by independence, expertise and meeting frequency of the audit committee – reduces the likelihood that financial misconduct results in external whistle-blowing. The results indicate that an audit committee with greater independence, but not meeting frequency or expertise, reduces the likelihood that financial misconduct results in external whistle-blowing. The results suggest that an audit committee with greater independence can help minimise the incidence of external whistle-blowing. Future research can examine other governance characteristics, such as inter-locking directors or compensation to directors.

Comparing employee to non-employee whistle-blowing, the results indicate that, for employees and non-employees, greater firm complexity increases the likelihood that financial misconduct results in external whistle-blowing. The results also indicate that, for employees but not for non-employees, greater audit committee independence reduces the likelihood that financial misconduct results in external whistle-blowing. These findings are consistent with the findings in Study 2 of the differences between the predictors of employees and non-employees whistle-blowing versus internal reporting.

The limitations to this study include the following. The sample was constructed based on publically available information on alleged financial misconduct reported in the press. A limitation is that there are clearly many unobservable internal reporting events not reported by the press. The observable allegations reported by the press are arguably more serious, substantiated and potentially biased towards more sensational or newsworthy financial misconduct perpetrated in larger firms (Miller 2006). The analysis controls for the size of the company and the reported magnitude of the financial allegation; however, the results must still be interpreted with respect to this limitation. Another limitation is the relatively small sample size. The results may also not be generalisable to private companies and not-for-profit entities because only listed companies were examined. An avenue for future research is to examine whether the results of this study are consistent in other types of organisations.

In summary, this chapter has presented a study that contributes to the understanding the choice of whistle-blowing channel by examining whether organisational complexity and audit committee quality influence the likelihood that financial misconduct is internally or externally reported. The findings should be of interest because the results suggest that while firms face a higher risk of external whistle-blowing with increasing firm complexity, this problem may be alleviated when there is greater audit committee independence. Future research from a variety of methodological approaches can be undertaken to understand more fully the effects of organisational complexity and the audit committee on external whistle-blowing.

CHAPTER 5: STUDY 4

When does management retaliate against whistle-blowers?

5.1 Introduction

Retaliation is a key deterrent to reporting misconduct (Miceli, Near, and Dworkin 2009; Near and Miceli 1986; Rehg et al. 2008) and can impede the effectiveness of whistle-blowing as a mechanism to detect fraud. This study examines when whistle-blowers that report financial misconduct are retaliated against. Retaliation is a significant barrier that impedes the internal disclosure of misconduct (King and Hermodson 2000; Mayer et al. 2013) and increases external whistle-blowing (Callahan and Dworkin 1994; Rehg et al. 2008). Despite growing legislation that provides protection for whistle-blowers,[78] researchers have highlighted that these laws have not been effective at protecting whistle-blowers (Dworkin 2007; Dworkin and Brown 2013; MacNamara 1991; Miceli, Near, and Dworkin 2008). Near and Miceli (2008, 277) state that more research is needed to understand why some whistle-blowers are more likely than others to suffer reprisal. The purpose of this study is to examine when whistle-blowers experience retaliation.[79] In particular, this study considers the role of other individuals in insulating whistle-blowers from retaliation because Sawyer, Johnson, and Holub (2010) contend that bystanders can play an important role by conferring legitimacy to the whistle-blower.

Research has considered whistle-blowing retaliation to be a form of victimisation (Cortina and Magley 2003; Matthiesen, Bjørkelo, and Burke 2010; Near and Miceli 2008). This study draws on the routine activity theory (Cohen and Felson 1979) – a theory often considered as a theory of victimisation (Bernburg and Thorlindsson 2001, 544) – to provide useful insights to

[78] For example, Australia, Canada, New Zealand, South Africa, South Korea, the UK and the US have enacted some form of legislations to protect whistle-blowers (Latimer and Brown 2008). In Australia, protection for corporate whistle-blowers is provided in Part 9.4AAA of the *Corporations Act 2001 (Cth)*.

[79] This study examines retaliation in the context of financial misconduct because fraud results in sizeable losses for the firm (Rezaee 2005) and the fear of retaliation has been suggested to impede employees reporting on fraud (ACFE 2010). The importance of protecting whistle-blowers who report financial misconduct is such that the *SOX Act* of 2002 and the *Dodd-Frank Act (2010)* include provisions to protect whistle-blowers who reported financial misdeeds against retaliation.

the conditions that exacerbate or reduce the occurrence of a retaliation event. In the context of whistle-blowing, the application of routine activity theory would suggest that whistle-blowing retaliation is likely to occur when management is motivated, when the whistle-blower is perceived to be a suitable target, and when there is a lack of capable guardians.

This chapter is organised as follows. Section 5.2 provides a background on whistle-blowing retaliation. Prior research on whistle-blowing retaliation is reviewed in Section 5.3. Section 5.4 frames whistle-blowing retaliation from the perspective of a routine activity framework. Section 5.5 describes the research methodology. The qualitative analysis is presented in Section 5.6 and the quantitative analysis is presented in Section 5.7. Section 5.8 presents additional analyses and Section 5.9 concludes this study.

5.2 Background on whistle-blowing retaliation

A whistle-blowing report on misconduct may be met by retaliation against the whistle-blower. Often, these retaliatory actions are undertaken by management (Smith and Brown 2008). Whistle-blowing retaliation is defined as the undesirable action taken against a whistle-blower who reported wrongdoing internally (within the organisation) or externally (outside the organisation) (Near and Miceli 2008; Rehg et al. 2008). Retaliation against whistle-blowers can be formal and official, such as job termination and selective downsizing; or informal and unofficial, such as tighter scrutiny of daily activities by management (Hedin and Månsson 2012), social confrontation and threat (Bjørkelo and Matthiesen 2011). In the Australian context, victimisation of a whistle-blower is taken to include causing actual detriment to another person or threatening to cause detriment to another person, both expressed or implied, and conditional or unconditional (s1317AC of the *Corporations Act 2001 [Cth]*).

Whistle-blowing protection for corporate whistle-blowers in Australia was introduced in 2004 under Part 9.4AAA of the Corporations Act 2001 (Cth). However, the provisions have been criticised as weak, ineffective and severely limited (Dworkin and Brown 2013; Williams

2013b; Williams 2014). For example, a whistle-blower who is eligible for protection must be an employee or contractor (or their employee) of the company (s1317AA of the *Corporations Act 2001 [Cth]*). Existing laws do not protect other parties who may observe misconduct and be vulnerable to retaliation, such as former employees, financial advisers, unpaid workers and business partners (ASIC 2013). The scope of whistle-blowing protection also only covers breaches of corporations' legislation, and does not extend to breaches in other legislation, such as criminal legislation (ASIC 2013; Dworkin and Brown 2013). The ineffectiveness of existing provisions is such that 'no known actions (criminal or civil have been brought under the provisions in the eight years of their existence' (Dworkin and Brown 2013, 690).

Understanding when retaliation occurs and how whistle-blowers can be protected is important because retaliation reduces the likelihood of internal reporting (King and Hermodson 2000; Mayer et al. 2013) and increases the likelihood of external whistle-blowing (Rehg et al. 2008). In addition, retaliation can be costly to the company[80] as well as the whistle-blower.[81] The purpose of this study is thus to understand the circumstances under which management retaliates against whistle-blowers. The next section provides a review of the predictors of whistle-blowing retaliation.

5.3 Prior research on whistle-blowing retaliation

Research on whistle-blowing retaliation has largely drawn on theories of power. By drawing on power theories, studies suggest that whistle-blowing retaliation is more likely to occur

[80] The high cost of undertaking retaliatory action to the company has been highlighted in the press. In one case, a company was made to pay the whistle-blower almost AUD$1.4 million in severance pay, with legal sources further estimating that the legal bills to the company could reach AUD$10 million (Speedy 2012). In another case, the a company paid the whistle-blower AUD$1.75 million in a private settlement, while incurring over AUD$12 million in legal costs (Maley 1999).

[81] The heavy toll on individuals who endured retaliatory actions has been expressed by whistle-blowers in press reports. One whistle-blower, Geoff Marr, commented that, 'Few people have had to endure the hardships I have been put through. This limits their ability to comprehend the impact of the anguish, strain and depression generated... Millions of dollars have been spent in the corporation's efforts to destroy my credibility and ruin me financially. Telstra has achieved the latter, but no amount of money will change the truth... I will never be able to put this matter behind me' (Wainwright 1999). Another whistle-blower, Jeff Morris, commented that, 'When you choose to tread the path of the whistleblower, you knowingly take arms against a sea of troubles' (Morris 2013) and 'My advice is don't be a whistleblower, he said. The stress is unbelievable. The impact on me and my family was horrendous' (Ferguson and Vedelago 2013a).

when the wrongdoer has relatively greater power than the whistle-blower, when the organisation is more dependent on the wrongdoer, and when the organisation is more dependent on the misconduct (Miceli and Near 1989; Miceli, Near, and Schwenk 1991; Near and Miceli 2008; Rehg et al. 2008; Rothschild and Miethe 1999). A recent study proposed that perceived threats to one's ego, group or system affect emotions such as anger, shame and fear, which lead to retaliation (Sumanth, Mayer, and Kay 2011). Based on theoretical power models, empirical research has examined variables related to the personal characteristics of the whistle-blower, misconduct, perpetrator and organisational environment. The empirical findings of the predictors of whistle-blowing retaliation are presented in Appendix 5.1.

Research on retaliation generally focuses on the characteristics of the whistle-blower. Whistle-blowers who experience retaliation often are more highly educated (Rothschild and Miethe 1999; Skivenes and Trygstad 2010), are from a minority race (Miceli et al. 1999; Rothschild and Miethe 1999), have lower power (Rehg et al. 2008), have lower perceived role responsibility for reporting (Casal and Zalkind 1995) and had confronted the perpetrator previously (Cortina and Magley 2003). Retaliation is also more likely when misconduct has a direct effect on the whistle-blower (Rehg et al. 2008). In general, studies have not found that other socio-demographics affect the likelihood of retaliation, such as gender (Miceli et al. 1999; Rothschild and Miethe 1999), age (Lee, Heilmann, and Near 2004; Rothschild and Miethe 1999), tenure (Miceli et al. 1999; Skivenes and Trygstad 2010) and pay grade (Miceli and Near 1989; Near and Miceli 1986).

Power theories also suggest that whistle-blowers are more likely to be retaliated against when they have less power within the organisation. Whistle-blowers have less power and are more likely to be retaliated against when the organisational climate is more tolerant of misconduct (Bergman et al. 2002) and less ethical (Miceli and Near 1994), and when there is lack of organisational support for whistle-blowing (Casal and Zalkind 1995; Miceli et al. 1999; Parmerlee, Near, and Jensen 1982). In contrast, retaliation is less likely when there is an anti-

retaliatory organisational climate (Near, Baucus, and Miceli 1993) and when management provides a reporting policy (Cortina and Magley 2003).

Research on retaliation has also examined the characteristics of the perpetrator and the misconduct. Power theories suggest that retaliation is more likely when the organisation is more dependent on the wrongdoer or the misconduct. Consistent with theoretical predictions, studies have documented that retaliation is more likely when the wrongdoer has a higher organisational position (Bergman et al. 2002; Lee, Heilmann, and Near 2004) or higher power (Cortina and Magley 2003), and when correcting the misconduct is detrimental to the organisation (Miceli and Near 1994).

Taken together, prior research on retaliation has generally focused on identifying the characteristics of the perpetrator and whistle-blower that affect retaliation. This study extends prior research by drawing on the routine activity theory (Cohen and Felson 1979; Felson 2008), which emphasises the role of other individuals in insulating whistle-blowers from retaliation. This is consistent with Sawyer, Johnson, and Holub (2010) who contended that bystanders[82] can play an important role by conferring legitimacy to the whistle-blower. The next section frames whistle-blowing retaliation from a routine activity framework perspective.

5.4 Framing whistle-blowing retaliation from a routine activity framework perspective

Whistle-blowing research has considered retaliation to be a form of victimisation (Matthiesen, Bjørkelo, and Burke 2010; Near and Miceli 2008). This study draws on the routine activity theory (Cohen and Felson 1979; Felson 2008) – a criminology theory[83] that is 'often regarded as a theory of victimisation' (Bernburg and Thorlindsson 2001, 544) – to identify factors that trigger retaliation. Routine activity theory focuses on the situational factors that create the

[82] Bystanders are other entities with no direct involvement in the misconduct and include parties such as other employees of the organisation, the media, politicians and taxpayers (Sawyer, Johnson, and Holub 2010).

[83] Whistle-blowing retaliation can be a criminal offence. For example in the US, there are criminal penalties for retaliating against external whistle-blowers under Section 1107 of *the SOX Act (2002)*. In Australia, Part 9.4AAA of the *Corporations Act 2001 (Cth)* makes the victimisation of corporate whistle-blowers a crime (ASIC 2010a).

retaliation event, instead of viewing management or the whistle-blower as having personal characteristics that make retaliation more or less likely to occur.[84]

Routine activity theory asserts that victimisation occurs when there is a motivated offender, a suitable target, and the absence of a capable guardian to protect the target (Cohen and Felson 1979).[85] The theory has been used to explain victimisation in a wide range of contexts such as household victimisation (Dugan and Apel 2005; Mannon 1997; Schreck and Fisher 2004; Thompson and Fisher 1996), and workplace victimisations (Lynch 1987; Madriz 1996; Reyns, Henson, and Fisher 2011; Wooldredge, Cullen, and Latessa 1992). While the theory was initially developed to explain direct-contact predatory violations, the theory has been expanded to consider beyond direct-contact offenses such as stalking victimisation (Mustaine and Tewksbury 1999), larceny theft victimisation (Mustaine and Tewksbury 1998; Xu 2009), and online victimisation (Holt and Bossler 2008; Hutchings and Hayes 2009; Marcum, Higgins, and Ricketts 2010). The theory has also been expanded to consider deviant but non-criminal behaviours (Bernburg and Thorlindsson 2001; Osgood et al. 1996; Vazsonyi et al. 2002), non-routine crimes (Felson 2008), and deliberate (as opposed to opportunistic) targets of victimisation (Dugan and Apel 2005). A discussion of routine activity theory in the context of whistle-blowing retaliation follows.

According to routine activity theory, a victimisation event occurs in the presence of a motivated offender (Cohen and Felson 1979). A motivated offender is any person who might, for any reason, be motivated and have the ability to victimise another individual (De Coster, Estes, and Mueller 1999; Sasse 2005). The theory does not explicate when individuals may be motivated, but prior research on whistle-blowing retaliation suggests that management could

[84] Routine activity theory does not deny the importance of understanding the characteristics of the offender and victim that affect the incidence of retaliation, but argues that the situational and environmental characteristics are more important in understanding why victimisation occurs (Ngo and Paternoster 2011).

[85] Convergence of the offender and victim does not need to occur in a physical location (Grabosky 2001; Reyns, Henson, and Fisher 2011). Studies on online victimisation provide empirical support of the applicability of routine activity theory in situations where victimisation occurs without physical convergence (see, e.g. Holt and Bossler 2008; Hutchings and Hayes 2009; Marcum, Higgins, and Ricketts 2010; Reyns 2013).

be motivated to retaliate to ensure organisational legitimacy and survival (Near and Miceli 1996; Sawyer, Johnson, and Holub 2010) or as a means of controlling their employees to maintain the power-dependence relationships in the organisation (Near and Jensen 1983; Parmerlee, Near, and Jensen 1982).

Routine activity theory posits that target suitability affects the likelihood of a victimisation event (Cohen and Felson 1979). Individuals who are suitable targets are those who are more attractive, visible, and accessible (Cohen and Felson 1979; De Coster, Estes, and Mueller 1999; Finkelhor and Asdigian 1996; Lynch 1987; Mustaine and Tewksbury 1999). In the context of whistle-blowing retaliation, a whistle-blower is likely to be seen as an attractive target for retaliation when the whistle-blowing report poses a greater threat to the organisation. The more threatening the whistle-blowing report, the more management is likely to retaliate in order to discredit or silence the whistle-blower (Near and Jensen 1983; Parmerlee, Near, and Jensen 1982; Rehg et al. 2008). A whistle-blower who is known and identifiable to management is also likely to face a greater risk of retaliation because increased visibility enables management to easily undertake retaliatory actions, and this exposes the whistle-blower to a more comprehensive range of retaliatory actions.

Routine activity theory also explains that the likelihood of a victimisation event increases when guardians who can protect victims are absent or ineffective (Cohen and Felson 1979; Tseloni et al. 2004). Guardianship refers to the capability of people and objects to prevent victimisation from occurring (Sasse 2005; Tseloni et al. 2004). In the context of whistle-blowing retaliation, guardians who may be able to act and insulate whistle-blowers from retaliation would equate to internal and external monitors of the company. When internal and external monitors are ineffective at monitoring the actions of management, this is likely to increase the likelihood of retaliation. In summary, this study draws on routine activity theory to suggest that, in the whistle-blowing context, retaliation is likely to occur when management

is motivated, when a suitable target is presented, and when the whistle-blower is not adequately protected against retaliation.

5.5 Research methodology

This study employs a mixed-method approach using textual and empirical analysis, to investigate when management retaliates against whistle-blowers. A mixed-method design is advantageous to this study because whistle-blowing retaliation cases are relatively infrequent, and a mixed-method approach is useful in adding power of analysis to a small sample size (De Silva 2011).[86] The use of a mixed-method design allows the study to examine different facets of the same phenomenon, yielding an enriched understanding of the phenomenon (Greene, Caracelli, and Graham 1989, 258).

This study initially investigates retaliation against whistle-blowers through a textual analysis of media coverage around whistle-blowing retaliation events. Using a sample constructed by gathering whistle-blowing events reported in the press, a logistic regression is then employed to examine factors predicted to be associated with the likelihood of whistle-blowing retaliation. Without direct access to the whistle-blower or whistle-blowing report recipient, the media offers a fruitful method for exploring the actions undertaken by management against the whistle-blower. Press reports have been used in similar contexts where direct access to participants is not a viable research approach (e.g. Andon and Free 2012, 2014). Using press reports has the advantage of providing data on the process and pattern of whistle-blowing retaliation that are usually unavailable through survey or archival research. The investigative role of the press can also provide new information beyond that obtained from other sources (Miller 2006, 1029). A limitation is that there are many unobservable internal retaliation events not reported by the press. The reported allegations are arguably, more serious and

[86] A mixed-method approach to study human behaviour is common because it can overcome some of the methodological weaknesses of single-method research when studying behaviours (De Silva 2011). Research employing a mixed-method approach in accounting is growing (Cameron and Molina-Azorin 2011; Grafton, Lillis, and Mahama 2011), and has been used in management accounting (Davila and Foster 2007; Wouters and Wilderom 2008), environmental accounting (Islam and Deegan 2008; Wilmshurst and Frost 2000) and financial accounting (Cohen, Krishnamoorthy, and Wright 2010; Graham, Harvey, and Rajgopal 2005).

substantiated allegations, given that these reports often become known because a formal charge was filed against the perpetrator.

5.6 Qualitative analysis of whistle-blowing retaliation

This section presents the qualitative analysis. The retaliation sample is described in Section 5.6.1. Section 5.6.2 describes the coding of retaliation cases. Descriptive of the retaliation cases is reported in Section 5.6.3. Section 5.6.4 presents the analysis of when whistle-blowers experience retaliation.

5.6.1 Retaliation sample

A textual analysis of media coverage around retaliation events is used to provide a more elaborated understanding of these events. Appendix 5.2 provides a summary of the data sources and description of the data collection. The sample of retaliation cases is constructed by gathering cases of whistle-blowing retaliation that were reported in the press. This involved gathering financial allegations involving whistle-blowing[87] reported in the press and, from these cases, identifying incidences of whistle-blowing retaliation. Financial allegations involving whistle-blowing reported in the press were collected by conducting searches on Factiva using terms such as 'fraud', 'financial fraud', 'theft', 'misappropriation', 'bribery', 'kickbacks', 'rort', 'price-fixing' and 'fraudulent reporting', in combination with terms such as 'whistle-blowing', 'whistle-blower(s)', 'blow the whistle', 'tip off', 'internally reported', 'internal investigation' or 'internally investigated'. The searches performed on Factiva covered the entire text of the news article. Related documents issued by public authorities,

[87] The whistle-blowing cases include internal and external whistle-blowing. Internal whistle-blowing is when a report is made within the firm to management, while external whistle-blowing is when the whistle-blower reports to an external party. External whistle-blowing involves either an allegation that was preceded by an unsuccessful attempt at internal whistle-blowing, or the whistle-blower directly disclosing an allegation outside the organisation. This includes references that the financial allegation was reported to the media or to other external parties, such as regulators or parliamentary members. An allegation was attributed as internal whistle-blowing if the allegation was referenced in the press as having stemmed from an internal tip, audit, review or internal investigation, or as being otherwise uncovered internally by the company. For a detailed explanation of the classification of internal and external whistle-blowing cases, refer to Section 3.4.4 and Figure 3.1.

trial documents and other third-party investigatory reports were also obtained to confirm and refine the data extracted from the press articles.

The sample period was 1992 to 2013. A total of 368 financial allegations involving whistle-blowing were obtained from the searches. For each financial allegation, news articles relating to the reporting, investigation and hearing of the alleged misconduct were read to identify incidences of retaliation. Within the sample of whistle-blowing events, retaliation following a report of misconduct was observed in 38 cases. The rate of retaliation in the sample (10 percent) is comparable to Rehg et al. (2008), and while small, is comparable to prior studies.[88]

5.6.2 Coding of retaliation cases

A qualitative codebook was developed using the NVivo 10 software program to collect, sort, organise and code data. Electronic news articles of the 38 retaliation cases were uploaded to NVivo. To provide insights as to the target of retaliation and the type of retaliatory action experienced, the following items were coded: the number and gender of whistle-blowers who experienced retaliation, whether the whistle-blowing report was made by an individual or group, the organisational affiliation of the victim, and the type of retaliatory action experienced.[89] The initial coding of the type of retaliatory action was guided by a list of retaliatory actions identified in prior research (Cortina and Magley 2003; Dworkin and Baucus 1998; Parmerlee, Near, and Jensen 1982; Rehg et al. 2008).[90] The manual coding of the type of retaliatory action was complemented using NVivo's Text Search function by searching for terms such as 'terminate', 'fired', 'sacked', 'spy', 'suspend', 'threat', 'harass', 'reassign' and 'relocate'. To reduce overlaps, a second round of coding was conducted to collapse and combine related categories.

[88] For example, Dworkin and Bascus (1998) studied 33 retaliation cases and 21 cases were analysed in Hedin and Månsson (2012).

[89] An independent coder classified a sub-sample of 10 percent of the observations. The resulting inter-rater reliability for the raters was found to be Kappa = 0.848 (p = 0.000), indicating a reasonably high level of agreement (Landis and Koch 1977).

[90] Refer to Appendix 5.3 for a list of retaliatory actions identified in prior research.

To systematically analyse the circumstances under which retaliation occurs, the NVivo software was used to develop a hierarchy of thematic codes (referred to as 'nodes' in NVivo). NVivo permits an iterative coding process where categories can be added, combined or eliminated to a node (Andon and Free 2012). The analysis of text to examine the circumstances under which management retaliates against whistle-blowers was focused on explicitly interest-laden discourse around the retaliation event. This study seeks to identify recurring and common themes imbedded in the media coverage of the retaliation event that relate to the primary themes of routine activity theory. That is, the primary nodes are – motivation of management, target suitability and the absence of capable guardians. The node summary report in NVivo was also used to examine the frequency that each node was coded. This approach raises the possibility of selective sourcing, thus the results must be interpreted with respect to this limitation.

5.6.3 The target of retaliation, and type of retaliatory action

The target of retaliation is reported in Panel A of Table 5.1. The individuals most often targeted for retaliation are general employees (47 percent), as distinct from executives (15 percent) and directors (nine percent) of the company. The majority were males (94 percent). As reported in the press, more than one individual experienced retaliation in 24 percent (9/38) of the cases.

Panel B of Table 5.1 reports the type of retaliatory action experienced by the whistle-blower as reported in press reports, together with illustrative examples. Whistle-blowers often face adverse workplace actions. The loss of employment made up 21 percent of retaliatory actions taken, and is the most frequently observed form of retaliatory action experienced. Other adverse employment actions reported include being suspended, being relocated from the current job position, having responsibilities stripped away, and being denied promotion (12 percent). In addition to being subjected to formal retaliatory actions (i.e. adverse employment action), whistle-blowers experience informal retaliatory actions such as social confrontation,

abuse and harassment (18 percent); excessive or illegal surveillance (five percent); and physical intimidation (four percent). To stymie investigation or cover up misconduct, management have been reported in the press to conceal or fabricate evidence (13 percent). Such retaliatory actions include manipulating the company's internal disciplinary system, discarding and shredding evidence, falsifying statements and coercing witnesses. Management also undertook retaliatory action through the legal system by pursuing legal action (16 percent) and obtaining suppression orders (12 percent). Legal actions have been reported to be pursued to run the whistle-blower out of funds in order to discontinue his or her claim, or to delay or prevent the whistle-blower from exposing the fraudulent misconduct.

Table 5.1: Target of retaliation and type of retaliatory action

Panel A: Target of retaliation

Target [a]	Frequency [b]	Percentage
General employee of the company	22	47%
Executive of the company	7	15%
Director of the company	4	9%
External party to the company	14	30%
Total	47	100%

[a] As multiple whistle-blowers experienced retaliation in some cases, the number of individuals reported in Panel A is greater than the total number of cases.

[b] This is a conservative count of the number of individuals who experienced retaliation. In two cases, the number of whistle-blowers was not specified. In the first case, the media did not mention the total number of whistle-blowers in the group, but referenced two members. Accordingly, the frequency is coded as '2'. In the second case, the group was collectively referred to in the media as the 'whistle-blowers'; thus, the frequency is coded as '1'.

Panel B: Type of retaliatory action

Actual or threatened retaliatory action	Count [c]	%	Illustrative examples from the press
Loss of job	16	21%	'He claimed Mr Billis and Mr Giovinazzo had organised his employment with Oretek but they sacked him two weeks ago after learning he had passed on documents to McLernon Investigations and ASIC.' – *The West Australian*, 19 October 2001
Social confrontation, abuse and harassment	14	18%	'Bowman suffered an extraordinary campaign of harassment after he publicly declared his reservations about Coles through letters to the Australian Stock Exchange and detailed affidavits lodged through the Supreme Court in Victoria. Coles directors hit the mainstream media in a bid to stem the fallout ... Bowman

			was portrayed in the media and in business circles over a period of months as a corporate blackmailer.' – *The Australian Financial Review*, 31 May 1996
Legal action	12	16%	'AAco has now launched a defamation claim against Perth businessman Don Fuller, who yesterday emailed more than 60 media outlets worldwide alleging the cattle numbers which represent about 31 percent of the company's gross assets were not accurate.' – *The Australian Financial Review*, 27 March 2009
Concealment or fabrication of evidence	10	13%	'The court was told the alleged cover-up went right to the top of casino management. Senior managers "scuttled" an initial police investigation by giving documents to defence solicitors and ridiculing whistleblowers ... One manager had dismissed the alleged fraud as "a storm in a teacup" and was overheard describing two whistleblowers as "arseholes and troublemakers". Sgt Bettany said senior management was involved in compiling a false statement "in a deliberate attempt to prevent proper investigation."' – *The Courier-Mail*, 12 August 2009
Other adverse employment action (job relocation, reassignment, suspension or denial of promotion)	9	12%	'"I sent an email to the then chief executive Craig White about some concerns I had about the way some of the directors were doing their job, doing their duties", ... The next morning, "Craig called me and told me I should go home", ... Mr Kennedy said before he was suspended he had approved an internal investigation into a $130 million transaction that another colleague had raised doubts about. That colleague also left before the audit was completed ... At one stage, concerned about conflicts of interest, Mr Kennedy said he tried to encourage Mr White to resign from a committee ... "Craig said he didn't want that ... at that point, risk and compliance was removed from one of my areas of responsibility", Mr Kennedy said.' – *The Sydney Morning Herald*, 13 April 2010
Suppression order	9	12%	'Amcor has gagged five former executives from talking about its price-fixing scandal as the Australian Competition and Consumer Commission analyses six CD-Rom recordings containing material relating to alleged anti-competitive behaviour by the company in the cardboard box market ... Lawyers for the five former executives have complained that Amcor's gag order, obtained from the Federal Court last month, prevented them from co-operating with the ACCC, becoming protected "whistleblowers" and receiving preferential treatment ... The suppression strategy by Amcor is also denying the media access to certain hearings and documents.'– *The Australian Financial Review*, 10 December 2004
Excessive or illegal surveillance	4	5%	'Telstra hired a private investigation firm, which obtained confidential police and credit files and maintained a round-the-clock surveillance and searched Mr Marr's garbage; used its own security staff to get confidential medical, immigration and banking records; tapped private telephones and shredded records.' – *The Sydney Morning Herald*, 29 November 1999

Physical harm	3	4%	'McLernon says he has been chasing Giovinazzo for yonks on behalf of clients who were ripped off in a share scam that ended up with The Nose doing a stretch for fraud ... McLernon said he decided to decamp but was pursued by a limousine driven by Billis and with Giovinazzo as a passenger. He said Billis cut off his Commodore on Bowman Street. Giovinazzo and Billis, armed with a baseball bat, came running. Billis whacked the back window of the Commodore and shattered the glass.' – *The West Australian*, 13 October 2001
	77	100%	

[c] The total number of retaliatory actions reported exceeds the number of retaliation cases because management undertook more than one form of retaliatory action in several cases.

Table 5.1 provides an analysis of 38 whistle-blowing retaliation events reported in the press. Panel A reports the target of retaliation, while Panel B reports the type of retaliatory action experienced.

Taken together, the analysis indicates that whistle-blowers experience a comprehensive range of retaliatory actions, and are often subjected to more than one form of retaliation. The comprehensive range of retaliatory actions experienced by whistle-blowers emphasises the need to understand when whistle-blowers are more or less likely to be retaliated against so that anti-retaliation strategies can be developed to insulate whistle-blowers from retaliation.

Table 5.2: Themes associated with whistle-blowing retaliation

Thematic concern	Cases referenced to thematic concern	
	Number	Percentage
Management's motivation to retaliate		
Detrimental to organisation's economic interests	31	82%
Detrimental to management's personal interests	27	71%
Target suitability		
Individual has convincing evidence of misconduct	26	68%
Individual lacks power	25	66%
Absence of capable guardians		
Absence of capable internal guardians	32	84%
Absence of capable external guardians	14	37%

Table 5.2 reports the key themes associated with whistle-blowing retaliation, and the sub-themes that emerged from the analysis.

5.6.4 Analysis of retaliation cases

Drawing on the routine activity approach, the analysis of when whistle-blowers experience retaliation resulted in the emergence of sub-nodes for each theme: motivation of management,

target suitability and the absence of capable guardians. The primary theme and sub-nodes that emerged are presented in Table 5.2. The three primary themes are present in the majority of cases (34/38, 90 percent), and the four remaining cases have two of the three primary themes. This is consistent with the theory that retaliation is likely to occur when there is convergence of a motivated offender, a suitable target and the absence of capable guardians.

Management's motivation to retaliate

From the analysis, two potential motivations for management to retaliate emerge. One motivation, referenced in 82 percent of the cases, is when the exposure of misconduct is detrimental to the organisation's economic interests. In the news articles, management was reported to be seeking to protect the economic interests of their firm, such as preventing a significant negative effect on the firm's cash flows or liquidity, damages to reputation, and the potential loss of material business deals:

> Metcash has asked the Federal Court to stop a disgruntled businessman making claims about its business practices, fearing he could sabotage its attempted takeover of the Mitre 10 hardware chain ... Metcash said Mr Bunn's newsletter had 'the potential to cause negotiations between Metcash and Mitre 10 to break down and for a transaction that would otherwise have proceeded to be derailed.' – *The Australian Financial Review*, 9 December 2009

> Coles executive Peter Scott will finally face his accusers on Monday over claims that he spilled the beans on the underperformance of the supermarkets business, which ultimately led to Australia's second-largest retailer being put up for sale ... The action could also serve as an example to silence any other potential whistle-blowers who may seek to derail the merger. – *The Australian*, 11 August 2007

The other sub-theme that emerges is that retaliation appears to occur when exposing the misconduct is detrimental to management's personal interests. These personal interests, referenced in 71 percent of the cases, include the loss of material personal benefit, potential litigation and a tarnished reputation:

> Allegations [that] 'ghost cattle' are being mustered onto the Australian Agricultural Company's books have found their way to the Queensland Supreme Court, with the minutiae of cattle accounting now the subject of defamation action by the company's directors... The company directors allege that Mr Fuller has defamed them by virtue of his comments and that their professional reputations have been damaged as a result. – *The Age*, 22 April 2009

Suitable target

Two sub-themes emerge from the analysis of situations in which a whistle-blower is likely to be perceived as a suitable target. One sub-theme is that a whistle-blower appears to be perceived as a suitable target when the whistle-blower has greater knowledge of misconduct or convincing evidence of misconduct (referenced in 68 percent of the cases). This is consistent with suggestions from prior research that management is more likely to retaliate when the whistle-blowing report is more threatening (Near and Jensen 1983; Parmerlee, Near, and Jensen 1982; Rehg et al. 2008). Retaliation victims have been referenced in the press as being intimately involved in perpetrating the misconduct, or as holding key documents and evidence that supported their claim of misconduct:

> Amcor 'came after' former executives because they were going to break up its price-fixing cartel with Richard Prat''s Visy group, the Supreme Court has heard ... Mr Gunst told the court Mr Hodgson had blown the whistle on the cartel by handing over to Amcor audio tapes implicating the company in price fixing. – *The Sydney Morning Herald*, 19 May 2011

> A former Metropolitan Police commander who worked for Murdoch, Ray Adams, orchestrated an extraordinary legal campaign to destroy the reputation of a Swiss hacker, Jan Saggiori, who held key evidence that News had sabotaged its competitors' products. – *The Australian Financial Review*, 28 March 2012

A second sub-theme that emerges is that a whistle-blower appears to be perceived as a suitable target for retaliation when the whistle-blower is weak and lacks power, as referenced in 66 percent of the cases. This sentiment has been expressed by whistle-blowers in the press,

in which they described the relative ease of management undertaking retaliatory action against them or their challenge against the company:

> Marr was suspended without pay, accused, among other things, of secretly downloading and selling confidential information. 'They thought it was easier to get rid of me rather than solve the problem', he told investigators in 1995. – *The Sydney Morning Herald*, 29 November 1999

> Yesterday a crestfallen Mr Locke said: 'Whilst the decision is disappointing I will fight on because right is on my side. It is very difficult for a small individual to take on a bank. The odds are stacked against you.' – *The Sydney Morning Herald*, 28 March 2002

Absence of capable guardians

The analysis identifies two sub-themes relating to the absence of capable guardians who can protect whistle-blowers. The first sub-theme that emerges is the absence of effective internal monitors. In 84 percent of cases, the news articles referenced the presence of over-domineering unethical leaders, an intimidating or unethical organisational culture, poor tone at the top or an ineffective board:

> Mr Gentilin said that when he initially questioned the integrity of foreign exchange desk boss Luke Duffy, management turned a blind eye ... 'Luke basically took me aside and told me in no uncertain terms that if I wanted to keep my job I was not to go to Dillon, ... If you queried it, you were threatened', Mr Gentilin said. 'There was a long list of people who left the desk in pretty unceremonious circumstances because they didn't toe the Dillon and Duffy code of etiquette. It was an intimidating environment ... there was no real moral code.' – *The Australian*, 3 May 2006

> 'This committee has nothing to do with good corporate governance and has everything to do with suppressing someone who had courage to say on the record something that embarrassed them' – *The Sydney Morning Herald*, 16 November 2000

A second sub-theme that emerges is the absence of effective external monitors, referenced in 37 percent of the cases. The failure of external monitors – such as the external auditor,

institutional shareholders, lawyers and regulators – to insulate whistle-blowers from retaliation has been highlighted in the press:

> [W]hen Mr Locke had a telephone conversation with Andrew Bouris of Mallesons, lawyers for MCB in late July 1998, he said to Mr Bouris 'So Andrew you're going to be difficult in this matter'. Mr Bouris had replied 'Brian we're not going to be difficult, we're going to be impossible.' – *The Sydney Morning Herald*, 28 March 2002

> One of the whistleblowers who tipped off the Australian Securities and Investments Commission about a scandal inside Commonwealth Bank's financial planning arm has described the regulator's submission to a Senate inquiry as 'inadequate', full of spin and riddled with excuses ... He says despite ASIC's admission that it could have acted quicker and been more transparent in terms of its dealings with the whistleblowers, he felt let down as there was no mention of protection for whistleblowers. 'That's probably because, in reality, there is none. They left me to negotiate my own exit from CBA and when I raised a concern about death threats I believed had been made, I was told by my ASIC contact in a rather offhand manner, "It's probably bullshit but if you're worried, go to the police."' – *The Sydney Morning Herald*, 6 August 2013

Overall, the qualitative analysis suggests that retaliation is more likely to occur when exposing the misconduct is detrimental to the organisation's economic interests and the management's personal interests. A whistle-blower is likely to be perceived as a suitable target when the whistle-blower has greater evidence and is lacking in power. Retaliation is also more likely to occur in the absence of strong internal and external monitoring. The qualitative analysis informs on the variables considered in the quantitative analysis.

5.7 Quantitative analysis of whistle-blowing retaliation

This section presents the quantitative analysis. Section 5.7.1 presents the research model and Section 5.7.2 describes the measurement of the variables. The sample is described in Section 5.7.3. Section 5.7.4 presents the descriptive statistics and Section 5.7.5 presents the analysis of the factors that influence the likelihood of retaliation.

5.7.1 Empirical model

A logistic regression is employed to examine the factors that potentially influence the likelihood of whistle-blowing retaliation. The likelihood of retaliation is modelled as a function of management's motivation to retaliate (GROWTH, LOSS, MGMTINV and VARCOMP), the perceived suitability of the whistle-blower as a target for retaliation (WBINV and EMPLOY), capable guardianship (OUTDIR, INDAC, ETHPERF, BIG4 and AUTH), control variables and industry (based on two-digit GICS sector code) fixed-effect. The following logistic model is estimated (with firm and year subscripts suppressed), and the measures are discussed in Section 5.7.2:

$$\begin{aligned}\Pr(\text{RETALIATE}) = {} & \beta_0 + \beta_1\,\text{GROWTH} + \beta_2\,\text{LOSS} + \beta_3\,\text{MGMTINV} + \beta_4\,\text{VARCOMP} + \\ & \beta_5\,\text{WBINV} + \beta_6\,\text{EMPLOY} + \beta_7\,\text{OUTDIR} + \beta_8\,\text{INDAC} + \beta_9\,\text{BIG4} + \\ & \beta_{10}\,\text{AUTH} + \beta_{11}\,\text{ETHPERF} + \beta_{12}\,\text{SIZE} + \beta_{13}\,\text{EXTWB} + \beta_{14}\,\text{FRDAMT} + \\ & \beta_{15}\,\text{CLERP9} + \sum_{k=1}^{9}\beta_{16,k}\,\text{INDUSTRY} + \varepsilon \qquad (1)\end{aligned}$$

where,

RETALIATE = indicator variable coded '1' if the whistle-blower suffered retaliation for reporting an alleged financial misconduct as reported in the press, and '0' otherwise.

GROWTH = average change in revenue over the past three years prior to the financial allegation.

LOSS = indicator variable coded '1' if the firm reported a loss the year prior to the financial allegation, and '0' otherwise.

MGMTINV = indicator variable coded '1' if the financial misconduct was perpetrated by top management, as reported in the press, and '0' otherwise.

VARCOMP = proportion of top five executives' total remuneration that is variable, as reported in the annual report, for the year prior to the financial allegation.

WBINV = indicator variable coded '1' if the whistle-blower was a participant in the alleged financial misconduct, and '0' otherwise.

EMPLOY = indicator variable coded '1' if the whistle-blower was a general employee as reported in the press, and '0' otherwise.

OUTDIR = proportion of independent directors on the board of directors as reported in the annual report, for the year prior to the financial allegation.

INDAC = proportion of independent directors on the audit committee as reported in the annual report, for the year prior to the financial allegation.

BIG4 = indicator variable coded '1' if the firm was audited by a Big 4 auditor, for the year prior to the financial allegation, and '0' otherwise.

AUTH = indicator variable coded '1' if the whistle-blower blew the whistle to a regulator, as reported in the press, and '0' otherwise.

ETHPERF = indicator variable coded '1' if ethical performance is included as a component of management's compensation as reported in the annual report, for the year prior to the financial allegation, and '0'otherwise.

SIZE = logarithm of total assets in dollars, for the year prior to the financial allegation.

EXTWB = indicator variable coded '1' if the alleged financial misconduct was referenced in the press to result in external whistle-blowing and '0' when referenced to result in internal reporting.

FRDAMT = logarithm of fraud amount in dollars as reported in the press.

INDUSTRY = indicator variables controlling for industry fixed effects, based on two-digit GICS sector code.

5.7.2 Measurement of variables

Dependent variable

The dependent variable is an indicator variable (RETALIATE) that is coded '1' if it was reported in the press that the whistle-blower suffered any form of formal or informal retaliation, and '0' otherwise. Whistle-blowing retaliation is defined as the undesirable action taken against a whistle-blower who reported wrongdoing internally or externally (Near and Miceli 2008; Rehg et al. 2008). For a list of retaliatory actions undertaken by management, as reported in the press, refer to Panel B in Table 5.1.

Variables of interest: Management's motivation to retaliate

The theory and qualitative analysis suggest that retaliation is potentially more likely when exposing misconduct is detrimental to the organisation's economic interests. Accordingly, it is predicted that retaliation is more likely when the company is in a more precarious financial position such as when a firm is experiencing weaker growth or reported a loss in the year prior to the financial allegation. The growth of the firm (GROWTH) is measured by the average change in revenue over the past three years prior to the financial allegation (Bowen, Call, and Rajgopal 2010). An indicator variable (LOSS) is coded '1' if the net profit after tax reported in the annual report for the year prior to the financial allegation was negative, and '0' otherwise. Data on sales revenue and net profit after tax are obtained from Morningstar's DatAnalysis and the Connect 4 database.

Retaliation is also potentially more likely when management's personal interests are at stake. This study predicts that, when misconduct is perpetrated by management, there is a greater

likelihood that management will undertake retaliatory actions to minimise the damage to management's reputation. An indicator variable (MGMTINV) is coded '1' if the alleged financial misconduct was perpetrated by top management as reported in the press,[91] and '0' otherwise. As the exposure of misconduct can be detrimental to the firm, management is potentially more likely to retaliate against the whistle-blower when their compensation is tied to the firm's performance. This study predicts a greater likelihood of retaliation when a greater proportion of management's compensation is variable (VARCOMP). VARCOMP is measured as the variable portion of top five executives' remuneration divided by total remuneration, for the year prior to the financial allegation. The variable portion of total compensation is calculated as total remuneration less fixed salary, fixed non-cash benefits and superannuation, as reported in the annual report. Data on the top five executives' compensation are sourced from the annual reports obtained from Morningstar's DatAnalysis and the Connect 4 database.

Variables of interest: Suitable target

The qualitative analysis suggests that a whistle-blower is likely to be perceived as a suitable target when the whistle-blower has greater evidence of misconduct or lacks power. This study predicts that the likelihood of retaliation is greater when the whistle-blower was involved in perpetrating the financial misconduct because there is potentially greater knowledge and more evidence of misconduct. An indicator variable (WBINV) is coded '1' if the whistle-blower was referenced in the news article to have been involved in perpetrating the alleged financial misconduct, and '0' otherwise. This study also predicts a greater likelihood of retaliation when a whistle-blower was a general employee of the company because the whistle-blower is more likely to be lacking in power.[92] An indicator variable (EMPLOY) is coded '1' if the whistle-blower was a general employee as reported in the press, and '0' otherwise.

[91] Top management includes executives and directors, as referenced in the press reports.

[92] There are potentially various characteristics of the whistle-blower that affect target suitability. In this thesis, I examine the employment status of the whistle-blower (organisational member or not). A future study can consider other characteristics of the whistle-blower where data is available.

Variables of interest: Capable guardianship

The qualitative findings suggest that retaliation occurs in the absence of strong internal monitoring. The independence of board members is important for effective monitoring (Byrd and Hickman 1992; Klein 2002; Krishnan 2005; Weisbach 1988). This study predicts that having greater board independence can reduce the likelihood that management undertakes retaliatory actions. As the audit committee is primarily responsible for overseeing the firm's internal control environment, this study also predicts that having a greater proportion of independent directors on the audit committee can reduce the likelihood of retaliation. The proportions of independent directors[93] on the board (OUTDIR) and on the audit committee (INDAC) are measured by taking the number of independent directors over the total number of directors on the board and audit committee for the year prior to the financial allegation, respectively. When the performance of management is measured based on their ethical behaviour,[94] this promotes greater accountability towards stakeholders and employees, and encourages management to conduct themselves in a responsible and ethical manner. Management is, therefore, potentially less likely to act in ways that are detrimental to the whistle-blower. This study predicts a lower likelihood of retaliation when ethical performance is a component of management's compensation. An indicator variable (ETHPERF) is coded '1' if ethical performance is included as a component of management's compensation as reported in the annual report, for the year prior to the financial allegation, and '0' otherwise. Data on number of directors on the board, independent directors, audit committee members and management's compensation are sourced from the annual reports obtained from Morningstar's DatAnalysis and the Connect 4 database.

[93] An independent director is defined as one who is a non-executive and without any related party transactions with the firm (Koh, Laplante, and Tong 2007).

[94] Ethical behaviour includes ensuring compliance with the law, the fair treatment of employees, the health and safety of employees and society (Fray 2007; Gallego-Alvarez 2008; Gatewood and Carroll 1991). Recommendation 1.2 of ASX's Corporate Governance Principles and Recommendations states that firms disclose the process for evaluating the performance of top executives. Information on performance measures is obtained from the corporate governance statement, directors' or remuneration report of the annual report.

The qualitative findings suggest that retaliation is more likely to occur in the absence of capable external monitors. Regulators are likely to be capable guardians who can protect individuals from retaliation, given their formal authority to investigate and prosecute individuals who retaliate against whistle-blowers. This study predicts a lower likelihood of retaliation when a disclosure of misconduct is made to the regulator. An indicator variable (AUTH) is coded '1' if the whistle-blower reported the financial allegation to a regulator, as reported in the press, and '0' otherwise. External auditors provide a third party whistle-blowing reporting channel (MacNab et al. 2007) to report and raise their concerns, which can reduce the risk of whistle-blowing retaliation (Miceli, Near, and Dworkin 2008). Members of external audit teams in Australia further have legal obligations under the *Corporations Act 2001 (Cth)* to report if they receive a whistle-blowing report, and have to follow certain procedures that ensure the whistle-blower is protected (ASIC 2010b). This study predicts a lower likelihood of retaliation when a firm engages a higher quality external auditor, as indicated by a Big 4 versus non-Big 4 auditor (Khurana and Raman 2004). An indicator variable (BIG4) is coded '1' if the firm was audited by a Big 4 auditor for the year prior to the financial allegation, and '0' otherwise. Data on the firm's external auditor are sourced from the annual reports obtained from Morningstar's DatAnalysis and the Connect 4 database.

Control variables

There is a greater likelihood of whistle-blowing in larger firms (Bowen, Call, and Rajgopal 2010), as such, retaliation is potentially more likely to occur in larger firms. Firm size (SIZE) is measured as the logarithm of total assets in dollars, for the year prior to the financial allegation. Retaliation increases with greater severity of misconduct (Near and Miceli 1986; Rothschild and Miethe 1999). The severity of fraud (FRDAMT) is captured by the cost of the alleged financial misconduct and calculated by the logarithm of the fraud amount in dollars, as reported in the press. Whistle-blowers who use external reporting channels are more likely to experience retaliation (Miceli and Near 1989; Rothschild and Miethe 1999). An indicator variable (EXTWB) is coded '1' if the alleged financial misconduct results in external whistle-

blowing, as reported in the press, and '0' otherwise. Legislation designed to protect whistle-blowers may help insulate whistle-blowers from retaliation. The introduction of CLERP 9 in 2004 provides protection for corporate whistle-blowers. An indicator variable (CLERP9) is coded '1' if the financial allegation was made in or after 2004, and '0' otherwise.[95]

Table 5.3: Sample selection

Incidence of financial allegations involving whistle-blowing (1992 to 2013)	368
Less: Insufficient information on the alleged financial misconduct from reports	12
Less: Multiple financial allegations reported in a firm in the same year	34
Less: Unavailable financial data from the Morningstar and Connect 4 databases	8
Sample size	314

This table describes the sample selection procedure for this study. The initial 368 cases of alleged financial misconduct involving whistle-blowing were gathered from press reports by conducting searches on Factiva using terms such as 'fraud', 'theft', 'misappropriation', 'bribery', 'kickbacks', 'rort', 'price-fixing' and 'fraudulent reporting', in combination with terms including 'whistle-blower(s)', 'blow the whistle', 'tip off', 'internally reported', 'internal investigation' and 'internally investigated'. The final sample size consists of 314 firm-year observations of financial allegations reported in the press.

5.7.3 Sample

The sample selection procedure is summarised in Table 5.3. For each of the 368 financial allegations obtained from the searches on Factiva, related news articles were read to identify when the financial misconduct was alleged, the type of misconduct[96] and the cost and perpetrator/s of the alleged financial misconduct.[97] These items are coded for use in subsequent analyses.[98] There was insufficient information on the alleged financial misconduct

[95] As CLERP 9 was introduced mid-year on 1 July 2004, the model was re-estimated by coding '1' if the financial allegation was made in or after 2005, and '0' otherwise. The results are qualitatively similar.

[96] An alleged wrongdoing was classified as a financial allegation based on the fraud classification by the Association of Certified Fraud Examiners (2010). Appendix 5.4 presents the frequency of financial allegations in this sample by the type of misconduct.

[97] Additional information on financial misconduct was sourced from the ASIC website and from searches of company announcements made to the ASX in order to corroborate and refine the data.

[98] Whenever there was a discrepancy in a reported news item (such as the fraud amount), the most recent news article was used to code the data because, arguably, the facts reported in the most recent news articles are likely to be more accurate.

from press reports in 12 cases. There were instances when a company experienced more than one financial allegation in a given year. When there were multiple observations in the same year, only one financial allegation was retained in the sample[99] and 34 financial allegations were excluded because of multiple observations. Financial data were sourced from Morningstar's DatAnalysis and the Connect 4 database and insufficient data for eight cases constrained the final sample to 314 observations of alleged misconduct involving whistle-blowing. Of the 314 cases, retaliation was referenced in the press in 38 cases.

5.7.4 Descriptive statistics

Table 5.4 presents the descriptive statistics for the variables in the model. The average company in the sample has total assets of AUD$75,532 million. In 11 percent of cases, the company reported a loss in the prior year. The average proportion of independent directors on the board is 78 percent, and 83 percent on the audit committee. The average proportion of variable compensation to executives is 34 percent, and 80 percent of firms were audited by a Big 4 auditor. The average cost of alleged fraud is AUD$37,029,000. In 11 percent of cases, the whistle-blower was involved in perpetrating financial misconduct and in 67 percent of cases, an employee reported misconduct. In 31 percent of cases, financial misconduct resulted in external whistle-blowing.

Retaliation is more likely when the firm experiences lower growth ($p = 0.005$), has a lower proportion of independent directors on the audit committee ($p = 0.003$) and reported a loss in the prior year ($p = 0.039$). Retaliation is also more likely when top management was allegedly involved in perpetrating misconduct ($p < 0.001$), when the whistle-blower was involved in perpetrating the alleged misconduct ($p < 0.001$), when ethical performance was a component of management's compensation ($p = 0.034$), when financial misconduct resulted in external whistle-blowing ($p < 0.001$) and when the cost of alleged misconduct was higher ($p < 0.001$).

[99] As a sensitivity analysis, this study re-estimated the model (1) substituting the cases chosen for inclusion for the excluded cases, and (2) retaining all excluded cases. The results from these two analyses are qualitatively unchanged from the primary results of this study.

Table 5.4: Descriptive statistics

Continuous variables	Mean	Q1	Median	Q3	Std. dev.	Retaliation ($n = 38$)	Non-retaliation ($n = 276$)	Wilcoxon z-score	p-value
Total assets (in AUD$mil)	75,532	754	6,493	49,279	152,947	57,200	78,100	0.789	0.431
SIZE (log)	22.385	20.442	22.594	24.621	2.961	22.378	22.385	–0.042	0.967
Fraud amount (in AUD$'000)	37,029	100	1,200	9,300	159,924	78,800	31,300	–4.625**	0.000
FRDAMT (log)	13.828	11.657	14.006	16.046	3.176	16.007	13.528	–4.849**	0.000
GROWTH	0.136	0.031	0.088	0.188	0.290	0.013	0.153	2.833**	0.005
INDAC	0.834	0.667	1	1	0.276	0.700	0.853	2.953**	0.003
VARCOMP	0.344	0.145	0.350	0.546	0.240	0.346	0.343	0.010	0.992
OUTDIR	0.776	0.714	0.800	0.875	0.137	0.738	0.781	1.549	0.121
Dichotomous variables	% of '1'	'1'	'0'		Std. dev.	Retaliation ($n = 38$)	Non-retaliation ($n = 276$)	Wilcoxon z-score	p-value
RETALIATE	0.12	38	276		0.327				
LOSS	0.11	35	279		0.315	0.211	0.098	–2.066*	0.039
MGMTINV	0.18	55	259		0.381	0.526	0.127	–6.065**	0.000
WBINV	0.11	35	279		0.315	0.342	0.080	–4.811**	0.000
EMPLOY	0.67	209	105		0.473	0.526	0.685	1.938	0.053
BIG4	0.80	250	64		0.403	0.789	0.797	0.109	0.913
AUTH	0.13	42	272		0.341	0.053	0.145	1.565	0.118
ETHPERF	0.36	115	199		0.483	0.211	0.388	2.122**	0.034
EXTWB	0.31	97	217		0.463	0.710	0.254	–5.706**	0.000
CLERP9	0.58	183	131		0.494	0.526	0.591	0.752	0.452
$n = 314$									

** Significant at the 1% level; * significant at the 5% level, using a two-tailed test.

Table 5.4 presents the descriptive statistics of the sample of alleged financial misconduct reported in the press. RETALIATE = '1' if the whistle-blower suffered retaliation for reporting an alleged financial misconduct as reported in the press, and '0' otherwise; GROWTH = average change in revenue over the past three years prior to the financial allegation; LOSS = '1' if the firm reported a loss the year prior to the financial allegation, and '0' otherwise; MGMTINV = '1' if the financial misconduct was perpetrated by top management as reported in the press, and '0' otherwise; VARCOMP = proportion of top five executives' total remuneration that is variable (the variable portion is measured as total remuneration less fixed salary, fixed non-cash benefits and superannuation) as reported in the annual report, for the year prior to the financial allegation.; WBINV = '1' if the whistle-blower was a participant in the alleged financial misconduct, and '0' otherwise; EMPLOY = '1' if the whistle-blower was a general employee as reported in the press, and '0' otherwise; OUTDIR = proportion of independent directors on the board of directors as reported in the annual report, for the year prior to the financial allegation; INDAC = proportion of independent directors on the audit committee as reported in the annual report, for the year prior to the financial allegation; BIG4 = '1' if the firm was audited by a Big 4 auditor, for the year prior to the financial allegation, and '0' otherwise; AUTH = '1' if the whistle-blower blew the whistle to a regulator, as reported in the press, and '0' otherwise; ETHPERF = '1' if ethical performance is included as a component of management's compensation as reported in the annual report, for the year prior to the financial allegation, and '0' otherwise; SIZE = logarithm of total assets in dollars, for the year prior to the financial allegation; EXTWB = '1' if the alleged financial misconduct was referenced in the press to result in external whistle-blowing and '0' when referenced to result in internal reporting; FRDAMT = logarithm of fraud amount in dollars as reported in the press; CLERP9 = '1' if the financial allegation was reported in or after 2004, and '0' otherwise.

Table 5.5: Spearman correlations

	RETALIATE	GROWTH	LOSS	MGMTINV	VARCOMP	WBINV	EMPLOY	OUTDIR	INDAC	BIG4	AUTH	ETHPERF	SIZE	EXTWB	FRDAMT
GROWTH	−0.160														
	(0.004)														
LOSS	0.117	−0.003													
	(0.039)	(0.965)													
MGMTINV	0.343	−0.094	0.210												
	(0.000)	(0.097)	(0.000)												
VARCOMP	−0.001	0.084	−0.312	−0.217											
	(0.992)	(0.138)	(0.000)	(0.000)											
WBINV	0.272	−0.033	−0.061	0.316	−0.046										
	(0.000)	(0.557)	(0.280)	(0.000)	(0.417)										
EMPLOY	−0.110	0.112	0.015	−0.402	0.119	−0.199									
	(0.053)	(0.047)	(0.790)	(0.000)	(0.035)	(0.000)									
OUTDIR	−0.088	−0.001	−0.244	−0.158	0.249	−0.117	0.141								
	(0.122)	(0.980)	(0.000)	(0.005)	(0.000)	(0.039)	(0.013)								
INDAC	−0.167	0.033	−0.248	−0.181	0.353	−0.101	0.210	0.295							
	(0.003)	(0.566)	(0.000)	(0.001)	(0.000)	(0.074)	(0.000)	(0.000)							
BIG4	−0.006	−0.048	−0.273	−0.058	0.289	0.054	0.044	0.191	0.216						
	(0.913)	(0.401)	(0.000)	(0.305)	(0.000)	(0.344)	(0.442)	(0.001)	(0.000)						
AUTH	−0.088	0.045	−0.050	0.213	−0.128	0.158	−0.316	−0.032	−0.110	−0.057					
	(0.118)	(0.432)	(0.377)	(0.000)	(0.023)	(0.005)	(0.000)	(0.572)	(0.052)	(0.317)					
ETHPERF	−0.120	0.032	−0.227	−0.159	0.476	−0.038	0.189	0.275	0.370	0.303	−0.007				
	(0.034)	(0.574)	(0.000)	(0.005)	(0.000)	(0.500)	(0.001)	(0.000)	(0.000)	(0.000)	(0.896)				
SIZE	0.002	−0.001	−0.409	−0.142	0.548	−0.014	0.051	0.481	0.439	0.333	−0.003	0.419			
	(0.967)	(0.992)	(0.000)	(0.012)	(0.000)	(0.805)	(0.364)	(0.000)	(0.000)	(0.000)	(0.964)	(0.000)			
EXTWB	0.323	−0.074	0.048	0.544	−0.196	0.398	−0.651	−0.145	−0.296	−0.072	0.406	−0.179	−0.063		
	(0.000)	(0.193)	(0.397)	(0.000)	(0.001)	(0.000)	(0.000)	(0.010)	(0.000)	(0.201)	(0.000)	(0.001)	(0.268)		
FRDAMT	0.274	−0.096	0.145	0.386	−0.056	0.198	−0.384	−0.185	−0.185	0.000	0.099	−0.143	−0.010	0.435	
	(0.000)	(0.091)	(0.010)	(0.000)	(0.323)	(0.000)	(0.000)	(0.001)	(0.001)	(0.999)	(0.082)	(0.011)	(0.864)	(0.000)	
CLERP9	−0.043	0.043	0.012	−0.086	0.405	−0.049	0.057	0.181	0.186	0.181	−0.066	0.402	0.009	−0.133	0.030
	(0.453)	(0.451)	(0.827)	(0.129)	(0.000)	(0.385)	(0.311)	(0.013)	(0.001)	(0.001)	(0.244)	(0.000)	(0.874)	(0.018)	(0.596)

Table 5.5 presents the correlations of the variables in the model (n = 314; p-values are shown in parentheses, two-tailed). For variable definitions, refer to Table 5.4.

Table 5.5 reports the non-parametric correlations between the variables in the model. As might be expected, employees are more likely to report internally than externally (–0.651). The proportion of variable compensation to management is also correlated with firm size (0.548), and external whistle-blowing is correlated with management's involvement in perpetrating the misconduct (0.544). The associations between the other independent variables are all below 0.50. Multicollinearity is accessed by examining the VIFs. The mean VIF is 1.63 and the VIFs of all variables are below the recommended threshold of 10 (Hair et al. 2010). The highest VIF is the EXTWB variable at 2.78, suggesting that severe multicollinearity is not likely to be an issue.

5.7.5 Empirical analysis on the likelihood of retaliation

This section presents the analysis of the factors associated with the likelihood of retaliation. The results are presented in Table 5.6.[100] The model has significant explanatory power (χ^2 = 108.78, $p < 0.001$) and a pseudo R^2 of 0.47. The classification rate is 93 percent, suggesting that the model predicts reasonably well. The Hosmer-Lemeshow test is insignificant (p = 0.71), suggesting that the model is of a good fit.

This study predicts that retaliation is more likely to occur when the firm is in a more precarious financial position and when management's interests are at stake. Consistent with these predictions, the results indicate a higher likelihood of retaliation when the firm reported a loss in the prior year (coefficient 1.651, p = 0.028), when management was allegedly involved in perpetrating the misconduct (coefficient 2.101, p = 0.003), and when the firm provided a greater proportion of variable compensation to management (coefficient 4.569, p = 0.002). The results also indicate a lower likelihood of retaliation when a firm has a higher growth rate (coefficient –3.108, p = 0.001). This study predicts that retaliation is more likely to occur when the whistle-blower is a suitable target. Consistent with this prediction, the

[100] An alternate model that accounts for the dichotomous nature of the dependent variable is a probit model. The untabulated results indicate that the results are not sensitive to the use of a probit specification.

results indicate a higher likelihood of retaliation when a whistle-blower was a general employee (coefficient 1.909, p = 0.006), and when the whistle-blower was involved in perpetrating the alleged misconduct (coefficient 2.037, p = 0.003).

This study predicts that capable guardians can protect a whistle-blower from a retaliation event. The coefficients on the AUTH (coefficient −2.743, p = 0.004), INDAC (coefficient −2.426, p = 0.008) and ETHPERF (coefficient −1.978, p = 0.006) are significant in the predicted direction. The results suggest a lower likelihood of retaliation when a report is made to a regulator, when ethical performance is a component of management's compensation, and when there is a greater proportion of independent directors on the audit committee.[101] The coefficients on BIG4[102] (coefficient −0.395, p = 0.280) and OUTDIR[103] (coefficient −0.474, p = 0.405) are in the predicted direction, but are not significant. The results suggest that engaging a Big 4 auditor or having a greater proportion of independent directors on the board do not insulate individuals from whistle-blowing retaliation.

For the control variables, the results indicate a positive association between the likelihood of retaliation and the size of the firm (coefficient 0.435, p = 0.007), the incidence of external whistle-blowing (coefficient 1.612, p = 0.015), and cost of the alleged misconduct (coefficient 0.167, p = 0.040). The results do not indicate that the likelihood of retaliation is affected by the introduction of CLERP 9 (coefficient 0.268, p = 0.335).

[101] Alternative measures of audit committee independence are examined, including whether the audit committee has a majority of independent members, whether the audit committee is wholly independent, and whether the chairperson of the audit committee is independent. The untabulated results indicate that the alternate measures are significant.

[102] Alternate measures of audit quality are examined, including the logarithm of audit fees, audit fees deflated by square root of size, abnormal audit fees and percentage of non-audit services. The untabulated results indicate that none of the alternate measures are significant.

[103] The coefficient on OUTDIR may not be significant because of collinearity INDAC (r = 0.30). As a sensitivity analysis, the model was re-estimated with the exclusion of INDAC. The untabulated results indicate that the coefficient on OUTDIR remains insignificant (coefficient −1.110, p = 0.281).

Table 5.6: Factors associated with the likelihood of retaliation

	Predicted sign	Coefficient	S.E.	*p*-value
Management's motivation to retaliate				
GROWTH	–	–3.108**	0.958	0.001
LOSS	+	1.651*	0.863	0.028
MGMTINVOLVED	+	2.101**	0.750	0.003
VARCOMP	+	4.569**	1.539	0.002
Suitable target				
WBINVOLVED	+	2.037**	0.728	0.003
EMPLOY	+	1.909**	0.753	0.006
Capable guardianship				
OUTDIR	–	–0.474	1.970	0.405
INDAC	–	–2.426**	1.006	0.008
BIG4	–	–0.395	0.677	0.280
AUTH	–	–2.743**	1.032	0.004
ETHPERF	–	–1.978**	0.775	0.006
Control variables				
SIZE	+	0.435**	0.175	0.007
EXTWB	+	1.612*	0.743	0.015
FRDAMT	+	0.167*	0.096	0.040
CLERP9	–	0.268	0.629	0.335
Constant		–32.341	3477.538	0.497
Industry fixed-effects included				
$n = 314$				
Log likelihood:	– 61.46	χ^2:	108.78 ($p < 0.001$)	
Classification rate:	0.93	Pseudo R^2:	0.47	

** Significant at the 1% level; * significant at the 5% level using a one-tailed test.

Table 5.6 presents the results of a logistic regression that examines the likelihood of a retaliation event (RETALIATE). RETALIATE = '1' if the whistle-blower suffered retaliation for reporting an alleged financial misconduct as reported in the press, and '0' otherwise; GROWTH = average change in revenue over the past three years prior to the financial allegation; LOSS = '1' if the firm reported a loss the year prior to the financial allegation, and '0' otherwise; MGMTINV = '1' if the financial misconduct was perpetrated by top management as reported in the press, and '0' otherwise; VARCOMP = proportion of top five executives' total remuneration that is variable (the variable portion is measured as total remuneration less fixed salary, fixed non-cash benefits and superannuation) as reported in the annual report, for the year prior to the financial allegation.; WBINV = '1' if the whistle-blower was a participant in the alleged financial misconduct, and '0' otherwise; EMPLOY = '1' if the whistle-blower was a general employee as reported in the press, and '0' otherwise; OUTDIR = proportion of independent directors on the board of directors as reported in the annual report, for the year prior to the financial allegation; INDAC = proportion of independent directors on the audit committee as reported in the annual report, for the year prior to the financial allegation; BIG4 = '1' if the firm was audited by a Big 4 auditor, for the year prior to the financial allegation, and '0' otherwise; AUTH = '1' if the whistle-blower blew the whistle to a regulator, as reported in the press, and '0' otherwise; ETHPERF = '1' if ethical performance is included as a component of management's compensation as reported in the annual report, for the year prior to the financial allegation, and '0' otherwise; SIZE = logarithm of total assets in dollars, for the year prior to the financial allegation; EXTWB = '1' if the alleged financial misconduct was referenced in the press to result in external whistle-blowing and '0' when referenced to result in internal reporting; FRDAMT = logarithm of fraud amount in dollars as reported in the press; CLERP9 = '1' if the financial allegation was reported in or after 2004, and '0' otherwise.

Overall, the results suggest that retaliation is more likely when the interests of the firm or management are at stake, such as when the firm is experiencing weaker growth, when the firm reported a loss in the prior year, when management is allegedly involved in perpetrating misconduct, and when the proportion of variable compensation to management is greater. Retaliation is more likely when the whistle-blower is perceived to be a suitable target such as when the whistle-blower is a general employee, and when the whistle-blower is involved in perpetrating the alleged misconduct. The results also indicate that reporting to regulators, having ethical performance as a component of management's compensation and having a greater proportion of independent audit committee members reduce the likelihood of retaliation.

5.8 Additional analysis

5.8.1 Alternative framing

A retaliation event is unlikely to be perceived uniformly by those involved. Articles are typically framed from the perspective of the whistle-blower and the media, while management is unlikely to consider their actions as retaliatory. This study relies on press coverage to identify a retaliation event. Some events are more directly observable, such as lawsuits, yet even observable events such as lawsuits can be attributed to alternate motivations. Framing contests might be expected to arise where alternative motivations can be attributed. Evidence of frequent responses by companies to press allegations of retaliation was not found. Few examples were found of companies contesting that their action was not retaliatory.

5.8.2 Robustness of results to the exclusion of retaliation events in which the whistle-blower was involved in the alleged misconduct

To the extent that an allegation is false or embellished, retaliatory action against the whistle-blower may be justified. However, it is difficult to identify justified or unjustified retaliation based on the completeness or accuracy of the allegations made. While difficult to distinguish between justified and unjustified cases, retaliation is more likely to be seen as a justified act

by management when the whistle-blower was involved in perpetrating the misconduct. An analysis is conducted to examine the robustness of results to the exclusion of potentially justified retaliation events. The model is re-estimated using a sub-sample that excluded 13 retaliation events in which the whistle-blower was involved in the alleged misconduct (n = 301). The WBINV variable is excluded accordingly. The results are reported in Appendix 5.5. The coefficients on the variables of interest are qualitatively unchanged from the primary results, suggesting that the results are robust to the exclusion of retaliation events in which the whistle-blower was involved in the alleged misconduct.

5.8.3 Robustness of results to the type of alleged misconduct

The type of misconduct potentially affects the likelihood of retaliation. An analysis is conducted to examine the robustness of the results to the type of alleged misconduct. Financial misconduct can be broadly classified into three categories: corruption, fraudulent statements and asset misappropriation (ACFE 2014). An indicator variable (FRDSTMT) is coded '1' if the alleged misconduct involves fraudulent statements, and '0' otherwise. An indicator variable (MISAPP) is coded '1' if the alleged misconduct involves asset misappropriation, and '0' otherwise.[104] The results are reported in Appendix 5.6. The coefficients on the variables of interest are qualitatively unchanged from the primary results, thereby suggesting that the results are robust to the type of misconduct.

An analysis is also conducted to examine the robustness of results to allegations involving fraudulent financial reporting (a sub-category of fraudulent statements). An indicator variable (FRDREP) is coded '1' if the allegation involves fraudulent financial reporting, and '0' otherwise. The untabulated results indicate that the coefficient on FRDREP is not significant (coefficient 0.965, p = 0.142) and the coefficients on the variables of interest are qualitatively unchanged from the primary results, suggesting that the results are robust to fraudulent financial reporting allegations.

[104] The 'corruption' category is excluded to avoid multicollinearity. The classification of alleged misconduct into the three categories is reported in Appendix 5.4.

5.8.4 Audit committee independence and fraudulent financial reporting

The primary results indicate that having a greater proportion of independent directors on the audit committee reduces the likelihood of retaliation. A greater proportion of independent audit committee members may reduce retaliation because of an indirect effect – greater audit committee independence reduces the likelihood of fraudulent financial reporting (Beasley 1996; Sharma 2004), and a lower likelihood of fraudulent financial reporting potentially reduces the likelihood of retaliation.[105] To examine whether the effect of audit committee independence on the likelihood of retaliation is explained by fraudulent financial reporting allegations (FRDREP), an analysis is conducted using the KHB method developed by Karlson, Holm, and Breen (2012) to calculate the decomposition of the total effect of the proportion of independent directors on the audit committee on the likelihood of retaliation into the direct and indirect effect (the part explained by FRDREP). [106]

The results reported in Table 5.7 indicate that the variable INDAC is significant both in the reduced model (coefficient −1.796, $p = 0.022$), which excludes the FRDREP variable, and in the full model (coefficient −2.031, $p = 0.013$) which includes the FRDREP variable. The indirect effect, which is the effect that a financial allegation is classified as a fraudulent financial reporting (FRDREP) on the likelihood of retaliation, is not significant (coefficient 0.235, $p = 0.079$). The results suggest that the significant negative association between the proportion of independent directors on the audit committee and the likelihood of retaliation found in the primary results is not affected by the type of fraud.

[105] Compared to non-retaliation cases in the sample (seven percent), retaliation occurs more frequently ($z = -4.008$, $p = 0.001$) when the financial allegation involves fraudulent financial reporting (26 percent).

[106] Unlike in linear models, uncontrolled and controlled coefficients in logit and probit models 'can differ not only because of confounding but also because of a rescaling of the model' (Karlson, Holm, and Breen 2012, 288). Rescaling refers 'to the situation where the size of the estimated coefficient of the variable of interest depends on the error variance of the model and, consequently, on which other variables are included in the model.' (Karlson, Holm, and Breen 2012, 288). The KHB method 'decomposes the difference in the logit or probit coefficient of x between a model excluding z and a model including z, into a part attributable to confounding (i.e. the part mediated or explained by z) and a part attributable to rescaling of the coefficient of x'(Karlson, Holm, and Breen 2012, 287).

Table 5.7: Decomposition of the total effect of proportion of independent directors on the audit committee on the likelihood of retaliation

Dependent variable = RETALIATE

	Coefficient	Standard error	*p*-value
Total effect	−1.796*	0.889	0.022
Direct effect (INDAC)	−2.031*	0.908	0.013
Indirect effect (via FRDREP)	0.235	0.166	0.079
$n = 314$			
Concomitant variables included = GROWTH; LOSS; MGMTINV; VARCOMP; WBINV; EMPLOY; OUTDIR; AUTH; BIG4; ETHPERF; SIZE; EXTWB; FRDAMT; CLERP9.			

** Significant at the 1% level; * significant at the 5% level using a one-tailed test.

Table 5.7 examines whether the effect of audit committee independence (INDAC) on the likelihood of retaliation (RETALIATE) is explained by a lower likelihood of fraudulent financial reporting (FRDREP). The KHB method is used to estimate the decomposition of the total effect of the proportion of independent audit committee members on the likelihood of retaliation into direct and indirect effect via fraudulent financial reporting allegations. FRDREP = '1' if the financial allegation is classified as fraudulent financial reporting, and '0' otherwise. Other variables are as defined in Table 5.6.

5.9 Discussion and conclusion

A significant cost to whistle-blowing is the risk of retaliation. While the introduction of legislation to protect whistle-blowers has been growing worldwide, legislation alone has not been effective at protecting whistle-blowers (Dworkin 2007; Dworkin and Brown 2013; Miceli, Near, and Dworkin 2008). This study examines whistle-blowing retaliation using a routine activities paradigm. A mixed-method approach is employed. This study initially investigates when management retaliates against whistle-blowers through a textual analysis of media coverage of 38 whistle-blowing retaliation events.

Based on the theory and qualitative analysis, this study examined the predictors of retaliation associated with management's motivation to retaliate, the perceived suitability of the whistle-blower as a target, and guardians who are capable of insulating whistle-blowers from retaliation. A quantitative analysis was conducted using data obtained from 314 press reports of alleged financial misconduct involving whistle-blowing. This study predicted and found

that management is more likely to retaliate against whistle-blowers when management's personal interests are at stake and when the company is in a financially more precarious position. The findings that retaliation is more likely when the company is experiencing weaker growth and had reported a loss in the previous year suggest that the financial circumstances of the company play a role in influencing whether management undertake retaliatory action against a whistle-blower. An avenue for a future study is to examine whether events such as an upcoming cross-listing, capital raising, merger and acquisition event; or other indicators of financial distress such as suspension of dividend payments and major restructuring or layoffs affect retaliation.

This study identifies when a whistle-blower is more likely to be perceived as a suitable target for retaliation. As might be expected, the results indicate that a general employee is more likely to be a target of retaliation. The results also indicate that a whistle-blower is likely to be perceived as a suitable target for retaliation when the individual was involved in perpetrating the alleged financial misconduct. This study also examines when whistle-blowers are more or less likely to be insulated from retaliation. The analysis indicates that retaliation is less likely when the proportion of independent directors on the audit committee is greater and when ethical performance is a component of management's compensation. The findings highlight the importance of tone at the top to contribute to or exacerbate an anti-retaliatory organisational climate. The results also indicate that legislative whistle-blowing protection does not influence the likelihood of retaliation; however, when reports are made to regulators, the likelihood of retaliation decreases. Future research could consider the role of other guardians – such as internal auditors and parliamentary members – in protecting whistle-blowers.

The limitations to this study include the following. This study examines observable retaliation cases that were reported in the press. A limitation is that the sample is potentially biased towards larger and more visible firms and towards misconduct that is of a greater severity or

more sensational. The analysis controls for the size of the firm and reported magnitude of the alleged misconduct, but the results must still be interpreted with respect to this potential source of bias. Although retaliatory actions are most commonly undertaken by management (Smith and Brown 2008), retaliation can occur at different organisational levels. Another limitation is that the results may not be generalisable to retaliation by co-workers as only retaliatory actions undertaken by management were examined. An avenue for future research is to extend this study to the work group level and examine retaliation by co-workers. The results of this study may not be generalisable to private companies and not-for-profit entities because only listed companies are examined. The measures are also not exhaustive, and future research is needed to test the robustness of the findings using better measures where available.

Future research is needed to more fully understand the nature of retaliation and the legislative protections needed to make the whistle-blowing mechanism effective in detecting financial misconduct. The current whistle-blowing protection laws in Australia only protect a corporate whistle-blower who is an officer, employee of a company or contractor (s1317AA of the *Corporations Act 2001 [Cth]*). This study found that external parties to the company also experience retaliation, suggesting that parties other than employees and contractors require protection for whistle-blowing. Regulators could consider extending the scope of protection, as 'there appear to be few costs to extending protection in this manner' (Commonwealth of Australia 2009). This issue has been previously considered, but not adopted (Commonwealth of Australia 2009). This study found that capable guardians reduce the likelihood of retaliation. Another implication is that regulators could consider expanding the scope of protection to include prospective whistle-blowers seeking advice from other third parties, such as lawyers. While whistle-blowing retaliation is relatively infrequent, the costs to individuals are high and the impairment to the effectiveness of whistle-blowing is severe. Research is needed from all methodological approaches to ensure that effective whistle-blowing systems can be developed to detect and reduce financial misconduct.

CHAPTER 6: CONCLUSION

6.1 Introduction

The overarching aim of this thesis is to build understanding of the use of whistle-blowing to detect fraud. To this end, this thesis presented four studies relating to whistle-blowing. Section 6.2 provides a summary of these four studies. Section 6.3 summarises the contributions of this thesis. The general limitations of this thesis, together with suggestions for future research, are discussed in Section 6.4. Section 6.5 concludes this thesis.

6.2 Summary of the four studies

6.2.1 Study 1: An examination of corporate whistle-blowing policies

The first study was a descriptive study that provided a background on the use of corporate whistle-blowing systems by Australian companies through an analysis of corporate whistle-blowing policies. An analysis of the disclosures provided in the corporate reporting policies of Australian companies was conducted based on an adapted disclosure checklist provided by Standards Australia (2003). The analysis found that, while most policies provided guidelines on reportable issues and reporting procedures, few disclosed (i) how the whistle-blowing report would be handled and investigated, (ii) the provision of feedback to the whistle-blower and (iii) the provision of training for whistle-blowing. The findings suggest that most firms do not provide comprehensive disclosure of policies that are consistent with the recommendations from Standards Australia (2003).

This study also examined the determinants of the implementation of a sound whistle-blowing system, as indicated by the extent of disclosures made within the company's whistle-blowing policy, and the provision of a hotline service. The factors examined included the firm's size, level of current inventory, geographical dispersion, cross-listing in the US, organisational support for whistle-blowing, permissibility of anonymous reporting, number of independent directors on the audit committee and existence of concentrated shareholdings.

The results indicate that the extent of whistle-blowing disclosures is positively associated with a greater number of independent directors on the audit committee, more concentrated substantial shareholdings, permissibility of anonymous reporting and organisational support for whistle-blowing. The results also indicate a greater likelihood of the provision of a hotline service when companies are larger, have a higher level of current inventory, are cross-listed in the US, permit anonymous reporting and are supportive of whistle-blowing. The findings suggest that, while strong internal governance and an ethical environment are important in driving the policymaking behind a corporate whistle-blowing system, companies consider their legal environment and the economic costs and benefits when establishing costly whistle-blowing mechanisms, such as hotlines.

6.2.2 Study 2: The incentives and opportunities that affect the likelihood of external whistle-blowing in comparison to internal reporting

The purpose of the second study was to understand when whistle-blowers are more or less likely to rely on an external, as compared to internal, reporting channel. Specifically, this study predicted that incentives and opportunities related to the characteristics of the misconduct, legislative environment and organisation would affect the likelihood of external whistle-blowing, in comparison to internal reporting. To investigate when an alleged misconduct results in external whistle-blowing, as compared to internal reporting, a sample was constructed based on 312 financial allegations reported in the press.

The results indicate a higher likelihood that financial misconduct results in external whistle-blowing, rather than internal reporting, when an external immunity policy is provided, when the perpetrator of misconduct has greater power, and when there are multiple perpetrators. The results indicate a lower likelihood that financial misconduct results in external whistle-blowing when a corporate internal reporting policy is provided, when the whistle-blower is an employee, and when there is a greater proportion of variable compensation to management.

The results also indicate that employees and non-employees have different incentives and opportunities in using an external or internal reporting channel. While the power of the perpetrator and the lack of disclosure of protection for reporting increase external whistle-blowing for employees, these factors do not affect external whistle-blowing by non-employees. The study found that non-employees are more likely to report externally when misconduct is perpetrated internationally. Together, this study provides initial evidence of differences in the predictors of employee and non-employee whistle-blowing.

6.2.3 Study 3: Does organisational complexity and audit committee quality affect the likelihood of external whistle-blowing in comparison to internal reporting?

The purpose of this study was to understand whether organisational complexity and audit committee quality affect external whistle-blowing, in comparison to internal reporting. This study predicted that organisational complexity, as measured by firm diversification, would increase the likelihood that financial misconduct results in external whistle-blowing. This study also predicted that a higher quality audit committee – as measured by the independence, meeting frequency and expertise of the audit committee – would reduce the likelihood that financial misconduct results in external whistle-blowing. To investigate whether organisational complexity and audit committee quality affect the likelihood that misconduct results in external whistle-blowing, a sample was constructed from 312 financial allegations involving internal reporting or external whistle-blowing.

The results indicate a higher likelihood that financial misconduct results in external whistle-blowing when firms are more complex. The results also indicate that greater audit committee independence reduces the likelihood that financial misconduct results in external whistle-blowing, but meeting frequency and expertise do not. When comparing employee to non-employee whistle-blowing, the results indicate that greater firm complexity increases the likelihood that financial misconduct results in external whistle-blowing for both employees

and non-employees. In contrast, greater audit committee independence reduces the likelihood that financial misconduct results in external whistle-blowing compared to internal reporting for employees, but not for non-employees. These findings provide additional evidence to enhance the results in Study 2 of the differences between the predictors of whistle-blowing by employees and non-employees.

6.2.4 Study 4: When does management retaliate against whistle-blowers?

The purpose of the fourth study is to understand the circumstances under which whistle-blowers are more or less likely to experience retaliation. By applying the theory routine activity framework to the context of whistle-blowing retaliation, this study predicted that retaliation was more likely to occur when management was motivated to retaliate, when a whistle-blower was more likely to be seen as a suitable target for retaliation, and when parties that could protect whistle-blowers from retaliation were absent.

A mixed-method approach was employed using qualitative and quantitative data obtained from financial allegations reported in the press. This study initially investigated retaliation against whistle-blowers through a textual analysis of media coverage of 38 whistle-blowing retaliation events. Using data obtained from 314 press reports of alleged financial misconduct involving whistle-blowing, a logistic regression was then employed to examine the factors that influence the likelihood of whistle-blowing retaliation.

The results indicate that retaliation is more likely to occur when management's personal interests are at stake, such as when management is allegedly involved in perpetrating misconduct or when the proportion of variable compensation provided to management is greater. Retaliation is also more likely to occur when the firm is in a more precarious financial position, such as when experiencing weaker growth or when having experienced a loss in the prior year. The study also found that retaliation is more likely when the whistle-blower is perceived to be a suitable target, such as when the individual was involved in perpetrating the

financial misconduct and when the whistle-blower is an employee. The results further indicate that whistle-blowers are less likely to be retaliated against when the proportion of independent directors on the audit committee is greater, when ethical performance is a component of management's compensation, and when the report is made to a regulator.

6.3 Contributions

6.3.1 General contributions

The general contributions of this thesis are as follows. A contribution to the literature is the use of Australian data. Most whistle-blowing studies have employed samples from the US. The high proportion of revelations of fraud under the federal *False Claims Act (1986)* in US samples suggests the need to consider alternate contexts with less pecuniary benefits available to the whistle-blower. The Australian context provides an opportunity to consider whistle-blowing in an environment with less pecuniary benefits available to the whistle-blower to report externally. Such an environment is more common in countries outside the US. For example, Miceli, Near and Dworkin (2008, 169) noted that the biggest difference between whistle-blowing laws in the US and countries such as the UK and Australia is the reluctance or refusal to reward whistle-blowers. This thesis also provides potential input to any future CLERP reforms addressing whistle-blowing.

Another contribution to the literature is the use of archival data. Whistle-blowing studies often employ surveys or experiments, yet there are some major limitations of survey and experimental research. First, given the nature of these methodologies, methodological concerns such as social desirability bias and the use of hypothetical scenarios have been raised in prior reviews (Miceli and Near 1992; Miceli, Near, and Dworkin 2008). Second, survey and experimental studies typically measure whistle-blowing intentions, rather than actual whistle-blowing behaviour. The predictors of whistle-blowing intentions and actual whistle-blowing behaviour are not always the same (Mesmer-Magnus and Viswesvaran 2005; Rothwell and Baldwin 2007a). Evidence from an archival approach can help address some methodological

concerns raised by using self-reporting or self-assessed intention to report. A contribution of this thesis is the undertaking of four archival studies to provide additional evidence from other alternate methodological approaches.

6.3.2 Specific contributions

In addition to the general contributions stated in the above section, the specific contributions of each study are as follows. The first study provides an insight to existing whistle-blowing systems implemented by Australian companies. Research on whistle-blowing systems is generally descriptive. This study extends prior research by providing understanding of the factors that affect the implementation of corporate whistle-blowing systems.

Research on whistle-blowing generally examines the decision whether to report misconduct, and there is less research examining the choice of reporting channel. The second study provides understanding on when whistle-blowers report using an external, compared to internal, reporting channel by examining characteristics of the misconduct, legislative environment, and organisation that affect the incentives and opportunities of using an external reporting channel.

The third study extends understanding on the use of an external or internal reporting channel by examining the influence of organisational complexity and the quality of the audit committee on the likelihood of external whistle-blowing or internal reporting. Given that non-employees are important sources of whistle-blowing (ACFE 2014; Dyck, Morse, and Zingales 2010), the second and third studies also contribute to the literature by providing evidence of the differences in the predictors of whistle-blowing between employees and non-employees.

The fourth study contributes to the literature by providing further understanding of when management retaliates against whistle-blowers. While most studies on retaliation have examined the characteristics of the perpetrator or whistle-blower, this study highlights the role

that other individuals – such as the audit committee, management and regulators – play in insulating whistle-blowers from retaliation.

6.4 Limitations and suggestions for future research

6.4.1 General limitations

The general limitations of the four studies presented in this thesis include the following. The results of this thesis may not be generalisable to private companies and not-for-profit entities because only listed companies were examined. An avenue for future research is to examine non-corporate settings. The results of the four studies also need to be interpreted with respect to the specific legislative context in Australia. The results may not be generalisable to countries such as the US where financial incentives are provided for external whistle-blowing, and where procedures for internal reporting are mandated. An avenue for future research is to conduct cross-country research on whistle-blowing which would help shed light on cross-country differences.

Another limitation of this thesis is that the samples in Studies 2, 3, and 4 were constructed based on internal reporting and external whistle-blowing financial allegations gathered from press reports. There are clearly many unobservable internal reporting events not reported by the press. The allegations reported by the press are arguably more serious, substantiated and potentially biased towards more sensational financial misconduct perpetrated in larger firms (Miller 2006). In the analyses, the size of the company and reported cost of the financial allegation were included as control variables; however, the results must still be interpreted with respect to this potential source of bias. An avenue for future research is to employ other methodological approaches to corroborate the results.

6.4.2 Suggestions for future research

One finding of this thesis is that there are differences in the predictors of external, compared to internal, whistle-blowing for employees and non-employees. As compared to employees,

legislation generally provides non-employees with less whistle-blowing incentives and protection. Thus, there is a need for more research on non-employee whistle-blowing, given that non-employees are important sources of whistle-blowing tips (ACFE 2014; Dyck, Morse, and Zingales 2010). An avenue for future research is to conduct a more detailed examination of when and why non-employees are more or less likely to report misconduct. Future research can also seek to identify specific groups of non-employees that are likely to be more effective at whistle-blowing, or more vulnerable to retaliation.

Future research might wish to consider the nature of fraud on the whistle-blowing process. Future research can also provide more evidence of the effectiveness of whistle-blowing as a mechanism to detect fraud. There is an assumption underpinning whistle-blowing legislation and standards that whistle-blowing is an effective method to detect fraud. However, there is a general absence of systematic empirical research to support this contention within a corporate environment. In particular, given that the investigation of whistle-blowing reports can be costly (Hunton and Rose 2011), it would be valuable to understand when whistle-blowing reports are more or less likely to be false or frivolous. Where access to such data allows, future research can examine the effectiveness of whistle-blowing as a mechanism to detect fraud, given that the costs of implementing whistle-blowing systems are high.

6.5 Conclusion

This thesis contributes towards understanding the use of whistle-blowing to detect fraud by conducting four separate studies. The first study informs on the existing corporate whistle-blowing systems implemented in Australian companies, and the factors that influence the implementation of such a system. The second and third studies provide insights to when whistle-blowers are more or less likely to use an external or internal channel. The fourth study provides understanding on when whistle-blowers are more or less likely to experience retaliation. Future research from a variety of methodologies is still needed to fully understand the effectiveness of whistle-blowing as a mechanism to detect fraud.

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Appendix 3.1: Example of classification based on the whistle-blowing measure employed

Examples of a 'general whistle-blowing' study (i.e. the whistle-blowing measure did not distinguish between internal or external whistle-blowing, or captured both)

Study	Whistle-blowing measure employed
Arnold and Ponemon (1991)	Participants were asked to provide a prediction that the individuals described in the case *did or did not blow the whistle* by assigning a subjective posterior probability ranging from zero to 1,000 points.
Bjørkelo et al. (2011)	Participants were asked whether they had blown the whistle according to the following operational definition: Whistleblowing describes situations where an employee (former or current) reports an unethical, illegal or illegitimate practice at work. The person reports to a person or body that has the ability to change the practice. The person or body that receives the report *may be internal to the organisation* (such as a leader, safety deputy or elected employee representative), *but may also be an external body* (such as the police or other public authorities, media or an environmental organisation) reporting system. The response categories following were (1) 'no', (2) 'yes, on one occasion', and (3) 'yes, on two occasions or more'.
Richardson, Wang, and Hall (2012)	Participants were asked to respond to: 'I intend to report the hazing incident to *someone who could affect action*' on a seven-point Likert-type scale, anchored by 'extremely unlikely' (score of one) and 'extremely likely' (score of seven).

Examples of an 'internal whistle-blowing' study

Study	Whistle-blowing measure employed
Dalton and Radtke (2013)	Participants were asked to respond to: 'Given the information presented above, what is the likelihood that you would *report the questionable act to the next higher level of management* in this case?' on a seven-point Likert scale, with one = 'unlikely' and seven = 'likely'.
Seifert et al. (2010)	Participants were asked to respond to: 'In your opinion, what is the likelihood that Alex will *report the CFO to an appropriate person within the corporation*' on a nine-point Likert scale, anchored by one = 'definitely will not report' to nine = 'definitely will report', with the midpoint anchor five = a 50 percent likelihood of reporting.
Stylianou et al. (2013)	Participants were asked to respond to: 'To what extent would you *report the person carrying out each of the following activities in an organisation*?' on a scale of one = 'never report' (zero percent of the time), two = 'seldom report' (25 percent of the time), three = 'report about half of the time' (50 percent of the time), four = 'frequently report' (75 percent of the time), and five = 'always report' (100 percent of the time).

Examples of an 'external whistle-blowing' study

Study	Whistle-blowing measure employed
Feldman and Lobel (2008)	Participants were asked to respond to: 'I would *report to the media*' and 'I would *report to the state authorities*' on a 10-point Likert-type scale.
Kaptein (2011)	Participants were asked to respond to: '*Notify someone outside the organisation*' on a Likert scale ranging from one = 'strongly disagree' to five = 'strongly agree', and the sixth response alternative was six = 'not applicable'.
Sims and Keenan (1998)	The response for each scenario was scored as either *not external whistleblowing* (zero) or *external whistleblowing* (one).

Appendix 3.2: Empirical findings of the predictors of whistle-blowing

Panel A: Characteristics of the whistle-blower

Variable examined		(1) Whistle-blowing (general) studies		(2) Internal whistle-blowing studies		(3) External whistle-blowing studies
'+' indicates a positive association; '–'indicates a negative association; '0' indicates no association; 'M': indicates a moderating effect						
Age	0	Bjørkelo et al. (2011); Cassematis and Wortley (2013); Chiu (2003); Gundlach, Martinko, and Douglas (2008); Lee, Heilmann, and Near (2004)	0	Brabeck (1984); Chiu and Erdener (2003); Dalton and Radtke (2013); Feldman and Lobel (2008); Lowry et al. (2013); MacNab et al. (2007); MacNab and Worthley (2008); Park, Blenkinsopp, and Park (2014); Stylianou et al. (2013)	0	Chung, Monroe, and Thorne (2004); Feldman and Lobel (2008); MacNab et al. (2007); Nayir and Herzig (2012); Park, Blenkinsopp, and Park (2014); Sims and Keenan (1998)
	+	Curtis and Taylor (2009); Chiu (2002); Liyanarachchi and Adler (2011)	–	Chung, Monroe, and Thorne (2004); Keil et al. (2010); Zhang, Chiu, and Wei (2009)	–	Kaptein (2011)
			+	Kaptein (2011); Reckers-Sauciuc and Lowe (2010)	+	Rothschild and Miethe (1999)
Gender (male)	0	Bjørkelo et al. (2011); Cassematis and Wortley (2013); Gundlach, Martinko, and Douglas (2008); Keenan (2000); Miceli et al. (2012)	0	Bocchiaro, Zimbardo, and Van Lange (2012); Chung, Monroe, and Thorne Curtis, Conover, and Chui (2012); Dalton and Radtke (2013); Feldman and Lobel (2008); Henningsen, Valde, and Denbow (2013); Kaplan et al. (2009a); Lawson (2004); MacNab et al. (2007); MacNab and Worthley (2008); Mayer et al. (2013); Park, Blenkinsopp, and Park (2014); Park, Rehg, and Lee (2005); Taylor and Curtis (2010); Zhang, Chiu, and Wei (2009); Zhuang, Thomas, and Miller (2005)	0	Chung, Monroe, and Thorne (2004); Feldman and Lobel (2008); Kaptein (2011); MacNab et al. (2007); Nayir and Herzig (2012); Park, Blenkinsopp, and Park (2014); Park, Rehg, and Lee (2005)
	+	Keenan (1995); Miceli and Near (1988); Liyanarachchi and Adler (2011)	+	Douhou, Magnus, and Van Soest (2012); Fayard, Cockrell, and Curtis (2014); Lowry et al. (2013); Mayer et al. (2013); Miceli, Dozier, and Near (1991); Stansbury and Victor (2009)	+	Rothschild and Miethe (1999); Sims and Keenan (1998)
			–	Keil et al. (2010); Rothschild and Miethe (1999)		
			M	Stylianou et al. (2013); Taylor and Curtis (2013)		
Ethnicity (white or majority race)	0	Miceli and Near (1988); Miceli et al. (2012)				
Religion	0	Chiu (2002); Chiu (2003)	0	Bocchiaro, Zimbardo, and Van Lange (2012); Chiu and Erdener (2003); Douhou, Magnus, and Van Soest (2012); Rothschild and Miethe (1999)	0	Rothschild and Miethe (1999)
Education level	0	Chen and Lai (2014); Gundlach, Martinko, and Douglas (2008)	0	Chiu and Erdener (2003); Dalton and Radtke (2013); Douhou, Magnus, and Van Soest (2012); Lawson (2004); Mayer et al. (2013); Park, Blenkinsopp, and Park (2014); Park, Rehg, and Lee (2005); Rothschild and Miethe (1999); Skivenes and Trygstad (2010); Stylianou et al. (2013); Zhang, Chiu, and Wei (2009)	0	Park, Rehg, and Lee (2005); Rothschild and Miethe (1999); Sims and Keenan (1998)
	–	Chiu (2002); Chiu (2003)	–	Lowry et al. (2013)	–	Miceli and Near (1984); Park, Blenkinsopp, and Park (2014)
			+	Miceli and Near (1984)		
US educated			+	Fayard, Cockrell, and Curtis (2014)		

Variable examined		(1) Whistle-blowing (general) studies		(2) Internal whistle-blowing studies		(3) External whistle-blowing studies
'+' indicates a positive association; '–'indicates a negative association; '0' indicates no association; 'M': indicates a moderating effect						
Ethics courses taken or training			+	Fayard, Cockrell, and Curtis (2014); Jones, Spraakman, and Sánchez-Rodríguez (2014)		
Marital status	0	Lee, Heilmann, and Near (2004)	0	Rothschild and Miethe (1999)	0	Rothschild and Miethe (1999)
Organisational tenure	0	Bjørkelo et al. (2011); Cassematis and Wortley (2013); Gundlach, Martinko, and Douglas (2008); Keenan (2000); Miceli et al. (2012); Rothwell and Baldwin (2007a); Rothwell and Baldwin (2007b); Singer, Mitchell, and Turner (1998)	0	Chung, Monroe, and Thorne (2004); Kaptein (2011); Park, Rehg, and Lee (2005); Skivenes and Trygstad (2010); Zhang, Chiu, and Wei (2009)	0	Chung, Monroe, and Thorne (2004); Kaptein (2011); Sims and Keenan (1998)
			+	Stansbury and Victor (2009)	–	Park, Rehg, and Lee (2005); Rothschild and Miethe (1999)
			–	King and Hermodson (2000)		
Public sector tenure	0	Cassematis and Wortley (2013)				
Work experience	0	Chiu (2003)	0	Chiu and Erdener (2003); Chung, Monroe, and Thorne (2004); Lowry et al. (2013); MacNab and Worthley (2008); Stylianou et al. (2013); Zhuang, Thomas, and Miller (2005)	0	Chung, Monroe, and Thorne (2004)
			+	Keil et al. (2010); Robertson, Stefaniak, and Curtis (2011)		
Job level or Supervisory /professional position	0	Lee, Heilmann, and Near (2004); Miceli and Near (1985); Miceli and Near (1988); Miceli et al. (2012)	0	Zhang, Chiu, and Wei (2009); Rothschild and Miethe (1999); Skivenes and Trygstad (2010)	–	Kaptein (2011); Miceli and Near (1984); Miceli, Near, and Schwenk (1991)
	+	Perry, Kulik, and Schmidtke (1997); Rothwell and Baldwin (2007a); Rothwell and Baldwin (2007b)	+	Bergman et al. (2002); Kaptein (2011); King and Hermodson (2000); Miceli and Near (1984); Long et al. (2013)	0	Rothschild and Miethe (1999)
			–	Taylor and Curtis (2010)		
Income or pay grade level	0	Chen and Lai (2014); Lee, Heilmann, and Near (2004)	0	Feldman and Lobel (2008); Miceli and Near (1984)	+	Miceli and Near (1984); Miceli and Near (1985)
	+	Miceli, Near, and Schwenk (1991)			–	Rothschild and Miethe (1999)
					0	Feldman and Lobel (2008)
Job performance or awards received	+	Brewer and Selden (1998); Miceli and Near (1988); Miceli, Near, and Schwenk (1991)	0	Rothschild and Miethe (1999)	0	Miceli, Near, and Schwenk (1991); Rothschild and Miethe (1999)
	0	Keenan (2000)				
Personnel safety or union representative	+	Bjørkelo et al. (2011)	0	Skivenes and Trygstad (2010)		
Leader	+	Bjørkelo et al. (2011)				
Leadership or management experience	0	Keenan (2000); Thoroughgood, Hunter, and Sawyer (2011)	0	MacNab and Worthley (2008)		
Organisational commitment or loyalty	+	Brewer and Selden (1998); Chen and Lai (2014); Miceli, Near, and Schwenk (1991)	+	Somers and Casal (1994); Taylor and Curtis (2010)	0	Miceli, Near, and Schwenk (1991); Sims and Keenan (1998); Somers and Casal (1994)
	0	Cassematis and Wortley (2013)				
Job security			0	Feldman and Lobel (2008)	+	Feldman and Lobel (2008)
Concern for job security	–	Brewer and Selden (1998)	0	Feldman and Lobel (2008)	0	Feldman and Lobel (2008)

Variable examined		(1) Whistle-blowing (general) studies		(2) Internal whistle-blowing studies		(3) External whistle-blowing studies
'+' indicates a positive association; '−'indicates a negative association; '0' indicates no association; 'M': indicates a moderating effect						
Pay satisfaction	−	Miceli, Near, and Schwenk (1991)				
Job satisfaction	+	Bjørkelo et al. (2011); Brewer and Selden (1998); Cassematis and Wortley (2013); Miceli and Near (1988)	0	Feldman and Lobel (2008)	0 −	Sims and Keenan (1998) Feldman and Lobel (2008)
Professional commitment	0	Izraeli and Jaffe (1998)	0 +	Kaplan and Whitecotton (2001) Taylor and Curtis (2010)		
Professional socialisation	+	Izraeli and Jaffe (1998)				
Regard for public interest	+	Brewer and Selden (1998)				
Perceived ability in reporting (Self-efficacy or behavioural control)			+	Jones, Spraakman, and Sánchez-Rodríguez (2014); MacNab and Worthley (2008); Miceli et al. (2001); Park and Blenkinsopp (2009)	+ 0	Oh and Teo (2010) Park and Blenkinsopp (2009)
Perceived fairness of outcome			M	Long et al. (2013)		
Previous negative outcome of report			− M	Kaplan et al. (2012) Zhang, Pany, and Reckers (2013)		
Perceived favourable outcome	+	Brewer and Selden (1998); Casal and Bogui (2008)				
Satisfaction with response upon querying on misconduct	+	Brennan and Kelly (2007)				
Internal locus of control	+	Chiu (2003); Curtis and Taylor (2009); Izraeli and Jaffe (1998); Thoroughgood, Hunter, and Sawyer (2011)	+ M 0	Chiu and Erdener (2003) Lin and Ding (2003) Miceli, Dozier, and Near (1991)	0	Oh and Teo (2010)
Favourable personal attitude and beliefs towards whistle-blowing	+ 0	Cassematis and Wortley (2013); Richardson, Wang, and Hall (2012) Izraeli and Jaffe (1998)	+ 0	Ellis and Arieli (1999); Lin and Ding (2003); Miceli and Near (1984); Park and Blenkinsopp (2009); Park, Rehg, and Lee (2005); Trongmateerut and Sweeney (2013) Bergman et al. (2002)	+ 0	Miceli and Near (1984); Oh and Teo (2010); Park, Rehg, and Lee (2005); Sims and Keenan (1998) Park and Blenkinsopp (2009)
Perceived role responsibility for reporting	+	Casal and Bogui (2008); Gao, Greenberg, and Wong (2014); Miceli, Near, and Schwenk (1991); Miceli et al. (2012)	+	Ayers and Kaplan (2005); Curtis (2006); Dalton and Radtke (2013); Kaplan and Whitecotton (2001); Keil and Park (2010); Lowry et al. (2013); Lowe, Pope, and Samuels (2014); Miller and Thomas (2005); Park and Keil (2009); Sonnier (2013); Sonnier and Lassar (2013); Schultz et al. (1993); Treviño and Victor (1992); Victor, Treviño, and Shapiro (1993); Zhuang, Thomas, and Miller (2005)	0	Miceli, Near, and Schwenk (1991)
Belief that policies require reporting					0	Sims and Keenan (1998)
Trust in reporting system			+	Lowry et al. (2013)		

Variable examined		(1) Whistle-blowing (general) studies		(2) Internal whistle-blowing studies		(3) External whistle-blowing studies
'+' indicates a positive association; '–'indicates a negative association; '0' indicates no association; 'M': indicates a moderating effect						
Knowledge or awareness of whistle-blowing channels	+	Keenan (1995); Miceli and Near (1985); Near, Baucus, and Miceli (1993)	0	Miceli and Near (1984)	0 +	Callahan and Dworkin (1994); Miceli and Near (1985) Miceli and Near (1984)
Greater personal costs of reporting (i.e., trouble, risk, discomfort)	–	Gao, Greenberg, and Wong (2014)	– 0	Ayers and Kaplan (2005); Curtis (2006); Kaplan and Whitecotton (2001) Dalton and Radtke (2013); Miller and Thomas (2005); Sonnier (2013); Sonnier and Lassar (2013); Schultz et al. (1993); Zhuang, Thomas, and Miller (2005)		
Perceived benefits of reporting			+	Dalton and Radtke (2013); Keil et al. (2010)		
Professional repercussions for not reporting			+	Robertson, Stefaniak, and Curtis (2011)	+	Robertson, Stefaniak, and Curtis (2011)
Greater social price or repercussion			+ 0	Feldman and Lobel (2008) Robertson, Stefaniak, and Curtis (2011)	0	Feldman and Lobel (2008); Robertson, Stefaniak, and Curtis (2011)
Perceived or fear of retaliation for whistle-blowing	– M	Arnold and Ponemon (1991); Cassematis and Wortley (2013); Hwang et al. (2008); Keenan (1995); Liyanarachchi and Newdick (2009); Near, Baucus, and Miceli (1993) Liyanarachchi and Adler (2011); Seifert and Stammerjohan (2008)	– 0	Feldman and Lobel (2008); Kaplan et al. (2012); King and Hermodson (2000); Mayer et al. (2013) King (1997); Miceli, Dozier, and Near (1991); Park, Rehg, and Lee (2005)	+ 0	Callahan and Dworkin (1994); Miceli and Near (1985); Rehg et al. (2008) Feldman and Lobel (2008); Park, Rehg, and Lee (2005)
Personal leverage	+	Miceli et al. (2012)				
Moral (or ethical) judgement, intensity, reasoning or obligation	+ M 0	Arnold and Ponemon (1991); Chiu (2002); Chiu (2003); Curtis and Taylor (2009); Hwang et al. (2008); Liyanarachchi and Newdick (2009); Miceli, Near, and Schwenk (1991); Shawver (2011) Seifert and Stammerjohan (2008) Singer, Mitchell, and Turner (1998)	+ M –	Ayers and Kaplan (2005); Barnett, Bass, and Brown (1996); Bergman et al. (2002); Brabeck (1984); Chiu and Erdener (2003); Keil and Park (2010); King and Hermodson (2000); Taylor and Curtis (2010); Taylor and Curtis (2013); Zhang, Chiu, and Wei (2009) Xu and Ziegenfuss (2008) Miceli, Dozier, and Near (1991)		
Moral outrage towards harm			0	Feldman and Lobel (2008)	0	Feldman and Lobel (2008)
Proactivity	+	Miceli et al. (2001); Miceli et al. (2012)	+	Zhang, Pany, and Reckers (2013)		
Individual initiative	+	Cassematis and Wortley (2013)				
Interpersonal helping	0	Cassematis and Wortley (2013)				
Self-monitoring	+	Seifert and Stammerjohan (2008)				
Risk propensity			+	Keil et al. (2010)		
Machiavellianism			M –	Stylianou et al. (2013) Dalton and Radtke (2012)		

Variable examined		(1) Whistle-blowing (general) studies		(2) Internal whistle-blowing studies		(3) External whistle-blowing studies
'+' indicates a positive association; '−'indicates a negative association; '0' indicates no association; 'M': indicates a moderating effect						
Justice perceptions			+	Curtis, Conover, and Chui (2012); Treviño and Weaver (2001); Victor, Treviño, and Shapiro (1993)		
Preference for anonymity	−	Miceli and Near (1985)	−	Miceli and Near (1984)	−	Callahan and Dworkin (1994); Miceli and Near (1985)
Obedience and respect			−	Park, Rehg, and Lee (2005)	−	Park, Rehg, and Lee (2005)
Empathy for victim	+	Singer, Mitchell, and Turner (1998)				
Loyalty			+	Park, Rehg, and Lee (2005)	0	Park, Rehg, and Lee (2005)
Disposition to trust			0 +	Lowry et al. (2013); Park, Rehg, and Lee (2005) Douhou, Magnus, and Van Soest (2012)	0	Park, Rehg, and Lee (2005)
Endorsement of fairness over loyalty	+	Waytz, Dungan, and Young (2013)				
Religiosity			0	Bocchiaro, Zimbardo, and Van Lange (2012);		
Social/human value relation orientation			0	Bocchiaro, Zimbardo, and Van Lange (2012); Park, Blenkinsopp, and Park (2014)	0	Park, Blenkinsopp, and Park (2014)
Legal and moral principles orientation			+	Park, Blenkinsopp, and Park (2014)	+	Park, Blenkinsopp, and Park (2014)
Economic value orientation			0	Park, Blenkinsopp, and Park (2014)	0	Park, Blenkinsopp, and Park (2014)
Ambivalent sexism	−	Thoroughgood, Hunter, and Sawyer (2011)				
Sensing-Intuition			0	Park, Blenkinsopp, and Park (2014)	0	Park, Blenkinsopp, and Park (2014)
Thinking-Feeling			0	Park, Blenkinsopp, and Park (2014)	0	Park, Blenkinsopp, and Park (2014)
Judging-Perceiving			0	Park, Blenkinsopp, and Park (2014)	0	Park, Blenkinsopp, and Park (2014)
Extraversion-Introversion	+	Bjørkelo, Einarsen, and Matthiesen (2010)	0	Bocchiaro, Zimbardo, and Van Lange (2012); Park, Blenkinsopp, and Park (2014)	0	Park, Blenkinsopp, and Park (2014)
Agreeableness	−	Bjørkelo, Einarsen, and Matthiesen (2010)	0	Bocchiaro, Zimbardo, and Van Lange (2012)		
Neuroticism	0	Bjørkelo, Einarsen, and Matthiesen (2010)				
Conscientiousness	0	Bjørkelo, Einarsen, and Matthiesen (2010)	0	Bocchiaro, Zimbardo, and Van Lange (2012)		
Open to experience	0	Bjørkelo, Einarsen, and Matthiesen (2010)	0	Bocchiaro, Zimbardo, and Van Lange (2012)		
Exploitable	0	Bjørkelo, Einarsen, and Matthiesen (2010)				
Assertiveness	0	Bjørkelo, Einarsen, and Matthiesen (2010)	0	Brabeck (1984)		
Intrusive	0	Bjørkelo, Einarsen, and Matthiesen (2010)				
Socially avoidant	0	Bjørkelo, Einarsen, and Matthiesen (2010)				
Cold	0	Bjørkelo, Einarsen, and Matthiesen (2010)				
Domineering	−	Bjørkelo, Einarsen, and Matthiesen (2010)				
Overly nurturant	0	Bjørkelo, Einarsen, and Matthiesen (2010)				
Vindictive	0	Bjørkelo, Einarsen, and Matthiesen (2010)				

Variable examined		(1) Whistle-blowing (general) studies		(2) Internal whistle-blowing studies		(3) External whistle-blowing studies
'+' indicates a positive association; '–'indicates a negative association; '0' indicates no association; 'M': indicates a moderating effect						
Honesty-humility			0	Bocchiaro, Zimbardo, and Van Lange (2012)		
Emotionality			0	Bocchiaro, Zimbardo, and Van Lange (2012)		
Happy			–	Reckers-Sauciuc and Lowe (2010)		
Sadness			0	Reckers-Sauciuc and Lowe (2010)		
Arousal			+	Reckers-Sauciuc and Lowe (2010)		
Fear			–	Reckers-Sauciuc and Lowe (2010)		
Anger	+	Gundlach, Martinko, and Douglas (2008)	+	Jones, Spraakman, and Sánchez-Rodríguez (2014)		
Positive affectivity	+	Miceli et al. (2001)	0	Zhang, Chiu, and Wei (2009)		
Negative mood			–	Curtis (2006)		
Upset with misconduct			+	Lawson (2004)		
Horizontal individualism			0	Park, Rehg, and Lee (2005)	0	Park, Rehg, and Lee (2005); Park et al. (2008)
Vertical individualism			+	Park, Rehg, and Lee (2005); Park et al. (2008)	0	Park, Rehg, and Lee (2005); Park et al. (2008)
Individualism					+	Nayir and Herzig (2012)
Horizontal collectivism			+	Park, Rehg, and Lee (2005); Park et al. (2008)	+ 0	Park, Rehg, and Lee (2005) Park et al. (2008)
Vertical collectivism			0	Park, Rehg, and Lee (2005); Park et al. (2008)	0	Park, Rehg, and Lee (2005); Park et al. (2008)
Collectivism			+ 0	Zhuang, Thomas, and Miller (2005) MacNab et al. (2007)	+ 0	Nayir and Herzig (2012) MacNab et al. (2007)
Uncertainty avoidance			+	MacNab et al. (2007)	+	MacNab et al. (2007)
Power distance			–	Curtis, Conover, and Chui (2012); MacNab et al. (2007)	+	MacNab et al. (2007)
Idealism			+	Chiu and Erdener (2003); Fayard, Cockrell, and Curtis (2014)	–	Nayir and Herzig (2012)
Relativism			0 –	Ayers and Kaplan (2005); Chiu and Erdener (2003) Fayard, Cockrell, and Curtis (2014); Jones, Spraakman, and Sánchez-Rodríguez (2014)	0	Nayir and Herzig (2012)

Panel B: Characteristics of the misconduct and wrongdoer

Variable examined		(1) Whistle-blowing (general) studies		(2) Internal whistle-blowing studies		(3) External whistle-blowing studies
'+' indicates a positive association; '−' indicates a negative association; '0' indicates no association; 'M': indicates a moderating effect						
Severity of misconduct	+	Brennan and Kelly (2007); Brewer and Selden (1998); Cassematis and Wortley (2013); Chen and Lai (2014); Gao, Greenberg, and Wong (2014); Gundlach, Martinko, and Douglas (2008); Hwang et al. (2008); Keenan (2000); Lee, Heilmann, and Near (2004); Miceli and Near (1985); Robinson, Robertson, and Curtis (2012); Shawver (2011)	+	Ayers and Kaplan (2005); Bergman et al. (2002); Curphy et al. (1998); Curtis (2006); King and Hermodson (2000); Long et al. (2013); Sonnier (2013); Sonnier and Lassar (2013); Schultz et al. (1993); Zhuang, Thomas, and Miller (2005)	+	Callahan and Dworkin Miceli and Near (1985); Rehg et al. (2008)
	0	Casal and Bogui (2008)	0	Dalton and Radtke (2013); Kaplan and Whitecotton (2001); Miller and Thomas (2005)		
Magnitude of consequences	+	Singer, Mitchell, and Turner (1998)	M	Bhal and Dadhich (2011)		
Likelihood of consequences	−	Singer, Mitchell, and Turner (1998)				
Frequency of misconduct	+	Brewer and Selden (1998); Lee, Heilmann, and Near (2004)	+	Douhou, Magnus, and Van Soest (2012)	+	Feldman and Lobel (2008); Miceli and Near (1985)
			0	Feldman and Lobel (2008)		
Number of wrongdoers	+	Lee, Heilmann, and Near (2004)			+	Hamaguchi, Kawagoe, and Shibata (2009)
Duration of misconduct	+	Lee, Heilmann, and Near (2004)				
Number of observers of misconduct	+	Gao, Greenberg, and Wong (2014); Robinson, Robertson, and Curtis (2012)	+	Curphy et al. (1998); Miceli, Dozier, and Near (1991)	−	Miceli, Near, and Schwenk (1991)
	−	Miceli, Near, and Schwenk (1991)				
Direct or strong evidence of misconduct	+	Miceli and Near (1985); Miceli et al. (2012)	0	Brink, Lowe, and Victoravich (2013)	+	Brink, Lowe, and Victoravich (2013); Miceli and Near (1985); Miceli et al. (2012)
Recognition of misconduct			+	Bergman et al. (2002)		
Legitimacy of misconduct			0	Feldman and Lobel (2008)	+	Feldman and Lobel (2008)
Location of offence	0	Brewer and Selden (1998)				
Employee theft	0	Miceli, Near, and Schwenk (1991)			+	Miceli, Near, and Schwenk (1991)
Misappropriation of assets versus fraudulent financial reporting	+	Robinson, Robertson, and Curtis (2012)	0	Kaplan, Pope, and Samuels (2010); Kaplan, Pope, and Samuels (2011)		
			+	Kaplan et al. (2009b)		
Unfairness of misconduct			+	Jones, Spraakman, and Sánchez-Rodríguez (2014)		
Justifiability of misconduct			−	Douhou, Magnus, and Van Soest (2012)		
Misconduct harms the organisation			0	Feldman and Lobel (2008)	−	Feldman and Lobel (2008)

Variable examined		(1) Whistle-blowing (general) studies		(2) Internal whistle-blowing studies		(3) External whistle-blowing studies
'+' indicates a positive association; '–' indicates a negative association; '0' indicates no association; 'M': indicates a moderating effect						
Misconduct harms the public	0	Miceli, Near, and Schwenk (1991)	0	Feldman and Lobel (2008)	+ 0	Miceli, Near, and Schwenk (1991) Feldman and Lobel (2008)
Misconduct harms organisational members	0	Miceli, Near, and Schwenk (1991)	+	Victor, Treviño, and Shapiro (1993)	+	Miceli, Near, and Schwenk (1991)
Misconduct causes personal harm	+	Cassematis and Wortley (2013); Miceli and Near (1985)	0	Feldman and Lobel (2008)	0	Feldman and Lobel (2008); Miceli and Near (1985)
Fraud discovered before or after SEC filing			0	Lowe, Pope, and Samuels (2014)		
Age of wrongdoer			0	Douhou, Magnus, and Van Soest (2012)		
Gender of wrongdoer	0	Thoroughgood, Hunter, and Sawyer (2011)	0	Douhou, Magnus, and Van Soest (2012); Henningsen, Valde, and Denbow (2013); Kaplan et al. (2009a)		
Power distance to wrongdoer			–	Taylor and Curtis (2013)		
Wrongdoer has high power			–	Chung, Monroe, and Thorne (2004)	0	Chung, Monroe, and Thorne (2004)
Wrongdoer has a high job rank or position	– 0	Gao, Greenberg, and Wong (2014); Lee, Heilmann, and Near (2004) Miceli, Near, and Schwenk (1991)	– +	Skivenes and Trygstad (2010) Bergman et al. (2002)	– +	Miceli, Near, and Schwenk (1991) Callahan and Dworkin (1994)
Wrongdoer has a high performance reputation	–	Robertson, Stefaniak, and Curtis (2011)			+	Robertson, Stefaniak, and Curtis (2011)
Wrongdoer belongs to work group			+	Henningsen, Valde, and Denbow (2013)		
Wrongdoer is aware of whistle-blower's knowledge of fraud	–	Robinson, Robertson, and Curtis (2012)				
Likeability and relational/emotional closeness to wrongdoer	–	Hwang et al. (2008); Robertson, Stefaniak, and Curtis (2011); Waytz, Dungan, and Young (2013)	– M	Curphy et al. (1998); King (1997) Miller and Thomas (2005)	0	Robertson, Stefaniak, and Curtis (2011)
Wrongdoer's impression management			0	Richardson, Wheeless, and Cunningham (2008)		
Wrongdoer benefits from misconduct			+	Sonnier (2013)		
Social confrontation with wrongdoer			+	Kaplan, Pope, and Samuels (2010)		
Sub-certification by transgressor			–	Lowe, Pope, and Samuels (2014)		

Panel C: Characteristics of the societal or the regulatory environment

Variable examined		(1) Whistle-blowing (general) studies		(2) Internal whistle-blowing studies		(3) External whistle-blowing studies
'+' indicates a positive association; '−' indicates a negative association; '0' indicates no association; 'M': indicates a moderating effect						
Legislative protection	+	Seifert and Stammerjohan (2008)	+	Sonnier (2013); Sonnier and Lassar (2013)	M	Oh and Teo (2010)
Leniency program					+	Apesteguia, Dufwenberg, and Selten (2007); Bigoni et al. (2012); Dijkstra, Haan, and Schoonbeek (2011); Hamaguchi, Kawagoe, and Shibata (2009); Hinloopen and Soetevent (2008)
Legislative provision of an incentive or financial reward for external reporting	+	Seifert and Stammerjohan (2008)			+ 0	Apesteguia, Dufwenberg, and Selten (2007); Bigoni et al. (2012); Bowen, Call, and Rajgopal (2010); Dyck, Morse, and Zingales (2010) Call, Kedia, and Rajgopal (2012)
Regulators perform investigations profoundly					+	Dijkstra, Haan, and Schoonbeek (2011)
Expectation to report			+	Feldman and Lobel (2008)	+	Feldman and Lobel (2008)
Overall pressure to report	+	Shawver (2011)				
Social consensus	0	Singer, Mitchell, and Turner (1998)				
Subjective norms	+	Izraeli and Jaffe (1998); Richardson, Wang, and Hall (2012)	+	Chen, Nichol, and Zhou (2013); Ellis and Arieli (1999); Park and Blenkinsopp (2009); Trongmateerut and Sweeney (2013)	+	Oh and Teo (2010); Park and Blenkinsopp (2009)

Panel D: Characteristics of the organisation

Variable examined		(1) Whistle-blowing (general) studies		(2) Internal whistle-blowing studies		(3) External whistle-blowing studies
'+' indicates a positive association; '–' indicates a negative association; '0' indicates no association; 'M': indicates a moderating effect						
Size of organisation	0	Rothwell and Baldwin (2007a); Rothwell and Baldwin (2007b)	0	Kaptein (2011)	+	Barnett (1992); Bowen, Call, and Rajgopal (2010); Call, Kedia, and Rajgopal (2012)
	+	Miceli and Near (1985)	+	Long et al. (2013)	–	Kaptein (2011)
					0	Miceli and Near (1985)
Firm growth					+	Bowen, Call, and Rajgopal (2010); Call, Kedia, and Rajgopal (2012)
Organisational performance	+	Brewer and Selden (1998)				
	0	Thoroughgood, Hunter, and Sawyer (2011)				
Past stock performance					0	Bowen, Call, and Rajgopal (2010)*; Call, Kedia, and Rajgopal (2012)
					+	Bowen, Call, and Rajgopal (2010)**
Capital market pressure					0	Bowen, Call, and Rajgopal (2010)**; Call, Kedia, and Rajgopal (2012)
					0	Bowen, Call, and Rajgopal (2010)*
Firm reputation					+	Bowen, Call, and Rajgopal (2010)
					0	Call, Kedia, and Rajgopal (2012)
Downsizing					–	Bowen, Call, and Rajgopal (2010)**; Call, Kedia, and Rajgopal (2012)
					0	Bowen, Call, and Rajgopal (2010)*
Unclear internal communication channels					+	Bowen, Call, and Rajgopal (2010)*
					0	Bowen, Call, and Rajgopal (2010)**; Call, Kedia, and Rajgopal (2012)
Corporate governance					0	Bowen, Call, and Rajgopal (2010)*; Call, Kedia, and Rajgopal (2012)
					–	Bowen, Call, and Rajgopal (2010)**
Internal control weaknesses					0	Bowen, Call, and Rajgopal (2010); Call, Kedia, and Rajgopal (2012)
Loss firms					+	Call, Kedia, and Rajgopal (2012)
External monitoring					–	Bowen, Call, and Rajgopal (2010)
Outside directors					0	Call, Kedia, and Rajgopal (2012)
Board size					0	Call, Kedia, and Rajgopal (2012)
Rank & file stock options					–	Call, Kedia, and Rajgopal (2012)
Stock options to top 5 executives					0	Call, Kedia, and Rajgopal (2012)

Note: Bowen, Call, and Rajgopal (2010)*: External whistle-blowing versus broad sample; Bowen, Call, and Rajgopal (2010)**: External whistle-blowing versus tarnished firm sample

Variable examined		(1) Whistle-blowing (general) studies		(2) Internal whistle-blowing studies		(3) External whistle-blowing studies
'+' indicates a positive association; '−' indicates a negative association; '0' indicates no association; 'M': indicates a moderating effect						
Internal audit quality			0	Kaplan and Schultz (2007)		
Regulated or government organisation					+	Miceli, Near, and Schwenk (1991)
Industry	0	Keenan (1995); Keenan (2000)			0	Barnett (1992)
Public versus private sector	0	Keenan (1995); Keenan (2000)	+ 0	Feldman and Lobel (2008) Stylianou et al. (2013)	+ 0	Rothschild and Miethe (1999) Feldman and Lobel (2008)
Home vs non-home office	0	Keenan (1995); Keenan (2000)				
Unionised company	0	Keenan (2000)	0	Feldman and Lobel (2008); Skivenes and Trygstad (2010)	0 +	Feldman and Lobel (2008) Barnett (1992)
Work group size	+	Miceli and Near (1988)				
Tone at the top			0	Kaplan and Whitecotton (2001)		
Trust in management	0	Cassematis and Wortley (2013)	+	Keil et al. (2010)		
Fairness of company practices			+	Fayard, Cockrell, and Curtis (2014)		
Organisational justice			+	Treviño and Weaver (2001); Victor, Treviño, and Shapiro (1993)		
Leader-member exchange			+	Bhal and Dadhich (2011)		
Supervisor receptivity			0	Richardson, Wheeless, and Cunningham (2008)		
Relationship with organisational members					+	Oh and Teo (2010)
Bureaucratic climate	−	Miceli, Near, and Schwenk (1991)			0 +	Miceli, Near, and Schwenk (1991) Rothschild and Miethe (1999)
Principle vs. rule-based climate	0	Rothwell and Baldwin (2007a)	+	Chung, Monroe, and Thorne (2004)	+	Chung, Monroe, and Thorne (2004)
Democratic in decision-making			+	Rothschild and Miethe (1999)	−	Rothschild and Miethe (1999)
Participatory culture			+	Richardson, Wheeless, and Cunningham (2008)		
Voice in organisation			0	Feldman and Lobel (2008)	0	Feldman and Lobel (2008)
Discussability climate			+	Kaptein (2011)	−	Kaptein (2011)
Climate of received communication	+	Miceli and Near (1985)			−	Miceli and Near (1985)
Climate of silence			−	Park and Keil (2009)		
Climate of independence	0	Rothwell and Baldwin (2007a)				
Team climate	+	Rothwell and Baldwin (2007a)				
Climate of transparency			−	Kaptein (2011)	+	Kaptein (2011)
Climate of feasibility			0	Kaptein (2011)	+	Kaptein (2011)

Variable examined		(1) Whistle-blowing (general) studies		(2) Internal whistle-blowing studies		(3) External whistle-blowing studies
'+' indicates a positive association; '–' indicates a negative association; '0' indicates no association; 'M': indicates a moderating effect						
Climate of supportability			+	Kaptein (2011)	0	Kaptein (2011)
Climate of protection from retaliation	0	Miceli and Near (1985)	0	Miceli and Near (1984)	0 –	Miceli and Near (1984) Miceli and Near (1985)
Ethical leadership			+	Bhal and Dadhich (2011); Mayer et al. (2013)		
Sanctionability of ethical behaviours			+	Kaptein (2011)	–	Kaptein (2011)
Ethical organisational climate	+	Thoroughgood, Hunter, and Sawyer (2011)	M 0	Dalton and Radtke (2013); Zhang, Chiu, and Wei (2009) Bergman et al. (2002)	–	Rothschild and Miethe (1999)
Ethical congruency of senior management			0	Kaptein (2011)	–	Kaptein (2011)
Ethical congruency of local management			+	Kaptein (2011)	–	Kaptein (2011)
Clarity of ethical expectations			+	Kaptein (2011)	–	Kaptein (2011)
Co-workers' ethical behaviour			+	Mayer et al. (2013)		
Organisational support for whistle-blowing	+ 0	Cassematis and Wortley (2013); Keenan (2000) Miceli et al. (2012)	+ 0	Keil et al. (2010) Miceli et al. (2001)	0	Callahan and Dworkin (1994)
Co-workers support and approval whistle-blowing	+ 0	Miceli et al. (2012) Miceli and Near (1985)	+	Long et al. (2013); Miceli and Near (1984)	–	Miceli and Near (1984); Miceli and Near (1985); Miceli et al. (2012)
Supervisor support ethical standards			0	Stansbury and Victor (2009)		
Co-workers support ethical standards			0	Stansbury and Victor (2009)		
Expectation of supervisor to report					+	Sims and Keenan (1998)
Integrity of supervisor			0	Kaplan and Whitecotton (2001)		
Supervisor rewards/co-workers respect despite unethical behaviour			–	Stansbury and Victor (2009)		
Whistleblowers seen by co-workers as snitches			–	Stansbury and Victor (2009)		
Whistleblowers seen by management as troublemakers			–	Stansbury and Victor (2009)		
Strong procedural safeguards			–	Kaplan et al. (2009b)		

Variable examined		(1) Whistle-blowing (general) studies		(2) Internal whistle-blowing studies		(3) External whistle-blowing studies
'+' indicates a positive association; '−' indicates a negative association; '0' indicates no association; 'M': indicates a moderating effect						
Provision of policy and formal structures for reporting	+ 0	Miceli and Near (1985); Rothwell and Baldwin (2007b) Keenan (1995)	+	Barnett, Cochran, and Taylor (1993); King and Hermodson (2000)	0 −	Barnett, Cochran, and Taylor (1993); Callahan and Dworkin (1994) Miceli and Near (1985)
Identity disclosed (versus anonymous or protected)	−	Curtis and Taylor (2009)				
Provision of an anonymous reporting channel			0 −	Jenkel and Haen (2012); Keil et al. (2010); Pope and Lee (2013) Kaplan and Schultz (2007)		
Hotline versus 360-degree report			0	Fayard, Cockrell, and Curtis (2014)		
External versus internal hotline administrator	+	Gao, Greenberg, and Wong (2014)	− +	Kaplan et al. (2009b); Sonnier (2013) Zhang, Pany, and Reckers (2013)		
Internal vs. external auditor report recipient			+	Kaplan, Pope, and Samuels (2011)		
Inquiring vs. non-inquiring report recipient			+	Kaplan, Pope, and Samuels (2011)		
Mechanisms have higher levels of justice	0	Miceli et al. (2012)	+	Seifert et al. (2010)	−	Miceli et al. (2012)
Organisational responsiveness and trust in investigation	+	Curtis and Taylor (2009); Miceli and Near (1988); Perry, Kulik, and Schmidtke (1997)	+ 0 M	Barnett, Cochran, and Taylor (1993); Feldman and Lobel (2008); Lawson (2004); Keil et al. (2010); Lowry et al. (2013) Mayer et al. (2013); Miceli and Near (1984) Taylor and Curtis (2013)	− 0	Callahan and Dworkin (1994); Feldman and Lobel (2008) Barnett, Cochran, and Taylor (1993)
Group vs. individual reward system			+	Jenkel and Haen (2012)		
External reporting reward					+	Oh and Teo (2010)
Internal reporting reward			+ 0	Pope and Lee (2013); Stikeleather (2013); Xu and Ziegenfuss (2008) Brink, Lowe, and Victoravich (2013)	M	Brink, Lowe, and Victoravich (2013)
Positive performance evaluation for reporting			+	Robertson, Stefaniak, and Curtis (2011)	+	Robertson, Stefaniak, and Curtis (2011)
Incentives framed as penalty for non-reporting vs. reward for reporting			+	Chen, Nichol, and Zhou (2013)		

Appendix 3.3: Example of external whistle-blowing events identified from press reports

Year of allegation	Company	Whistle-blower(s)	External party to which whistle-blower reported	Illustrative example of external whistle-blowing events identified from press reports	References
2000	George Weston Foods	Anonymous whistle-blower	Regulator - ACCC	'After being contacted by a still anonymous whistleblower in late 2000, the regulator interviewed the key players in September 2001 and launched the court case [against George Weston for price-fixing of flour] in December 2002.'	Sexton, E. 2004. Making a meal of it, *The Sydney Morning Herald*, September 4.
2005	Multiplex Group	Stewart Cummins (Accounting group general manager)	Regulator - ASIC	'Multiplex Group yesterday struck a $32 million investors' compensation deal with the corporate regulator to settle a claim that its board failed to disclose a material change to profit from its Wembley Stadium project ... The investigation was triggered by a whistleblower.'	Wilmot, B. 2006. $32m but class action hovers, *The Australian Financial Review*, December 21.
2007	Coles Group	Anonymous whistle-blower	Media - Australian Broadcasting Corporation (ABC)	'The ABC has been given access to internal Coles' emails [allegedly leaked by Peter Scott] which reveal that earnings figures which the company released to the market last year may not have reflected the true position of its finances.'	Alberici, E. 2007. Coles accused of misleading shareholders, *Australian Broadcasting Corporation (Transcripts)*, March 16.
2008	Commonwealth Bank of Australia (CBA)	Jeff Morris (Financial planner at CBA), with other anonymous whistle-blowers	Regulator - ASIC	'How the CBA scandal unfolded. October 30, 2008 - Whistleblowers, including Jeff Morris, tip off ASIC [of financial improprieties within the company] ... February 2010 - Whistleblowers visit ASIC head office in Sydney to demand action.'	Ferguson, A. and C. Vedelago. 2013. Targets, bonuses, trips - inside the CBA boiler room, *The Age*, June 22.
2012	Westpac Banking Corporation	Unidentified whistle-blower	Member of Parliament - Senator John Williams	'A Coast whistleblower working with Mr Hickie provided material to Nationals Senator John Williams who exposed the case [allegation of financial improprieties] late this week at the Senate's economics committee's inquiry into bank practices.'	Weston, P. 2012, Elderly lose $10m, *The Gold Coast Bulletin*, August 11.

Appendix 3.4: Example of an internally uncovered misconduct that was revealed in court, and subsequently reported by the press

Gambler stole $4.3m from his boss and lost the lot.
13 February 2002, *The Adelaide Advertiser*

A PROBLEM gambler with an addiction to poker machines lost an average of $1200 a day for 10 years, a court heard yesterday. By the time 44-year-old Magdi Atalla was caught he had stolen more than $4.3 million from his employer - and lost it all.

The County Court was told the insurance claims supervisor estimated he lost $3 million on pokies and the rest at the casino, TAB and on Tattslotto tickets.

Described by his colleagues at rural giant Wesfarmers as intelligent and hard-working, Atalla became consumed in the cycle of gambling to the point where he felt he had no control over it, his barrister said.

The court heard he produced 1003 insurance claim cheques and deposited them into trust accounts he had created between September 1991 until November 2000. Prosecutor Andrew McKenna said the total amount stolen from Wesfarmers Federation Insurance Ltd was $4,328,520.63.

Howard Mason, for Atalla, told Judge Thomas Neesham he might expect that with such an amount of money stolen it would be to support a lavish lifestyle with an extravagant home and overseas holidays.

"The real tragedy is that Mr Atalla was driven by his chronic need to gamble," he said.

The court heard Atalla's gambling habit escalated from 1991 when he ran up debts in the tens of thousands of dollars on the 20 or so credit cards he had obtained.

He re-mortgaged his house and then, when the gambling and the losses increased, he started to steal from the company he had worked for since he was 17.

Mr Mason said his client got to the point where he could not drive past a gambling venue without stopping. "It was like an alcoholic not passing a bar," he said.

"It's as massive and chronic addiction that one is likely to see. It got to the stage where he could not think about anything else."

The court heard the thefts were not discovered by internal audits or by Wesfarmers' auditors, Ernst & Young, but by one of his fellow employees who noticed something amiss in December 2000.

Atalla, who pleaded guilty to 15 counts of obtaining property by deception, was released on bail.

Appendix 3.5: Example of an internally uncovered misconduct that was disclosed by the company to the Australian Securities Exchange, and subsequently reported by the press

Note: As seen from the articles, the company first made a disclosure to the ASX on 1st July 2013. The misconduct was subsequently picked up and reported by the press on the 2nd, 25th and 27th July 2013.

Phosphagenics Limited; Invoicing and Accounting Irregularities
1 July 2013, *ASX ComNews*

ASX Limited Market Announcements Office. Phosphagenics Limited (ASX: PHO, OTCQX: PPGNY) (the "Company") has identified what appear to be irregular transactions in relation to its invoicing and accounting records. The Company believes that the amounts involved may be material. The Company has retained independent legal and accounting professionals to undertake a thorough and extensive investigation. Pending finalisation of the investigation, the Company's Board of Directors has suspended Dr Esra Ogru from performing her functions as CEO. In the interim, Executive Director and joint CEO Harry Rosen has returned today from the Company's New York office to assume the role of sole CEO. Further information will be provided as soon as the results of the investigation are available.

Phosphagenics suspends CEO
2 July 2013, *The Age*

Biotech Phosphagenics has suspended chief executive Esra Ogru as it awaits the results of an investigation into "appear to be irregular transactions in relation to its invoicing and accounting records". Founder, joint CEO and second-largest shareholder Harry Rosen flew back from New York on Monday to take sole control of the company's operations.

News of Ogru's suspension came as a shock on Monday. Seen on TV spruiking Phosphagenics' products, she is respected in the biotechnology industry. It also will no doubt be raising the eyebrows of investor Simon Marais, whose Orbis Group is Phosphagenic'' biggest shareholder, with a 13.1 percent stake.

While details were scanty, Phosphagenics told the market "the amounts involved may be material". Former chief financial officer Ashley Arnott, who left the company in January, told CBD there was no sign of trouble when he departed. "I was there until after the financial-year process was through, and the audit, and that was all fine," he said.

CEO cheated company, ASX told
25 July 2013, *The Daily Telegraph*

THE former chief executive of cosmetics maker Phosphagenics was one of several employees who cheated the company of $5.7 million, the company said. Esra Ogru and five other staff members were involved in the writing of false invoices to Phosphagenics over the last eight years, an investigation by independent lawyers and accountants brought in by the company has found. In a statement lodged with the ASX, Phosphagenics said: "The company alleges that she is implicated in and has benefited from the misappropriated funds."

Ms Ogru resigned from the firm last week after being stood down by the board on July 1 when accounting irregularities were discovered. Phosphagenics has acted to secure the assets of each of the employees allegedly involved, and is confident it will recover most misappropriated funds. The company will also seek compensation from each of them for the cost of the investigation, interest, and any other losses incurred as a result of the fraudulent activities. "The company is confident that it will receive substantial restitution and compensation from the various parties responsible for the misappropriations," executive director Harry Rosen told the ASX in a statement.

Phosphagenics makes several anti-ageing and body-sculpting products, and is working on creams and patches that could deliver insulin, pain relief, and anti-acne treatments. Mr Rosen has relocated to Melbourne from the New York office to oversee Phosphagenics' operations. He said in the statement the company's clinical programs, product development and marketing had not been affected by the internal problems. "I and my fellow directors cannot aptly describe our profound disappointment in what has occurred," he said.

Ogru's tragic fall from grace
27 July 2013, *The Australian Financial Review*

Esra Ogru has come a long way from her birthplace of Adana in Turkey – a PhD in biochemistry at Monash University, the owner of several homes and chief executive of a publicly listed company, Phosphagenics. She appeared to have it all, until this week when she was accused of allegedly embezzling $5.7 million from the biotech over an eight-year period. Dr Ogru, another senior employee who has since been fired, and four others from outside the company are allegedly involved in a co-ordinated theft via payment of false invoices.

In January, Dr Ogru set up a new company, Adros21 Pty Ltd, which listed fellow directors as Phosphagenics founder Harry Rosen and Simon Michael West, who invented the technology used in the company's Oxycodone patch products. Oxycodone is one of the lead candidates in its opioid portfolio, which includes a range of patch products for chronic pain.

It appears there are three equal shares, one held by Vedat Iskagel, who has the same home address as Dr Ogru at Wheelers Hill, Melbourne. And one share each held by Mr Rosen and Dr West. It is not clear what kind of business Adros21 operates. Dr Ogru's legal representative, Nick Mazzeo of Lennon Mazzeo Lawyers, told AFR Weekend: "She is co-operating with the current inquiry and the company, and working towards a resolution."

Those that worked with Dr Ogru said she made a rapid rise at Phosphagenics where she started as head of research and development in 2001. By 2005, she gained a board seat and in 2009 took on the expanded role of chief operating officer. She was named CEO in April 2010. "She was a lovely person, very organised and very personable and answered questions, and has good social skills," said one insider. "This is a real tragedy, She has gone off the rails in a serious way."

It is believed that Dr Ogru did not socialise much with colleagues, although she was close to her mentor, Mr Rosen, who has been "disappointed" and "shocked" at the unravelling events. He is running the company. Chris Noble, who leads the National Deloitte Forensic practice in Australia, spends most of its time investigating white-collar crime, money laundering, bribery and corruption. In recent weeks, Deloitte Forensic has trawled though documents and computers in its investigation into the alleged misappropriation of funds at Phosphagenics.

Mr Noble said that with the Australian economy slowing, and more pressure on executives and boards, there is more scrutiny on internal procedures. "Five years ago the pace of business was much faster and things were happening so quickly," he said. "Boards and executives are now looking closely at productivity and spending." "I think we are starting to see things discovered now that may have been there for a while."

Mr Noble said in many cases a whistleblower will typically be the first person to discover fraud. This was the case at Phosphagenics where its newly appointed chief financial officer uncovered the accounting irregularities.

Appendix 3.6: Robustness test on sub-samples

		(1) Exclusion of financial firms			*(2) Exclusion of allegations involving the misappropriation of funds or assets*		
Predicted sign		Coeff.	Std. err.	*p*-value	Coeff.	Std. err.	*p*-value
IMMUNITY	+	4.170**	1.081	0.000	14.741**	1.464	0.000
PWRPERP	+	1.082*	0.611	0.039	1.929	1.189	0.053
INTNL	+	1.438*	0.748	0.027	–0.693	0.776	0.186
COLLUDE	+	3.365**	0.766	0.000	2.383*	1.303	0.034
VARCOMP	–	–3.792**	1.472	0.005	–3.277**	1.171	0.003
COPROT	–	–1.032	0.847	0.112	–1.225	1.042	0.120
COPOLICY	–	–0.995*	0.573	0.041	–1.246**	0.678	0.033
EMPLOY	–	–2.473**	0.961	0.005	–4.118**	1.132	0.000
SIZE	+	0.240	0.212	0.130	0.436*	0.239	0.035
GROWTH	+	0.848	1.224	0.244	–0.452	1.706	0.396
PASTPERF	+	1.015	0.632	0.054	0.531	0.515	0.151
UNCLRCH	+	3.041	2.163	0.080	2.979*	1.766	0.046
FRDAMT	+	0.360*	0.211	0.044	0.208	0.230	0.183
OUTDIR	–	–0.616	2.543	0.405	–4.027	2.474	0.052
BIG4	–	0.013	1.346	0.496	1.464	1.066	0.085
Constant		–13.153**	4.799	0.003	–9.687	6.016	0.054
Industry fixed-effects included							
		$n = 199$			$n = 146$		
Log likelihood:		–32.33 ($p < 0.001$)			–31.32 ($p < 0.001$)		
Pseudo R^2:		0.75			0.68		
Classification rate:		0.95			0.94		

** Significant at the 1% level; * significant at the 5% level using a one-tailed test.

Column (1) and (2) of this table reports the robustness of the results to the exclusion of financial firms, and to allegations involving the misappropriation of funds or assets, respectively. The dependent variable is EXTWB. EXTWB = '1' if the alleged financial misconduct was referenced in the press to result in external whistle-blowing and '0' when referenced to result in internal reporting; IMMUNITY = '1' if the firm was subjected to a policy provided by the ACCC that grants immunity to the first member of a cartel who blows the whistle to the ACCC from 1998, and '0' otherwise; PWRPERP = '1' if the alleged financial misconduct was perpetrated by an individual in top management as reported in the press, and '0' otherwise; INTNL = '1' if the alleged financial misconduct was perpetrated internationally relative to the domicile of business headquarters as reported in the press, and '0'otherwise; COLLUDE = '1' if the alleged misconduct was perpetrated by more than one individual as reported in the press, and '0' otherwise; VARCOMP = proportion of top five executives' total remuneration that is variable, for the year prior to the allegation; COPROT = '1' if protection for whistle-blowing is disclosed in the annual report, for the year prior to the financial allegation, and '0' otherwise; COPOLICY = '1' if the company provides an internal corporate whistle-blowing policy as reported in the annual report, for the year prior to the allegation, and '0' otherwise; EMPLOY = '1' if the whistle-blower was an employee of the company as reported in the press, and '0' otherwise; SIZE = logarithm of total assets in dollars, for the year prior to the financial allegation; GROWTH = average change in revenue over the past three years prior to the financial allegation; PASTPERF = market-adjusted buy-and-hold returns over the past one-year prior to the financial allegation; UNCLRCH = average scaled rank of AGE, INDCONC, and GEOCONC where AGE = number of years that the firm has been listed on the ASX as of the year of the financial allegation, INDCONC = one minus the industry segment-sales based Herfindahl index for the year prior to the financial allegation, and GEOCONC = one minus the geographical segment-sales based Herfindahl index for the year prior to the financial allegation; FRDAMT = logarithm of fraud amount in dollars as reported in the press; OUTDIR = proportion of independent directors, for the year prior to the allegation; BIG4 = '1' if the firm was audited by a Big 4 auditor the year prior to the financial allegation, and '0' otherwise.

Appendix 4.1: Examination of the degree of complexity in complex firms

COMPLEXITY =		(1) COMPLEXHH		(2) INDHH		(3) GEOHH	
	Predicted sign	Coefficient	*p*-value	Coefficient	*p*-value	Coefficient	*p*-value
Variables of interests							
COMPLEXITY	+	3.783*	0.044	5.389**	0.001	−2.141	0.119
ACMEET	−	−0.085	0.262	−0.094	0.247	−0.017	0.447
ACQUA	−	0.470	0.343	−0.459	0.359	−0.053	0.483
ACIND	−	−3.299*	0.011	−2.803*	0.038	−3.150**	0.008
Control variables							
SIZE	+	0.555**	0.007	0.524*	0.013	0.611**	0.004
GROWTH	+	−2.080	0.120	−2.969	0.062	−1.775	0.146
PASTPERF	+	0.882	0.079	1.100	0.052	1.016	0.056
CMPRESSURE	+	0.627	0.386	0.737	0.374	0.492	0.407
OUTDIR	−	−8.434**	0.003	−10.031**	0.001	−8.599**	0.002
SUBSH	−	−0.325	0.318	−0.023	0.488	0.092	0.447
VARCOMP	−	−2.533*	0.043	−3.546*	0.015	−2.507	0.051
IMMUNITY	+	5.489**	0.001	6.539**	0.000	5.156**	0.001
FRDAMT	+	0.705**	0.000	0.767**	0.000	0.762**	0.000
USXLIST	+/−	−0.239	0.405	−0.282	0.390	−0.647	0.256
Constant		−17.029**	0.000	−17.469**	0.001	−17.176**	0.002
Industry fixed-effects included							
$n = 177$							
Classification rate		0.88		0.87		0.85	
Log likelihood		−54.60		−50.31		−55.36	
χ^2		120.06 ($p < 0.001$)		128.53 ($p < 0.001$)		118.54 ($p < 0.001$)	
Pseudo R^2		0.52		0.56		0.52	

** Significant at the 1% level; * significant at the 5% level using a one-tailed test.

This table reports the results that examine the influence of the degree of complexity on the likelihood that financial misconduct results in external whistle-blowing (EXTWB) in a sample of complex firms. EXTWB = '1' if the alleged financial misconduct was referenced in the press to result in external whistle-blowing and '0' when referenced to result in internal reporting; COMPLEXHH is the average of INDHH and GEOHH, where INDHH = one minus the industry segment-sales based Herfindahl index and GEOHH = one minus the geographical segment-sales based Herfindahl index, with a higher ratio indicates greater organisational complexity; HIGHCOMPLEX = '1' if the firm operates in more than one industry and more than one geographical segment, and '0' otherwise; LOWCOMPLEX = '1' if the firm operates only in one industry and one geographical segment, and '0' otherwise; ACMEET = number of audit committee meetings held the year prior to the financial allegation; ACQUA = percentage of audit committee members with accounting or finance qualifications, for the year prior to the financial allegation; ACIND = percentage of independent audit committee members, for the year prior to the financial allegation; SIZE = logarithm of total assets in dollars, for the year prior to the financial allegation; GROWTH = average change in revenue over the past three years prior to the financial allegation; PASTPERF = market-adjusted buy-and-hold returns over the past one-year prior to the financial allegation; CMPRESSURE = the average scaled rank of FINNEED, M&A and ABSDACC, where FINNEED = '1' if the firm's free cash flow for the year prior to the financial allegation is less than −0.1, and '0' otherwise; M&A = '1' if the firm was involved in a merger or acquisition over the last three years prior to the financial allegation, and '0' otherwise; ABSDACC = absolute value of discretionary accruals based on the modified Jones (1991) model for the year prior to the financial allegation; OUTDIR = proportion of independent directors on the board, for the year prior to the financial allegation; SUBSH = logarithm of the number of substantial shareholders, for the year prior to the financial allegation; VARCOMP = proportion of top five executives' remuneration that is variable, for the year prior to the financial allegation; IMMUNITY = '1' if the firm was subjected to a policy that grants immunity to the first member of a cartel that blows the whistle to the ACCC from 1998, and '0' otherwise; FRDAMT = logarithm of fraud amount in dollars as reported in the press; USXLIST = '1' a firm is cross-listed in the US from 2002, and '0' otherwise.

Appendix 4.2: Alternate measures of organisational complexity

COMPLEXITY=		(1) M&A1YR		(2) M&A3YR		(3) CHGSUB1YR		(4) CHGSUB3YR	
	Predicted sign	Coefficient	*p*-value	Coefficient	*p*-value	Coefficient	*p*-value	Coefficient	*p*-value
COMPLEXITY	+	1.489**	0.004	1.842**	0.001	0.652*	0.018	0.628*	0.047
ACMEET	–	–0.070	0.208	–0.103	0.107	–0.055	0.266	–0.075	0.201
ACQUA	–	0.262	0.386	0.332	0.360	0.070	0.471	0.175	0.423
ACIND	–	–3.220**	0.000	–3.585**	0.000	–2.634**	0.000	–2.611**	0.001
SIZE	+	0.553**	0.000	0.551**	0.000	0.545**	0.000	0.538**	0.000
GROWTH	+	–0.609	0.185	–0.673	0.155	–0.821	0.120	–0.689	0.169
PASTPERF	+	0.838**	0.005	0.810**	0.004	0.784**	0.008	0.797*	0.010
CMPRESSURE	+	–1.661	0.134	–2.876*	0.034	–0.651	0.320	–0.512	0.357
OUTDIR	–	–3.570*	0.019	–3.660*	0.027	–4.089*	0.014	–3.693*	0.026
SUBSH	–	–0.290	0.243	–0.278	0.255	–0.310	0.240	–0.313	0.248
VARCOMP	–	–2.362*	0.023	–2.874*	0.014	–2.400*	0.027	–2.347*	0.024
IMMUNITY	+	4.747**	0.000	4.859**	0.000	5.009**	0.000	4.714**	0.000
FRDAMT	+	0.552**	0.000	0.592**	0.000	0.566**	0.000	0.548**	0.000
USXLIST	+/–	0.004	0.498	0.017	0.487	0.080	0.448	0.025	0.483
Constant		–16.102**	0.000	–15.841**	0.000	–16.759**	0.000	–16.484**	0.000
Industry fixed-effects included									
n		312		312		302		302	
Classification rate		0.88		0.86		0.87		0.87	
χ^2		280.80 ($p < 0.001$)		276.22 ($p < 0.001$)		254.77 ($p < 0.001$)		254.32($p < 0.001$)	
Pseudo R^2		0.49		0.50		0.48		0. 46	

** Significant at the 1% level; * significant at the 5% level using a one-tailed test.

This table reports the robustness of results to alternate measures of organisational complexity. The dependent variable is EXTWB. EXTWB = '1' if the alleged financial misconduct was referenced in the press to result in external whistle-blowing and '0' when referenced to result in internal reporting; M&A1YR = '1' if the firm was involved in a merger or acquisition one year prior to the financial allegation, and '0' otherwise; M&A3YR = '1' if the firm was involved in a merger or acquisition within the past three year prior to the financial allegation, and '0' otherwise; CHGSUB1YR = the percentage change in the number of subsidiaries, the year prior to the financial allegation; CHGSUB3YR = the average percentage change in the number of subsidiaries in the past three years prior to the allegation. For other variable definitions, refer to Appendix 4.1.

Appendix 4.3: Changes in segment reporting standard in Australia

Since the 1980s, Australian companies have been required to disclose segment information where material. In the absence of other factors, a segment would be considered material if (a) its revenue is 10 percent or more of the total segment revenue of all segments (including inter-segment sales and transfers); or (b) the absolute amount of its segment result is 10 percent or more of the greater, in absolute amount, of: (i) the total segment result of all segments that earned a profit; and, (ii) the total segment result of all segments that incurred a loss; and/or, (c) its segment assets are 10 percent or more of the total segment assets of all segments.

Segment reporting standard have undergone several revisions within the time period examined in this study. ASRB 1005, introduced in 1986, required multi-segment firms to disclose industry segment revenues, earnings and assets, and geographical segments where material. In 2000, ASRB 1005 was replaced with AASB 1005. This revision required firms to provide additional segment information and to disclose at least nine segment items for the primary segments, and three items for the secondary segments (Kang and Gray 2013). AASB 114 was introduced in 2005 as part of the ongoing process to harmonise with the International Financial Reporting Standards (IFRS). The current standard, effective since 2009, is AASB 8. Unlike the previous standards, AASB 8 identifies a segment based on a 'management approach' instead of a 'risks and returns' approach. The table below provides a summary by Kang and Gray (2013) of the main differences in the segment reporting standards.

Summary of segment reporting standards in Australia by Kang and Gray (2013)

	ASRB 1005/AASB 1005 Financial Reporting by Segment	Revised AASB 1005/AASB 114 Segment Reporting	AASB 8 Operating Segments
Scope	Applies to all general purpose financial reports.	Applies to all general purpose financial reports.	Applies only to for-profit entities whose debt or equity instruments are traded in a public market or files in its financial statements with a securities commission or equivalent regulator.

Definition of segments	'Segment' is defined as a distinguishable component engaged in providing a product or service, or a collection of related products or services, to customers external to the reporting entity.	Segments must be identified as either primary or secondary segments, for which reporting requirements differ. A business segment is a distinguishable component of an entity that is engaged in providing an individual product or service or a group of related products or services. It is subject to risks and returns that are different from those of other business segments. A geographical segment is a distinguishable component of an entity that is engaged in providing products or services within a particular economic environment. It is subject to risks and returns that are different from those of components operating in other economic environments.	An operating segment is a component of an entity that engages in business activities from which it may earn revenues and incur expenses whose operating results are regularly reviewed by the entity's chief operating decision maker to make decisions about resources to be allocated to the segment and access its performance.
Determination of segments	Identification of segments by industry and geography.	Identification of segments according to the information reported to the CEO and the board of directors. A 'risk and returns approach' to identifying segments to reflect how an entity's risks and returns are affected by differences in the products and services it provides or differences in the geographical areas in which it operates.	The focus is no longer on different risks and returns. If operating results are provided to the chief operating decision maker, then an operating segment exists that must be reported.
Required disclosures	Same information for both industry and geographical segments 1. Segment revenue 2. Segment profit 3. Segment assets	Primary segments 1. Segment revenue 2. Segment result 3. Carrying amount of segment assets 4. Acquisition of segments assets during the period 5. Segment liabilities 6. Depreciation and amortisation 7. Other non-cash expenses 8. Share of associates' profit and losses 9. Carrying amount of investment in associates Secondary segments: 1. Segment revenue 2. Segment assets 3. Capital additions	Reportable segments: 1. Profit or loss; 2. Total assets and liabilities. Report following items if they are reviewed by the chief operating decision maker in the measure of: Segment profit or loss 1. Revenue from external customers; 2. Revenues from transactions with other operating segments of the same entity; 3. Interest revenue; 4. Interest expense; 5. Depreciation and amortisation; 6. Material item of income and expense disclosed in accordance with AASB 101; 7. The entity's interest in the profit or loss of associates and joint ventures accounted for by the equity method; 8. Income tax expenses or income; 9. Material non-cash items other than depreciation and amortisation Segment assets 1. Amount of investment in associates and joint ventures; 2. Additions to non-current assets other than financial instruments, deferred tax assets, post-employment benefit assets and rights arising under insurance contracts

This table, reproduced from Kang and Gray (2013), summarises the differences in segment reporting standards in Australia.

Appendix 4.4: Robustness of results to the change in segment reporting standard

		(1) COMPLEXHH		(2) HIGHCOMPLEX		(3) LOWCOMPLEX	
	Predicted sign	Coefficient	*p*-value	Coefficient	*p*-value	Coefficient	*p*-value
COMPLEXHH	+	6.130**	0.000				
HIGHCOMPLEX	+			1.120*	0.048		
LOWCOMPLEX	−					−2.151**	0.003
ACMEET	−	−0.044	0.307	−0.004	0.482	−0.060	0.242
ACQUA	−	1.089	0.121	1.039	0.121	1.066	0.104
ACIND	−	−3.863**	0.000	−3.716**	0.000	−3.785**	0.000
SIZE	+	0.299*	0.038	0.457**	0.009	0.541**	0.001
GROWTH	+	−1.260	0.081	−0.870	0.154	−0.758	0.143
PASTPERF	+	1.201**	0.001	1.047**	0.007	1.046**	0.001
CMPRESSURE	+	−0.497	0.407	−0.820	0.345	−0.738	0.358
OUTDIR	−	−3.566*	0.011	−3.422*	0.023	−3.394*	0.019
SUBSH	−	−0.995*	0.023	−0.682	0.111	−0.587	0.116
VARCOMP	−	−1.984*	0.042	−2.094*	0.050	−2.028	0.069
IMMUNITY	+	5.789**	0.000	5.114**	0.000	5.133**	0.000
FRDAMT	+	0.620**	0.000	0.623**	0.000	0.632**	0.000
USXLIST	+/−	0.797	0.073	0.502	0.198	0.475	0.208
Constant		−12.761**	0.001	−15.491**	0.001	−16.972**	0.000
Industry fixed-effects included							
$n = 235$							
Classification rate		0.88		0.88		090	
Log likelihood		−68.09		−74.16		−73.49	
χ^2		283.56 ($p < 0.001$)		252.45 ($p < 0.001$)		233.83 ($p < 0.001$)	
Pseudo R^2		0.55		0.51		0.52	

** Significant at the 1% level; * significant at the 5% level using a one-tailed test.

This table reports the robustness of the results to the change in segment reporting standard (AASB 8 became effective in 2009) by excluding observations from year 2009. The dependent variable is EXTWB. EXTWB = '1' if the alleged financial misconduct was referenced in the press to result in external whistle-blowing and '0' when referenced to result in internal reporting; COMPLEXHH is the average of INDHH and GEOHH, where INDHH = one minus the industry segment-sales based Herfindahl index and GEOHH = one minus the geographical segment-sales based Herfindahl index, with a higher ratio indicates greater organisational complexity; HIGHCOMPLEX = '1' if the firm operates in more than one industry and more than one geographical segment, and '0' otherwise; LOWCOMPLEX = '1' if the firm operates only in one industry and one geographical segment, and '0' otherwise; ACMEET = number of audit committee meetings held the year prior to the financial allegation; ACQUA = percentage of audit committee members with accounting or finance qualifications, for the year prior to the financial allegation; ACIND = percentage of independent audit committee members, for the year prior to the financial allegation; SIZE = logarithm of total assets in dollars, for the year prior to the financial allegation; GROWTH = average change in revenue over the past three years prior to the financial allegation; PASTPERF = market-adjusted buy-and-hold returns over the past one-year prior to the financial allegation; CMPRESSURE = the average scaled rank of FINNEED, M&A and ABSDACC, where FINNEED = '1' if the firm's free cash flow for the year prior to the financial allegation is less than −0.1, and '0' otherwise; M&A = '1' if the firm was involved in a merger or acquisition over the last three years prior to the financial allegation, and '0' otherwise; ABSDACC = absolute value of discretionary accruals based on the modified Jones (1991) model for the year prior to the financial allegation; OUTDIR = proportion of independent directors on the board, for the year prior to the financial allegation; SUBSH = logarithm of the number of substantial shareholders, for the year prior to the financial allegation; VARCOMP = proportion of top five executives' remuneration that is variable, for the year prior to the financial allegation; IMMUNITY = '1' if the firm was subjected to a policy that grants immunity to the first member of a cartel that blows the whistle to the ACCC from 1998, and '0' otherwise; FRDAMT = logarithm of fraud amount in dollars as reported in the press; USXLIST = '1' a firm is cross-listed in the US from 2002, and '0' otherwise.

Appendix 4.5: Alternate measures of audit committee quality

		MEET4		logMEET		NUMACQUA		ACEXPPERC		MAJIND		WHLIND		INDCHAIR	
Predicted sign		Coeff.	*p*-value	Coeff.	*p*-value	Coeff.	*p*-value	Coeff.	*p*-value	Coeff.	*p*-value	Coeff.	*p*-value	Coeff.	*p*-value
COMPLEXHH	+	4.500**	0.001	4.540**	0.001	4.595**	0.001	4.573**	0.001	4.094**	0.001	4.675**	0.001	4.514**	0.001
ACMEET	–					–0.101	0.116	–0.128	0.071	–0.110	0.109	–0.147	0.063	–0.126	0.082
MEET4	–	0.198	0.357												
logMEET	–			–0.263	0.263										
ACQUA	–	–0.126	0.447	–0.074	0.470					–0.273	0.382	–0.382	0.342	–0.349	0.349
NUMACQUA	–					–0.049	0.435								
ACEXPPERC	–							–1.207	0.051						
ACIND	–	–2.865**	0.001	–2.697**	0.001	–2.588**	0.001	–2.143**	0.007						
MAJIND	–									–1.919**	0.000				
WHLIND	–											–0.910*	0.037		
INDCHAIR	–													–2.193**	0.004
Control variables and industry fixed-effects included															
$n = 312$															
Classification rate		0.88		0.88		0.87		0.87		0.88		0.86		0.87	
Log likelihood		–95.53		–95.42		–95.02		–93.30		–94.61		–97.43		–93.74	
χ^2		299.34 ($p < 0.001$)		299.81 ($p < 0.001$)		303.32 ($p < 0.001$)		316.05 ($p < 0.001$)		331.95 ($p < 0.001$)		330.52 ($p < 0.001$)		484.01 ($p < 0.001$)	
Pseudo R^2		0.51		0.51		0.51		0.52		0.51		0.50		0.52	

** Significant at the 1% level; * significant at the 5% level using a one-tailed test.

This table reports the robustness of the results to alternate measures of audit committee independence, expertise and meeting frequency. The dependent variable is EXTWB. EXTWB = '1' if the alleged financial misconduct was referenced in the press to result in external whistle-blowing and '0' when referenced to result in internal reporting; COMPLEXHH is the average rank of INDHH and GEOHH, where INDHH = one minus the industry segment-sales based Herfindahl index and GEOHH = one minus the geographical segment-sales based Herfindahl index, MEET4 = '1' if at least four audit committee meetings were held as reported in the annual report, for the year prior to the financial allegation, and '0' otherwise; logMEET = logarithm of the number of audit committee meetings held as reported in the annual, for the year prior to the financial allegation; NUMACQUA = number of audit committee members with accounting or finance qualifications as reported in the annual report, for the year prior to the financial allegation; ACEXPPERC = percentage of audit committee members with accounting or finance experience as reported in the annual report, for the year prior to the financial allegation; MAJIND = '1' if the audit committee is made up of a majority of independent directors as reported in the annual report, for the year prior to the financial allegation, and '0' otherwise; WHLIND = '1' if the audit committee is made up of only independent directors as reported in the annual report, for the year prior to the financial allegation, and '0' otherwise; INDCHAIR = '1' if the chairman of the audit committee is an independent director as reported in the annual report, for the year prior to the financial allegation, and '0' otherwise.

Appendix 4.6: Robustness of results to changes in audit committee regulation in 2003

		(1) Pre-2003		(2) Post-2003	
	Predicted sign	Coefficient	*p*-value	Coefficient	*p*-value
Variables of interest					
COMPLEXHH	+	5.428**	0.002	3.833**	0.002
ACMEET	–	–0.165	0.194	–0.049	0.347
ACQUA	–	1.489	0.206	–1.045	0.155
ACIND	–	–5.502**	0.000	–1.804	0.070
Control variables					
SIZE	+	–0.021	0.452	0.060	0.309
GROWTH	+	–2.498	0.122	0.229	0.380
PASTPERF	+	1.546	0.092	0.627*	0.047
CMPRESSURE	+	–3.269	0.096	1.114	0.230
OUTDIR	–	–0.904	0.400	–5.327**	0.001
SUBSH	–	–0.419	0.279	–0.519	0.214
VARCOMP	–	–4.031*	0.024	–1.751*	0.032
IMMUNITY	+	4.177**	0.000	17.941**	0.000
FRDAMT	+	0.582*	0.012	0.475**	0.000
USXLIST	+/–	(omitted due to collinearity)		0.209	0.347
Constant		–2.301	0.281	–7.330**	0.002
Industry fixed-effects included					
		$n = 97$		$n = 215$	
Classification rate		0.89		0.88	
Log likelihood		–26.43		–72.69	
χ^2		34.79 ($p < 0.001$)		1327.48 ($p < 0.001$)	
Pseudo R^2		0.60		0.41	

** Significant at the 1% level; * significant at the 5% level using a one-tailed test.

This table reports the robustness of the primary results to changes in audit committee regulation in 2003. The dependent variable is EXTWB. EXTWB = '1' if the alleged financial misconduct was referenced in the press to result in external whistle-blowing and '0' when referenced to result in internal reporting; COMPLEXHH is the average of INDHH and GEOHH, where INDHH = one minus the industry segment-sales based Herfindahl index and GEOHH = one minus the geographical segment-sales based Herfindahl index, with a higher ratio indicates greater organisational complexity; HIGHCOMPLEX = '1' if the firm operates in more than one industry and more than one geographical segment, and '0' otherwise; LOWCOMPLEX = '1' if the firm operates only in one industry and one geographical segment, and '0' otherwise; ACMEET = number of audit committee meetings held the year prior to the financial allegation; ACQUA = percentage of audit committee members with accounting or finance qualifications, for the year prior to the financial allegation; ACIND = percentage of independent audit committee members, for the year prior to the financial allegation; SIZE = logarithm of total assets in dollars, for the year prior to the financial allegation; GROWTH = average change in revenue over the past three years prior to the financial allegation; PASTPERF = market-adjusted buy-and-hold returns over the past one-year prior to the financial allegation; CMPRESSURE = the average scaled rank of FINNEED, M&A and ABSDACC, where FINNEED = '1' if the firm's free cash flow for the year prior to the financial allegation is less than –0.1, and '0' otherwise; M&A = '1' if the firm was involved in a merger or acquisition over the last three years prior to the financial allegation, and '0' otherwise; ABSDACC = absolute value of discretionary accruals based on the modified Jones (1991) model for the year prior to the financial allegation; OUTDIR = proportion of independent directors on the board, for the year prior to the financial allegation; SUBSH = logarithm of the number of substantial shareholders, for the year prior to the financial allegation; VARCOMP = proportion of top five executives' remuneration that is variable, for the year prior to the financial allegation; IMMUNITY = '1' if the firm was subjected to a policy that grants immunity to the first member of a cartel that blows the whistle to the ACCC from 1998, and '0' otherwise; FRDAMT = logarithm of fraud amount in dollars as reported in the press; USXLIST = '1' a firm is cross-listed in the US from 2002, and '0' otherwise.

Appendix 5.1: Empirical findings of the predictors of whistle-blowing retaliation

Variable examined		Whistle-blowing retaliation studies
'+' indicates a positive association; '–' indicates a negative association; '0' indicates no association		
Characteristics of the whistle-blower		
Gender (male)	0	Miceli and Near (1989); Miceli et al. (1999); Rothschild and Miethe (1999)
Ethnicity (white or majority race)	–	Miceli et al. (1999); Rothschild and Miethe (1999)
Marital status	0	Lee, Heilmann, and Near (2004)
Education level	+	Miceli et al. (1999); Parmerlee, Near, and Jensen (1982); Rothschild and Miethe (1999); Skivenes and Trygstad (2010)
	0	Miceli and Near (1989)
Age	0	Lee, Heilmann, and Near (2004); Rothschild and Miethe (1999)
	+	Parmerlee, Near, and Jensen (1982)
Religion	0	Miceli and Near (1989)
Organisational tenure	0	Miceli and Near (1989); Miceli et al. (1999); Rothschild and Miethe (1999); Skivenes and Trygstad (2010)
Personnel safety or union representative	0	Skivenes and Trygstad (2010)
Job performance or awards received	0	Miceli and Near (1989); Miceli et al. (1999)
Income or pay grade level	0	Miceli et al. (1999); Near and Miceli (1986)
	+	Lee, Heilmann, and Near (2004)
Job level or Supervisory /professional position	0	Bergman et al. (2002); Casal and Zalkind (1995); Lee, Heilmann, and Near (2004); Miceli et al. (1999); Near and Miceli (1986)
	–	Cortina and Magley (2003); Parmerlee, Near, and Jensen (1982); Rothschild and Miethe (1999)
	+	Skivenes and Trygstad (2010)
Alternative job opportunities	–	Casal and Zalkind (1995)
Whistle-blower has low power	+	Rehg et al. (2008)
Role responsibility for reporting	–	Casal and Zalkind (1995)
Knowledge of reporting channels	0	Near, Baucus, and Miceli (1993)
Reported misconduct using an external channel	+	Dworkin and Baucus (1998); Miceli and Near (1989); Miceli et al. (1999); Near and Miceli (1986); Rothschild and Miethe (1999)
Sought social support	0	Cortina and Magley (2003)
Initial attempt to remain anonymous	+	Miceli and Near (1994)
Merit of whistle-blowing report	–	Near and Jensen (1983)
	0	Parmerlee, Near, and Jensen (1982)
Direct evidence of misconduct	0	Near and Miceli (1986)
Multiple sources of evidence	0	Near and Miceli (1986)
Characteristics of the perpetrator and misconduct		
Frequency of misconduct	0	Casal and Zalkind (1995); Lee, Heilmann, and Near (2004); Near and Miceli (1986); Rothschild and Miethe (1999)
	+	Bergman et al. (2002); Cortina and Magley (2003)
Duration of misconduct	0	Lee, Heilmann, and Near (2004)
Number of wrongdoers	0	Lee, Heilmann, and Near (2004); Near and Miceli (1986)

Variable examined		Whistle-blowing retaliation studies
'+' indicates a positive association; '–' indicates a negative association; '0' indicates no association		
Perceived severity of misconduct	+	Near and Miceli (1986); Near, Baucus, and Miceli (1993); Rothschild and Miethe (1999)
	0	Casal and Zalkind (1995); Miceli and Near (1989); Miceli et al. (1999)
	–	Rehg et al. (2008)
Frequency of misconduct	0	Casal and Zalkind (1995); Lee, Heilmann, and Near (2004); Near and Miceli (1986); Rothschild and Miethe (1999)
	+	Bergman et al. (2002); Cortina and Magley (2003)
Misconduct harms the organisation	0	Miceli and Near (1994)
Misconduct harms the organisation's culture	+	Miceli and Near (1994)
Stopping misconduct harms the organisation	+	Miceli and Near (1994)
Misconduct harms co-workers	0	Miceli and Near (1994)
Misconduct has a direct effect on whistle-blower	+	Rehg et al. (2008)
Misconduct harms the public	+	Miceli and Near (1994)
Continuation of misconduct after initial report	+	Miceli and Near (1994)
Wrongdoer has high power	+	Cortina and Magley (2003)
Wrongdoer has a high job rank or position	+	Bergman et al. (2002); Lee, Heilmann, and Near (2004)
	0	Skivenes and Trygstad (2010)
Social confrontation with wrongdoer	+	Cortina and Magley (2003)
Characteristics of the organisation		
Size of organisation	–	Miceli et al. (1999)
Work group size	+	Miceli and Near (1989)
Masculine job-gender context	0	Lee, Heilmann, and Near (2004)
	+	Bergman et al. (2002)
Climate tolerant of misconduct	+	Bergman et al. (2002)
Protection from retaliation	–	Near, Baucus, and Miceli (1993)
Low value congruency with top management	+	Miceli and Near (1994)
Co-workers did not believe misconduct warranted reporting	0	Miceli and Near (1994)
Co-workers support and approval of whistle-blowing	0	Miceli and Near (1989); Miceli et al. (1999); Miceli et al. (1999); Parmerlee, Near, and Jensen (1982)
Supervisor support and approval of whistle-blowing	–	Casal and Zalkind (1995); Near and Miceli (1986); Miceli and Near (1989); Miceli et al. (1999)
	0	Near and Jensen (1983)
Top management support and approval of whistle-blowing	–	Near and Miceli (1986); Miceli and Near (1989); Miceli et al. (1999); Parmerlee, Near, and Jensen (1982); Near and Jensen (1983)
Lack of organisational support	+	Rehg et al. (2008)
Provision of a reporting policy	–	Cortina and Magley (2003)

Appendix 5.2: Data sources and description of data collection

Panel A: Panel A: Data sources

Data sources	Documents examined	Primary use
Company documents	Announcements made to the ASX	To identify and collect data on financial allegations.
	Press releases	To identify and collect data on financial allegations.
	Additional data sources for quantitative analysis:	
	Annual reports	To collect data on the company's financial position.
	Corporate governance reports	To collect data on the company's corporate governance structure.
Press reports	Newspaper articles	To identify and collect data on financial allegations and retaliatory actions taken.
Documents from public authorities	Documents issued by public authorities	To identify and collect data on financial allegations and strengthen understanding of the technical aspects of financial misconduct.
	Trial documents	To triangulate data collected from press reports, documents issued by public authorities and announcements made by the company to the ASX to refine and strengthen evidence of the data collected.
Other documents	Other third-party investigatory reports	To refine and strengthen understanding of the financial misconduct.

Panel B: Data collection

Steps	Description	Primary sources
Step 1	Identify allegations of financial misconduct involving internal or external whistle-blowing	Newspaper articles, press releases made by the company, announcements made by the company to the ASX and documents issued by public authorities.
Step 2	Identify incidences of retaliation	Newspaper articles, trial documents and other third-party investigatory reports.
Step 3	Data collection on retaliatory actions taken	Newspaper articles, press releases made by the company, announcements made by the company to the ASX, documents issued by public authorities, trial documents and other third-party investigatory reports.
Additional steps to collect data for quantitative analysis		
Step 4	Data collection on financial allegations	Newspaper articles, press releases made by the company, announcements made by the company to the ASX, documents issued by public authorities, trial documents and other third-party investigatory reports.
Step 5	Data collection on financial variables and corporate governance variables	Annual reports and corporate governance reports.

Appendix 5.3: Retaliatory actions against whistle-blowers identified in prior research

Retaliatory action	Study	Retaliatory action	Study
Assigned work on day of hearing	Dworkin and Baucus (1998)	Pressured to drop suit	Parmerlee, Near, and Jensen (1982)
Blamed for the situation	Cortina and Magley (2003)	Pressured to sign statement regarding wrongdoing	Dworkin and Baucus (1998)
Charged with committing an unrelated offense	Rehg et al. (2008)	Probation	Dworkin and Baucus (1998)
Considered a 'troublemaker'	Cortina and Magley (2003)	Professional reputation harmed	Rehg et al. (2008)
Co-workers not socialising with whistle-blower	Rehg et al. (2008)	Reassignment to a different geographical location	Rehg et al. (2008)
Criticised for complaining about situation	Cortina and Magley (2003)	Reassignment to a different job with less desirable or less important duties	Cortina and Magley (2003); Rehg et al. (2008)
Cut off from operations	Dworkin and Baucus (1998)	Received less desirable work assignments	Cortina and Magley (2003); Parmerlee, Near, and Jensen (1982); Rehg et al. (2008)
Demotion	Cortina and Magley (2003); Dworkin and Baucus (1998); Rehg et al. (2008)	Reduced authority	Dworkin and Baucus (1998)
Denial of award	Rehg et al. (2008)	Relocation of desk or work area in the office	Rehg et al. (2008)
Denial of opportunity for training	Cortina and Magley (2003); Rehg et al. (2008)	Reprimanded	Dworkin and Baucus (1998)
Denial of promotion	Dworkin and Baucus (1998); Cortina and Magley (2003); Rehg et al. (2008)	Required to take a fitness-for-duty exam	Rehg et al. (2008)
Exclusion from staff meetings	Parmerlee, Near, and Jensen (1982)	Security clearance withdrawn	Rehg et al. (2008)
Fired from job	Dworkin and Baucus (1998); Rehg et al. (2008)	Staff withdrawn	Rehg et al. (2008)
Gossiped in an unkind way	Cortina and Magley (2003)	Shunned or excluded by others at work	Cortina and Magley (2003)
Harassment	Dworkin and Baucus (1998)	Slighted or ignored by others at work	Cortina and Magley (2003)
Hostile environment	Dworkin and Baucus (1998)	Tighter scrutiny of daily activities by management	Rehg et al. (2008)
Imposed access restrictions to areas necessary to perform job	Rehg et al. (2008)	Threats	Cortina and Magley (2003); Dworkin and Baucus (1998)
Increase workload	Dworkin and Baucus (1998)	Unfairly disciplined	Cortina and Magley (2003)
Intimidation	Dworkin and Baucus (1998)	Verbal harassment or intimidation	Rehg et al. (2008)
Job suspension	Rehg et al. (2008)	Warning	Dworkin and Baucus (1998)
Lost perquisites	Parmerlee, Near, and Jensen (1982)	Withheld wages	Dworkin and Baucus (1998)
Negative evaluation/Poor performance appraisal	Cortina and Magley (2003); Dworkin and Baucus (1998); Parmerlee, Near, and Jensen (1982); Rehg et al. (2008)	Withholding of information needed to successfully preform job	Rehg et al. (2008)
Performance criticised	Dworkin and Baucus (1998)	Work more stringently criticised	Parmerlee, Near, and Jensen (1982)
Pressure from co-workers to stop complaint	Cortina and Magley (2003); Rehg et al. (2008)		

This table reports the type of retaliatory actions experienced by whistle-blowers that were identified in prior research.

Appendix 5.4: Type of alleged misconduct

Type of allegation	Total cases	%	Retaliation cases	%	Non-retaliation cases	%
Corruption						
Bribery	24	8%	4	11%	20	7%
Price-fixing	31	10%	2	5%	29	11%
Money laundering	2	1%	0	0%	2	1%
Insider trading	6	2%	0	0%	6	2%
Market manipulation	4	1%	1	3%	3	1%
Fraudulent statements						
Fraudulent financial reporting	26	8%	10	26%	16	6%
Improper disclosure	11	4%	6	16%	5	2%
Tax fraud scheme	1	0%	0	0%	1	0%
Asset misappropriation						
Misappropriation of funds or assets	167	53%	6	16%	161	58%
Misuse of funds	42	13%	9	24%	33	12%
Total	**314**	**100%**	**38**	**100%**	**276**	**100%**

This table reports the frequency of the type of alleged misconduct in the sample based on the classification by the ACFE (2010, 2012, 2014). Under the ACFE (2010, 2012, 2014) classification of financial misconduct, misconduct involving 'Corruption' include conflicts of interest, bribery, illegal gratuities, and economic extortion; misconduct involving 'Asset misappropriation' include the theft of cash, fraudulent disbursements, and the misuse or larceny of inventory and all other assets; misconduct involving 'Fraudulent statements' include improper asset valuations, improper disclosures, fictitious/understated revenues, and the under/over statement of liabilities and expenses.

Appendix 5.5: Robustness of results to the exclusion of retaliation events in which the whistle-blower was involved in the alleged misconduct

	Predicted sign	Coefficient	S.E.	*p*-value
Management's motivation to retaliate				
GROWTH	–	–3.163**	1.102	0.002
LOSS	+	2.024*	0.968	0.019
MGMTINV	+	2.362**	0.929	0.006
VARCOMP	+	5.893**	1.919	0.001
Suitable target				
EMPLOY	+	2.612**	1.048	0.007
Capable guardianship				
OUTDIR	–	–2.281	2.498	0.181
INDAC	–	–2.298*	1.207	0.029
BIG4	–	–0.862	0.788	0.137
AUTH	–	–2.547*	1.099	0.010
ETHPERF	–	–2.171*	0.975	0.013
Control variables				
SIZE	+	0.558**	0.220	0.006
EXTWB	+	3.125**	1.110	0.003
FRDAMT	+	0.071	0.119	0.276
CLERP9	–	–0.409	0.813	0.308
Constant		–31.596	1812.406	0.493
Industry fixed-effects included				
$n = 301$				
Log likelihood	–45.28		χ^2:	81.71 ($p < 0.001$)
Classification rate	0.94		Pseudo R^2:	0.47

** Significant at the 1% level; * significant at the 5% level using a one-tailed test.

This table reports the robustness of results to the exclusion of retaliation events in which the whistle-blower was involved in the alleged misconduct. The dependent variable is RETALIATE. RETALIATE = '1' if the whistle-blower suffered retaliation for reporting an alleged financial misconduct as reported in the press, and '0' otherwise; GROWTH = average change in revenue over the past three years prior to the financial allegation; LOSS = '1' if the firm reported a loss the year prior to the financial allegation, and '0' otherwise; MGMTINV = '1' if the financial misconduct was perpetrated by top management as reported in the press, and '0' otherwise; VARCOMP = proportion of top five executives' total remuneration that is variable (the variable portion is measured as total remuneration less fixed salary, fixed non-cash benefits and superannuation) as reported in the annual report, for the year prior to the financial allegation.; WBINV = '1' if the whistle-blower was a participant in the alleged financial misconduct, and '0' otherwise; EMPLOY = '1' if the whistle-blower was a general employee as reported in the press, and '0' otherwise; OUTDIR = proportion of independent directors on the board of directors as reported in the annual report, for the year prior to the financial allegation; INDAC = proportion of independent directors on the audit committee as reported in the annual report, for the year prior to the financial allegation; BIG4 = '1' if the firm was audited by a Big 4 auditor, for the year prior to the financial allegation, and '0' otherwise; AUTH = '1' if the whistle-blower blew the whistle to a regulator, as reported in the press, and '0' otherwise; ETHPERF = '1' if ethical performance is included as a component of management's compensation as reported in the annual report, for the year prior to the financial allegation, and '0' otherwise; SIZE = logarithm of total assets in dollars, for the year prior to the financial allegation; EXTWB = '1' if the alleged financial misconduct was referenced in the press to result in external whistle-blowing and '0' when referenced to result in internal reporting; FRDAMT = logarithm of fraud amount in dollars as reported in the press; CLERP9 = '1' if the financial allegation was reported in or after 2004, and '0' otherwise.

Appendix 5.6: Robustness of results to the type of misconduct

	Predicted sign	Coefficient	S.E.	*p*-value
Management's motivation to retaliate				
GROWTH	–	–3.107**	0.958	0.001
LOSS	+	1.640*	0.872	0.030
MGMTINV	+	1.950*	0.844	0.011
VARCOMP	+	4.557**	1.550	0.002
Suitable target				
WBINV	+	1.979**	0.734	0.004
EMPLOY	+	1.900**	0.760	0.006
Capable guardianship				
OUTDIR	–	–0.393	1.986	0.422
INDAC	–	–2.468**	1.019	0.008
BIG4	–	–0.366	0.689	0.298
AUTH	–	–2.631**	1.088	0.008
ETHPERF	–	–1.965**	0.775	0.006
Type of misconduct				
FRDSTMT		0.237	0.987	0.405
MISAPP		–0.212	0.692	0.380
Control variables				
SIZE	+	0.449**	0.180	0.007
EXTWB	+	1.588*	0.746	0.017
FRDAMT	+	0.155	0.098	0.057
CLERP9	–	0.221	0.641	0.365
Constant		–31.203	1742.590	0.493
Industry fixed-effects included				
$n = 314$				
Log likelihood	–61.29			
χ^2	109.12 ($p < 0.001$)			
Pseudo R^2	0.47			
Classification rate	0.93			

** Significant at the 1% level; * significant at the 5% level using a one-tailed test.

This table reports the robustness of the results to the type of misconduct (FRDSTMT and MISAPP). The dependent variable is RETALIATE. RETALIATE = '1' if the whistle-blower suffered retaliation for reporting an alleged financial misconduct as reported in the press, and '0' otherwise; GROWTH = average change in revenue over the past three years prior to the financial allegation; LOSS = '1' if the firm reported a loss the year prior to the financial allegation, and '0' otherwise; MGMTINV = '1' if the financial misconduct was perpetrated by top management as reported in the press, and '0' otherwise; VARCOMP = proportion of top five executives' total remuneration that is variable as reported in the annual report, for the year prior to the financial allegation.; WBINV = '1' if the whistle-blower was a participant in the alleged financial misconduct, and '0' otherwise; EMPLOY = '1' if the whistle-blower was a general employee as reported in the press, and '0' otherwise; OUTDIR = proportion of independent directors on the board of directors as reported in the annual report, for the year prior to the financial allegation; INDAC = proportion of independent directors on the audit committee as reported in the annual report, for the year prior to the financial allegation; BIG4 = '1' if the firm was audited by a Big 4 auditor, for the year prior to the financial allegation, and '0' otherwise; AUTH = '1' if the whistle-blower blew the whistle to a regulator, as reported in the press, and '0' otherwise; ETHPERF = '1' if ethical performance is included as a component of management's compensation as reported in the annual report, for the year prior to the financial allegation, and '0' otherwise; SIZE = logarithm of total assets in dollars, for the year prior to the financial allegation; EXTWB = '1' if the alleged financial misconduct was referenced in the press to result in external whistle-blowing and '0' when referenced to result in internal reporting; FRDAMT = logarithm of fraud amount in dollars as reported in the press; CLERP9 = '1' if the financial allegation was reported in or after 2004, and '0' otherwise; FRDSTMT = '1' if the alleged misconduct involves fraudulent statements, and '0' otherwise; MISAPP = '1' if the alleged misconduct involves asset misappropriation, and '0' otherwise.