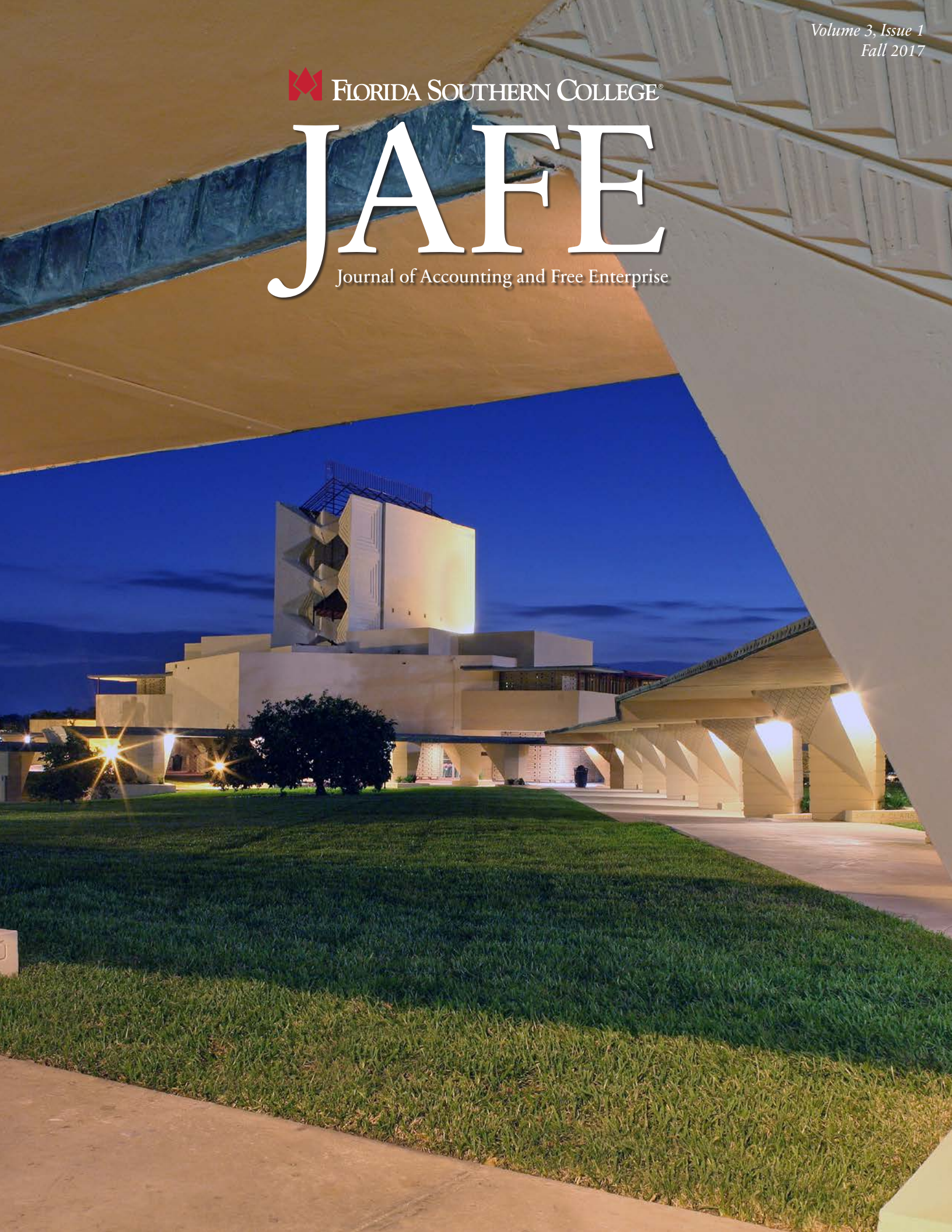FLORIDA SOUTHERN COLLEGE®

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On the cover: The Esplanades designed by Frank Lloyd Wright for the campus of Florida Southern College.

Domestic Manufacturing Deduction:
Does State Conformity Increase Employment Growth?

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ABSTRACT

Using a two stage least squares regression with panel data on 46 U.S. states from 2006 to 2013, we examine the association between states' adoption of the domestic manufacturing deduction (DMD) and employment growth. We also investigate whether the relative certainty provided by the state tax policy structure moderates this association. States can structure their income tax to automatically incorporate federal tax provisions (rolling conformity) or incorporate as of a specified date (fixed conformity). We find a positive association between state adoption of the DMD and manufacturing employment growth in rolling conformity state-years. These results highlight certainty in state tax policy-making as an important determinant of the efficacy of tax policies designed to boost economic outcomes. In a free enterprise system, it is important for policymakers to realize that economic consequences of state tax policies depend on the relative certainty that states will conform to federal tax laws.

Keywords: domestic manufacturing deduction, IRC Section 199, rolling conformity, fixed conformity, employment growth

Introduction

The domestic manufacturing deduction (DMD) for U.S. federal income taxes was enacted as part of the American Jobs Creation Act (AJCA) of 2004. The AJCA (P.L. 108-357) has been referred to as the "most comprehensive corporate tax law in the U.S. in almost 20 years" representing the most significant changes in the tax code since the 1986 Tax Reform Act (Rollinson and Mundaca 2004, 25). The DMD results in a deduction equal to nine percent of the lesser of taxable income or qualified production activities income generated in the U.S. For U.S.-based companies, this deduction translates to a three percent reduction in the effective tax rate on all U.S. earnings from qualified production activities. In 2008, the Manufacturing Institute published a reflective piece examining the structural cost pressures facing U.S. manufacturers. Leonard (2008, 3) states that the "single most important and damaging structural cost facing U.S. manufacturers – the high corporate tax burden – has yet to be addressed." The DMD represents an attempt by the U.S. federal government to encourage U.S.-based production and provide tax relief to U.S. manufacturers relative to foreign companies, and many state governments in the U.S. have adopted the DMD as well. The purpose of this study is to examine whether states that conformed to the federal DMD experienced positive impacts to their job markets relative to the states that did not.

The U.S. Constitution grants states the autonomy to design their own tax policy, essentially limited only by prohibitions against interfering with interstate commerce. Despite this wide latitude, most states have historically decided not to create their own definition of an income tax base but rather follow the federal definition of a tax base (Fox and Swain 2007). As a means of convenience and a desire to reduce complexity, most states begin with federal taxable income when calculating state corporate taxable income. Although broad conformity to federal taxable income is common practice, some states do not conform to specific provisions of the Internal Revenue Code (IRC) (Gravelle and Gravelle 2007).

The implications of this policy decision are complex, but it is vital for policy makers to understand the effect a DMD might have on their state economies. On the one hand, it has become a common practice for states to lure businesses into their jurisdictions using tax incentives under the basic premise that lower taxes lead to a more friendly business environment and therefore more jobs. Also, as previously mentioned, states may find it easier to administer their corporate income tax system by following and adopting federal tax policies.

On the other hand, states may find it difficult to balance their budgets if they adopt revenue-reducing tax policies. States frequently decouple from (i.e. choose not to conform to) the most generous new federal tax incentives (Cronin et al. 2002) to maintain revenue levels and government stability. In fact, according to the Center on Budget and Policy Priorities, states that enacted significant tax cuts during the late 1990s and the early part of 2000 experienced a fiscal crisis when the economy began to weaken in 2001 (Zahradnik 2005). These states had larger budget shortfalls, cut spending more deeply, and subsequently raised taxes more sharply. Specifically, the states with large tax cuts lost 1.5 percent of their jobs, while states with smaller or no tax cuts lost only 0.5 percent (Zahradnik 2005). So, it is possible that a tax cut such as the DMD could be associated not only with revenue losses but also with a weaker economy and job declines.

We investigate one potential economic consequence of state conformity to a specific federal tax preference – the DMD. We predict that states that conform to the DMD have higher employment growth than states that decouple from the DMD provisions. We expect that conforming states are viewed by firm managers as more business-friendly due to the potential for increased tax savings at the state level. This type of business climate should attract more business investment and lead to greater employment growth. Although we expect the federal DMD to have an impact on employment growth overall, the focus of our study is the incremental impact that DMD states may experience relative to non-DMD states. In other words, the federal DMD may lead to job growth in any type of state – whether it has a DMD or not. We examine whether states that allow an additional benefit at the state level for a DMD have higher employment growth rates than states that do not. In fact, even if the federal DMD has no discernible impact on total employment growth, it is still possible that states that have adopted a state level DMD experience more (or less) employment growth than states that do not.

The federal DMD, as detailed in the next section, targets and benefits the manufacturing sector the most. We examine the impact of state DMDs on both total employment growth as well as manufacturing employment growth because we expect the impact on total jobs to be driven by manufacturing jobs, since only firms that are eligible for a federal DMD would respond to variations in state DMD policies. Although we expect to find the strongest results within the manufacturing sector, policy makers are most likely interested in whether the DMD can have a real effect on the total job growth in the state.

We also examine whether the state's tax policy structure moderates the association between DMD conformity and employment growth. Most states use federal taxable income as the starting point for state taxable income and subsequently make state-specific modifications. States that use a rolling conformity structure automatically incorporate any changes in federal tax provisions into their state taxable income calculations. In other words, the link between state taxable income and federal taxable income is continuously rolling forward with time. These states must pass specific legislation to decouple from a federal tax provision. Fixed conformity states have tied state taxable income to federal taxable income as of a particular date. Therefore, fixed conformity states must act to pass legislation each time they wish to update their fixed conformity date to include the most recent federal tax policy changes. Alternatively, fixed conformity states can pass legislation to adopt specific federal provisions rather than update their fixed conformity date.

We predict that firms operating in states with fixed conformity have less certainty about whether a state will adopt any specific federal provision and, if so, when the provision will become effective. In these states, it is not clear whether or when the state may act to adopt a specific provision or to update its fixed conformity date. This uncertainty causes firms to be less responsive to potential tax preferences because they cannot easily predict future cash flows from their investments. On the other hand, firms can act in anticipation and with much more certainty in rolling conformity states. Once a federal tax policy has been enacted, firms in rolling conformity states have certainty that the state will also adopt the federal policies, unless some specific legislation is passed to decouple. Firms in these states are more likely to increase investment, in response to a federal tax-reducing incentive, because they have some level of certainty about the future cash flows associated with state tax savings.

Using a two-stage least squares regression with panel data on 46 U.S. states from 2006 to 2013, we examine the association between the DMD and employment growth. We find, on average, states that have adopted the DMD have higher manufacturing employment growth (or less severe declines) relative to other states but not higher total employment growth. We conjecture that this anomaly is driven by firms responding to the federal DMD by shifting operating activity from

non-manufacturing to manufacturing activities. Then, these same firms increase or shift their activity to DMD states more than non-DMD states. The result is that DMD states experience greater manufacturing job growth relative to other states, but DMD states do not experience higher overall employment growth compared to non-DMD states.

 We also find that the impact of DMD conformity on manufacturing employment growth is driven entirely by states that have rolling conformity. Our results suggest that state DMDs are only a significant determinant of manufacturing employment growth in states that have rolling conformity. Our results highlight certainty in state tax conformity as an important factor that impacts the efficacy of state tax preferences designed to boost economic outcomes.

The results of this study contribute to the state taxation literature by demonstrating that states' business climates or corporate tax rates impact economic development (Lightner 1999; Moore and Bruce 2014). We provide insight into the effects of a specific tax provision on employment. This is the first study to examine the effectiveness of state conformity to the DMD in increasing employment. This study also incorporates the work of Pastor and Veronesi (2012), which investigates political uncertainty, into the state taxation literature by examining the potential moderating effect of the state tax structure (rolling versus fixed conformity) on the effectiveness of conforming to federal tax provisions. We demonstrate that uncertainty about state tax conformity to federal tax law can impede the effectiveness of tax incentives. This finding suggests that uncertainty regarding state tax conformity, which is higher in fixed conformity states, hinders investments that companies might otherwise make in response to tax incentives. While previous studies have examined the connection between tax policy uncertainty and investments, this study fills a gap in the literature by demonstrating that state tax conformity uncertainty can impact economic outcomes and firms' behavioral responses to tax incentives.

Our research is of interest to state government officials and policymakers. We document that DMD conformity is associated with manufacturing employment growth, but only in states with rolling conformity. These results highlight the targeted effect of the DMD in the manufacturing sector. Our results demonstrate that states that conform to the DMD do not necessarily experience economic boosts in terms of total employment, suggesting that, perhaps, the gains in the manufacturing sector are offset by employment declines in other industries. In terms of economic activity measures, policymakers often focus on employment growth, one of the most important characteristics of a strong economy (Wasylenko 1997). Thus, the results of this study provide policymakers

empirical evidence about states' adoption of a specific, targeted tax provision and its intended impact – growth in the employment sector. When analyzing potential impacts of future tax policy decisions, policymakers should consider the effect of the uncertainty that arises from a fixed conformity state tax structure versus a rolling conformity structure.

The remainder of this paper is organized as follows: The next section discusses the background on the adoption of the DMD. The third section provides prior research on conformity and state tax structure and develops hypotheses. The fourth section presents the research method. The fifth section contains results followed by the final section that concludes the paper.

Literature Review

Background on the Domestic Manufacturing Deduction

The Domestic Manufacturing Deduction was enacted as part of the American Jobs Creation Act (AJCA) of 2004 (Internal Revenue Code Section 199). The AJCA repealed the extra-territorial income (ETI) exclusion, which had been deemed illegal by the World Trade Organization, and replaced it with a domestic manufacturing deduction (DMD) to be phased-in over six years. Unlike the ETI regime, which excluded from gross income certain foreign gross receipts, the DMD applies to all taxpayers that derive income from qualified domestic production activities (QPAI), whether they export or not. QPAI is the excess of domestic production gross receipts (DPGR) over the sum of allocable costs of goods sold and other deductions and expenses. DPGR relates to the taxpayer's gross receipts that are derived from qualified activities of the taxpayer within the United States. The DMD was enacted as an incentive for U.S. taxpayers with domestic-based production. Although its name suggests the deduction is targeted to the manufacturing sector, potential beneficiaries include not only manufacturers but also producers of agricultural products, software companies, film production companies, electric, gas and water companies, construction companies, engineering firms, and architecture firms. Also, the deduction is available to entities with various structures, including corporations, partnerships, other pass-through entities, and sole proprietorships.

Taxpayers may claim the deduction for tax years beginning after December 31, 2004. Under current law, the DMD is equal to the lesser of (1) nine percent of QPAI or (2) taxable income, and is limited to 50 percent of Form W-2 wages paid that are allocable to domestic production gross receipts. Because of the taxable income limitation, the deduction excludes firms with net operating losses for the year or those with losses that

carryover from prior years to offset the current-year taxable income. The actual amount of the deduction was phased in over three time periods. For the 2005 and 2006 tax years, the deduction was three percent. For 2007 through 2009, it was six percent, and for 2010 and future years, the deduction is nine percent of QPAI. Appendix A contains an example of the DMD calculation for a theoretical firm.

Although the DMD is a U.S. federal income tax deduction, most states' definitions of taxable income reference federal taxable income. More specifically, the starting point for many state income tax returns is federal taxable income. Modifications are then made to this starting point based on the specific state provisions that differ from federal tax provisions. Because of this structure, most states are impacted by all changes to the federal income tax system and laws. The way in which a state structures its tax laws will determine whether or not a state must take formal action to conform to or decouple from any specific provision. Some states maintain "rolling conformity" (also known as "automatic conformity"), which means that all federal income tax changes are automatically

incorporated into the state tax definition of taxable income as soon as the change becomes effective at the federal level. For these states, the only way to decouple from federal tax provisions is to pass legislation that designates non-conformity with the particular federal provision. Other states have "fixed conformity," which means that the state definition of taxable income conforms to the federal definition of taxable income as of a particular date. These states periodically pass legislation to renew their conformity to a more recent date. For fixed conformity states, the only way to conform to a new federal provision is to update their effective date of fixed conformity or pass legislation to adopt the specific federal tax provision.

Our analysis includes the 46 states that have a traditional tax on corporate income, excluding Nevada, South Dakota, Washington, and Wyoming. We include Ohio, Michigan, and Texas in our analysis but only for certain years during which these states maintained either an income tax or a franchise tax that was partially based on income. Table I categorizes the states according to DMD conformity and rolling versus fixed tax structure. Figure I shows the geographic distribution

Table I
State Tax Structure for 2013 Tax Year

	Rolling		Fixed	
Conforms to Sec. 199	Alabama	Montana	Arizona	
	Alaska	Nebraska	Florida	
	Colorado	New Jersey	Idaho	
	Delaware	New Mexico	Iowa	
	Illinois	Oklahoma	Kentucky	
	Kansas	Pennsylvania	Vermont	
	Louisiana	Rhode Island	Virginia	
	Missouri	Utah		
		Group 1		Group 4
Does not Conform to Sec. 199	Connecticut		Arkansas	Mississippi
	Maryland		California	New Hampshire
	Massachusetts		Georgia	North Carolina
	Michigan		Hawaii	South Carolina
	New York		Indiana	West Virginia
	North Dakota		Maine	Wisconsin
	Oregon		Minnesota	
	Tennessee			
		Group 2		Group 3
Note: States with no corporate income tax in 2013 (not in table above): Ohio, Texas, South Dakota, Nevada, Wyoming, Washington				

Figure I
Geographical Representation of Test Variables as of 2013
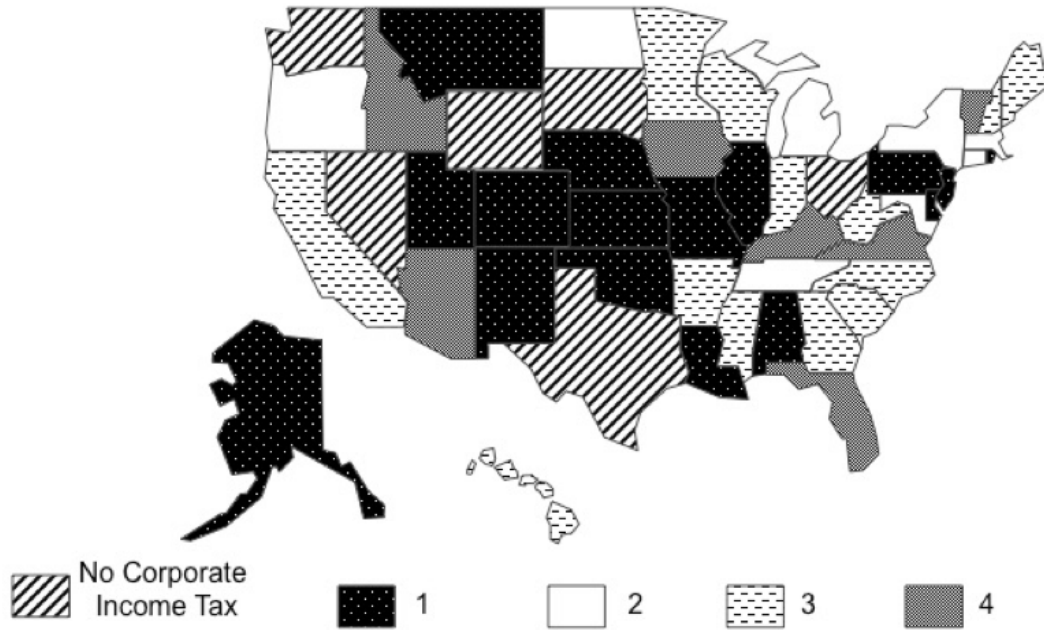
(1)   Rolling Conformity Structure and Conformity to IRC Section 199
(2)   Rolling Conformity Structure and Non-conformity to IRC Section 199
(3)   Fixed Conformity Structure and Non-conformity to IRC Section 199
(4)   Fixed Conformity Structure and Conformity to IRC Section 199

of the four categories for 2013, the last year of our sample. Twenty-three states conform to the DMD, according to information from state tax departments and the Commerce Clearing House's (CCH) State Tax Handbooks. Of the twenty-three states that conform to the DMD, sixteen conform because of a rolling conformity structure, while the remaining seven are fixed conformity states that passed legislation to adopt the DMD or to update their effective conformity date. As of 2013, twenty-one states do not conform to the DMD. Of these twenty-one, thirteen have fixed conformity to federal law and therefore, did not require legislation to decouple from the DMD. However, the other eight had to take legislative action to decouple because they are rolling conformity states.

Prior Research and Hypothesis Development

Conformity

The focus of our study is the association between state conformity to the DMD, a specific federal tax provision, and state employment growth. Both Luna and Watts (2007, 2008) and Morrow and Ricketts (2010) examine the determinants of state conformity (versus decoupling) to federal tax provisions, but neither study investigates the consequences of state conformity.

Morrow and Rupert (2015) use an experiment to study how tax complexity and state conformity impact the effectiveness of tax incentives. They focus on individual tax incentives and behavior. In comparison, we focus on aggregate economic outcomes driven by the corporate income tax. We are not aware of any studies that examine the economic impact of state conformity to the DMD or state conformity to other specific federal tax provisions. However, many studies have examined the impact of state and local tax policies on employment and employment growth (Goolsbee and Maydew 2000; Goss and Phillips 1994; Harden and Hoyt 2003; Lightner 1999; Mark et al. 2000; Moore and Bruce 2014; Newman 1983; Plaut and Pluta 1983; Romans and Subrahmanyam 1979; Wasylenko and McGuire 1985).

Generally, one would expect any tax incentive that significantly reduces taxes will attract new in-state investment, which should lead to more jobs. In fact, Lightner (1999) and Moore and Bruce (2014) both find a negative association between state corporate income tax rates and employment growth. More specifically, tax incentives targeted toward reducing payroll costs should lead to more jobs. Along these lines, Goolsbee and Maydew (2000) find that reductions of the payroll weight in a state's apportionment formula increase manufacturing

Figure II: Numerical Example of the State DMD

	Base Scenario		Scenario I:		Scenario II:	
	Equal Investment		Invest in DMD State		Invest in non-DMD State	
	State A	State B	State A	State B	State A	State B
	DMD	No DMD	DMD	No DMD	DMD	No DMD
Income subject to tax	100	100	100	100	100	100
DMD adjustment	0	10	0	10	0	10
State tax base	100	110	100	110	100	110
Apportionment	50%	50%	60%	40%	40%	60%
State taxable income	50	55	60	44	40	66
State tax rate	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%
State tax	3.75	4.13	4.50	3.30	3.00	4.95
Federal taxable income after state tax	92.13		92.20		92.05	
Federal tax @ 35%	32.24		32.27		32.22	
Total tax (federal and state)	40.12		40.07		40.17	
Increase (decrease) in tax from base scenario	-		(0.05)		0.05	

employment. In addition, Faulk (2002) examines Georgia's Jobs Tax Credit, a very targeted state tax provision, and finds that firms that took the credit created more jobs than firms that were eligible but chose not to take the credit. Although no research has empirically examined the impact of DMD conformity on state economies, these studies are useful in making predictions about its impact. If the DMD successfully reduces the state income tax burden for DMD-eligible firms, these firms should prefer states that allow the DMD. In this case, we would expect a corresponding increase in state employment.

To illustrate how a multi-state firm might benefit from investing in DMD-conforming states, we provide an example in Figure II. We assume a particular firm has $110 of pre-tax income and is allowed a $10 DMD at the federal level, so that federal taxable income is $100 less the deduction for any state taxes paid. This firm operates in two states – one that conforms to the DMD and one that requires an add-back of the federal DMD (disallowing the deduction at the state level). In the base scenario, the firm invests equally in the two states which apply the same tax rate of 7.5 percent. If the firm maintains this same level of income but shifts some of its activity from the non-DMD state to the DMD state (Scenario I, Figure II) such that the apportionment applied by the states changes to 60 percent in the DMD state, the firm saves a net 5 cents of its income through a reduction in the total state taxes paid. Conversely, if the firm invests more in the non-DMD state (Scenario II, Figure II), it pays 5 cents more of its income in

taxes relative to the base scenario. In all three cases, the federal DMD benefit remains the same.

This illustration highlights a few important aspects of the DMD as a state tax incentive. First, a state level DMD essentially reduces the effective state tax rate at which corporate net income is taxed for companies that take a federal DMD. In our base scenario example, the firm has income of $110 which is apportioned equally to the two states. Because the DMD state allows the additional deduction, the firm pays an effective tax rate of only 6.8 percent ($3.75/$55) on the income attributable to that state as compared to the 7.5 percent effective tax rate paid in the non-DMD state. In other words, the DMD incentive looks like a reduction in the state corporate tax rate for companies that are DMD-eligible. It follows, then, that eligible companies would respond as if the DMD state, all else equal, maintained a lower tax rate. The result is that multi-state companies should shift activity to DMD states and new start-ups should choose DMD states over non-DMD states. If this is the case, we can rely on the literature previously cited (e.g. Lightner 1999; Moore and Bruce 2014) to predict that economic activity, and specifically job growth, should be higher in states that allow a DMD.

This example also demonstrates that firms do not necessarily have to shift manufacturing or other DMD-eligible activity to the DMD state to take advantage of the reduced effective rate (Mazerov and Mai 2013). In fact, the location of the manufacturing activities is completely irrelevant to the amount of

state tax benefit the firm can receive. As long as the firm takes a federal DMD, it can increase its state-level DMD benefits merely by ensuring that more of its total income (regardless of industry) is apportioned to DMD states. Note, however, that our example generalizes the somewhat complicated state apportionment rules. States calculate apportionment using factors based on various combinations of sales, payroll, and/or capital assets. So, firms strategically shifting activity to certain states have to consider which factors are most heavily weighted in the preferred states and then shift activity accordingly. Nevertheless, we predict that increases in any of the three apportionment factors should also lead to job growth.

Given that firms can shift any type of activity (manufacturing or not) to DMD states to benefit from the reduced effective tax rate, we expect an association between total employment growth and a state level DMD. While we do not expect a negative association between state adoption of the DMD and employment, it is possible that the DMD has no discernible impact on employment growth across states if the benefits are not enough to drive firm behavior. Nevertheless, the DMD was designed to encourage and boost investment in the U.S., and states that choose to conform do so to attract additional investment. All else equal, these states might be presumed to have a more friendly business environment relative to other states. Based on the preceding discussion, we hypothesize the following:

H1a: All else equal, states that allow a DMD have higher employment growth relative to states that do not allow a DMD.

As noted in our example above, states need not shift manufacturing or other DMD-eligible activities to DMD states to reap the benefits. Therefore, in H1a, we hypothesize that total state employment growth should be higher for DMD states. However, because the DMD was specifically targeted to the manufacturing sector, it is possible that all or most of the employment growth states experience will be in manufacturing industries. We expect only firms that are eligible for the federal DMD will respond to variations in state DMD policies and shift activity. These firms are likely to be firms that have substantial operations in manufacturing. In addition, because the benefit of state level DMDs increases with the amount of the federal DMD, and firms with large federal DMDs have substantial manufacturing activities, it follows that the largest portion of firm responses to state level DMDs would be from manufacturing firms and other firms with substantial manufacturing operations. Thus, we expect the job growth that occurs in DMD states to be driven mostly by manufacturing firms and manufacturing job growth. Therefore, we also test manufacturing employment separately from

total employment and make the same hypothesis regarding the association with the DMD.

H1b: All else equal, states that allow a DMD have higher manufacturing employment growth relative to states that do not allow a DMD.

Evidence in support of both hypotheses suggests that state conformity to the DMD has the intended impact of boosting manufacturing employment and might also encourage job growth in other sectors as well. If we fail to find evidence of an impact to total employment but we are able to find an impact to manufacturing employment, it would suggest that DMD states experience more manufacturing employment growth but less non-manufacturing growth relative to other states. Actually, in our sample many states experienced employment declines rather than growth given the economic time period. So, another way of stating this expectation is that DMD states may experience less severe manufacturing employment declines but more severe non-manufacturing employment declines relative to other states. This phenomenon may occur due to the combined effect of the federal DMD with state DMDs. In other words, eligible firms may respond to the federal DMD by shifting activity from their non-eligible functions towards manufacturing operations, to take advantage of the increased federal deduction (which is a function of the amount of net income from manufacturing activities). Given that these same firms are the ones we expect to respond to state DMD incentives, it follows that DMD states may experience more manufacturing job growth relative to other states and, at the same time, less non-manufacturing job growth relative to other states. However, if we find evidence in support of H1a and not H1b, then perhaps the DMD is effective at encouraging job growth, but the job growth occurs in non-manufacturing industries. Given the broad list of qualifying activities, it would not be surprising to find that the DMD impacts non-manufacturing sectors.

State Tax Structure

As previously mentioned, a state's tax structure determines whether legislative action is required to conform or decouple from a federal tax provision. States that have rolling conformity automatically adopt all federal tax changes and laws. These states do not need legislative action to adopt the DMD, but these states would require legislative action to decouple from it. States that have fixed conformity, based on the federal tax law on a specific date, adopt all federal tax laws in place as of that date. For the 2005 tax year, the first effective year of the DMD, fixed conformity states would have had their fixed conformity tied to a specific prior year. These states had to take legislative action in 2005 or in the proceeding years to

update their fixed conformity date or to specifically adopt the DMD. These states required no action to decouple from the DMD provisions.

These two different types of tax structures (rolling versus fixed conformity) represent different levels of ease with which a state can adopt (decouple from) the DMD. More importantly, they offer in-state firms varying levels of certainty with respect to estimating their future state taxes and making corresponding investment decisions. Very few papers address these different tax structures. Luna and Watts (2007, 2008) model the decision to adopt or decouple from nine federal tax provisions, but they do not find a statistical association between the state tax structure (rolling conformity versus fixed conformity) and the decision to adopt. Morrow and Ricketts (2010) perform a very similar analysis of 11 federal tax provisions and also document no impact from the state tax structure on the decision to decouple. We are aware of no research that investigates how the state tax structure (rolling versus fixed conformity) might modify state economic responses to tax policy. Given the limited literature, understanding the impact that state tax structure has on state economic responses to tax policy remains an empirically unanswered question.

Due to the scarcity of literature directly related to rolling versus fixed conformity, we rely more generally on research related to the effects of tax policy uncertainty to make predictions about state tax structures. Pastor and Veronesi (2012) describe two components of general governmental policy uncertainty. The first one, which they refer to as "political uncertainty," relates to whether a particular law will pass, change, or take effect. The second type, "impact uncertainty," relates to uncertainty about the effect of a particular law on a firm's bottom line. In this study, we focus on the political uncertainty aspect of tax policy changes because the financial impact of a given tax policy is easily estimable, relative to non-tax policies. Arguably, determining whether and when a particular law will take effect is a more uncertain task than calculating the estimated impact to the firm of a particular tax provision (assuming the specific details of the tax provision itself have been determined).

Prior research has shown that political uncertainty, in general, reduces firm investment. Julio and Yook (2012 and 2014) show that firms decrease their investment in periods leading up to major elections. Other studies demonstrate a similar impact from tax policy uncertainty; in particular, Hermes and Lensink (2001) find a positive association between tax policy uncertainty and capital flight (i.e. capital outflows). Using an international sample, Edmiston et al. (2003) count the number of different applicable tax rates as well as the number of times each country changed its highest marginal

tax. Using these two measures as proxies for tax uncertainty, they find that tax uncertainty is negatively associated with foreign direct investment. Also, Edmiston (2004) finds a negative association between the volatility of effective tax rates on capital and the capital investment per worker.

At least two papers examine investor responses to policy uncertainty. Pastor and Veronesi (2012) analyze the effects of government policy uncertainty on stock prices and find that, on average, stock prices decline at the announcement of a policy change. Brown et al. (2014) find a positive association between tax policy uncertainty and the perceived riskiness of firms' future cash flows from tax planning. These studies all point to a negative impact on investment when tax policies are uncertain.

We note that the "uncertainty" that applies to our study pertains to whether a state will conform to a federal tax law already in place. In other words, firms are not uncertain about the specific provisions of the law or whether Congress will pass the law at the federal level. Instead, we focus on the uncertainty about whether a state will choose to adopt the federal policy (in the case of fixed conformity states) or choose to decouple from the federal policy (in the case of rolling conformity states). Nevertheless, the aforementioned studies provide some indirect insight into how firms might respond to this type of uncertainty. If firms similarly respond to state tax conformity uncertainty and perceive increased risk associated with the uncertainty, they might be less likely to increase spending in response to the DMD in states where DMD adoption is less certain (i.e. fixed conformity states). Conversely, the result is a more pronounced economic response to the DMD in rolling conformity states. This study addresses a gap in the uncertainty and state tax literature by examining the impact that rolling versus fixed conformity has on the efficacy of a federal tax policy adopted by states. Therefore, our paper connects the tax uncertainty literature to state economic policy literature and examines how state tax structure might impact policy responses.

We argue that uncertainty about the adoption of DMD in fixed conformity states deters or delays investment by firms seeking to use the deduction to subsidize their investment. In fixed conformity states, specific legislation is required either to update the date of conformity or specifically adopt the DMD. Depending on the political environment of the state government, this legislation can be timely, costly, and difficult to achieve. Firms in these states experience more uncertainty in terms of predicting their after-tax rate of return on future investments. Therefore, these states may experience a slower economic response to the adoption of the DMD. Admittedly, firms in rolling conformity states also experience a degree

of uncertainty because these states maintain the option to decouple from the DMD. However, in rolling conformity states, DMD adoption is automatic, and legislation is instead required to decouple. As a result, we expect rolling conformity states to have a greater increase in employment levels after DMD adoption. We expect firms in rolling conformity states to have less hesitation than firms in fixed conformity states in terms of the amount of increased investment leading to jobs given the relative certainty in calculating tax subsidies for this investment. As with our first hypothesis, we test the following hypothesis for both total employment and, separately, for manufacturing employment.

H2a: The positive association between DMD conformity and total employment growth is more pronounced in states with rolling conformity.

H2b: The positive association between DMD conformity and manufacturing employment growth is more pronounced in states with rolling conformity.

Methodology

Sample

To investigate the association between employment growth and state conformity to the DMD, we collect and analyze state data from 2005 to 2013. The DMD was first effective for the 2005 tax year, and we lag our DMD variable one year to allow some time for the economic impact to manifest. Therefore, our sample period begins in 2006. The sample consists of observations from 46 of the 50 states. We exclude Nevada, Washington, and Wyoming because they do not have a corporate income tax. We also exclude South Dakota because its corporate income tax is limited to financial institutions. Michigan, Ohio, and Texas initiated substantial changes to their corporate tax systems during our sample time period, so we include these three states only during years where the states maintained some form of an income tax. Our results are robust to excluding these three states entirely following Gupta et al. (2009) and Davis and Hageman (2014).

Model Specification

To examine the effect of the DMD on employment growth, we estimate the following model:

$EMPLOYGROWTH_{i,t} = \beta_0 + \beta_1 DMD_{i,t-1} + \beta_2 ROLLING_{i,t-1} + \beta_3 DMD*ROLLING_{i,t-1} + B_4 MFG\_RANK_{i,t-1} + \beta_5 WAGE_{i,t} + \beta_6 UNION_{i,t} + \beta_7 PRIMEAGE_{i,t} + \beta_8 ENERGY_{i,t} + \beta_9 PUBLICEXP_{i,t} + \beta_{10} INCOME_{i,t} + \beta_{11} CITR_{i,t-1} + \beta_{12} NOBONUSDEPR_{i,t-1} + \varepsilon_{i,t}$

All variables are defined in Table II. *EMPLOYGROWTH* is the percent change in total employment (manufacturing employment) from year t-1 to year t. We use employment growth, rather than levels, as the dependent measure to be consistent with prior literature (Harden and Hoyt 2003; Lightner 1999; and Mark et al. 2000) and to avoid problems of systematic differences with time series data and scale issues. As noted by Mark et al. (2000), using growth rates rather than levels allows us to avoid spurious results driven by the persistence in employment levels over time. Using growth rates also helps to control for scale effects and relatively time-invariant state characteristics that drive the level of employment. *DMD* is an indicator variable equal to 1 if a state conforms to the DMD (i.e., allows a Section 199 deduction) in year t-1 and 0 otherwise. *ROLLING* is an indicator variable to capture rolling versus fixed conformity at year *t-1*.

To test *H1a* and *H1b*, the average impact of DMD conformity (Table V), we exclude β_3 but control for whether a state has rolling or fixed conformity to assess the incremental effect of the DMD after controlling for the state tax structure. If states that conform to the DMD have higher employment (manufacturing employment) growth as we expect, β_1 will be positive. We do not make a directional prediction for β_2 because we have no expectations that a rolling conformity policy should directly impact state employment growth. Instead, we expect the state tax structure to impact employment growth through its impact on specific state tax policies, like the DMD.

To test *H2a* and *H2b*, we include the interaction of *DMD* with *ROLLING*. If rolling conformity enhances the positive association between the DMD and state employment (manufacturing employment) growth, we expect β1 and β3 to be positive.

The first group of control variables captures state non-fiscal characteristics. To account for each state's dependence on manufacturing labor relative to other industries, we calculate the percentage of total labor each year from the manufacturing industry. We transform this variable to avoid any mechanical correlation with our dependent variables by ranking the states within each year according to their manufacturing labor intensity (*MFG_RANK*) such that higher levels indicate a higher percentage of manufacturing labor. We do not make a directional prediction for this variable because it is not clear whether states with a high percentage of manufacturing workers should experience more (or less) growth in either manufacturing labor or total labor. Nevertheless, we include this variable to control for the likely association between DMD conformity and manufacturing labor.

Table II
Variable Definitions and Data Sources

Variable	Definitions and Data Sources (in parentheses)
Dependent Variables	
TOTAL_EMPLOYGROWTH	Percentage change in state total employment (source: Bureau of Economic Analysis, U.S. Department of Commerce)
MFG_EMPLOYGROWTH	Percentage change in state manufacturing employment (source: Bureau of Economic Analysis, U.S. Department of Commerce)
Tax Policy Variables	
DMD	Indicator variable coded 1 if the state conforms to the Domestic Manufacturing Deduction in year t - 1 (source: Commerce Clearing House)
ROLLING	Indicator variable coded 1 if the state has rolling conformity to federal tax law in year t - 1 (source: Commerce Clearing House)
Other Variables	
MFG_RANK	The rank (1-46) of the state (within each year) based on the percentage of total labor comprised of manufacturing jobs - higher ranks indicate a higher percentage of manufacturing jobs (source: Bureau of Economic Analysis, U.S. Department of Commerce)
WAGE	Percentage change in state average annual hourly manufacturing wage (source: Bureau of Labor Statistics)
UNION	Percentage change in state workers who are union members (source: Bureau of Labor Statistics)
PRIMEAGE	Percentage change in state population between the ages of 18 and 64 (source: U.S. Census Bureau, Historical Abstracts and American Fact Finder Survey)
ENERGY	Percentage change in state primary energy cost (source: Energy Information Administration)
PUBLICEXP	Percentage change in state public expenditures less welfare (source: Bureau of Economic Analysis, U.S. Department of Commerce)
INCOME	Percentage change in state personal income (source: Bureau of Economic Analysis, U.S. Department of Commerce)
CITR	Top statutory marginal state corporate income tax rate in year t - 1 (source: Commerce Clearing House)
NOBONUSDEPR	Indicator variable coded 1 if the state decouples from federal bonus depreciation in year t - 1 (source: Commerce Clearing House)
REPUBLICAN	Percentage of the state's legislators that are republican (source: The Council of State Governments)

We also include the percentage change in state average hourly manufacturing wage rate (*WAGE*) to control for the business climate in the state and variations in labor costs across states (Wasylenko 1997). As the wage rate increases, one might expect businesses to respond to the increased labor cost by shifting labor to lower-cost jurisdictions or decreasing their demand for additional workers, which would result in lower employment growth in high-wage states. Contrary to this intuition, one study finds that the 13 states that increased their minimum wage in 2014 experienced faster employment growth than other states (Center for Economic and Policy Research 2014). Therefore, we do not make a prediction for *WAGE*. We also include the percentage change in the proportion of union members (*UNION*) present in a state to control for a state's business climate and the overall influence of an organized group on industries within a state (Wasylenko 1997). We expect increases in union membership will pressure companies to increase wages and benefits to employees resulting in reduced employment growth. However, similar to our predictions for *WAGE*, it is possible that the increased employee benefits that derive from union activity may attract more workers to the state and increase the pool of available employees. Therefore, we make no prediction for *UNION*. Next, we include the percentage change of prime age population (*PRIMEAGE*) in a state to proxy for the population of working adults (Wasylenko and McGuire 1985). The prime age population includes those individuals between the ages of 18 and 64. As the working population increases, we expect employment growth to increase as there are more employable individuals within the state. Finally, we control for the percentage change in total energy costs (*ENERGY*) within a state (Wasylenko 1997). When energy costs in a state rise relative to other states, we expect companies to shift investment to other states, resulting in an employment decline for the high-energy cost state.

We also control for expenditure and fiscal characteristics of a state. First, we control for the quantity of services provided by a state's government by including the percentage change in public expenditures less welfare expenditures (*PUBLIC-EXP*). This variable captures the ability of a state to provide quality transportation, infrastructure, and education because firms may value these services (Wasylenko 1997). We expect a positive association between public expenditures and employment growth since state-provided public services should attract business investment leading to increased jobs. Next, we control for the percentage change in personal income to capture the wealth in a state (*INCOME*). As income increases within a state, firms tend to locate more in that state resulting in higher employment growth.

The last group of variables includes corporate income tax characteristics. We control for the state corporate tax rate (*CITR*) using the highest marginal tax rate because firms likely respond to this most salient aspect of a state corporate income tax system. In general, we expect that as the tax rate increases, the tax burden on capital and payroll increase; therefore, jobs will decrease. We also control for whether or not a state conforms to the federal tax provision of bonus depreciation (*NOBONUSDEPR*). *NOBONUSDEPR* is equal to 1 for states that decouple from the bonus depreciation provisions. Bonus depreciation allows taxpayers an additional depreciation deduction, on top of the normal depreciation, for new business property in the first year it is placed in service. The amount of the deduction ranges from 30 percent of the asset's cost to 100 percent, depending on the tax year. We expect that as states choose not to offer this tax incentive by decoupling from federal bonus depreciation, the growth in employment also declines.

During our sample period, no state changed its structure from rolling to fixed conformity (*ROLLING*), or vice-versa, so a state fixed effects specification would absorb our test variable. Therefore, we follow prior literature (Gupta et al. 2009) and include year fixed effects, but not state fixed effects, and robust standard errors in all specifications. In addition, to mitigate simultaneity bias as well as potential omitted variable bias due to time-invariant state-specific factors, we use a changes specification for our dependent variables and many of our independent variables. We lag our test variables and the corporate income tax characteristics variables by one year.

Endogeneity

One potential econometric issue with our model is that an unobservable characteristic may drive both the growth in state employment and the decision to conform to the DMD, which would cause *DMD* to be correlated with the error term and lead to biased estimates. To correct for this possibility, we employ a two-stage-least squares specification where the first stage predicts conformity to the DMD. We use the percentage of state legislators in year t-1 that are Republican (*REPUBLICAN*) as an instrument. This variable should be correlated with *DMD* adoption because states with more Republican representation often adopt tax-reducing incentives, especially those that may benefit local businesses (Shuai and Chmura 2013). Also, Morrow and Ricketts (2010) find empirical evidence that the political affiliation of the state legislature is positively associated with the likelihood of state conformity to federal tax changes that decrease taxable income. In addition, this instrument should meet the exogeneity restriction because there is no a priori reason that Republican states should have more (or less) employment growth.

In our analysis of the interaction of *DMD* with *ROLLING*, we need at least two instruments if *DMD* is endogenous because the interaction would also be endogenous. We use *REPUBLICAN*ROLLING* as our second instrument following Wooldridge (2002). If *REPUBLICAN* meets the requirements of a valid instrument, and *ROLLING* is exogenous, the interaction of the two will also meet the requirements. We expect *ROLLING* is exogenous because most states made the tax structure policy decision many years ago and have not made any changes to it. In fact, some states have a constitutional provision that prevents them from adopting rolling conformity (Mason 2013). For states that do not have this constitutional provision, the decision about the state tax structure was driven by preferences for administrative convenience versus control over the state tax base and revenue stability (Mason 2013) and

is not likely related to employment growth. In addition to the first stage instruments discussed above, we also include the exogenous second stage variables included in the model specification. The results of our first-stage regressions are shown in Appendix B.

Results

Descriptive Statistics and Correlations

Table III presents descriptive statistics of the variables from the 357 state-year observations (43 states over 8 years plus selected years of Texas, Ohio, and Michigan). The table also provides a t-test of the differences in means between those state-year observations conforming to the DMD and those decoupling

Table III
Descriptive Statistics, 2006-2013

Variables	357 state-year obs[a]					200 state-year obs	157 state-year obs		
	Mean	Std Dev	Minimum	Median	Maximum	Conforms to DMD Mean	Does not Conform to DMD Mean	t-test of Means	
Dependent Variables									
TOTAL_EMPLOYGROWTH	0.622	1.873	-5.400	1.100	7.400	0.587	0.667	-0.400	
MFG_EMPLOYGROWTH	-1.599	4.253	-18.100	-0.900	7.700	-1.465	-1.769	0.672	
Tax Policy Variables (1 year lag)									
DMD	0.560	0.497	0.000	1.000	1.000	1.000	0.000		
ROLLING	0.543	0.499	0.000	1.000	1.000	0.700	0.344	7.119	***
Other Variables									
MFG_RANK	23.289	13.243	1.000	23.000	46.000	21.025	26.172	-3.696	***
WAGE	0.817	5.229	-20.400	1.900	11.500	0.863	0.759	0.187	
UNION	-0.005	0.104	-0.307	-0.015	0.435	-0.003	-0.009	0.580	
PRIMEAGE	0.007	0.027	-0.268	0.006	0.404	0.006	0.007	-0.277	
ENERGY	0.057	0.147	-0.392	0.073	0.376	0.054	0.062	-0.540	
PUBLICEXP	0.031	0.190	-3.365	0.036	0.304	0.043	0.014	1.436	
INCOME	3.871	3.309	-6.700	4.100	20.500	3.843	3.908	-0.184	
CITR	7.306	1.731	0.260	7.400	12.000	7.335	7.269	0.354	
NOBONUSDEPR	0.686	0.465	0.000	1.000	1.000	0.555	0.854	-6.349	***
REPUBLICAN	0.475	0.154	0.089	0.481	0.810	0.509	0.432	4.753	***

[a]*43 states * 8 years = 344 plus selected years for Texas, Ohio, and Michigan as follows: Texas included from 2005 to 2007; Ohio included from 2005 to 2009; and Michigan included from 2008 to 2012. See Table II for variable definitions.*

from the DMD. The average growth in total employment (*TOTAL_EMPLOYGROWTH*) across our sample is a 0.622 percent increase over the prior year, but we do not find a statistically significant difference between states that conform to the DMD and states that decouple. Despite the average increase in total employment, manufacturing employment (*MFG_EMPLOYGROWTH*) shrank, on average. The average decline in manufacturing employment across all observations is 1.599 percent. We do not find a statistically significant difference between states that conform to the DMD and states that decouple.

Approximately 56 percent of the state-years conform to the DMD. Rolling conformity state-years represent 54 percent of the sample. State-years that allow a DMD are more likely to be rolling conformity state-years. Seventy percent of the DMD-conforming observations represent rolling conformity state tax structures while only 34 percent of state-years that disallow the DMD are rolling conformity state-years. This difference is statistically significant (t-stat=7.119). This finding highlights the fact that many states that conform to the DMD did so without taking any specific legislative action (i.e., it was adopted automatically because of the rolling conformity structure). We also note that no state changed from rolling to fixed conformity or vice versa in our sample. Any results we observe related to this variable are driven by the cross-sectional variation.

The average manufacturing intensity rank (*MFG_RANK*) across the sample is statistically higher for state-years that do not conform to the DMD (t-stat=-3.696), which suggests that states that disallow the DMD tend to have a higher concentration of manufacturing workers. This result is somewhat surprising because the DMD might be expected to attract new manufacturing jobs given its focus on the manufacturing industry. Also, large in-state manufacturers should demand and lobby for tax incentives like the DMD; therefore, we would expect these states to be more likely to adopt the deduction.

Approximately 69 percent of the state-years across our sample did not conform to the federal bonus depreciation provision. Not surprisingly, the state-years that conform to the DMD are less likely to decouple from bonus depreciation (t=-6.349). This finding exhibits the tendency of certain states to conform to these types of business tax incentives that are offered at the federal level. Of the 109 state-years in our sample that conform to bonus depreciation, only 15 (untabulated) represent state-years with fixed conformity tied to a specific date, which suggests that most states with bonus depreciation did not have to take specific legislative action to adopt it.

Not surprisingly, DMD state-years across our sample have more Republican state legislators than non-DMD states (t-stat=4.753). This finding supports our choice of *REPUBLICAN* as an instrument for *DMD* in our two-stage least squares specification. None of the other control variables is statistically different across the two groups.

Table IV provides correlation coefficients for the variables of interest. Similar to other research, we examine the independent variables to ensure that they are not so highly correlated that their independent effects in the regression model cannot be determined. Our test variable, *DMD*, is significantly correlated with *ROLLING* (correlation=0.355), suggesting the potential for collinearity. This correlation is consistent with our descriptive statistics reported earlier and is not surprising because rolling conformity states automatically adopt the DMD unless they take legislative action; whereas, fixed conformity states have to take legislative action to adopt the DMD. When we calculate variation inflation factors (VIF) on the full model (Table VI), the VIF on *ENERGY* is 16.27 because it is highly correlated with our year variables, particularly 2009. If we exclude *ENERGY* or the year fixed effects, all VIF scores except for *ROLLING* and *DMD*ROLLING* (as expected) are below five, and our inferences remain consistent. Therefore, collinearity in the data does not appear to be of major concern. Nevertheless, we note that our use of a first stage model to predict *DMD* further mitigates any concerns about the potential for *ROLLING* to confound the impact of *DMD*.

Regression Results

The results from the baseline regression model, excluding the interaction term, are presented in Table V. As previously mentioned, we first examine whether conformity to the DMD, on average, has any impact on total employment growth (Column I) and manufacturing employment growth (Column II). We find results consistent with *H1b* but not *H1a*. As shown in Column I, we do not find any statistical association between state conformity to the DMD and total employment growth. However, as expected, we find a positive association between state conformity to the DMD and manufacturing employment growth (Column II, coefficient=0.8352, z-stat=1.80). Interestingly, these results show that state DMDs impact the targeted group, the manufacturing sector, but have no impact on variations in total state employment. We discuss this anomaly in more detail in our sensitivity analyses. These results suggest that states that are able to lower effective tax rates for DMD-eligible firms benefit from increased manufacturing employment growth (or less severe declines) relative to other states because the firms responding to the incentive are likely to be firms with a substantial amount of manufacturing activity.

Table IV
Correlation Coefficients Among Tax Policy Variables, 2006-2013 (N=357 state-years)

Variables	TOTAL_ EMPLOY GROWTH	MFG_ EMPLOY GROWTH	DMD	ROLLING	MFG_ RANK	WAGE	UNION	PRIME-AGE	ENERGY	PUBLIC-EXP	INCOME	CITR	NOBONUS-DEPR
TOTAL_ EMPLOY	1.000	0.719	-0.037	0.046	-0.146	0.641	0.000	0.129	0.181	0.134	0.692	-0.150	-0.124
GROWTH		<0.01	0.48	0.38	0.01	<0.01	0.99	0.02	<0.01	0.01	<0.01	<0.01	0.02
MFG_ EMPLOY	0.831	1.000	0.050	0.025	-0.038	0.841	-0.042	-0.120	0.146	-0.098	0.520	-0.057	-0.185
GROWTH	<0.01		0.34	0.64	0.47	<0.01	0.43	0.02	0.01	0.06	<0.01	0.28	<0.01
DMD	-0.021	0.036	1.000	0.355	-0.192	0.019	0.024	0.017	-0.017	0.083	0.017	0.016	-0.319
	0.69	0.50		<0.01	<0.01	0.72	0.66	0.75	0.75	0.12	0.75	0.77	<0.01
ROLLING	0.051	0.023	0.355	1.000	-0.247	0.039	-0.001	-0.001	0.002	0.061	0.030	0.005	-0.438
	0.34	0.67	<0.01		<0.01	0.46	0.99	0.98	0.98	0.25	0.57	0.93	<0.01
MFG_RANK	-0.129	-0.068	-0.193	-0.248	1.000	0.006	0.009	-0.246	-0.051	-0.021	-0.073	0.004	0.294
	0.02	0.20	<0.01	<0.01		0.91	0.86	<0.01	0.33	0.69	0.17	0.94	<0.01
WAGE	0.800	0.916	0.010	0.019	-0.035	1.000	-0.080	-0.071	0.261	0.028	0.587	-0.043	-0.143
	<0.01	<0.01	0.85	0.73	0.51		0.13	0.18	<0.01	0.60	<0.01	0.42	0.01
UNION	0.034	-0.014	0.031	0.003	-0.016	-0.015	1.000	0.043	0.034	-0.021	-0.032	-0.006	0.025
	0.53	0.79	0.56	0.96	0.77	0.77		0.42	0.53	0.69	0.54	0.92	0.64
PRIME-	0.052	-0.019	-0.015	0.008	-0.093	0.022	-0.005	1.000	0.155	0.065	0.105	-0.233	-0.126
AGE	0.32	0.72	0.78	0.88	0.08	0.68	0.92		<0.01	0.22	0.05	<0.01	0.02
ENERGY	0.495	0.528	-0.029	-0.004	-0.050	0.616	-0.011	0.104	1.000	0.204	0.519	-0.011	0.000
	<0.01	<0.01	0.59	0.94	0.35	<0.01	0.84	0.05		<0.01	<0.01	0.84	1.00
PUBLIC-	-0.028	-0.054	0.076	0.070	0.021	-0.049	0.022	-0.043	0.041	1.000	0.289	-0.040	-0.050
EXP	0.60	0.31	0.15	0.18	0.69	0.36	0.69	0.42	0.44		<0.01	0.45	0.34
INCOME	0.779	0.665	-0.010	0.034	-0.085	0.725	0.001	0.058	0.659	0.005	1.000	-0.043	-0.113
	<0.01	<0.01	0.85	0.52	0.11	<0.01	0.99	0.28	<0.01	0.92		0.42	0.03
CITR	-0.062	0.013	0.019	-0.056	0.021	0.003	-0.039	-0.060	0.007	0.068	-0.019	1.000	0.110
	0.24	0.81	0.72	0.29	0.70	0.96	0.46	0.26	0.89	0.20	0.72		0.04
NOBONUS-	-0.133	-0.152	-0.319	-0.438	0.297	-0.109	-0.011	-0.033	-0.018	-0.051	-0.135	0.135	1.000
DEPR	0.01	<0.01	<0.01	<0.01	<0.01	0.04	0.83	0.54	0.73	0.34	0.01	0.01	

Note: Spearman (Pearson) correlation coefficients are shown in the upper (lower) diagonals.
Two-tailed p-values are shown below the correlation coefficients. See Table II for variable definitions.

On average, states in our sample with rolling conformity (*ROLLING*) exhibit less growth in the manufacturing sector than fixed conformity states (coefficient=-0.3419, z-stat=-2.06), but *ROLLING* has no impact on total employment.

States with a higher percentage of manufacturing workers tend to have lower levels of total employment growth (coefficient=-0.0103, z-stat=-3.53). In fact, manufacturing comprises a significant portion of total employment for states in the upper Midwest and the South. Interestingly enough, 60 percent of these states also ranked in the lower half of total employment growth for 2013 (Scott 2015). *WAGE* is highly significant and positive, indicating that an increase in the average state manufacturing wage is associated with an increase in both total employment growth (coefficient=0.0965, z-stat=5.54) and manufacturing employment growth (coefficient=0.6045, z-stat=15.65). While a wage premium exists for manufacturing employees without a college education, the wage premium

is higher in states producing high-tech or capital-intensive goods, including aircraft, automobiles, and refined petroleum products (Scott 2015). States focused on these industries may also be more likely to experience both total and manufacturing employment growth. As expected, states with higher personal income growth (*INCOME*) have higher employment growth in the manufacturing sector (coefficient=0.0769, z-stat=2.08) and in total (coefficient=0.2359, z-stat=6.87). Also as expected, higher tax rates (*CITR*) are associated with less growth in total employment (coefficient=-0.0759, z-stat=-3.47), but tax rates are not significantly associated with manufacturing employment growth.

When we include *ROLLING* and the interaction of *ROLLING* with *DMD* in Table VI, Column I, none of the three test variables is significant as a predictor of total employment growth. In addition, the linear combination of *DMD* with *ROLLING*DMD* ($\beta_1 + \beta_3$) is not significant, further confirming

Table V

Table V
Two Stage Least Squares Regression Model for Main Effects

$$EMPLOYGROWTH_{i,t} = \beta_0 + \beta_1 DMD_{i,t-1} + \beta_2 ROLLING_{i,t-1} + \beta_3 DMD*ROLLING_{i,t-1} +$$
$$B_4 MFG\_RANK_{i,t-1} + \beta_5 WAGE_{i,t} +$$
$$\beta_6 UNION_{i,t} + \beta_7 PRIMEAGE_{i,t} + \beta_8 ENERGY_{i,t} +$$
$$\beta_9 PUBLICEXP_{i,t} + \beta_{10} INCOME_{i,t} + \beta_{11} CITR_{i,t-1} +$$
$$\beta_{12} NOBONUSDEPR_{i,t-1} + \varepsilon_{i,t}$$

Dependent Variable:		Column I: TOTAL_EMPLOY GROWTH			Column 2: MFG_EMPLOY GROWTH		
Variables	Predicted Direction	Coeff	z-stat		Coeff	z-stat	
Tax Policy Variables							
DMD	+	0.0492	0.21		0.8352	1.80	*
ROLLING	+/-	0.0629	0.65		-0.3419	-2.06	**
Other Variables							
MFG_RANK	+/-	-0.0103	-3.53	***	-0.0064	-1.02	
WAGE	+/-	0.0965	5.54	***	0.6045	15.65	***
UNION	+/-	0.2266	0.57		-0.1210	-0.23	
PRIMEAGE	+	2.8501	1.39		-1.0819	-0.64	
ENERGY	-	-0.4044	-0.35		0.1863	0.09	
PUBLICEXP	+	0.0398	0.30		-0.1233	-0.88	
INCOME	+	0.2359	6.87	***	0.0769	2.08	**
CITR	-	-0.0759	-3.47	***	-0.0028	-0.07	
NOBONUSDEPR	-	0.0819	0.79		-0.1788	-1.16	
Intercept		1.5283	5.88	***	-0.2508	-0.59	
Year Fixed Effects		Yes			Yes		
N		357			357		
Wald Chi Squared		1780.26			4898.18		
R2		0.867			0.928		

Notes: ***, **, and * indicate significance for a two-tailed test at the 1 percent, 5 percent, and 10 percent levels, respectively. See Table II for variable definitions. First stage regression shown in Appendix B.

that the DMD has no impact on total employment growth. Therefore, our results are also inconsistent with *H2a*. In the manufacturing employment growth specification (Table VI, Column II), β_1, which represents the impact of DMD conformity in fixed conformity states, is not significant. However, the linear combination of *DMD* with *ROLLING*DMD* ($\beta_1 + \beta_3$), which represents the impact of DMD conformity in state-years that use rolling conformity, is positive and significant (coefficient=3.0635, t-stat=2.51). This result suggests that the average impact of DMD conformity observed in Table V is driven by state-years that use rolling conformity rather than fixed conformity. Based on this analysis, we conclude our results are inconsistent with *H2b*, which predicts an *enhanced* effect of the DMD in rolling conformity states. Instead, we

Table VI
Two Stage Least Squares Regression Model for Main and Interaction Effects

$$EMPLOYGROWTH_{i,t} = \beta_0 + \beta_1 DMD_{i,t-1} + \beta_2 ROLLING_{i,t-1} + \beta_3 DMD*ROLLING_{i,t-1} +$$
$$B_4 MFG\_RANK_{i,t-1} + \beta_5 WAGE_{i,t} +$$
$$\beta_6 UNION_{i,t} + \beta_7 PRIMEAGE_{i,t} + \beta_8 ENERGY_{i,t} +$$
$$\beta_9 PUBLICEXP_{i,t} + \beta_{10} INCOME_{i,t} + \beta_{11} CITR_{i,t-1} +$$
$$\beta_{12} NOBONUSDEPR_{i,t-1} + \varepsilon_{i,t}$$

Dependent Variable:		Column I: TOTAL_EMPLOY GROWTH			Column 2: MFG_EMPLOY GROWTH		
Variables	Predicted Direction	Coeff	z-stat		Coeff	z-stat	
Tax Policy Variables							
DMD	+	-0.0754	-0.23		-0.3112	-0.48	
ROLLING	+/-	-0.1429	-0.36		-2.2354	-2.39	**
DMD X ROLLING	+	0.3668	0.54		3.3746	2.22	**
LinCom: DMD + (DMD X ROLLING)	+	0.2914	0.56		3.0635	2.51	**
Other Variables							
MFG_RANK	+/-	-0.0108	-3.39	***	-0.0113	-1.53	
WAGE	+/-	0.0971	5.54	***	0.6101	14.55	***
UNION	+/-	0.2401	0.60		0.0035	0.00	
PRIMEAGE	+	2.9649	1.48		-0.0252	-0.01	
ENERGY	-	-0.3287	-0.28		0.8831	0.37	
PUBLICEXP	+	0.0597	0.42		0.0594	0.32	
INCOME	+	0.2394	6.58	***	0.1093	2.38	**
CITR	-	-0.0769	-3.42	***	-0.0119	-0.26	
NOBONUSDEPR	-	0.1345	0.93		0.3052	0.98	
Intercept		1.5505	5.71	***	-0.0464	-0.10	
Year Fixed Effects		Yes			Yes		
N		357			357		
Wald Chi Squared		1739.77			3346.52		
R2		0.863			0.887		

Notes: ***, **, and * indicate significance for a two-tailed test at the 1 percent, 5 percent, and 10 percent levels, respectively. See Table II for variable definitions. The linear combination represents the combination of DMD (main effect) plus the interaction of DMD with ROLLING.

conclude that the DMD *only* impacts manufacturing employment growth in rolling conformity states and *not* in fixed conformity states, on average.

Overall, these results point to an incremental state employment growth impact in the manufacturing sector but not in total employment. They also contribute to previous findings that uncertainty about tax policies can deter investment. Based on this analysis, it appears that states that have more certain adoption of the federal DMD (i.e., rolling conformity) are more likely to experience the manufacturing employment benefits of the tax preference relative to other states. In other words, states with less tax policy uncertainty experience the manufacturing employment benefits of a state DMD. The inferences for our control variables in Table VI are consistent with those in Table V.

Economic Analysis

According to these results, on average, DMD conformity is associated with a 0.8352 (Table V, Column II) percent increase in manufacturing employment growth. The average manufacturing employment in our sample (untabulated) is 262,693 jobs. For the average state-year, DMD conformity is associated with about 2,194 more jobs (262,693 *0.008352). Our Table VI results provide a more accurate analysis because these models are more complete. The specifications in Table VI demonstrate that fixed conformity states, on average, should expect no additional growth in manufacturing employment as a result of DMD conformity. However, the results suggest that DMD conformity is associated with a 3.0635 (Table VI, Column II) percent increase in manufacturing employment when the state has rolling conformity. For the average state-year with rolling conformity, manufacturing employment is 230,069 jobs (untabulated), and a 3.0635 percent increase represents about 7,048 jobs. Although these results should be interpreted with caution since they represent averages based on our model as specified, they clearly demonstrate that the impacts we find can be significant and important to a state's manufacturing employment growth.

Additional Analyses

Shifting Jobs Across Industries

An important aspect of our primary analysis is that DMD conformity appears to have no real impact on total employment growth, even in rolling conformity states, despite its positive association with manufacturing employment growth. This result suggests that the growth experienced in the manufacturing sector may be at the expense of other industries. This effect is likely driven by the fact that only federal DMD-eligible firms respond to the variations in state tax policy as it relates to the DMD. In other words, eligible firms may respond to the federal DMD by shifting activity from their non-eligible functions towards manufacturing operations to take advantage of the increased federal deduction. Given that these same firms are the ones we expect to respond to state DMD incentives by increasing activity in DMD states, it follows that DMD states may experience more manufacturing job growth relative to other states, and at the same time, less non-manufacturing job growth relative to other states. It is possible, then, that state conformity to the DMD does not have the intended impact of boosting employment in DMD states relative to other states but rather shifts state jobs from non-manufacturing industries to manufacturing.

To provide further evidence about this phenomenon, we specify an alternative model where the dependent variable is the growth in manufacturing intensity of the state (i.e., the growth in the percentage of state workers that are employed in the manufacturing industry). If DMD conformity in rolling states has no impact on total employment but is associated with growth in manufacturing employment, then it follows that DMD conformity in rolling states should be positively associated with the state's manufacturing labor intensity. Results for this specification are shown in Column I of Table VII and are consistent with our main results. DMD conformity has no impact on manufacturing intensity in fixed conformity states, but it has a positive impact on manufacturing intensity in rolling conformity states (coefficient=2.7949, z-stat=2.53). Our inferences for this specification are also robust to excluding *MFG_RANK*. Overall, this analysis provides additional evidence for our conjecture that, perhaps, growth in the manufacturing sector driven by state conformity to the DMD comes at the expense of other industry job sectors as firms respond to the federal DMD by re-allocating activity towards manufacturing operations.

Split Sample Analysis

To validate our main result that the DMD has an impact on manufacturing employment growth only in rolling conformity states, we split our sample into rolling and fixed conformity observations and re-run our regressions excluding *ROLLING* and the interaction term. Results are shown in Table VII, Columns II and III. Consistent with our main findings, DMD conformity is associated with greater manufacturing growth in rolling conformity states only (Column II, coefficient=2.2789, z-stat=2.41). Again, this is consistent with our previous contribution to the literature confirming that uncertainty about tax policies can deter investment. Therefore, rolling conformity states that face less tax policy uncertainty experience the manufacturing employment benefits of a state DMD.

Conclusions and Areas for Future Research

The purpose of this study is to empirically investigate the impact that conformity to the domestic manufacturing deduction has on total employment growth and manufacturing employment growth. We contribute to this area of research by providing insight into the effects of a specific tax provision on employment. We further demonstrate that tax policy uncertainty at the state government level can impede the effectiveness of tax incentives. We find that, on average, states that conform to the DMD have higher manufacturing employment growth (or less severe declines) but not higher total employment growth relative to states without a DMD. If manufacturing employment responds to this specific tax incentive but total employment does not, perhaps firms are merely reallocating their investment decisions from other sectors to manufacturing. In addition, we demonstrate that higher manufacturing employment growth is isolated to state-years with rolling conformity that have adopted the DMD. This finding suggests that state tax conformity uncertainty, which is higher in fixed conformity states, hinders investments that companies might otherwise make in response to tax incentives.

These findings should be of interest to state policymakers considering conformity to (or decoupling from) the domestic manufacturing deduction. Differences in DMD policies across states may not affect total employment growth relative to other states but may improve manufacturing employment growth. Business executives should also be interested in these results because the DMD represents a significant change in federal legislation and a permanent tax deduction resulting in a lower effective tax rate for firms at the federal level and the potential for lower state effective tax rates as well. Policymakers should also consider the impact that tax policy uncertainty, and specifically, the state tax structure (rolling versus fixed conformity) might have on businesses' behavioral responses to tax incentives. In a free enterprise system, it is important for policymakers to realize that employment growth may not be accomplished or may vary depending on to the relative certainty with which states conform to federal laws. Tax policy researchers should consider the impact of the state tax structure when examining the economic consequences of conformity to any federal tax provision.

Although our results are based on several years of data across all corporate income tax states, the time period we examine is relatively volatile in terms of macroeconomic shocks. Future research should include further analysis of the effectiveness of the DMD as time passes. In addition, future research should also examine the impact of the domestic manufacturing deduction on other industries and other types of investment. We have currently only examined employment growth in total and in the manufacturing industry. While the latter might have been the primary target industry of the DMD, the tax incentive itself is rather broad in scope and includes other industries such as entertainment, utilities, and services. Similarly, the DMD likely has impacts on other types of economic measures such as new firm births, capital investment, and state GDP. We leave the examination of the DMD's impact in these other specific industries and on these other economic measures to future research.

Table VII
Sensitivity Analyses

Dependent Variable:	Column I: Manufacturing Intensity			Columns II and III: Split Sample Analysis					
				Rolling Conformity Observations Only			Fixed Conformity Observations Only		
	Growth in (MFG Jobs/ Total Jobs)			MFG Job Growth			MFG Job Growth		
Variables	Coeff	z-stat		Coeff	z-stat		Coeff	z-stat	
Tax Policy Variables									
DMD	-0.3085	-0.45		2.2789	2.41	**	-0.3528	-0.61	
ROLLING	-2.1397	-2.43	**	-	-		-	-	
DMD X ROLLING	3.1034	2.13	**	-	-		-	-	
LinCom: DMD + (DMD X ROLLING)	2.7949	2.53	**						
Other Variables									
MFG_RANK	-0.0017	-0.23		-0.0163	-1.85	*	-0.0169	-1.52	
WAGE	0.5158	14.81	***	0.5996	11.24	***	0.6248	15.00	***
UNION	-0.2073	-0.30		-0.2435	-0.23		0.2171	0.32	
PRIMEAGE	-3.0776	-0.67		0.1025	0.04		0.3353	0.04	
ENERGY	1.0041	0.44		1.0776	0.33		-1.1981	-0.45	
PUBLICEXP	0.0251	0.11		-0.8633	-0.44		-0.0413	-0.28	
INCOME	-0.1240	-2.42	**	0.1109	2.29	**	0.0703	0.99	
CITR	0.0666	1.58		-0.1413	-1.91	*	0.1293	2.86	***
NOBONUSDEPR	0.1922	0.66		0.2331	0.65		0.3588	1.28	
Intercept	-1.5756	-3.28	***	-0.5019	-0.67		-1.1648	-2.75	***
Year Fixed Effects	Yes			Yes					
N	357			194			163		
Wald Chi Squared	1486.61			2049.55			3706.43		
R2	0.7930			0.8901			0.9412		

Notes: ***, **, and * indicate significance for a two-tailed test at the 1 percent, 5 percent, and 10 percent levels, respectively. See Table II for variable definitions. The linear combination represents the combination of DMD (main effect) plus the interaction of DMD with ROLLING.

* Other DMD-eligible industries included are Information, Wholesale Trade, Mining.

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For corporations, the current law states that the domestic manufacturing deduction (DMD) is equal to the lesser of (1) nine percent of qualified productions activities income (QPAI) or (2) taxable income, and is limited to 50 percent of W-2 wages paid that are allocable to domestic production gross receipts (DPGR).

The following activities qualify for the DMD (Treas. Regs. Section 1.199-3):
- the manufacture of tangible personal property;
- the production of sound recordings and certain films;
- software developed in the U.S. whether purchased off the shelf or downloaded, including video games;
- the production of electricity, natural gas, or water;
- selling, leasing, or licensing items manufactured, produced, grown, or extracted in the U.S.;
- selling, leasing, or licensing films produced in the U.S.;
- construction in the U.S., including both erection and substantial renovation of residential and commercial buildings; and
- engineering and architectural services relating to a construction project performed the U.S.

For DPGR, foreign production gross receipts must be excluded.

The following examples highlight the DMD calculation:

Example 1: For the year ended December 31, 2016, ABC, Inc. (C-Corp) had taxable income of $1 million and paid $150,000 in W-2 wages. The entire amount of taxable income represents QPAI.

Example 1 Solution: ABC, Inc. is entitled to a DMD of $75,000 due to the 50 percent limit of W-2 wages ($150,000 X 50 percent). If the W-2 wages had been greater than $180,000, the deduction would be $90,000 ($1 million X 9 percent).

Example 2: For the year ended December 31, 2016, LMN, Inc. (C-Corp) had total gross receipts of $75 million and DPGR of $56 million. Cost of goods sold and wages allocable to DPGR is $15 million, and other expenses directly and indirectly related to DPGR are $7 million. The taxable income was $25 million and LMN, Inc. paid $8 million in W-2 wages.

Example 2 Solution: XYZ, Inc. is entitled to a DMD of $2,250,000 ($25 million X 9 percent). QPAI is $34 million and is calculated by subtracting the DPGR expenses from DPGR ($56 million less $15 million less $7 million). Taxable income of $25 million is less than the QPAI of $34 million. Therefore, the DMD is limited to 9 percent of taxable income ($25 million). If taxable income had exceeded $34 million, the DMD would be $3,060,000 ($34 million X 9 percent). The W-2 wage limitation does not apply here because the DMD does not exceed $4 million ($8 million X 50 percent).

First-Stage Regressions

Dependent Variable:	First Stage for Table V Results			First Stage for Table VI Results					
	DMD			DMD			DMD * ROLLING		
Variables	Coeff	t-stat		Coeff	t-stat		Coeff	t-stat	
Tax Policy Variables									
ROLLING	0.3072	6.08	***	0.3953	2.45	**	0.3337	2.72	***
REPUBLICAN	1.1441	7.13	***	1.2324	6.54	***	0.0559	0.86	
ROLLING X REPUBLICAN	-	-		-0.1929	-0.61		0.7263	2.95	***
Other Variables									
MFG_RANK	-0.0061	-3.23	***	-0.0059	-3.04	***	-0.0014	-1.02	
WAGE	-0.0033	-0.36		-0.0029	-0.31		-0.0044	-0.56	
UNION	0.0291	0.15		0.0276	0.14		-0.0215	-0.15	
PRIMEAGE	-0.5832	-0.58		-0.5873	-0.57		-0.4956	-0.54	
ENERGY	-1.5265	-2.81	***	-1.4845	-2.69	***	-0.8831	-1.97	**
PUBLICEXP	0.1247	2.77	***	0.1288	2.86	***	-0.0273	-0.88	
INCOME	-0.0259	-1.54		-0.0251	-1.48		-0.0215	-1.45	
CITR	0.0469	3.54	***	0.0456	3.35	***	0.0237	3.01	***
NOBONUSDEPR	-0.1075	-1.91	*	-0.1182	-2.13	**	-0.1396	-2.75	***
Intercept	-0.3270	-2.00	**	-0.3582	-2.13	**	-0.0541	-0.52	
Year Fixed Effects									
N	357			357			357		
F-stat	11.80			11.680			40.38		
Adjusted R2	0.247			0.246			0.580		

Notes: ***, **, and * indicate significance for a two-tailed test at the 1 percent, 5 percent, and 10 percent levels, respectively. See Table II for variable definitions.

Organizational Culture as a Customer Profitability Analysis Adoption Impediment

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ABSTRACT

This paper addresses the role organizational culture plays in the perceived impediments to implementation of customer profitability analysis (CPA). CPA has the potential to materially increase shareholder value when properly implemented, thus positively impacting our free enterprise system. The study uses a survey instrument to explore how organizational culture may impede the adoption of CPA. We find that firms having an organizational culture characterized with control values perceive aversion to change as a greater impediment to CPA adoption than firms having an organizational culture characterized with flexibility values. If a firm can self-identify as having a flexible values or control values organizational culture, it may be possible for the firm to follow CPA implementation guidance with a greater degree of success.

Keywords: Customer profitability analysis, Performance measurement system, Organizational culture

Introduction

Performance measurement is a tool used by the management of an organization to help them determine whether they are meeting their corporate objectives (Bourne and Bourne 2011). Customer profitability analysis is an important and often overlooked component of a comprehensive performance measurement system (PMS). Organizations often tailor a PMS to focus on measures of capacity, efficiency, and product or business segment profitability (Selden and Colvin 2004). While such measures are valuable and offer key insights into how well an organization is managed, they often ignore an important assertion that an organization can dramatically increase shareholder value if it is recognized and managed as a portfolio of customers (Selden and Colvin 2004). Customer profitability analysis (CPA) is a tool that can help managers focus and steer organizational efforts toward larger profits and greater shareholder value by segmenting customers into groups with homogeneous needs (Selden and Colvin 2004). Advocates indicate that CPA provides organizations with an opportunity to identify their most profitable customers so that they can take steps to protect and enhance their relationship with them (Cokins 1996, Kaplan and Cooper 1998, Selden and Colvin 2004). They contend that managers who use CPA gain visibility of unprofitable or less profitable customers. This visibility allows management to customize pricing strategies to make these customers profitable, reprice or outsource expensive customer service activities, or concede low profit customers to competitors (Cokins 1996, Kaplan and Cooper 1998, Selden and Colvin 2004).

Researchers suggest that it is not uncommon for more than 120 percent of a company's profit to be generated by as few as 20 percent of its existing customer base (Elias and Hill 2010, Guerriero et al. 2008, Selden and Colvin 2004). It is also not uncommon that the bottom 20 percent of a company's customers generate losses equaling more than 100 percent of the company's profit (Guerreiro et al. 2008). A case study of a food company in Brazil with a wide range of products and services illustrates this point. The Brazilian company was under the impression that all of its customers generated a contribution margin of approximately 40 percent (Guerreiro et al. 2008). When the managers of the company allocated sales, marketing, distribution, and administrative (SMDA) costs to its customer base, they found that six percent of their existing customers contributed 80 percent of the total company profit (Guerreiro et al. 2008). These findings are alarming, and suggest that organizations that do not use some form of CPA stand to make misinformed decisions that may fail to maximize shareholder value.

Several researchers identify a gap between perceived CPA managerial merit and CPA adoption (Guilding and McManus 2002, Lord et al. 2007, Tanima and Bates 2015). Research aimed at exploring and understanding this gap is limited. McManus and Guilding (2009) use qualitative methods to explore CPA adoption in Australian companies and identify the following five implementation impediments companies encounter while attempting to adopt CPA: information technology problems, competing organizational priorities, aversion to change, inadequate skills, and the political context of an organization.

While categorizing potential impediments is an important first step in understanding CPA adoption, the categories offer managerial accountants little guidance or advice on how to successfully avoid or overcome these impediments. Furthermore, the McManus and Guilding (2009) study is limited to Australian organizations. To extend our understanding of CPA, this study focuses on learning more about the impediments identified by McManus and Guilding (2009) and offers a perspective from organizations in the United States.

Specifically, the purpose of this study is to begin to fill in the research gap that exists by identifying why the perceived managerial merit of CPA is significantly higher than actual CPA adoption. In particular, we explore the role organizational culture plays in the adoption of CPA. The primary objectives of this study are:

1. To assess practitioners' perceptions of the five impediments to CPA adoption introduced by McManus and Guilding (2009); and

2. To determine if corporate culture has an impact on the five impediments identified by McManus and Guilding (2009).

We believe addressing these objectives provides more guidance on how to avoid or overcome the impediments to CPA adoption. We start with a review of the literature on performance measurement system implementations. We then review the literature on customer profitability analysis, adoption, and implementation, followed by a review of the literature surrounding the impact organizational culture has on CPA adoption, leading to development of the hypotheses of this study. This section is followed by a discussion of the study methodology and the measurement instrument. We then conclude with a discussion of our results, conclusions, and suggestions for further research.

Literature Review

Performance Measurement System Implementation Challenges

The topic of how to implement PMS initiatives has existed since at least the early 1990s when the Balanced Scorecard (BSC), a popular framework for PMS, gained wide acceptance in both practice and academic circles (Cokins 1996, Cooper 1990, Kaplan and Cooper 1998). Companies struggle to adopt and implement PMS for a variety of reasons. For small and medium-sized enterprises (SME), the costs to implement PMS often outweighs the perceived benefits gained (Neely et al. 1995). Managers from SMEs believe that formal measurement systems are a luxury, and that they can manage effectively by "feel" rather than by a formal PMS (Neely et al. 1995). Large organizations often take an ad hoc approach

to PMS implementation, causing errors and inconsistencies in data collection due to biases toward furthering their own initiatives (Fernandes et al. 2006).

Kaufmann and Becker (2005) identify seven specific PMS impediments in multinational companies operating in Brazil: commitment, adverse support from consultants, lack of top-management support, lack of strategy comprehension, difficulties in identifying strategic objectives and cause-and-effect relationships, insufficient alignment of objectives, and a lack of completeness. Kaplan and Norton (1996) identify four impediments to PMS implementation: vision and strategy is not actionable; strategy is not linked to department, team, and individual goals; strategy is not linked to resource allocation; and feedback is tactical and not strategic. None of these impediments address the role organizational culture may play in preventing the adoption and implementation of PMS.

Although research explaining PMS implementation impediments is limited, there is no lack of PMS implementation guidance. Kaplan and Cooper (1998) offer practitioners a four-stage PMS model to help design and implement PMS. Keegan et al. (1989) provide a performance measurement framework called the performance measurement matrix. The matrix is a little known alternative to the Balanced Scorecard, and is promoted as a matrix that could accommodate measures that fit within the Balanced Scorecard. Globerson (1985) and Maskell (1989) provide a set of guidelines a firm could use to select the appropriate measures within a PMS, but stop short of providing any implementation guidance. Fry and Cox (1989) recognize that conflict may be inevitable as organizations design a PMS, dooming implementation. They cite a case study where a plant manager focused on return on investment while product managers were incentivized on the quantity of orders shipped (Fry and Cox 1989). The two goals conflicted and ultimately caused the PMS to fail (Fry and Cox 1989). Blenkinsop and Davis (1991) identify a list of items that firms must consider as they design and implement PMS. While they include corporate culture as one item to consider, they do not provide a definition of what they mean or provide guidance as to how the culture should be considered.

Customer Profitability Analysis, Adoption and Implementation

Despite the potential increase in shareholder value promised from CPA, researchers identify a significant gap between the usage rate of CPA and its perceived managerial merit (Guilding and McManus 2002, Lord et al. 2007, Tanima and Bates 2015). For example, Tanima and Bates (2015) find CPA mean usage to be 4.55, but its perceived managerial merit to be

5.59 on a seven-point Likert measurement scale. The causes of this difference between CPA usage and CPA perceived managerial merit remain largely unexplored in managerial accounting literature.

The accounting literature on CPA adoption and implementation is relatively limited. Several studies describe when CPA adoption is appropriate for a firm and investigate how CPA impacts financial performance. For example, Guilding and McManus (2002) survey 251 Australian firms in an effort to understand the frequency of adoption of CPA techniques. Their study indicates that most firms utilize some form of CPA, while few firms utilize other customer accounting (CA) techniques such as customer lifetime valuation or assignment of an equity figure to each customer. Al-Mawali et al. (2012) find that service companies in Jordan with a higher propensity to use CPA experienced higher organizational performance at a statistically significant level.

Lind and Strömsten (2006) analyze two Swedish organizations to further investigate a company's choice of customer accounting techniques based on customer attributes and interactions. Their findings suggest that different firms need different CA information based on the specific relationship the firm has with its customers. Their findings partially explain that a gap in CA adoption and perceived managerial merit exists because customer relationships are highly specific and contextual and may not easily be reduced to a calculation. Cadez and Guilding (2008) survey 193 Slovenian companies and find no universally appropriate factors, such as company size or strategy, that have a significant bearing on the successful application of CA. Others are critical of accounting literature addressing CA because it fails to provide a clear definition or model (Cäker 2007, Chenhall and Langfield-Smith 2007, Helgesen 2007). More recently, research finds that CA techniques seem to fail to live up to their promise of making accounting information more useful in managerial decision making (Haider et al. 2011, Nixon and Burns 2012).

Although CPA is a component of PMS, a link has not been drawn in the literature between CPA and PMS implementation inhibitors. However, the factors surrounding PMS discussed above may be similar to the inhibitors of CPA implementation. McManus and Guilding (2009) investigate the use of CPA at 14 companies and find consistent, ongoing use of CPA at only two of the firms in their sample. Their research identifies structural forces within organizations that are impediments to CA adoption including competing organizational priorities and information technology constraints. Selection of accounting information and processes to use in decisions may often be impacted by structural forces in organizations (Shields 1995). Accounting may be viewed as a set of inter-related social,

political, and institutional practices (Hopwood and Miller 1994); therefore, we should understand the social and political processes at work in organizations' (corporate cultures if we are to understand why they adopt some accounting practices and not others.

Impact of Organizational Culture on CPA Adoption

Research specifically addressing organizational culture and CPA is minimal. Fish et al. (2017) conduct a single-site case study of an American manufacturing firm, find that organizational culture and internal power and politics play a significant role in limiting the implementation of CPA. In addition, Henri (2006) surveys 383 Canadian manufacturing firms and finds empirical evidence organizational culture, from a control-flexibility values perspective, has a direct effect on the diversity of measurement and an indirect effect on the nature of use of PMS. Henri (2006) defines the diversity of measurement as a broad set of financial and nonfinancial measures and the nature of use as monitoring, strategic decision-making, etc.

The attributes of organizational culture used in the Henri (2006) study are control and flexibility. Control and flexibility represent two competing values which are considered to be attributes of organizational culture (Quinn, 1988). Control values refer to conformity, rigidity, and predictability (Henri, 2006). Control values are supported and reinforced by many accounting practices such as budgeting, product costing, and financial statement preparation (Henri, 2006). On the other hand, flexibility values refer to openness, adaptability, and responsiveness (Henri, 2006). Flexibility values are often discouraged within accounting practices (Henri, 2006). For example, pro forma income is a figure not recognized by generally accepted accounting principles. Firms typically have an organizational culture that either promotes control values or flexibility values (Henri, 2006).

Control Values

An organizational culture displaying control values is a hierarchical culture that reflects bureaucracy and stability (Henri, 2006). Rules and regulations are emphasized and enforced. Primary emphasis is placed on planning, productivity, and goal clarity. Organizations that display control values have highly structured channels of communication, restrict the flow of information, and tightly control operations (Burns and Stalker 1961). These organizations are very structured and tend to avoid innovative measurement systems. It is likely organizations displaying control values are less likely to adopt and implement CPA. The CPA implementation impediments they experience are probably political in nature and stem from the fact that a sense of control over the organization

may be lost if alternative measures are introduced into their reporting packages (Burns and Stalker 1961).

Flexibility Values

An organizational culture displaying flexibility values is likely to embrace change, adapt and respond to the market quickly, and be spontaneous in their management style (Henri, 2006). These organizations are likely to be innovative, creative, and positioned for growth (Henri, 2006). Controls are often loose within firms that display flexibility values, and information flows freely within the organization (Henri, 2006). These firms embrace change and are likely to try new metrics such as CPA.

Although Henri (2006) finds from a controls-flexibility perspective that organizational culture has an indirect effect on the use of PMS (i.e., one was already in place), the study does not address whether organizational culture plays a role in the adoption or implementation of PMS. As previously stated, McManus and Guilding (2009) identify five implementation impediments companies encounter while attempting to adopt CPA techniques: aversion to change, internal power and politics, competing organizational priorities, information systems, and inadequate skills. Fish et al. (2017) also find that internal power and politics as an impediment to CPA adoption. While Fish et al. (2017) also find corporate culture as an inhibitor to CPA adoption, neither study addresses the role corporate culture might play in the adoption decision. Our study makes an important contribution to the literature by investigating the link between the five impediments identified by McManus and Guilding (2009)and the attributes of corporate culture identified Quinn (1988) and further studied by Henri (2006) in CPA adoption. We therefore hypothesize the following:

H1 Accountants working for organizations that display a control values culture perceive aversion to change as a CPA adoption impediment to a greater extent than firms reflecting a flexibility values culture.

H2 Accountants working for organizations that display a control values culture perceive internal power and politics as a CPA adoption impediment to a greater extent than firms reflecting a flexibility values culture.

H3 Accountants working for organizations that display a control values culture perceive competing organizational priorities as a CPA adoption impediment to a greater extent than firms reflecting a flexibility values culture.

H4 Accountants working for organizations that display a control values culture perceive information systems as a CPA adoption impediment to a greater extent than firms reflecting a flexibility values culture.

H5 Accountants working for organizations that display a control values culture perceive inadequate skills as a CPA adoption impediment to a greater extent than firms reflecting a flexibility values culture.

Methodology

Data Collection

Data was collected from attendees at the 2016 Institute of Management Accountants (IMA) Annual Conference and Expo (ACE) in Las Vegas, Nevada. Forty surveys were completed during a one-hour research data gathering slot allotted to accounting academics by conference organizers. Only 38 surveys were usable because two of the surveys were incomplete. Responses were anonymous; however, demographic data surrounding respondent industry, company revenues, and position was collected and is displayed in Table I.

Measurement of Constructs

The survey instrument used in this study was piloted with four practicing management accountants and, as a result, was modified to minimize the potential for ambiguity. Respondents were asked to evaluate the five CPA impediments identified by McManus and Guilding (2009) as they relate to their firm. Additionally, respondents were asked to evaluate the organizational culture of their firm using a modified version of the Institutional Performance Survey (IPS) developed at the National Center for Higher Education Management Systems (Krakower and Niwa, 1985).

Customer Profitability Analysis Adoption Impediments

In an effort to assess the perception that practicing management accountants agree with the five CPA impediments identified by McManus and Guilding (2009), the five impediments were listed next to a question asking, "To what extent do you believe each item listed below prevents your organization from fully implementing customer profitability analysis (tracking and reporting all customer related revenues and costs)?" Next to each barrier a Likert scale ranging from 1 (not at all), to 7 (a large extent) was provided. To promote consistent interpretation of customer profitability analysis, a glossary outlining customer-related revenues and costs was included in the survey. A copy of these questions is provided in Appendix 1.

Organizational Culture Measurement

Henri (2006) used the IPS to test the relationships between organizational culture and two attributes of PMS: the diversity of measurement and the nature of use. Bhimani (2003) used the IPS to test the organizational elements that were

Table I
Respondent demographic data

Demographic characteristic	Response Rate
Industry	
Manufacturing	11
Wholesale trade	4
Retail trade	1
Transportation and warehousing	1
Finance and Insurance	6
Professional, scientific or technical services	4
Educational services	3
Health care or social assistance	3
Other services (except public administration)	4
Unclassified establishments	1
Total	**38**
Annual Revenue	
Under $1 Million	2
$1 Million to $10 Million	4
$10 Million to $100 Million	16
$100 Million to $500 Million	6
$500 Million to $1 Billion	2
$1 Billion to $5 Billion	0
$5 Billion to $10 Billion	1
Over $10 Billion	3
Not Sure	3
Not Applicable	1
Total	**38**
Current Position	
CFO	6
Vice President	1
Controller	8
Director	6
Manager	9
Accountant	6
Other	2
Total	**38**

embedded in an innovative management accounting system. The validity of the IPS was demonstrated in prior studies such as the one by Zammuto and Krakower (1991). A copy of the IPS is provided in Appendix 2.

Respondents were asked to distribute 100 points between four cultural types based on the following four dimensions of culture: institutional leader, institutional character, institutional cohesion, and institutional emphasis. Respondents were asked to distribute 100 points among four sentences where organization A refers to group culture, organization B refers to developmental culture, organization C refers to hierarchical culture, and organization D refers to rational culture.

We were looking for the dominant type of cultural values (control/flexibility) displayed by the respondents' organizations and, as such, followed the Henri (2006) approach to calculating a value score and a cultural-type score. The scores were derived as follows. First, the cultural-type score was compiled for each culture by averaging the ratings obtained on the four dimensions. For each response, the sum of the four cultural types equals 100. Second, the value score was computed for the control/flexibility continuum as follows:

Flexibility-value score = (Group-culture score + Developmental-culture score)

Control-value score = (Hierarchical-culture score + Rational-culture score)

Next, the dominant-type score is obtained by subtracting the control-values score from the flexibility-values score. Because the control and flexibility value scores are the extremes of a competing-values continuum, a difference score captures the specific position of each organization on this continuum (Henri, 2006). A positive score indicates a flexibility dominant type, while a negative score indicates a control dominant type.

Results

Descriptive statistics for the five perceived CPA adoption impediments are presented in Table II. The adoption impediments are presented in descending order by mean. The means range from 5.26, for "competing organizational priorities", to 3.66 for "inadequate skills." A relatively large gap exists between the means of the highest ranking impediments, "competing organizational priorities" and "information systems", and the other three adoption impediments. However, all impediment means are above the midpoint.

Table III presents the mean scores of perceived CPA adoption barriers segregated by organizational culture: one that values flexibility and one that values control. The means for the organizational culture that displays control values range from 5.43 for "competing organizational priorities" to 4.07 for "inadequate skills," which is a rather tight range of means, all well above the midpoint. The means for the organizational culture that displays flexibility values range from 5.17 for

Table II
Descriptive statistics for the perception of customer profitability analysis adoption impediments

Impediment (n=38)	Mean	Standard Deviation
Competing organizational priorities	5.26	1.88
Information systems	5.00	2.08
Internal power and politics	3.89	2.08
Aversion to change	3.87	2.17
Inadequate skills	3.66	1.73

"competing organizational priorities" to 3.21 for "aversion to change," which is a much broader range of mean scores, ranging below the midpoint.

There are two impediments, "aversion to change" and "internal power and politics," that differ considerably in mean score between the two organizational culture values. The largest difference in mean scores comes from the "aversion to change" impediment. The mean score for this impediment in organizational cultures with control values was 5.00, but only 3.21 for those organizational cultures with flexibility values. This

indicates a statistically significant positive correlation (p<.05) and offers support for hypothesis 1.

The next largest difference in mean scores between the two organizational cultures comes from the "internal power and politics" impediment. The mean score for this impediment was 4.71 for organizational cultures with control values, but only 3.42 for organizational cultures with flexibility values. Although these mean scores appear to be quite different between organizational cultures, the difference is not statistically significant (p<.05) and, therefore, hypothesis 2 is not supported.

The remaining three impediments showed little variation in means between the two organizational culture values. The "competing organizational priorities" impediment had means of 5.17 (flexibility values) and 5.43 (control values). The "information systems" impediment had means of 4.96 (flexibility values) and 5.07 (control values). The "inadequate skills" impediment had means of 3.42 (flexibility values) and 4.07 for (control values). None of these findings were statistically significant ($p < .05$) and, therefore, hypotheses 3, 4, and 5 are not supported.

Sensitivity Analysis

We then analyzed the impact of the three demographic variables (company industry, company revenue, and respondent job position) on the results reported above to determine if there could be alternate reasons for the results. Each of these variables was added to the ANOVAS reported above to determine if any of them had a significant impact on the results. Results of these covariance analyses showed none of the variables to have a significant impact on the reported results.

Table III
Mean perceived customer profitability analysis adoption impediments by organizational culture

Impediment	Flexible Values (n=24)		Control Values (n=14)		
	Mean	Standard Deviation	Mean	Standard Deviation	Significance
Competing organizational priorities	5.17	2.10	5.43	1.51	.685
Information systems	4.96	2.03	5.07	2.24	.874
Internal power and politics	3.42	1.98	4.71	2.05	.062
Aversion to change	3.21	2.19	5.00	1.66	.012*
Inadequate skills	3.42	1.77	4.07	1.64	.266

Conclusions and Areas For Future Research

The findings from this study are two-fold. First, the assessment of practitioners' CPA adoption impediments provides valuable CPA adoption and implementation guidance. Second, understanding the role of organizational culture in CPA adoption can help practitioners assess their firm's organizational culture to improve the likelihood of a successful CPA adoption and implementation which may increase shareholder value and positively impact our system of free enterprise. '

Understanding the Role of Customer Profitability Impediments

This study validates the findings of McManus and Guilding (2009) that their identified CPA adoption impediments do prevent firms from fully adopting CPA. This is a significant finding because the McManus and Guilding (2009) impediments were developed as a result of a qualitative study of Australian firms and was not generalizable to a population larger than the few firms they interviewed.

While all five impediments were appraised above the midpoint of the "prevents full CPA implementation – to a large extent" measurement scale, two of the impediments (competing organizational priorities and information systems) were much higher. This finding is useful to firms because it provides valuable information that can be used to increase the likelihood of a successful CPA adoption. Firms can address each impediment in the CPA design phase and assess whether it can be overcome. Furthermore, these findings suggest that top management within firms must not only recognize and embrace the potential benefits CPA can provide in increased shareholder value, but they need to also create an environment within their firm that prioritizes full CPA adoption and implementation. Respondents in this study consistently indicated that "competing organizational priorities" is the impediment that has the most potential to block full CPA adoption. If top management understands the nature of this impediment and is committed to CPA adoption, they will need to communicate with their staff the importance of prioritizing CPA adoption. This may mean top managers need to provide additional resources so that staff can prioritize CPA adoption and implementation.

The findings of this study also suggest that top managers must be sure to include members of the information systems function in the design and implementation phases of CPA adoption. Because respondents in this study indicate "information systems" as a CPA adoption impediment at a much higher rate than all but the "competing organizational priorities" impediment, top management must commit the resources necessary to overcome this issue or run the risk of a failed CPA implementation.

Many PMS implementation strategies exist such as the Kaplan and Cooper (1998) four-stage PMS model. These implementation strategies can benefit from the findings of our study by including and discussing the CPA adoption impediments we have assessed. Their models can be strengthened to avoid the impediments we researched and can offer practitioners tactics to avoid pitfalls that might be present as a result of the known impediments.

The Role of Organizational Culture

This study supports hypothesis 1, that firms displaying a control values culture, view "aversion to change" as a CPA impediment to a larger extent than firms displaying a flexibility values culture. This is an important finding because managers may be unable to change the organizational culture of their firm. However, if management can first successfully determine whether their firm has a control values culture or a flexible values culture, they can use our findings surrounding obstacles to implementation in designing their CPA implementation plans. Managers must be diligent in selling the benefits of CPA within the firm and emphasize communication on why change is necessary. This finding also suggests that existing PMS implementation guidance and models may benefit from integrating an organizational culture identification component.

While evidence was not found to support hypotheses 2-5, there was a difference between the perceived CPA impediments depending on whether the organizational culture was of a control values or a flexibility values. This finding may cause practitioners to place greater emphasis on the CPA design and implementation based on the cultural values of the organization. We believe our findings have the potential to greatly increase the odds of a successful CPA implementation in all organizations by helping managers focus on potential impediments.

Limitations and Future Research

This study suffers from several limitations. First, we believe we maximized the potential number of responses given the constraints placed around the data gathering opportunity afforded us at the IMA annual conference. The main limitation was that we had only one hour to collect data from the conference attendees. We recognize our findings might be strengthened if a larger sample size were obtained. We also recognize that our findings might also be strengthened if we limited responses to executive managers because they often chart the strategic initiatives of the organization. A final noteworthy limitation is the need to present a glossary of terms to respondents. It highlights a potential for measurement error because respondents are left to interpret our definitions based on their understanding of our terms.

The minimal amount of research that exists surrounding the topic of customer accounting techniques presents great opportunity for future research on this topic. First, we wonder if our findings would be similar if employees of firms in organizations outside the United States were surveyed. Second, we think a survey focused exclusively on the perceptions of executive management surrounding CPA adoption impediments would be useful as they might have greater insight on the topic of CPA adoption within a firm. Although knowing about CPA adoption impediments is useful, we think there is much more we need to learn about each impediment. A future study could explore any one of the impediments in depth to identify variables related to each impediment. This analysis could provide greater insight into what elements of each impediment cause the greatest issues for firms adopting and implementing CPA.

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Customer profitability analysis adoption impediments (**McManus and Guilding, 2009**)

To what extent do you believe each item listed below prevents your organization from fully implementing customer profitability analysis (1 = not at all; 7 = a large extent)?

_____ Information systems

_____ Competing organizational priorities

_____ Aversion to change

_____ Inadequate skills

_____ Internal power and politics

Organizational Culture

These questions relate to the type of organizations that your firm most resembles. Each of these items contains four descriptions of firms. Please distribute 100 points among the four descriptions depending on how similar the description is to your firm. None of the descriptions is any better than the others; they are just different. You may divide the points in any way you wish. Most businesses will be some mixture of those described.

For example: In question 1, if the organization A seems very similar to yours, B seems somewhat similar, and C and D do not seem similar at all, you might give 70 points to A and the remaining 30 points to B.

1. Institutional characteristics (please distribute 100 points)

_____ Organization A is a very personal place. It is like an extended family. People seem to share a lot of themselves.

_____ Organization B is a very dynamic and entrepreneurial place. People are willing to stick their necks out and take risks.

_____ Organization C is a very formalized and structured place. Bureaucratic procedures generally govern what people do.

_____ Organization D is very production oriented. A major concern is with getting the job done. People are not very personally involved.

2. Institutional leader (please distribute 100 points)

_____ The head of Organization A is generally considered to be a mentor, a sage, or a father or mother figure.

_____ The head of Organization B is generally considered to be an entrepreneur, an innovator, or a risk taker.

_____ The head of Organization C is generally considered to be a coordinator, an organizer, or an administrator.

_____ The head of Organization D is generally considered to be a producer, a technician, or a hard-driver.

3. Institutional cohesion (please distribute 100 points)

_____ The glue that holds Organization A together is loyalty and tradition. Commitment to this organization runs high.

_____ The glue that holds Organization B together is commitment to innovation and development. There is an emphasis on being first.

_____ The glue that holds Organization C together is formal rules and policies. Maintaining a smooth-running organization is important here.

_____ The glue that holds Organization D together is the emphasis on tasks and goal accomplishment. A production orientation is commonly shared.

4. Institutional emphases (please distribute 100 points)

_____ Organization A emphasizes human resources. High cohesion and morale in the organization are important.

_____ Organization B emphasizes growth and acquiring new resources. Readiness to meet new challenges is important.

_____ Organization C emphasizes permanence and stability. Efficient, smooth operations are important.

_____ Organization D emphasizes competitive actions and achievement. Measurable goals are important.

Can Ethical Position Impact Whistleblowing Intentions?

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ABSTRACT

The impact of fraud affects corporate employees, auditors, creditors, shareholders, individual investors and free enterprise. The Association of Certified Fraud Examiners (ACFE) reports from the period of January 2014 through October 2015 fraud losses exceeded $6.3 billion and it is likely that total fraud losses are significantly higher (ACFE 2016). Fraud detection and prevention is essential to mitigate these astounding losses. A majority of frauds are discovered as a result of a tip from an employee to hotlines. Forsyth (1980) suggests that differences in personal moral philosophies (one's ethical ideology) and moral judgment can be described by the degree to which individuals are relativistic and/or idealistic. This study examines whether idealistic or relativistic individuals are more likely to evaluate actions as unethical, make a moral judgment, and whistleblow after finding earnings manipulations.

Keywords: Fraud, accounting decisions, earnings management, ethical evaluation, whistleblowing intensions, ethical position.

Introduction

The impact of fraud affects corporate employees, auditors, creditors, shareholders, individual investors and free enterprise. The Association of Certified Fraud Examiners (ACFE, 2016) reports from the period of January 2014 through October 2015 fraud losses exceeded $6.3 billion and it is likely that their report represents a small amount of frauds that likely took place throughout the world during the period of their study. These losses only reflect direct losses suffered by the victim organizations and does not include indirect costs such as reputational harm or loss of stakeholder relationships; therefore, the true total fraud losses are likely significantly higher (ACFE 2016). Financial statement frauds had a median duration of 24 months before being detected. Fraud detection and prevention is essential to mitigate these astounding losses.

The ACFE (2016) report identifies that a majority of frauds are discovered as a result of a tip from an employee to hotlines. Forsyth (1980) suggests that differences in personal moral philosophies (one's ethical ideology) and moral judgment can be described by the degree to which individuals are relativistic and/or idealistic. Theory suggests that individuals with differing ideologies could be expected to reason differently about ethical issues, and reach different conclusions about the morality of actions (Barnett et al. 1994). This study examines whether idealistic or relativistic individuals are more likely to evaluate actions as unethical, make a moral judgment, and whistleblow after finding earnings manipulations.

Literature Review

Ethical Decision-Making (Rest 1986)

The ethical decision-making model published by Rest (1986) identifies four steps that occur in moral behavior. In step 1, moral sensitivity, an individual makes "some sort of interpretation of the particular situation in terms of what actions were possible, who (including oneself) would be affected by each course of action, and how the interested parties would regard such effects on their welfare" (Rest 1986, 3). Studies in the area of business ethics have applied Rest's description of ethical sensitivity to refer to how individuals can detect the ethical aspects of situations. Ethical sensitivity focuses our attention on whether individuals are able to identify the ethical aspects of an issue. If an individual is unable to identify that a situation has ethical aspects, they will not be able to make an ethical judgment or carry out behaviors in accordance with that judgment. In step 2, moral judgment an individual makes a judgment about what an individual ought to do in a morally problematic situation. In step 3, moral intention, an individual indicates an intention to act. In step 4, an individual must have sufficient ego strength to follow through on the intention to engage in moral behavior (Rest 1986). Bailey et al. (2010) have suggested that accounting ethics research has focused too narrowly on step 2 in Rest's

model. Therefore, we explore the first 3 steps in Rest's Model to give a more complete study of how moral development and ethical position impact whistleblowing intentions. This perspective provides an important contribution over the other previous studies.

Whistleblowing

Whistleblowing has been defined as disclosure of illegal, immoral, or illegitimate acts by organizational members to parties who can take action to correct the wrongdoing (Miceli et al. 1991). Miceli and Near (1985) suggest that expectancy theory (Vroom 1964) may motivate individuals to whistleblow. his motivation includes a desire to have management correct wrongdoing. There are many factors that may contribute to reporting wrongdoing including individual characteristics of the whistleblower, complaint recipient, the wrongdoer, the wrongdoing, and the organization (Near and Miceli 1995). Prior research has attempted to determine the individual characteristics of who blows the whistle (Miceli and Near 1992; Miceli et al. 1991; Miceli and Near 1984; Miceli et al. 1988; Miceli and Near 1991; Near and Miceli 1995, Shawver and Conner 2016), why individuals may choose to blow the whistle (Miceli et al. 1991; Alpern 1982; Pletta 1986; Ahern and McDonald 2002, Clements and Shawver 2011; Shawver et al. 2015,) and the consequences of choosing to whistleblow (Xu and Ziegenfuss 2003; Kaplan et al. 2009; Kaplan and Schultz 2007; Kaplan et al. 2011).

Callahan and Collins (1992) suggest that individuals have a more positive attitude toward blowing the whistle internally rather than externally since the outcomes are generally less damaging to the organization and allows management an opportunity to correct the wrongdoing before public exposure (Callahan and Collins 1992). The ACFE (2016) report identifies that more occupational frauds originated in the accounting department (16.6%) than in any other business unit. Further, the report identifies substantial differences among the various ways frauds were uncovered with a majority of frauds being discovered by employee tips. This paper explores whether ethical position impacts moral sensitivity, whistleblowing judgment and whistleblowing intentions.

Ethical Position

When researching moral judgment, individual differences must be taken into consideration (Forsyth 1980). An individual's ethical ideology or moral philosophy is a factor that influences ethical decision making (Barnett et al. 1994). Schlenker and Forsyth (1977) suggest that individual variations in moral judgment related to step 2 in Rest's model may be accounted for by two basic factors: relativism and idealism. The first factor

of Relativism is the extent to which an individual rejects a universal code of moral behavior (Davis et al. 2001). Highly relativistic individuals reject universal moral rules when making judgments about moral questions, whereas individuals with a low degree of relativism use moral absolutes to determine if an act is ethical/unethical (Perri et al. 2009). Relativism relates to step 1 of Rest's model. The second major factor underlying individual differences in moral judgments focuses on Idealism. Highly idealistic individuals assume that the "right" action can always be obtained; whereas individuals with low idealism believe that ethical acts result in favorable outcomes for some and unfavorable outcome for others (Barnet et al. 1996). Forsyth (1980) suggests that relativism and idealism have a profound impact on business ethical decisions which may impact Rest's model steps 3 and 4. The Ethics Position Theory, which is grounded in the study of Kohlberg (1976) and Piaget (1965) assumes that moral actions and evaluations are the expression of a person's ethics position (Forsyth 1980).

Ethical Position and Whistleblowing

A person's ethical position is thus, an individual difference that can be used to predict their behavior (decision) in a moral dilemma. The dilemmas used in this study entail the ethicality of certain accounting manipulations and whether the individual perceives them as severe enough to whistleblow. Because a high idealistic person feels that a right action can always be found, they don't see that there are ethical dilemmas; therefore, they are less sensitive and less likely to whistleblow in an earnings manipulation scenario. Alternatively, the low idealistic individual believes that ethical acts are favorable for some and unfavorable for others. Thus, they are more sensitive when ethical dilemmas occur and would be more likely to whistleblow when they encounter earnings manipulations. Likewise, a high relativism person rejects that there are universal rules that can be applied in an ethical dilemma, thus making them more sensitive and more likely to whistleblow. However, the low relativism individual uses moral absolutes to determine ethicality, thus they are less sensitive to moral dilemmas and less likely to whistleblow in an earnings manipulation scenario. This is important because in a material earnings manipulation scenario, there should be whistleblowing. If the high idealism and/or low relativism individual does not whistleblow, then ethical training would be necessary.

Brink et al. (2015) found support that idealism impacts whistleblowing intentions while relativism does not. Nayir and Herzig (2012) found that external-anonymous whistleblowing negatively correlates with idealism but found no support that relativistic individuals are more likely to prefer an external-anonymous whistleblowing channel. Nayir and Herzig (2012) suggest that future research may wish to explore whis-

tleblowing to internal reporting channels because a majority of frauds are discovered as a result of employees' tips to hotlines (ACFE 2016). Thus, we explore the impact of idealism and relativism on sensitivity in evaluating ethical dilemmas, judgments to whistleblow, and intentions to whistleblow to an internal reporting hotline as presented in Figure 1.

Based on the literature reviewed, the following hypotheses are made:

H1a More idealistic individuals are less likely to be sensitive to ethical dilemmas.

H1b More relativistic individuals are more likely to be sensitive to ethical dilemmas.

H2a More idealistic individuals are less likely to make a judgment whistleblow.

H2b More relativistic individuals are more likely to make a judgment whistleblow.

H3a More idealistic individuals are less likely to whistleblow.

H3b More relativistic individuals are more likely to whistleblow.

Methodology

The survey includes five scenarios assessing attitudes toward whistleblowing. The scenarios were created by Clements and Shawver (2015). Each scenario is based on the Stice and Stice (2006) earnings management continuum. The continuum and scenarios used in this study all use some form of earnings management and include situations involving delaying discretionary spending, measuring inventory obsolescence, improperly changing the accounting method, improperly capitalizing operating expenses, and choosing to not report customer product returns. The first two follow U.S. GAAP, while the next three scenarios violate U.S. GAAP in progressively more material ways. A composite score was calculated by averaging responses to these scenarios to examine an individual's overall ethical sensitivity, moral judgment, and intentions regarding accounting manipulations. Prior studies have averaged questions to obtain a composite score to explain ethical decisions (Singhapakdi et al. 1996; Leitsch 2006; Shawver and Sennetti 2009; Shawver and Miller 2016). The survey also includes the EPQ (Forsyth 1980) to assess an individuals' preference for idealistic and relativistic positions.

Two hundred fifty-six accounting students at two educational institutions were invited to participate in this study, 251 agreed to participate in the study (a 98% response rate). After eliminating incomplete surveys, those that failed validity checks, the final sample included 225 participants. Of the participants,

92 (41%) are female, 133 are male (59%). A majority of the respondents (71%) are under the age of 23.

Table I presents the means and standard deviations for the first three steps in Rest's model of ethical decision-making including moral sensitivity, whistleblowing judgment, and whistleblowing intention for each vignette. All judgment and intention questions are purposefully worded in the third person to mitigate concerns of social desirability response bias. Social desirability response bias suggests that individuals are likely to report more favorably when reporting what they would do in questionable dilemmas. Prior research suggests that a better predictor of an individual's beliefs and behaviors is what their perception of what their peers would do (Israeli 1988). Participants indicated their moral sensitivity to each scenario by responding to "The adjustment made by the staff accountant is ethical." rated from 1 "strongly disagree," to 7, "strongly agree." Participants disagreed that the behaviors are ethical, with means ranging from 2.18 to 2.94 and averaging 2.61 for all 5 vignettes. Participants developed a whistleblowing judgment to report the act by responding to "The staff accountant in the scenario should report this request." Participants indicated that the staff accountant should report concerns regarding these requests with means ranging from 4.88 to 5.42 and averaging 5.12 for all 5 vignettes. Participants developed an intention to whistleblow by responding to "My peers would report this action to an anonymous hotline." Participants indicated that the staff accountant should report concerns to an anonymous hotline with means ranging from 4.30 to 4.82 and averaging 4.53 for all 5 vignettes. Appendix A presents the survey vignettes.

Each subject's ethical position (relativism and idealism) was measured using Forsyth's (1980) Ethical Positioning Questionnaire (EPQ). The EPQ has demonstrated acceptable levels of internal consistency, and its two-factor structure of Relativism and Idealism appears to be stable (Schlenker and Forsyth 1977; Forsyth 1980). Table II presents descriptive statistics for the EPQ questions and the Cronbach's Alpha for our Relativism and Idealism factors. The Cronbach's Alpha for Idealism is .86 and the Cronbach's Alpha for Relativism is .88. The Cronbach Alpha measures how closely a set of items are related and have a high internal consistency when used to create a variable under study. A reliability coefficient of .70 or higher is considered acceptable, and both scores are much higher than this minimum.

Results

In Table III we report the correlation matrix for the three dependent variables (moral sensitivity, whistleblowing judgment and whistleblowing intention) and the EPQ ideologies.

Table I
Descriptive Statistics

Moral Sensitivity	Mean	Std. Deviation
Vignette 1: Delay Discretionary Spending	2.94	1.63
Vignette 2: Inventory Obsolescence	2.87	1.72
Vignette 3: Change Depreciation Method	2.37	1.53
Vignette 4: Capitalize Expenses	2.69	1.68
Vignette 5: Ignore Customer Returns	2.18	1.56
All Vignettes	2.61	1.11

"The adjustment made by the staff accountant is ethical." rated from 1 "strongly disagree," to 7, "strongly agree."

Whistleblowing Judgment	Mean	Std. Deviation
Vignette 1: Delay Discretionary Spending	4.99	1.65
Vignette 2: Inventory Obsolescence	4.88	1.78
Vignette 3: Change Depreciation Method	5.14	1.70
Vignette 4: Capitalize Expenses	5.14	1.62
Vignette 5: Ignore Customer Returns	5.42	1.62
All Vignettes	5.12	1.14

The staff accountant in the scenario should report this request." rated from 1 "strongly disagree," to 7, "strongly agree."

Whistleblowing Intention	Mean	Std. Deviation
Vignette 1: Delay Discretionary Spending	4.30	1.80
Vignette 2: Inventory Obsolescence	4.30	1.95
Vignette 3: Change Depreciation Method	4.65	1.84
Vignette 4: Capitalize Expenses	4.57	1.94
Vignette 5: Ignore Customer Returns	4.82	1.85
All Vignettes	4.53	1.67

My peers would report this action to an anonymous hotline." rated from 1 "strongly disagree," to 7, "strongly agree."
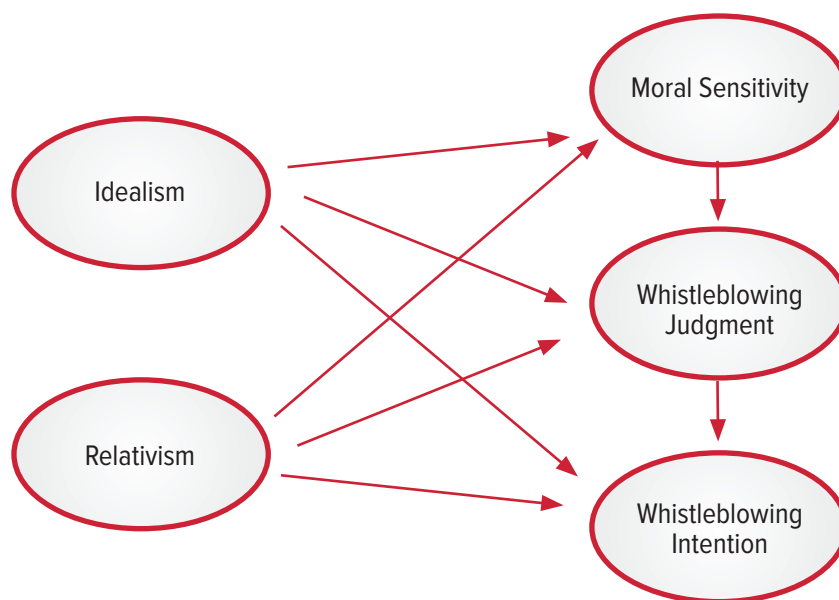
Significant correlations were found between moral sensitivity, whistleblowing judgment, whistleblowing intention and idealism. Significant correlations were found between moral sensitivity, whistleblowing judgment, and relativism, but relativism was not correlated with whistleblowing intention.

In Table IV we report univariate regressions with the EPQ ideologies of idealism and relativism as the independent variable and moral sensitivity, whistleblowing judgment, and whistleblowing intention as dependent variables in three separate univariate regressions. The univariate results show the effect of relativism and idealism on each step in Rest's model independent of the other steps as illustrated in Figure 1. Consistent with the correlation matrix, the univariate regression results show that idealism significantly effects moral sensitivity (sup-

porting H1a), whistleblowing judgment (supporting H2a) and whistleblowing intention (supporting H3a). Consistent with the correlation matrix, the univariate regression results show that relativism is significant and positively effects moral sensitivity (supporting H1b) and whistleblowing judgment (supporting H2b). A significant relationship not was found between whistleblowing intention and relativism, rejecting H3b.

The results in this study are consistent with Barnett et al. (1994) that ethical ideologies of individuals are significantly associated with differences in their judgments ethical issues. The results in this study are consistent with findings by Nayir and Herzig (2012) that found no support that relativistic individuals are more likely to whistleblow; however, we find opposite

Figure I
Integrating Rest's Model and Ethical Position

results when comparing idealism. Nayir and Herzig (2012) suggest that external-anonymous whistleblowing correlates negatively with idealism; while we found that idealism has positive significant correlations with judgment and intention, suggesting that those with high idealism are more likely to make a judgment and intention to whistleblow to a company hotline. Our results are also consistent with Brink et al. (2015) who found that idealism impacts whistleblowing intentions. As a possible explanation for these results, our sample of individuals who are highly relativistic individuals may have rejected universal moral rules when making judgments as suggested by Perri et al. (2009), and do not feel whistleblowing in this situation is the best action to take. Further, our sample of highly idealistic individuals may have assumed that the "right" action can always be obtained as suggested

by Barnet et al. (1996) and feel that whistleblowing would be an appropriate actions for the situations in this study. These very different ethical positions have varying effects on the intention to whistleblow for accounting manipulations and fraud.

In Table V, we report the results of a hierarchical stepwise regression following Rest's four component model of ethical decision-making. The benefit of using this approach is to combine all three steps into one regression model to see the incremental increase in significance as we move from one step to the next in Rest's model. Moral sensitivity, whistleblowing judgment, and whistleblowing intention are correlated. In the model, whistleblowing intention is the dependent variable with ethical sensitivity as the independent variable in the

first step of the model. In the second step of the model, we add whistleblowing judgment. In the third step of the model, we add idealism and relativism. We find evidence that moral sensitivity and whistleblowing judgment are significant predictors of whistleblowing intention. However, in the presence of moral sensitivity and whistleblowing judgment, the significance of idealism and relativism decreases as predictors of whistleblowing intention. To explore the possibility that age or gender may have effected these results, we added another step in the hierarchical regression and included these variables. Neither age or gender emerged as significant (gender had a significance of .577 and age had a significance of .460) and were not predictors of whistleblowing intention.

Conclusions

The impact of fraud affects many different stakeholders and the financial losses from fraud continue to increase. Fraud detection and prevention is essential to mitigate extensive losses and to encourage free enterprise. The ACFE (2016) reports that a majority of frauds are discovered as a result of a tip from an employee to hotlines. Prior research suggested that ethical position can impact ethical evaluations and decisions.

Although there is a growing body of literature surrounding whistleblowing intentions, there are few studies that have examined whether the ethical positions of idealism and relativism effect whistleblowing intentions; further none have explored whether idealistic or relativistic individuals are more likely to evaluate actions as unethical, make a moral judgment, and whistleblow for earnings manipulations. We found that idealism significantly effects moral sensitivity, whistleblowing judgment and whistleblowing intentions, and that relativism significantly effects moral sensitivity and whistleblowing judgment, but not whistleblowing intention. Moral sensitivity and whistleblowing judgment are significant predictors of whistleblowing intention and the significance of idealism and relativism decreases as predictors of whistleblowing intention with increased moral sensitivity and whistleblowing judgment.

The results of this study has managerial implications. Lewis (2001) suggests that whistleblowing has the potential to maintain and improve organizational quality and should be recognized as an instrument for proposing organizational change (Miceli et al. 1991). Organizations may wish to attempt to understand the ethical positions and motivations that encourage whistleblowing. Whistleblowing can aid detection of anti-competitive practices that damage free markets and consumers (Allen 2013). While this is the first study to explore whether idealistic or relativistic individuals are more likely to whistleblow for earnings manipulations, there are many questions still to be explored relating to ethical ideologies and the ethical decision-making process for reporting wrongdoing. It is hoped that the current study will foster an even greater interest in this area of study.

Limitations and Future Research

As in all research, this study has its limitations. Although the literature suggests that students are appropriate surrogates for beginning accountants performing low-level, highly structured tasks (Ashton and Kramer 1980; Libby et al. 2002; and Bryant et al. 2009); the results may not be representative of those of actual practicing accountants. Second, the absence of incentives and environmental stimulants may affect the results. Future research may wish to include these factors.

Table II
EPQ Descriptive Statistics and Cronbach's Alpha

Idealism	Mean	Std. Deviation	Cronbach's Alpha
A person should make certain that their actions never intentionally harm another even to a small degree.	7.34	1.74	
Risks to another should never be tolerated, irrespective of how small the risks might be.	6.77	1.95	
The existence of potential harm to others is always wrong, irrespective of the benefits to be gained.	6.90	1.94	
One should never psychologically or physically harm another person.	7.81	1.54	
One should not perform an action which might in any way threaten the dignity and welfare of another individual.	7.71	1.46	
If an action could harm an innocent other, it should not be taken.	7.67	1.58	
Deciding whether or not to perform an act by balancing the positive consequences of the act against the negative consequences of the act is immoral.	5.00	2.45	
The dignity and welfare of people should be the most important concern in any society.	7.24	1.53	
It is never necessary to sacrifice the welfare of others.	6.25	2.20	
Moral actions are those which closely match the ideals of the most "perfect" action.	6.28	1.80	
Idealism Average	6.90	1.22	0.86

Table II (Continued)
EPQ Descriptive Statistics and Cronbach's Alpha

Idealism	Mean	Std. Deviation	Cronbach's Alpha
There are no ethical principles that are so important that they should be a part of any code of ethics.	4.03	2.30	
What is ethical varies from one situation to another.	6.38	1.98	
Moral standards should be seen as being individualistic; what one person considers to be moral may be judged to be immoral by another person.	5.99	2.21	
Different types of moralities cannot be compared to "rightness."	5.91	1.86	
Questions of what is ethical for everyone can never be resolved since what is moral or immoral is up to the individual.	5.48	2.22	
Moral standards are simple personal rules which indicate how a person should behave, and are not to be applied in making judgments of others.	5.55	2.14	
Ethical considerations in interpersonal relations are so complex that individuals should be allowed to formulate their own individual codes.	5.24	2.04	
Rigidly codifying an ethical option that prevents certain types of actions could stand in the way of better human relations and adjustments.	5.78	1.80	
No rule concerning lying can be formulated; whether a lie is permissible or not permissible totally depends upon the situation.	4.91	2.27	
Whether a lie is judged to be moral or immoral depends upon the circumstances surrounding the action.	5.44	2.24	
Relativism Average	5.47	1.45	0.88

Table III
Correlation Matrix

	Idealism	Relativism	Moral Sensitivity	Whistleblowing Judgement	Whistleblowing Intention
Idealism	1				
Relativism	0.141*	1			
Moral Sensitivity	-0.383**	0.189**	1		
Whistleblowing Judgement	0.230**	-0.132*	-0.369**	1	
Whistleblowing Intention	0.195**	.014	-0.255**	0.551**	1
Sig. (2 tailed) p-value <.05, **p-value <.01*					

Table IV
Univariate Results

Panel A Dependent Variable: Moral Sensitivity			
Independent Variables	t	Significance	
Idealism	(6.921)	0.000	*
Relativism	4.131	0.000	*
Adjusted R2 = .200			
Panel B Dependent Variable: Whistleblowing Judgment			
Independent Variables	t	Significance	
Idealism	3.900	0.000	*
Relativism	(2.584)	0.010	*
Adjusted R2 = .072			
Panel C Dependent Variable: Whistleblowing Intention			
Independent Variables	t	Significance	
Idealism	2.933	0.004	*
Relativism	(0.241)	0.810	
Adjusted R2 = .029			

Table V
Hierarchical Regression
Dependent Variable: Whistleblowing Intention to Hotlines

Independent Variables	t	Sig.	Adj R2	Sig F Change
Step 1			0.061	
Moral Sensitivity	(3.899)	0.000	*	
Step 2			0.300	0.000
Moral Sensitivity	(0.973)	0.332		
Whistleblowing Judgment	8.694	0.000	*	
Step 3			0.305	0.169
Moral Sensitivity	(0.982)	0.327		
Whistleblowing Judgment	8.685	0.000	*	
Idealism	0.569	0.570		
Relativism	1.597	0.112		

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Vignette 1

A staff accountant prepared the preliminary financial statements for the fourth quarter and sent it to the controller for approval. After review, the controller asked all managers to delay all discretionary spending hoping to increase reported net income by 3%. The staff accountant agreed to delay discretionary spending based on the controller's request.

Vignette 2

A staff accountant prepared the annual schedule of estimated inventory obsolescence and sent it to the controller for approval. The controller asked that the staff accountant reduce the estimate and provided justification and disclosure for the change. The adjustment will result in a 2% increase in reported net income, which allows this publically traded company to reach expected financial targets. The staff accountant agreed to make the adjustment.

Vignette 3

A staff accountant prepared a schedule to calculate depreciation on production machinery and sent it to the controller for approval. The controller asked that the accountant change the depreciation method and increase the useful life of the production machinery without providing additional justification or disclosure for the change. The adjustment would result in a 3% increase in reported net income for this publically traded company. The accountant agreed to make the adjustment.

Vignette 4

A staff accountant prepared the preliminary financial statements for the fourth quarter and sent it to the controller for approval. After review, the controller asked the staff accountant to capitalize expenses for routine maintenance of production machinery. In the past, these costs were expensed. The adjustment would increase net income by 4% for this publically traded company. The accountant agreed to make the adjustment.

Vignette 5

A staff accountant prepared the preliminary financial statements for the fourth quarter and sent it to the controller for approval. After review, the controller asked that the accountant ignore all customer returns received during the last week of the fourth quarter in order to increase reported net income by 5%. The accountant agreed to make adjustments to the financial statements and record these transactions in the first quarter of the next year.

Corporate Social Responsibility and Auditing Opinion

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ABSTRACT

We propose that audit opinions and corporate social responsibility (CSR) are linked via managerial altruism by investigating whether socially responsible firms are more likely to receive clean rather than modified audit opinions. We find that CSR score and CSR company are positively (negatively) associated with the receipt of a clean (modified) audit opinion. Moreover, the results suggest that CSR strengths (concerns) are significantly related to clean (modified) audit opinions. Limitations of this study include the inability to address the specific circumstance for the receipt of the modified opinion and endogeneity concerns related to the determinants for both CSR and auditing. Despite the limitations, our empirical results demonstrate that CSR and audit opinions are associated. This study is important to free enterprise in that it assists financial statement users in gaining insight about managers regarding the protection of firm stakeholders.

Keywords:: corporate social responsibility; audit opinion; managerial behavior

Data Availability: Data publicly available from sources identified.

Introduction

Corporate social responsibility (CSR) is the fiduciary responsibility of managers to act in the best interests of all stakeholders (Dahlsrud 2008). This encompasses, but is not limited to, the areas of community welfare, diversity, employee relations, environmental concerns, human rights, and products (KLD 2006). Research reports that companies actively engaged in social responsibility may reap numerous benefits including, increased customer loyalty, decreased employee turnover, higher earnings quality, and more transparent financial reporting (Jamali et al. 2008; Kim et al. 2012). This study investigates the relation between CSR and the auditing function. Specifically, we investigate whether notable CSR performance results in a higher propensity for the receipt of a clean audit opinion.

We argue that CSR and auditing are linked via altruism (Hemingway and Maclagan 2004; Lantos 2001). Altruism inspires managers to act in the best interest of stakeholders and has been recognized as a motivation for CSR (Hemingway and Maclagan 2004). Thus, an altruistic manager would be interested in protecting all those affected by their decisions, not just shareholders. We contend that managerial altruism reaches further than CSR, permeating financial reporting decisions that influence auditing outcomes. Evidence that CSR and auditing are associated can provide a more authentic view of a firm and inform stakeholders about managerial motivation, in addition to that of maximizing shareholder wealth.

For the purposes of this study, CSR ratings provided by the Kinder, Lydenberg, and Domini (KLD) database are used to develop CSR scores and to identify CSR companies (McWilliams and Seigel 2000). Measuring CSR continues to be problematic and somewhat elusive. There are numerous scales and criteria that attempt to produce an objective measurement for CSR. The KLD database reports CSR strengths and weaknesses of the largest firms in the United States, using 80 indicators, covering seven main areas of CSR performance. These include community, corporate governance, diversity, employee relations, the environment, human rights, and product-related categories (KLD 2006). We use the KLD data to create a measure of CSR performance for comparison to auditing outcomes. The usefulness of the KLD database in providing an objective measure for CSR has been substantiated by prior research (Decktop et al. 2006; Waddock and Graves 1997; Chatterji et al. 2007; Mattingly and Berman 2006; Kim et al. 2012).

When investigating the relationship between CSR and audit opinions, we do not examine serious audit failures, such as going concern opinions or qualified audit opinions. A going concern opinion is issued when the auditor has serious concerns about the firm's ability to continue functioning as an ongoing entity, and qualified audit opinion is issued when the auditor has sufficient evidence that the financial statements for a firm are not present fairly (Rittenberg et al. 2008). This study uses the two types of unqualified opinions, the modified and the clean audit opinion. According to Auditing Standard No. 5, a clean audit opinion is defined as an unqualified audit

opinion with no additional language, whereas a modified audit opinion has additional language that usually associated with auditor concerns or that emphasizes a matter of material importance (PCAOB 2003; Rittenberg et al. 2008; Compustat Monthly Updates Fundamentals Annual 2012). We predict and find that higher CSR scores and CSR firms are positively associated with clean audit opinions. To support our argument that the results are driven by managerial altruism, we analyze CSR strengths and concerns separately documenting a positive (negative) relation between CSR strengths (concerns) and clean (modified) audit opinions.

This study contributes to the literature in several ways. First, this investigation highlights how CSR performance can be used to gain insight about managerial motivation. Investors and other stakeholders can use CSR performance to assess efforts to protect all stakeholders. Second, this research highlights the importance of intrinsic incentives for managerial decision making by supporting the assertion that the motivation behind CSR not only affects outcomes for internal processes, such as accruals manipulation and short-term focused operational decisions, but is also reflected in external auditing outcomes. This study also examines an auditing variable as it relates to CSR that has not yet been included in prior research. Finally, this investigation addresses some of the goals of free enterprise, such as economic equity and security. We provide evidence that CSR firms produce more transparent financial reporting, which can improve stakeholder confidence in financial statement information, absent government intervention.

In the next section, we review prior literature and discuss our hypotheses development. The methodology and results sections follow. Our conclusions are contained in the last section.

Literature Review

There are numerous studies that examine CSR and the benefits that result from adoption of socially responsible practices. However, research is limited regarding the impact of CSR in the auditing context. In particular, prior literature has yet to document the effects of CSR practices on audit opinions.

Audit opinion

Auditing is a process of gathering evidence to demonstrate the fairness of financial statements (Rittenberg et al. 2008). The purpose of an audit is to issue an opinion on whether financial statements are presented fairly. The audit function is meant to protect investors and the public interest by issuing financial statement audit reports that are independent, informative, and accurate.

A modified audit opinion is an unqualified audit opinion issued with additional language regarding an emphasis of a matter or some concern on the part of the auditor. In the case of a clean audit opinion, the auditor does not find it necessary to bring any additional facts to light (Rittenberg et al. 2008). A stakeholder reviewing a clean audit opinion can reasonably assume that the financial statements for a company are fairly represented in all material aspects. However, a modified audit opinion includes additional language for clarification or for emphasis of a matter with material importance. Prior research suggests that modified audit opinions are a negative signal. Firms receiving such opinions are more likely to have engaged in earnings management and be in financial distress (Chen et al. 2001; Frost 1997). Thus, whether firm characteristics, such as CSR, are related to audit opinions is a compelling question.

Corporate Social Responsibility (CSR)

CSR is a result of what organizations "should" do and a product of the way organizations "should" act (Garriga and Mele 2004). These actions ought to be drawn from an altruistic obligation to do the "right thing" in balancing the interests of all stakeholders.

Carroll (1979, 500) offers the following definition of CSR:

"The social responsibility of business encompasses the economic, legal, ethical, and discretionary expectations that society has of organizations at a given point in time."

Carroll (1979) implies that a socially responsible firm should be profitable, abide by the law, behave ethically, and invest in important social issues. Furthermore, prior literature emphasizes that CSR is required to develop a good society (Garriga and Mele 2004). Dahlsrud (2008) explains CSR as a phenomenon, encompassing the fiduciary obligations of managers to stakeholders. In other words, CSR includes actions taken by management beyond what is required by law to protect stakeholders.

Relation of CSR to Audit Opinions

Although limited, research has found an association between audit opinions and CSR. Chen et al. (2012) study the effects of CSR and going concern audit opinions. They find support that auditors charge lower fees and are less likely to issue a going concern opinion to clients with better CSR performance. Thus, their research supports the contention that CSR performance and the audit function are related.

We propose that CSR and auditing are linked via managerial altruism. Altruism can be defined as intentional behavior

for the benefit of another (Piliavin and Charng 1990). Prior literature in the not-for-profit sector (Ho and Huang 2017), banking sector (Wu and Shen 2013), and small business sector (Jurik and Bodine 2014) finds that managerial altruism matters in business decisions, and can increase transparency (Qian et al. 2015). Additionally, managerial altruism is mentioned in previous literature as a motivation for CSR (e.g., Hemingway and Maclagan 2004; Dahlsrud 2008).

Kim et al. (2012) document that firms with better CSR performance are less likely to engage in earnings management and provide more transparent financial reporting. This is an important finding since transparent financial information is arguably linked to audit opinions. Clean audit opinions are given to firms that "… provide objective, high-quality, reliable, and transparent financial statements" (Rezaee, 2004, 146). Because research also suggests a correlation between CSR and managerial altruism, we assert that firms practicing CSR are more likely to be motivated to protect investors and other stakeholders by providing increased transparency in financial reporting, leading to improved auditing outcomes (Dawes and Thaler 1988).

Modified audit opinions occur when an auditor is not able to access enough information to conclude that the financial statements are free from material misstatements, or that the financial statements are materially misstated (AU-C 700.20, 2017). When firms are not transparent in their financial reporting, auditors may have difficulty accessing adequate information to conclude that the financial statements are fairly presented. Because greater transparency is associated with clean audit opinions and a lack of transparency is associated with modified audit opinions, we predict that CSR performance will be positively related to clean audit opinions but have a negative relation to modified audit opinions. Therefore, we offer the following hypotheses:

Hypothesis 1: Firms with relatively higher (lower) CSR scores and CSR companies (non-CSR companies) are more likely to receive clean (modified) audit opinions.

Modified audit opinions may be issued for reasons unrelated to managerial motivation. Although infrequent, a justified departure from GAAP or reference to another auditor may be the cause for the receipt of a modified opinion (Rittenberg et al. 2008). We acknowledge that a portion of modified audit opinions are not connected to a lack of altruism. However, we contend that modified audit opinions are frequently a negative signal (Chen et al. 2001; Frost 1997), indicative of a lack of concern for users of financial information. In other words, a modified audit opinion often results from the absence of altruistic behavior. To further support this argument

and our previous contention that the relation between clean audit opinions and CSR is driven by altruism, we examine CSR strengths and concerns separately.

CSR strengths are indicators of positive action a firm is taking to contribute to society beyond the immediate interests of the firm (KLD 2006; McWilliams and Seigel 2000). Strengths relating to the firm's community and employee relations would include charitable giving, support for housing and education, profit sharing with employees, and strong health and safety programs (KLD 2006). Additionally, a firm may have strengths pertaining to diversity. These would include a record for promoting minorities and employing the disabled. CSR strengths may also relate to environment- and product-related issues such as pollution prevention, recycling, product innovation, and product quality (KLD 2006). These examples represent a concern for the well-being of others, or greater altruistic behavior.

Alternatively, CSR concerns would include action, or lack of action that negatively impacts society. For example, a controversial investment decision may displace a significant portion of economically disadvantaged persons in a community (KLD 2006). CSR concerns relevant to diversity and employee relations would include the absence of minority representation, safety concerns, as well as employee layoffs. Examples of environmental concerns include the production of hazardous waste and regulatory problems (KLD 2006). Firms that have CSR concerns are indicative of managers that are less altruistic in nature.

We propose that CSR strengths are examples of firms taking "right" action and CSR concerns are a lack of such action. To examine whether CSR behavior and audit opinions are associated due to altruistic reporting behaviors, we predict that CSR strengths will be significantly related to clean audit opinions, while CSR concerns will be significantly related to modified audit opinions. Consequently, we offer the following hypothesis:

Hypothesis 2: CSR strengths (concerns) will be positively associated with clean (modified) audit opinions.

Methodology

The objective of this study is to determine whether CSR level affects audit opinions. In order to answer our research question, we develop an archival study that uses valid data sources, which has been used in numerous CSR and audit research

Measurement of CSR

We use data for corporate social responsibility performance provided by Kinder, Lyndenberg, and Domini for the largest

U.S. companies (KLD 2006) for the years 1991 - 2013. The KLD database provides indicators for specific areas of social performance, including community, corporate governance, diversity, employee relations, the environment, human rights, and product-related categories. For example, in the area of diversity, there is a strength indicator for the employment of minorities. If the firm has had a significant increase in the promotion of minorities to positions responsible for profit and loss, a score of one would be added to the database for diversity strengths. Alternatively, in the category for environmental strengths, firms that use a significant amount of recycled material in the manufacturing process would receive a score of one for environmental strength (KLD 2006).

Alternatively, if a firm's pension plan is significantly underfunded, the company would receive a score of one for employee concerns. Significant controversy regarding supply chain labor standards would result in a score of one for human rights concerns. There is a total of 80 indicators for which firms are evaluated. This database has been used extensively in prior research and has been validated as useful in measuring CSR performance (Decktop et al. 2006; Waddock and Graves 1997; Chatterji et al. 2007; Mattingly and Berman 2006; Kim et al. 2012).

We obtained the data from the KLD database for 2002-2013. The initial sample size was 32,885 observations. We then matched these data with the COMPUSTAT database and were able to construct CSR scores, obtain audit outcome data, and control variable data for 23,412 firm-year observations.

The CSR scores were calculated based on the community, diversity, employee relations, environment, human rights, and product categories by subtracting the total concerns from the total strengths following prior studies (Kim et al. 2012; Waddock and Graves 1997: Chatterji et al. 2007). Consistent with Kim et al. (2012), corporate governance was not included in the CSR score calculation because it is considered a separate construct. A measure for CSR and non-CSR companies was also constructed as a dichotomous variable (Kim et al. 2012). A firm was defined as a CSR company if the associated CSR score was positive. If the firm CSR score was negative, it was designated as a non-CSR company. The dichotomous variable for CSR was constructed to distinguish CSR companies as those that contribute to society above what is in the immediate interest of the firm (McWilliams and Seigel 2000). The variable for a CSR company is equal to one if the CSR score is positive and zero if the CSR score is negative.

Measurement of Auditing Outcome

An audit opinion is an assessment of financial reporting behavior. The purpose of an external audit of financial state-

ments is to provide reasonable assurance that a firm's financial statements are presented fairly (Rittenberg et al. 2008). In the context of the auditing profession, modified audit opinions allow auditors to issue an unqualified audit opinion, but add additional language in order to emphasize an important matter concerning the company's financial statements. We use the publicly available reporting information for clean audit opinions in comparison to the reporting information for modified audit opinions to measure auditing outcomes.

Measurement of CSR Strengths and Concerns

A portion of modified audit opinions may be issued for reasons lacking an altruistic component (AICPA 1988b; AICPA 1996; Rittenberg et al. 2008). In order to support our reasoning that these cases are few and that CSR is linked to audit opinion outcomes by virtue of managerial altruism, we examine the impact of CSR strengths and concerns on audit opinions separately (KLD 2006). Mattingly and Berman (2006) argue that aggregating strengths and concerns may disguise important differences between firms, suggesting that analyzing the scores by separating the two categories is useful. Furthermore, CSR strengths represent positive signals and CSR concerns represent negative signals (KLD 2006; McWilliams and Seigel 2000). Because altruism theories support strengths as examples of firms taking "right" action (Garriga and Mele 2004; Joyner and Payne 2002), we separate the KLD database strengths and concerns categories to analyze the impact of each on the type of audit opinion issued.

Empirical Models

We used the following estimation models using a two-stage regression analysis to examine the relationship between CSR and audit opinions:

$CSRScore_{it}$ (or $CSRCompany_{it}$) $= \beta_0 + \beta_1 IndustryCSR_{it} + \beta_2 Size_{it-1} + \beta_3 adjROA_{it-1} + \beta_4 Risk_{it-1} + \beta_5 Governance_{it} + \beta_6 MostAdmit + \beta_7 FirmAge_{it} + \varepsilon_{it}$, and

(1)

$AuditOpinion = \beta_0 + \beta_1 fit\_CSRScore_{it}$ (or $fit\_CSRCompany$) $+ \beta_2 Big4_{it} + \beta_3 AuditorTenure_{It} + \beta_4 AuditorNew_{It} + \beta_5 AuditFees_{it} + \beta_6 AbsDAC_{it} + \varepsilon_{it}$

(2)

Where

$CSRScore$ = combined score for CSR ratings measured by subtracting total concerns from total strengths for five of the

KLD social ratings categories: community, diversity, employee relations, environment, and product;

CSRCompany = a dichotomous variable that takes on the value of 1 if the CSR score is positive and 0 if the CSR score is negative;

AuditOpinion = a dichotomous variable that takes on the value of 1 if the firm received an unqualified audit opinion with no additional language (clean audit opinion) and 0 if the firm received an unqualified audit opinion with additional language (modified audit opinion);

IndustryCSR = mean of industry CSR score based on two-digit SIC;

Size = the natural logarithm of total assets in millions of dollars;

adjROA = income before extraordinary items divided by lagged total assets;

Risk = total debt divided by total assets;

Governance = combined score of KLD ratings for the governance category, measured by subtracting total concerns from total strengths;

MostAdm = an indicator variable coded as 1 if the firm appears on Fortune World's Most Admired Companies for the years 2000-2013;

FirmAge = natural logarithm of (1+ number of years the firm has appeared in the COMPUSTAT database).

Big4 = an indicator variable that takes on the value of 1 if the firm is audited by a Big 4 auditor and takes on the value of 0 if the firm is audited by a non-Big 4 auditing firm;

AuditorTenure = the number of years the auditor has been with the firm beginning when the company first appears in COMPUSTAT;

AuditorNew = dichotomous variable coded as 1 if the audit partner has been engaged with the firm for 2 years or less;

AuditFees = the natural logarithm of audit fees;

absDAC = absolute discretionary accruals estimated using the residuals from cross-sectional modified Jones model and including the lagged value of ROA;

We used the following estimation models in a two-stage analysis to examine the association of CSR strengths and CSR concerns to audit opinions:

$$CSRStrength_{it} \ (or \ CSRConcern_{it}) = \beta_0 + \beta_1 IndustryCSR_{it} + \beta_2 Size_{it-1} + \beta_3 adjROA_{it-1} + \beta_4 Risk_{it-1} + \beta_5 Governance_{it} + \beta_6 MostAdmit + \beta_7 FirmAge_{it} + \varepsilon_{it},$$ and

(3)

$$AuditOpinion = \beta_0 + \beta_1 fit\_CSRStrength_{it} \ (or \ fit\_CSRConcern_{it}) + \beta_2 Big4_{it} + \beta_3 AuditorTenure_{It} + \beta_4 AuditorNew_{It} + \beta_5 AuditFees_{it} + \beta_6 AbsDAC_{it} + \varepsilon_{it}$$

(4)

The control variables for models (3) and (4) are defined the same as for models (1) and (2).

Due to the complex relationship between the determinants of CSR and the factors related to auditing, we use a two-stage regression analysis to control for endogeneity. We estimate the fitted values for CSR in the first stage of the analysis using multivariate regression (model 1 and model 3). In the second stage of the analysis, we use logistic regression to examine the relationship between CSR and audit opinions (model 2 and model 4).

To estimate the fitted values for CSR, we use several variables shown in prior research as having a significant impact on firm CSR behavior. First, effects that are shared at the industry level influence firm level CSR (McWilliams and Seigel 2000; McWilliams and Smart 1993; Beliveau et al. 1994). Beliveau et al. (1994) demonstrate that firms will absorb the CSR norms of the industry in which they participate. Consequently, we include a variable for CSR score at the industry level based on the firm's 2-digit SIC code (Kim et al. 2012).

Previous studies establish a positive relationship between firm size and CSR (Waddock and Graves 1997; McWilliams and Seigel 2000). Moreover, the extant literature provides evidence that firm performance is associated with CSR (Kim et al. 2012; Waddock and Graves 1997; Graham et al., 2005). Therefore, we add total assets as a proxy for firm size and adjusted return on assets as a proxy for financial performance. In addition, the results from McGuire et al. (1988) show that low-risk firms have an image of high CSR. Accordingly, we include leverage as a proxy for risk.

Corporate governance is included as a variable in the first-stage analysis, rather than being included as a part of the CSR score. Corporate governance is defined by Larcker et al. (2007) as a structure of interactions that affect firm decisions made

by management because of the separation of control and ownership. Recall, CSR is the expectations of society from an organization (Carroll 1979). Although corporate governance is included in the KLD rating categories for CSR, it is actually a separate construct (Kim et al. 2012). However, corporate governance is key to the CSR agenda (Jamali et al. 2008).

Kim et al. (2012) suggest that firm reputation may affect the evaluation of CSR performance by KLD. We control for this in the instrumental variable for CSR by including the indicator variable MostAdm for firms listed on Fortune World's Most Admired List for the years 2002-2013. Finally, Kim et al. (2012) suggest that CSR behavior changes as a firm develops throughout the different stages of a business life cycle. As a result, we incorporate firm age in the first-stage models.

To control for omitted variable bias, we include several control variables that could affect auditing outcomes in the second stage of the analyses. Francis and Wang (2008) find that investor protection is stronger in firms that hire Big 4 auditors. DeAngelo (1981) argues that consumers of audit services appropriately use increased size as a way of choosing auditors who have superior quality. Big 4 firms have more at stake with a larger number of clients than smaller audit firms. Therefore, they have increased incentive to maintain high audit quality. Moreover, prior research indicates that Big 4 firms issue more modified audit opinions than non-Big 4 firms (Krishnan 1994; Khurana and Raman 2004). As a consequence, we incorporate a control variable for whether a company employs a Big 4 auditor.

Short-term audit tenure (2-3 years) relative to medium tenure (4-8 years) can result in lower audit quality (Johnson et al. 2002). Carey and Simnet (2006) show that long-term audit tenure results in a tendency for auditors to avoid issuing a going concern opinion, and this may be motivated by a need to avoid being in disagreement with management. New auditors may also inhibit audit quality due to their inexperience with the firm (Carey and Simnet 2006). Based on this evidence, we include controls for audit tenure and new auditor effects. In addition, we incorporate a control for audit fees since prior research suggests that audit fees are associated with audit quality (Palmrose 1986; DeAngelo 1981). Finally, Kim et al. (2012) substantiate that earnings quality and CSR are related by providing evidence that CSR firms have lower discretionary accruals. Therefore, we consider the impact of earnings quality by including absolute discretionary accruals in models 2 and 4.

Results

Table I contains the distribution of each industry represented by two-digit SIC code for the 23,412 firm year observations obtained for the audit opinion analysis. Business services have the highest representation among industries in the sample (11.82%, SIC code 73) followed by chemicals and allied product manufacturers (10.09%, SIC code 28).

In panel A of table II, we report the descriptive statistics for all the variables. The mean for *CSRScore* is -0.167, suggesting that on average, the firms in the sample do not have a severe level of CSR concerns based on the KLD ratings. The lowest CSR score in the sample is -9 and the highest CSR score is 17 (not tabulated). The mean value of *AuditOpinion* is 0.586, indicating that more than half of the firms in the sample are associated with clean audit opinions. The table also includes the descriptive statistics for the control variables.

Panel B of Table II contains the comparative descriptive statistics of the variables for CSR and non-CSR companies. Companies with positive CSR scores are designated as CSR firms and companies with negative CSR scores are designated as non-CSR firms. The mean of *AuditOpinion* for CSR firms (0.583) is lower than that of non-CSR firms (0.588), although the difference is not statistically significant ($p = 0.526$).

Additionally, the comparison of descriptive statistics for CSR and non-CSR firms show that CSR firms are larger and more profitable (*adjROA* for CSR firms is 0.030 and for non-CSR firms is 0.012) compared to non-CSR firms. Risk is 0.215 for CSR firms and 0.227 for non-CSR firms. The mean of Governance is negative for both groups, with CSR firms having fewer governance concerns (-0.221) than the non-CSR firms (-0.261). CSR firms are more likely to be audited by a Big 4 auditor and retain auditors longer than non-CSR firms. Further, the CSR firms in this sample pay higher auditing fees.

Panel C of Table II contains the correlations for *AuditOpinion, CSRScore*, the determinants of CSR, and the control variables for the audit opinion analysis. *CSRScore* is positively related to *AuditOpinion* and the correlation is significant. Congruous with DeAngelo (1981) and Krishnan (1994), panel C shows that firms using a Big 4 auditor receive fewer clean audit opinions. Additionally, higher audit fees increase the probability a modified audit opinion will be issued (Palmrose 1986).

Before we test our hypotheses, we conduct tests of endogeneity and for overidentifying restrictions to verify that our statistical design is appropriate. Following Wooldridge (2009), we conduct the Hausman test of endogeneity and find that our test statistic is significant (p < 0.001, not tabulated), rejecting the null hypothesis of exogeneity and calling for the endogenous treatment of the dependent variables. Next, we conduct a test to determine whether we have overidentified restrictions using the method suggested by Wooldridge (2002). The test results indicate that at least some of the variables are

Table I: Frequency Distribution of Industry Firm-year Observations

Industry	Two-digit SIC	# of obs	% of sample	Cum. %
Metal/Mining	10	102	0.44	0.44
Coal Mining	12	41	0.18	0.61
Oil and Gas Extraction	13	976	4.17	4.78
Building Construction-Gen Contractors	15	111	0.47	5.25
Heavy Construction-other than Building Contractors	16	114	0.49	5.74
Food and Kindred Products Manufacturers	20	516	2.2	7.94
Apparel and Other Finished Products Manufacturers	23	201	0.86	8.8
Lumber and Wood Products except Furniture	24	131	0.56	9.36
Furniture and Fixture Manufacturers	25	183	0.78	10.14
Paper and Allied Products Manufacturers	26	271	1.16	11.3
Printing Publishing and Allied Industries	27	277	1.18	12.49
Chemicals and Allied Product Manufacturers	28	2,363	10.09	22.58
Petroleum Refining and Related Industry Manufacturers	29	172	0.73	23.31
Rubber and Miscellaneous Plastics Manufacturers	30	183	0.78	24.09
Leather and Leather Products Manufacturers	31	94	0.4	24.5
Stone Clay Glass and Concrete Products Manufacturers	32	130	0.56	25.05
Primary Metal Industries Manufacturers	33	329	1.41	26.46
Fabricated Metal Products Manufacturers	34	297	1.27	27.73
Industrial and Commercial Machinery Manufacturers	35	1,498	6.4	34.12
Electronics and Other Electrical Equipment Manufacturers	36	1,987	8.49	42.61
Transportation Equipment Manufacturers	37	640	2.73	45.34
Measuring and Analyzing Instruments Manufacturers	38	1,466	6.26	51.61
Miscellaneous Manufacturing Industries Manufacturers	39	190	0.81	52.42
Motor Freight Transportation	42	176	0.75	53.17
Water Transportation	44	134	0.57	53.74
Air Transportation	45	192	0.82	54.56
Transportation Services	47	114	0.49	55.05
Communications	48	781	3.34	58.38
Electric Gas and Sanitary Services	49	1,093	4.67	63.05
Wholesale Trade-Durable Goods	50	465	1.99	65.04

Table I (continued): Frequency Distribution of Industry Firm-year Observations

Industry	Two-digit SIC	# of obs	% of sample	Cum. %
Wholesale Trade-Nondurable Goods	51	269	1.15	66.19
General Merchandise Stores	53	194	0.83	67.02
Food Stores	54	144	0.62	67.63
Automotive Dealers and Service Stations	55	204	0.87	68.5
Apparel and Accessory Stores	56	392	1.67	70.18
Home Furniture and Furnishings Stores	57	125	0.53	70.71
Eating and Drinking Places	58	349	1.49	72.2
Miscellaneous Retail	59	435	1.86	74.06
Non-Depository Credit Institutions	61	223	0.95	75.01
Security and Commodity Brokers	62	414	1.77	76.78
Insurance Carriers	63	579	2.47	79.25
Insurance Agents Brokers and Services	64	118	0.5	79.76
Real Estate	65	97	0.41	80.17
Holding and Other Investment Offices	67	455	1.94	82.12
Personal Services	72	69	0.29	82.41
Business Services	73	2,767	11.82	94.23
Motion Pictures	78	74	0.32	94.55
Amusement and Recreation Services	79	237	1.01	95.56
Health Services	80	418	1.79	97.34
Educational Services	82	135	0.58	97.92
Engineering Accounting and Management Services	87	463	1.98	99.9
Non-classifiable Establishments	99	24	0.1	100
Total		23,412	100%	

Table II: Descriptive Statistics

Panel A: Full Sample Variable Descriptive Statistics

	N	Mean	Median	Std. Dev.	25th Percentile	75th Percentile
Dependent Variables						
CSRScore	23412	-0.167	0.000	2.289	-2.000	1.000
CSRComp	23412	0.503	1.000	0.500	0.000	1.000
AuditOpinion	23412	0.586	1.000	0.493	0.000	1.000
Independent Variables associated with CSR						
IndustryCSR	23412	-0.046	0.037	0.496	-0.244	0.233
Size	23412	7.071	6.910	1.700	5.842	8.127
adjROA	23412	0.021	0.047	0.226	0.005	0.093
Risk	23412	0.221	0.180	0.237	0.017	0.336
Governance	23412	-0.241	0.000	0.315	0.000	0.000
MostAdm	23412	0.112	0.000	0.315	0.000	0.000
FirmAge (in years)	23412	23.205	17.000	16.684	10.000	33.000
Independent Variables associated with Auditing						
Big4	23412	0.895	1.000	0.306	1.000	1.000
AuditorTenure	23412	11.410	9.000	8.691	5.000	15.000
AuditorNew	23412	0.808	0.000	0.271	0.000	0.000
AuditFees	23412	14.084	14.005	1.085	13.379	14.732
absDAC	23412	0.077	0.040	0.140	0.018	0.085

CSRScore = combined score for CSR ratings measured by subtracting total concerns from total strengths for five of the KLD social ratings categories: community, diversity, employee relations, environment, and product;

CSRComp = a dichotomous variable that takes on the value of 1 if the CSR score is positive and 0 if the CSR score is negative;

AuditOpinion = a dichotomous variable that takes on the value of 1 if the firm received an unqualified audit opinion with no additional language (clean audit opinion) and 0 if the firm received an unqualified audit opinion with additional language (modified audit opinion);

IndustryCSR = mean of industry CSR score based on two-digit SIC;

Size = the natural logarithm of total assets;

adjROA = income before extraordinary items divided by lagged total assets;

Risk = total debt divided by total assets;

Governance = combined score of KLD ratings for the governance category, measured by subtracting total concerns from total concerns;

MostAdm = an indicator variable coded as 1 if the firm appears on Fortune World's Most Admired Companies for the years 2000-2012;

FirmAge = natural logarithm of (1+ number of years the firm has appeared in the COMPUSTAT database).

Big4 = an indicator variable that takes on the value of 1 if the firm is audited by a Big 4 auditor and takes on the value of 0 if the firm is audited by a non-Big 4 auditing firm;

AuditorTenure = the number of years the auditor has been with the firm beginning when the company first appears in COMPUSTAT;

AuditorNew = dichotomous variable coded as 1 if the audit partner has been engaged with the firm for 2 years or less;

AuditFees = the natural logarithm of audit fees;

absDAC = absolute discretionary accruals estimated using the residuals from cross-sectional modified Jones model and including the lagged value of ROA.

Table II (continued): Descriptive Statistics

Panel B: Difference Tests of CSR and Non-CSR companies

	CSR Company			Non-CSR Company			Difference Tet (t-test)
	N	Mean	Median	N	Mean	Median	p-value
Dependent Variables							
CSRScore	11781	1.384	1.000	11631	-1.737	-2.000	<.001
AuditOpinion	11781	0.583	1.000		0.588	1.000	0.526
Independent Variables associated with CSR							<.001
IndustryCSR	11781	0.034	0.106	11631	-0.127	0.004	<.001
Size	11781	7.354	7.196	11631	6.783	6.651	<.001
adjROA	11781	0.030	0.050	11631	0.012	0.043	<.001
Risk	11781	0.215	0.177	11631	0.227	0.183	<.001
Governance	11781	-0.221	0.000	11631	-0.261	0.000	<.001
MostAdm	11781	0.156	0.000	11631	0.067	0.000	<.001
FirmAge (in years)	11781	24.724	19.000	11631	21.666	16.000	<.001
Independent Variables associated with Auditing							<.001
Big4	11781	0.935	1.000	11631	0.855	1.000	<.001
AuditorTenure	11781	12.362	10.000	11631	10.446	8.000	<.001
AuditorNew	11781	0.074	0.000	11631	0.085	0.000	0.001
AuditFees	11781	14.230	14.143	11631	13.936	13.893	<.001
absDAC	11781	0.070	0.037	11631	0.084	0.043	0.001

The variable definitions are the same as those defined in Panel A.

Table II (continued): Descriptive Statistics

Panel C: Correlations for CSR Score, Audit Opinion, determinants of CSR and Control Variables

	1)	2)	3)	4)	5)	6)	7)	8)	9)	10)	11)	12)	13)	14)
1) CSRScore	1													
2) AuditOpinion	0.024^b	1												
3) Size	0.291^b	-0.130^b	1											
4) adjROA	0.063^b	0.008	0.203^b	1										
5) Risk	-0.023^b	0.063^b	0.263^b	-0.082^b	1									
6) Firm_Age	0.177^b	-0.057^b	0.442^b	0.111^b	0.052^b	1								
7) Governance	0.064^b	0.090^b	-0.221^b	-0.026	-0.048^b	-0.050^b	1							
8) AuditFees	0.267^b	-0.146^b	0.767^b	0.117^b	0.172^b	0.393^b	-0.225^b	1						
9) abdDAC	-0.062^b	0.011^a	-0.190^b	-0.220^b	0.002	-0.145^b	0.026^b	-0.134^b	1					
10) IndustryCSR	0.194^b	0.009	-0.086^b	0.000	-0.120^b	-0.014^a	-0.002	0.020^b	-0.032^b	1				
11) MostAdm	0.264^b	-0.084^b	0.483^b	0.467^b	0.028^b	0.282^b	-0.111^b	0.388^b	-0.071^b	-0.000	1			
12) Big4	0.116^b	-0.096^b	0.283^b	0.033^b	0.090^b	0.089^b	-0.096^b	0.290^b	-0.082^b	0.023^b	0.110^b	1		
13) AuditorTenure	0.186^b	0.009	0.289^b	0.075^b	0.005	0.516^b	-0.070^b	0.293^b	-0.110^b	0.072^b	0.197^b	0.194^b	1	
14) AuditorNew	-0.049^b	-0.037^b	-0.078^b	-0.007	-0.002	-0.055^b	0.040^b	-0.146^b	-0.017^a	-0.014	-0.019^b	-0.137^b	-0.334^b	1

a (b) denotes statistical significance for two-tailed tests at the 0.10 (0.05) level.

Variable definitions are the same as those defined Panel A.

exogenous, allowing us to conclude that the restrictions are not overidentified in the models.

CSR and Auditing Opinion Analysis

We employ a two-stage analysis to analyze the relationship between CSR and audit opinions. The first stage uses CSR score and CSR company as dependent variables with the determinants for CSR as independent variables (model 1). All the test statistics and significance levels are reported based on the standard errors adjusted by clustering at the firm level (Wooldridge 2009).

Panel A of Table III contains the results for model 1 using CSR score as the dependent variable. As expected, the coefficient for *IndustryCSR* is positive and significant ($p < 0.001$) (Beliveau et al. 1994). Additionally, Size is significant, suggesting that larger firms are more likely to have higher levels of CSR. The proxy for performance is not significant in this analysis. Risk is negative and significant, implying that firms carrying more leverage have lower CSR scores. *Governance* and *MostAdm* are positive, demonstrating that older firms and

quality award-winning firms are more likely to participate in socially responsible activities.

Table III panel B contains the results for model 1 using CSR company as the dependent variable. *IndustryCSR, Size, Governance* and *MostAdm* continue to be positive and significant while Risk is negative, similar to the analysis for the determinants of CSR score. *AdjROA* is significant in this specification, revealing that CSR companies have higher levels of performance than non-CSR companies.

Next, we conduct the second stage of the analysis of CSR on audit opinions by regressing the dichotomous variable for audit opinion on the fitted values obtained from model 1 for either CSR score or CSR company (model 2). All the test statistics and significance levels are reported based on the standard errors adjusted by clustering at the firm level (Wooldridge, 2009).

Table IV panel A contains the results for model 2 using the fitted values for CSR score as the independent variable of interest. We find a positive relationship between CSR score

Table III: Stage 1 Regression Analyses

Panel A: Multivariate Regression of CSR Score on determinants for CSR

	Coefficient		t-stat	p-value
IndustryCSR	0.962	***	15.210	0.000
Size	0.354	***	14.010	0.000
adjROA	0.000		-0.040	0.970
Risk	-0.711	***	-5.760	0.000
Governance	0.423	***	8.790	0.000
MostAdm	1.136	***	7.440	0.000
FirmAge	0.030		0.640	0.524
Year dummies included				
Prob F	0.000			
R-squared	0.192			
N	23412			

Table III (continued): Stage 1 Regression Analyses

Panel B: Multivariate Regression of CSR Company on determinants for CSR

	Coefficient		t-stat	p-value
IndustryCSR	0.168	***	14.510	0.000
Size	0.048	***	12.200	0.000
adjROA	0.003	**	2.060	0.040
Risk	-0.110	***	-4.320	0.000
Governance	0.023	***	2.940	0.003
MostAdm	0.083	***	4.580	0.000
FirmAge	0.004		0.380	0.702
Year dummies included				
Prob F	0.000			
R-squared	0.104			
N	23412			

Variable definitions are the same as those defined Table II. Test statistics and significance levels are calculated with standard errors adjusted by clustering firm observations. *, **, *** indicates statistical significance for two-tailed tests at the 0.10, 0.05 and 0.01 levels respectively.

and audit opinion. The estimated coefficient for *fittedCSR-Score* (0.122) is significant ($p < 0.001$), providing evidence consistent with hypothesis 1, firms with higher CSR scores are more likely to receive clean audit opinions.

Regarding the control variables, *Big4* is negatively associated with *AuditOpinion* ($p < 0.001$), indicating that Big 4 firms issue more modified audit opinions than non-Big 4 firms (Krishnan 1994). *AuditorTenure* is positive but not significant, while new auditors are significantly associated with the issuance of modified audit opinions. The results for the *AuditFees* variable illustrate that higher audit fees are more likely to lead to fewer clean audit opinions ($p < 0.001$). The proxy for earnings management (absDAC) is not significant in this analysis.

Panel B of Table IV contains the results for the second stage of the analysis for the logistic regression of audit opinion on the fitted values for CSR company (model 2). We find that the estimated coefficient for *fittedCSRCompany* is significant

($p < 0.05$), providing additional support for hypothesis 1 that CSR companies receive fewer modified audit opinions compared to non-CSR companies. *Big4, AuditorNew,* and *AuditFees* continue to be significantly associated with modified audit opinions. As in the analysis for CSR score, *AuditTenure* and *absDAC* are not compelling factors.

Analysis of CSR Strengths and Concerns on Audit Opinions

To provide corroborating evidence that altruism links CSR and audit opinions, we estimate models 3 and 4 using the previously employed two-stage analysis after separating the KLD strengths (*CSR_Strengths*) and concerns (*CSR_Concerns*) categories. The results for the second stage of the analysis (model 4) are presented in Table V and are consistent with the previously tabulated analysis for the relation between CSR and modified auditing opinions..

Table IV : Stage 2 Logistic Regression

Panel A: Logistic Regression of Audit Opinion on fitted values for CSR Score

	Coefficient		z-stat	p-value
fittedCSRScore	0.122	***	4.220	0.000
Big4	-0.324	***	-4.150	0.000
AuditorTenure	-0.002		-0.570	0.565
AuditorNew	-0.182	***	-2.620	0.009
AuditFees	-0.532	***	-20.220	0.000
absDAC	0.003		0.030	0.979
Year dummies included				
Prob > chi2	0.000			
Psuedo R-squared	0.258			
N	23412			
N	23412			

Variable definitions are the same as those defined Table II.

Test statistics and significance levels are calculated with standard errors adjusted by clustering firm observations. *, **, *** indicates statistical significance for two-tailed tests at the 0.10, 0.05 and 0.01 levels respectively.

Table IV (continued) : Stage 2 Logistic Regression

Panel B: Logistic Regression of Audit Opinion on fitted values for CSR Company

	Coefficient		z-stat	p-value
fittedCSRScore	0.221	***	3.460	0.001
Big4	-0.334	***	-4.270	0.000
AuditorTenure	-0.001		-0.430	0.669
AuditorNew	-0.178	**	-2.560	0.010
AuditFees	-0.520	***	-19.910	0.000
absDAC	-0.004		-0.040	0.972
Year dummies included				
Prob > chi2	0.000			
Psuedo R-squared	0.258			
N	23412			
N	23412			

Variable definitions are the same as those defined Table II.

*Test statistics and significance levels are calculated with standard errors adjusted by clustering firm observations. *, **, *** indicates statistical significance for two-tailed tests at the 0.10, 0.05 and 0.01 levels respectively.*

We find that when evaluating the effect of *fittedCSRStrengths* on *AuditOpinion*, the coefficient is positive and marginally significant (p = 0.051). Alternatively, the impact of *fit_CSR_Concerns* on *AuditOpinion* is negative and significant with *p* = 0.012. This provides support for hypothesis 2, predicting that CSR strengths will be positively associated with clean audit opinions, while CSR concerns will be negatively associated.

Conclusions and Areas for Future Research

For the investigation of the relationship between CSR and audit opinion, we find that both CSR score and CSR company are positive (negative) and significantly related to the receipt of a clean (modified) audit opinion. Moreover, we corroborate the underlying theory that CSR and auditing are linked via managerial altruism by analyzing CSR strengths and concerns separately, revealing that CSR strengths are significantly related to clean audit opinions and CSR concerns are significantly related to modified audit opinions.

The accounting and auditing function plays an important role in a free enterprise system. Free enterprise is grounded in the notion that governments should not control businesses. However, to make sound business decisions, stakeholders

Table V : Logistic Regression for the Relation of CSR Strengths and CSR Concerns to Modified Audit Opinions (Stage 2)

	Coefficient		z-stat	p-value	prob chi2	Psuedo R-squared
fittedCSRStrengths	0.024	*	1.960	0.051	0.000	0.257
fittedCSRConcerns	0.05	***	-2.510	0.012	0.000	0.257
Control variables	included					
Year dummies	included					

*The variables for CSR strengths and concerns are constructed by separating the KLD strengths (CSR_Strengths) and concerns (CSR_Concerns) for the KLD ratings. The control variables are the same as those defined in Table II. Test statistics and significance levels are calculated with standard errors adjusted by clustering firm observations. *, **, *** indicates statistical significance for two-tailed tests at the 0.10, 0.05 and 0.01 levels respectively.*

need to have confidence in financial statement information. The auditors, rather than government, determine whether the financial statements are presented fairly. By finding an association between CSR and clean audit opinions, users of financial statement information can have greater confidence that the reports provided by CSR firms are a fair representation of the firm's financial condition.

This study contributes to the literature in several ways. First, the results highlight the importance of managerial motives and provides additional support that the impetus for CSR performance may be extended to financial reporting behavior. The effect of CSR is not only reflected internally (e.g., with earnings manipulation and operational decisions), but also has an association related to the external independent auditing function. Using evidence from this study, stakeholders can use CSR performance information to make inferences about potential auditing outcomes. Secondly, the results of this investigation indicate that auditors can use CSR information to help assess the altruistic tone of managers. Third,

this study provides an additional explanatory variable for modeling CSR in future research.

This study is not without limitations. One such limitation is that the specific circumstance for the receipt of the modified audit opinion is not considered. We are unable to disentangle modified audit opinions resulting from a lack of altruism from those that are not. While we provide evidence that modified audit opinions are frequently issued due to a lack of altruism, future research may look at more detail concerning specific reasons for the receipt of a modified audit opinion and how it relates to firm level CSR. Another limitation concerns endogeneity regarding the determinants for both auditing and CSR. This can also be addressed in future research by designing an experiment where managerial actions and incentives are randomized, thereby isolating the effects of CSR action and financial reporting decisions, that could result in various audit outcomes. Finally, we are unable to include all the variables known to affect the auditing process, such as audit firm complexity and the number of audit reports issued for each firm, since this data is not publicly available (Hay et al. 2006).

A clean audit opinion does not necessarily indicate a firm has notable CSR performance. However, firms that take an active interest in being socially responsible are more likely to receive clean auditing opinions. Despite the limitations, this study provides interesting results regarding the relationship between CSR and auditing. How auditors, investors, managers, and other stakeholders use CSR information in conjunction with audit evidence is an interesting and important topic.

Our results suggest that stakeholders can use CSR information to make judgments about the motivation of managers in making financial reporting decisions, providing external users an additional source to make judgments regarding an organization's performance. Finally, this study provides specific CSR components (strengths and concerns) that auditors may use to assess risk for clients.

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