Evidence on the Use and Efficacy of Internal Whistleblowing Systems

Stephen R. Stubben
University of Utah
Stephen.Stubben@Eccles.Utah.edu

Kyle T. Welch
George Washington University
KyleWelch@email.gwu.edu

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ABSTRACT

Using a proprietary dataset from the world's largest provider of internal whistleblowing (WB) systems, also known as internal reporting systems, we examine the characteristics of firms that more actively utilize these systems. Although internal WB systems have been required for public firms in the U.S. since the Sarbanes-Oxley Act, we find substantial variation in their use. While larger firms tend to have more reports, firms that more actively use their systems (i.e., firms where more employees participate in reporting, where employees provide more information in their reports, and where management more frequently follows up on reports) are typically more profitable, older, and have fewer employees. Firms experiencing rapid growth, with evidence of earnings management, with weaker corporate governance, and with weaker internal controls are less likely to actively use their internal WB systems. Further, we find that more active use of internal WB systems is associated with fewer material lawsuits being filed against the firm and smaller settlement amounts. These findings are consistent with internal WB reports being a resource that helps management identify and address concerns before they become more costly to the firm, which is relevant to regulators as provisions in the Dodd-Frank Act incentivize WB reports directly to regulators, bypassing management.

JEL Classifications: G38, G34, M54

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1. Introduction

Internal whistleblowers (WB), employees who report potential problems within their firm to management, were identified as important resources in the Enron, WorldCom, and Lehman Brothers scandals, among others. Although internal WB systems (also known as internal reporting systems) have been required for public firms in the U.S. since the 2002 Sarbanes-Oxley Act (SOX), the use and efficacy of these systems is not widely known due to a lack of available data. For example, are firms with more internal WB reports more likely to be targeted by lawsuits? Or do these reports enable management to address potential problems before they lead to costly litigation? Using proprietary data from the world's largest provider of internal WB systems, NAVEX Global, we examine over 1.2 million internal WB reports filed with 936 publicly traded U.S. firms to provide the first empirical examination in the academic literature of the determinants of and outcomes associated with the use of internal WB systems.[1]

By providing employees a secure, anonymous means to report issues, an internal WB system enables management to identify problems difficult to discover via traditional reporting and monitoring. Although employees could approach their supervisors directly with any concerns, without the option to report anonymously some might choose not to report internally (e.g., if the supervisor is part of the concern, if the employee doesn't wish to be personally associated with any fallout from the response to the report, or if the employee fears retaliation). As issues are identified, management is able to resolve them before they become more costly to the firm—that is, before they become more severe and/or become known outside the firm. However, it is also possible that firms install a WB system (as required by SOX) simply to be in compliance without intentions to actively promote or use the system. An internal WB system

[1] NAVEX Global granted us limited access to its Internal Incident Reporting System, a hotline system it provides to clients. We observed summary information about reported incidents, but names of individuals and details about the incidents were not provided.

may be viewed as a liability, a paper trail that could be subpoenaed and discovered in litigation. Moreover, management's view might be that internal WB systems encourage employees to make frivolous complaints that distract from more important tasks.

Our study examines two primary questions. First, we examine which firms are more likely to actively use internal WB systems. Second, we examine the association between active use of internal WB systems and subsequent litigation. Active use of internal WB systems could indicate either (a) that problems are more frequent or severe or (b) that employees trust management and/or the reporting system and provide potentially valuable information to management. Under the former explanation, we would expect a positive association between internal WB system use and litigation, as documented for external WB (Bowen et al. 2010). Under the latter explanation, we would expect a negative association between internal WB system use and litigation.

To conduct our analyses, we obtained proprietary data from NAVEX Global, which provides internal call and online reporting systems to clients. Due to the sensitivity of individual internal WB reports, we received only limited data on each WB event. We observe the date of each report, the firm receiving the report, the category of the complaint (e.g. financial reporting issues, harassment or other HR issues, illegal or unethical business practices, health and safety issues, and misuse or theft of corporate assets), and the number of times the report file was accessed in the system (i.e., by individuals in management, human resources, or the legal department). In addition, the employee may provide details about the case including how the individual became aware of the activity (e.g., observed personally, informed by customer, etc.), how long the inappropriate activity has been occurring, whether management was aware of the activity, and whether management was involved in the activity. Finally, following a review of

the report, management may document the outcome of the investigation (e.g., claim was without merit, claim was substantiated, etc.). While we do not observe the specific details of the reported activity, we can determine whether these five data fields are filled in or missing.

We attempt to capture the use of an internal WB system during a fiscal year using two empirical measures. First, analogous to prior research on external WB (e.g., Bowen et al. 2010), we count the number of reports submitted during the year. Second, we attempt to measure active use of the system by employees and management by combining proxies for the fraction of employees who participate in reporting, the amount of information employees provide in their reports, and how frequently management follows up on submitted reports.

We find substantial variation in how actively different companies utilize their internal WB systems. In particular, though the use of internal WB systems has generally increased over time, use varies substantially across firms and industries. While larger firms tend to have more reports, companies that more actively use their internal WB systems tend to be more profitable, older, and have fewer employees. Rapidly growing firms are less likely to use their internal WB systems. Notably, companies with more discretionary accruals tend to use the systems less, which could reflect that an actively used internal WB system helps prevent earnings management or the types of firms that manage earnings also choose not to promote or utilize their internal WB systems. In addition, firms with stronger internal controls are more likely to actively use their internal WB systems. Finally, based on a subset of our sample in the S&P 1500, we find that firms with weaker corporate governance, as captured by the Bebchuk, Cohen, and Ferrell (2009) entrenchment index, are less likely to actively use their internal WB systems.

We also find that active use of internal WB systems is negatively associated with the number of material lawsuits filed against the firm and associated legal settlement amounts. In

particular, we find that a one standard deviation increase in the use of an internal WB system is associated with 3.8% fewer pending lawsuits in the subsequent year and 9.1% less in aggregate legal settlement amounts. The associations are even larger when examining material lawsuits and settlements over the subsequent three years. A one standard deviation increase in the use of an internal WB system is associated with 6.7% fewer pending lawsuits and 21.1% less in aggregate settlement amounts. Whereas positive associations could result from both internal WB activity and litigation being driven by the severity of issues at the firm, these negative associations are more consistent with the notion that internal WB systems provide relevant and actionable information to management about issues arising within the organization relating to, for example, financial reporting improprieties, harassment of employees, or workplace safety.

Any conclusions drawn from our analysis are limited by at least three factors. First, it is possible that endogeneity or unknown variables omitted from our analysis explain the associations we document. Management chooses how actively to use its internal WB system, and we are not aware of an exogenous event that we can use to identify a causal relation between usage of internal WB systems and litigation outcomes. Our results are descriptive in nature and should be interpreted with this limitation in mind. Second, because we have data from only one provider of internal WB systems, the inferences based on our sample may not generalize to the broader universe of firms. However, while NAVEX Global clients tend to be larger, more profitable, and more stable than other firms in the Compustat database, we are not aware of any systematic differences between how our sample firms and other firms utilize internal WB systems. Further, as NAVEX Global's client base represents over half of the Fortune 500, our sample should be of interest in its own right. Third, we are limited in the details we obtained about issues raised through internal WB systems. Ideally, we would measure employees'

awareness of internal WB systems and their willingness to submit reports as appropriate, and management's responsiveness to employee reports. Our empirical measures of internal WB system usage are only rough proxies for these underlying constructs.

Subject to these limitations, we believe our study makes four primary contributions. First, to our knowledge, this is the first academic study that uses data on actual internal WB reports. Due to the difficulty of acquiring data on internal WB, prior research has focused primarily on surveys and external WB either to the press or regulatory agencies. External reports occur when the employee observes inappropriate behavior but it isn't adequately addressed internally, and under SOX the employee also feels retaliated against (see Figure 1 in Bowen et al. 2010). Thus, inferences drawn from the analysis of external WB reports do not necessarily apply to internal WB systems. For example, we find that the number of internal WB reports is negatively associated with litigation and revenue growth, and positively associated with corporate governance. In each case, Bowen et al. (2010) find associations in the opposite direction for external WB reports. Further, whereas the involvement of an external WB is associated with more severe penalties resulting from investigations by the Securities and Exchange Commission (SEC) and Department of Justice (Call et al. 2018), we find that increased activity from internal WBs is associated with improved outcomes in terms of litigation.

Our findings suggest that increased activity in an internal WB system does not necessarily imply that a company has more severe problems. Whereas external complaints often reflect a failure of management to address issues internally, internal reports may instead reflect open communication channels between employees and management. This distinction between internal and external WB is consistent with external WB complaints representing, at least in part, a failure of management to solicit and respond to issues through internal WB systems.

Second, our study adds to the literature on financial misreporting. Prior research has shown that growing firms are more likely to misstate financial results (Dechow, Larson, Sloan 2011) or commit financial reporting fraud (Beneish 1999). Our findings that rapidly growing firms are less likely to utilize internal WB systems may provide insight into why misstatements and fraud are more prevalent among these firms. Further, recent evidence suggests that protections for external WB help reduce the likelihood of financial misreporting (Lee 2017, Wiedman and Zhu 2017). Indeed, Dyck, Morse, and Zingales (2010 p. 2226) note that employees represent the most important governance group for uncovering corporate fraud that is externally reported. We add to these findings by exploring how internal WB systems capture this resource for managers.

Third, our results have implications for companies and the active use of internal WB systems. Our results are consistent with the idea that internal WB systems can be a tool within firms for discovering and resolving issues before they become increasingly severe and costly. Specifically, the active use of internal WB systems is associated with fewer lawsuits on issues ranging from financial reporting improprieties to sexual harassment. These favorable associations contrast sharply with negative outcomes associated with external WB (Bowen et al. 2010).

Fourth, our analysis has implications for regulators. First, because data on internal WB reports is extremely sensitive and not publicly available, little is known about the extent to which internal WB programs are "paper" initiatives or substantive initiatives (Soltes 2018a). Our findings can inform regulators of the extent to which internal WB systems are used in practice, the types of issues being reported, and the types of firms more actively using these systems. Second, our findings can inform regulatory decisions related to incentivizing internal versus

external WB. While some state laws require internal WB as a first option and Section 806 of SOX protects internal WB from retaliation, the more recent Dodd-Frank Act provides protection only for external WB reports, not internal reports, and it provides financial incentives to employees that avoid internal WB systems altogether and report issues directly to the SEC. Our study informs both firms and regulators of the potential value of internal WB systems, some of which may be lost with increased incentives under the Dodd-Frank Act to bypass these systems.

2. Background and Related Research

2.1 Whistleblowing Laws and Regulations

Employees, as insiders, are usually in the best position to identify inappropriate behavior occurring within a company. For example, Dyck et al. (2010) find that in their sample of corporate fraud by public companies, employees detect fraud more frequently than any other group, accounting for 18% of detected frauds compared to only 11% for auditors, 14% for industry regulators, and 7% for the SEC. The impact of employees as whistleblowers is even greater in non-public companies. The Association of Certified Fraud Examiners (ACFE) reported that 40% of fraud cases in non-public companies are discovered via WB tips compared to 15% discovered by internal audit, 13% discovered by management review, and 7% discovered by accident (ACFE 2018). Employee whistleblowers are also a resource to regulators investigating securities violations. Call et al. (2018) find that WB involvement in investigations by regulators is associated with higher monetary penalties for targeted firms and longer prison sentences for culpable executives. This valuable role of employee WB has been recognized by U.S. state governments and the U.S. Federal Government as they have encouraged and protected WB through legislation.

In 1863 Congress passed the False Claims Act, which allows individuals who are not affiliated with the government to initiate actions against federal contractors who defraud the government. These qui tam lawsuits, if successful, allow whistleblowers to receive between 15% and 30% of any award or settlement amount. More recently, the Whistleblower Protection Act of 1989 protects employees of the federal government from retaliation following reports of legal violations, mismanagement, abuse of authority, or dangers to public health and safety.

Early WB regulation also included cases related to health and safety. For example, the Occupational Safety and Health Act (OSHA) of 1970 required employers to provide a safe workplace environment for employees. The regulation included provisions that allowed employees to request workplace inspections and to file complaints to OSHA regarding any retaliation from the employer related to their inspection request or any other WB activity under OSHA's jurisdiction.[2]

Outside of cases related to the federal government or workplace safety, through the end of the 20th century WB incentives and protections in the U.S. existed primarily at the state level. Employment relationships are presumed to be "at-will" in all states except Montana, meaning the employer can terminate an employee at any time for any reason. Over time, state courts carved out exceptions to employment at will, including in many states a public policy exception that protects employees from adverse employment actions that violate a public interest. One example of a violation of the public interest is termination of the employee in retaliation for reporting a violation of the law, which could include reporting fraudulent accounting practices.[3] However, the effectiveness of the public policy exception is limited because it does not exist in every state

[2] Other acts under OSHA's jurisdiction include the Safe Water Drinking Act of 1974, the Toxic Substances Control Act of 1976, the Clean Air Act of 1977, and the Asbestos Hazard Emergency Response Act of 1986, among others. See https://www.whistleblowers.gov/sites/default/files/whistleblowers/whistleblower_acts-desk_reference.pdf for a complete listing.

[3] See, for example, *Rocky Mountain Hosp. & Medi. Serv. V. Mariani*, 916 P.2d 519, 527 (Colo. 1996).

(eight states, including New York, do not currently have a public policy exception) and it is not uniformly interpreted (Rubinstein 2007, p. 643).

At the federal level, the U.S. Sentencing Commission's Corporate Federal Sentencing Guidelines recognize the importance of internal WB systems and offer financial incentives to firms to implement effective compliance and ethics programs to prevent and detect violations of law. The guidelines determine penalties for firms convicted of federal crimes and offer reduced penalties for firms that have implemented programs designed to detect and deter misconduct (Rubenstein 2007). One requirement for an effective program is that the organization "have and publicize a system that may include mechanisms for reporting that allow for anonymity or confidentiality" (18 U.S.C. app. §8B2.1 Supp. IV 2004).

More recent federal regulation around whistleblowing has emerged out of a few high-profile cases where whistleblowers noted problems but were ignored, including at Enron, WorldCom, and Lehman Brothers. The aftermath of Enron and WorldCom investigations, regulators found that employees were aware of fraud but either internal reports were ignored by management, employees failed to come forward sooner because of fear of retaliation, or employees were simply terminated by management.[4] In order to encourage the reporting of financial fraud by employees, Congress enacted Sections 301 and 806 of the Sarbanes-Oxley Act (SOX) in 2002.

Section 806 protects employees against retaliation by employers for reporting alleged violations occurring within public companies. This anti-retaliation provision broadened previous coverage, if any, under state law to include any unfavorable personnel action, not just wrongful

[4] For example, Sherron Watkins, an Enron executive who blew the whistle both to Enron and to Enron's external auditor, was forced out of the firm for doing so (Curwen 2003). Likewise, Cynthia Cooper, an internal auditor at WorldCom, informed management and an external audit partner of WorldCom's accounting problems but her concerns were effectively ignored.

termination. Section 806 protects an employee who provides information regarding any conduct that the employee reasonably believes constitutes securities fraud, a violation of any rule or regulation of the SEC, or any provision of Federal law relating to fraud against shareholders (SOX Sec. 806(1)).[5]

Section 301 of SOX requires companies to establish channels through which corporate whistleblowers can report financial misconduct anonymously. Section 301 requires that companies' audit committees "establish procedures for (a) the receipt, retention, and treatment of complaints received by the issuer regarding accounting, internal accounting controls, or auditing matters; and (b) the confidential, anonymous submission by employees of the issuer of concerns regarding questionable accounting or auditing matters" (SOX Sect. 301(4)). However, when it established rules to meet this requirement, the SEC did not outline specific procedures for doing so, leaving many questions unanswered for company boards and management. For example, how actively do companies use these systems, and do they use them only for financial issues as required or for other types of issues as well?

Despite the SOX provisions in place, they did not appear to protect an employee at Lehman Brothers, who raised concerns internally and then to Lehman's auditor regarding the accounting for Repo 105 transactions that had artificially inflated profits. His reports were dismissed and he was fired one month after alerting the external auditor (Clark 2010). The eventual Lehman Brothers bankruptcy became the tipping point that pushed the financial world

[5] One criticism of Section 806 is that employee protection requires that a violation has already occurred; employees are not protected against retaliation for speaking up to prevent violations. For example, in *Allen v. Admin. Review Bd.*, the court held than an employee should not be protected from retaliation for reporting an overstatement of revenue in violation of SAB 101 because, at the time of the report, the financial statements had not yet been filed with the SEC (*Allen v. Admin. Review Bd.,* 514 F.3d 468, 475). Thus, the value of the Section 806 protection in preventing wrongdoing is only indirect; while it may serve as a general deterrent against inappropriate behavior, it does not encourage employees to speak up to prevent a specific impending violation. However, this limitation was subsequently addressed in the Dodd-Frank Act, which protects and incentivizes reports of possible violations that have occurred, are ongoing, or are about to occur.

into its biggest crisis since the Great Depression. Following the Financial Crisis, Congress passed the Dodd-Frank Act, which included provisions designed to protect and reward WB. In addition to specific provisions for employees in the financial services industry, Section 922 provides for a monetary incentive for original information resulting in monetary sanctions exceeding $1 million. Specifically, the WB is entitled to 10% to 30% of any amount recouped. Further, Section 922 offers protection to employees who have suffered retaliation for WB, but only if the WB report is made directly to the SEC.

Academic research on the effects of federal regulation on WB has concluded that external WB reports are economically meaningful and that regulation encouraging these reports deter misbehavior. For example, Bowen et al. (2010) examine employee allegations of corporate financial misdeeds (to the media and to OSHA under SOX). They find that the stock market reacts negatively to WB allegations and that firms targeted by WB complaints are more likely to restate financial statements and experience shareholder lawsuits. Wilde (2017) finds that external WB reports deter financial misreporting and tax aggressiveness for up to two years after a report is made. Furthermore, Call et al. (2018) find that the involvement of an external WB is associated with more severe penalties resulting from investigations by the Securities and Exchange Commission and Department of Justice, which could explain why firms involved in financial reporting violations grant more stock options to rank-and-file employees (Call et al. 2016).

Lee (2017) and Wiedman and Zhu (2017) find that the Dodd-Frank Act's WB incentive program deterred potential violations. In particular, Lee (2017) finds a reduction in the likelihood of accounting fraud following the passage of the Dodd-Frank Act, especially for firms in states that had previously not been subject to a state-level False Claims Act. Wiedman and Zhu (2017)

document a decrease in abnormal accruals following the passage of the Dodd-Frank Act, incremental to any change in Canadian (control) firms that were not affected by the act.

2.2 Internal vs. External Whistleblowing

The regulatory approach to supporting corporate WB must balance requiring or incentivizing the use of internal WB systems with incentivizing external WB. The advantage of internal WB systems is that they provide a direct route to bring issues to the attention of those in a position to quickly and effectively address them—managers. Further, though employees have alternative outlets to voice concerns about financial reporting issues (i.e., the SEC), discrimination (i.e., the EEOC), or workplace safety concerns (i.e., OHSA), some issues can only be reasonably and effectively reported directly to management. Moreover, issues that arise might be in early stages, or at small levels initially, and thus not merit attention by outside media or regulators. However, if the employee believes that the company is not likely to address the concern and/or is likely to retaliate against the employee, then an external report may be more effective, if the option is available.[6]

In the past, there has been a trend toward encouraging internal WB, reflected by the establishment of internal WB procedures and state laws requiring employees to first pursue internal channels of reporting, where feasible (Rubenstein 2007). In some U.S. states (e.g., Florida, New York, and Ohio), employees are required to report violations within the firm prior to reporting the alleged violations outside the firm. Other states provide for an exception if the employee believes an internal report would be futile (Rubenstein 2007). Under Section 806 of SOX, employees are protected if they provide information either to a superior at the firm or to federal regulatory or law enforcement agencies or any member of Congress. Thus, Section 806

[6] In a survey of over 2,500 middle- and senior-level managers by Freshfields Bruckhaus Deringer (2014), more than a quarter of respondents stated they would report to a regulator if the wrongdoing wasn't handled property by their company.

protected internal WB but also allowed for external WB if, for example, the employee believed an external report would be more effective.

However, more recently under the Dodd-Frank Act, whistleblowers are protected against retaliation only if allegations are reported directly to the SEC (see *Digital Realty Trust Inc. v. Somers* 2018). In other words, employees who report concerns or problems via an internal compliance program, without also reporting to the SEC, have no protections under the Dodd-Frank Act.[7] Furthermore, the Dodd-Frank Act's financial incentives for WB encourage reporting to the SEC rather than only to the firm itself. This program is controversial, as it allows WB to report directly to the SEC without being required to first report through the firm's internal WB system implemented under SOX, limiting opportunities for management to resolve issues directly (Wiedman and Zhu 2017). For example, a letter from the Association of Corporate Counsel, signed by 250 corporations, stated that the Dodd-Frank WB program would have negative consequences: "first, by undermining internal compliance and reporting systems that allow responsible companies to comply with critical regulations and conduct themselves in an ethical manner; and second, by proposing an alternative system which fails to replace existing corporate reporting systems with any effective mechanism to ensure that companies obtain early warnings of burgeoning failures or frauds within their organizations" (Wiedman and Zhu 2017).

In adopting its Whistleblower Rules, the SEC recognized that internal WB can enhance its enforcement efforts. Consequently, the SEC adopted incentives and protections for employees who choose to work within their company's own compliance structure because they believe that the employer's internal compliance function is an effective mechanism to address any potential

[7] This distinction was confirmed by the U.S. Supreme Court. The Court unanimously concluded on February 21, 2018, that an employee who was terminated after making a report to senior management did not have WB employment protections under Dodd-Frank Act as the WB report was internal to the firm instead of being made to the SEC directly (*Digital Realty Trust v Somers* 2018).

wrongdoing (White 2015).[8] However, internal reporting is not always effective, particularly when management dismisses or fails to correct issues relating to internal WB reports. The SEC Whistleblower Office noted that 83 percent of external WB award recipients raised concerns internally to supervisors or compliance personnel, or at least understood that compliance personnel knew of the violations, before reporting information to the SEC (SEC 2017, page 17).

Thus, the need for external WB incentives likely depends at least partially on the effectiveness of internal WB systems. However, given the understandably sensitive nature of data on internal WB systems, little is known about how companies utilize these systems (Rajgopal 2017). Notable exceptions include surveys in the academic literature and in practice (e.g., Dyck et al. 2010, Freshfields Bruckhaus Deringer 2014, ACFE 2017), laboratory experiments (e.g., Chen et al. 2017), and a novel field study by Soltes (2018b). Soltes (2018b) attempted to report misconduct through hotlines at 231 firms, finding that while obstacles to reporting exist at 20% of firms, more than 90% responded in a timely manner to the reports. Our study provides insight into internal WB systems by analyzing over 1.2 million actual reports made by employees and managements' responsiveness to these reports.

3. Predictions

3.1 Usage of Internal Whistleblowing Systems

Section 301 of SOX requires companies to establish channels through which corporate whistleblowers can report financial misbehavior anonymously. However, the extent to which companies implement internal WB systems in practice is likely to vary across companies with the benefits and costs of implementation. While we are not aware of any clear, definitive

[8] SEC Chair Mary Jo White noted, "Concerns were raised about undermining companies' internal compliance programs. Some commenters urged that internal reporting be made a pre-condition to a whistleblower award. That was not done, but the final whistleblower rules established a framework to incentivize employees to report internally first. A whistleblower's participation in internal compliance systems is thus a factor that will generally increase an award, whereas interference with those systems will surely decrease an award" (White 2015).

theoretical predictions as to which firms are more likely to utilize their internal WB systems, we expect several factors to play a role in management's decision.

Firm size. Various factors related to the size of firms could suggest that larger firms are either more or less likely to actively use their internal WB systems. On the one hand, larger firms typically have more financial resources available to invest in implementing and using an internal WB system. Larger firms also tend to have more developed internal audit and control procedures that complement the deployment and operation of the internal WB system (DeFond 1991). Further, larger firms may stand to benefit more from the information an internal WB system provides. The value of information likely increases when it comes from a more diffuse set of employees, when there are more individuals available to observe and report inappropriate activity, and when personal communication between employees and upper management is less frequent. Also, the benefits of avoiding the negative publicity and other consequences of a corporate scandal are likely to be more important for larger companies with greater reputational costs.

On the other hand, implementing an internal WB system that effectively captures employee reports is likely to be more costly for large companies, in terms of disseminating information, creating a consistent culture of use of the system, and appropriately managing the reports. The costs of fully implementing an internal WB system include the cost of installing, promoting, and operating the system, and the time and attention directed toward following up on reports.

Firm age. We expect that older firms are more likely to actively use internal WB systems. Davila and Foster (2005) find that the use of various management accounting systems

generally increases over the life of companies, although there is substantial cross-sectional variation in the decisions to adopt and implement these systems.

Firm growth and stability. Firms that are rapidly growing are likely to be more focused on achieving further growth, with less focus on implementing systems such as an internal WB system. In addition, as new employees are added to the firm as it grows, disseminating an open culture that encourages active use of the internal reporting system is more difficult. On the contrary, firms in more of a steady state are more likely to direct resources toward internal WB systems. We expect that firms with greater growth, more growth opportunities, and greater volatility are less likely to actively use their internal WB system.

Firm profitability. We expect that firms with more available financial resources are more likely to invest in implementing and actively using an internal WB system. Accordingly, we expect that more profitable companies are more likely to actively use their internal WB systems.

Litigation risk. Companies are more likely to actively use internal WB systems when they face greater litigation risk. The cost of unresolved issues that lead to external complaints and lawsuits is greater for firms operating in industries with a history of more frequent litigation.

Monitoring. We expect greater usage of internal WB systems by firms that face more extensive external monitoring. External monitors, such as creditors and institutional shareholders, are likely to more closely scrutinize potential risk factors within the firm and pressure the firm to put effective systems in place to reduce these risks.

Agency conflicts. We expect a lower usage of internal WB systems when management has incentives to suppress information about potentially inappropriate activities. For example, managers engaging in or desiring the flexibility to engage in questionable financial reporting practices may be less likely to promote an internal WB system that could uncover this behavior

to the audit committee or other relevant parties within the firm. Likewise, we expect a lower usage of internal WB systems in firms with poorer corporate governance mechanisms in place.

Internal control environment. An internal WB system is one part of a firm's broader set of internal controls, and as such it likely complements other internal controls. We expect that effective audit committees and internal audit teams will ensure that internal WB systems are widely promoted and accessible, and that reports are promptly reviewed. Consistent with this idea, Soltes (2018b) finds that firms more likely to have internal control weaknesses tend to discourage anonymous reporting and are less likely to request additional information from the employee. We expect that firms with a strong internal control environment are more likely to actively use their internal WB systems.

3.2 Outcomes Associated with the Use of Internal Whistleblowing Systems

As stated previously, companies with fully implemented, actively advertised, and widely used internal WB systems benefit from a flow of information from employees, thus being in a position to more quickly identify and rectify problems before they become larger and most costly to the company.

Various outcomes may potentially be associated with the active use of internal WB systems. For example, as issues are addressed internally, they are less likely to be reported externally. And as problems are addressed quickly, they are less likely to evolve into larger problems that eventually result in lawsuits, especially as lawsuits often involve the cover up as much or more than the original misbehavior. Further, as litigation and external reports are costly, one might expect that a more effectively used internal WB system that avoids these outcomes would lead to greater profitability and stock performance. For example, Bowen et al. (2010) find that external WB announcements are associated with a 2.8 percent stock price decline. Finally,

another potential consequence of an actively used internal WB system is that employees may feel more valued within the firm as their voice is heard by management, and they feel they play a role in improving the firm.

In this study, we focus on one specific outcome—litigation—which we believe is directly connected to the use of internal WB systems and a common setting in which internal problems become visible externally. If management uses its internal WB system to learn of and address issues arising within the organization relating to, for example, financial reporting improprieties, harassment of employees, or workplace safety, then we expect a negative association between use of these systems and litigation in subsequent fiscal years.

However, there are at least two reasons we might instead see a positive association between the usage of internal WB systems and litigation. First, our measure of usage might reflect the extent of problems existing within the company. For example, instead of reflecting open communication channels between management and employee, the number of reports filed could reflect the frequency and severity of issues within the company. Likewise, the number of times a report is accessed by management might capture the severity of the issue rather than the level of attention and responsiveness provided by management. When there are more frequent and severe problems with a company, it is possible that both internal and external WB increase.

Second, a more actively used internal WB system might facilitate legal action by creating a paper trail that can be used as part of litigation discovery. Consistent with this notion, Freshfields Bruckhaus Deringer (2014) find that nearly 30 percent of managers in their survey reported that their company actively discourage internal WB. To the extent either or both of these explanations are evident in practice, we might not observe the predicted negative association between internal WB system use and litigation.

4. Data and Research Design

4.1 Internal Whistleblowing System Data

We obtained data on over 1.2 million internal WB reports filed with 936 publicly traded U.S. companies from NAVEX Global, a provider of internal WB hotline and online reporting systems to public and private firms. Due to the sensitivity of details relating to internal WB cases, we received only limited data on each WB event. Specifically, we observe the date of each report, the category of the complaint (e.g., financial reporting issues, harassment or other HR issues, illegal or unethical business practices, health and safety issues, and misuse or theft of corporate assets), and the number of times the report file was accessed by management. In addition, the employee may provide additional information including categorical information about the individual making the report and the activity being reported, and detailed notes about the activity. Further, after a review of the case, a company representative may input information about the outcome of any investigation and management's response to the claim. While we don't observe any of the detailed notes, we can determine whether the categorical data fields are filled in or missing.

Ideally, we would measure employees' awareness of the internal WB system and their willingness to submit reports as appropriate, and management's responsiveness to employee reports. Though we cannot directly measure how actively a company advertises its internal WB system to employees or utilizes information from specific reports, we attempt to capture active usage using several empirical proxies. From the perspective of employees, we measure internal WB system usage based on the number of reports submitted per employee and the average amount of detail the employee provided on each report. From management's perspective, we count the average number of times each case file was accessed and reviewed. Finally, we

combine these three measures to capture the total flow of information from employees to management during the year.

log(RPRTS) is the natural log of the number of reports made during the calendar year through the reporting system, and we estimate a combined internal WB system usage measure, *USAGE*, each year using factor analysis to identify a single common factor underlying *log(RPRTS/EMP*), *log*(*ACCESS)*, and *NMISS*. *log(RPRTS/EMP*) is the natural log of the number of reports made per 1,000 employees. *log*(*ACCESS*) is the natural log of the average number of times reports filed during the calendar year were accessed, typically by an individual in management, internal audit, the legal department, or human resources. *NMISS* is the fraction of five key variables that are filled in the system, averaged across reports filed during the calendar year. The five variables are (1) how the individual became aware of the activity (e.g., observed personally, informed by customer, etc.), (2) how long the inappropriate activity occurred, (3) whether management was aware of the activity, (4) whether management was involved in the activity, and (5) the outcome of the investigation (e.g., claim was without merit, claim was substantiated, etc.).

Each proxy for usage is intended to capture the firm's engagement with WB tools. The log of the number of submitted cases divided by the number of employees, *log(RPRTS/EMP*), is intended to capture employees' awareness of the internal WB system, their willingness to submit reports, and the accessibility of the reporting system. Despite the existence of an internal WB system, employees may be hesitant to use it if it is difficult to access (Soltes 2018b), if they doubt that management will respond, or if they fear retaliation.[9] The average number of times a

[9] Despite the WB protections under SOX and the Dodd-Frank Act, WB is an inherently risky vocational decision. Whistleblowers are often met with retaliation by both their employer and also on the job market and at subsequent employment (Eisenstadt and Pacella 2008). Stephen Kohn, director of the Washington-based National

report is accessed, *log*(*ACCESS*), is intended to capture management's responsiveness to employee reports. The measurement of missing data points in reports, *NMISS,* is intended to capture employees' willingness to provide information, management's willingness to document findings, and the total flow of information from employees to management about potential issues within the firm. Using a combination of these measures we create an overall *USAGE* measure intended to capture overall engagement with the WB system.

4.2 Other Data Sources

We obtain financial accounting data from Compustat, market data from CRSP, corporate governance data from ISS, institutional ownership data from Thomson Reuters, and litigation and internal control data from AuditAnalytics.

The AuditAnalytics Litigation Database includes federal securities class action claims, SEC actions, and material federal civil litigation. AuditAnalytics collects data on federal cases from the company's disclosures of material legal proceedings under SEC Reg S-K. In addition, AuditAnalytics includes data on securities class action suits, litigation initiated by the SEC, and federal litigation involving the top 100 accounting firms. The litigation data spans from the beginning of our sample period in 2004 through 2016.

4.3 Research Design

4.3.1 Determinants of the Use of Internal WB Systems

Based on the factors we discuss in Section 3.1, we estimate the following regressions:

$$log(RPRTS_t) = b0 + b1\ SIZE_t + b2\ EMP_t + b3\ AGE_t + b4\ GROWTH_t + b5\ BM_t + b6\ ROA_t + b7\ LITRISK_t + b8\ VOL_t + b9\ OWN_t + b10\ LEV_t + b11\ ABSDACC_t + b12\ EINDEX_t + b13\ ICFOCUS_t + year\ FE + industry\ FE + e_t \quad (1a)$$

$$USAGE_t = b0 + b1\ SIZE_t + b2\ EMP_t + b3\ AGE_t + b4\ GROWTH_t + b5\ BM_t + b6\ ROA_t$$

Whistleblowers Center, noted, "If you're a company and want to get rid of a whistleblower, it's common to stick them in a round of layoffs" under the pretense of wider eliminations of redundancies at the firm (Clark 2010).

$$+ b7\ LITRISK_t + b8\ VOL_t + b9\ OWN_t + b10\ LEV_t + b11\ ABSDACC_t$$
$$+ b12\ EINDEX_t + b13\ ICFOCUS_t + year\ FE + industry\ FE + e_t \quad (1b)$$

In Equations (1a) and (1b), *log(RPRTS)* and *USAGE* are as defined in section 4.1. *SIZE* is the natural log of the firm's total assets, *EMP* is the natural log of the number of employees working for the firm, and *AGE* is the natural log of the number of years since the firm's first appearance on Compustat. *GROWTH* is the firm's year-over-year growth in sales revenue, *BM* is the ratio of the firm's book equity to market equity, and *ROA* is the firm's net income before extraordinary items divided by total assets. *LITRISK* is an indicator variable that equals one if the firm belongs to a highly litigious industry (Francis, Philbrick, and Schipper 1994), *VOL* is the standard deviation of the firm's monthly stock returns during the fiscal year, *OWN* is the percentage of the firm's shares held by institutional owners as reported in 13F filings, and *LEV* is the ratio of total liabilities to total assets. *ABSDACC* is the absolute value of the firm's discretionary accruals, calculated by industry and year and controlling for performance (Jones 1991, Kothari et al. 2005). *ICFOCUS* is an indicator variable equal to one if the firm disclosed a material weakness in internal controls during the prior fiscal year. Following Cheng et al. (2013), we assume that following the disclosure of a material weakness, firms substantially improve their internal controls. That is, prior to the revelation of the material weakness, a firm's internal controls are likely to be relatively poor. However, following the disclosure, the focus on internal control effectiveness is likely to lead to an improved internal control environment. Finally, for the subsample of firms in the S&P 1500, *EINDEX* is the entrenchment index, a variable ranging from zero to six, with higher values indicating greater entrenchment or weaker corporate governance (Bebchuk et al. 2009).

We include year and industry fixed effects to control for variation in use due to industry factors likely to increase usage, unrelated to the firm, and variation in use over time due to

external factors coinciding outside the firm. We classify firms into 14 industries following Barth, Beaver, and Landsman (1998). We estimate Equation (1), and those that follow, using ordinary least squares with bootstrapped standard errors. Specifically, we use Stata's bootstrap option to estimate each regression 1,000 times on a random subset of our sample, and then calculate standard errors, z-statistics, and p-values based on the empirical distribution of the coefficient estimates. Alternatively, we estimate regressions with standard errors clustered by firm or by year, and we discuss these results for key parameter estimates in the text.

4.3.2 Outcomes Associated with the Use of Internal WB Systems

We analyze the association between internal WB system usage and litigation by estimating the following regressions:

$$\begin{aligned} log(LEGAL_{t+1}) = {} & b0 + b1\ [log(RPRTS_t) \text{ or } USAGE_t] + b2\ SIZE_t + b3\ EMP_t + b4\ AGE_t \\ & + b5\ GROWTH_t + b6\ BM_t + b7\ ROA_t + b8\ LITRISK_t + b9\ VOL_t + b10\ OWN_t \\ & + b11\ LEV_t + b12\ ABSDACC_t + year\ FE + industry\ FE + e_t \end{aligned} \quad (2a)$$

$$\begin{aligned} log(SETTLE_{t+1}) = {} & b0 + b1\ [log(RPRTS_t) \text{ or } USAGE_t] + b2\ SIZE_t + b3\ EMP_t + b4\ AGE_t \\ & + b5\ GROWTH_t + b6\ BM_t + b7\ ROA_t + b8\ LITRISK_t + b9\ VOL_t + b10\ OWN_t \\ & + b11\ LEV_t + b12\ ABSDACC_t + year\ FE + industry\ FE + e_t \end{aligned} \quad (3a)$$

In Equation (2a), $log(LEGAL_{t+1})$ is the natural log of one plus the number of lawsuits reported by the firm, and in Equation (3a) $log(SETTLE_{t+1})$ is the natural log of the aggregate amount paid for legal settlements during the year. We estimate each equation twice, using either the number of reports, *log(RPRTS)*, or system usage, *USAGE*, as defined previously. We include the control variables defined above, and year and industry fixed effects as in Equation (1).

Finally, we estimate variations of Equations (2a) and (3a), namely Equation (2b) and Equation (3b), that measure the outcomes over a three-year period, as the benefits (consequences) of the use (neglect) of internal WB systems may extend beyond one year.

5. Results

5.1 Descriptive Statistics

Table 1, Panel A, presents means of usage variables by year. Notably, there is a strong increasing trend in internal WB system usage over the sample period. For example, the average number of reports per firm eclipses 200 by 2011 and levels off at around 265 between 2013 and 2016. The number of reports per 1,000 employees increases from 5.83 to 15.69 between 2004 and 2016, and the fraction of data fields that are filled in increases from 22% in 2004 to 46% by 2016. The average number of times reports are accessed by management increases from 10.99 in 2004 to a peak of 13.30 in 2010, followed by a decline down to 11.57 by 2016.

The dramatic shifts in usage of internal WB systems over time, especially during the first half of the sample period, reinforce the need to use year fixed effects in our regression analyses. That is, we base our inferences from multivariate results on the variation in usage across firms within a given year.

Table 1, Panel B, presents the distribution of internal WB reports by type. Over one half of the reports, 54.3%, relate to human resource issues (e.g., sexual harassment). Issues relating to illegal or unethical business practices are the second most frequent (15.3%), followed by concerns about the misuse of corporate resources (12.5%). Issues relating to health and safety (8.3%) and accounting and financial reporting (0.8%) are less common. Although internal WB systems are required by Section 301 of SOX only for accounting and financial reporting concerns, firms use these systems to collect information about a broad range of issues.

Panel C presents means of usage variables by industry, and Panel D presents the distribution of report types by industry. Notably, usage of internal WB systems varies substantially across industries. For example, firms in the Computers, Textiles/Publishing, and

Food industries average 5.55, 5.61, and 6.84 reports per 1,000 employees, respectively. At the other end of the spectrum, firms in the Utilities, Extractive, and Pharmaceutical industries average 26.01, 19.87, and 19.70 reports per 1,000 employees. The variation in usage of internal WB systems across industries reinforces the need to use industry fixed effects in our regression analyses to control for unexplained, time-invariant variation in usage across industries.

Table 2 presents descriptive statistics for our sample. In Panel A, we compare our sample of 936 firms to other firms in the Compustat database with data available to calculate the variables we use in our analyses. Sample firms tend to be larger than other firms in terms of both total assets and number of employees. Sample firms, on average, are also older, more profitable, and more highly levered. They are more stable, in terms of having lower revenue growth rates and stock return volatility. Finally, sample firms have greater institutional ownership and exhibit lower levels of discretionary accruals than other firms.

Table 2, Panel B, presents summary statistics, and Table 2, Panel C, presents correlations. As expected, our usage variables exhibit positive pairwise correlations, consistent with their capturing a common underlying construct. The correlation between the number of reports and active use of the system is 0.22. The correlations between the combined usage measure, *USAGE*, and its separate components range from 0.25 to 0.85, and the pairwise correlations among individual components range from 0.13 to 0.46.

The number of internal WB reports is positively associated with the number of lawsuits in the subsequent year (0.10), while active use of the system and its three component measures are significantly negatively correlated with the number of lawsuits in the subsequent year, with correlations ranging from -0.08 to -0.13. Each is also negatively correlated with legal settlements

in the subsequent year, with correlations ranging from -0.04 to -0.05. However, we base our inferences on the multivariate results that follow.

5.2 Determinants of the Use of Internal WB Systems

Table 3 presents results from our regression of WB activity onto a set of explanatory variables. Panel A presents the determinants of the number of reports, while Panel B presents the determinants of active use of internal WB systems. Firms with more internal WB reports tend to be larger in terms of firm size (*SIZE* coefficient = 0.083, z = 3.44) and number of employees (*EMP* coefficient = 0.801, z = 23.64). Firms with more internal WB reports also exhibit lower growth (*GROWTH* coefficient = -0.270, z = -3.07), higher litigation risk (*LITRISK* coefficient = 0.143, z = 1.90), higher leverage (*LEV* coefficient = 0.355, z = 3.48), and lower discretionary accruals (*ABSDACC* coefficient = -0.780, z = -1.85). The second set of results indicates that the number of reports is not significantly associated with corporate governance (*EINDEX* coefficient = -0.011, z = -0.33), and the third set of results indicates that the number of reports is positively associated with a focus on internal controls (*ICFOCUS* coefficient = 0.274, z = 2.45).

Table 3, Panel B reveals that firms more actively using their internal WB systems tend to be smaller (*SIZE* coefficient = -0.022, z = -1.65), with fewer employees (*EMP* coefficient = -0.122, z = -6.71), lower growth rates (*GROWTH* coefficient = -0.233, z = -4.18), and fewer growth opportunities (*BM* coefficient = 0.072, z = 1.69). Further, they are older (*AGE* coefficient = 0.038, z = 1.75), more profitable (*ROA* coefficient = 0.773, z = 6.13), and more levered (*LEV* coefficient = 0.321, z = 4.63). Firms with more discretionary accruals are less likely to actively use their internal WB systems (*ABSDACC* coefficient = -0.566, z = -1.91), and the second set of results estimated on a subsample of firms indicates that firms with more entrenched CEOs are less likely to use their internal WB systems (*EINDEX* coefficient = -0.043, z = -2.13). Finally,

the third set of results indicates that the number of reports is positively associated with improved internal controls (*ICFOCUS* coefficient = 0.268, z = 4.61).

5.3 Outcomes Associated with the Use of Internal WB Systems

Table 4 presents results from our analysis of internal WB system usage and subsequent litigation. Panel A presents results from the analysis of the number of lawsuits in the subsequent fiscal year. The first set of results is based on the number of internal WB reports filed during the year, *log(RPRTS)*. Firms with more reports tend to have fewer lawsuits in the subsequent fiscal year (*log(RPRTS)* coefficient = -0.008, z = -1.91). Regarding the control variables, firms with more lawsuits tend to be larger (*SIZE* coefficient = 0.102, z = 16.61), older (*AGE* coefficient = 0.017, z = 2.02), and have more growth opportunities (*BM* coefficient = -0.101, z = -5.32). Further, they are less profitable (*ROA* coefficient = -0.155, z = -2.44), face higher litigation risk (*LITRISK* coefficient = 0.128, z = 6.11), have greater stock price volatility (*VOL* coefficient = 0.661, z = 4.75), and have less debt (*LEV* coefficient = -0.187, z = -5.88). Finally, firms with more discretionary accruals have more lawsuits (*ABSDACC* coefficient = 0.701, z = 4.96).

We find a stronger negative association with subsequent litigation when considering internal WB system use, *USAGE*. Firms more actively using their internal WB systems tend to have fewer lawsuits in the subsequent fiscal year (*USAGE* coefficient = -0.038, z = -6.31).[10] In economic terms, a one standard deviation in internal WB system usage is associated with 3.8% fewer lawsuits in the subsequent year. In untabulated tests, we find similar results when measuring usage using the number of times report were accessed by management (*log(ACCESS)* coefficient = -0.046, z = -6.71) and the fraction of key data fields that were not missing in the report and thus available to management for review (*NMISS* coefficient = -0.109, z = -4.63).

[10] In untabulated analyses, we find that the association between internal WB system usage and subsequent litigation is robust to using standard errors clustered by year (t = -7.65) or standard errors clustered by firm (t = -4.47). Further, the association is robust to the inclusion of firm and year fixed effects (z = -2.15).

The results in Panel B reveal qualitatively similar inferences when examining subsequent litigation over a three-year period. Specifically, the number of internal WB reports is significantly negatively associated with the number of lawsuits over the following three years (*log(RPRTS)* coefficient = -0.014, z = -1.96), as is active use of the system (*USAGE* coefficient = -0.067, z = -6.88). A one standard deviation increase in the combined usage measure is associated with a 6.7% reduction in the number of pending lawsuits over the subsequent three years.

Table 4, Panel C, presents results from the analysis of legal settlements in the subsequent fiscal year. The first set of results indicates that the number of internal reports is not significantly associated with legal settlement amounts (*log(RPRTS)* coefficient = -0.026, z = -0.80). However, firms more actively using their internal WB systems tend to have smaller settlement amounts in the subsequent fiscal year (*USAGE* coefficient = -0.091, z = -2.06). In economic terms, a one standard deviation in internal WB system usage is associated with 9.1% less in legal settlements in the subsequent year. Regarding the control variables, firms with larger aggregate settlements tend to be larger (*SIZE* coefficient = 0.121, z = 2.96), have more employees (*EMP* coefficient = 0.113, z = 2.04), be older (*AGE* coefficient = 0.115, z = 1.83), be more volatile (*VOL* coefficient = 1.844, z = 2.21), and have less debt (*LEV* coefficient = -0.656, z = -3.53).

The results in Panel D reveal qualitatively similar inferences when examining subsequent settlements over a three-year period, except that the number of reports has a marginally significant negative association with future legal settlements (*log(RPRTS)* coefficient = -0.092, z = -1.59). Internal WB system usage is significantly negatively associated with aggregate legal settlements over the following three years (*USAGE* coefficient = -0.211, z = -2.60). A one

standard deviation increase in the combined usage measure is associated with 21.1% less in legal settlements over the following three years.

6. Summary and Conclusions

Using a proprietary dataset from the world's largest provider of internal whistleblowing (WB) systems, we examine the characteristics of U.S. firms that more extensively use their internal WB systems. While larger firms tend to have more reports, firms that more actively use their systems (i.e., firms where more employees participate in reporting, where employees provide more information in their reports, and where management more frequently follows up on reports) tend to be older, smaller, and more profitable. Firms experiencing rapid growth, with evidence of earnings management, with weaker corporate governance, and with weaker internal controls are less likely to actively use their internal WB system. Further, we find that more active use of internal WB systems is associated with fewer material lawsuits being filed against the firm and smaller legal settlement amounts.

Our findings are consistent with internal WB reports being a valuable resource to management in identifying and quickly addressing concerns arising within the firm. These findings inform the academic literatures on both external WB and financial reporting quality by highlighting the distinctions between internal WB and external WB and by documenting some potential benefits of an actively used internal WB system. Our results have implications for companies and regulators. The results may be of value to management and audit committees, as they provide insight into which firms more actively use these systems and their potential benefits. Finally, our findings may be useful to regulators, particularly as recent federal regulation has incentivized external WB over internal WB. It is important for regulators to

understand the value of internal WB systems, and to our knowledge this study presents the first empirical analysis in the academic literature of actual internal WB reports made by employees.

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Appendix: Variable Definitions

USAGE	Common factor, obtained using factor analysis, underlying *log(RPRTS/EMP*), *log*(*ACCESS*), and *NMISS*. *USAGE* is standardized to have a mean of zero and variance of one.
RPRTS	Number of reports made through the internal reporting system during the calendar year.
RPRTS/EMP	Number of reports made per 1,000 employees through the internal reporting system during the calendar year.
NMISS	Fraction of five key variables that are filled in the system, averaged across reports filed during the calendar year: (1) how the individual became aware of the activity (e.g., observed personally, informed by customer, etc.), (2) how long the inappropriate activity has been occurring, (3) whether management was aware of the activity, (4) whether management was involved in the activity, and (5) the outcome of the investigation (e.g., claim was without merit, claim was substantiated, etc.)
ACCESS	Average number of times reports filed during the calendar year were accessed and reviewed.
log(LEGAL)	Natural log of one plus the number of material lawsuits pending against the company (AuditAnalytics).
log(SETTLE)	Natural log of the aggregate amount paid for legal settlements during the year (AuditAnalytics).
SIZE	Natural log of the firm's total assets (Compustat).
EMP	Natural log of the number of employees (Compustat).
AGE	Natural log of the number of years since the firm's first appearance on Compustat.
GROWTH	Year-over-year growth in the firm's sales revenue (Compustat).
BM	Ratio of the firm's book equity to market equity (Compustat).
ROA	Net income before extraordinary items divided by total assets (Compustat).
LITRISK	Indicator variable that equals one if the firm belongs to a highly litigious industry (Francis et al. 1994).
VOL	Standard deviation of the firm's monthly stock returns during the fiscal year (CRSP)
OWN	Percentage of the firm's shares held by institutional owners as reported in 13F filings (Thomson Reuters).
LEV	Ratio of total liabilities to total assets (Compustat).
ABSDACC	Absolute value of discretionary accruals, calculated by industry and year and controlling for performance (Jones 1991, Kothari et al. 2005).
EINDEX	Entrenchment index, a variable ranging from zero to six, with higher values indicating greater entrenchment or weaker corporate governance (Bebchuk et al. 2009), using ISS data.
ICFOCUS	Focus on internal controls, as measured by an indicator variable equal to one if the firm disclosed a material weakness in internal controls during the prior fiscal year (AuditAnalytics).

Table 1: Internal Whistleblowing System Data

Panel A: Means of usage variables by year

Year	*N*	*RPRTS*	*USAGE*	*RPRTS /EMP*	*ACCESS*	*NMISS*
2004	176	23.70	-0.58	5.83	10.99	0.22
2005	213	49.48	-0.32	6.20	12.55	0.31
2006	267	84.53	-0.21	7.61	12.00	0.36
2007	297	91.15	-0.15	7.49	13.06	0.36
2008	379	118.02	-0.14	8.66	12.45	0.37
2009	401	160.63	-0.07	10.14	13.13	0.38
2010	429	191.51	0.02	10.69	13.30	0.41
2011	500	201.76	0.05	11.95	12.97	0.43
2012	526	232.73	0.08	13.15	12.66	0.44
2013	558	267.18	0.11	13.89	12.15	0.45
2014	597	268.89	0.09	14.04	11.89	0.45
2015	672	262.78	0.12	14.26	11.86	0.46
2016	603	267.01	0.14	15.69	11.57	0.46
All	**5,618**	**200.45**	**0.00**	**11.86**	**12.34**	**0.41**

Panel B: Distribution of report types by year

Year	*RPRTS*	*%ACC*	*%BUS*	*%HR*	*%MIS*	*%SAFE*	*%NA*
2004	23.70	2.9%	11.0%	58.7%	8.2%	5.7%	13.4%
2005	49.48	1.7%	8.9%	61.6%	7.3%	6.9%	13.7%
2006	84.53	1.6%	7.4%	55.7%	6.1%	7.0%	22.2%
2007	91.15	1.4%	9.0%	59.1%	5.5%	7.6%	17.4%
2008	118.02	1.1%	9.6%	60.2%	6.7%	7.2%	15.2%
2009	160.63	1.0%	10.1%	60.9%	6.7%	10.6%	10.6%
2010	191.51	0.8%	10.4%	62.2%	7.0%	10.3%	9.4%
2011	201.76	0.7%	14.7%	60.5%	8.4%	8.7%	7.0%
2012	232.73	0.6%	16.6%	49.5%	19.0%	5.8%	8.5%
2013	267.18	0.7%	16.6%	48.5%	15.1%	9.8%	9.3%
2014	268.89	0.8%	16.1%	51.0%	15.1%	8.7%	8.2%
2015	262.78	0.8%	17.3%	53.0%	14.5%	8.4%	6.0%
2016	267.01	1.0%	17.1%	58.9%	7.5%	7.2%	8.3%
All	**200.45**	**0.8%**	**15.3%**	**54.3%**	**12.5%**	**8.3%**	**8.7%**

Table 1 (continued): Internal Whistleblowing System Data

Panel C: Means of usage variables by industry

Industry	*N*	*RPRTS*	*USAGE*	*RPRTS /EMP*	*ACCESS*	*NMISS*
Mining/Construction	153	98.50	0.22	11.04	13.73	0.47
Food	186	186.98	-0.06	6.84	12.09	0.40
Textiles/Publishing	200	192.11	-0.13	5.61	10.90	0.43
Chemicals	142	138.65	-0.21	7.49	12.33	0.36
Pharmaceuticals	391	174.87	-0.23	19.70	9.64	0.34
Extractive	203	200.82	-0.24	19.87	9.77	0.35
Manufacturing	1,302	143.07	0.07	7.99	13.78	0.42
Computers	930	48.80	0.09	5.55	13.68	0.42
Transportation	355	219.43	0.05	13.53	11.46	0.44
Utilities	317	235.66	-0.09	26.01	12.72	0.36
Retail	622	517.79	-0.01	16.76	9.82	0.48
Financial	249	211.92	0.10	11.59	13.75	0.42
Insurance/Real Estate	108	84.51	-0.26	16.22	10.49	0.36
Services	400	314.70	0.05	14.20	12.72	0.43
Other	60	249.27	-0.03	5.95	13.31	0.40
All	**5,618**	**200.45**	**0.00**	**11.86**	**12.34**	**0.41**

Panel D: Distribution of report types by industry

Year	*RPRTS*	*%ACC*	*%BUS*	*%HR*	*%MIS*	*%SAFE*	*%NA*
Mining/Construction	98.50	0.7%	16.4%	56.4%	9.4%	4.7%	12.2%
Food	186.98	1.7%	32.4%	40.7%	12.8%	3.4%	9.0%
Textiles/Publishing	192.11	0.8%	12.6%	38.7%	19.7%	26.6%	1.5%
Chemicals	138.65	0.6%	9.9%	31.7%	7.7%	7.5%	42.6%
Pharmaceuticals	174.87	2.2%	27.6%	41.2%	12.3%	9.2%	7.5%
Extractive	200.82	1.6%	30.7%	41.1%	11.9%	6.8%	8.0%
Manufacturing	143.07	1.2%	12.0%	65.4%	7.2%	4.9%	9.3%
Computers	48.80	2.5%	24.0%	54.3%	9.4%	2.1%	7.8%
Transportation	219.43	0.3%	12.5%	39.3%	11.9%	23.3%	12.8%
Utilities	235.66	1.1%	17.7%	46.9%	9.9%	13.3%	11.2%
Retail	517.79	0.3%	16.9%	50.6%	19.4%	7.6%	5.2%
Financial	211.92	0.3%	4.3%	81.4%	3.1%	2.3%	8.7%
Insurance/Real Estate	84.51	1.0%	43.3%	41.1%	3.2%	2.6%	8.8%
Services	314.70	2.0%	9.4%	64.3%	2.6%	4.2%	17.6%
Other	249.27	1.1%	12.4%	63.9%	2.0%	18.7%	1.9%
All	**200.45**	**0.8%**	**15.3%**	**54.3%**	**12.5%**	**8.3%**	**8.7%**

Notes: Industry groups are as defined in Barth, Beaver, and Landsman (1998). The variables presented in Panels A and C are defined in the appendix. In Panels B and D, *%ACC* represents the percentage of all reports that relate to accounting or financial concerns. *%BUS* (illegal or unethical business practices), *%HR* (human resource and personnel issues), *%MIS* (misuse of corporate resources), *%SAFE* (health and safety issues), *%NA* (category not reported) are defined similarly.

Table 2: Descriptive Statistics

Panel A: Comparison of variable means, NAVEX sample to other Compustat firms

	NAVEX Sample	Other Firms
$SIZE_t$	7.720***	6.356
EMP_t	2.011***	1.251
AGE_t	3.029***	2.775
$GROWTH_t$	0.084***	0.129
BM_t	0.472***	0.613
ROA_t	0.014***	-0.026
$LITRISK_t$	0.344***	0.321
VOL_t	0.107***	0.127
OWN_t	0.675***	0.504
LEV_t	0.559***	0.504
$ABSDACC_t$	0.052***	0.062

Panel B: Summary statistics

	N	Mean	Std. Dev.	Q1	Median	Q3
$log(RPRTS_t)$	5,618	3.138	2.027	1.386	2.708	4.500
$USAGE_t$	5,618	0.000	1.000	-0.624	0.267	0.771
$log(RPRTS_t/EMP_t)$	5,618	1.766	1.171	0.829	1.632	2.531
$log(ACCESS_t)$	5,618	2.303	0.827	1.792	2.464	2.916
$NMISS_t$	5,618	0.415	0.261	0.188	0.468	0.627
$log(LEGAL_{t+1})$	5,015	0.237	0.440	0.000	0.000	0.693
$log(SETTLE_{t+1})$	5,015	0.493	2.731	0.000	0.000	0.000
$SIZE_t$	5,618	7.848	1.873	6.501	7.849	9.184
EMP_t	5,618	2.090	1.357	0.898	1.946	3.091
AGE_t	5,618	3.044	0.739	2.565	3.045	3.689
$GROWTH_t$	5,618	0.080	0.218	-0.028	0.056	0.154
BM_t	5,618	0.469	0.362	0.235	0.407	0.639
ROA_t	5,618	0.020	0.119	0.007	0.042	0.079
$LITRISK_t$	5,618	0.335	0.472	0.000	0.000	1.000
VOL_t	5,618	0.105	0.058	0.062	0.090	0.131
OWN_t	5,618	0.681	0.318	0.534	0.787	0.912
LEV_t	5,618	0.564	0.229	0.409	0.561	0.700
$ABSDACC_t$	5,618	0.049	0.050	0.014	0.033	0.065
$EINDEX_t$	2,914	3.960	0.987	3.000	4.000	5.000
$ICFOCUS_t$	4,793	0.046	0.210	0.000	0.000	0.000

Table 2 (continued): Descriptive Statistics

Panel C: Pearson correlations

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	$log(RPRTS_t)$																	
2	$USAGE_t$	0.22																
3	$log(RPRTS_t/EMP_t)$	0.58	0.25															
4	$log(ACCESS_t)$	0.14	0.83	0.13														
5	$NMISS_t$	0.13	0.85	0.14	0.46													
6	$log(LEGAL_{t+1})$	0.10	-0.13	-0.08	-0.10	-0.12												
7	$log(SETTLE_{t+1})$	0.04	-0.05	-0.05	-0.04	-0.05	0.33											
8	$SIZE_t$	0.55	-0.08	-0.05	-0.05	-0.11	0.26	0.09										
9	EMP_t	0.63	-0.05	-0.16	-0.06	-0.04	0.22	0.09	0.75									
10	AGE_t	0.28	0.00	-0.01	0.02	-0.03	0.06	0.04	0.38	0.38								
11	$GROWTH_t$	-0.12	-0.05	-0.08	-0.03	-0.05	0.03	0.03	-0.07	-0.08	-0.19							
12	BM_t	0.01	0.01	-0.02	0.01	0.02	-0.06	0.00	0.07	0.00	0.09	-0.19						
13	ROA_t	0.14	0.00	-0.11	0.02	-0.02	0.06	0.05	0.17	0.27	0.10	0.21	-0.27					
14	$LITRISK_t$	-0.05	-0.04	-0.01	-0.03	-0.02	0.18	0.06	-0.14	-0.03	-0.18	0.08	-0.15	0.01				
15	VOL_t	-0.31	0.02	0.01	0.02	0.04	-0.05	-0.02	-0.47	-0.40	-0.30	-0.01	0.09	-0.36	0.13			
16	OWN_t	0.04	0.06	-0.07	0.04	0.07	0.02	-0.01	0.03	0.07	0.05	0.04	-0.02	0.12	0.00	-0.05		
17	LEV_t	0.23	0.03	0.08	0.00	0.02	-0.01	-0.04	0.30	0.23	0.14	-0.11	-0.25	-0.24	-0.21	-0.04	-0.04	
18	$ABSDACC_t$	-0.17	-0.03	0.01	-0.02	-0.02	0.05	0.02	-0.22	-0.20	-0.18	0.06	-0.17	0.01	0.18	0.21	-0.09	-0.11

Notes: Panel A presents a comparison of variable means for 6,323 firm-year observations from 936 NAVEX clients to means from the Compustat database (excluding NAVEX clients) over the same period. *** represents a statistically significant difference at in variable means between the NAVEX sample and other Compustat firms at the 0.01 level. Panels B and C present descriptive statistics on key variables for NAVEX clients, excluding firm-years with zero case reports (i.e., where usage cannot be calculated). All variables are defined in the appendix.

Table 3: Determinants of Internal Whistleblowing System Activity

Panel A: Determinants of the number of internal reports

$$log(RPRTS_t) = b0 + b1\ SIZE_t + b2\ EMP_t + b3\ AGE_t + b4\ GROWTH_t + b5\ BM_t + b6\ ROA_t + b7\ LITRISK_t + b8\ VOL_t + b9\ OWN_t + b10\ LEV_t + b11\ ABSDACC_t + b12\ EINDEX_t + b13\ ICFOCUS_t + year\ FE + industry\ FE + e_t \quad (1a)$$

	Coef.	z-stat.	Coef.	z-stat.	Coef.	z-stat.
$SIZE_t$	0.083	3.44	0.087	2.45	0.103	4.09
EMP_t	0.801	23.64	0.869	18.62	0.811	22.33
AGE_t	-0.016	-0.49	-0.010	-0.19	-0.021	-0.59
$GROWTH_t$	-0.270	-3.07	-0.322	-1.88	-0.310	-3.48
BM_t	-0.045	-0.76	-0.023	-0.23	-0.007	-0.12
ROA_t	0.170	0.98	-0.415	-1.06	0.146	0.78
$LITRISK_t$	0.143	1.90	0.208	2.03	0.087	1.03
VOL_t	-0.266	-0.58	-1.716	-2.22	-0.312	-0.61
OWN_t	-0.082	-1.14	-0.860	-6.51	-0.078	-0.98
LEV_t	0.355	3.48	0.326	1.84	0.421	3.58
$ABSDACC_t$	-0.780	-1.85	-2.360	-3.34	-0.953	-2.02
$EINDEX_t$			-0.011	-0.33		
$ICFOCUS_t$					0.274	2.45
Adj. R-Squared	45.67%		43.98%		45.23%	
Number of Obs.	5,618		2,914		4,793	

Table 3 (continued): Determinants of Internal Whistleblowing System Activity

Panel B: Determinants of internal whistleblowing system usage

$$USAGE_t = b0 + b1\ SIZE_t + b2\ EMP_t + b3\ AGE_t + b4\ GROWTH_t + b5\ BM_t + b6\ ROA_t + b7\ LITRISK_t + b8\ VOL_t + b9\ OWN_t + b10\ LEV_t + b11\ ABSDACC_t + b12\ EINDEX_t + b13\ ICFOCUS_t + year\ FE + industry\ FE + e_t \quad (1b)$$

	Coef.	z-stat.	Coef.	z-stat.	Coef.	z-stat.
$SIZE_t$	-0.022	-1.65	-0.072	-3.45	-0.026	-1.75
EMP_t	-0.122	-6.71	-0.141	-5.54	-0.113	-5.75
AGE_t	0.038	1.75	0.082	2.39	0.043	1.82
$GROWTH_t$	-0.233	-4.18	-0.203	-1.86	-0.279	-4.39
BM_t	0.072	1.69	-0.033	-0.46	0.064	1.47
ROA_t	0.773	6.13	-0.332	-1.28	0.723	5.61
$LITRISK_t$	0.016	0.33	0.077	1.22	0.008	0.14
VOL_t	0.237	0.78	-0.118	-0.22	0.177	0.53
OWN_t	0.001	0.02	-0.073	-0.99	0.062	1.27
LEV_t	0.321	4.63	0.211	1.84	0.294	4.14
$ABSDACC_t$	-0.566	-1.91	-0.616	-1.30	-0.785	-2.53
$EINDEX_t$			-0.043	-2.13		
$ICFOCUS_t$					0.268	4.61
Adj. R-Squared	6.44%		9.26%		5.17%	
Number of Obs.	5,618		2,914		4,793	

Notes: This table presents regression results from the estimation of Equation (1). Z-statistics are based on bootstrapped standard errors calculated using Stata's bootstrap option with 1,000 iterations. All variables are defined in the appendix.

Table 4: Internal Whistleblowing System Activity and Future Litigation

Panel A: Number of material lawsuits in the subsequent year

$$log(LEGAL_{t+1}) = b0 + b1\ [log(RPRTS_t) \text{ or } USAGE_t] + controls + year\ FE + industry\ FE + e_{t+1} \quad (2a)$$

	Coef.	z-stat.	Coef.	z-stat.
$log(RPRTS_t)$	-0.008	-1.91		
$USAGE_t$			-0.038	-6.31
$SIZE_t$	0.102	16.61	0.100	16.56
EMP_t	0.006	0.67	-0.006	-0.76
AGE_t	0.017	2.02	0.019	2.22
$GROWTH_t$	0.019	0.70	0.013	0.48
BM_t	-0.101	-5.32	-0.099	-5.21
ROA_t	-0.155	-2.44	-0.128	-2.00
$LITRISK_t$	0.128	6.11	0.127	6.16
VOL_t	0.661	4.75	0.673	4.83
OWN_t	0.027	1.46	0.028	1.50
LEV_t	-0.187	-5.88	-0.178	-5.66
$ABSDACC_t$	0.701	4.96	0.682	4.84
Adj. R-Squared	17.92%		18.56%	
Number of Obs.	5,015		5,015	

Panel B: Number of material lawsuits over the subsequent three years

$$log(LEGAL_{t+1\ to\ t+3}) = b0 + b1\ [log(RPRTS_t) \text{ or } USAGE_t] + controls + year\ FE + industry\ FE + e_{t+1} \quad (2b)$$

	Coef.	z-stat.	Coef.	z-stat.
$log(RPRTS_t)$	-0.014	-1.96		
$USAGE_t$			-0.067	-6.88
Controls	Y		Y	
Adj. R-Squared	29.30%		30.15%	
Number of Obs.	3,746		3,746	

Table 4 (continued): Internal Whistleblowing System Activity and Future Litigation

Panel C: Amount of settlements related to material lawsuits in the subsequent year

$$log(SETTLE_{t+1}) = b0 + b1\ [log(RPRTS_t) \text{ or } USAGE_t] + controls + year\ FE + industry\ FE + e_{t+1} \quad (3a)$$

	Coef.	z-stat.	Coef.	z-stat.
$log(RPRTS_t)$	-0.026	-0.80		
$USAGE_t$			-0.091	-2.06
$SIZE_t$	0.125	3.01	0.121	2.96
EMP_t	0.146	2.36	0.113	2.04
AGE_t	0.110	1.77	0.115	1.83
$GROWTH_t$	0.165	0.83	0.151	0.77
BM_t	-0.118	-1.09	-0.111	-1.03
ROA_t	0.337	1.01	0.401	1.21
$LITRISK_t$	0.106	0.81	0.104	0.80
VOL_t	1.814	2.18	1.844	2.21
OWN_t	-0.055	-0.42	-0.053	-0.41
LEV_t	-0.674	-3.60	-0.656	-3.53
$ABSDACC_t$	1.252	1.44	1.210	1.40
Adj. R-Squared	2.75%		2.84%	
Number of Obs.	5,015		5,015	

Panel D: Amount of settlements related to material lawsuits over the subsequent three years

$$log(SETTLE_{t+1\ to\ t+3}) = b0 + b1\ [log(RPRTS_t) \text{ or } USAGE_t] + controls + year\ FE + industry\ FE + e_{t+1} \quad (3b)$$

	Coef.	z-stat.	Coef.	z-stat.
$log(RPRTS_t)$	-0.092	-1.59		
$USAGE_t$			-0.211	-2.60
Controls	Y		Y	
Adj. R-Squared	6.87%		6.98%	
Number of Obs.	3,746		3,746	

Notes: This table presents regression results from the estimation of Equations (2a), (2b), (3a), and (3b). Z-statistics are based on bootstrapped standard errors calculated using Stata's bootstrap option with 1,000 iterations. All variables are defined in the appendix.