State Level Corruption:

An Empirical Study of the Effects of State Level Corruption on Firm Performance in the United States

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Abstract

Over the past 30 years considerable work scrutiny has been undertaken in the area of corruption and its effect on many facets of society. In business, efforts to measure corruption have been frequently debated and models have been proposed to reflect different firm characteristics in the presence of corruption. Based on these measures, research usually considers single variable measures over time, generally cross-nationally. This study constructs a new model incorporating multiple different variables working in concert over the period from 2000-2015, to postulate a variety of different relationships and firm characteristics at the state level in the United States. In doing so, the model is constructed to limit biases that a single variable can have on the data. The model analyzes state level firm financial performance by utilizing ROA and Tobin's Q as well as comparing high corruption state data to low corruption state data. The study finds that the presence of corruption increases the firm's financial performance at the state level. These data are then used to conduct univariate testing with Ordinary Least Squares modelling to examine fixed firm effects as well as time lagged data. Significance is found to hold for these constraints and that firm financial performance is enhanced in high corruption states for most of the sample constructs. Supplementary models are subsequently constructed to test the robustness against significant economic events and legislative changes. The model is found to provide additional evidence when these tests are applied, thereby maintaining significance. The evidence from these tests are discussed and the conclusion reached is that corruption provides the opportunity for firms to enhance their financial performance, particularly for large firms, value firms, and firms with low leverage. It is

also concluded that the benefits in performance from corruption are more beneficial in the short term.

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List of Abbreviations

CPI – Corruption Perception Index

FF12 – Fama-French 12

GDP – Gross Domestic Product

MVE – Market Value of Enterprise

OLS – Ordinary Least Squares

ROA – Return on Assets

SOX – Sarbanes Oxley

Section 1: Introduction

Corruption has increasingly become an important issue, both in the popular news as well as in academic research. Corruption, at its core, is an illegal activity that encourages involved actors to conceal their involvement. As a result, measuring corruption becomes problematic. Public corruption is defined as the abuse of public office for private gain (Boylen and Long, 2003). Empirical research on corruption historically was relatively under-explored and the causes as well as consequences of corruption were largely focused around cross-country analysis (Lambsdorff, 1999a). Historically, the analysis of corruption has therefore been conducted from a cross-country perspective (Fisman and Gatti, 1998; Keefer and St. Knack, 1996; Mauro, 1997; Billger and Goel, 2009). Other tools, such as the Corruption Perception Index (CPI) or the measurements by Transparency International are created by compiling professional assessment/surveys by agencies to determine investment risk pertaining to countries (Lambsdorff, 1999a). Using cross-country and other nation state specific analyses may prove problematic when exploring corruption. One example of the limitation of using professional assessment is that these sources are largely subjective accounts of levels of corruption in various countries. These subjective perceptions have proven to be fairly good indicators of actual corruption levels and have also been useful to perform various regressions which incorporate additional macroeconomic data (Lambsdoff, 1999a). However, they are not necessarily ideal when creating a model of how corruption affects firm financial performance nor are they predictive of an environment conducive for corruption. The lack of predictive validity in describing an environments conduciveness for corruption is a significantly more difficult task than observation and detection of corruption. The fundamental need for determining an environment's suitability for corruption activity would require understanding the mechanisms

behind corruption's working, the question upon which the premise of this research is largely based. At present, there are many theories that surround corruption variables and how they are correlated with corruption, however cause-and-effect relationships remain scarce. Additionally, within these studies of variables, such as poverty and inequality, these variables are isolated, meaning that they are considered singularly. The thesis does not discredit these studies, in fact, it is due to these studies that the present study is possible, however, our study attempts to understand the greater effect of many socioeconomic variables as they interact with one another. As the public indices rely on subjective data when even the research is inconclusive, our research premise is that while corruption activity and commonality is easy to report, understanding the socioeconomic conditions that could and will lead to corruption activity is a significantly more difficult task, ill-suited to subjective account.

In examining cross-country analyses, it also becomes important to recognize that a country may not be not uniformly corrupt particularly in large countries where geography and non-homogeneity of populations provide additional concerns. In areas that consist of sufficient economic robustness and populations, corruption may vary by region. This premise is based on the analysis by Paldam (2002) who explains that in the Transparency International index, the difference in the level and growth of real income per capita, the inflation rate, and the economic freedom index affect the prevalence of corruption in a nation. Therefore, socio-economic factors are likely to have an effect on corruption and its prevalence in a country; the most obvious example being the United States which has different economic, geographical, and legal barriers for business based on the states in which they conduct their interstate operations.

The following study aims to incorporate and test the effect of different economic, geographical, and legislative differences between states to more fully understand corruption. Approaches by Goel and Nelson (1998), Fisman and Gatti (2002), and Smith (2016) measure corruption in the United States by considering the number of convicted public officials. However, these approaches also do not explain the factors of corruption and may, in fact, not be a good measure. From an analytical perspective, if corruption convictions are high it may be as a result of the rigor of the laws in that state or the resources of enforcement rather than the level of corruption itself. Because of this, more spending of government funds in to the judiciary may result in more convictions. Therefore, the number of convicted public officials may not be a true indicator of corruption (Lambsdorff, 1999a). Moreover, increased corruption convictions may, in fact, act as a deterrent to further corruption; with convictions being an indicator of stronger government monitoring of its agencies and better funding for its enforcement staff (Shleifer & Vishny, 1993, Lambsdorff, 1999a). Finally, most of the editorial coverage in news articles about corruption examine only one point in time, usually one year; this constraint could be seen as a limitation due a limited sample size in addition to socio-economic changes that can occur over the course of time. Research articles have attempted to measure corruption prior to this research effort however, these articles, as mentioned previously, measure a specific variable or they select a cross-sectional method spanning a single year or do not enhance their data analysis to consider state level observation. The need for a more comprehensive analysis of the different economic, geographical, and legislative differences between states and their effect on corruption would seem evident.

The media have also used correlations in predicting corruption, including competitiveness, judicial quality, and credit ratings (Galtung, 1997). Galtung (1997) provides an

overview of these correlations, however, it must be realized that explanatory variables are absent and, as a result, these correlations can be misleading due to potential spurious relationships being measured.

One of the seminal articles in the area of corruption is Lambsdorff (1999a), who conducted an empirical review on corruption literature. He used a number of different indices and academic studies that examined the efficacy of corruption variables as they pertain to being good indicators of corruption. Even within Lambsdorff's study, the variables are not applied in tandem and the scope is largely restricted to a country-level analysis and, moreover, the question of how corruption affects economies and businesses remains unanswered.. As noted by Boylen and Long (2003), the concept of corruption has long faced a measurement problem and this continues to largely be unaddressed in the extant literature.

In order to sufficiently measure corruption, there is a need for both the presence of corruption as well as the data necessary to analyze. The United States, despite a low rank on the Corruption Perceptions Index (CPI), is a country that has a significant amount of corruption applicable to the day-to-day interactions between businesses and society as well as the necessary data to measure corruption's effect. Smith (2016) has shown that locales in the United States exhibit different behaviors with regard to corruption and there are a variety of differential corruption behaviours as well as economic and geographical influences to consider. As a result, a state level analysis is necessary to truly measure corruption. Herein, locales are meant to measure regions of the United States. In Smith (2016) these locales could include whole states, parts of states, and more than one state. This could be observed as a more realistic measure as state divisions themselves are an arbitrary selection of territory. We find prudence in maintaining state

level analysis in our study due to the effect of state law as well as the wide variety of corruption variables measured in our sample. Therefore, both from a consistency and simplicity perspective, a model that divides corruption rigidly by state is more practical. This study is designed with a state level scope through an examination of a variety of state-level socio-economic variables that have been tested for their relationship with the prevalence of corruption. The study also intends to capture a more complete picture of the state level data state level and, as a result, does not homogenize the United States as a whole, thereby avoiding the error of ignoring significant differences between states.

In order to better explore corruption at a state level, this study focuses on examining the effects of corruption on firm financial performance, at the state level, as measured by return on assets (ROA) and Tobin's Q. The study first uses the literature on variables that favor corruption to build an index which classifies states as high or low corruption based on the prevalence of these variables. COMPUSTAT data are then used to compare business' ROA and Tobin's Q in high and low corruption states to determine if there is a significant performance difference. Section 2 of this paper provides a general background on corruption and economics. The rest of the paper is organized as follows: Section 3 presents observed effects of corruption on business behavior. Section 4 discusses corruption's effect of business behavior. Section 5 reviews the past research conducted on this topic and builds the basis for the development of the current study. Section 6 outlines the methodology of the data analysis as well as justification for the model specifications. Section 7 presents the results and Section 8 contains the discussion and interpretations of the findings. Lastly, Section 9 contains the closing remarks and suggestions for future research.

The thesis' contribution is based on a gap in the literature in that no study has been performed by compiling numerous reliable variables and examining their effects quantitatively at the state-level in the United States. By creating and using a research model that scores states based on corruption variables and using the model in conjunction with COMPUSTAT in a novel way, this thesis contributes to the existing literature on corruption and macroeconomic understanding.

Section 2: Overview of Corruption

Corruption is both pervasive and significant throughout the world, particularly in developing countries. However, despite the majority of corruption being present in developing countries, there is still a strong presence of corruption in developed countries (Shleifer & Vishny, 1993). In the developing world, government contracts can be sold for personal gain and local zoning laws are restructured due to bribes paid to various officials. Despite its prevalence, economic studies of corruption and its effects remain limited in the extant literature. Most of these studies focus on the principal-agent model of corruption focusing on the relationship between government and an official. In this relationship, there is an agency problem when an official takes bribes from private individuals interested in a benefit to be derived by government official or avoiding legislative action.

Cross-national studies of relationships across societal structures usually use expert opinions to measure the level of corruption in countries (Boylan & Long, 2003). A call for increased measures of corruption at the state level have been answered by attempts to recreate the same expert opinion methods used at the national level. However, at the state level, expert opinion is much rarer. As a result of this limitation, studies such as Smith (2016), Meier and

Holbrook (1992), and Goel and Nelson (1998) have used federal prosecutions and convictions to assess corruption at the state level.

A key issue with convictions and prosecutions in the US is how state law is executed differently across states. Based on these factors, corruption laws, interpretation, and prosecution differ from state to state. Lambsdoff (1999a) discusses the funding of the judicial system and prosecutors as well as their access to resources as a limiting factor of successful convictions, thus making this variable a potential liability for an accurate portrayal of corruption. There is also a body of literature that indicates the changing laws across states that have adopted different interpretations of corruption and regulation (e.g. Kennedy, 2010). Further to this point, in 2010, Citizens United v. FEC was passed (5-4) in the United States Supreme Court. Under this constitutional law, first amendment rights of 'free speech' were given to corporations, labor unions, and other associations. This applies to corporate financing of electoral campaigns and encourages a new potential, and legal, avenue of corruption behavior for corporations and politicians, by making campaign contributions legal (Kennedy, 2010).

2.1 Political Approach

Political scientists posit the argument that corruption is truly driven by irrational constructs of offices in the political system (Jiang, 2017) and this provides the opportunity for corruption to proceed due to the lack of monitoring in the system. Jiang (2017) and Brueckner (1999) provide arguments that corruption is more prevalent in decentralized systems and this provides a possible avenue in understanding why corruption in the US exists. State level systems, which are decentralized, govern a number of their structures that perform effective checks. Decentralized, state level systems also underscore the necessity of a state level analysis.

From a theoretical lens, agency theory explains predictable role confusion for politicians based on the definition of their duties. Kooiman (1993) defines government as all activities that guide, steer, and manage society. Within this definition, using agency theory, it may be assumed that the management of the needs of the people that occupy the society are considered as part of the activities that constitute 'government'. Accepting Kooiman's definition, it is possible to observe that politicians are the main agents whose responsibilities are directly involved inside the administration of the system of government. In this specific principal-agent relationship, the principal is society whose needs are addressed by government, their agent. However, when the opportunity exists to increase personal wealth through corporate bribes and corruption behavior, politicians may consider their needs before society, thereby becoming an agent for themselves rather than society. This creates a principal-agent problem and providing inroads for the possibility of corruption.

2.2 Economic Approach

Basic economic paradigms would postulate that corruption is the result of an incomplete or obstructed market. This argument contends that a market based on fair exchange with equal competition would create strong opposition to corruption, as well as its associated activities. Within this argument is the consideration of state power and its role within economic activities and resource allocation. Economists seem somewhat divided. Some propose that a state level system provides a separate level of checks and balances to limit corruption activities and that centralized systems cannot achieve effective oversight. As an example, Wade (1997) proposed that over-centralized, top-down structures were responsible for corruption due to the inability of a large structure to be agile. This creates issues due to differing socio-economic demands across

a nation. This argument would favor smaller, more agile governments to readily adapt and place an additional level of monitoring on corruption activity. However, this is at odds with arguments, including the consideration that the discretion, funding habits, and enforcement rigor within state level governments can encourage corruption activities in some states relative to others with stronger anti-corruption systems (Brueckner, 1999). Regardless, the conclusion remains that institutional changes in both social and economic systems are necessary to combat corruption.

2.3 Sociological Approach

The fundamental proposition of this study is that socio-economic factors are key to determining the propensity for corruption in any given area. There is a body of research that indicates that both poverty and inequality have explanatory value in the propagation of corruption activity because it enables the rich to subvert the political, regulatory, and legal institutions of society for their own benefits (Glaeser at al., 2003). Poverty and inequality exhibit another reason why conviction rates, by themselves, may not necessarily be an effective measure of corruption. Inequality and poverty may lead citizens to believe that the system is 'rigged' against them, creating both a sense of dependency and pessimism for the future, and distort the institutions that should be dedicated to fairness in society (Uslaner, 2005). Moreover, inequality and poverty create the basis for corruption, which then reinforces poverty and inequality as "Economic dominance leads to money dominance in politics" (Sun, 2001, p. 256).

Based on the preceding factors, it is reasonable to assume that corruption is widespread through governance systems and its presence creates barriers to the effective operation of the judicial system. Additionally, it is important to note, that regardless of the effectiveness of the

judicial system, corruption convictions are a symptom, not a cause. Convictions, by their very definition, occur after corruption activities have already occurred. In this way, there will always be an accuracy concern of court proceedings that lead to a non-trial due to lack of evidence and loopholes in the code of state laws. This has become even more prevalent after the aforementioned 2010 United States Supreme Court Ruling on campaign contributions. A more effective measure of corruption would be to consider causal factors. Further, studies of corruption convictions do not provide a predictive model of corruption nor do they enhance our understanding of the socio-economic conditions that are conducive to corruption.

Based on the examination of corruption from a variety of views it is clear that the causes of corruption are based in socio-economic factors and the relationships based on these factors have been discussed and reviewed by large body of research (Lambsdorff, 1999a). It is the contention of this study that by using these socio-economic factors, in concert with one another, a more reliable model of examining corruption can be established.

Section 3: Corruption and Economics

This study relies solely on an economic approach as it is deemed to be critical to understanding of the effects of corruption (Rose-Ackerman & Palifka, 2016). However, there is conflicting information on how corruption may affect economic health.

Smith (2016) discusses the potential for ‘rent-seeking’ behavior by politicians as a method for corporations to gain access to advantages in their surrounding markets. This process is explained in more depth in Section 4. Along these lines of reasoning, corruption should provide a boost to economic outcomes, increasing profitability for businesses.

In a related study, Lambsdorff (1999b) found a significant negative effect of corruption on GDP when examining 69 countries. The effect was observed by looking at capital investments and comparing corruption activity using Transparency International's ratings. Moreover, corruption is claimed to lessen economic performance by reducing the levels of trust in dealing with other businesses as well as the state; usually manifest in the creation of trusted groups and the maligning of other groups based on reputational and contractual grounds (Landa, 1994). In this way, business can become separated into a tribal mentality; weakening the effect of inclusive, non-discriminatory legal rules that are crucial in establishing a complex economy (Hayek, 1960; Weingast, 2005; Hodgson and Jiang 2007).

As a socio-economic variable, corruption is more present in areas with higher inflation rates. Blackburn and Powell (2011) posit a model that shows that corruption leads government to rely more on profit made from issuing currency, which means inflation rates are higher in those areas. Tsatsaronis and Zhu (2004) find that housing prices are heavily influenced by inflation. As a result, the change in housing prices is considered a proxy for inflation and thereby a corruption variable that merits measurement. Individual state level inflation measures have been difficult to acquire.

From the preceding models of prior studies, the relationship of corruption to the economy is complex. Moreover, corruption seems to have varying effects on economic health. As a result, corruption can have both a positive or negative effect on the economy.

The literature also underscores a gap in research based on firm financial performance in corrupt environments. In corrupt environments, certain businesses succeed while others suffer. This study therefore proposes that there is likely a combination of firm characteristics that make

success more achievable in corrupt environments. In order to elucidate, this study examines the effect of corruption by considering varying corruption levels along with different business characteristics. The business characteristics considered are size, leverage, and liquidity. Consequently, it may be possible to create some clarity of corruption's effect on economic health and how businesses may change their firm characteristics for their benefit in various corrupt environments.

Section 4: Corruption and its Effect on Business Behaviour

Corruption behavior influences a number of different decisions at the firm level. In order to reap success, a firm must consider the costs of the surrounding environment that can represent financial obstacles to firm success (Gingrich, 1995; Walley & Whitehead, 1994). Among these key considerations is how to manage firm stakeholder relationships (Berman, Wicks, Kotha, & Jones, 1999). Moreover, among these relationships, is the consideration of the political environment, particularly in the presence of corruption. How firms consider corruption may also differ individually and firms can view corruption either as an obstacle or opportunity.

In Smith's (2016) study, two competing hypotheses were developed to examine the effect of corruption on business operations. These hypotheses were 1) the shielding hypotheses and 2) the liquidity hypothesis. The hypotheses of Smith (2016) are based on previous literature positing that public officials can use tools of public office such as regulation and taxation to solicit extortion from firms, e.g. bribes (McChesney, 1987). Under this assumption, Smith (2016) assumes that firms respond by either seeking out or avoiding these events.

Smith (2016) posits that under the shielding hypothesis, firms limit exposure to corruption by choosing financial policies that favor illiquidity and inflexibility. Under these

circumstances, politicians are discouraged from targeting these firms in corruption transactions to limit the chances of a firm's relocation, bankruptcy, or lower investor returns. When a firm is forced into any of these conditions without the appropriate liquidity, the events are very observable and have a pronounced negative impact on the community in which the business operates. This could reduce the probability of being re-elected and increase the probability of being caught (Aidt, 2003; Stulz, 2005).

In the liquidity hypothesis, Smith (2016) argues that firms actively seek corruption by choosing financial policies that favor liquidity and flexibility. Under these circumstances, politicians are encouraged by the abundance of firm liquidity to target these firms in corruption transactions. Firms will use this behavior to their advantage to accelerate bureaucratic processes and limit the regulatory burden on their operations. These firms can gain or maintain an advantage in the market and, in these circumstances, the likelihood of politicians being caught and convicted is greatly reduced due to the firm's financial security and existing financial success (Aidt, 2003; Stulz, 2005).

Smith (2016) finds support for the shielding hypothesis. While this study takes many cues from Smith (2016), it aims to measure the effect of corruption behavior on firm financial performance. Ostensibly, this study tests a hypothesis similar to Smith (2016), as well as the findings of previous works postulating that firms benefit from corruption through expedited access to government processes, or favorable government contracts and loan terms (Fisman, 2001; Faccio, Masulis, and McConnell, 2006, Claessens, Feijen, and Laeven, 2008; Goldman, Rocholl, and So, 2009; Duchin and Sosyura, 2012; Tahoun, 2014).

Each firm has a mandate to maximize financial gain for the shareholders and, as a result, the decision-making processes of an organization should lead it to choose methods that best create favorable results for the firm. In this way, the firm should make decisions that maximize profitability, both in the short and long term. Performance is measured through ROA and Tobin's Q. It is expected that firms will only seek corruption if profit can be realized. If this is true, businesses should experience an increase in profitability in corrupt environments compared to environments with low corruption. Opposed to this, it is also expected that if corruption is prohibitive to profitability then firms in corrupt areas will experience a reduction in long and short term profitability in corrupt environments compared to environments with low corruption. As a result, two competing hypotheses are developed as follows:

Performance hypothesis: Firms perform better in high corruption states relative to firms in low corruption states.

Under this hypothesis it is suspected that ROA and Tobin's Q increase in states with higher corruption within a firm's local operating environment. It supports the idea that bribes paid to government officials confer an advantage to firms and that this advantage is observable through superior economic performance.

Taxation hypothesis: Firms perform worse in high corruption states relative to firms in low corruption states.

Under this hypothesis it is suspected that ROA and Tobin's Q decrease in states with higher corruption within a firm's local operating environment. This supports the idea of corruption being viewed by firms as a type of taxation. In this circumstance, firms pay bribes to offset harmful effects such as regulatory burdens and selective taxation.

Section 5: Literature Review

Throughout Section 5, a review of the literature is conducted to support this study. Based on this review, the study is intended to be unique in the sense that it applies variables together to create an index to quantify a corruption score. However, the question of how corruption affects economic performance, more specifically, firm financial performance and behavior, is not new. Indeed, the recent financial crisis of 2008, the implementation of the Sarbanes Oxley Act (SOX), and the passage of Citizens United have created new avenues for research on how these events have affected business performance and the relationship to corruption (Kang, 2010; Teachout, 2014). Additionally, since the late 1990s there have been many extensive questions asked about the socio-economic relationships that are conducive to the establishment of corruption and the subsequent question of what the effect of corruption is on firm financial performance (Gaviria, 2002; Ameer & Othman, 2012, Lambsdorff, 1999a).

Various studies have also examined corruption at its various levels and the interactions that it has with economics, society, and public institutions (Lambsdorff 1999b; Goel & Nelson, 1998; Galtung, 1997). This section reviews the current literature and concludes by examining the metrics that Smith (2016) uses in the account of corruption effects on firm policies.

5.1 Relationship of Corruption with Economics

Previous studies of government involvement have shown that the overall size of government's budget relative to the GDP is positively correlated with corruption activity. LaPalombara (1994) examined this correlation by using a sample of country level data. Another measure of corruption was proposed by La Porta et al. (1999) which examined government redistributive activity as a proxy for government size. This was captured by examining total

government transfers and subsidies and a positive correlation was found. Rose-Ackerman (1999) argues that the analysis by La Porta et al. (1999) is too simplistic and could be misleading. To support this point, an opposite correlation is presented by Elliot (1997). In Elliot (1997) a sample of 83 countries was used and the study reported that the size of the government's budget decreases with levels of corruption. Husted (1999) also argues that governments are larger in societies which, culturally speaking, are more accepting and comfortable with authority. This underlying factor complicates the previous proposed methodologies as culture may determine both the size of government and corruption, thereby providing a quantitative analysis of the relationship between the two.

Earlier, decentralization was referenced, albeit loosely as a factor in determining corruption. Treisman (1999) found significant evidence that decentralized government systems are more corrupt than centralized ones. However, the relationship did not survive robustness tests when cultural variables were included. The conclusion of a meta-study by Lambsdorff (1999a) found that the difficulty was that the dummy variables used could not capture all the facets of decentralization. However, Huther and Shah (1998) and Fisman and Gatti (2002) proposed that a variety of sub-national expenditures in total public spending was a suitable measure of decentralization. Fisman and Gatti (2002) also find that fiscal decentralization in government expenditure and corruption has a strong negative relationship. Finally, Fung et al. (2005) found that more state owned enterprises led to more corruption, less transparency, and less market-friendly institutions. They used this as a proxy to measure infrastructure investment and the relationship demonstrated is that construction spending is positively correlated to corruption levels.

It may be argued that based on the extant literature, simplicity is rare as it pertains to corruption and its relationship to government size and involvement. Studies have also hinted at decentralization as being a factor that favors corruption (Bruckner, 1999, Fisman & Gatti, 1999; Lambsdorff 1999a), which would make sense based on potential compartmentalized governmental duties, lack of funding, and variable interpretation of the systems and legal codes. However, other studies suggest that decentralization could be a means to decrease corruption, potentially due to the agility provided by governments that do not have to centralize around a variety of bureaucratic government departments (Wade, 1997; Lambsdorff, 1999a). The extant literature is not conclusive and, as a result, cannot suggest clear policy reform. One additional consideration from the literature is the suggestion that government budgets are a strong determinant of decentralized government's capacity to combat corruption.

In terms of economic health and corruption, studies have been conducted on the extent to which corruption can be explained by a low level of business competition and performance. Healthy economies that promote competition have been shown to lower the rents of economic activities and therefore reduce the motive of politicians to insert themselves as the middleman and extort businesses for personal gain. This has resulted in lower start up investment (Lambsdorff, 2007) due to possible delays in the issuance of permits to smaller, newer firms. World Bank data also shows that for corruption, countries with a more predictable and less opportunistic style of corruption have a higher level of investment rates (World Bank, 1997).

Henderson (1999) argues that corruption is negatively associated with business competition and governmental factors that favor economic freedom. Paldam (1999) further supported this conclusion in a multivariate regression analysis at the country level that included

variables for measuring GDP per capita. Other factors include a country's openness rating as an indicator of corruption (Ades & Di Tella, 1995, 1997), the literature arguing that openness is negatively related to corruption through applying corruption data from Business International and the Institute for Management Development. They conclude that economic competition and the policies that favor openness are negatively related with corruption. Support for this conclusion was found in Brunetti and Weder (1998) who apply data from Political Risk Services in a cross section of 122 countries in bivariate regressions. Conversely, Treisman (1999) used Transparency International data and did not find significance for this effect. It would seem that this effect can be distorted by the interaction of GDP and competitive pressure and, as a result, this variable's usefulness as a sole determining variable is in question. However, Ades and Di Tella (1995) test the idea of market dominance, meaning the extent to which a small number of firms dominate a market. The authors find that lower competitiveness, as defined by a few large firms dominating a market, is positively correlated with higher corruption. A hypothesis of larger firms being favored in higher corruption states is posited and discussed later in this document. The different findings of these studies are also indications that some corruption indices may be better than others when measuring corruption and its effects.

5.2 Corruption's Effect on Society

The economic benefits from corruption activity are likely to flow to the wealthy at the expense of the impoverished. Gupta, Davoodi, and Alonso-Terme (1998) perform a cross-section of 37 countries and find that corruption is significantly positively correlated with income inequality. When controlling for GDP per capita, the correlation remains significant at the 10% level. It has been concluded that an increase in a country's corruption is associated with a similar

increase in the Gini coefficient for that country. The authors test various instrumental variables to determine if corruption increases inequality and is not a case of reverse causality. Husted (1999) also finds that the relationship between corruption and inequality is two-way, in that, corruption leads to more inequality and more inequality leads to corruption. This also been supported by Swamy et al. (2001). Again, there must be an accounting for the effect of cultural contexts in society as they pertain to the relationship between corruption and society. Acceptance of authority and low accessibility of politicians may increase inequality and corruption at the same time (Lambsdorff, 1999a).

Gupta, Davoodi, and Alonso-Terme (1998) also investigate the income growth of the bottom 20 percent of society. They conclude that growth of corruption exerts a significant negative impact on this income growth. Heckman (2011) finds that economic inequality can also lead to educational inequality.

Based on this literature, it can be seen that there is a relationship established between poverty, inequality, and corruption. The exact nature of this relationship is unclear and cultural contexts can affect these relationships. Both would seem to provide an obvious avenue for research as, from a logical perspective, heightened poverty and inequality would provide an opportunity and motivation for government officials to solicit bribes and other corruption activity. The literature seems to universally support that poverty, inequality, and corruption are all positively correlated.

5.3 Institutional Influence on Corruption

There is extensive debate in academic literature on whether corruption provides advantages by allowing businesses to expedite bureaucratic processes (Fisman, 2001; Faccio,

Masulis, and McConnell, 2006; Claessens, Feijen, and Laeven, 2008; Goldman, Rocholl, and So, 2009; Duchin and Sosyura, 2012; Tahoun, 2014). Accounts have both supported and rejected this claim. Some academic literature has concluded that corruption causes the misallocation of resources which results in disadvantages for business performance (Kaufmann and Wei, 1999). The monitoring of government offices and quality of government institutions is thought to be the defining variable determining if corruption can be used to effect a result through corruption behaviour.

The World Development Report (1997) for example, focuses on the quality of the judiciary, which was found to significantly influence the level of corruption in the 59 countries examined. Similarly, Ades and Di Tella (1996) found a negative correlation between corruption and the independence of the judicial system.

Clausen, Kraay, and Nyiri (2011) show that lowered confidence in institutions exhibit increased propensities to engage in and tolerate corruption behavior. A large body of evidence also shows that a lack of confidence in public institutions undermines their effectiveness (Gibson and Caldeira, 1995; Putnam, 2000; Uslaner, 2002; Gibson et al., 2003; Mishler and Rose, 2005). Cho and Kirwin (2007) tie together the literature with their own studies and acknowledge that there is potential for reverse causality and propose the idea of a vicious cycle that corruption undermines confidence, leading to an increase in the perception of acceptability of offering bribes to obtain public services, which then increases the prevalence of corruption. This also leads to unions being a potential ‘last line of defense’ for workers when their public institutions fail to defend them. Under this premise, this study also proposes that union membership will be lower in high corruption areas.

In summary, the literature points to institutional quality being a key player in corruption activity. Underfunding of government offices and lower confidence in governmental institutions is linked to higher corruption. However, the literature demonstrates that there can be a reverse causality where corruption can lower the trust in governmental institutions. While some indicators support the idea that corruption lowers effectiveness of business performance, the preponderance of evidence points to the presence of corruption conferring a benefit to business performance.

The literature also finds that education level is correlated negatively with corruption prevalence due to an increase on institutional effectiveness and trust (Hakverdian & Mayne, 2012). Additionally, it is found that this creates a decline in voter turnout which can exacerbate the problem (Clausen, Kraay, & Nyiri, 2011).

The hypothesis of this study is that there are differences in the benefits realized by businesses based on firm characteristics. This study hypothesizes that benefactors of corruption activity are larger, more well-established businesses, while smaller businesses cannot realize the benefits of corruption activity to the same extent. It is also proposed that states with higher poverty, GDP, and public spending, with lower education, institutional trust, and judicial funding, are more predisposed to corruption behaviour.

Section 6: Methodology

This study design involves scoring data for the index corruption variables based on US Census Bureau data and then comparing the data with metrics in COMPUSTAT to measure firm financial performance along with other metrics. COMPUSTAT data presents the financial data that is required to test firm financial performance. The corruption index is used to classify states

in terms of their corruption level and this is done by scoring states based on their presence of socio-economic variables that are conducive to corruption behavior as described in the literature. An average score for each year is then generated. When a state is above this average score in a given year, it is classified as a high corruption state. When combined with the COMPUSTAT dataset with the corruption index, it can be measured if there is a difference in business financial performance in high corruption states compared to lower corruption states.

The COMPUSTAT data file is also modified to include industry data divided into the Fama-French 12 industry (Fama and French, 1997) classifications. COMPUSTAT observations are collected from the years 2000-2015 and the results are divided based on the Fama-French industry classes. There are a total of 51,580 observations for this study. The breakdown of this study's observations into the FF12 classifications for each year are reported in Table 1.

Within COMPUSTAT's individual observations of firms between these time frames the data are used to design the firm controls for the Ordinary Least Squares Regressions (OLS) in Tables 5 and 6. Firm controls for each company tested in the study were as follows ln (Total Assets), Leverage, Market-to-Book, and Current Ratio. Table 2 shows the details of each of the firm control variables.

This study initially tests the firm financial performance of businesses in high corruption states relative to low corruption states as indicated by the index. ROA and Tobin's Q are then used as the proxy for business performance.

ROA is a profitability ratio that provides a measure of the financial success of a firm. It is the measurement of earnings generated by assets independent of financing (Selling & Stickney, 1989). ROA is commonly calculated as follows:

$$ROA = \frac{Net\ Income}{Total\ Assets}$$

ROA is usually used to determine the strength of the company's management and typically, the higher the ROA, the better the management. There is some nuance to this principle however, not the least of which is industry standards. As an example, capital intensive industries tend to have lower ROAs on average.

Tobin's Q was introduced by James Tobin, a Nobel Laureate from Yale University. Tobin's Q is the ratio between a physical assets market value and its replacement value (Tobin, 1977). Tobin's Q is typically utilized to explain a number of diverse corporate interactions. These include a variety of equity ownership and firm value examinations as well as, similar to ROA, appraisal of management performance (Chung & Pruitt, 1994). Tobin's Q, most generally, is used to calculate a stock market valuation. Typically, the aggregate of stock market values for companies in a given market is divided by the aggregate of the replacement value of those assets. The equation is as follows:

$$Tobin's\ Q = \frac{MVE + Debt}{Total\ Assets}$$

$$where\ Debt = (Debt\ in\ Current\ Liabilities) + (Total\ Long\ Term\ Debt)$$

Both these measures are commonly used in governance investigations as measures of firm performance. Simplistically, ROA is an indication of the accounting income that is produced for the shareholders of a company whereas Tobin's Q is a metric of future cash flows produced by the firm. This means that Tobin's Q is considered a long-term metric when compared to ROA. Using these metrics in conjunction with the model to classify high vs. low corruption states, the aim is to examine the effect of corruption on firm financial performance.

This analysis controls variables for two primary reasons. The first concern is firm specific variables. As noted by Jensen (1986), firms in certain industries have different standards by which performance is considered. In short, ROA and Tobin's Q are realized differently in different industries. As mentioned earlier, ROA for highly capital intensive firms is lower than firms which do not require significant capital to operate. When this difference translates to an industry, it may skew the data. The second concern is that of a time series issue. In economics, changes often have a lagged effect on the economy given varying speed of adjustment. As a result, it makes sense to lag the firm performance variables to test for explanatory power given the possibility of a lagged effect. For the purposes of our study we have lagged our variables for 1 year.

Therefore, these concerns are addressed by creating three separate OLS models that control for these variables. The first OLS model controls for the firm controls previously listed, but is absent industry and yearly fixed effect and lagged variable controls. The second model is a variation on the first, as it controls for industry and yearly fixed effects. The third OLS model incorporates lagged ROA and Tobin's Q controls in addition to the controls for industry and year in the second model.

In the robustness tests specific policy and economic events that may impact the results are considered. These OLS regressions are similar to the second model, however they exchange the sample based on the time of the legislative or economic event. These results are reported in Table 6.

6.1 Data and Summary Statistics

The socio-economic variables that are linked to corruption are noted in the study as corruption variables from this point further. Their presence, or absence in some cases, is used as the proxy for the presence of corruption. The data were collected for all 50 US states from the US Census Bureau over the course of a 16 year period, from 2000-2015. Given each variable's defined relationship, which will be subsequently discussed, if the state exhibits the presence (or absence) of a corruption variable in amounts greater (or less) than the median for that year, they acquire a score of 1 per corruption variable. The study contains 9 possible corruption variables, this gives any state in any given year between 2000-2015 the possibility of scoring between 0 and 9. The specifics of the corruption variables are discussed in the next section. The Virgin Islands, Puerto Rico, and Washington D.C. are excluded from the analysis as some datasets from the US Census Bureau include these states while others do not. The state data uses percentages and per capita values in order to prevent the impact of population from biasing the results.

COMPUSTAT observations were discarded based on non-reports in the data that would skew the results. Additionally, unreasonably high or low results were also discarded from the data. The total number of observations per year classified into their industry are presented in Table 1.

6.2 Corruption Variables and Scoring

The method for scoring the corruption variables consists of determining a median value for the socioeconomic variable in question and then determining a median score based on the state and year specific data. As an example, Alaska having a poverty percentage of 8.5% in 2000 is noted. The median score for all 50 US states in 2000 is found to be 11%, which means that Alaska is below the median poverty rate and therefore receives a score of 0 for poverty. This

process is followed for each of the 50 states for the 16 year range. This process is repeated for all of the variables.

The relationships of these variables differ on the type and based on the body of research surrounding their interaction with the presence of corruption. As a result, the corruption variables and how they were scored are listed.

- Corruption Variable 1 = Poverty, if > median 1, otherwise 0
- Corruption Variable 2 = GDP per Capita, if > median 1, otherwise 0
- Corruption Variable 3 = State Budget, if > median 1, otherwise 0
- Corruption Variable 4 = Housing Cost, if > median 1, otherwise 0
- Corruption Variable 5 = Graduation Rate, if < median 1, otherwise 0
- Corruption Variable 6 = Voter Turnout, if < median 1, otherwise 0
- Corruption Variable 7 = Union Membership, i < median 1, otherwise 0
- Corruption Variable 8 = Construction Spending, if > median s 1, otherwise 0
- Corruption Variable 9 = Enforcement Spending, if < median 1, otherwise 0

Each variable is then totaled for each state and year. This number is then matched to the firms in the COMPUSTAT database.

6.3 Univariate Testing for Corruption's Effect on Firm Performance

First, a simple univariate testing model is used to examine the differences between firms ROA and Tobin's Q in high versus low corruption states. The means of high and low corruption states, their difference, and their significance level in Tables 3 (ROA) and 4 (Tobin's Q), are reported respectively.

Further, the univariate tests consider the financial performance differences based on corruption prevalence given certain firm characteristics. These comparisons are large firms compared to small firms; firms with high leverage firms compared to low leverage firms; firms with high liquidity compared to firms with low liquidity; high performance firms compared to low performance firms; and growth firms compared to value firms.

The divisions of the firms were determined using quartiles. As an example: large firms for a given year were determined by the top quartile of total assets for that year, where small firms were the bottom quartile. The same quartile method for liquidity, performance, leverage, and growth vs value was followed. Appendix II contains full details of this process.The means of these classifications are examined based on the various subsamples and report the results of mean ROA and Tobin's Q in high and low corruption states, their differences, and their significance in Table 3 (ROA) and Table 4 (Tobin's Q), respectively.

6.4 Model 1 – Cross-firm OLS model without Fixed Effect or Lagged Variable Controls

A simple OLS regression is first conducted using the controls for firm characteristics. This model provides a broad sense of how corruption affects firm's financial performance while incorporating a number of control variables to account for individual firm characteristics. The relationship was modeled by the following equation:

$$ROA_i = \beta_0 + \beta_1 CorruptionScore_i + \beta_2 X_i + u_i \quad (1)$$

The subscript i in the above equation refers to the identification number of specific firms being analyzed, with X_i representing their appropriate control variables and u_i representing the corresponding error terms. Here, the outcome variable is the ROA using the COMPUSTAT

financial data for that year and the OLS regression examines the effect corruption has on this variable.

This model incorporated a number of control variables at the firm level. Firm size is routinely used as a control variable in the analysis of firm performance due to its link to market returns and Tobin's Q (Carter et al, 2003). Firm leverage and liquidity are controlled for due to the effect it is predicted to have on the firm's ability to adjust capital structure or pay bribes in the presence of corruption. Finally, the Market-to-Book (MB) ratio is controlled due to the firm's valuation likely influencing if a firm is to be targeted by corruption behaviour. During these tests, the available COMPUSTAT data are used for the controls as well as for financial performance.

The same investigation was then conducted with Tobin's Q replacing ROA as the dependant variable:

$$TobinQ_i = \beta_0 + \beta_1 CorruptionScore_i + \beta_2 X_i + u_i \quad (2)$$

The specifics of this test, including the control variables, are consistent with equation 1.

6.5 Model 2 – Cross-firm OLS model with Fixed Effect Controls

The second OLS model has the same independent, dependent, and firm controls variables as in the first model, however, it further incorporates year and industry fixed effects as additional controls.

$$ROA_i = \beta_0 + \beta_1 CorruptionScore_i + \beta_2 Year_i + \beta_3 Industry_i + \beta_4 X_i + u_i \quad (3)$$

These additional variables are incorporated to control for the differential firm performance over time and by industry, as well as inflationary effects. By controlling for these conditions, the analysis measures the effect of corruption on firm financial performance.

Similar to Model 1, the analysis examining the effect of corruption was also conducted with Tobin's Q as the dependent variable with the same controls as equation 3:

$$Tobin's\ Q_i = \beta_0 + \beta_1 CorruptionScore_i + \beta_2 Year_i + \beta_3 Industry_i + \beta_4 X_i + u_i \quad (4)$$

6.6 Model 3 – Cross-firm OLS model with Fixed Effect and Lagged Variable Controls

The third OLS model is similar to the second model, however, the lagged ROA variables are also incorporated in addition to the fixed effect year and industry controls.

$$ROA_i = \beta_0 + \beta_1 CorruptionScore_i + \beta_2 Year_i + \beta_3 Industry_i + \beta_4 ROA_{t-1,i} + \beta_5 X_i + u_i \quad (5)$$

This model is the most incorporative model of the COMPUSTAT data that is available, while still allowing focus on the effect of corruption on firm financial performance. The lag for the variables, as indicated in the equation, is for one year. This lag allows us to account for past economic occurrences that may affect a firm's financial performance.

Similar to Models 1 and 2, the analysis examining the effect of corruption was also conducted with Tobin's Q as the dependent variable with the same controls as equation 5:

$$Tobin'sQ_i = \beta_0 + \beta_1 CorruptionScore_i + \beta_2 Year_i + \beta_3 Industry_i + \beta_4 Tobin's\ Q_{t-1,i} + \beta_5 X_i + u_i \quad (6)$$

6.7 Supplementary Models

The primary models use the corruption score from the index as the explanatory variable, these models are heavily reliant on time and may not properly address the economic and legislative effects. Therefore, the supplementary models explore specifications that examine different time periods when significant legislation was implemented. As an example, Kennedy (2010) describes the implications of Citizens United as a crucial piece of legislation that changes the context of corruption behavior. As outlined in the literature review, a number of economic events have occurred both in terms of financial markets and legislation that could affect this relationship. In the analysis, for robustness testing, dummy variables have been added to specify relevant time periods corresponding to the implementation of legislation. During these tests, firm, industry, and year effects are controlled for.

The samples selected were as follows:

Excluding the financial crisis years of 2007 and 2008:

$$ROA_i = \beta_0 + \beta_1 CorruptionScore_i + \beta_2 Year_i + \beta_3 Industry_i + \beta_4 X_i + u_i, i \neq 2007{,}2008 \quad (7)$$

$$Tobin's\ Q_i = \beta_0 + \beta_1 CorruptionScore_i + \beta_2 Year_i + \beta_3 Industry_i + \beta_4 X_i + u_i, i \neq 2007{,}2008 \quad (8)$$

Only election years

$$ROA_i = \beta_0 + \beta_1 CorruptionScore_i + \beta_2 Year_i + \beta_3 Industry_i + \beta_4 X_i + u_i, i = 2000{,}2004{,}2008{,}2012 \quad (9)$$

$$Tobin's\ Q_i = \beta_0 + \beta_1 CorruptionScore_i + \beta_2 Year_i + \beta_3 Industry_i + \beta_4 X_i + u_i, i = 2000{,}2004{,}2008{,}2012 \quad (10)$$

Years following the passing of SOX:

$$ROA_i = \beta_0 + \beta_1 CorruptionScore_i + \beta_2 Year_i + \beta_3 Industry_i + \beta_4 X_i + u_i, i > 2003 \quad (11)$$

$$Tobin'sQ_i = \beta_0 + \beta_1 CorruptionScore_i + \beta_2 Year_i + \beta_3 Industry_i + \beta_4 X_i + u_i, i > 2003 \quad (12)$$

Years preceding the passing of Citizens United:

$$ROA_i = \beta_0 + \beta_1 CorruptionScore_i + \beta_2 Year_i + \beta_3 Industry_i + \beta_4 X_i + u_i, i < 2011 \quad (13)$$

$$Tobin'sQ_i = \beta_0 + \beta_1 CorruptionScore_i + \beta_2 Year_i + \beta_3 Industry_i + \beta_4 X_i + u_i, < 2011 \quad (14)$$

Through the robustness testing, the possibility of corruption variables affecting financial performance in a fashion that considers both significant legislative and economic events is taken into account and, as a result, these tests provide a more complete understanding of the data.

Section 7: Results

This section presents the results of the empirical analysis noted in the previous section. The presence of corruption at the state level is found to be positively correlated with firm financial performance as measured by ROA and Tobin's Q. This finding is consistent across all of the primary model specifications. The results suggest the effects of larger business size, smaller leverage, lower liquidity, and lower performance, incrementally affect both ROA and Tobin's Q in high corruption states compared to low corruption states. It is posited that the results are fairly conclusive as they hold for the OLS models when controlling for firm, year, and industry fixed effects, and is robust across the other test models.

7.1 Univariate Tests

Tables 3 & 4 present the univariate findings. Here the differences of firm performance across the full sample as well as subsamples based on firm size, leverage, liquidity, performance, and growth orientation are reported.

In Table 3 ROA is examined as the dependant variable. Consistent with the performance hypothesis, it is found that the ROA for the full sample is statistically significantly higher for firms in high corruption states when compared to firms in low corruption states. This result is significant at the 0.01 level. It is consistently found in all of the subsamples, with the exception of one, that firms in high corruption states outperform firms in low corruption states. The exception to this finding was in the growth firm subsample, however, this result was not statistically significant. The results show incremental performance for high corruption states ranged from 0.01% (low performance subsample) to 8% (full sample) annually.

In Table 4, Tobin's Q is examined as the dependant variable. Consistent with the performance hypothesis, it is found that Tobin's Q for the full sample is statistically significantly higher for firms in high corruption states compared to firms in low corruption states. This result is significant at the 0.01 level. It is consistently found in all the subsamples, with the exception of four, that that firms in high corruption states outperform firms in low corruption states. Two exceptions to this finding were noted but both were statistically insignificant (growth and high liquidity subsamples). The other two (value firm and high liquidity subsample) showed statistically significantly greater performance in low corruption states compared to high corruption states. The results generally show incremental performance for high corruption states ranging from 0.004 (high performance subsample) to 0.093 (full sample) annually.

7.2 Regression Models

In the OLS regression modeling in Table 5 the effect that corruption score has on firm financial performance is evaluated. First, a test is conducted that controls solely for firm fixed effects. The tests indicate that there is a positive significant difference in firm financial performance, measured by both ROA and Tobin's Q, in high corruption states compared to businesses operating in low corruption states. The result is significant at the 0.01 level.

This is further examined with the OLS model in Table 5, by considering firm, year, and industry fixed effects in the second model. A positive significant difference is reported in both ROA and Tobin's Q when comparing these metrics between high corruption states and low corruption states. The result is significant at the 0.01.

Finally, the relationship between corruption and firm financial performance is evaluated through the OLS model by adding lagged variables while including the year, industry, and firm fixed effects. A positive significant difference in both ROA and Tobin's Q is reported when comparing these metrics between high corruption states and low corruption states. The result is significant at the 0.01 level.

7.3 Supplementary Models

In Table 6 the checks for robustness are reported. Each of these tests, controls for the year and industry fixed effects but not the lagged variables. The following robustness tests feature the same controls and tests as above, however the sample size is modified based on timelines of events significant to the data. The financial crisis years for one sample are excluded, only the election years are included for the second, the third includes the years after the passing of SOX, and the final sample is for the years before the passing of Citizens United.

The regression test in Table 6 tests ROA and Tobin's Q for the varying samples. It is found that the ROA is significantly higher for businesses in high corruption states compared to businesses in low corruption states. This significance holds at the 0.01 level throughout all of the sample selections. For Tobin's Q it is found that it is significantly higher for businesses in high corruption states compared to businesses in low corruption states. It is also found that this significance holds at the 0.01 level throughout all the sample selections.

Section 8: Discussion

This section discusses the results of the empirical analysis noted in the previous section. Corruption is found to be positively correlated with firm financial performance, as measured by ROA and Tobin's Q. This finding is consistent across all of the primary OLS model specifications. Additionally, the results suggest that large firms, firms with low leverage, firms with stronger financial performance, and growth firms, all exhibit stronger financial performance in the presence of corruption as measured by the model. The models' conclusiveness holds for the robustness controls, which include firm-level, year, industry, and lagged variable controls.

8.1 The Effect of Corruption on Firms Financial Performance

The effect of corruption on ROA is positively correlated with firm financial performance when controlling for variation between firms through the firm fixed effect analysis when conducting the cross-firm OLS between years 2000-2015. As shown in table 3 of the appendix, the full sample shows that for a 1% increase in corruption, firms exhibit an increase in ROA percentage points by about 0.08. This is observed based on first and second columns in Table 3 that show the average ROA performance of firms in high corruption states (0.069007) and firms in low corruption states (0.060593). Both results are significant at the 0.01 level. In context,

Derfus et al. (2008) found that growth in industry of 1% resulted in a 0.36 percentage point increase in ROA. They also found that actions taken by firms related to things such as pricing, capacity, marketing, and new product delivery, led to a 0.03 percentage point increase in ROA, on average.

The simple univariate testing coupled with the OLS models which use cross-firm data evaluate the efficaciousness of this relationship. It is found that the controls exhibit an impact on this relationship, but they still exhibit significance at even the most stringent of specifications within the models.

Similar connections with Tobin's Q are found. The univariate testing in Table 4 in the appendix shows that for a 1% increase in corruption, firms exhibit an increase in Tobin's Q percentage points, by about 0.093 percentage points. Again, when coupling these with the OLS models, using cross-firm data, it is again found that the controls exhibit an impact on this relationship, but significance is maintained across even the most stringent tests. Based on this, the evidence suggests that firms in high corruption states perform better than firms in low corruption states.

The following sections explore this relationship in more depth and discuss a number of different relationships that corruption exhibits on firm financial performance based on the analysis of different firm characteristics. The results are discussed and presented with the differences and significance levels reported. More detailed results can be found in the tables in the appendices.

8.2 The Effect of Corruption and Firm Size

In the univariate testing in Table 3, it is found that larger firms tend to exhibit better ROA (0.0041404) and Tobin's Q (0.061638) performance over the data set. These results were found to be significant at the 0.01 level for ROA and the 0.10 level for Tobin's Q. This is explained by Beck, Demirguc-Kunt, & Maksimovic (2006) that small firms are most constrained based on the effect of financial, legal, and corruption problems when examining firm's growth rates. A similar result in the data is observed for ROA (0.103713 vs 0.093575) and Tobin's Q 1.988644 vs, 1.923568) with results significant at the 0.05. It is reasoned that smaller firms have fewer systems to absorb the extra or unexpected costs associated with corruption behavior and therefore cannot benefit as much as large firms do. Larger firms are likely capable of realizing more benefits of corruption due to their increased resources such as capital assets, ability to acquire additional funding with greater ease, a larger amount of flexibility in their capital structure, a heightened visibility due to more recognition, as well as a larger number of employees in the organization which may allow them the capability of removing labor costs. One of the advantages of targeting larger firms in corruption seeking behavior is the reduced risk of bankruptcy filings. Smaller firms, as mentioned previously, do not have as many assets and their financial position likely lacks the same strength and flexibility. Smith (2016) also discusses how politicians can be deterred from targeting firms that have a chance at filing for bankruptcy due to the questions raised and the reduced likelihood of re-election.

It was also discussed in the literature review that competition is a large factor as it pertains to corruption. The findings that larger firms tend to do better in states with higher corruption is in keeping with the extant literature. Larger firms are less susceptible to the competitive environment. Additionally, larger firms are more prevalent in less competitive environments. Both of these findings are correlated with higher levels of corruption. The

findings also support larger firms benefiting more significantly from corruption behavior due to the decreased importance on beating their competition with new product offerings or research and development. As a result, larger firms have more available funds to dedicate toward corruption behavior, such as rent-seeking.

8.3 The Effect of Corruption and Leverage

In the univariate testing in Table 3, it is found that firms with lower leverage tend to perform better in high corruption states when compared to low corruption states in the proxy measures ROA (0.006) and Tobin's Q (0.077) for measuring firm financial performance, results are significant at the 0.01 level for ROA and the 0.05 level for Tobin's Q. This is explained building on a conclusion reached by Li, Meng, Wang, & Zhou (2008) which is that political connections increase the ability of firms to acquire financing. Also, when a firm has low leverage there are less restrictions on borrowing and a firm can acquire funding at a more desirable rate.

This relationship is observed in the data as well. As a result of having low debt, there is more flexibility to adjust the capital structure, much like the discussion regarding larger firms. Additionally, with lower debt, firms are better targets for corruption activity due to a lower risk of bankruptcy, as well as the ability of firms who engage in corruption behavior to acquire additional funding to supplement their operations through debt financing. Finally, firms that have less debt are capable of acquiring more debt more easily; the findings of Li et al. (2008) shows that this capability can be strengthened even further by utilizing their political relationships to acquire further debt financing. This would enhance a firm's ability to develop their operations and realize the benefits leading to the increased financial performance as a result of corruption activity.

High leverage firms are not a prime target for corruption behavior for many reasons, not the least of which is the possibility of bankruptcy. By having a large amount of debt in their capital structure, a combination of increased borrowing costs and increased debt payments may decrease the firm's ability to maintain its operations resulting in the reported negative difference in Tobin's Q when considering high corruption – low corruption (-0.051). This result is significant at the 0.01 level. This situation would force the firm to cull its operations or its labor costs. This situation is not as easily rectified as low leverage firms due to the decreased ability to change capital structure easily. In extreme cases, bankruptcy is a possibility. In all of these scenarios, it makes corruption more visible for enforcement agents to examine and decreases the likelihood of that politician being re-elected. This result is reinforced by examining the high leverage result in Table 4 and note that Tobin's Q is lower for high leverage firms in high corruption states compared to high leverage firms in low corruption states. This indicates that the long term performance of firms with high leverage becomes compromised. This is in keeping with this study's contention that the cost of borrowing money and additional cost of corruption behavior exert costs on a firm's long term financial performance.

8.4 The Effect of Corruption and Liquidity

The results of the tests on liquidity provide what would appear to be a counterintuitive result; low liquidity seems to positively affect firm financial performance in high corruption states relative to low corruption states when considering both ROA (0.01) and Tobin's Q (0.077). Both of these results are significant at the 0.01 level. This seems at odds with previous research and even the previous results in this study which indicate that prime targets for corruption are firms that have the ability to participate in corruption behavior due to the ability to pay and

acquire cash. This trend is explained by observing a situation when firm financial performance has increased but liquidity has decreased due to the presence of corruption. It is reasoned that firms understand the incentive in the presence of corruption that maintaining low leverage is desirable to participate in corruption activities. In much the same way, more liquid firms are more able to participate in corruption behavior. However, in the data, it is observed that liquidity is reduced. It is assumed that the firm's superior performance in high corruption states is due to the realization of benefits of participation of corruption behaviour by paying bribes and sacrificing their liquidity. Evidence is found by Boubakri, Cosset, and Saffar (2012) who conclude that a firm's leverage can be increased through political connections, however, politicians can then pressure firms into overemployment to win the votes of employees and their relatives. The dual effect of rent-seeking behavior as well, as the overemployment serve to limit a firm's liquidity. This would seem to present a significant hurdle to a firm performing better financially, however, these conditions are accepted by a firm through political favors that confer market advantages to firms, such as awarding of government contracts, lowered regulatory standards, or even reduction of enforcement rigor.

It is found that high liquidity firms do not perform significantly better in ROA (0.001) and Tobin's Q (0.032) in high corruption states compared to high liquidity firms in low corruption states. Results for both are found to be statistically insignificant. This finding can be explained by the rationale that firms in high corruption states that have maintained their higher levels of liquidity have not engaged in corruption behaviour and, as a result, do not see an increase in their financial performance. By having high levels of liquidity, these firms make themselves prime targets for corruption. It is hypothesized that firms with high liquidity in high

corruption states have either not been approached by corruption opportunities or have declined them.

8.5 The Effect of Corruption and Performance Effects

In the testing, the effect of performance is examined by testing firm's ROA values as an independent variable in high corruption states compared to low corruption states. It is also found that high performance firms perform better financially, considering both ROA (0.008) and Tobin's Q (0.004), in high corruption states compared to high performance firms in low corruption states. These results are significant at the 0.01 level for ROA and the 0.05 level for Tobin's Q. This is in keeping with the previous findings and overall proposition of this study. If corruption confers an advantage to firms, then firms in high corruption states should have a higher performance than firms in low corruption states, which is seen in the data in Table 3 through testing of the full sample. In this test, by comparing the two top quartile firms in both high corruption and low corruption states, it is found that the presence of corruption confers a boost in performance.

It is proposed that this increase in firm financial performance is likely due to regulatory and bureaucratic easing effects that corruption has on businesses. By engaging in corruption behavior these businesses are protected from the hurdles to which other businesses are subjected. Corruption is used as a tool to enhance the effectiveness and affordability of operations. Other results are likely to illustrate this advantage as well. It is also found that the ability to craft political relationships allows a firm to more easily acquire debt at more desirable rates. Additionally, firm size likely plays a role, allowing larger firms to perform significantly better

than a firm that does not possess the necessary relationships or resources which would hinder their ability to participate in corruption activity.

It is further found that low performance firms tend to perform better in ROA (0.000221) and Tobin's Q (0.01) in high corruption states compared to low performance firms in low corruption states. Both results are significant at the 0.01 level. Based on the previously reported relationships, it is expected that low performance firms also make use of the same relationships in order to gain an advantage. In this particular case, it is consistent with the theory, as well as the reported findings. However, the findings indicate that the relationship is not as strong and while low performance firms in high corruption states perform better than low performance firms in low corruption states, high performance firms in high corruption states do even better still than high performance firms in low corruption states. It is proposed that this is due to low performance firms being less ideal targets by corruption behavior. Low performance firms are already inhibited in terms of their financial performance and, as discussed earlier, additional pressure from corruption activity may exacerbate these financial problems. Additionally, there would be a limit on the degree of benefit that a politician can exact from a low performance firm compared to a high performance firm. Accordingly, low performance firms which participate in corruption activity are not likely to exhibit as strong a relationship, nor are they likely to possess the same resources as high performance firms have. As a result, firm financial performance is likely to be less positively influenced. Indeed, this is what is observed in the findings.

8.6 The Effect of Corruption and Firm Type

Finally, in the univariate testing, the difference in firm financial performance for both growth and value firms is examined and compared in both high and low corruption states. To

dichotomize the firms into growth or value, Tobin's Q is used as the metric. High Tobin's Q implies that there is a high level of future expected cash flow and as a result these firms are categorized as growth firms. A low Tobin's Q indicates a firm that has less future cash flows and likely invests less in operational growth, therefore these firms are classified as value firms. Using growth or value as the independent variable, it is noted that value firms exhibit better firm financial performance, as measured by ROA, in high corruption states when compared to value firms in low corruption states. This result is expected based on the reasoning that firm stability is more desirable when considering rent-seeking behavior due to the possibility of bankruptcy. Value firms are historically more stable and therefore make a better target for corruption behaviour.

This increase in firm financial performance is likely due to the political favors exchanged for bribes paid. The same benefits are realized by value firms that other firms previously discussed realize through corruption behaviour and political relationship building. Through these benefits, the value firm realizes enhanced financial performance in ROA (0.062). The firms in low corruption states are less able to engage in these relationships and, therefore, cannot realize the same benefits. An interesting finding is that the Tobin's Q is lower (-0.038) in high corruption states compared to value firms in lower corruption states. In this particular case, it is suggested that the benefits of corruption are short term in nature and corruption behavior takes a toll over time. In the case of value firms that are not expanding their future cash flows and it is expected that the burden of corruption behaviour eventually outweighs the benefits realized in the short term. Both of the results concerning Tobin's Q and ROA at the 0.01 level.

It is also found that growth firms do not exhibit differences in firm financial performance for ROA (-0.028) and Tobin's Q (0.03) between high and low corruption states. This could be because growth firms are non-ideal targets for corruption behaviour due to a greater probability of illiquidity and subsequent bankruptcy. This is likely due to firms reinvesting their earnings to engage in growth activities such as purchasing of equipment or investing in research and development. Additionally, growth firms tend to be newer companies and, as a result, are unlikely to have the same recognition and resources as previously explained in the discussion sub-section on firm size. Based on this rationale, the results are consistent with what would be expected.

8.7 Supplementary Models

The supplementary models are OLS models with industry and year fixed effects. Four different types of sample data are used based on different significant policy and economic events. It is found that corruption remains significant for both ROA and Tobin's Q (0.020, 0.009 significant at the 0.01 level) when considering all of the controls. The results exhibit robustness across all these tests. While the model supports the primary OLS models due to its robustness, it is also proposed that the additional examination deepens the analysis. Table 6 shows the supplementary models and, from this table, it is observed that the strength of the relationship changes as the different data clusters are examined. The results for ROA based measures are strongest in election years (0.037, significant at the 0.01 level) however, the Tobin's Q measures (0.023) do not conform to this analysis. In fact, Tobin's Q is lowest at this point based on the data tested. This finding is due to the future benefits of corruption behavior not yet realized in

firm financial projections as Tobin's Q is a more long term approach to examine firm financial performance.

Most notably is the difference in ROA before the passing of Citizens United (0.037). This could be largely due to a number of additional avenues of corruption becoming legal, such as campaign contributions from corporations. A possible explanation for this is the weakening of the relationship of enforcement spending on corruption activities due to the wider range of corruption behavior permitted under the law.

Section 9: Conclusion

The debate over corruption's presence and significance in economic affairs, both locally and internationally, continue to be center-stage. As this debate continues, understanding the effect that corruption has on firm financial performance and its inextricable tie to economics becomes increasingly important. This study explored two chief aspects regarding corruption: 1) the study examined the presence of corruption at the state level by designing a corruption index based on a variety of socio-economic variables, and, 2) the study used the corruption index to aide in ascertaining the difference in firm financial performance between high and low corruption states.

The study employed a variety of univariate tests based on firm size, firm type, performance level, leverage, and liquidity as the independent variables and using firm financial performance, represented by ROA and Tobin's Q, as the dependent variables. Additionally, supplementary regression models were employed testing different sampling dates. The models

maintained robustness throughout all of the testing. The analysis within this study is conclusive in finding support for the performance hypothesis; the presence of corruption improves firm financial performance, as measured by the proxy variables, ROA and Tobin's Q. A variety of data breakdowns were conducted to test several independent variables. Leverage, firm size, and firm performance were all found to be positively correlated with higher firm financial performance in high corruption states compared to firms in low corruption states. It was also found that high firm liquidity is negatively associated with firm financial performance in high corruption states when compared to firms with high liquidity in low corruption states. Finally, it is reported that growth firms do not exhibit a significant difference between high and low corruption states. However, value firms tend to benefit from corruption's presence. These findings are explained mostly through a firms' ability to financially engage with the demands of corruption, such as funding bribes and overemployment. It is through these mechanisms that firms also receive the benefits of access to politicians, the awarding of government contracts, and the reduction of regulatory rigor. It is also discussed how the relationship of liquidity is justified through bribe payments and the difference of Tobin's Q's relation to value firms being different than that of ROA.

The supplementary models used in the study suggest that corruption was present at all times during the examination period. However, the models indicate it is more significant during election years for ROA, but less so for Tobin's Q, as explained in the discussion on supplementary models. It was also found that SOX does not influence corruption's significance in the models, however, corruption's significance declines in the years before Citizens United passed.

9.1 Contribution to Research

Understanding the presence of corruption, its effect on economics and how socio-economic variables relate to the incidence of corruption, can guide US policymakers on how to best fight corruption behavior and uphold the normative values of fairness of competition in state business markets. The findings have strong implications toward future policy action as they are based on the state level data provided by the US Census Bureau. However, it is worth noting that this index, as the main contribution, is just a starting point and can be applied to many different aspects of economics and business. Additionally, it must be acknowledged that there are some weaknesses associated with the index in that it is not mutually exclusive. There are many other socio-economic variables that can be included in the index itself. These variables that were not readily measured or included could influence the relationship between any of the independent and dependent variables.

Finally, it is acknowledged that there is much additional work needed to truly understand how corruption interacts with firm's financial performance and that firm's financial performance consists of more than ROA and Tobin's Q. It is likely that the inclusion of more than these two dependant variables may be necessary to illustrate the whole picture of corruption and firm's financial performance.

9.2 Future Research Consideration and Limitations

One of the key considerations of future research into understanding corruption should be the consideration of direct vs indirect corruption. The study considers direct corruption behavior which means rent-seeking or bribe paying. However, corruption is more complicated than the construct defines. *Indirect* corruption is present in almost all cases of corruption, largely because

of its deniability. *Direct* corruption is the direct encouragement of unethical acts, whereas indirect corruption is the enabling of corrupt acts of someone else by not taking action, or by taking action against someone who attempts to stop corruption behaviour. While this study makes use of this difference and its considerations in the discussion, the model did not readily incorporate it into the measurement process. In order to have a more nuanced and complete understanding of corruption, the model should be expanded to make this distinction and operationalize a way to test and quantify it, as well as measure its impact on economic policies, practices, and results. Also, mentioned earlier in this study was the impact of institutional strength in the literature review, but this impact was not explored within this study's model. There has been a strong body of evidence that shows that institutional strength is a significant deterrent of corruption activities based on theoretical constructs. This study cannot quantify the impact of this relationship, nor the veracity of this claim, but these attributes could very well be critical pieces of understanding corruption and its relationships, as well as guiding policy makers in effective policing and reduction of corruption in modern society.

Appendix I

Table 1: Summary Statistics

Year	FF1	FF2	FF3	FF4	FF5	FF6	FF7	FF8	FF9	FF10	FF11	FF12	Total
2000	227	97	430	162	92	563	72	118	402	250	1227	500	4140
2001	199	78	340	140	63	388	46	115	369	254	1124	416	3532
2002	204	74	304	108	69	425	52	101	368	265	1055	396	3421
2003	198	80	313	129	75	533	74	100	376	271	1063	423	3635
2004	198	75	371	146	77	606	75	107	392	283	1074	452	3856
2005	189	73	348	152	76	608	81	115	357	264	1055	444	3762
2006	179	72	346	167	88	570	77	115	349	258	971	440	3632
2007	166	65	324	155	77	527	72	115	316	238	795	394	3244
2008	122	47	268	133	68	423	49	109	244	216	621	328	2628
2009	141	47	234	87	66	416	58	109	267	216	527	312	2480
2010	153	72	291	130	85	489	75	105	283	217	710	325	2935
2011	144	80	297	147	75	464	79	101	284	188	754	329	2942
2012	138	69	293	130	71	411	72	94	278	183	818	323	2880
2013	136	61	265	137	70	388	68	98	277	170	851	338	2859
2014	136	64	265	131	78	375	63	106	284	172	899	330	2903
2015	125	65	240	41	66	345	63	95	269	172	912	338	2731
Total	2655	1119	4929	2095	1196	7531	1076	1703	5115	3617	14456	6088	51580

This table reports the number of firms in the COMPUSTAT sample that are classified by each of the Fama-French (1997) industry classifications from the years 2000-2015.

Table 2: Descriptive Statistics for Firm Observations

Variable	Mean	St.Dev	Q1	Median	Q3	Min	Max
Index Score	4.75	1.525	4	5	6	0	8
ROA	0.063357	0.0801625	0.013238	0.041744	0.082883	0	0.9969
Tobin's Q	1.1710882	1.1635107	1.032278	1.286339	1.929616	0.0011	9.9839
Total Assets	7108.320998	58295.13873	166.65025	634.2725	2334.826	0.052	2573126
Leverage	0.161285	0.178392	0.006784	0.102078	0.261199	0	0.9993
Market-to-Book	598.77169	43535.32374	10.940779	47.917482	173.19776	-648635.4	9739458.3
Current Ratio	3.726197	74.7720983	1.296607	1.984553	3.134772	0	13545

This table reports the descriptive statistics for the COMPUSTAT dataset for the sample period between the years 2000-2015.

Table 3: Univariate Tests for ROA

ROA

	High Corruption	Low Corruption	Difference
Full Sample	0.069007	0.060593	0.08***
Large Firm	0.051542	0.047438	0.004***
Small Firm	0.103713	0.093575	0.01***
High Leverage	0.054378	0.052033	0.002**
Low Leverage	0.100395	0.094223	0.006***
High Liquidity	0.097312	0.096802	0.001
Low Liquidity	0.058146	0.049374	0.01***
High Performance	0.16405	0.155935	0.008***
Low Performance	0.007594	0.007373	0.00***
Growth Firm	2.643747	2.671712	-0.028
Value Firm	1.175175	1.113145	0.062***

***p<0.01, **p<0.05, *p<0.10

This table reports our univariate test results that compare the differences between ROA in high and low corruption states between the years 2000-2015. We report our statistical significance by asterisks as defined above.

Table 4: Univariate Tests for Tobin's Q

Tobin's Q

	High Corruption	Low Corruption	Difference
Full Sample	1.766756	1.683553	0.093***
Large Firm	1.622732	1.561094	0.062***
Small Firm	1.988644	1.923568	0.065**
High Leverage	1.513134	1.56448	-0.051***
Low Leverage	2.283456	2.206027	0.077**
High Liquidity	2.247992	2.21553	0.032
Low Liquidity	1.582106	1.518713	0.072***
High Performance	0.121486	0.117628	0.004**
Low Performance	0.039467	0.029494	0.01***
Growth Firm	3.232783	3.202956	0.03
Value Firm	0.898802	0.936973	-0.038***

***p<0.01, **p<0.05, *p<0.10

This table reports our univariate test results that compare the differences between Tobin's Q in high and low corruption states between the years 2000-2015. We report our statistical significance by asterisks as defined above.

Table 5: Effect of Corruption on ROA and Tobin's Q

	ROA	ROA	ROA	Tobin's Q	Tobin's Q	Tobin's Q
Variable	OLS	OLS+FE	OLS +FE+Lagged	OLS	OLS+FE	OLS+FE+Lagged
Corruption Score	0.044*** (10.745)	0.033*** (8.013)	0.020*** (5.213)	0.031*** (7.442)	0.025*** (6.159)	0.009*** (2.701)
Size	-0.13*** (-28.576)	-0.138 (-29.646)	-0.107 (-24.823)	0.029*** (6.413)	0.033*** (7.135)	-0.011*** (-2.985)
Leverage	-0.003 (-0.633)	-0.038 (-8.333)	-0.026 (-6.256)	-0.032*** (-7.375)	-0.04*** (-8.736)	-0.014*** (-3.827)
Market-Book	0.006 (1.513)	0.006 (1.586)	0.004 (1.192)	0.009** (2.199)	0.009** (2.310)	0.005 (1.526)
Liquidity	0.295*** (64.68)	0.231 (34.387)	0.161 (25.820)	0.359*** (78.212)	0.267*** (40.177)	0.136*** (26.112)
Lagged Variables	No	No	Yes	No	No	Yes
Year Fixed Effects?	No	Yes	Yes	No	Yes	Yes
Industry Fixed Effects?	No	Yes	Yes	No	Yes	Yes
R^2	0.14	0.161	0.286	0.13	0.175	0.504
F-stat	1686.04	319.72	644.5	1537.59	353.48	1637.66
p-value	0.000	0.000	0.000	0.000	0.000	0.000
Sample Size	51580	51580	51580	51580	51580	51580

Robust standard errors in parentheses
***p<0.01, **p<0.05, *p<0.10

This table reports the results of using four factors plus the corruption score as determined by the index to explain the ROA and Tobin's Q for firms between the years 2000-2015. In panels 1-3 ROA is our dependant variables, while panels 4-6 displays Tobin's Q as our dependant variable. Each panel features control variable treatments as described below.

OLS – simplest cross-frim OLS regression with no industry or time controls. Excludes lagged variable testing. Controls for firm effects. Columns 1 and 4 analyze of the effect of corruption on ROA from 2000-2015 socioeconomic data.
OLS+FE – Cross-frim OLS regression with industry or time controls. Excludes lagged variable testing. Controls for firm effects. Columns 2 and 4 analyze of the effect of corruption on ROA from 2000-2015 socioeconomic data.
OLS+FE+Lagged – Cross-frim OLS regression with industry or time controls. Includes lagged variable testing. Controls for firm effects. Columns 3 and 6 analyze of the effect of corruption on ROA from 2000-2015 socioeconomic data.

Robust

Table 6: Supplementary Models

Variable	ROA Excl. Crisis	ROA Only Election	ROA Post-SOX	ROA Pre-CU	Tobin's Q Excl. Crisis	Tobin's Q Only Election	Tobin's Q Post-SOX	Tobin's Q Pre-CU
Corruption Score	0.032***	0.037***	.035***	0.037***	0.030***	0.023***	0.023***	0.027***
	(7.068)	(6.308)	(7.562)	(7.278)	(6.784)	(3.91)	(5.033)	(5.401)
Size	-0.148***	-0.138***	-0.131***	-.142***	0.027***	0.029***	0.002	0.045***
	(-28.967)	(-21.051)	(-25.039)	(-24.953)	(5.248)	(4.508)	(0.414)	(8.10)
Leverage	-0.037***	-0.042***	-0.031***	-0.050***	-0.04***	-0.047***	-0.023***	-0.071***
	(-7.479)	(-6.507)	(-5.887)	(-8.934)	(-8.115)	(-7.458)	(-4.38)	(-12.749)
Market-Book	0.036***	0.041***	0.006	0.005	0.053**	0.079***	0.007*	0.008
	(8.125)	(7.164)	(1.273)	(.981)	(12.035)	(13.906)	(1.655)	(1.565)
Liquidity	0.225***	.238***	0.245***	.211***	0.259***	.253***	0.281***	0.262***
	(30.397)	(25.298)	(32.498)	(25.375)	(35.466)	(27.094)	(37.549)	(32.053)
Lagged Variables	No	No	No	No	No	No	No	No
Year Fixed Effects?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.164	0.163	0.167	.155	0.181	0.175	0.181	.182
F-stat	300.187	223.071	288.004	250.374	339.235	241.468	318.1	302.857
p-value	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sample Size	43029	26289	40385	34164	43029	26289	40385	34164

standard error in parentheses

***p<0.01, **p<0.05, *p<0.10

This table reports the results of using four factors plus the corruption score as determined by the index to explain the ROA and Tobin's Q for firms between the years 2000-2015. In panels 1-3 ROA is our dependant variables, while panels 4-6 displays Tobin's Q as our dependant variable. Each panel features control variable treatments that incorporate firm and industry control variables, without lagged variables. R^2, F-stat, p-value, and sample size statistics are also included.

Table 7: Corruption Index Score by Year

Year	Mean	Median	Min	Max
2000	4.994444	5	2	8
2001	4.805493	5	2	8
2002	4.986554	5	2	8
2003	4.704264	5	2	8
2004	4.817427	5	1	8
2005	4.947103	6	0	8
2006	4.922357	5	0	8
2007	4.479346	4	1	7
2008	4.969559	5	1	8
2009	4.695565	5	1	8
2010	4.656899	5	1	7
2011	4.664174	5	1	7
2012	4.818403	5	1	7
2013	4.436866	5	1	6
2014	4.404065	5	1	6
2015	4.421091	5	1	6
Total	4.748371	5	0	8

This table reports the yearly descriptive statistics from the corruption index from the years 2000-2015.

Table 8: Corruption Index Score by State and Year

This table reports the yearly index scores for each corruption variables by state for the years 2000-2015.

State	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Mean
AL	5	4	4	4	6	6	6	6	5	5	5	4	4	4	4	5	4.8125
AK	4	3	3	2	3	2	3	3	4	4	4	4	5	5	4	3	3.5
AZ	6	5	5	5	5	5	6	5	6	5	3	3	4	5	5	5	4.875
AR	4	5	5	5	5	5	4	5	4	5	4	5	5	4	4	4	4.5625
CA	6	6	6	6	5	6	6	6	6	5	5	5	6	6	6	6	5.75
CO	7	6	5	5	5	5	6	4	6	5	6	6	6	5	5	5	5.4375
CT	5	6	6	6	6	6	4	4	3	4	3	3	4	4	3	3	4.375
DE	3	4	5	6	4	4	6	4	5	5	4	4	3	4	5	5	4.4375
FL	5	5	5	5	5	4	5	4	4	4	5	5	4	4	4	4	4.5
GA	8	8	7	8	7	8	5	4	4	5	5	6	6	5	4	4	5.875
HI	6	5	5	4	6	5	6	5	5	6	7	7	7	6	4	4	5.5
ID	4	5	5	6	5	5	5	5	4	4	5	5	5	5	5	5	4.875
IL	4	5	5	5	4	6	4	3	3	4	3	4	4	2	3	4	3.9375
IN	4	3	5	5	4	3	5	4	5	5	4	3	3	3	2	2	3.75
IA	3	3	3	3	4	4	3	4	5	6	5	5	5	5	5	4	4.1875
KS	2	4	4	3	3	3	3	3	3	3	3	4	4	3	3	3	3.1875
KY	4	4	4	3	4	4	4	3	4	4	3	3	2	1	1	1	3.0625
LA	4	3	3	3	4	6	7	6	7	7	6	6	7	5	4	3	5.0625
ME	2	2	2	3	4	3	3	3	2	2	2	2	3	2	2	2	2.4375
MD	4	4	4	5	3	3	4	4	3	3	3	3	3	3	3	3	3.4375
MA	4	4	4	4	5	5	4	4	4	4	4	4	4	3	3	3	3.9375
MI	4	2	3	2	1	1	2	1	2	3	3	3	3	2	3	3	2.375
MN	4	5	5	5	6	6	4	3	4	3	5	6	5	5	5	5	4.75
MS	4	3	3	3	4	4	5	4	5	5	5	4	4	4	4	4	4.0625
MO	4	3	3	4	3	3	4	4	4	3	3	2	4	3	4	4	3.4375
MT	2	2	2	2	2	2	2	2	2	3	3	3	2	1	2	2	2.125
NE	5	7	8	8	8	6	6	5	6	8	6	6	7	6	6	5	6.4375
NV	4	3	4	4	4	4	4	2	3	2	4	3	3	2	1	1	3
NH	7	6	7	7	6	7	7	7	6	4	4	5	5	5	5	5	5.8125
NJ	3	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3.4375
NM	3	3	4	5	4	4	5	4	5	5	5	4	4	4	4	4	4.1875
NY	6	5	5	5	6	6	6	5	7	7	7	7	7	6	5	5	5.9375
NC	7	7	6	6	5	6	7	6	6	5	6	5	5	6	6	6	5.9375
ND	5	6	6	5	4	5	6	5	5	6	7	7	6	5	5	5	5.5
OH	4	2	4	2	1	0	0	1	1	1	1	1	1	3	3	3	1.75
OK	3	4	4	4	4	4	4	4	4	4	6	6	6	4	4	4	4.3125
OR	5	3	2	2	3	2	4	4	5	5	6	6	6	4	4	5	4.125
PA	3	4	5	2	4	3	3	4	4	4	4	5	4	5	5	5	4
RI	2	2	3	3	3	4	2	1	3	3	3	3	3	3	3	3	2.75
SC	5	4	3	4	4	5	4	4	5	5	5	5	6	5	5	5	4.625
SD	4	6	6	6	6	6	5	5	6	7	5	6	7	5	4	5	5.5625
TN	6	6	4	4	5	4	4	3	5	3	3	4	4	3	2	2	3.875
TX	7	6	6	5	7	7	8	7	8	7	7	6	7	6	6	6	6.625
UT	5	5	5	5	4	5	4	6	5	5	5	5	5	4	5	5	4.875
VT	5	5	5	4	3	3	3	3	3	4	4	3	3	2	2	2	3.375
VA	5	6	6	6	5	5	5	4	6	6	4	4	4	4	5	5	5
WA	4	4	6	6	6	6	6	5	4	4	6	6	5	4	5	5	5.125
WV	2	2	2	2	2	2	3	2	4	3	2	2	2	3	3	3	2.4375
WI	3	3	4	3	3	3	2	2	3	3	2	2	2	2	2	3	2.625
WY	4	5	5	6	6	5	4	4	4	5	6	6	5	4	4	3	4.75

Appendix II: Control Variable Definitions

For the univariate tests the data are coded to indicate differences in firm characteristics. The dummy variables include large firm, small firm, high leverage, low leverage, high liquidity, low liquidity, high performance, low performance, growth, and value firms. In addition to all of these, the full sample without the dummy's applied to the data is reported.

$$Firm\ Size = Total\ Assets$$

$$Leverage = \frac{Long\ Term\ Debt}{Total\ Assets}$$

$$Liquidity = \frac{Current\ Assets}{Total\ Assets}$$

$$Market\ to\ Book = \frac{Market\ Capitalization}{Total\ Book\ Value}$$

The dummy variables were created by dividing the total sample into quartiles and ranking them for each of the classifications above. For the dummy variables they are ranked "high" or "large" as being in the largest quartile (4th) and ranked "small" or "low" as being in the smallest quartiles (1st). In addition to the dummy variables above, there were two additional dummy variables, "performance" and "growth/value". The performance variable is simply ROA while growth/value is Tobin's Q. "High" performance was designated as a firm with an ROA in the largest quartile (4th) while "low" performance was designated as a firm with an ROA in the smallest quartile (1st). The same procedure was followed with growth/value with Tobin's Q being in the largest quartile (4th) indicting "growth" firms, and Tobin's Q being in the smallest quartile (1st) indicating "value" firms.

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This paper represents my own work in according with Memorial University of Newfoundland's regulations.