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OF SNITCHES AND RICHES: OPTIMAL IRS AND SEC WHISTLEBLOWER REWARDS

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The past decade has seen a dramatic shift in the enforcement of tax and securities laws, from an almost exclusive reliance on designated agents for the detection of violations of these laws, to a great reliance on whistleblowers, driven by the desire to obtain a reward. This shift has led to the payment of hundreds of millions of dollars in whistleblower rewards by the IRS and the SEC in recent years. Although legal scholars have devoted much attention to this shift in law enforcement, this literature has failed to explore one central question relating to the use of whistleblower rewards: How much should the IRS and the SEC pay whistleblowers? This Article fills this gap in the literature by developing a new economic model to capture the deterrent effect of whistleblower rewards. Using this model, this Article highlights three major determinants of the minimal deterring whistleblower reward: the gain to the violator from violating the law, the personal cost to the whistleblower, and the likelihood of a successful report. Three counter-intuitive findings emerge from this analysis: first, reports of less severe violations of the law may deserve a greater whistleblower reward; second, different whistleblowers may receive different rewards for providing the same type of information; and third, a greater likelihood of a successful false report may require a greater whistleblower reward. Recently adopted regulations that are intended to guide the IRS and the SEC in determining the size of whistleblower rewards do not consider the three abovementioned determinants of whistleblower rewards. Therefore, an improved whistleblowing policy would consider these factors as central factors when determining the level of whistleblower rewards.

I. Introduction

On August 1st, 2012, Bradley Birkenfeld, a former UBS banker, was released from a U.S. prison in Minersville, Pennsylvania, to a halfway house in New Hampshire.[1] At that point in time, Mr. Birkenfeld's decision to blow the whistle on how UBS wooed thousands of rich Americans and helped them evade U.S. taxes seemed like a grave mistake. Not only did Mr. Birkenfeld lose any prospect of future employment in the banking industry, but he was also prosecuted for taking part in the UBS scheme he reported.[2] That the judge sentenced Mr. Birkenfeld to 40 months in prison, 10 more than the prosecutors sought, seemed to send a clear message to other potential whistleblowers that blowing the whistle on corporate crime may end in a long prison sentence.[3]

Five weeks later, however, the tables had turned. While Mr. Birkenfeld was sitting in the kitchen of his small rental house in Raymond, New Hampshire, his lawyer walked into the room, carrying a check from the U.S. Treasury for $104 million.[4] This was "believed to be the largest-ever

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[1] David Voreacos, *UBS Whistle-Blower Birkenfeld Released From U.S. Prison*, Bloomberg, Aug. 1, 2012, http://www.bloomberg.com/news/articles/2012-08-01/ubs-whistle-blower-birkenfeld-released-from-u-s-prison-1- [http://perma.cc/F37R-H6B8].

[2] Carlyn Kolker & David Voreacos, *Ex-UBS Banker Birkenfeld Pleads Guilty in Tax Case*, Bloomberg, June 19, 2008, http://www.bloomberg.com/news/articles/2008-06-19/former-ubs-banker-birkenfeld-pleads-guilty-in-tax-evasion-case [http://perma.cc/9MAT-Y76T] ("Birkenfeld . . . told a judge he helped real estate developer Igor Olenicoff dodge income taxes on $200 million in assets hidden in Liechtenstein and Switzerland. 'I was employed by UBS and paid a large salary and incentivized to do this business,' Birkenfeld, 43, said to U.S. District Judge William Zloch today in Fort Lauderdale, Florida, at his plea hearing.").

[3] Erik Larson & Carlyn Kolker, *UBS Tax Fraud Case Whistleblower Gets 40-Month Prison Sentence*, Bloomberg, Aug. 21, 2009, http://www.bloomberg.com/news/articles/-21/banker-birkenfeld-sentenced-to-40-months-in-prison [http://perma.cc/Y4XM-CCAN] ("A U.S. judge today rejected both motions, sentencing the banker to 40 months, 10 more than prosecutors sought. . . . Dean Zerbe of the National Whistleblowers Center criticized the judge's sentence as a deterrent to future whistleblowers. 'It stuns me that the reward for a whistleblower who shined the light on extensive tax fraud and corruption is being sent to jail,' Zerbe said today in a statement. The sentence 'sends a terrible message to other potential whistleblowers.'").

[4] Eamon Javers, *Why did the US pay this former Swiss banker $104M?*, CNBC, Apr. 30, 2015, http://www.cnbc.com/2015/04/30/why-did-the-us-pay-this-former-swiss-banker-

whistleblower payout to an individual."[5] The information provided by Bradley Birkenfeld helped the Internal Revenue Service ("IRS") collect more than $5 billion in unpaid taxes from banks and individuals.[6] The prospects of whistleblowing as a law enforcement strategy had suddenly changed. By making this payment the IRS "sent 104 million messages to whistle-blowers around the world—that there is now a safe and secure way to report tax fraud."[7]

The past decade has seen a dramatic shift in the enforcement of U.S. tax and securities laws away from reliance on public administrative agents and towards the use of paid whistleblowers. Traditionally, violations of tax law were detected by Internal Revenue Service auditors and agents, who reviewed tax returns and conducted investigations. Similarly, violations of securities law were detected by Securities and Exchange Commission ("SEC") agents, who conducted investigations to detect cases of insider trading, manipulation of market prices, or misrepresentation of important information about securities. Although IRS and SEC agents often relied on tips from various sources, there was no widespread and institutionalized payment of rewards for information on violations of the law.

In 2006 Congress made fundamental changes to the IRS informant awards program.[8] Before these changes, whistleblower rewards were discretionary, and their maximum level was set at fifteen percent of the collected proceeds. Under the new law, the payment of rewards to whistleblowers is no longer discretionary, rewards were increased to fifteen to thirty percent of the collected proceeds, and whistleblowers were given rights to appeal their reward determination.[9] The new law also required the IRS to establish the

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104m.html [http://perma.cc/58FX-DTDV] ("Five weeks later, he found himself in the kitchen of a small rental house in Raymond, New Hampshire. At that moment, Birkenfeld was an ex-con. He was out of work, infamous in a famously discreet profession, and probably unemployable as a private banker anywhere. But then his lawyer walked into the room, carrying a check from the U.S. Treasury to Birkenfeld for $104 million—minus taxes. On the face was a picture of the Statue of Liberty.").

[5] Laura Saunders & Robin Sidel, *Whistleblower Gets $104 Million*, Wall St. J., Sept. 11, 2012, http://www.wsj.com/articles/ [http://perma.cc/SHB7-QT2Q] ("A former UBS AG banker who helped the U.S. government unleash an international crackdown on tax evasion was awarded $104 million in what is believed to be the largest-ever whistleblower payout to an individual.").

[6] *Id.* ("The case lifted the veil of Swiss bank secrecy that for decades had allowed wealthy people world-wide to evade taxes. . . . Since then, more than 33,000 U.S. taxpayers have confessed to holding undeclared overseas accounts and paid more than $5 billion in taxes and penalties.").

[7] David Kocieniewski, *Whistle-Blower Awarded $104 Million by I.R.S.*, N.Y. Times, Sept. 12, 2012, at A1, http://www.nytimes.com/2012/09/12/business/whistle-blower-awarded-104-million-by-irs.html [http://perma.cc/HGF6-Z7HL] ("'The I.R.S. sent 104 million messages to whistle-blowers around the world—that there is now a safe and secure way to report tax fraud,' said his lawyers, Dean A. Zerbe and Stephen M. Kohn, in a written statement.").

[8] Tax Relief and Health Care Act of 2006, Pub. L. No. 109-432, 120 Stat. 2922.

[9] 26 U.S.C. § 7623(b)(1) (2012).

Whistleblower Office, which reports to the IRS commissioner on the imple-mentation of the program.[10]

Similarly, prior to the Dodd-Frank Act,[11] the SEC did not have a general authority to pay rewards to whistleblowers. In 2010, the Dodd-Frank Act directed the SEC to reward individuals who provide original information that leads to successful enforcement actions. Rewards were set to equal ten to thirty percent of the monetary sanctions collected, and an Investor Protection Fund was established to fund those rewards.[12]

These major changes in the law enforcement strategies employed by the IRS and the SEC have resulted in the payment of large rewards to whistleblowers in recent years. One month after paying $104 million to Bradley Birkenfeld, the IRS awarded $38 million to a whistleblower for information leading to the recovery of $127–254 million in corporate taxes from a top-500 public firm.[13] In September 2014 the SEC announced that a foreign whistleblower would collect a record reward of more than $30 million.[14] A year earlier, in September 2013, the SEC awarded $14 million to a whistleblower for a tip about a scheme to defraud foreign investors seeking U.S. residency.[15] And in August 2016 the SEC awarded $22 million to a company insider who helped uncover well-hidden accounting violations.[16]

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[10] § 406, 120 Stat. at 2959–60.

[11] Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, 124 Stat. 1376 (2010).

[12] 15 U.S.C. § 78u-6 (2012).

[13] Laura Saunders, *IRS Pays $38 Million in Whistleblower Case*, WALL ST. J. (Oct. 29, 2012), https://www.wsj.com/articles/SB10001424052970204598504578080883203393030 [http://perma.cc/V79N-4E3D] ("The Internal Revenue Service has awarded an anonymous whistleblower $38 million for information leading to the recovery of between $127 million and $254 million in corporate taxes, according to the whistleblower's attorney. . . . The whistleblower's attorney, Scott Knott of Ferraro Law Firm in Washington, declined to name the whistleblower or the firm involved, although he said the corporation is among the top 500 public firms in the country.").

[14] Rachel Louise Ensign & Jean Eaglesham, *SEC to Pay $30 Million Whistleblower Award, Its Largest Yet*, WALL ST. J. (Sept. 22, 2014), http://www.wsj.com/articles/sec-to-pay-30-million-award-its-largest-yet-1411406612 [http://perma.cc/4WK6-DAF4] ("Blowing the whistle is increasingly worth big bucks. The Securities and Exchange Commission said Monday that a foreign tipster will collect a record whistleblower award of more than $30 million, more than twice as much as the highest previous award.").

[15] Jean Eaglesham, *In an SEC Case, Tale of the Tip-Off*, WALL ST. J. (Feb. 27, 2014), https://www.wsj.com/articles/the-fraud-behind-a-14-million-whistleblower-award-1393457426 [perma.cc/T95M-2CT3] ("A record $14 million whistleblower award paid by the Securities and Exchange Commission last year was for a tip about an alleged Chicago-based scheme to defraud foreign investors seeking U.S. residency, according to people familiar with the payment.").

[16] Samuel Rubenfeld, *Monsanto Whistleblower to Collect $22 Million SEC Reward*, WALL ST. J. (Aug. 30, 2016), http://www.wsj.com/articles/monsanto-whistleblower-to-collect-22-million-sec-reward-1472596117 [http://perma.cc/ET7L-ZS5L] ("A former financial executive at Monsanto Co. will collect a nearly $22.5 million reward for alerting the Securities and Exchange Commission to alleged accounting violations. . . . The SEC . . . credited the whistleblower's 'detailed tip and extensive assistance' with helping to stop a 'well-hidden fraud' at the tipster's company.").

The transition by the IRS and the SEC in recent years to a greater reliance on whistleblowing as a law enforcement strategy has attracted much attention from legal scholars.[17] However, the existing literature has ignored one fundamental question regarding the use of whistleblower rewards: how much should whistleblowers be paid?

The gap in the literature is particularly striking, because other elements of law enforcement, and their optimal use, have been given much attention by law and economics scholars. For example, much has been written about the optimal sanction that should be imposed on different crimes, and the optimal investment in policing, which determines criminals' probability of apprehension.[18] Similarly, much attention has been devoted to the question whether laws should be enforced by a public authority or by private competitive firms that are paid for performance.[19] Yet no attempt has been made to systematically analyze and determine the optimal size of whistleblower rewards.[20]

There are other programs that reward whistleblowers for information, the most well-known of which can be found in the False Claims Act.[21] Under this Act, the whistleblower must initiate litigation against someone who has defrauded the government, and the government may decide whether to take over the litigation.[22] Whistleblowers are entitled to twenty-five to thirty percent of the recovery if they proceed with the litigation,[23] or fifteen to twenty-five percent if the government takes over the litigation.[24] The literature on

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[17] *See infra* Section II.C.

[18] *See, e.g.*, Lucian A. Bebchuk & Louis Kaplow, *Optimal Sanctions When Individuals Are Imperfectly Informed About the Probability of Apprehension*, 21 J. LEGAL STUD. 365 (1992); Gary S. Becker, *Crime and Punishment: An Economic Approach*, 76 J. POL. ECON. 169 (1968); Louis Kaplow, *The Optimal Probability and Magnitude of Fines for Acts that Definitely are Undesirable*, 12 INT'L REV. L. & ECON. 3 (1992); A. Mitchell Polinsky & Steven Shavell, *The Optimal Tradeoff Between the Probability and Magnitude of Fines*, 69 AM. ECON. REV. 880 (1979); A. Mitchell Polinsky & Steven Shavell, *The Optimal Use of Fines and Imprisonment*, 24 J. PUB. ECON. 89 (1984); A. Mitchell Polinsky & Steven Shavell, *Enforcement Costs and the Optimal Magnitude and Probability of Fines*, 35 J. L. & ECON. 133 (1992). *See generally* A. Mitchell Polinsky & Steven Shavell, *The Theory of Public Enforcement of Law*, *in* HANDBOOK OF LAW AND ECONOMICS 403 (A. Mitchell Polinsky & Steven Shavell eds., 2007).

[19] *See, e.g.*, Gary S. Becker & George J. Stigler, *Law Enforcement, Malfeasance, and Compensation of Enforcers*, 3 J. LEGAL STUD. 1 (1974); William M. Landes & Richard A. Posner, *The Private Enforcement of Law*, 4 J. LEGAL STUD. 1 (1975); A. Mitchell Polinsky, *Private Versus Public Enforcement of Fines*, 9 J. LEGAL STUD. 105 (1980).

[20] The only exception I am aware of is my own, Yehonatan Givati, *A Theory of Whistleblower Rewards*, 45 J. LEGAL STUD. 43 (2016), on which this Article builds.

[21] 31 U.S.C. §§ 3729–3733 (2012).

[22] Under the False Claims Act, a whistleblower files a complaint with the court under seal, serving it only on the government. Within 60 days, the government has to decide whether to proceed with the action, in which case the action will be conducted by the government, or to decline to take over the action, in which case the person bringing the action has the right to proceed alone. *Id.* § 3730(b).

[23] *Id.* § 3730(d)(2).

[24] *Id.* § 3730(d)(1).

the False Claims Act has similarly failed to rigorously analyze the optimal size of rewards, focusing instead on other matters.[25]

To fill this gap, this Article develops a new economic model. Given the employment of whistleblowing as a law enforcement strategy, the model considers how illegal activities may be deterred with the lowest possible reward.

The model takes into account three central factors. The first is that whistleblowers often bear a personal cost. This cost can be the result of social ostracism, diminished prospects for future employment, or a physical and psychological health toll resulting from whistleblowing.[26] The second is that not all whistleblower reports lead to the imposition of fines on the accused and the payment of a reward to the whistleblower. Agencies may not be convinced by the information provided by the whistleblower, or cases may not be pursued because of case overload.[27] Lastly, offering rewards to whistleblowers may result in false reports driven by the desire to obtain a reward.[28]

Using this model, this Article shows that three central factors should be considered when setting whistleblower rewards: the gain to the violator from violating the law, the personal cost to the whistleblower, and the likelihood of a successful report.

A higher gain to the violator from violating the law, and more specifically a higher ratio of the gain to the sanction, requires a higher whistleblowing reward. This means that, counter-intuitively, reports of less severe violations of the law may require a higher whistleblower reward than reports of more severe violations of the law. The reason is that the law often prescribes a lower sanction for less severe violations.[29] Given this lower

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[25] *See, e.g.*, Pamela H. Bucy, *Private Justice*, 76 S. Cal. L. Rev. 1, 53 (2002) (analyzing the strengths and weaknesses of the False Claims Act as a private justice model); David Freeman Engstrom, *Harnessing the Private Attorney General: Evidence from Qui Tam Litigation*, 112 Colum. L. Rev. 1244 (2012) (using new data to highlight the role of expertise and specialization among False Claim Act enforcers); David Freeman Engstrom, *Private Enforcement's Pathways: Lessons from Qui Tam Litigation*, 114 Colum. L. Rev. 1913 (2014) (using False Claims Act litigation to investigate how making law through private lawsuits differs from making law by other means); Jill E. Fisch, *Class Action Reform, Qui Tam, and the Role of the Plaintiff*, 60 Law & Contemp. Probs. 167 (1997) (using the False Claims Act model to find new ways to improve class action litigation); Barry M. Landy, Note, *Deterring Fraud To Increase Public Confidence: Why Congress Should Allow Government Employees To File Qui Tam Lawsuits*, 94 Minn. L. Rev. 1239 (2010) (arguing for allowing federal government employees to file False Claim Act actions). *But see* James B. Helmer, Jr., *How Great Is Thy Bounty: Relator's Share Calculations Pursuant to the False Claims Act*, 68 U. Cin. L. Rev. 737, 756–61 (2000) (discussing briefly what to consider in establishing the percentage of the False Claims Act award).

[26] *See infra* Section III.A.

[27] *See infra* Section III.A.

[28] *See infra* Section IV.A.

[29] *See* examples *infra* Subsection IV.A.1.

sanction, to deter these violations a higher likelihood of being reported is required, which requires a higher whistleblower reward.[30]

A higher personal cost to whistleblowers from blowing the whistle requires a higher whistleblowing reward. This means that different whistleblowers may receive different amounts, depending on their circumstances, even when the same type of information is provided. For example, it may be necessary to pay higher rewards to young employees at a start-up firm than to older employees who are about to retire from a car manufacturing firm, since the cost of blowing the whistle to the former group, in terms of the reduction in future employment prospects, is likely higher.[31]

Lastly, in terms of the likelihood of a successful report, the more likely it is for a true report to fail, the higher the whistleblower reward should be. A lower likelihood of success makes whistleblowers reluctant to report, which reduces deterrence. In order to increase the likelihood of reporting and to maintain deterrence the whistleblower reward must be increased. Moreover, and counterintuitively, the more likely it is for a false report to succeed, the higher the whistleblower reward should be. A higher risk of a successful false report means that the relative cost of violating the law is reduced, which reduces deterrence. Increasing the whistleblower reward (whether true or false) for a given type of violation disproportionally increases the likelihood that a true report is made. This increases the relative benefit from not violating the law, which increases deterrence.[32]

In August 2014, new regulations were adopted to guide the IRS in determining the percentage of the collected proceeds that should be paid to whistleblowers in each case.[33] In June 2011, regulations were adopted to guide the SEC in determining the whistleblower reward in each case.[34] Interestingly, none of the factors noted in these respective regulations correspond to the three factors highlighted by the economic model and noted above. It therefore seems that an improved whistleblowing policy would consider the abovementioned factors as central factors when determining the level of whistleblower rewards.

The Article proceeds as follows. Part II describes the major change in the past decade in the enforcement of tax and securities laws, away from the reliance on public administrative agents and towards the use of paid private whistleblowers. Part III develops the economic model used to address the question at the heart of this Article, which is how much whistleblowers should be paid, and analyzes this model. Part IV draws concrete policy conclusions based upon the analysis in Part III to the IRS and SEC whistleblower programs. Part V extends the framework of analysis from Part

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[30] *See infra* Subsection IV.A.1.
[31] *See infra* Subsection IV.A.2.
[32] *See infra* Subsection IV.A.3.
[33] 26 C.F.R. § 301.7623-4 (2017).
[34] 17 C.F.R. § 240.21F-6 (2017).

III to address the choice of whether to offer whistleblower rewards at all, and when employing agents would be more desirable than offering whistleblower rewards.

II.   The Shift in Enforcement of Tax and Securities Laws

A.   *The IRS Whistleblower Program*

For many years the IRS has had the authority to pay rewards to whistleblowers.[35] What is now § 7623(a) of the Internal Revenue Code has its origins in legislation enacted in 1867, which allowed the Secretary of the Treasury to pay amounts necessary for "detecting and bringing to trial and punishment persons guilty of violating the internal revenue laws."[36] Under this law, circulars offering rewards to whistleblowers were issued.[37]

In 1996, the Taxpayer Bill of Rights 2 expanded the purposes for which the IRS may pay rewards, explicitly adding "detecting underpayments of tax" as a basis for making a reward.[38] Furthermore, prior to 1996, payments to whistleblowers were made from appropriated funds. The Taxpayer Bill of Rights 2 changed the source of funds from IRS operating funds to proceeds collected from the taxpayer.[39]

Prior to 2006, rewards to whistleblowers were discretionary, and the amount was determined based on IRS policy.[40] The policy provided a framework for assessing the contribution of the information to the collection of proceeds from a taxpayer. For specific information that caused the investiga-

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[35] Note that the False Claims Act, under which private individuals may bring a lawsuit on behalf of the United States in cases of fraud involving government programs, explicitly excludes tax fraud from its purview. *See* False Claims Act, 31 U.S.C. § 3729(d) (2012) (stating that the Act does not apply to "claims, records, or statements made under the Internal Revenue Code of 1986").

[36] An Act to amend existing Laws relating to Internal Revenue, and for other Purposes, ch. 169, § 7, 14 Stat. 471, 473 (1867) ("*And be it further enacted*, That the commissioner of internal revenue, with the approval of the Secretary of the Treasury, is hereby authorized to pay such sums, not exceeding in the aggregate the amount appropriated therefor, as may in his judgment be deemed necessary for detecting and bringing to trial and punishment persons guilty of violating the internal revenue laws, or conniving at the same in cases where such expenses are not otherwise provided for by law. And for this purpose there is hereby appropriated one hundred thousand dollars, or so much thereof as may be necessary, out of any money in the treasury not otherwise appropriated."); *see also* IRS, Whistleblower Program (Internal Revenue Code Section 7623): Fiscal Year 2014 Report to the Congress 2 (2014), https://www.irs.gov/pub/whistleblower/WB_Annual_Report__14_Final_Signature_June_11-signed%20corrected.pdf [https://perma.cc/CYP3-8BBL].

[37] *See, e.g.*, IRS, Circular No. 99, Concerning Rewards for Information Leading to the Detection and Punishment of Persons Violating Internal-Revenue Laws (1872); *see also* III Decisions of the First Comptroller in the Department of the Treasury of the United States 244 (1882).

[38] Taxpayer Bill of Rights 2, Pub. L. No. 104-168, sec. 1209, 110 Stat. 1452 (1996).

[39] *Id.*

[40] IRS, Pub. No. 733, Rewards for Information Provided by Individuals to the Treasury (2004).

tion or materially assisted in the development of an issue, or for information that was a direct factor in the recovery, the reward was fifteen percent of the amounts the IRS recovered.[41] If the information was not specific, but caused the investigation and was of value in the determination of tax liabilities, the reward was ten percent of the recovered amounts.[42] For general information that caused the investigation, but had no direct relationship to the determination of tax liabilities, the reward was one percent of the amounts the IRS recovered.[43] The policy also set a cap on rewards at $10 million.[44]

The Internal Revenue Manual provided several grounds for rejecting a claim for reward. The grounds included cases where the information was already known to the IRS or did not provide a sufficient basis for initiating an examination, or cases where the informant participated in the evasion scheme that was the subject of the report.[45]

The Tax Relief and Health Care Act of 2006 amended the Internal Revenue Code, creating what is now Section 7623(b) of the Code.[46] The act established a mandatory whistleblower reward program that included a new Whistleblower Office, which operates at the direction of the Commissioner of Internal Revenue. The Whistleblower Office coordinates with other divisions of the IRS, analyzes information submitted, and makes reward determinations.

The Act increased the size of the rewards that the IRS will pay for information. A minimum reward of fifteen percent of the collected proceeds resulting from the administrative or judicial action was set, and the reward may rise up to thirty percent of those proceeds.[47] The reward, however, was restricted to cases where the amounts in dispute exceed $2 million.[48]

Another change was made in 2006 regarding disagreements between whistleblowers and the IRS. The 2006 Act authorized whistleblowers to appeal reward determinations by the Whistleblower Office to the U.S. Tax Court.[49]

Since 2007, the first year in which the amendments took effect, the Whistleblower Office has paid around $460 million in rewards. These rewards led to the direct collection of around $3.2 billion.[50] This number, how-

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[41] *Id.*

[42] *Id.*

[43] *Id.*

[44] Until 1989 the program capped awards at $50,000. Dennis J. Ventry, Jr., *Whistleblowers and Qui Tam for Tax*, 61 TAX LAW. 357, 364 (2008). In 2004, the IRS raised the top award from $2 million to $10 million. *Id.*

[45] IRS, IRM 25.2.2.17 (2015).

[46] Tax Relief and Health Care Act of 2006, sec. 406, Pub. L. No. 109-432, 120 Stat. 2922, 2958.

[47] 26 U.S.C. § 7623(b)(1) (2012).

[48] *Id.* § 7623(b)(5). Furthermore, if the case is against an individual, the individual's gross income must exceed $200,000 for at least one of the tax years in question. *Id.* § 7623(b)(5)(A).

[49] *Id.* § 7623(b)(4).

[50] Calculations based on data in the IRS Whistleblower Program Annual Report for the years 2007 through 2016. *See Whistleblower Office Annual Reports*, IRS, https://www.irs.gov/

ever, understates the effect of the IRS whistleblower program on tax revenue, since it does not account for the indirect effect of the program on tax revenue as a result of increased deterrence.

The largest reward to date, $104 million, was paid in 2012 to Bradley Birkenfeld, a former banker at the Swiss bank UBS.[51] The payment was made because of the information he provided that exposed how UBS actively concealed taxable income of U.S. clients for decades by hiding assets in secret offshore accounts. The $104 million payout was calculated based on the amounts the IRS received directly from UBS as a result of entering into a deferred prosecution agreement with the Justice Department.[52] The IRS noted that Birkenfeld's assistance was "exceptional in both its breadth and depth," allowing the IRS to pursue "unprecedented actions against UBS AG, with collateral impact on other enforcement activities."[53] This collateral effect seems to have been quite substantial, affecting many taxpayers who have evaded taxes, and banks which have helped taxpayers do so.[54]

Figure 1 shows the total annual rewards paid to whistleblowers as a percentage of the amounts collected by the IRS due to information provided by whistleblowers, from 2003 to 2016.[55] The figure also includes a trend line. As one can see, in recent years there has been an increase in the share of the collected proceeds that is awarded to whistleblowers, from an average

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uac/Whistleblower-Office-Annual-Reports [http://perma.cc/SNF5-ZWG2] (collecting annual reports).

[51] Saunders & Sidel, *supra* note 5 ("A former UBS AG banker who helped the U.S. government unleash an international crackdown on tax evasion was awarded $104 million in what is believed to be the largest-ever whistleblower payout to an individual.").

[52] Jeremiah Coder, *IRS Pays Birkenfeld $104 Million Whistleblower Award*, 136 Tax Notes (TA) 1359, 1359 (2012).

[53] *Id.*

[54] *See* Dennis J. Ventry, Jr., *Not Just Whistling Dixie: The Case for Tax Whistleblowers in the States*, 59 Vill. L. Rev. 425, 425–27 (2014) ("Indeed, thanks to one of 'the biggest whistleblowers of all time,' the U.S. government . . . received: $780 million and the names of 250 high-dollar Americans with secret accounts as part of a deferred prosecution agreement (DPA) with UBS; another 4,450 names and accounts of U.S. citizens provided as part of a joint settlement between the U.S. and Swiss governments; more than 120 criminal indictments of U.S. taxpayers and tax advisors; additional indictments against foreign bankers, advisors, and lawyers; still more foreign nationals pleading guilty to conspiring to assist U.S. taxpayers to file false returns and evade U.S. taxes; the closure of prominent Swiss banks—including the oldest private bank—based on their participation in helping U.S. clients evade tax liability; more than $5.5 billion collected from the IRS Offshore Voluntary Disclosure Program (OVDP), with untold tens of billions of dollars still payable due to only a quarter of the 39,000 OVDP cases being closed; program participants ratting out banks as a requirement of their participation; banks themselves disclosing the names and accounts of clients who refuse to participate in the program to avoid their own monetary penalties and to defer or avoid criminal prosecution; and the IRS aggressively going after taxpayers who tried to 'stay under the radar' by failing to participate in the program and then 'quietly' filing amended returns on foreign bank accounts for prior years. All because one person blew the tax whistle.").

[55] Calculations based on data in the IRS Whistleblower Program Annual Reports for the years 2007 through 2016. *See Whistleblower Office Annual Reports*, IRS, https://www.irs.gov/uac/Whistleblower-Office-Annual-Reports [http://perma.cc/SNF5-ZWG2] (collecting annual reports). Note that the year in which a reward is paid is generally not the year in which the collections occurred, because the IRS must wait until the taxpayer appeal rights have been waived or exhausted.

of around five percent to an average of around twenty percent. These findings reflect the changes to the Internal Revenue Code that were made in the 2006 Act, which increased the size of the rewards to whistleblowers.
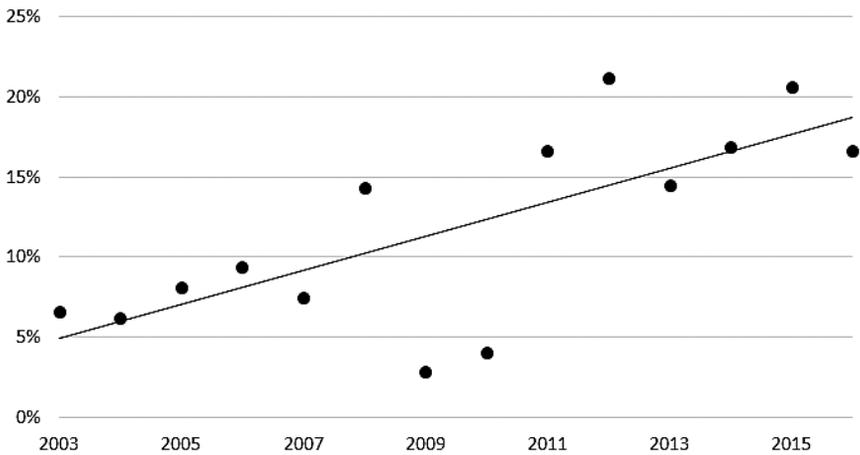
FIGURE 1: REWARDS PAID TO WHISTLEBLOWERS AS A PERCENTAGE OF THE
AMOUNTS COLLECTED BY THE IRS DUE TO INFORMATION
PROVIDED BY WHISTLEBLOWERS

The effect of the increase in the size of the rewards is demonstrated in Figure 2. This figure shows the total tax that was collected by the IRS because of information provided by whistleblowers.[56] The figure also includes a trend line. Before the 2006 changes to the IRS whistleblower program the IRS collected around $100 million a year from information provided by whistleblowers. The increase in the rewards is correlated with a dramatic increase in the amount of tax collected by the IRS, to around $400–500 million a year.
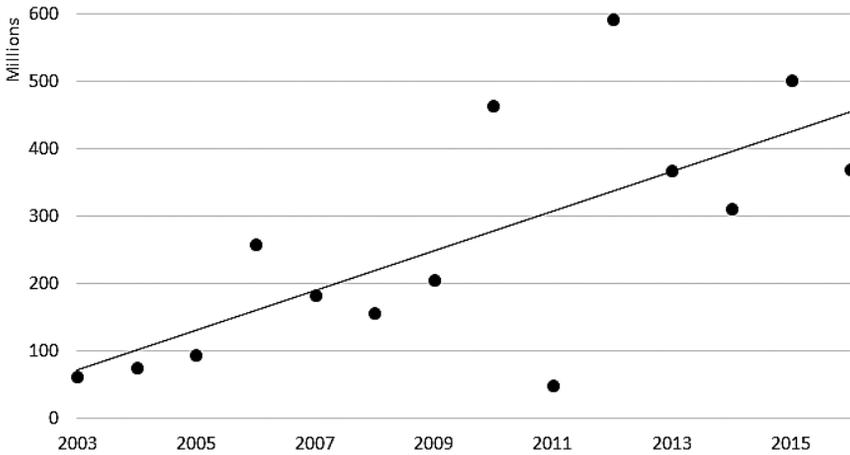
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[56] *Id.*

FIGURE 2: AMOUNTS COLLECTED BY THE IRS DUE TO INFORMATION
PROVIDED BY WHISTLEBLOWERS, IN MILLIONS

B.   The SEC Whistleblower Program

Prior to the Dodd-Frank Act, the SEC did not have a general authority
to pay rewards to whistleblowers. The SEC did have one whistleblower
bounty program, which had been established by the Insider Trading and Se-
curities Fraud Enforcement Act of 1988.[57] However, that program was lim-
ited only to reports of insider trading violations, and did not pay many
whistleblowers or any significant amounts during its more than twenty years
of existence.[58]

The Sarbanes-Oxley Act[59] required the establishment of internal
whistleblower procedures in publicly traded companies, to allow employees
to anonymously report concerns about questionable accounting or auditing
practices.[60] Furthermore, the Act focused on providing protection to
whistleblowers against retaliation by employers. The Act's anti-retaliation
provision created a civil action for whistleblowers who cooperate with legal

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[57] Insider Trading and Securities Enforcement Act of 1988, Pub. L. No. 100-704, 102 Stat.
4677.

[58] *See* SEC, OFFICE OF INSPECTOR GEN., OFFICE OF AUDITS, REPORT NO. 474, ASSESS-
MENT OF THE SEC'S BOUNTY PROGRAM 5 (2010), https://www.sec.gov/about/offices/oig/re-
ports/audits/2010/474.pdf [perma.cc/69P6-HCQD] ("Since the inception of the SEC bounty
program in 1989, the SEC has paid a total of $159,537 to five claimants."). The insider trading
whistleblower bounty program was repealed in the Dodd-Frank Wall Street Reform and Con-
sumer Protection Act, Pub. L. No. 111-203, sec. 923, 124 Stat. 1376, 1849–50 (2010); *see also*
SEC, RELEASE NO. 34-62921, RESCISSION OF RULES PERTAINING TO THE PAYMENT OF BOUN-
TIES FOR INFORMATION LEADING TO THE RECOVERY OF CIVIL PENALTIES FOR INSIDER TRADING
(2010), https://www.sec.gov/rules/final/2010/34-62921.pdf [perma.cc/F8PA-JNYD].

[59] Sarbanes-Oxley Act of 2002, Pub. L. No. 107-204, 116 Stat. 745.

[60] *Id.* sec. 301, 116 Stat. at 789 (codified at 15 U.S.C. § 78j-1(m)(4)(B)).

investigations and those who report misconduct to an internal firm supervisor, and are subject to adverse employment action by companies or their officers, employees, contractors, or agents.[61] In addition, the Act criminalized retaliation against a person for providing to a law enforcement officer any information relating to the commission of any offense.[62] The central idea was to motivate employees to blow the whistle by providing protection from employer retaliation. However, the Sarbanes-Oxley Act did not include any financial incentive for whistleblowers.[63]

The Dodd-Frank Act,[64] among other things, established the SEC Whistleblower Program.[65] The program was modeled in large part after the revamped IRS Whistleblower Program.[66]

The Act directed the SEC to pay rewards to individuals who provide original information that leads to successful enforcement actions resulting in monetary sanctions over $1 million.[67] Rewards are required to be made in an amount equal to at least ten percent, and up to thirty percent, of the monetary sanctions collected.[68] Determining the size of the rewards was left to the discretion of the SEC,[69] with some guidance that this determination should take into account the significance of the information to the success of the enforcement action, the degree of assistance provided by the whistleblower, and the interest of the SEC in deterring violations of the securities laws.[70]

To ensure that whistleblower payments would not come at the expense of victims of securities laws violations, the Act established a separate fund, named the Investor Protection Fund, out of which eligible whistleblowers would be paid.[71] According to the latest report this fund holds around $370

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[61] *Id.* sec. 806, 116 Stat. at 802 (codified at 18 U.S.C. § 1514A).

[62] *Id.* sec. 1107, 116 Stat. at 810 (codified at 18 U.S.C. § 1513).

[63] M. Thomas Arnold, *"It's Déjà Vu All Over Again," Using Bounty Hunters to Leverage Gatekeeper Duties*, 45 Tulsa L. Rev. 419, 460 (2010) ("What is missing is a financial incentive for whistle-blowers or informants."); Geoffrey Christopher Rapp, *Beyond Protection: Invigorating Incentives for Sarbanes-Oxley Corporate and Securities Fraud Whistleblowers*, 87 B.U. L. Rev. 91, 96 (2007) ("SOX's whistleblower provision lacks a strong financial incentive for whistleblowers to expose corporate fraud.").

[64] Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, sec. 922(a), 124 Stat. 1376, 1841 (2010).

[65] *See* Securities whistleblower incentives and protection, 15 U.S.C. § 78u-6 (2012).

[66] S. Rep. No. 111-176, at 111 (2010) ("The program is modeled after a successful IRS Whistleblower Program enacted into law in 2006. The reformed IRS program . . . is credited to have reinvigorated the earlier, largely ineffective, IRS Whistleblower Program.").

[67] 15 U.S.C. § 78u-6(a)(1).

[68] *Id.* § 78u-6(b). *See also* S. Rep. No. 111-176, at 111 ("The Committee feels the critical component of the Whistleblower Program is the minimum payout that any individual could look towards in determining whether to take the enormous risk of blowing the whistle in calling attention to fraud.").

[69] *Id.* § 78u-6(c)(1)(A).

[70] *Id.* § 78u-6(c)(1)(B).

[71] *Id.* § 78u-6(g).

million ready to be awarded to whistleblowers for providing information on violation of securities laws.[72]

Unlike the IRS Whistleblower Program, the Dodd-Frank Act prohibits retaliation against whistleblowers who report possible wrongdoing.[73] Furthermore, the Act seeks to protect whistleblowers by requiring the SEC to keep a whistleblower's identity confidential until it must be disclosed to a defendant in a public proceeding.[74]

The Dodd-Frank Act allows individuals to appeal in court decisions made by the SEC with respect to whistleblower rewards.[75] However, the SEC's decision regarding the amount of a reward is not appealable, as long as the reward falls within the required range.[76]

The SEC's first whistleblower reward was announced one year after the whistleblower program started, and resulted in a $200,000 payment to the whistleblower.[77] In 2013 the SEC paid $14 million to a whistleblower,[78] and in 2014 the SEC awarded its largest whistleblower reward to date, in the amount of $30 million, to a whistleblower living in a foreign country who provided information about an ongoing fraud that would have been very difficult for the SEC to detect.[79] The SEC's second largest award to date, of $22 million, was awarded on August 2016 to a company insider who provided information about a well-hidden securities violation.[80] In 2016 alone, the SEC awarded more than $57 million to 13 whistleblowers.[81] Since 2011, the SEC has awarded a total of more than $111 million to 34 whistleblowers.[82]

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[72] SEC, 2016 Annual Report to Congress on The Dodd-Frank Whistleblower Program 29 (2016), https://www.sec.govwhistleblower/reportspubs/annual-reports/owb-annual-report-2016.pdf [perma.cc/QAL8-WQ6L].

[73] 15 U.S.C. § 78u-6(h)(2). Unlike the Sarbanes-Oxley Act, the Dodd-Frank Act protection is not limited to whistleblowers who are employees of publicly traded companies. *See* Ted Uliassi, *Addressing the Unintended Consequences of an Enhanced SEC Whistleblower Bounty Program*, 63 Admin. L. Rev. 351, 357 (2011).

[74] 15 U.S.C. § 78u-6(f).

[75] *Id.*

[76] *Id.*; 17 C.F.R. § 240.21F-13(a) (2017).

[77] The original reward was for $50,000. Press Release, SECnews, SEC Issues First Whistleblower Program Award (Aug. 21, 2012), https://www.sec.gov//newsPressRelease/detail/PressRelease/1365171483972 [https://perma.cc/9MFS-3RCT]. Two years later the SEC announced that the amount would be increased by $150,000, because of additional collections from defendants. Press Release, SEC, SEC Announces Additional $150,000 Payment to Recipient of First Whistleblower Award (Apr. 4, 2014), https://www.sec.gov/news/press-release/2014-68 [https://perma.cc/9J55-CEPX].

[78] Press Release, SEC, SEC Awards More Than $14 Million to Whistleblower (Oct. 1, 2013), https://www.sec.gov/News/PressRelease/Detail/PressRelease/1370539854258 [https://perma.cc/S2TM-JPNT].

[79] Press Release, SEC, SEC Announces Largest-Ever Whistleblower Award (Sept. 22, 2014), https://www.sec.gov/News/PressRelease/Detail/PressRelease/1370543011290 [https://perma.cc/2ZQZ-5HGH].

[80] SEC, *supra* note 72, at 11.

[81] *Id.* at 10.

[82] *Id.*

Individuals receiving SEC whistleblower rewards are usually company insiders, namely current or former employees, investors who had been victims of the fraud, or people with a personal relationship with alleged wrongdoers.[83] However, in January 2016 the SEC announced a reward of more than $700,000 to a company outsider who conducted a detailed analysis that led to a successful SEC enforcement action, noting that "voluntary submission of high-quality analysis by industry experts can be every bit as valuable as first-hand knowledge of wrongdoing by company insiders."[84] This whistleblower was later revealed to be Eric Scott Hunsader, a critic of high-frequency trading who revealed that the New York Stock Exchange was sending price data to customers who paid for proprietary feeds a few seconds before it shared them on the feeds used by the public. The SEC announcement noted that the whistleblower's submission provided the "springboard" that led to a successful SEC enforcement action and ultimately the imposition of a $5 million fine on the New York Stock Exchange.[85]

C.   Scholars' Responses

The changes to the IRS's whistleblower program and the establishment of the SEC's whistleblower program have attracted much attention from legal scholars.

Some scholars have focused on the fact that the SEC Whistleblower Program does not require a whistleblower to report wrongdoing internally, using a firm's internal compliance programs, before turning to the SEC with the information.[86] This has led scholars to provide practical advice to corpo-

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[83] *Id.* at 16–18 ("[T]o date, almost half of the award recipients were current or former employees of the company on which they reported information of wrongdoing. The remaining award recipients obtained their information because they were either investors who had been victims of the fraud, professionals working in a related industry, or had a personal relationship with the alleged wrongdoer.").

[84] Press Release, SEC, SEC Awards Whistleblower More Than $700,000 for Detailed Analysis (Jan. 15, 2016), https://www.sec.gov/news/pressrelease2016-10/.html [https://perma.cc/6HSZ-7ZSD].

[85] Kim Janssen, *NYSE Alarm Yields $750K: Whistleblower in Winnetka Receives Award from the SEC*, CHI. TRIB., (Mar. 3, 2016), http://www.chicagotribune.com/business/ct-whistle blower-nyse-award-0303-biz-20160302-story.html [https://perma.cc/7WL4-SL69] ("[I]t took the SEC two years to fine the NYSE $5 million for sending price data to customers who paid for proprietary feeds a few seconds before it shared them on the feeds used by the public. That gave the high-frequency traders who could afford the proprietary feeds an unfair advantage over the public, said Hunsader . . . ."); Press Release, SEC, SEC Awards Whistleblower More Than $700,000 for Detailed Analysis (Jan. 15, 2016), https://www.sec.govnews//pressrelease/2016-10.html [https://perma.cc/6HSZ-7ZSD].

[86] John Ashcroft et al., *Whistleblowers Cash In, Unwary Corporations Pay*, 40 HOFSTRA L. REV. 367, 382 (2011) ("In a hotly contested debate concerning whether to require whistleblowers to report up before reporting out, the prerequisite was deemed unnecessary: While an SEC whistleblower is permitted and, indeed, rewarded for participating in internal compliance programs, internal reporting is not required in order to be considered for a reward."); Matt A. Vega, *Beyond Incentives: Making Corporate Whistleblowing Moral in the*

rations on measures that can be taken to strengthen internal compliance regimes so as to encourage early internal reporting of suspected corporate wrongdoing, and reduce the likelihood of whistleblowers reporting to the SEC.[87]

Other scholars have focused on the relationship between the new whistleblower programs and existing law enforcement mechanisms. For example, in light of the new SEC Whistleblower Program, some have argued that the case for fraud-on-the-market class actions suits is substantially weaker.[88]

A different approach taken by some scholars has been to investigate empirically the impact the creation of the whistleblower programs has had on the types of violations that agencies pursue in their enforcement actions, and the monetary sanctions they impose.[89] A study on this issue found evidence that the SEC has changed its enforcement policy after the creation of the whistleblower programs.[90]

The growth of whistleblower programs has led some scholars to analyze experimentally the effect of different legal mechanisms that are intended to increase reports of violations of the law.[91] In particular, using an

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New Era of Dodd-Frank Act Bounty Hunting, 45 CONN. L. REV. 483, 486 (2012) ("This Article argues that the most significant problem with the SEC's new bounty program is that it does not mandate that corporate whistleblowers report violations internally before going to the SEC in order to qualify for the award.").

[87] Ashcroft et al., *supra* note 86, at 30 ("[C]orporations that want to avoid the potentially crippling advent of a whistleblower who reports externally must aggressively deploy sophisticated detection tools and grow a culture of internal scrutiny.").

[88] Amanda M. Rose, *Better Bounty Hunting: How the SEC's New Whistleblower Program Changes the Securities Fraud Class Action Debate*, 108 NW. U. L. REV. 1235, 1239 (2014) ("[I]nsiders have much stronger incentives to participate in the WBP [whistle blower program] than to serve as confidential informants in FOTM [fraud-on-the-market] suits. And to the extent FOTM attorneys have special fraud detection capabilities, they can personally participate in the WBP. . . . The upshot is that FOTM suits are less likely to be responsible for exposing frauds in the wake of the WBP, and more likely to merely parrot information that is already in the public domain. . . . The effect of the WBP (should it prove successful) will therefore be to tip the cost-benefit scales against the social desirability of FOTM suits, warranting their elimination.").

[89] Caroline E. Dayton, *An Empirical Analysis of SEC Enforcement Actions in Light of the Dodd-Frank Whistleblower Program*, 12 N.Y.U. J.L. & BUS. 215, 216–17 (2015) ("In this paper, I first assess the impact the creation of the DFWP [Dodd-Frank Whistleblower Program] had on the types of violations the SEC pursues in its enforcement actions. . . . I also consider whether the creation of the DFWP has impacted the monetary sanctions charged by the SEC.").

[90] *Id.* at 215 ("I conclude that the evidence supports the conclusion that the SEC has changed its enforcement policy after the creation of the DFWP and continued monitoring should take place to determine the role the OWB plays in the SEC's enforcement strategy.").

[91] Yuval Feldman & Orly Lobel, *The Incentives Matrix: The Comparative Effectiveness of Rewards, Liabilities, Duties, and Protections for Reporting Illegality*, 88 TEX. L. REV. 1151, 1154 (2010) ("Using a series of experimental surveys of a representative panel of more than 2,000 employees, the empirical study examines four prototypical legal mechanisms designed to promote individual reporting: (1) Anti-retaliation Protection; (2) Duty to Report; (3) Liability Fines; and (4) Monetary Incentives.").

experimental setting they found that, in some settings, offering monetary rewards may be unnecessary, and may even be counterproductive.[92]

Another empirical investigation used data on all reported fraud cases in large U.S. companies between 1996 and 2004.[93] The researchers found that corporate fraud is often reported by employees and the media, who are driven by ease of access to information, and by monetary and reputational incentives.[94]

In light of the greater reliance on whistleblowers for the enforcement of tax and securities law at the federal level, some have considered expanding their use at the state level as well, to combat underpayment of state tax.[95] After analyzing arguments for and against tax whistleblowing at the state level, they conclude that a greater use of tax whistleblower rewards at the state level would be desirable.[96]

Other scholars have focused on attempting to explain why bounty regimes remained confined to the fraud context, and what characteristics of a given regulatory context make it more or less conducive to the use of whistleblower rewards.[97] They conclude that two core features of a given regulatory context, the directness of the harm and the determinacy of the legal mandate, affect the decision whether to employ whistleblower rewards as a law enforcement strategy.[98]

Scholars have also investigated the institutional structure of whistleblower programs. Specifically, some have investigated and compared a court-centric mechanism for rewarding whistleblowers, such as the False Claims Act, to an agency-centric mechanism, such as the SEC and IRS whistleblower programs.[99] Some have concluded that a court-centric mecha-

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[92] *Id.* at 1155 ("[T]he results suggest that in laws that are likely to trigger strong internal ethical motivation, offering monetary rewards may be unnecessary or, worse yet, counterproductive. In such circumstances, where legal violation is generally perceived as morally offensive, creating a duty to report may be sufficient.").

[93] Alexander Dyck et al., *Who Blows the Whistle on Corporate Fraud?*, 65 J. FIN. 2213, 2213 (2010).

[94] *Id.* at 2215–16.

[95] Ventry, *Not Just Whistling Dixie*, *supra* note 54, at 501.

[96] *Id.* at 433 ("On balance, there is no compelling reason to prevent or discourage state tax enforcement actions from exploiting invaluable knowledge and information derived from citizen insiders. In fact, soliciting and rewarding such information can help tax enforcement at the state level and potentially yield significant revenue from unpaid tax liabilities."). *See generally* Waltreese Carroll, *Should State Whistleblower Laws Exclude Tax Fraud?*, 65 ST. TAX NOTES 441 (2012); Jack Trachtenberg, Jeffrey A. Friedman, & Eric S. Tresh, *Applying False Claims Acts in State Taxation*, 64 ST. TAX NOTES 373 (2012).

[97] David Freeman Engstrom, *Whither Whistleblowing? Bounty Regimes, Regulatory Context, and the Challenge of Optimal Design*, 15 THEORETICAL INQUIRIES L. 605, 607–08 (2014) ("Yet lurking beneath the admiring rhetoric is a stark reality: whistleblower reward schemes have rarely traveled beyond the fraud context . . . particularly in the United States: bounty schemes are largely limited to procurement, tax, and securities fraud.").

[98] *Id.* at 633.

[99] Anthony J. Casey & Anthony Niblett, *Noise Reduction: The Screening Value of Qui Tam*, 91 WASH. U. L. REV. 1169, 1172–73 (2011) ("At least in the initial inquiry, the court has no say in the DFA [Dodd-Frank Act] award, and the DOJ has no say in the FCA [False Claims Act] award. Why the difference? And which is better?"); Geoffrey Christopher Rapp,

nism is more desirable when it is difficult to verify the merits of the whistleblower's claim.[100] Similarly, others have called for broadening the IRS whistleblower program to allow private citizens to bring lawsuits against taxpayers for violations of tax law, just like under the False Claims Act.[101]

Many other articles may be cited.[102] What is clear from the above survey is that the changes to the IRS's whistleblower program and the establishment of the SEC's whistleblower program have attracted much attention from legal scholars, who have investigated different aspects of these changes. However, one central question was conspicuously missing from the debate surrounding the new whistleblower programs: How much should the IRS and the SEC pay whistleblowers? Though the importance of reward size for incentivizing whistleblowers to come forward with information on violations of the law has been recognized by earlier scholars,[103] the literature currently lacks a systematic analysis of the factors that should guide policymakers and agencies in determining the optimal size of the reward. This Article aims to fill that gap.

III. The Optimal Size of Whistleblower Rewards

In Section A, I lay out the problem that law enforcement agencies face, and note the central factors that have to be considered by the agencies when setting whistleblower rewards. In Section B, I use a simple stylized economic model to derive how the different factors noted in Section A affect the size of whistleblower rewards. In Section C, I draw the implications of the analysis in Section B.

Mutiny by the Bounties? The Attempt to Reform Wall Street by the New Whistleblower Provisions of the Dodd-Frank Act, 2012 BYU L. Rev. 73, 78 (Mar. 1, 2012) ("This Article . . . [probes] the differences between a bounty scheme which simply makes rewards available and one which gives whistleblowers the opportunity to pursue litigation themselves.").

[100] Casey & Niblett, *supra* note 99, at 1174 ("We show that the court-centric private-plaintiff mechanism is superior to the agency-centric mechanism when there is asymmetric information because it screens for the most accurate information from whistleblowers.").

[101] Ventry, *Whistleblowers and Qui Tam for Tax*, *supra* note 44, at 359 ("This Article proposes using the FCA [False Claims Act] as a model for the tax whistleblower statute, and extending qui tam to tax.").

[102] *See generally*, *e.g.*, Patrick A. Barthle II, *Whistling Rogues: A Comparative Analysis of the Dodd-Frank Whistleblower Bounty Program*, 69 Wash. & Lee L. Rev. 1201 (2012); Franziska Hertel, *Qui Tam for Tax?: Lessons from the States*, 113 Colum. L. Rev. 1897 (2013); Michelle M. Kwon, *Whistling Dixie About the IRS Whistleblower Program Thanks to the IRC Confidentiality Restrictions*, 29 Va. Tax Rev. 447 (2010); Richard Moberly, *Sarbanes-Oxley's Whistleblower Provisions: Ten Years Later*, 64 S.C. L. Rev. 1 (2012).

[103] *See, e.g.*, Marsha J. Ferziger & Daniel G. Currell, *Snitching for Dollars: The Economics and Public Policy of Federal Civil Bounty Programs*, 1999 U. Ill. L. Rev. 1141, 1151–52 (1999) ("The potential informant's expected bounty payment may be the single most important factor in ensuring optimal disclosures. If the amount is too low, few informants will risk their careers and even their own lives to 'do the right thing.'").

A.   Framework of Analysis

In order to think about the optimal size of whistleblower rewards one has to first define the social objective.[104] Here I assume simply that we would like to pay the minimal whistleblower reward that allows us to deter a certain undesirable activity, say tax evasion or corporate fraud.[105] Thus, I am not discussing whether whistleblowing should be used as a law enforcement strategy, but rather I am assuming whistleblowing is the law enforcement strategy employed, and I consider how it should be employed to achieve a goal, which is to deter undesirable activity with the lowest possible reward.[106]

A central fact that has to be taken into account when setting the size of whistleblower rewards is the personal cost of whistleblowing. One cause for this personal cost is social ostracism.[107] Managers often retaliate against whistleblowers, pressuring them to drop their complaints, isolating them from colleagues, and attacking their characters.[108] Colleagues can also shun and vilify a fellow employee who blows the whistle, even if they think the whistleblower is telling the truth.[109]

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[104] *Cf.* Louis Kaplow, The Theory of Taxation and Public Economics 35–50 (2008).

[105] The idea that the goal of law enforcement activities is to deter crime is standard in the law and economics literature. *See, e.g.*, Steven Shavell, Foundations of Economic Analysis of Law 473 (2004) ("The topic addressed here is the deterrence of undesirable acts through the use, or threatened use, of monetary sanctions by the state."). Given this objective, Section V.A shows that the social cost of whistleblowing is increasing with the size of the reward, and therefore it is desirable to offer the lowest possible reward to minimize the social cost of whistleblowing.

[106] For a discussion of the choice whether to offer whistleblower rewards at all, and the choice between rewarding whistleblowers and employing agents as investigators to detect violations of the law, see *infra* Part V.

[107] Robert Howse & Ronald J. Daniels, *Rewarding Whistleblowers: The Costs and Benefits of an Incentive-Based Compliance Strategy*, *in* Corporate Decision-Making in Canada 525, 532 (Ronald J. Daniels & Randall Morck eds., 1995) ("The most powerful disincentives to whistleblowing derive from the prospect of retaliation by fellow employees or by the corporation itself, including dismissal of the whistleblower.").

[108] Marcia P. Miceli & Janet P. Near, Blowing The Whistle: The Organizational and Legal Implications for Companies and Employees 80 (1992) ("[R]etaliation normally progresses in four stages. The first stage, 'nullification' of the complaint, is characterized by extralegal pressure on the complainant to desist from blowing the whistle; verbally pressuring the whistle-blower to drop the complaint or criticizing his or her job performance would seem to fall into this category. The second stage of retaliatory activities, 'isolation,' involves attempts to isolate the complainant from others, restrict her or his activities, reduce her or his allocation of organizational resources, or transfer the complainant to a less visible position. The third stage 'defamation' of character, may be followed by a fourth stage, 'expulsion' from the organization.").

[109] Natalie Dandekar, *Contrasting Consequences: Bringing Charges of Sexual Harassment Compared with Other Cases of Whistleblowing*, 9 J. Bus. Ethics 151, 152 (1990) ("[O]ther employees even those who know that the whistleblower is telling the truth feel that they are 'loyal' while the whistleblower is disloyal, and on the basis of perceived disloyalty the 'loyal' employees have been known to shun, vilify, or even physically attack whistleblowers.").

Another cause for the personal cost of whistleblowing is the diminished prospects for future employment. Some whistleblowers are simply unable to find a subsequent job.[110] As described by one commentator, "whistleblowing may become a form of professional suicide that can effectively end a career."[111] Financial difficulties often lead to personal problems, such as divorces, severe marital strain, or other family conflicts.[112]

Lastly, whistleblowers often bear a personal cost due to a physical and psychological health toll resulting from whistleblowing. A recent New England Journal of Medicine article notes that many whistleblowers reported having stress-related health problems, including shingles, psoriasis, autoimmune disorders, panic attacks, asthma, insomnia, temporomandibular joint disorder, migraine headaches, and generalized anxiety.[113]

Another central fact that has to be taken into account when setting the size of the whistleblower rewards is that not all reports necessarily lead to a sanction on the violator and a reward to the whistleblower.[114] The agencies may not be convinced by the information provided by the whistleblower, or cases may not be pursued because of case overload or simple laziness.[115] Furthermore, since whistleblowers receive a percentage of the tax collected (in the IRS case), or the monetary penalty collected (in the SEC case), whistleblowers will not be paid if the agency is unable to collect the money, even if the information that was provided was valuable and the case was pursued.[116]

Lastly, offering a reward to whistleblowers may result in false reports driven by the desire to obtain a reward. They may be able to support those false reports because of their familiarity with the organization or the people

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[110] Aaron S. Kesselheim, David M. Studdert & Michelle M. Mello, *Whistle-Blowers' Experiences in Fraud Litigation against Pharmaceutical Companies*, 362 NEW ENG. J. MED. 1832, 1836 (2010) ("For at least eight insiders, the financial consequences were reportedly devastating. One said, 'I just wasn't able to get a job. It went longer and longer. . . . [F]inancially I went under. . . . I lost everything. Absolutely everything.").

[111] James Gobert & Maurice Punch, *Whistleblowers, the Public Interest, and the Public Interest Disclosure Act 1998*, 63 MOD. L. REV. 25, 35 (2000).

[112] Kesselheim, Studdert & Mello, *supra* note 110, at 1836.

[113] *Id.*

[114] *See* Howse & Daniels, *supra* note 107, at 534 ("[W]histleblowers must also face the risk that the information they divulge, however persuasive, may not be sufficient to sustain a criminal conviction.").

[115] William E. Kovacic, *Whistleblower Bounty Lawsuits as Monitoring Devices in Government Contracting,* 29 LOY. L.A. L. REV. 1799, 1823–24 ("[M]eritorious cases will languish . . . owing to sloth, negligence, or deliberate policy choices . . . .").

[116] Laura Saunders, *IRS Pays Awards to Whistleblowers*, WALL ST. J. (Apr. 18, 2014), http://www.wsj.com/articles/SB10001424052702304626304579507501731992[https://perma.cc/V79N-4E3D] ("Thirty other whistleblowers may be waiting in vain for payments, he says. According to the IRS report, their cases have been sent to a division of the agency that tries to collect from taxpayers who often can't pay what they owe. 'If the IRS doesn't collect, the whistleblower doesn't get paid,' Mr. Lynam says.").

they are reporting.[117] This problem is well noted by policymakers and those active in the area of whistleblowing. For example, a U.K. report notes that the payment of rewards to whistleblowers "could lead to false or delayed reporting."[118] Similarly, following the adoption of whistleblower incentives in the Dodd-Frank Financial Reform Act, the Financial Times noted that "the scale of the potential pay-outs could generate rogue tip-offs by disaffected employees."[119] A report by the law firm DLA Piper on whistleblowing notes the risk of "malicious or unfounded allegations" against employers.[120] And scholars have noted that "corporations are vulnerable to false claims made by opportunistic whistleblowers."[121]

B.   Analysis

With this framework in mind, we can turn to analyzing the optimal size of whistleblower rewards. To do so I will use a simple stylized economic model, which formalizes the framework presented in Section A. This is useful in making assumptions more explicit, ensuring the logical coherence of the analysis, and clarifying the causal mechanisms at work. The model, however, is merely an expository technique, which is standard in economics, and has a long history in legal scholarship.[122] The underlying arguments could all be made without any math. Readers unfamiliar with or uninterested in formal analysis should be able to skim this Section before proceeding to Section C, which discusses the substantive implications of the analysis.

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[117] Kovacic, *supra* note 115, at 1826 ("[I]ndividuals with some imagination and familiarity with the organization's operations to conceive a facially plausible story about organizational departures from statutory or regulatory commands.").

[118] Pub. Concern at Work Whistleblowing Comm'n, Report on the Effectiveness of Existing Arrangements for Workplace Whistleblowing in the UK 14 (2013).

[119] Jean Eaglesham & Brooke Masters, *US to pay big sums for Wall St tip-offs*, Fin. Times (Aug. 8, 2010), https://www.ft.com/content/efa8a32a-a31a-11df-8cf4-00144feabdc0 [https://perma.cc/U6FA-MHWU].

[120] DLA Piper, Emp't Grp., Whistleblowing: An Employer's Guide to Global Compliance 6 (2015).

[121] Howse & Daniels, *supra* note 107, at 525.

[122] *See generally* Oren Bar-Gill & Ryan Bubb, *Credit Card Pricing: The CARD Act and Beyond*, 97 Cornell L. Rev. 967 (2012); Edward K. Cheng, *Reconceptualizing the Burden of Proof*, 122 Yale L.J. 1254 (2013); Robert Cooter, *Unity in Tort, Contract and Property: The Model of Precaution*, 73 Calif. L. Rev. 1 (1985); Michael D. Frakes, *The Surprising Relevance of Medical Malpractice Law*, 82 U. Chi. L. Rev. 317 (2015); Assaf Hamdani & Alon Klement, *Corporate Crime and Deterrence*, 61 Stan. L. Rev. 271 (2008); Louis Kaplow, *Discounting Dollars, Discounting Lives: Intergenerational Distributive Justice and Efficiency*, 74 U. Chi. L. Rev. 79 (2007); Lewis A. Kornhauser, *An Economic Analysis of the Choice Between Enterprise and Personal Liability for Accidents*, 70 Calif. L. Rev. 1345 (1982); Eric A. Posner, *Controlling Agencies with Cost-Benefit Analysis: A Positive Political Theory Perspective*, 68 U. Chi. L. Rev. 1137 (2001); Richard A. Posner. *An Economic Theory of the Criminal Law*, 85 Colum. L. Rev. 1193 (1985); Matthew C. Stephenson, *Legislative Allocation of Delegated Power: Uncertainty, Risk, and the Choice between Agencies and Courts*, 119 Harv. L. Rev. 1035 (2006); Eric Talley, *Turning Servile Opportunities to Gold: A Strategic Analysis of the Corporate Opportunities Doctrine*, 108 Yale L.J. 277 (1998).

To begin, consider an employer who contemplates violating the law. Let us denote the gain to the employer from violating the law with the parameter g. For example, this could be the tax saved in a questionable tax evasion scheme by an employer.[123] Suppose also that if one is caught, the sanction for this tax evasion is s.

Now, the employer faces a risk of being caught by the tax authorities due to a whistleblower reporting the tax evasion. One potential whistleblower would be an employee who learns about the tax evasion. Let us assume that the probability of the employer being sanctioned if he truly evaded taxes is p_t (where the subscript t stands for true). Under these conditions the employer will be deterred from evading taxes if:

$$p_t s \geq g \tag{1}$$

Let us explain expression (1). The employer undertakes a cost benefit analysis when choosing whether to violate the law. The benefit from violating the law is the gain from the violation (g). The cost of violating the law is the sanction (s), multiplied by the probability of the sanction being imposed (p_t). When the cost of violating the law is greater than the gain from doing so ($p_t s \geq g$) the employer will not violate the law.[124]

Recall however that the incentive of whistleblower rewards also creates a risk that an employee will erroneously or falsely report tax evasion by his employer. Such a report may even appear credible as a result of the employee's access to inside information about his employer. Thus, even where the employer does not evade taxes, there is a probability p_f (where the subscript f stands for false), which in reality may be very low, that the employer will still be unjustly sanctioned. Accounting for the possibility of such sanctions, the employer will be deterred from evading taxes only if:

$$p_t s - p_f s \geq g \tag{2}$$

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[123] The standard law and economic analysis does not focus on the gain to the violator of the law, but rather on the harm caused by the illegal activity. The underlying assumption is that in certain cases, specifically when the gain to the violator of the law is greater than the harm caused by the violation, it is desirable from a social perspective to break the law. *See* SHAVELL, *supra* note 105, at 474 ("[B]ecause a party always pays for the harm an act causes, the party's expected sanction equals the expected harm. Hence, he will commit an act if and only if his expected benefit exceeds the expected harm. That is, he will commit an act if and only if the act is socially desirable; the optimal outcome will result."). Here I am assuming that it is never desirable for the law to be violated, and therefore we always wish to deter potential violators from violating the law. *See* Alex Raskolnikov, *Irredeemably Inefficient Acts: A Threat to Markets, Firms, and the Fisc*, 102 GEO. L.J. 1133, 1135 (2014) (discussing acts which are inefficient "at their core" in any form and at any level).

[124] *See* SHAVELL, *supra* note 105, at 479 ("How will a person behave who will face a sanction only with a probability if he commits a harmful act? If the person is risk neutral, he will evaluate the sanction in terms of its expected value. Hence, the person will commit an act if and only if his benefit exceeds the expected sanction.").

To explain, the incentive to obey the law depends now on the difference between the expected sanction if one does violate the law and the expected sanction if one does not violate the law.[125] Because the employer knows he may be punished even if he does not violate the law (with an expected cost of $p_f s$), the cost of violating the law, from his perspective, is only the increase in the expected sanction due to the violation (namely $p_t s - p_f s$). If this cost is greater than the gain from violating the law (g), the employer will not violate the law. Thus, expression (2) takes into account the employer's risk of being sanctioned even when he does not evade taxes, due to a false report by an employee driven by the desire to obtain a reward.

In this setting, the minimal deterring whistleblower reward must therefore satisfy the following condition:

$$p_t - p_f = \frac{g}{s} \qquad (3)$$

We get expression (3) by dividing expression (2) by s.

So far we have not explained which factors determine the probability of being sanctioned when whistleblower rewards are employed as a law enforcement strategy, or in formal terms, what determines p_t and p_f. What matters of course is how likely it is for a whistleblower to come forward with the information on tax evasion. It seems reasonable to assume that the main determinants of whistleblowers' willingness to come forward with information is a combination of their anticipated reward, which I denote with R, and their personal cost of blowing the whistle, which I denote with C. Thus the employee's probability of blowing the whistle is denoted by the function w (for whistleblowing), that depends on R (reward) and C (cost), or formally $w(R,C)$. When contemplating whether to report a violation of the law, a whistleblower compares the benefits and costs of doing so.[126] A higher reward increases whistleblowers' willingness to report a violation of the law. A higher personal cost, by contrast, decreases whistleblowers' willingness to report a violation of the law.[127]

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[125] *See id.* at 452 ("[T]he incentive to obey the law is not simply equal to the expected sanction if one violates the law, but rather to the *difference* between the expected sanction if one violates the law and the expected sanction if one does not. If the expected sanction suffered by the innocent, due to error, is 20, and the expected sanction experienced by the guilty is 60, then the effective sanction for a violation is 40, not 60, for 40 is the added sanction brought about by a violation.").

[126] Dyck et al., *supra* note 93, at 2231–32 ("[Whistleblowers who] behave rationally . . . are people for whom the expected benefits of blowing the whistle exceeded the expected costs."); Howse & Daniels, *supra* note 107, at 536 ("[A] prospective whistleblower who determines ex ante that the bounty will not be sufficiently large to compensate for the risk to her human capital will refrain from whistleblowing."); Kovacic, *supra* note 115, at 1819 ("A relator with a promising professional future is unlikely to sue unless the prospective gain from the suit exceeds the expected gains from continued service with the firm or in the profession.").

[127] Formally, $w_1 > 0$ and $w_2 < 0$, where subscripts denote a partial derivative with respect to the numbered term. I am also assuming that the marginal effect of an increase in the reward

Not all reports by whistleblowers necessarily lead to a sanction on the employer and a reward to the employee. The IRS and the SEC investigate whistleblower reports, impose a sanction, and pay a reward only if they process the report, are convinced that the report is truthful, and ultimately find that the employer indeed violated the law. Let us denote therefore the probability of a true report of tax evasion leading to a sanction with z_t (where the subscript t stands for true), and the probability of a false report leading to a sanction with z_f (where the subscript f stands for false). It would be reasonable to assume that $z_t > z_f$. This assumption means that both the IRS and the SEC do a reasonable job distinguishing between true and false reports, and therefore the likelihood of a true report succeeding (z_t) is greater than the likelihood of a false report succeeding (z_f). Both z_t and z_f could be viewed as representing the circumstances of each case.

Thus, the employer's probability of being sanctioned depends on two things: (1) the likelihood of the employee blowing a whistle (w), and (2) the likelihood of this report succeeding in convincing the IRS or the SEC to impose a sanction (z). Formally, this means the following:

$$p_t = z_t w(z_t R, C)$$
$$p_f = z_f w(z_f R, C) \tag{4}$$

To explain, the probability of the employer being sanctioned if he truly evaded taxes (p_t), is equal to the probability of a true report succeeding (z_t), multiplied by the likelihood of a true report being made ($w(z_t R, C)$). The probability of the employer being sanctioned if he did not evade taxes (p_f), is equal to the probability of a false report succeeding (z_f), multiplied by likelihood of a false report being made ($w(z_f R, C)$). Note that since a report leads to a sanction and a payment only with probability z, the employee's likelihood of blowing the whistle (w) depends on the expected reward, zR, and not simply on the size of the reward R.

With the two definitions in expression (4), we can rewrite the condition from expression (3) for the minimal deterring whistleblower reward, namely $p_t - p_f = \frac{g}{s}$, as the following condition:

$$z_t w(z_t R, C) - z_f w(z_f R, C) = \frac{g}{s} \tag{5}$$

Expression (5) defines the minimal deterring whistleblower reward. It captures several factors that are central to the whistleblowing contexts: the gain to the violator (g), the cost to the whistleblower (C), the fact that some true reports may fail (z_t), and the risk of a false report (z_f).

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on the willingness to report a violation is non-decreasing. Formally, $w_{11} \geq 0$. Lastly, to make things simple I also assume that $w_{12} = w_{21} = 0$.

C.   Theoretical Implications

Using expression (5) we can derive a few implications from the simple analysis above for the determinants of the optimal size of a whistleblower reward.[128]

First, an increase in the employer's gain from violating the law should lead to an increase in the size of the whistleblower reward.[129] Intuitively, with a higher gain from evading taxes, the employer faces a greater temptation to violate the law. To deter the employer from evading tax, his cost of doing so must be increased. This can be achieved by increasing the size of the whistleblower reward, which increases the likelihood of the employer being sanctioned if he evades taxes.

Looking again at the right side of expression (5), what matters in fact is not only the employer's gain from violating the law, but more precisely the relationship between this gain and the expected sanction, or simply the ratio of the gain to the sanction. The higher this ratio, the higher the reward needed to deter violation of the law.[130] Intuitively, an increase in the ratio of the gain to the sanction makes violating the law a relatively more desirable choice. To deter the employer from evading tax, the size of the whistleblower reward must be increased, to increase the likelihood of the employer being sanctioned if he evades taxes.

Second, an increase in the personal cost of whistleblowing to whistleblowers should lead to an increase in the size of the whistleblower reward.[131] With a higher personal cost of whistleblowing employees are less likely to report a violation of the law by the employer. But given a lower likelihood of being reported, the employer will not be deterred from violating the law. To maintain deterrence the whistleblower reward must be increased to compensate employees for their higher cost of whistleblowing, and therefore to increase the likelihood of a violation of the law being reported.

Third, the likelihood of a successful report affects the optimal size of the reward. An increase in the likelihood of a true report leading to a sanction—and therefore to a whistleblower reward—should lead to a decrease in the size of the reward.[132] This makes intuitive sense. If most true reports result in a sanction imposed on the employer, then we may need fewer re-

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[128] In the following analysis I am using the implicit function theorem on expression (5). *See* CARL P. SIMON & LAWRENCE BLUME, MATHEMATICS FOR ECONOMISTS 339 (1994). According to the implicit function theorem, if $F(x, y) = 0$, then $\frac{\partial x}{\partial y} = -\frac{\partial F/\partial y}{\partial F/\partial x}$.

[129] Formally, using the implicit function theorem, $\frac{\partial R}{\partial g} = \frac{1/s}{z_t^2 w_1(z_t R,C) - z_f^2 w_1(z_f R,C)} > 0.$

[130] Formally, using the implicit function theorem, $\frac{\partial R}{\partial g/s} = \frac{1}{z_t^2 w_1(z_t R,C) - z_f^2 w_1(z_f R,C)} > 0.$

[131] Formally, using the implicit function theorem, $\frac{\partial R}{\partial C} = -\frac{z_t w_2(z_t R,C) - z_f w_2(z_f R,C)}{z_t^2 w_1(z_t R,C) - z_f^2 w_1(z_f R,C)} > 0.$

[132] Formally, using the implicit function theorem, $\frac{\partial R}{\partial z_t} = -\frac{w(z_t R,C) + z_t R w_1(z_t R,C)}{z_t^2 W_1(z_t R,C) - z_f^2 W_1(z_f R,C)} < 0.$

ports to deter the employer from evading taxes, which means a lower whistleblower reward may be sufficient.

By contrast, and interestingly, an increase in the likelihood of a false report leading to a sanction should lead to an increase in the size of the reward.[133] This counterintuitive result can be explained. When a false report leads to a sanction, an employer is sanctioned even though he has not violated the law. An increase in the likelihood of a false report by an employee leading to a sanction means that the relative benefit to the employer from not evading taxes decreases, since choosing not to violate the law has a smaller benefit in terms of reducing the risk of him being sanctioned by the government. To induce the employer to choose not to violate the law under such circumstances, the relative cost of violating the law must be increased. This can be achieved by increasing the size of the whistleblower reward, which disproportionately increases the likelihood of the employee reporting a true tax evasion to the government, thereby increasing the relative benefit to the employer from not violating the law.[134]

IV.   Policy Implications

A.   Factors to Consider

What factors should the IRS and the SEC take into consideration when setting the level of whistleblower rewards? Surprisingly, this question has received little attention from scholars and policymakers.[135] The model presented in Part III of the paper can help us determine the factors that should be taken into account when determining the size of the reward in different cases.

To be sure, the model presented in Part III is a stylized one. As with all economic models, it should not be applied mechanically. Still, it provides a general framework for thinking about the legal design of whistleblower programs, and can serve as a useful guide to policymakers in calibrating the optimal size of whistleblower rewards.

According to the analysis in Part III, three factors should be considered when setting whistleblower rewards:

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[133] Formally, using the implicit function theorem, $\frac{\partial R}{\partial z_f} = \frac{w(z_f R, C) + z_f w_1(z_f R, C)}{z_t^2 w_1(z_t R, C) - z_f^2 w_1(z_f R, C)} > 0.$

[134] The increase in deterrence due to the disproportionate effect of an increase in the reward can be seen by differentiating expression (5) with respect to the reward R. This yields $z_t^2 w_1(z_t R, C) - z_f^2 w_1(z_f R, C)$, which is positive because $z_t > z_f$.

[135] *See supra* Section II.C.

1. *The gain from violating the law*

As noted, a higher gain from violating the law, and more specifically a higher ratio of the gain to the sanction, requires a higher whistleblowing reward. This leads to some non-intuitive policy recommendations, a point which can be illustrated by looking at the penalties for the underpayment of taxes.

The Internal Revenue Code provides that the penalty for the underpayment of tax due to fraud is seventy-five percent of the underpayment due to fraud.[136] The penalty for the underpayment of tax due to undisclosed transactions lacking economic substance, or due to undisclosed foreign financial assets, is forty percent of the underpayment.[137] The normal penalty for the underpayment of tax due to negligence or disregard of rules is twenty percent of the underpayment.[138]

Accordingly, if $100 is underpaid in taxes due to fraud, the ratio of the gain to the sanction is 0.57.[139] If $100 is underpaid in taxes due to undisclosed transactions lacking economic substance, or undisclosed foreign financial assets, the ratio of the gain to the sanction is 0.71.[140] Lastly, if $100 is underpaid in taxes due to negligence or disregard of rules, the ratio of the gain to the sanction is 0.83.[141]

As noted, according to the analysis in Part III a higher ratio of the gain to the sanction requires a higher whistleblowing reward. Thus, it means that, assuming all else is equal, the highest (relative) whistleblower reward should be paid for reports on underpayment of tax due to negligence or disregard of rules, and the lowest (relative) whistleblower reward should be paid for reports on underpayment of tax due to fraud. The reward for underpayment of taxes due to transactions lacking economic substance or undisclosed foreign financial assets should be somewhere in the middle.[142]

What results is the counterintuitive policy recommendation that, assuming all else is equal, reports of less severe violations of the law should result in a higher whistleblower reward than reports of more serious violations of the law. The reason is that the law often prescribes lower sanctions for less severe violations, which increases the relative benefit to the violator of violating the law. In order to deter these relatively small scale violations, the law must provide a higher likelihood of being reported and sanctioned. Ac-

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[136] 26 U.S.C. § 6663(a) (2012).

[137] *Id.* § 6662(j).

[138] *Id.* § 6662(a).

[139] $\frac{g}{s} = \frac{100}{175} = 0.57$.

[140] $\frac{g}{s} = \frac{100}{140} = 0.71$.

[141] $\frac{g}{s} = \frac{100}{120} = 0.83$.

[142] Of course in reality the assumption that "all else is equal" does not hold in many cases. So, for example, if the gain from fraud is higher than the gain due to negligence or disregard of rules, then it is certainly possible that the reward for reporting the former would be greater than the reward for reporting the latter.

cordingly, the whistleblower reward should be set at a relatively higher amount.

2. *The personal cost to whistleblowers*

A higher personal cost to whistleblowers from blowing the whistle requires a higher whistleblowing reward. As noted, one of the main costs of blowing a whistle is diminished employment prospects. But the importance of future employment prospects may vary among whistleblowers. For example a whistleblower who is about to retire may not be very concerned if his employment prospects are diminished because he reports a violation of the law.[143]

This means that different whistleblowers should receive different amounts depending on their circumstances, even when the same type of information is provided. For example, if violations of the law are to be deterred, it may be necessary to pay higher rewards to young employees at a start-up firm than to older employees who are about to retire in a car manufacturing firm. Similarly, tenured professors who face no risk of losing their job should probably be paid less for reporting information than non-tenured professors.

Another cost of whistleblowing is due to social ostracism by colleagues and friends. Here too circumstances vary among whistleblowers, which means again that different whistleblowers should receive different amounts depending on their circumstances. For example, rewards paid to whistleblowers who work in the diamond industry, a close-knit market which facilitates harsh, coordinated social sanctions,[144] or to someone living in factory town, where an employee is likely to face strong ostracism by neighbors and friends, may need to be greater than rewards paid to whistleblowers who work in a standard office job and live in a big city.

3. *The likelihood of a successful report*

In the classic law and economics model of deterrence, when detection is not certain, the optimal sanction is determined by taking the harm caused by the illegal activity, and dividing it by the probability of detection.[145] To

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[143] *See* Kovacic, *supra* note 115, at 1819 ("Employees who have been dismissed, or face imminent layoffs, have less to lose in pursuing a qui tam suit and are likely to demand a smaller return from a qui tam suit than employees who otherwise anticipate an extended career with the firm.").

[144] *See* Lisa Bernstein, *Opting Out of the Legal System: Extralegal Contractual Relations in the Diamond Industry*, 21 J. LEG. STUD. 115, 129 (1992) (noting that when a member does not comply with the bourse rules, "he may be suspended or expelled from the club and his name is circulated to all of the bourses in the world federation and posted on their bulletin boards.").

[145] SHAVELL, *supra* note 105, at 483 ("[T]he sanction is governed by a fundamental probability-related multiplier—the sanction must equal the harm multiplied by the inverse of the probability of its imposition."); *see also* Becker, *supra* note 18, at 185 n.31 (quoting Jer-

illustrate, if the harm is 100 and the probability of the criminal being caught and sanctioned is 50 percent, the optimal sanction is 100/0.5=200. Similarly, if the probability of the criminal being caught and sanctioned is 25 percent, the optimal sanction is 100/0.25=400. Such a sanction induces would-be criminals to internalize the social cost and behave as if they faced liability equal to the harm.[146]

Note that in this classic analysis, when determining the sanction for a criminal who has been caught, one has to consider what was the probability of the criminal not being caught. In other words, despite the fact that we are currently holding the criminal, we have to consider the likelihood of a counterfactual situation in which the criminal gets away and is not punished. The optimal sanction for a criminal who has been detected is the harm caused by the illegal activity divided by the probability of detection.

According to the analysis in Part III, when determining the size of the whistleblower reward to a specific whistleblower, a somewhat similar counterfactual calculation has to be made. Despite the fact that the whistleblower has been successful in making the agency pursue the case and impose a sanction, one has to consider the probability of the whistleblower failing to convince the agency to impose a sanction. The more likely it is for the whistleblower to fail, the higher the whistleblower reward should be.

Similarly, when determining the size of the whistleblower reward to a specific whistleblower, one has to consider the likelihood of whistleblowers making a successful false report. That is, despite the fact that the whistleblower has managed to convince the agency of the truthfulness of his report, one has to consider how likely it is for a false report to succeed. The more likely it is for the false report to succeed, the higher the whistleblower reward should be.

B.   *Regulations Guiding the IRS in Setting Rewards*

According to the discussion in the previous Section, there are three major determinants of the optimal whistleblower reward: the gain from violating the law, the personal cost to the whistleblower, and the likelihood of a successful report. Are these factors taken into account by the IRS when setting whistleblower rewards?

As noted in Part II, the new IRS whistleblower program instructs the IRS to pay rewards that range from fifteen percent to thirty percent of the collected proceeds.[147] Despite the fact that the new program was established in 2006, new regulations were adopted to guide the IRS in determining the percent of the collected proceeds that should be paid to whistleblowers in

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emy Bentham's famous dictum that "the more deficient in certainty a punishment is, the severer it should be").

[146] *See* SHAVELL, *supra* note 105, at 474.

[147] 26 U.S.C. § 7623(b)(1) (2012).

each case only in August 2014.[148] These regulations include sixteen factors to be considered when setting a reward: eight positive factors and eight negative ones.[149] These factors are summarized in Table 1.[150]

TABLE 1: FACTORS TO CONSIDER WHEN DETERMINING AN IRS REWARD

Positive factors	Negative factors
Whistleblower acted promptly.	Whistleblower delayed informing IRS, adversely affecting ability to pursue the case.
Whistleblower information identified a previously unknown issue or transaction.	Whistleblower contributed to the tax noncompliance.
Whistleblower information identified taxpayer behavior IRS was unlikely to identify or was particularly difficult to detect.	Whistleblower profited from the noncompliance, but did not plan or initiate the action.
Whistleblower information provided factual details in a clear and organized manner, saving IRS work and resources.	Whistleblower adversely affected IRS's ability to pursue the case.
Whistleblower provided exceptional cooperation and assistance during the audit, investigation, or trial.	Whistleblower violated IRS instructions, causing IRS to expend additional resources.
Whistleblower information identified taxpayer assets not otherwise known to IRS.	Whistleblower violated terms of confidentiality agreement with IRS.
Whistleblower information identified connections between transactions or parties to transactions not otherwise known to IRS.	Whistleblower violated terms of a section 6103(n) contract.
Whistleblower information impacted the taxpayer's behavior, causing prompt corrective action.	Whistleblower provided false or misleading information.

When looking at the factors noted in Table 1, one can identify several themes. The first theme is the usefulness of the information. The more useful the information, the higher the reward. This usefulness theme is reflected in the fact that IRS regulations suggest a higher reward where the information identified a previously unknown issue or transaction,[151] taxpayer behavior that the IRS was unlikely to identify or was particularly difficult to detect,[152]

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[148] 26 C.F.R. § 301.7623-4 (2017).

[149] *Id.* § 301.7623-4(b).

[150] U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-16-20, IRS WHISTLEBLOWER PROGRAM: BILLIONS COLLECTED, BUT TIMELINESS AND COMMUNICATION CONCERNS MAY DISCOURAGE WHISTLEBLOWERS 25 (2015).

[151] 26 C.F.R. § 301.7623-4(b)(1)(ii).

[152] *Id.* § 301.7623-4(b)(1)(iii).

or connections between transactions or parties to transactions that were not otherwise known to the IRS.[153] These rules seem intuitive, and are intended to incentivize whistleblowers to provide information that is particularly difficult for the IRS to detect on its own.[154]

A second theme in Table 1 is the promptness of the report. The regulations indicate that a prompt report increases the reward,[155] and a delayed report reduces the reward.[156] The idea that delayed reports will result in a lower reward reflects the IRS's interest in reducing the risk of whistleblowers delaying a meritorious report, during which time the harm from the violation might worsen, so that they may receive a higher reward.[157] Accordingly, such whistleblowers are incentivized by a higher reward to report violations promptly.

A third theme that one can detect in the factors in Table 1 is cooperation and assistance. The IRS regulations indicate that providing factual details in a clear and organized manner, which saves on IRS resources, leads to a higher reward.[158] Similarly, exceptional cooperation and assistance during the audit, investigation, or trial leads to a higher reward.[159] By contrast, if the whistleblower negatively affects the IRS's ability to pursue the action by disclosing the existence or scope of an enforcement activity,[160] or by violating instructions provided by the IRS,[161] the reward will be decreased. These rules are simply intended to incentivize the cooperation of the whistleblower with the IRS, thus economizing on IRS resources.

Lastly, the fourth theme in Table 1 is the equitable principle of clean hands. If the whistleblower contributed to the tax noncompliance,[162] or profited from the noncompliance,[163] the reward will be reduced. In other words, the more involved the whistleblower is with the violation of the law, the lower the reward. The idea that complicity in the wrongdoing will result

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[153] *Id.* § 301.7623-4(b)(1)(vi).

[154] *Cf.* Kovacic, *supra* note 115, at 1822 ("Audits and inspections can be costly, however, and even arduous examination schemes may fail to equip external government observers with the same knowledge possessed by internal contractor employees. Due to greater familiarity with, and understanding of, the contractor's activities, contractor employees ordinarily can identify and assess relevant information at a lower cost than external government observers.").

[155] 26 C.F.R. §301.7623-4(b)(1)(i).

[156] *Id.* § 301.7623-4(b)(2)(i).

[157] *See* Howse & Daniels, *supra* note 107, at 534 ("It has been argued that this method of determining the amount of the reward creates perverse incentives for whistleblowers to withhold information or to come forward significantly later than when they first suspect wrongdoing (on the assumption that the longer the wrongdoing continues, the more serious it will become and the larger the ultimate reward will be."); Kovacic, *supra* note 115, at 1829 ("Rather than promptly bringing problems to management's attention, employees may allow them to persist-thus increasing the size of the injury and the relator's potential recovery-and to gather evidence for pursuing a qui tam suit.").

[158] 26 C.F.R. § 301.7623-4(b)(1)(iv).

[159] *Id.* § 301.7623-4(b)(1)(v).

[160] *Id.* § 301.7623-4(b)(2)(iv).

[161] *Id.* § 301.7623-4(b)(2)(v).

[162] *Id.* § 301.7623-4(b)(2)(ii).

[163] *Id.* § 301.7623-4(b)(2)(iii).

in a lower reward is intended to reduce the concern that the prospect of obtaining a whistleblower reward for reporting wrongdoing in which one is involved may actually encourage misconduct.[164] Furthermore, these factors are supposed to address the moral hazard concern that a whistleblower will attempt to increase the amount of wrongdoing by other employees, to obtain a higher reward.[165]

As this review indicates, one theme that seems to be totally absent from all the factors in Table 1 is deterrence. The idea that whistleblower rewards should somehow be calibrated so that they efficiently and effectively deter potential violators of the law is not reflected anywhere in the IRS's regulations.

It thus seems that a policy improvement would consider deterrence as a central goal of the IRS whistleblower program. This would mean that the factors noted in the previous section, namely the violator's expected gain from violating the law, the personal cost to the whistleblower, and the likelihood of a successful report, should be added as central considerations in the list of factors currently indicated by the regulations. Though potential whistleblowers may not know these factors with absolute certainty, they are likely to have a good sense of them. In particular, whistleblowers are likely to have a good sense of the expected personal cost of whistleblowing, as well as the likelihood of a successful report. They are also likely to know whether the person who they are reporting is gaining a lot or a little from violating the law.

C. *Regulations Guiding the SEC in Setting Rewards*

We can perform the same analysis with respect to the new SEC regulations. As noted in Part II, the new SEC whistleblower program instructs the SEC to pay whistleblowers from ten percent to thirty percent of the monetary sanctions collected.[166] In June 2011 regulations were adopted to guide the SEC in determining the whistleblower reward in each case.[167] Like the IRS regulations, the new SEC regulations include factors that may increase the amount of a whistleblower reward and factors that may decrease the

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[164] Howse & Daniels, *supra* note 107, at 538 ("At the crudest level, the prospect of obtaining a large reward for reporting wrongdoing in which one is involved may actually encourage misconduct.").

[165] *Id.* ("Moreover, since obtaining a reward obviously depends upon other employees also being involved in the wrongdoing, there may be an incentive to corrupt other employees. Finally, since the reward is determined as a percentage of the total penalties assessed against the corporation, a wrongdoer whistleblower has an incentive to increase the amount of wrongdoing by other employees as much as possible.").

[166] 15 U.S.C. § 78u-6(b) (2012); *see also* S. REP. NO. 111-176, at 111 (2010) ("The Committee feels the critical component of the Whistleblower Program is the minimum payout that any individual could look towards in determining whether to take the enormous risk of blowing the whistle in calling attention to fraud.").

[167] 17 C.F.R. § 240.21F-6.

amount of a whistleblower reward. Though the regulations are quite long and detailed, the main factors are noted in Table 2.

TABLE 2: FACTORS TO CONSIDER WHEN DETERMINING AN SEC REWARD

Positive factors	Negative factors
Significance of the information provided	Culpability
Assistance provided by the whistleblower	Unreasonable reporting delay
Law enforcement interest	Interference with internal compliance
Participation in internal compliance systems	

All the themes from Table 1 appear in Table 2. Specifically, usefulness and significance of the information,[168] the promptness of the report,[169] cooperation and assistance with the SEC,[170] and clean hands,[171] are all taken into account when setting the reward.

However, two other themes noted in the SEC factors in Table 2 are missing from the IRS factors in Table 1. The first is interference with internal compliance.[172] According to the regulations, the reward will be reduced if the whistleblower interfered with the firm's compliance or audit procedures to prevent or delay detection of the violations,[173] or made false statements that hindered a firm's efforts to detect violations.[174] One aim of this regulation is to address concerns of legal commentators that the establishment of the new SEC whistleblower incentives program would undermine internal mechanisms to obtain information from employees and promptly deal with issues arising within a firm.[175]

The second missing theme is law enforcement interest. As noted in the regulation, this is the "programmatic interest in deterring violations of the securities laws by making rewards to whistleblowers who provide

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[168] *Id.* § 240.21F-6(a)(1).

[169] *Id.* § 240.21F-6(b)(2).

[170] *Id.* § 240.21F-6(a)(2).

[171] *Id.* § 240.21F-6(b)(1).

[172] *Id.* § 240.21F-6(b)(3).

[173] *Id.* § 240.21F-6(b)(3)(i).

[174] *Id.* § 240.21F-6(b)(3)(ii).

[175] Ashcroft et al., *supra* note 86, at 382 ("In a hotly contested debate concerning whether to require whistleblowers to report up before reporting out, the prerequisite was deemed unnecessary: While an SEC whistleblower is permitted and, indeed, rewarded for participating in internal compliance programs, internal reporting is not required in order to be considered for a reward."); *see* Howse & Daniels, *supra* note 107, at 536–37 ("It is sometimes claimed by corporations that providing substantial rewards to external whistleblowers frustrates efforts to create such internal mechanisms."); Kovacic, *supra* note 115, at 1831 ("Qui tam enforcement can undermine internal compliance mechanisms in two ways. The first of these, suggested above, is that employees may choose to file qui tam suits instead of resorting to internal anti-fraud mechanisms such as hotlines. The second is that the firm's internal compliance officials may fail to correct instances of misconduct in a timely manner.").

information that leads to the successful enforcement of such laws."[176] When setting the reward, the SEC may take into account the effect of the reward on the enforcement of securities laws,[177] what size of reward is needed to encourage the submission of high quality information even when potential monetary sanctions are limited,[178] whether pursuing the information is an SEC priority,[179] and the dangers to investors presented by the violations.[180]

Even though the goal of deterrence is explicitly noted in the regulations, and in the law,[181] the only factor from the discussion in Section A that is explicitly noted in the regulation is the personal cost to whistleblowers. Specifically, the regulation guides policymakers to increase whistleblower rewards in light of "[a]ny unique hardships experienced by the whistle blower as a result of his or her reporting and assisting in the enforcement action."[182] This is fully consistent with the discussion in Section A, and therefore seems desirable from the perspective of efficient deterrence.

Still, the two other central factors noted in the previous Section, namely the violator's gain from violating the law and the likelihood of a successful report, are absent from the regulation. The above analysis suggests that SEC whistleblower rewards could be more effectively and efficiently calibrated to deter violations of securities law by taking into account these two elements.

IV.   Extensions

As noted in Part III,[183] the analysis in Parts III and IV of this Article did not consider whether whistleblowing should be used as a law enforcement strategy. The analysis simply assumed that whistleblowing is the law enforcement strategy employed, and considered how it should be employed if the goal is to deter undesirable activity at the lowest possible cost. The reason for this assumption is that in the case of both the IRS and the SEC, the strategic decision to employ whistleblowing as a law enforcement strategy has already been made. In the case of the IRS, it was made in the Tax Relief and Health Care Act of 2006,[184] and in the case of the SEC, it was made in 2010 in the Dodd-Frank Act.[185] The relevant policy question now is therefore how this strategy should be employed in the most efficient manner.

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[176] 17 C.F.R. § 240.21F-6(a)(3).
[177] *Id.* § 240.21F-6(a)(3)(i).
[178] *Id.* § 240.21F-6(a)(3)(ii).
[179] *Id.* § 240.21F-6(a)(3)(iii).
[180] *Id.* § 240.21F-6(a)(3)(iv).
[181] 15 U.S.C. § 78u-6(c)(B)(i)(III) (2012).
[182] 17 C.F.R. § 240.21F-6(a)(2)(vi).
[183] *See supra* notes 104–06 and accompanying text.
[184] Tax Relief and Health Care Act of 2006, Pub. L. No. 109-432, 120 Stat. 2922.
[185] Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, 124 Stat. 1376 (2010).

Still, for analytical completeness this Part extends the framework of analysis from Part III to consider, in Section A, the choice of whether to use whistleblower rewards at all, and in Section B, the choice between traditional law enforcement and whistleblowing. Since the focus of these two sections is analytical, an economic model is employed again. Readers unfamiliar with or uninterested in formal analysis should be able to skim these sections and proceed to the conclusion of the Article.[186]

A.   The Choice Whether to Offer Whistleblower Rewards

To determine whether whistleblower rewards are ever an economically efficient law enforcement strategy, we must compare the costs and benefits of offering such a reward. To begin, let us assume that the whistleblower reward is set at the optimal level defined in expression (5). By optimal, we mean that the reward is the smallest possible reward that will be effective in deterring the employer from violating the law. The question now is, even assuming such an optimally calibrated reward, whether it is ever socially desirable to offer such a reward.

Since the reward deters the employer from violating the law, the social benefit of offering the reward is the prevention of the social harm from the violation of law. Let us denote the net harm from the violation with h.

The social costs of offering whistleblower rewards are somewhat less intuitive. These costs stem from the risk that the incentive of receiving a whistleblower reward may tempt employees to make false reports, some of which succeed and lead to the socially undesirable imposition of a sanction on an innocent employer. Let us denote the social cost from a case of a falsely imposed sanction with C_f (where the subscript f stands for false). Taking this risk of false reports into account, the social cost of offering whistleblower rewards is the cost of such a falsely imposed sanction discounted by the probability of a false report leading to a sanction. Using the formal expression for the probability of such a false report derived in expression (4) above, we can now state the social cost of offering a whistleblower reward in formal terms:

$$SC_{WB} = p_f C_f = z_f w(z_f R, C_f) C_f \tag{6}$$

To explain, the social cost of offering the optimal whistleblower reward, namely SC_{WB} (where SC stands for social cost, and the subscript WB stands for whistleblowing), is the probability that the employer will be unjustly sanctioned (p_f), multiplied by the social cost of such a falsely imposed sanction (C_f). From expression (4), we know that $p_f = z_f w(z_f R, C)$, which explains how we end with the second equality in expression (6).

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[186] The analysis in this Part builds on Givati, *supra* note 20, at 53–59.

Note that the cost of the reward itself (R) is not included directly in the social cost of offering the optimal whistleblower reward in expression (6). The reason is that I assume for simplicity that the reward is financed by a lump sum tax, which is economically non-distortionary.[187] If the reward is financed by a distortionary tax, such as an income tax, then the distortionary cost of the tax, which would be increasing with the size of the reward, should also be included in expression (6). However, nothing in the analysis would change if such cost is included, since even in the current expression (6) the social cost of offering a whistleblower reward is increasing with the size of the reward.

It is economically efficient to offer a whistleblower reward when the social cost of the rewards (SC_{WB}) is smaller than the social benefit of the reward (h).[188] If this condition is not met, then it is socially undesirable to offer a whistleblower reward.

This cost-benefit analysis proceeds along intuitive lines. Looking at expression (6), one can see that the social cost of offering a whistleblower reward increases with the size of the reward (R).[189] This means that when the reward that is required to deter violations of the law is very high, it may be too socially costly to provide any reward at all. In other words, if a change in the different factors analyzed in Part III requires a large increase in the reward—for example, in situations where the ratio of the gain to the sanction is high, the personal cost of whistleblowing is high, the likelihood a true report leading to a sanction is low, or the likelihood of a false report leading to a sanction is high—we may end up in a situation where the social cost of offering whistleblower rewards is greater than the social benefit of the reward ($SC_{WB} > h$), and therefore it would be socially undesirable to offer a whistleblower reward.

Furthermore, the expression indicates that the social cost of offering a whistleblower reward increases with the risk of a successful false report (z_f).[190] Therefore, while in Part III we concluded that an increase in the risk of a successful false report should generally lead to an increase in the size of the reward, when the risk of a successful false report is very high it may be too socially costly to provide any reward at all. The risk of a successful false report depends on the relationship between the whistleblower and the person being reported, and the type of information provided by the whistleblower. For example, a personal secretary can fabricate a report more easily than

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[187] JONATHAN GRUBER, PUBLIC FINANCE AND PUBLIC POLICY 620 (4th ed. 2013) ("A lump sum tax would tax individuals a fixed amount regardless of their income, and there would be no way to change the amount of tax owed by changing one's behavior. In contrast, the taxes we have discussed thus far are distortionary taxes, whereby economic agents can change their tax payments by changing their behavior. A lump-sum tax is the most efficient way possible to raise revenues because individuals will not change their behavior in response to the tax.").

[188] Formally, $SC_{WB} < h$.

[189] Formally, $\frac{\partial SC_{WB}}{\partial R} = z_f^2 w_1(z_f R, C) C_f > 0$.

[190] Formally, $\frac{\partial SC_{WB}}{\partial z_f} = w(z_f R, C) C_f + z_f R w_1(z_f R, C) C_f > 0$.

other employees, especially one that depends on verbal testimonies rather than hard evidence.

B.   Traditional Law Enforcement versus Whistleblowing

In Section A we considered the choice whether to offer whistleblower rewards. We saw that in some circumstances it may be desirable not to offer any rewards at all. An alternative to offering a private whistleblower reward is using a traditional law enforcement strategy, namely employing public administrative agents to investigate and detect violations of the law.

Because the social benefit of traditional law enforcement is the same as the social benefit of offering a whistleblower reward, i.e., deterring an employer from violating the law, the choice between these two law enforcement strategies depends on their social cost. The social cost of whistleblowing was defined in Section A in expression (6). By contrast, the social cost of traditional law enforcement is simply the cost of hiring enough agents such that would-be violators will be deterred because of a sufficiently high risk of being caught.[191] The more efficient law enforcement strategy is the one with lower social cost. When the reward that is required to deter violations of the law is very high, or when the risk of a successful false report is very high, employing traditional law enforcement strategies may be the economically preferable option.

VI.   Conclusion

This Article makes several contributions to the tax and corporate law literatures. First, the Article highlights the fact that the existing literature has overlooked the question of the desirable size of whistleblower rewards. Second, the Article develops, for the first time, an economic model of whistleblower rewards and their effect on deterrence. Third, the Article uses this economic framework to highlight three major determinants of the optimal whistleblower reward: the gain from violating the law, the personal cost to the whistleblower, and the likelihood of a successful report. Fourth, this Article analyzes the regulations that guide the IRS and SEC in setting rewards, showing that these regulations ignore the factors that are highlighted

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[191] *See* Becker, *supra* note 18, at 174 ("The more that is spent on policemen, court personnel, and specialized equipment, the easier it is to discover offenses and convict offenders.").

Even if the cost of agents is financed with a lump-sum tax, which as noted is economically non-distortionary, hiring the agents is still a social cost from an economic perspective. The social cost is due to the fact that agents are now spending real time and effort to detect violators of the law, instead of engaging in other economic activities. The social cost is therefore this forgone economic activity. If the cost of hiring agents is financed by a distortionary tax, such as an income tax, then an additional cost has to be added, which is the distortionary cost of the tax. If agents also make errors and impose sanctions on innocent individuals, then this cost has to be added as well.

by the economic model. Fifth, the Article recommends that the regulations that guide the IRS and SEC in setting rewards should be amended to reflect the factors highlighted in the Article.