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Master Thesis Accounting and Auditing

“Social Capital and Earnings Management”

Name: Jesse Krabbenborg

Student ID: 430741

Supervisor: Dr. Jihun Bae

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Abstract

In this research, I provide evidence that U.S. firms in high social capital counties use significantly less accrual-based and real earnings management. Furthermore, I find that this association is mainly the result of higher social norms, and not of higher network density. This evidence implies that an increased sense of guilt (through higher social norms) is a better motivation for executives to reduce the use of earnings management than increased punishment (through higher network density). This evidence is important because it shows that sociological factors have an influence on accounting decisions and earnings management in particular. Additionally, it provides further evidence that social capital can play a role in reducing managerial misconduct.

Keywords: "Social Capital", "Accrual-based Earnings management", "Real Earnings Management", "Social Norms", "Network Density", "Restatements"

Contents

Introduction

In his bestseller "*Bowling Alone*", Robert D. Putnam (2000) writes about the paradoxical situation of the American bowling society. Putnam describes that despite significant growth in the number of Americans that play ten-pin bowling, there has been a decline in the number of bowling league participants. Putnam uses this example to illustrate the decline of social interaction in the United States: more and more Americans are *bowling alone*. To emphasize the importance of social interactions such as league bowling, Putnam uses the concept of social capital. However, besides promoting the importance of social capital to American citizens, the popularity of Putnam's book also seems to have promoted social capital in the academic world. To be specific, according to Engbers et al. (2017) social capital has taken a notable role in academic research over the last two decades.

While social capital initially was a sociological topic, it is now used in several other disciplines, including economics (Jha, 2017). Additionally, Jha states that social capital (defined as the social norms and networks that facilitate action) does not yet have a prominent role in accounting literature. However, it does seem that social capital has a certain role in accounting, as Jha and Chen (2015) find that higher social capital is associated with a decrease in audit fees. Jha and Chen further argue that the role of social capital may be more substantial than just its influence on audit fees, namely, they expect that social capital also affects other accounting decisions. In this research, I further investigate this expectation and extend the literature about social capital's influence in the accounting field. I do this by researching social capital's effect on an accounting decision that has received considerable attention in prior research: earnings management.

As is discussed later in this research, earnings management is mainly seen as a manipulation of earnings numbers that may harm stakeholders. Because of the potential costs of these manipulations, a large stream of literature has already focused on its determinants. For instance, prior research has already shown that sociological factors such as religiosity, individualism and egalitarianism are negatively associated with earnings management (Desender et al., 2011; McGuire et al., 2012; Kanagaretnam et al., 2015). These results and Jha and Chen's (2015) expectations leave open the question of whether social capital can also decrease earnings management. Hence, I use the following research question: does social capital decrease earnings management?

Not only can answering this question give insight into a new determinant of earnings management but also can it provide further evidence that location and sociological factors influence accounting decisions. This relation is important for regulators and auditors to understand, as such a relation can indicate that accounting decisions (and in particular earnings management) may not entirely be the result of manager or firm characteristics, as is often researched (Klein, 2002; Kao and Chen, 2004; Cornett et al., 2008). Instead, the decision to manage earnings may partly be predetermined by a firm's environment. Furthermore, the separate effects of social norms and network density on earnings management can give insights in executives' motivations to manage earnings. For example, a negative association between network density and earnings management indicates that executives likely respond to extra punishment by decreasing their use of earnings management. In addition, research on social capital is scarce in accounting literature, while there is evidence that social capital plays a role in the accounting field. (Jha and Chen, 2015; Jha, 2017).

To answer the question of whether social capital decreases earnings management, I first build upon sociology and accounting literature to ultimately hypothesize that earnings management is negatively associated with social capital, as well as social capital's two components. To test these hypotheses, I exploit the notable differences in social capital levels of the United States counties. I determine the use of earnings management in the United States counties between 1992 and 2014, by using discretionary accrual models as well as real earnings management models on the Compustat North America database.

After controlling for several firm and county characteristics, I find that social capital is negatively associated with accrual-based as well as real earnings management. Surprisingly, I find that network density is positively associated with earnings management, whereas social norms are negatively associated with earnings management. This suggests that the negative association between social capital and earnings management is explained by higher social norms rather than by higher network density. This, in turn, implies that an increased sense of guilt (through higher social norms) is a better incentive to reduce earnings management than increased punishment (through higher network density).

Because theory states that network density results in more consequence-related motivation to decrease earnings management (rather than incentive-related), I also look at a more consequence-related measure of earnings management: restatements. I find that higher network density does not result in more or fewer restatements of the financial statements, which corroborates my finding that network density is not negatively associated with earnings management. Additionally, I use propensity score matching to mitigate potential selection bias that may dilute my results. More specifically, the likelihood of being headquartered in a high social capital county may be influenced by certain firm characteristics. Therefore, treatment (being headquartered in a high social capital area) is not random. I mitigate this bias by using propensity score matching and find that my results remain the same.

My results add to the existing accounting literature in several ways. First, this research contributes to the scarce evidence of social capital's influence on accounting. After Jha and Chen (2015) and Jha (2017) have found that social capital is negatively associated with audit fees and financial fraud, this research provides evidence that social capital is also negatively associated with earnings management. Even though Jha (2017) has already shown that social capital is negatively associated with discretionary accruals, I now find that real earnings management is also affected by social capital. This raises the question of whether social capital can affect other forms of managerial misconduct. I leave it to future research to further investigate this.

Secondly, this research provides further evidence for Jha's (2017) expectation that social capital can help decrease managerial misconduct. Moreover, my results show that executives do not necessarily decrease earnings management because of extra punishment, but rather because it is against the norms of their network. Regulators and auditors can build upon this insight and find new methods to combat (undesirable) earnings management.

Lastly, this research contributes to the extensive earnings management literature. Not only does it provide evidence for a new earnings management determinant, but also does it raise the question of whether more demographical and sociological factors influence the use of earnings management. While the effects of some other sociological factors on earnings management have already been investigated, I provide further evidence that executives' decision to manage earnings partly depend on their environment's opinion on these manipulations. Future research may further investigate this expectation.

This research also has some limitations. First, while the modified Jones model is frequently used to measure discretionary accruals, it also has received several criticisms. One of the concerns is that it is likely to overstate discretionary accruals, which as a result may falsely identify firms as manipulative. Therefore, my findings on social capital's effect on accrual-based earnings management may also be biased.

A similar concern exists for the real earnings management measures, namely, these do not directly measure the use of real earnings management. Rather, they only measure what part of cash flows, production or discretionary expenses cannot be explained by their theoretical determinants. In reality, there may be more determinants to these measures, which would mean that the numbers I use may be biased. Additionally, aggregating the real earnings management measures may result in double counting and dilute the results.

Lastly, because social capital data is missing for the larger part of the period I investigate, I use linear interpolation to estimate the missing data. However, this results in the possibly unrealistic assumption that social capital, social norms and network density grow or decline at constant rates. While there is still a lack of sufficient social capital data, future research may resolve this problem by measuring social capital every year. This would remove the need for assumptions regarding the development of social capital and thus increase the internal validity of social capital research.

The remainder of this research is structured as follows. First, I provide an extensive review of sociology and accounting literature regarding social capital and earnings management. I then form two hypotheses based on this literature. Subsequently, I describe the models and data that I use to test these hypotheses. Next, I present the results and their interpretation. Lastly, I provide a summary of the conclusions, contributions and limitations of this research.

Theoretical Framework

Social Capital

The concept of social capital finds its origin in sociology. It is first described by Hanifan (1916), who discusses the lack of social capital in rural areas and the negative consequences thereof. In this paper, Hanifan emphasizes the paradoxical use of the word "capital". In particular, Hanifan explains that social capital does not refer to tangible capital such as real estate or cash, but to that which makes capital valuable to individuals: goodwill, communication and mutual trust within a network.

Although subsequent research has used social capital, the concept has only gained its academic popularity during the past twenty years (Engbers et al., 2017). Despite this popularity, social capital still does not capture any new sociological ideas (Portes, 1998). More specifically, Portes states that the definitions of social capital merely recapture the importance of within-network interaction, which has been described since the beginning of the sociological discipline.

One of the more popular "new" definitions of social capital originates from a sociological paper by Coleman (1988). Coleman defines social capital as the value of all social structures (such as norms, family relations and trust) that individuals can use to achieve their interests within a network. To clarify the meaning of this definition, Coleman provides several examples, among which that of diamond merchants. For instance, if diamond merchants are closely related and interact frequently, they will blindly trust each other with their diamonds, regardless of their value. An example is the free exchange of diamonds for quality verification. This particular type of exchange is important for the efficiency of the diamond market, namely, it removes the need for collateral or insurance contracts between the merchants. Because the exchanges in this example mainly rely on the social constructs "family relations" and "trust", these social constructs have a certain value. Coleman's definition states that the value of these social structures, along with that of all other social constructs, is accumulated in social capital.

The problem with this definition of social capital is that there are many social structures in a network. This makes it difficult to identify all these different social structures, let alone measure their value. To mitigate this problem, I use a more restricted definition of social capital introduced by Woolcock (2001): the social norms and networks that facilitate action. This definition makes social capital identifiable, measurable and therefore useable in empirical research.[1] Unsurprisingly, it has already been used in prior financial accounting literature by Jha and Chen (2015) and Jha (2017).

The social norms that Woolcock's (2001) definition refers to, are developed when individuals repeatedly interact with each other within a network (Fukuyama, 1997). Over time, these interactions lead to baseline principles of communication and interaction that encourage individuals to behave in a certain way. These baseline principles are the social norms of that network. According to Milgram et al. (1969) and Cialdini et al. (1991), these social norms affect individuals' decisions. More specifically, they state that every individual develops their own set of principles based on social norms. When an individual behaves disparately, a sense of guilt arises. This guilt can be seen as a cost that may restrict someone from making decisions that are not in line with their principles. For instance, if trustworthiness is an important social norm in the aforementioned diamond market, the diamond merchants will feel a sense of guilt when they violate each other's trust. This, in turn, may withhold them from stealing

[1] The measure for social capital is discussed in the "Research Design" section of this research

diamonds and thus improve the diamond market's efficiency. In other words, social norms support selfless decisions and add to the value of social capital.

The second component of social capital that Woolcock (2001) mentions, is networks. An essential part of these networks is their density and how networks are related to social norms. Since norms are developed as a result of frequent interaction (Fukuyama, 1997) and network density refers to within-network frequency of interaction, I refer to high- (low-) density networks as networks where individuals interact more (less) frequently. Spagnolo (1999) states that a higher network density increases the social punishment power of a network. This, in turn, may restrict an individual from making a dishonest decision, as he may perceive the social punishment as a cost. Furthermore, more frequent interaction leads to more information exchange and more effective monitoring (Wu, 2008). This theory suggests that the diamond merchants in the previous example are less likely to steal diamonds because they are more likely to get caught and are subsequently more severely punished by the diamond market network. If this cost is taken into account by the diamond merchants, they are less likely to steal diamonds, meaning that network density supports selfless decisions and improves the diamond market's efficiency. Therefore, it has a value that adds to the value of social capital.

Whereas I have previously referred to networks in the broadest sense of the word (i.e. any group where individuals interact with each other), I choose to use one particular type of network in this research to increase the measurability of social capital and to prevent misinterpretations within the broad definition of "network". Following Jha and Chen (2015) and Jha (2017), I choose United States counties as my networks, because the within-network social capital is measurable and there are notable differences in social capital levels between counties (see figure 2 in the appendix). Therefore, I assume that all these counties have developed their own set of social norms, but also that they have their own density.

In short, social capital is a broad and abstract concept. To increase its understandability and measurability, I choose a definition of social capital that is restricted to the social structures "social norms" and "network density". Furthermore, theory suggests that both these social structures encourage individuals to make selfless decisions. Altogether, I define a high (low) social-capital county as a county where individuals interact more (less) frequently and have more (less) incentives to make selfless decisions.

Earnings Management

In *"Commentary on Earnings Management"*, Schipper (1989) defines earnings management as a way for executives to obtain personal benefits by interfering in the financial reporting process. Healy and Wahlen (1999) add to this definition that the use of judgment is involved in the execution of earnings management and that earnings management is used to mislead stakeholders. Healy and Wahlen refer to judgment as the ability of executives to choose financial reporting methods, estimates and disclosures that are in line with their firm's underlying economics. However, the use of judgment also allows executives to choose policies and estimates that do not match their firm's underlying economics. This, in turn, allows executives to manipulate earnings through accruals, such as depreciation and accounts receivable. This type of earnings management is referred to as “accrual-based earnings management”, which does not directly influence cash flows (Roychowdhury, 2006).

A second type of earnings management that does directly influence cash flows is “real earnings management”. This type of earnings management refers to executives’ ability to influence “real” activities such as production or research and development (R&D). For instance, executives can manage earnings upwards or downwards by decreasing respectively increasing R&D expenses. Because these two types of earnings management function significantly different, I discuss both types separately in this section.

Accrual-based earnings management

Because cash flows often do not adequately represent firm performance, firms may add accruals so that their earnings better represent firm performance (Dechow, 1994). Common ways to do this are through depreciation of assets and through accounts receivable. According to Healy and Wahlen (1999), executives may use discretion to choose financial reporting methods that represent the firms’ underlying business economics. While Healy and Wahlen acknowledge that this may favor the value relevance of earnings, they assume that executives abuse their discretion to manipulate earnings and mislead stakeholders.

For instance, executives may change depreciation methods because it better represents the underlying economics of an asset, or simply because it temporarily leads to lower depreciation costs and therefore higher earnings. In both cases, executives apply discretion to add accruals to their earnings. These accruals are referred to as “discretionary accruals”. In the former case, the discretionary accruals make earnings a better representation of the actual firm performance. However, Healy and Wahlen assume that discretionary accruals are only applied as is done in the latter case, where discretionary accruals do not have an underlying economic explanation and thus decrease the extent to which earnings represent actual firm performance. In short, Healy and Wahlen’s assumption that earnings management is used to manipulate stakeholders indicates that the use of discretionary accruals never has an underlying economic explanation.

While Schipper’s (1989) definition does not directly assume that executives use discretionary accruals to mislead stakeholders, it does assume that executives use discretionary accruals only for their own benefit. Within this definition, the benefits or costs of stakeholders are not taken into account. Because I define a high social-capital network as altruistic and both the aforementioned definitions of earnings management acknowledge that earnings management is primarily used for selfish reasons, I assume that networks generally frown upon the use of discretionary accruals. This means that throughout this research, all discretionary accruals are assumed to be undesirable.

There exists a large set of evidence for the use of accrual-based earnings management and its consequences (Jones, 1991; Healy and Wahlen, 1999; Biddle et al., 2009, among others). For instance, Jones (1991) finds that firms use discretionary accruals to decrease their earnings in an attempt to gain import relief. Furthermore, research has shown that firms use discretionary accruals to boost earnings prior to seasoned equity offerings (Teoh et al., 1998a; Cohen and Zarowin, 2010) and initial public offerings (Teoh et al., 1998b). Additionally, Burgstahler and Eames' (2006) results show that firms manage earnings upwards to meet or beat the expectations of analysts. A survey by Graham et al. (2005) among executives confirms that executives actively engage in earnings management to meet earnings forecasts. Moreover, Biddle et al. (2009) find that the use of discretionary accruals is negatively associated with investment efficiency, indicating that accrual-based earnings management has negative consequences for shareholders. Altogether, this evidence supports my assumption and suggests that firms indeed use discretionary accruals for their own benefits and that it may harm shareholders.

Real earnings management

Although prior literature has often focused on accrual-based earnings management, recent literature has also investigated earnings management through real activities (Roychowdhury, 2006; Cohen et al., 2008; Cohen and Zarowin, 2010). For instance, Roychowdhury (2006) finds that executives use discretionary expenses (such as R&D expenses) to manage their earnings. In contrast to accrual-based earnings management, this type of earnings management directly affects firms' cash flows and thus has direct economic consequences for firms.

Despite these direct consequences, executives seem to prefer real earnings management, namely, Graham et al.'s (2005) survey has shown that executives prefer real earnings management over accrual-based earnings management. More specifically, the executives state that they prefer real earnings management because it is less likely to be discovered and accrual-based earnings management is seen as unethical. Additionally, Cohen et al. (2008) find evidence for this shift from accrual-based to real earnings management in the post-Sarbanes Oxley (SOX) period, as accrual-based earnings management was heavily scrutinized and criticized as a result of several accounting scandals in the pre-SOX period. Put differently, the existing literature suggests that real earnings management serves as a substitute for accrual-based earnings management when the (perceived) cost of the latter exceeds that of the former. Cohen and Zarowin (2010) confirm this empirically. Therefore, I treat real earnings management in a similar manner as accrual-based earnings management. This means that real earnings management, as well as accrual-based earnings management (and thus earnings management in general), is assumed to be undesirable throughout this research. This applies to both income-increasing and income-decreasing earnings management, as both are manipulations of earnings.

The evidence on this assumption is mostly similar to that of accrual-based earnings management. First of all, Graham et al. (2005) find that executives also use real earnings management to meet or beat analyst forecasts. Secondly, Cohen and Zarowin (2010) find that firms use real earnings management to manage earnings upwards prior to seasoned equity offers. Lastly, Gunny (2005) finds that real earnings management has significant negative effects on future firm performance, indicating negative consequences for firms as well as stockholders.

In short, theory and literature suggest that executives can manage their earnings through changes in financial reporting as well as through real activities. Because I assume that altruism is important in high social capital networks and the aforementioned literature suggests that executives engage in earnings management for selfish reasons, I treat earnings management as undesirable throughout this research. This assumption is supported by evidence from Biddle et al. (2009) and Gunny (2005), which shows that accrual-based, as well as real earnings management, harms stakeholders.

Hypothesis Development

Even though both social capital and earnings management have both been explained in the previous section, the association between these two concepts may still be unclear. Therefore, I will build upon the aforementioned theory and explain the expected relation in this section. I will do so by breaking social capital's effect into the separate effects of its two components, as theory suggests that social norms and network density function differently. More specifically, social norms represent intrinsic motivation for selflessness and network density represents extrinsic motivation for selflessness. Subsequent to these explanations, I form hypotheses about social capital's effect on earnings management and the separate effect of social capital's two components.

Based on Fukuyama (1997), Milgram et al. (1969) and Cialdini et al. (1991), I have previously established that social norms can induce a sense of guilt when an individual behaves disparately. This sense of guilt can be seen as a cost and, according to Akerlof (2007), executives take this cost into account when making decisions. Since earnings management is seen as selfish, this theory suggests that executives are less likely to engage in earnings management in counties with more altruistic norms, compared to counties where altruism is less important.

Furthermore, Spagnolo (1999) and Wu (2008) have hypothesized that networks can increase the perceived cost of selfish decisions through punishment and more effective monitoring. These costs can also be reflected on earnings management: If earnings management is seen as undesirable and networks can more easily detect and punish earnings management, executives will take these costs into account. This, in turn, decreases the expected benefits of earnings management, ultimately decreasing the likelihood that executives will engage in earnings management in counties with high network density.

Altogether, as shown in figure 1 in the appendix, I expect that social capital decreases the use of earnings management, as a result of extra costs induced by guilt, monitoring and punishment. This expectation is in line with prior sociological and accounting literature, which has already shown that other altruistic sociological factors, such as religiosity and egalitarianism, are associated with a decrease in earnings management (Desender et al., 2011; McGuire et al., 2012; Kanagaretnam et al., 2015). Additionally, Jha (2017) has already shown that social capital is associated with lower levels of discretionary accruals. These findings and expectations are reflected in my first hypothesis:

H1: Social capital is negatively associated with earnings management

To truly understand how social capital affects earnings management, it is necessary to determine if social norms and network density also affect earnings management separately. Put differently, do executives decrease earnings management because they find earnings management undesirable or unethical (as Graham et al. (2005) have found), or because they are more likely to be punished? To investigate these separate effects of social capital's components, I form two additional hypotheses based on the aforementioned theory:

H2a: Social norms are negatively associated with earnings management

H2b: Network density is negatively associated with earnings management

Research Design

Empirical models

In this section, I explain per hypothesis the empirical model and the data that I use to test the hypothesis. More specifically, I elaborate on what proxies I use for the dependent and independent variables and how these proxies are constructed. Additionally, I explain what control variables I add to control for endogeneity.

I use the following model to test my first hypothesis. It is constructed using cross-sectional United States firm-year observations from the period 1992-2014:

$$\begin{aligned} Earnings\ Management = \beta_0 + \ & \beta_1 SocialCapital + \beta_2 SIZE + \beta_3 ANALYSTS \\ & + \beta_4 ROA + \beta_5 LEVERAGE + \beta_6 BIG4 + \beta_7 BME \\ & + \beta_8 LOSS + \beta_9 VOL\_CF + \beta_{10} RURAL + \beta_{11} RELIGION \\ & + \beta_{12} IPC + \beta_{13} POPULATION + \beta_{14} DENSITY \\ & + Industry\ Indicators + Year\ Indicators + \varepsilon \end{aligned} \quad (1)$$

In this model, the dependent variable $Earnings\ Management$ takes one of three proxies for earnings management: Absolute discretionary accruals ($|AccrEM|$)[2], or one of two real earnings management measures ($RealEM1$ and $RealEM2$).

As discussed in the section "Theoretical Framework", discretionary accruals are a proxy for accrual-based earnings management, a widely researched earnings management method (Jones, 1991; Dechow, 1994, among others). Because Graham et al.'s (2005) survey has shown that executives prefer real earnings management over accrual-based earnings management and Cohen et al. (2008) have found that executives have shifted from accruals-based earnings management to real earnings management, I take real earnings management into account as well. The independent variable $SocialCapital$ is based on an index created by Rupasingha et al. (2006). This index is constructed by using a principal component analysis on two proxies for social norms (voter turnout and census response rate) and two

[2] Note that I use absolute value of discretionary accruals, as I consider upward and downward earnings management equally manipulative and undesirable. However, to check for potential differences, I also include results partitioned on sign.

proxies for network density (number of social/civic associations and the number of non-governmental organizations (NGOs)). The exact measurement is further discussed under "Social capital, social norms and network density" in this section.

To test hypothesis 1, I analyze the coefficient on $SocialCapital$. Because theory suggests that social capital decreases earnings management, I expect $SocialCapital$'s coefficient to be negative.

To test the second hypothesis, I use the following regression model:

$$Earnings\ management = \beta_0 + \beta_1 SocialNorms + \beta_2 NetworkDensity + \text{Control variables} + \varepsilon \quad (2)$$

where $Earnings\ management$ and the control variables are both treated the same as in equation (1). Because $SocialNorms$ and $NetworkDensity$ are likely to be significantly correlated with each other and with earnings management, I add them in one regression to control for potential bias.

In equation (2), both the coefficients of $SocialNorms$ and $NetworkDensity$ are of interest. I expect both coefficients to be negative. Finally, to examine whether $SocialCapital$'s effect is caused by $SocialNorms$, $NetworkDensity$ or both, I use F-tests to compare the magnitude of the both variables' coefficients.

$SocialNorms$ in equation (2) takes the value of the first component from a principal component analysis of the two proxies for social norms: voter turnout and census response rate. Furthermore, $NetworkDensity$ takes the value of the first component from a principal component analysis of the two proxies for network density: the number of social/civic associations and number of NGOs. The accuracy of these proxies for measuring social norms and network density are discussed under "Social capital, social norms and network density" in this section.

Accrual-based earnings management

The variable $|AccrEM|$ represents the level of absolute discretionary accruals, as calculated with the modified Jones Model. This model is based on an accruals model created by Jones (1991), which calculates discretionary accruals as the aggregate of accruals that do not originate from the two main economic factors for accruals: change in revenue and property plant and equipment (PPE). The modified Jones model, unlike the original Jones model, acknowledges that executives may manipulate accounts receivable (and thus revenues) (Dechow, 1994). In the original Jones model, manipulated accounts receivable are included in the nondiscretionary accruals as part of the change in revenues. By excluding ΔRec_t from the nondiscretionary accruals (see equation (5)), all change in accounts receivable in the modified Jones model are seen as discretionary, which decreases the likelihood of discretionary accruals being treated as nondiscretionary. Therefore, the modified Jones model is less likely to make type II errors.

So, following the modified Jones model, the absolute discretionary accruals are calculated as follows:

$$|AccrEM_t| = |TA_t - NDA_t|, \quad (3)$$

where $|AccrEM_t|$ is the absolute value of total discretionary accruals, TA_t the total of accruals and NDA_t represents the total of nondiscretionary accruals. The total accruals (TA_t) are calculated as follows:

$$TA_t = a_1\left(\frac{1}{Assets_{t-1}}\right) + a_2(\Delta Rev_t) + a_3(PPE_t) + v_t, \tag{4}$$

where a_1, a_2 and a_3 are firm-specific parameters, $Assets_{t-1}$ is lagged total assets, ΔRev_t is the change in revenues in the period $t-1$ until t, scaled by lagged total assets and PPE_t is the value of PPE in year t, scaled by lagged total assets. Lastly, NDA_t is calculated as follows:

$$NDA_t = \alpha_1 + \alpha_2(\Delta Rev_t - \Delta Rec_t) + \alpha_3 PPE_t, \tag{5}$$

where α_1, α_2 and α_3 are firm-specific parameters and ΔRec_t is the change in net receivables between $t-1$ and t, scaled by lagged total assets.

Real earnings management

Prior literature has shown that executives do not only use discretion to manage earnings but also directly influence operations or expenses. To capture these "real" manipulations, I base my real earnings management proxies ($RealEM1$ and $RealEM2$) on three real earnings management measures created by Dechow et al. (1998) and previously used by Roychowdhury (2006), Cohen et al. (2008) and Cohen and Zarowin (2010), among others. These three real earnings management measures are: (1) abnormal level of cash flows from operations, (2) abnormal discretionary expenses and (3) abnormal production costs. The abnormal level of cash flows is included to measure the use of sales increasing discounts, abnormal discretionary expenses measures changes in expenses where executives may apply discretion (such as R&D and SG&A expenses) and abnormal production costs reflects discretionary over- or underproduction (Cohen and Zarowin, 2010). Note that all these earnings management methods can directly influence cash flows and earnings.

First, based on the aforementioned real earnings management literature, the abnormal level of cash flows ($cfoEM$) is calculated as the residual v_t of the following regression:

$$\frac{CFO_t}{Assets_{t-1}} = c_1\frac{1}{Assets_{t-1}} + c_2\frac{Rev_t}{Assets_{t-1}} + c_3\frac{\Delta Rev_t}{Assets_{t-1}} + v_t. \tag{6}$$

where CFO_t denotes the actual cash flows from operations, $Assets_{t-1}$ is lagged total assets, Rev_t is total revenues in year t and ΔRev_t is the change in total revenues between year t and $t-1$. Subsequently, the abnormal part of production costs ($prodEM$, defined as the sum of costs of goods sold and change in inventory) is calculated as the residual of equation (7):

$$\frac{Prod_t}{Assets_{t-1}} = c_1\frac{1}{Assets_{t-1}} + c_2\frac{Rev_t}{Assets_{t-1}} + c_3\frac{\Delta Rev_t}{Assets_{t-1}} + c_4\frac{\Delta Rev_{t-1}}{Assets_{t-1}} + v_t, \tag{7}$$

where $Prod_t$ equals the actual production costs and ΔRev_{t-1} is the change in total revenues between year $t-1$ and $t-2$. The remaining variables are as defined above. Finally, the abnormal part of discretionary expenses ($expEM$, defined as the sum of advertising expenses, R&D expenses and SG&A expenses) are calculated as the residual of equation (8):

$$\frac{DiscExp_t}{Assets_{t-1}} = c_1 \frac{1}{Assets_{t-1}} + c_2 \frac{Rev_t}{Assets_{t-1}} + v_t, \quad (8)$$

where $DiscExp_t$ is the actual level of discretionary expenses. Following prior literature (Cohen and Zarowin, 2010; Jha 2017), I set advertising and R&D expenses to zero if SG&A expenses are available in Compustat. I do this to avoid double inclusion of advertising and R&D expenses, as both expenses are likely to be included in SG&A expenses. The remaining variables are as defined above.

After deriving the three real earnings management measures, I follow Cohen and Zarowin (2010) and Jha (2017) by first winsorizing all three measures to remove outliers. I then multiply $expEM$ and $cfoEM$ by negative one, so that higher values of these measures indicate more earnings management. Finally, I standardize all three measures around a mean of zero with a standard deviation of one.[3]

Based on Cohen and Zarowin's (2010) real earnings management measures, I then construct my first real earnings management proxy ($RealEM1$). I do this by adding $prodEM$ to $expEM$. Higher values of $RealEM1$ then correspond with more real earnings management through unnecessary changes in production and adding or cutting discretionary expenses.

For my second real earnings management proxy ($RealEM2$), again based on Cohen and Zarowin (2010), I aggregate $cfoEM$ and $expEM$. Higher values of $RealEM2$ correspond with more real earnings management through sales manipulations and adding or cutting discretionary expenses. Because the aggregated values of the real earnings management measures may dilute results (e.g. because of double counting), I also report the individual real earnings management measures in my results.[4]

Social capital, social norms and network density

The independent variable $SocialCapital$ in equation (1) denotes the social capital level of the county where a firm is headquartered. The county social capital level is based on an index created by Rupasingha et al. (2006) and retrieved from the Pennsylvania State College of Agricultural Sciences website. This index is constructed using proxies of Woolcock's (2001) social capital components: norms and networks. Because the proxies for social norms (voter turnout and census response rate) cannot be measured every year, the index exists only for certain years, namely, 1990, 1997, 2005, 2009 and 2014. Consistent with prior literature by Hilary and Hui (2009), Jha and Chen (2015) and Jha (2017), I linearly interpolate the social capital index and its components to estimate the proxies for the years 1991-1996, 1998-2004, 2006-2008 and 2010-2014.[5] By interpolating, I assume a constant change in social capital, social norms and network density per county.

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[3] I standardize my measures with the *std* function in STATA

[4] Note that I do not add $prodEM$ and $cfoEM$, as abnormally high production costs will also lead to abnormally low cash flows from operations (Cohen and Zarowin, 2010). I do aggregate the other real earnings management measures because it will give a better view of social capital's, social norms' and network density's effect on total real earnings management.

[5] Linear interpolation is a way to estimate missing data. Linear interpolation draws a line between two observations of social capital (for instance one in 1990 and one in 1997). The slope of this line is the average growth rate of social capital between 1990 and 1997. The social capital levels of the intervening years (1991 to 1996) are then estimated using this average growth rate. I estimate my missing social capital data by using the *ipolate* function in STATA.

As for $SocialNorms$ (equation (2)), the proxies voter turnout and census response rate are used. Voter turnout and census response rates serve as proxies for social norms because individuals arguably do not vote for themselves, but rather because the norm of their network is to fulfill civic duties (Funk, 2005). In other words, individuals vote because the social norm of their network is to vote when an election takes place. Hence, higher values of voter turnout and census response mean that more people adhere to the social norms, indicating that higher voter turnout and census response rate measure higher social norms. Moreover, voter turnout and census response rate have been used in other prominent social capital indices (Knack, 1999; Guiso et al., 2004).

The number of social and civic associations and the number of NGOs are used to construct $NetworkDensity$ in equation (2). Social and civic association include bowling centers, golf courses, country clubs, religious associations and political organizations, among others. NGOs include all non-profit organizations without an international approach. These proxies essentially measure the number of opportunities to meet peers per county. Taking into account that unvisited associations and organizations probably cease to exist (i.e. the existing associations and organizations are likely frequently visited), the number of associations and NGOs therefore indirectly measure the frequency of interaction. In other words, the number of social and civic associations and the number of NGOs seem to indirectly measure network density.

Because theory states that norm adherence is the result of frequent interaction (i.e. network density), both components are likely to be highly correlated. Therefore, Rupasingha et al. (2006) use the first component from a principal component analysis of the four proxies as their final social capital index. This gives each U.S. county a social capital level (see figure 2 in the appendix). I link each firm to a social capital level based on the zip code of the firm's headquarters.

Control variables

Besides my variables of interest, I also use four types of control variables in my regression models: firm-level control variables, county-level control variables, industry-level control variables and year indicators. The firm-level control variables are based on evidence that certain firm characteristics (such as capital structure and growth opportunities) are correlated with earnings management (Healy and Wahlen, 1999). Therefore, I control for the natural logarithm of the equity market value ($SIZE$), the number of analysts following the firm ($ANALYTS$), return on assets (ROA), debt to total assets ratio ($LEVERAGE$), a dummy variable for having a Big 4 auditor ($BIG4$), book-to-market equity ratio (BME), a dummy variable for having losses in current years or the two preceding years ($LOSS$) and the volatility of cash flows (VOL_CF). These variables are a combination of controls that are frequently used in real and accrual-based earnings management literature (Roychowdhury, 2006; McGuire et al., 2012; Jha (2017), among others).

The county-level control variables I use, are based on prior literature that links sociological factors to accounting (Hilary and Hui, 2009; McGuire et al., 2012; Jha, 2017). Following this stream of research, I control for percentage of religious people per county ($RELIGION$), county income per capita

(IPC), the natural logarithm of county population ($POPULATION$) and county population density ($DENSITY$). Controlling for these demographic factors assures that $SocialCapital$ captures the effect of social capital on earnings management, instead of other demographic characteristics. Furthermore, I also control for a firm's location in rural areas ($RURAL$), as prior literature suggests that the quality of reported earnings is higher for firms located in rural areas (Urcan, 2007). Finally, I add industry and year indicators to control for any differences between industries and changes over time. The definitions and calculations for all variables are given in table 8 in the appendix

Data

The final sample I use to construct my regression models consists of 60,965 firm-year observations in Compustat North America from 6,169 distinct U.S. firms over the period of 1992 to 2014. Following Jha (2017), I exclude firms from the financial sector and regulated sector from my sample. Furthermore, I exclude observations with missing data for any of the independent variables used in equations (1) and (2)

My sample selection starts with 109,893 firm-year observations from 9,619 non-financial and non-regulated firms with non-missing asset data between 1990 and 2014 (see table 1 in the appendix). I remove 4,335 observations that miss data on social capital or its components. Additionally, I remove 12,649 observations that miss data for any of my firm-level control variables. I subsequently remove 3,234 observations where county-level control variable data is missing. Lastly, I remove 28,710 firm-year observations because they miss data that are necessary to construct the earnings management proxies.

Most firm-level data are retrieved from the Compustat North America database. That is, all firm-level variables except the number of analysts following a firm ($ANALYSTS$), which is retrieved from the I/B/E/S database. The data necessary to construct the county-level control variables $RURAL$, $POPULATION$ and $DENSITY$ is available at the United States Census Bureau. The county income per capita data (IPC) comes from the United States Bureau of Economic Analysis. The percentage of religious people per county ($RELIGION$) is available in the Association of Religion Data Archive.

Sample distribution

Table 2 contains the distribution of my sample. It shows that 197 out of 259 high social capital counties (76.1%) also has high social norms. Approximately 88% of high social capital counties have high network density. The table also shows that 73.3% of low social capital counties have low social norms and 67.5% of the counties with low social capital also has low network density. This distribution shows that social capital is likely correlated with both social norms and network density. However, table 2 also shows that not all counties with high social norms and high network density also have high social capital.

Additionally, figure 2 presents the distribution of social capital in the United States. As I have already mentioned before, there exist notable differences between counties with regard to social capital.

As figure 2 shows, most counties with high social capital in 2014 are concentrated in the middle and Northwest of the United States. Most low social capital counties are located in the Southwest.

Results

In this section, I present the main results for my hypotheses. First, I analyze my univariate results, which include graphical representations and simple statistic tests of the data. These findings give an indication of social capital's (and its components') effect on earnings management. Because these results may be biased due to omitted-variable bias, I subsequently present the results from my main regression models, in which I control for these omitted variables. Based on all results, I lastly determine whether I accept or reject my hypotheses.

The effect of social capital on earnings management

Univariate Results

The univariate results presented in figure 3abc and table 3 in the appendix are in line with my first hypothesis. Figure 3abc shows a graphical representation of absolute accrual-based earnings management and the two earnings management proxies over time in counties with high versus low social capital. Figure 3a confirms the expectation that firms in high social capital counties use less accrual-based earnings management. Figure 3b and 3c show no clear relation between social capital and real earnings management.

The statistical tests for the findings from figure 3abc are found in table 3. First, column (1) of panel A shows that, on an absolute level, firms in high social capital counties use significantly less accrual-based earnings management ($p < 0.01$). As for signed discretionary accruals, the results in column (1) of panel A indicate that firms in low social capital counties on average use more income-decreasing discretionary accruals, as opposed to income-increasing discretionary accruals for firms in high social capital counties. This results in significant differences between firms in high versus low social capital counties for signed accrual-based earnings management ($p < 0.01$). Table 3 panel A shows no significant differences in real earnings management between firms in high versus low social capital counties

Additionally, column (1) in panel A indicates that there are significant differences between firms in high versus low social capital counties in general. More specifically, $Size$, ROA and CFO are larger for firms headquartered in high social capital counties ($p < 0.01$ for all three variables). In contrast, firms in low social capital counties have significantly higher $Leverage$ ($p < 0.01$) and $Net\ Income$ ($p < 0.05$) and significantly more analyst following ($p < 0.01$).

To further analyze the relation between social capital and earnings management, the Pearson correlations between the most important variables are included in panel B of table 3. This correlation matrix shows significant negative correlations for $SocialCapital$ on all three absolute measures of earnings management ($p < 0.05$ for all three measures). This confirms my first hypothesis. Furthermore,

$SocialCapital$ is significantly correlated with both my firm-level and county-level control variables. Most importantly, all control variables (except $Analysts$ and $Religion$) are also significantly correlated with my three measures for earnings management. In other words, these results confirm that I should indeed control for these factors in equation (1) to avoid biased results.

In short, the univariate results reject my first hypothesis. This means that based on the univariate results I find that firms in high social capital counties do not use more or less earnings management compared for firms in low social capital counties. Figure 3abc shows this graphically and table 3 provides the statistical evidence. However, panel B of table 3 indicates that social capital is negatively correlated with my earnings management measures. Furthermore, I find that I should indeed control for the variables that I have included in my regression model, as the majority of control variables is significantly correlated with my independent and dependent variables. In the next section, I test whether these results hold after controlling for certain factors that may influence both social capital and earnings management.

Multivariate results

The results from my multivariate tests (found in table 4) are not consistent with those from the univariate tests. After controlling for several firm, county and industry characteristics and changes over time, the results in table 4 show a significant negative relation between $SocialCapital$ and $|AccrEM|$ (-0.005; $p < 0.01$) as well as $RealEM1$ (-0.031; $p < 0.01$). This indicates that firms in counties with higher social capital use significantly less accruals and real actions to manipulate earnings. There is no significant relation between $SocialCapital$ and $RealEM2$, indicating that social capital does not affect all types of real earnings management.

This is confirmed by the results in column (6), (7) and (8) of table 4, which show that $SocialCapital$ is significantly related to only two out of the three real earnings management measures, namely, $prodEM$ (-0.016; $p < 0.001$) and $expEM$ (-0.015; $p < 0.01$). This means that firms in counties with higher social capital only use significantly less discretionary expenses and production-related earnings management.

Additionally, column (2) indicates that firms in high social capital counties use significantly less income-increasing discretionary accruals ($p < 0.01$). As for income-decreasing accrual-based earnings management (column (3)), the results show no significant relation with social capital. This may be due to the fact that income-decreasing discretionary accruals are often used for tax purposes or to comply with regulatory requirements (Jones, 1991; Guenther, 1994). Therefore, this type of earnings management is not necessarily undesirable, as it may increase the future value of a firm through regulatory benefits. This would explain why firms in high social capital counties do not use significantly less income-decreasing earnings management.

In short, the results in table 4 indicate that firms headquartered in counties with higher social capital use less accrual-based earnings management and real earnings management. This means that my first hypothesis is confirmed.

The effect of social norms versus network density on earnings management

Univariate results

The graphical representations of earnings management in high versus low social norms counties and high versus low network density counties (see figure 4abc respectively figure 5abc in the appendix), contain results similar to figure 3abc. First, figure 4a and 5a show that firms in counties with low social norms respectively low network density seem to use less discretionary accruals. Figures 4b and 4c indicate that no such difference exists for real earnings management in high versus low social norms counties. The same applies to firms in high versus low network density counties, as shown in figures 5b and 5c.

The statistical tests found in column (2) of table 3 panel A, confirm that firms in counties with higher social norms on average use significantly less accrual-based earnings management on an absolute level ($p < 0.01$). Furthermore, the results also show that firms in counties with low social norms, on average, use more income-decreasing discretionary accruals, whereas firms in high social norms counties use income-increasing discretionary accruals. This results in a significant difference in the use of accrual-based earnings management ($p < 0.01$). Additionally, column (2) of table 3 panel A shows that firms in high social norms counties use significantly less real earnings management ($p < 0.05$ for $RealEM1$ and $p < 0.1$ for $RealEM2$). This confirms hypothesis 2a.

Column (3) of table 3 panel A shows different results for network density. Firms in high network density counties experience significantly less accrual-based earnings management ($p < 0.01$). Furthermore, firms in low network density counties, on average, use income-decreasing accrual-based earnings management. On average, firms in high network density counties use accrual-based earnings management to increase their earnings. The result is that there is a significant difference in $AccrEM$ between firms in high and low network density counties ($p < 0.01$). However, column (3) of table 3 panel A shows that firms in high network density counties use significantly more real earnings management ($p < 0.01$ for $RealEM1$). There is no significant difference for $RealEM2$. This contradicts hypothesis 2b. Additionally, the correlation matrix in panel B of table 3 shows a significant negative correlation between $SocialNorms$ and the three earnings management proxies ($p < 0.05$ for all measures), which would confirm hypothesis 2a.

As for $NetworkDensity$, table 3 panel B shows a significant negative correlation with $|AccrEM|$ and $RealEM2$ ($p < 0.05$ for both measures). There is no significant correlation with $RealEM1$. This means that higher network density is likely negatively associated with lower earnings management, which would confirm hypothesis 2b.

Furthermore, $SocialNorms$ and $NetworkDensity$ are both significantly correlated with most of the control variables. This confirms that these control variables should be used in equation (2) to avoid biased results. Lastly, panel B shows that there is a significant positive correlation between $SocialNorms$ and $NetworkDensity$, as was previously predicted. This confirms the assumption that $SocialNorms$ and $NetworkDensity$ should both be added in equation (2) to control for endogeneity.

In short, the results from figures 4abc, 5abc and table 3 confirm hypothesis 2a but show ambiguous results for hypothesis 2b. As for hypothesis 2a, figure 4abc contains ambiguous results, but panel A of table 3 shows that firms in high social norms counties use significantly less earnings management than low social norms counties. Additionally, Panel B shows significant negative correlations between social norms and earnings management. However, panel A of table 3 shows contradicting results, as it indicates that firms in high network density counties use significantly more real earnings management. Nonetheless, Panel B shows negative correlations between network density and two out of three earnings management measures. Furthermore, the results in panel B indicate that I should indeed control for the selected factors in regression (2) and (3). The multivariate results in the next section show us what the effect of social norms and network density on earnings management is after controlling for these factors.

Multivariate results

The results for hypothesis 2a and 2b are found in table 5 in the appendix. These results show a significant negative effect of $SocialNorms$ on $|AccrEM|$ (-0.005; $p < 0.01$), $RealEM1$ (-0.063; $p < 0.01$) and $RealEM2$ (-0.035; $p < 0.01$). This means that social norms are negatively associated with all earnings management, as is predicted in hypothesis 2a.

Furthermore, table 5 column (2) and (3) show a significant negative relation between $SocialNorms$ and income-increasing discretionary accruals (-0.004; $p < 0.01$) respectively a marginally significant positive relation between $SocialNorms$ and income-decreasing discretionary accruals (0.005; $p < 0.1$). This indicates that mostly income-increasing accrual-based earnings management is affected by social capital. This may be explained by the aforementioned findings that income-increasing and income-decreasing earnings management usually serve different purposes.

As for real earnings management, column (6), (7) and (8) show a significant negative effect of $SocialNorms$ on $cfoEM$ (-0.010; $p < 0.05$), $prodEM$ (-0.039; $p < 0.01$) respectively $expEM$ (-0.025; $p < 0.01$). This indicates that social norms affect all three types of real earnings management.
Altogether, the results in table 5 indicate that social norms have a significant negative effect on accrual-based earnings management as well as real earnings management. This means that firms headquartered in counties with higher social norms manage their earnings significantly less through accruals as well as real actions than firms headquartered in low social norms counties. This confirms hypothesis 2a.

As for hypothesis 2b, the results in table 5 show a marginally significant negative relation between $NetworkDensity$ and $|AccrEM|$ (-0.002; $p < 0.1$). The relation between $NetworkDensity$ and

$RealEM1$ is significantly positive (0.055; $p < 0.01$). Additionally, the results in column (5) indicate that $NetworkDensity$ also has a significant positive effect on $RealEM2$ (0.036; $p < 0.01$).

Column (2) and (3) indicate that income-increasing discretionary accruals are negatively affected by $NetworkDensity$ (-0.002; $p < 0.05$), while income-decreasing discretionary accruals are not significantly affected. The results of the separate real earnings management measures in column (6), (7) and (8) indicate that $NetworkDensity$ has a significant positive effect on all three real earnings management measures.

In short, these results indicate that network density is positively associated with earnings management. This is in contrast with hypothesis 2b, hence I reject this hypothesis.

In order to come to a conclusion whether executives are affected more by guilt and their personal ethics (i.e. by social norms) or by potential punishment (i.e. by network density), I perform F-tests to test for statistically significant differences between the coefficient of $SocialNorms$ and $NetworkDensity$. These F-tests (found at the bottom of table 5) indicate that there is no significant difference in the effect of social norms versus that of network density on accrual-based accounting. However, real earnings management is significantly more negatively affected by $SocialNorms$ than by $NetworkDensity$. This means that the effect of social capital is mainly caused by social norms, rather than by network density. In other words, an increased sense of guilt (through higher social norms) is a better incentive for executives to use less earnings management than increased punishment (through higher network density).

In short, table 5 shows results which corroborate hypothesis 2a and contradict hypothesis 2b. Furthermore, additional F-tests indicate that the effect of social norms is stronger than that of network density. This means that the negative effect of social capital on earnings management is mainly based on the effect that social norms has on earnings management, as opposed to that of network density. Thus, executives are affected more by their sense of guilt, rather than the fear of being punished for managing their firms' earnings.

Robustness and additional tests

Do firms in higher network density counties have more or fewer restatements?

To further look into the unexpected positive relation between network density and earnings manipulations, I look at a more consequence-related measure: restatements of the financial statements. The United States Government Accountability Office (GAO) (2002) states that firms sometimes (voluntarily or obligatory) revise the financial statements that they have previously reported (for example to adjust previously misreported revenues, costs or asset values). Thus, these restatements indicate that the previously released financial statements contain manipulations or errors. Furthermore, as restatements take place after the actual manipulations, restatements can be seen as a more consequence-related measure of earnings manipulations. Therefore, network density may affect the likelihood of restatements, as theory states that network density is related to increased discovery and punishment of earnings manipulations. Restatements can be seen as a form of discovery and punishment.

Network density could influence the likelihood of restatements in two ways. First, if network density (conform aforementioned theory) would decrease executives' use of earnings management, fewer firms would restate their financial statements as fewer firms would manipulate their financial statements in the first place. On the other hand, the increased scrutiny in high network density counties could increase the likelihood that manipulations and errors are found and thus increase the likelihood of restatements. Because of this potentially ambiguous relation, I initially do not expect network density to affect the likelihood of restatement.

To measure the likelihood of a restatement of the financial statements, I use the GAO Financial Restatement Database. This database contains 1,390 restatement announcements between July 1, 2002 and September 30, 2005 that have been made because of financial reporting/accounting fraud and errors. To test whether firms in high network density counties are more or less likely to restate their financial statements, I use the following logistic regression:[6]

$$Restatement = \beta_0 + \beta_1 NetworkDensity + \text{Control variables} + \varepsilon, \quad (9)$$

where $Restatement$ is a dummy variable that takes one if a firm is listed in the GAO database as having announced a restatement of their financial statements. I use the same control variables as I have used in equation (2). This means that I also include $SocialNorms$ as a control variable.

The results of this regression (found in table 6), indicate that $NetworkDensity$ has no significant effect on $Restatement$. This means that firms in higher network density counties are not more or less likely to restate their financial statement as a result of previous financial misreporting. More specifically, the potential effects of increased scrutiny and a decrease in earnings management likely outweigh each other. These results confirm my initial finding that network density does not decrease earnings management.

The results are robust when I use propensity score matching

Because the likelihood that a firm is headquartered in a high social capital county may be affected by firm characteristics, I follow Jha (2017) and use propensity score matching to mitigate this potential selection bias. First, I calculate the propensity score. The propensity score represents the probability of being headquartered in a high social capital county. I calculate this score based on $Size$, $Analysts$, ROA, $Leverage$, $Big4$, BTM, $Loss$, vol_CFO and an industry indicator variable. High social capital firm-year observations are then matched (with replacement) to low social capital firm-year observations with similar firm characteristics, so that my treated (high social capital) sample is mostly similar to my untreated (low social capital) sample. Next, I re-regress equation (1).[7]

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[6] For this regression, I only use data from the period 2002-2005, as I have restatement data only for this period. This leads to a reduction in firm-year observations from 60,965 to 9,210.

[7] I use STATA function *psmatch2* to calculate propensity scores and match observations. Because I remove observations that do not have a match, my sample is decreased from 60,965 firm-year observations to 44,978

The results in panel A of table 7 show that some covariates indeed have a significant influence on the likelihood of being headquartered in a high social capital county. The results in panel B of table 7 show that after removing this bias, $SocialCapital$ is still negatively associated with $AccrEM\ and\ RealEM1$. Like the initial results (in table 4), $RealEM2$ is not significantly associated with $SocialCapital$. These results confirm my initial findings in table 4. Similarly, the results from regressing equation (2) after propensity score matching (see table 7 panel C in the appendix) also corroborate the findings in table 5.

Conclusion

In this research, I investigate whether social capital can help decrease earnings management. Using an extensive set of sociology and accounting literature, I first hypothesize that social capital as well as its two components are associated with a decrease in earnings management. Using a carefully constructed regression model, I find that after controlling for several firm- and county-level characteristics, accrual-based as well as real earnings management is negatively associated with social capital. This answers the research question and confirms my first hypothesis that social capital is associated with lower earnings management. Furthermore, I find that this negative association is the result of social norms' effect on earnings management and not that of network density. More specifically, I find that social norms are negatively associated with all types of earnings management, whereas network density is positively associated with earnings management. In other words, guilt (through higher social norms) is a better incentive to decrease earnings management than punishment (through higher network density). This confirms hypothesis 2a but contradicts hypothesis 2b. These results are robust when I use propensity score matching to mitigate potential selection bias. As an additional test, I find that firms in high network density counties are not more or less likely to restate their financial statements after previous manipulations or errors. This confirms my initial finding that higher network density does not decrease earnings management.

These results contribute to existing literature in several ways. First, after Jha and Chen (2015) and Jha (2017), I provide new evidence that social capital plays a notable role in the accounting field. More specifically, the results indicate that social capital can help combat undesirable financial misrepresentations. Because I also show how social capital affects earnings management, regulators and auditors can build upon this information and develop new methods to combat earnings management. Lastly, this research provides further evidence that earnings management has sociological determinants. This indicates that earnings management may be partly predetermined by a firm's environment. I leave it to future research to examine what other sociological factors play a role in executives' decision to manage earnings.

There are several limitations to this research. First, there are concerns about the accuracy of the earnings management proxies. The modified Jones model is likely to overstate discretionary accruals and the real earnings management model is based on the assumption that its three measures depend only on their theoretical determinants. The potential inaccuracy of these determinants may bias my results. Lastly, the social capital data is incomplete. Because I use linear interpolation to complete the data, this research relies on the assumption that social capital and its two components grow at a constant rate. I argue that measuring social capital annually would remove the need for this assumption and improve the internal validity of social capital research.

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Appendix

Figures

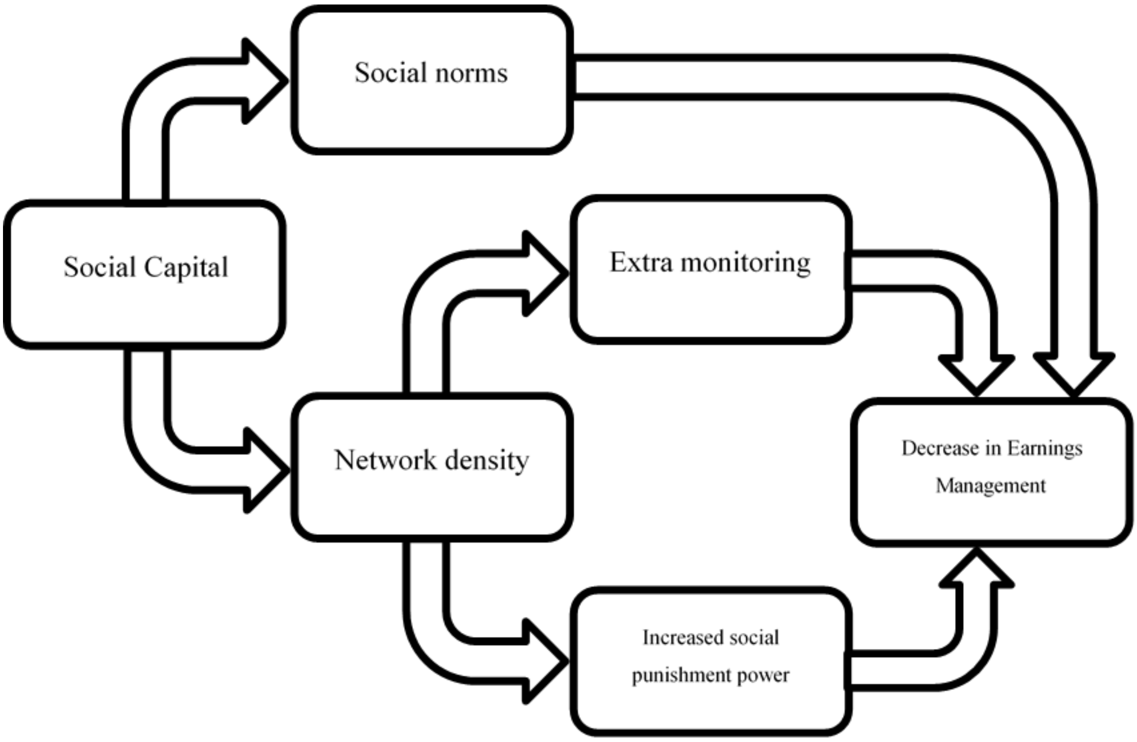

Figure 1: Visualization of the relation between social capital and earnings management.

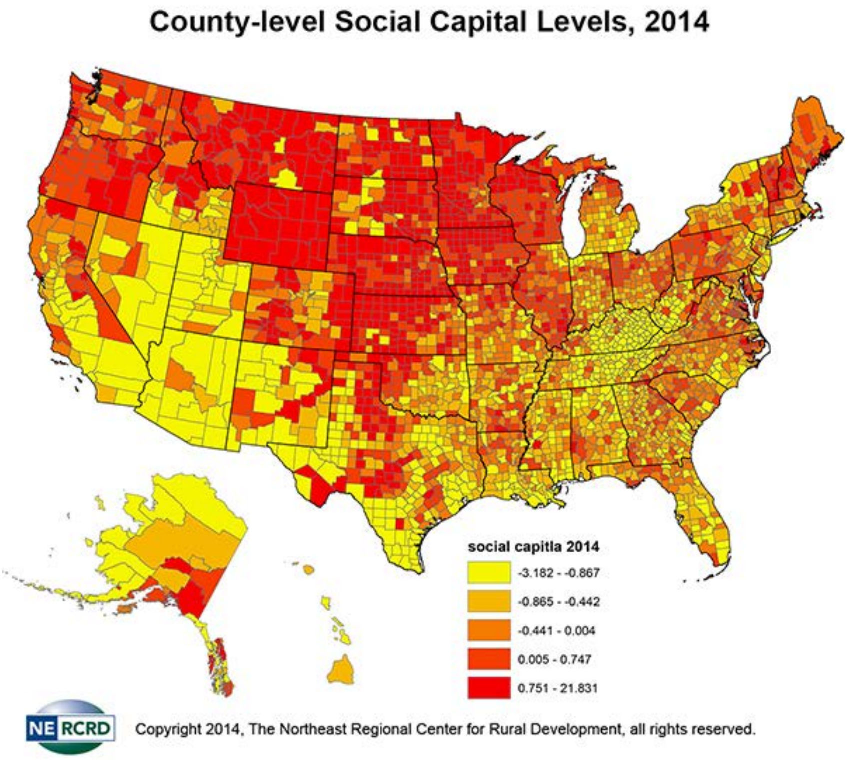

Figure 2: County-level social capital indices for 2014. Higher values represent higher social capital.

Figure 3a

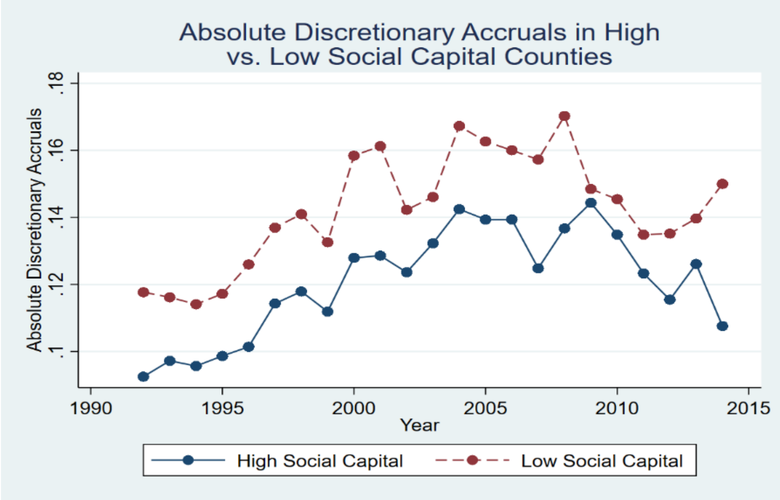

Figure 3b

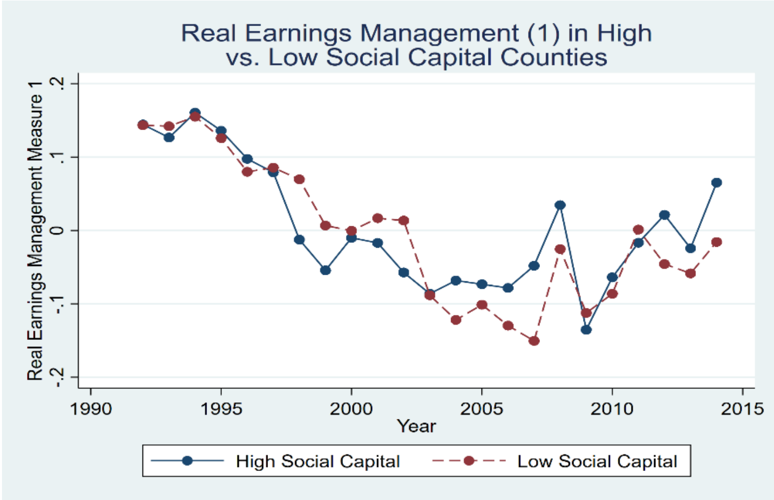

Figure 3c

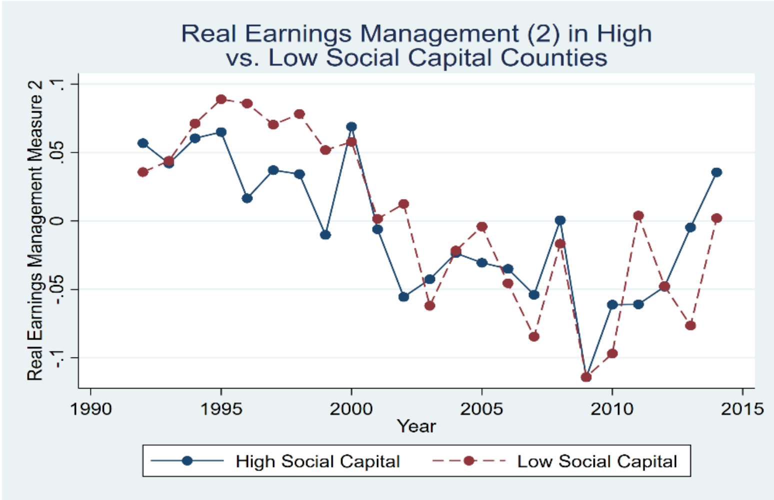

Figure 3abc: *These figures show a graphical representation of absolute discretionary accruals and two real earnings management proxies in high (mean social capital > median social capital) versus low social capital counties (mean social capital < median social capital)*

Figure 4a

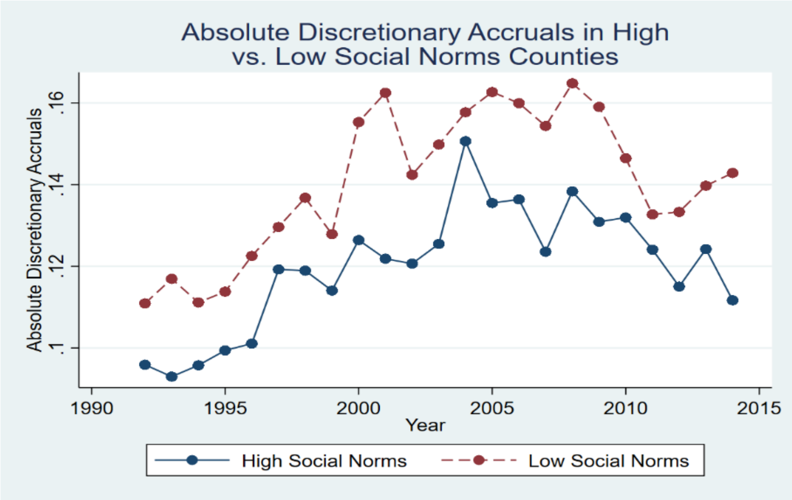

Figure 4b

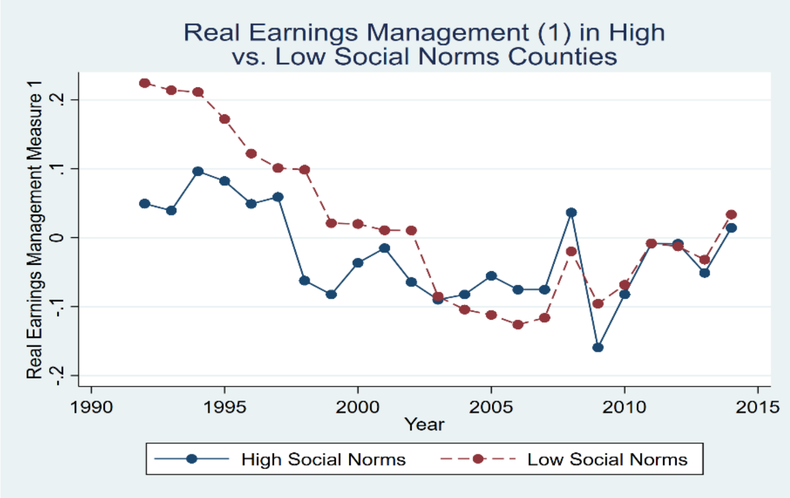

Figure 4c

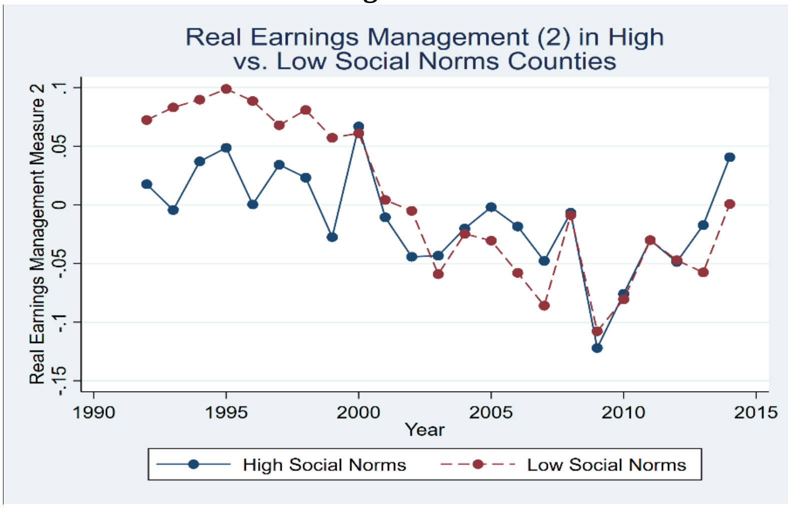

Figure 4abc: *These figures show a graphical representation of absolute discretionary accruals and two real earnings management proxies in high (mean social norms > median social norms) versus low social norms counties (mean social norms < median social norms)*

Figure 5a

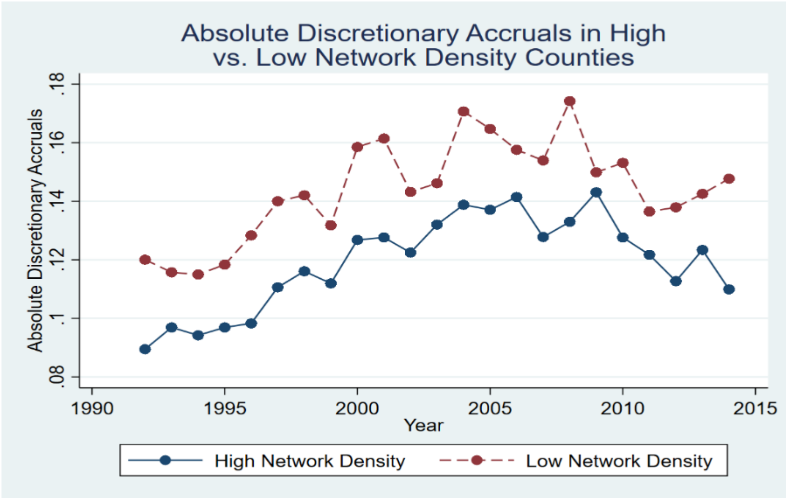

Figure 5b

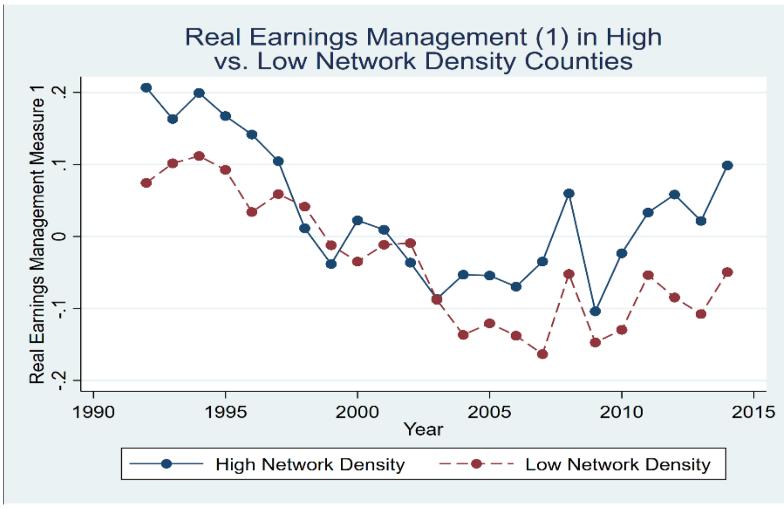

Figure 5c

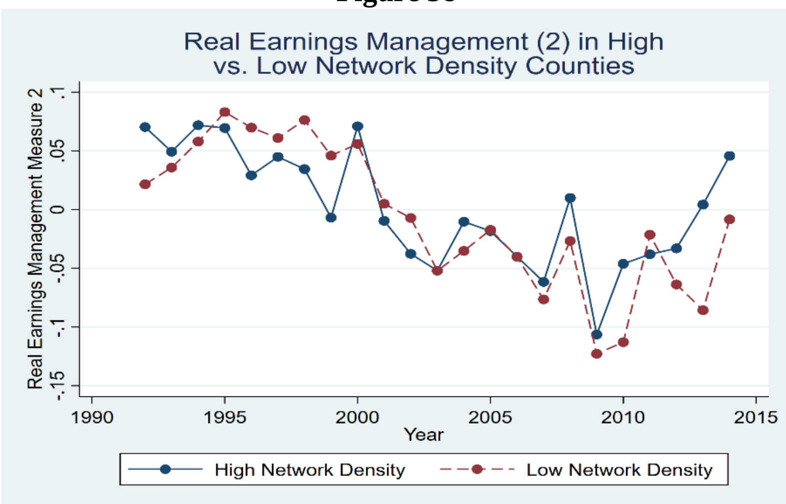

Figure 5abc: *These figures show a graphical representation of absolute discretionary accruals and two real earnings management proxies in high (mean network density > median network density) versus low network density counties (mean network density < median network density)*

Tables

Table 1: Sample selection process

	N	Firms
Non-financial and non-regulated U.S. firms with non-missing asset data between 1990 and 2014	109,893	9,619
- Delete observations with missing social capital (component) data	(4,335)	(287)
- Delete observations with missing firm-level control variables data	(12,649)	(1,476)
- Delete observations with missing county-level control variables data	(3,234)	(229)
- Delete observations with missing data necessary to construct real and accrual-based earnings management variables	(28,710)	(1,458)
Final sample	60,965	6,169

Notes: This table contains the sample selection process that is used to construct my final sample. Numbers between parentheses refer to the number of observations/firms that have been deleted in the process.

Table 2: Sample distribution

	High Social Capital (mean > median)	**Low Social Capital** (mean < median)	**Total**
High Social Norms (mean > median)	197	41	**238**
Low Social Norms (mean < median)	62	113	**175**
Total	**259**	**154**	**413**
High Network Density (mean > median)	228	50	**278**
Low Network Density (mean < median)	31	104	**135**
Total	**259**	**154**	**413**
High Social Norms & High Network Density	171	7	**178**
Low Social Norms & Low Network Density	5	70	**75**
Total	**176**	**77**	**253**

Notes: This table contains the distribution of my sample. Reported numbers are the number of high/low social capital, high/low social norms and high/low network density counties. Means are calculated per county. The median is calculated over the entire sample.

Table 3: Univariate results

Panel A: Descriptive Statistics

		Social Capital (1)			Social Norms (2)			Network Density (3)		
Variables	**N**	**Low Social Capital**	**High Social Capital**	**Difference**	**Low Social Norms**	**High Social Norms**	**Difference**	**Low Network Density**	**High Network Density**	**Difference**
Firm-Level Variables										
Size	60965	4.811	4.961	-0.150***	4.847	4.942	-0.095***	4.751	5.021	-0.270***
Analysts	60965	2.479	2.324	0.156***	2.468	2.310	0.158***	2.391	2.403	-0.012
ROA	60965	-0.201	-0.134	-0.067***	-0.194	-0.131	-0.062***	-0.203	-0.130	-0.073***
Leverage	60965	0.672	0.641	0.031***	0.715	0.642	0.073***	0.671	0.641	0.030***
BTM	60965	0.431	0.433	-0.002	0.432	0.432	0.000	0.436	0.428	0.008
CFO	60965	-0.016	0.008	-0.023***	-0.011	0.006	-0.018***	-0.019	0.011	-0.029***
VOL_CFO	60965	0.350	0.280	0.070***	0.342	0.279	0.064***	0.350	0.279	0.072***
Total Assets	60965	1,897.888	1,930.172	-32.285	2,213.411	1,553.426	659.985***	1,813.321	2,010.646	-197.325
Net Income	60965	119.693	98.367	21.326**	127.028	86.063	40.965***	114.380	102.943	11.437
Total Accruals	60965	-77.329	-74.190	-3.139	-83.130	-66.664	-16.466***	-73.007	-78.205	5.198**
County-level variables										
Population	60965	14.197	13.304	0.893***	14.137	13.234	0.904***	14.193	13.289	0.904***
Density	60965	2,184.373	6,544.208	-4,359.84***	6,989.068	1,428.678	5,560.391***	2,075.482	6,736.767	-4,661.286***
IPC	60965	37,418.588	45,246.26	-7,828.67***	41,066.076	42,087.598	-1,021.522***	38,191.632	44,677.015	-6,485.384***
Religion	60965	0.499	0.558	-0.059***	0.517	0.546	-0.029***	0.502	0.557	-0.055***
Rural	60965	0.159	0.334	-0.174***	0.136	0.389	-0.253***	0.173	0.324	-0.151***
Earnings Management										
AccrEM	60965	-0.007	0.006	-0.012***	-0.004	0.005	-0.009***	-0.007	0.007	-0.014***
|AccrEM|	60965	0.143	0.121	0.022***	0.141	0.120	0.021***	0.144	0.119	0.025***
RealEM1	60965	-0.004	0.004	-0.008	0.020	-0.024	0.043**	-0.033	0.032	-0.065***
RealEM2	60965	0.005	-0.004	0.009	0.008	-0.010	0.018*	-0.002	0.002	-0.005

Panel B: Correlation Matrix

		1	2	3	4	5	6	7	8	8	10	11	12	13	14	15	16	17	18	19
1	*|AccrEM|*	1.00																		
2	*RealEM1*	**-0.17**	1.00																	
3	*RealEM2*	**-0.01**	**0.74**	1.00																
4	*Social Capital*	**-0.05**	**-0.02**	**-0.02**	1.00															
5	*Social Norms*	**-0.02**	**-0.05**	**-0.04**	**0.32**	1.00														
6	*Network Density*	**-0.01**	0.00	**-0.02**	**0.56**	**0.27**	1.00													
7	*Size*	**-0.3**	**0.04**	**-0.11**	**0.01**	**0.12**	**0.13**	1.00												
8	*Analysts*	**-0.13**	0.00	**-0.10**	**-0.02**	**-0.05**	**0.03**	**0.54**	1.00											
9	*ROA*	**-0.59**	**0.16**	**-0.08**	**0.06**	-0.00	**-0.01**	**0.32**	**0.14**	1.00										
10	*Leverage*	**0.49**	**-0.09**	**0.02**	**-0.04**	0.00	**0.03**	**-0.25**	**-0.09**	**-0.72**	1.00									
11	*Big4*	**-0.23**	**0.05**	**-0.04**	**0.03**	**0.06**	**0.05**	**0.46**	**0.26**	**0.21**	**-0.17**	1.00								
12	*BTM*	**-0.22**	**0.11**	**0.04**	**0.01**	**-0.02**	**-0.02**	**0.09**	0.00	**0.28**	**-0.46**	**0.06**	1.00							
13	*Loss*	**0.26**	**-0.10**	**0.13**	**-0.07**	**-0.01**	**-0.03**	**-0.45**	**-0.23**	**-0.36**	**0.21**	**-0.2**	**-0.11**	1.00						
14	*VOL_CFO*	**0.43**	**-0.10**	**0.03**	**-0.05**	0.00	**0.01**	**-0.27**	**-0.11**	**-0.54**	**0.47**	**-0.21**	**-0.19**	**0.22**	1.00					
15	*Religion*	**-0.03**	**0.02**	0.01	**0.22**	**-0.06**	**0.08**	**-0.02**	**-0.03**	**0.04**	**-0.01**	**-0.04**	0.00	**-0.04**	**-0.03**	1.00				
16	*Rural*	**-0.01**	**0.04**	**0.02**	**0.18**	**0.22**	**0.14**	**-0.02**	**-0.03**	**0.02**	-0.01	-0.01	**0.01**	**-0.05**	-0.01	**-0.18**	1.00			

(*Table is continued on the next page*)

Table 3 (continued)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
17	*Density*	**0.03**	**-0.05**	**-0.02**	**0.29**	**-0.31**	**0.43**	0.00	**-0.01**	**-0.04**	**0.04**	**-0.02**	**-0.03**	**0.02**	**0.03**	**0.14**	**-0.17**	1.00		
18	*Population*	**0.03**	**-0.05**	**-0.02**	**-0.41**	**-0.28**	**-0.29**	**0.01**	**0.02**	**-0.04**	**0.02**	0.00	**-0.02**	**0.07**	**0.04**	**0.09**	**-0.74**	**0.15**	1.00	
19	*IPC*	**0.04**	**-0.10**	**-0.07**	**0.16**	**0.27**	**0.54**	**0.13**	**0.01**	**-0.07**	**0.06**	**0.02**	**-0.05**	**0.06**	**0.06**	**0.08**	**-0.19**	**0.57**	**0.16**	1.00

*Notes: Panel A reports the average values per variable and the differences between (firms in) high and low social capital counties. *, ** and *** refer to a significant difference at levels $p < 0.10$, $p < 0.05$ respectively $p < 0.01$. Panel B reports the Pearson correlations between several important (control) variables. Correlations in bold are significant at level $p < 0.05$. All variables are explained in table 8 in the appendix*

Table 4: The effect of social capital on earnings management

Variables	(1) $\|AccrEM\|$	(2) $AccrEM > 0$	(3) $AccrEM < 0$	(4) $RealEM1$	(5) $RealEM2$	(6) $cfoEM$	(7) $prodEM$	(8) $expEM$
$Intercept$	0.157***	0.199***	-0.043	1.424***	0.398***	-0.582***	0.444***	0.980***
	(0.027)	(0.025)	(0.059)	(0.191)	(0.118)	(0.109)	(0.111)	(0.107)
$\boldsymbol{SocialCapital}$	**-0.005*** **	**-0.006*** **	**0.003**	**-0.031*** **	**-0.007**	**0.008**	**-0.016*** **	**-0.015*** **
	(0.001)	**(0.001)**	**(0.003)**	**(0.009)**	**(0.005)**	**(0.005)**	**(0.005)**	**(0.005)**
$Size$	-0.009***	-0.019***	-0.010***	-0.027***	-0.014***	0.019***	0.006***	-0.033***
	(0.001)	(0.001)	(0.001)	(0.004)	(0.002)	(0.002)	(0.002)	(0.002)
$Analysts$	0.000*	0.002***	0.002***	0.009***	-0.007***	-0.021***	-0.005***	0.014***
	(0.000)	(0.000)	(0.000)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
ROA	-0.132***	0.006**	0.207***	0.182***	-0.196***	-0.630***	-0.252***	0.434***
	(0.002)	(0.002)	(0.003)	(0.012)	(0.007)	(0.007)	(0.007)	(0.007)
$Leverage$	0.024***	0.069***	0.017***	-0.026***	-0.101***	-0.173***	-0.099***	0.073***
	(0.001)	(0.001)	(0.002)	(0.009)	(0.006)	(0.005)	(0.005)	(0.005)
$Big4$	-0.033***	-0.019***	0.050***	0.116***	0.041***	-0.038***	0.037***	0.079***
	(0.002)	(0.002)	(0.004)	(0.014)	(0.009)	(0.008)	(0.008)	(0.008)
BTM	-0.005***	-0.002***	0.008***	0.056***	0.015***	-0.005*	0.036***	0.020***
	(0.001)	(0.001)	(0.001)	(0.005)	(0.003)	(0.003)	(0.003)	(0.003)
$Loss$	-0.000	-0.019***	-0.048***	-0.003	0.288***	0.513***	0.222***	-0.225***
	(0.002)	(0.002)	(0.004)	(0.014)	(0.009)	(0.008)	(0.008)	(0.008)
VOL_CFO	0.028***	0.053***	-0.011***	-0.017**	-0.012***	0.015***	0.011***	-0.028***
	(0.001)	(0.001)	(0.002)	(0.007)	(0.004)	(0.004)	(0.004)	(0.004)
$Religion$	-0.021***	-0.033***	0.009	0.097*	-0.025	-0.092***	0.030	0.068**
	(0.008)	(0.008)	(0.016)	(0.056)	(0.035)	(0.032)	(0.033)	(0.032)
$Rural$	0.004	0.000	-0.009	0.011	-0.002	-0.007	0.006	0.005
	(0.003)	(0.003)	(0.006)	(0.022)	(0.013)	(0.012)	(0.013)	(0.012)
$Density$	0.000	0.000**	0.000	0.000***	0.000**	-0.000	0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
$Population$	-0.000	-0.003**	-0.004	-0.049***	-0.010*	0.023***	-0.015***	-0.033***
	(0.001)	(0.001)	(0.003)	(0.010)	(0.006)	(0.006)	(0.006)	(0.005)
IPC	0.000*	0.000***	-0.000	-0.000*	0.000	0.000**	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	60,965	37,863	23,102	60,965	60,965	60,965	60,965	60,965
Adj. R-squared	0.395	0.347	0.473	0.334	0.230	0.346	0.315	0.363
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

*Notes: This table contains the results for my main test of hypothesis 1. It reports the coefficients for equation (1). Numbers between parentheses are standard errors. *, ** and *** refer to the significance level as p < 0.10, p < 0.05 respectively p < 0.01. All variables are explained in table 8 in the appendix. All continuous variables are winsorized at the 1st and 99th percentile.*

Table 5: The effect of social norms versus network density on earnings management

Variables	(1) $\|AccrEM\|$	(2) $AccrEM > 0$	(3) $AccrEM < 0$	(4) $RealEM1$	(5) $RealEM2$	(6) $cfoEM$	(7) $prodEM$	(8) $expEM$
$Intercept$	0.150***	0.194***	-0.037	1.091***	0.232**	-0.584***	0.275**	0.816***
	(0.027)	(0.025)	(0.059)	(0.191)	(0.118)	(0.109)	(0.111)	(0.107)
$SocialNorms$	**-0.005*** **	**-0.004*** **	**0.005***	**-0.063*** **	**-0.035*** **	**-0.010** **	**-0.039*** **	**-0.025*** **
	(0.001)	**(0.001)**	**(0.002)**	**(0.008)**	**(0.005)**	**(0.005)**	**(0.005)**	**(0.005)**
$NetworkDensity$	**-0.002***	**-0.002** **	**-0.000**	**0.055*** **	**0.036*** **	**0.011** **	**0.030*** **	**0.025*** **
	(0.001)	**(0.001)**	**(0.002)**	**(0.008)**	**(0.005)**	**(0.005)**	**(0.005)**	**(0.005)**
$Size$	-0.009***	-0.019***	-0.010***	-0.028***	-0.014***	0.019***	0.005**	-0.033***
	(0.001)	(0.001)	(0.001)	(0.004)	(0.002)	(0.002)	(0.002)	(0.002)
$Analysts$	0.000*	0.002***	0.002***	0.009***	-0.007***	-0.021***	-0.005***	0.014***
	(0.000)	(0.000)	(0.000)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
ROA	-0.132***	0.006**	0.207***	0.183***	-0.196***	-0.630***	-0.251***	0.434***
	(0.002)	(0.002)	(0.003)	(0.012)	(0.007)	(0.007)	(0.007)	(0.007)
$Leverage$	0.024***	0.069***	0.017***	-0.026***	-0.100***	-0.173***	-0.099***	0.073***
	(0.001)	(0.001)	(0.002)	(0.009)	(0.006)	(0.005)	(0.005)	(0.005)
$Big4$	-0.033***	-0.019***	0.050***	0.115***	0.040***	-0.038***	0.036***	0.078***
	(0.002)	(0.002)	(0.004)	(0.014)	(0.009)	(0.008)	(0.008)	(0.008)
BTM	-0.005***	-0.002***	0.008***	0.056***	0.015***	-0.005*	0.036***	0.020***
	(0.001)	(0.001)	(0.001)	(0.005)	(0.003)	(0.003)	(0.003)	(0.003)
$Loss$	-0.001	-0.019***	-0.048***	-0.002	0.289***	0.513***	0.222***	-0.224***
	(0.002)	(0.002)	(0.004)	(0.014)	(0.009)	(0.008)	(0.008)	(0.008)
VOL_CFO	0.028***	0.053***	-0.011***	-0.017**	-0.012***	0.015***	0.011***	-0.027***
	(0.001)	(0.001)	(0.002)	(0.007)	(0.004)	(0.004)	(0.004)	(0.004)
$Religion$	-0.023***	-0.035***	0.011	0.049	-0.044	-0.086***	0.007	0.042
	(0.008)	(0.007)	(0.016)	(0.056)	(0.034)	(0.032)	(0.032)	(0.031)
$Rural$	0.006*	0.002	-0.010*	0.040*	0.013	-0.005	0.022*	0.018
	(0.003)	(0.003)	(0.006)	(0.022)	(0.013)	(0.012)	(0.013)	(0.012)
$Density$	-0.000	0.000	0.000*	-0.000***	-0.000***	-0.000***	-0.000***	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
$Population$	0.000	-0.003**	-0.004	-0.021**	0.004	0.023***	-0.002	-0.020***
	(0.001)	(0.001)	(0.003)	(0.010)	(0.006)	(0.006)	(0.006)	(0.006)
IPC	0.000**	0.000***	-0.000	-0.000	0.000*	0.000***	0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	60,965	37,863	23,102	60,965	60,965	60,965	60,965	60,965
Adj. R-squared	0.395	0.347	0.473	0.335	0.231	0.347	0.316	0.363
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

(*Table is continued on the next page)*

Table 5 (continued)

F-test $SocialNorms \neq NetworkDensity$								
	F = 2.70	F = 1.45	F = 1.71	F = 89.56	F = 85.15	F = 9.38	F = 89.39	F=49.45
	p = 0.100	p = 0.229	p = 0.191	p = 0.000	p = 0.000	p = 0.002	p = 0.000	p = 0.000

*Notes: This table contains the results for my main test of hypothesis 2a and 2b. It reports the coefficients for equation (2). Numbers between parentheses are standard errors. *, ** and *** refer to the significance level as p < 0.10, p < 0.05 respectively p < 0.01. All variables are explained in table 8 in the appendix. All continuous variables are winsorized at the 1st and 99th percentile.*

Table 6: The effect of network density on the likelihood of a restatement

Variable	***Restatement***
Intercept	-6.453***
	(2.038)
NetworkDensity	**0.107**
	(0.076)
SocialNorms	-0.130
	(0.090)
Size	0.138***
	(0.048)
Analysts	-0.007
	(0.014)
ROA	-0.232
	(0.223)
Leverage	0.052
	(0.168)
*Big*4	0.363*
	(0.193)
BTM	0.133*
	(0.080)
Loss	0.566***
	(0.155)
VOL_CFO	-2.607***
	(0.716)
Religion	-0.516
	(0.687)
Rural	0.123
	(0.239)
Density	-0.000
	(0.000)
Population	0.105
	(0.111)
IPC	0.000
	(0.000)
Observations	9,210
Pseudo R-squared	0.151
Industry FE	Yes
Year FE	Yes

*Notes: This table contains the additional test of network density's effect on restatements. It reports the coefficients for equation (9). Numbers between parentheses are standard errors. *, ** and *** refer to the significance level as $p < 0.10$, $p < 0.05$ respectively $p < 0.01$. All variables are explained in table 8 in the appendix. All continuous variables are winsorized at the 1^{st} and 99^{th} percentile.*

Table 7: Multivariate results after propensity score matching

Panel A: Covariates' influence on the likelihood of being headquartered in high social capital counties

Variables	**High Social Capital**
$Intercept$	-0.060
	(0.116)
$Size$	0.010***
	(0.003)
$Analysts$	-0.005***
	(0.001)
ROA	0.048***
	(0.011)
$Leverage$	0.011
	(0.008)
$Big4$	0.003
	(0.013)
BTM	-0.007*
	(0.004)
$Loss$	-0.086***
	(0.013)
VOL_CFO	0.001
	(0.006)
Observations	59.756
Pseudo R-squared	0.098
Industry FE	Yes

Panel B: The effect of social capital on earnings management.

Variable	$\|AccrEM\|$	$AccrEM > 0$	$AccrEM < 0$	$RealEM1$	$RealEM2$	$cfoEM$	$prodEM$	$expEM$
$Intercept$	0.198***	0.235***	-0.095	1.471***	0.395***	-0.617***	0.459***	1.012***
	(0.031)	(0.029)	(0.067)	(0.224)	(0.137)	(0.127)	(0.131)	(0.125)
$\boldsymbol{SocialCapital}$	**-0.006*** **	**-0.006*** **	**0.003**	**-0.039*** **	**-0.007**	**0.013** **	**-0.018*** **	**-0.021*** **
	(0.001)	**(0.001)**	**(0.003)**	**(0.010)**	**(0.006)**	**(0.006)**	**(0.006)**	**(0.006)**
$Size$	-0.009***	-0.018***	-0.009***	-0.026***	-0.014***	0.019***	0.007**	-0.033***
	(0.001)	(0.001)	(0.001)	(0.004)	(0.003)	(0.002)	(0.003)	(0.002)
$Analysts$	0.001*	0.002***	0.001**	0.007***	-0.008***	-0.022***	-0.007***	0.014***
	(0.000)	(0.000)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
ROA	-0.132***	0.006**	0.204***	0.208***	-0.194***	-0.651***	-0.250***	0.458***
	(0.002)	(0.003)	(0.003)	(0.015)	(0.009)	(0.008)	(0.008)	(0.008)
$Leverage$	0.024***	0.068***	0.014***	0.012	-0.095***	-0.194***	-0.087***	0.098***
	(0.001)	(0.002)	(0.003)	(0.011)	(0.007)	(0.006)	(0.006)	(0.006)
$Big4$	-0.033***	-0.019***	0.049***	0.117***	0.039***	-0.042***	0.037***	0.080***
	(0.002)	(0.002)	(0.005)	(0.016)	(0.010)	(0.009)	(0.009)	(0.009)
BTM	-0.006***	-0.004***	0.008***	0.060***	0.014***	-0.009***	0.037***	0.023***
	(0.001)	(0.001)	(0.001)	(0.005)	(0.003)	(0.003)	(0.003)	(0.003)
$Loss$	0.000	-0.018***	-0.048***	-0.007	0.290***	0.517***	0.221***	-0.227***
	(0.002)	(0.002)	(0.005)	(0.017)	(0.010)	(0.009)	(0.010)	(0.009)
VOL_CFO	0.028***	0.053***	-0.012***	-0.005	-0.009*	0.009*	0.013***	-0.017***
	(0.001)	(0.001)	(0.002)	(0.008)	(0.005)	(0.005)	(0.005)	(0.005)
$Religion$	-0.023**	-0.032***	0.015	0.253***	0.057	-0.097***	0.099***	0.154***
	(0.009)	(0.009)	(0.018)	(0.065)	(0.040)	(0.037)	(0.038)	(0.036)
$Rural$	0.003	-0.003	-0.009	0.006	0.008	0.009	0.007	-0.002
	(0.003)	(0.003)	(0.007)	(0.025)	(0.015)	(0.014)	(0.015)	(0.014)
$Density$	0.000	0.000**	0.000	0.000***	0.000	-0.000***	0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

(Table is continued on the next page)

Table 7 (continued)

Population	-0.002	-0.005***	-0.002	-0.066***	-0.016**	0.027***	-0.024***	-0.042***
	(0.002)	(0.002)	(0.003)	(0.012)	(0.007)	(0.007)	(0.007)	(0.007)
IPC	0.000	0.000***	0.000	-0.000*	0.000	0.000***	-0.000	-0.000*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	44,978	28,219	16,759	44,978	44,978	44,978	44,978	44,978
Adj. R-squared	0.390	0.350	0.462	0.325	0.229	0.339	0.306	0.355
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Panel C: The effect of social norms versus networks on earnings management

Variable	$\|AccrEM\|$	$AccrEM > 0$	$AccrEM < 0$	$RealEM1$	$RealEM2$	$cfoEM$	$prodEM$	$expEM$
Intercept	0.190***	0.229***	-0.086	0.999***	0.171	-0.609***	0.219*	0.780***
	(0.031)	(0.029)	(0.067)	(0.225)	(0.138)	(0.127)	(0.131)	(0.126)
SocialNorms	**-0.005*** **	**-0.005*** **	**0.003**	**-0.065*** **	**-0.033*** **	**-0.005**	**-0.037*** **	**-0.029*** **
	(0.001)	**(0.001)**	**(0.003)**	**(0.009)**	**(0.006)**	**(0.005)**	**(0.005)**	**(0.005)**
NetworkDensity	**-0.003** **	**-0.003** **	**0.001**	**0.057*** **	**0.038*** **	**0.012** **	**0.032*** **	**0.026*** **
	(0.001)	**(0.001)**	**(0.003)**	**(0.009)**	**(0.006)**	**(0.005)**	**(0.005)**	**(0.005)**
Size	-0.009***	-0.018***	-0.009***	-0.027***	-0.015***	0.019***	0.006**	-0.033***
	(0.001)	(0.001)	(0.001)	(0.004)	(0.003)	(0.002)	(0.003)	(0.002)
Analysts	0.001*	0.001***	0.001**	0.007***	-0.008***	-0.022***	-0.007***	0.014***
	(0.000)	(0.000)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
ROA	-0.132***	0.006**	0.204***	0.209***	-0.193***	-0.651***	-0.249***	0.458***
	(0.002)	(0.003)	(0.003)	(0.015)	(0.009)	(0.008)	(0.008)	(0.008)
Leverage	0.024***	0.068***	0.014***	0.012	-0.095***	-0.194***	-0.086***	0.099***
	(0.001)	(0.002)	(0.003)	(0.011)	(0.007)	(0.006)	(0.006)	(0.006)
Big4	-0.033***	-0.019***	0.049***	0.115***	0.038***	-0.041***	0.036***	0.079***
	(0.002)	(0.002)	(0.005)	(0.016)	(0.010)	(0.009)	(0.009)	(0.009)
BTM	-0.006***	-0.004***	0.008***	0.060***	0.014***	-0.009***	0.037***	0.023***
	(0.001)	(0.001)	(0.001)	(0.005)	(0.003)	(0.003)	(0.003)	(0.003)
Loss	0.000	-0.018***	-0.048***	-0.006	0.290***	0.517***	0.221***	-0.227***
	(0.002)	(0.002)	(0.005)	(0.017)	(0.010)	(0.009)	(0.010)	(0.009)
VOL_CFO	0.028***	0.053***	-0.012***	-0.005	-0.009*	0.009*	0.013***	-0.018***
	(0.001)	(0.001)	(0.002)	(0.008)	(0.005)	(0.005)	(0.005)	(0.005)
Religion	-0.025***	-0.034***	0.017	0.206***	0.043	-0.085**	0.078**	0.129***
	(0.009)	(0.008)	(0.018)	(0.064)	(0.039)	(0.036)	(0.037)	(0.036)
Rural	0.004	-0.001	-0.011	0.046*	0.028*	0.010	0.029**	0.018
	(0.003)	(0.003)	(0.007)	(0.025)	(0.015)	(0.014)	(0.015)	(0.014)
Density	-0.000	0.000	0.000	-0.000**	-0.000***	-0.000***	-0.000***	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Population	-0.002	-0.005***	-0.002	-0.029**	0.002	0.026***	-0.006	-0.024***
	(0.002)	(0.002)	(0.004)	(0.012)	(0.007)	(0.007)	(0.007)	(0.007)
IPC	0.000*	0.000***	0.000	-0.000	0.000**	0.000***	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	44,978	28,219	16,759	44,978	44,978	44,978	44,978	44,978
Adj. R-squared	0.390	0.350	0.462	0.326	0.230	0.339	0.307	0.356
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

*Notes: This table contains the results for robustness tests. Panel A reports the effect of covariates on the likelihood of being headquartered in a high social capital county. Panel B reports the coefficients for equation (1) after propensity score matching. Panel C reports the coefficients for equation (2) after propensity score matching Numbers between parentheses are standard errors. *, ** and *** refer to the significance level as $p < 0.10$, $p < 0.05$ respectively $p < 0.01$. All variables are explained in table 8 in the appendix. All continuous variables are winsorized at the 1st and 99th percentile.*

Table 8: Variable definitions and calculations

Dependent Variables	
$\lvert AccrEM \rvert$	The absolute value of discretionary accruals as calculated with the modified Jones model (see "Research Design" for exact methodology)
$cfoEM$	Standardized residual of the following regression multiplied by negative one, winsorized at the 1st and 99th percentile: $\frac{CFO_t}{Assets_{t-1}} = c_1 \frac{1}{Assets_{t-1}} + c_2 \frac{Rev_t}{Assets_{t-1}} + c_3 \frac{\Delta Rev_t}{Assets_{t-1}} + v_t$
$prodEM$	Standardized residual of the following regression, winsorized at the 1st and 99th percentile: $\frac{Prod_t}{Assets_{t-1}} = c_1 \frac{1}{Assets_{t-1}} + c_2 \frac{Rev_t}{Assets_{t-1}} + c_3 \frac{\Delta Rev_t}{Assets_{t-1}} + c_4 \frac{\Delta Rev_{t-1}}{Assets_{t-1}} + v_t$
$expEM$	Standardized residual of the following regression multiplied by negative one, winsorized at the 1st and 99th percentile: $\frac{DiscExp_t}{Assets_{t-1}} = c_1 \frac{1}{Assets_{t-1}} + c_2 \frac{Rev_t}{Assets_{t-1}} + v_t$ $DiscExp_t$ is the sum of advertising, R&D and SG&A expenses. Advertising and R&D expenses are set to zero if SG&A expenses are available
$RealEM1$	Sum of $prodEM$ and $expEM$
$RealEM2$	Sum of $cfoEM$ and $expEM$
$Restatement$	Dummy variable that takes one if a firm is listed in the GAO database as having announced a restatement of their financial statement between 2002 and 2005, and zero otherwise
Independent Variables	
$SocialCapital$	Index created by Rupasingha et al. (2006) that (per county) measures social capital as the first principal component of two social norms proxies (voter turnout and census response rate) and two network density proxies (number of social/civic associations and number of NGOs per 1000 inhabitants)

(Table is continued on the next page)

Table 8 (continued)

$SocialNorms$	The first principal component of two social norms proxies (voter turnout and census response rate)
$NetworkDensity$	The first principal component of two network density proxies (number of social/civic associations and number of NGOs per 1000 inhabitants)

Firm-level Control Variables

$Size$	The natural logarithm of market value, where $Market\ Value = Shares\ outstanding \times year\ closing\ price$
$Analysts$	Number of analysts following a firm. This is set to zero if analysts data is missing
ROA	Return on Assets, calculated as: $ROA = \frac{Net\ Income}{Total\ Assets}$
$Leverage$	Debt to Assets ratio, calculated as: $Leverage = \frac{Total\ Liabilities}{Total\ Assets}$
$Big4$	Dummy variable that takes one if a firm is audited by a Big 4 firm, and zero otherwise
BTM	Book to Market equity ratio, calculated as: $BTM = \frac{Book\ Value\ of\ Equity}{Market\ Value}$
$Loss$	Dummy variable that takes one if a firm had losses, or had losses in the previous two years. Otherwise, it takes zero.
VOL_CFO	Volatility of Cash Flows, calculated as the standard deviation of cash flows per firm in the sample period.

(Table is continued on the next page)

Table 8 (continued)

County-level Control Variables	
$Religion$	The percentage of religious people per county
$Rural$	Dummy variable that takes one if a county is not among the top 100 most populated counties, and zero otherwise
$Density$	Population Density, calculated as: $Density = \frac{County\ population}{County\ land\ area\ in\ square\ miles}$
$Population$	The natural logarithm of the number of county inhabitants.
IPC	County Income per Capita, calculated as: $IPC = \frac{County\ Personal\ Income}{County\ Population}$

Notes: This table contains all variable definitions and calculations