Copenhagen Business School

Master's Thesis

Access to Finance and Corporate Social Responsibility: Evidence from a Quasi - Natural Experiment

Author:

Vanya R. Rusinova

Supervisor:

Asst. Prof. Georg Wernicke

Department of International Economics and Management

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Executive Summary

This thesis provides causal evidence that investments into Corporate Social Responsibility are affected by firms' prior financial performance. More precisely we argue and test for a causal link between changes in firms' cost of internal financing and CSR. To establish causality, we make use of the exogenous variation in firm-level financial constraints induced by the passage of the American Jobs Creation Act (AJCA) of 2004. The Act gave firms a one-off tax reduction (the tax rate was lowered to 5.25 percent from 35 percent) for repatriating profits accumulated at foreign subsidiaries back to the U.S. parent. This cash windfall lowered firms' costs of internal financing. To address the issue of causality between financial constraints and firm investment in CSR we employ a difference-in-difference estimation with fixed effects. Since the decision to repatriate is endogenous we use an instrumental variable approach to overcome this issue. After we establish a causal effect, we further examine the sensitivity of CSR investments to the level of financial constraints firms faced in the period prior to the passage of the AJCA. We test our hypotheses with a dataset of the largest U.S. firms between 2001 and 2007. Results provide causal evidence that firm financial performance drives CSR investments. Further, we show that the impact of the Act varies based on firms' prior level of financial constraints in an interesting way. The behavior of constrained firms can be explained in a signaling framework, as they decrease their CSR as a result of the positive shock to their cost of financing. The behavior of the unconstrained firms is not in line with the prediction of finance and economic theory, as they increase their CSR investments post the cash windfall. Our findings contribute to the scholarship first and foremost with establishing a casual relationship between firm financial performance and CSR. We further contribute to the understanding of the strategic use of CSR by firms with different levels of financial constraints.

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1 Introduction

The concept of Corporate Social Responsibility (CSR), the responsibility of firms for their impact on society (Williamson et al., 2014), has evolved from an idea perceived inconsistent with shareholder value creation (e.g. Friedman, 1970; Jensen, 2002), to being a central component in firms' strategy (Hawn and Ioannou, 2014; Porter and Kramer, 2011). Over the last decades, CSR has received a significant amount of attention and resources in the academic literature with numerous studies examining the relationship between CSR investments and firm financial performance[1]. In their well-known summary and meta-analysis of this literature, Margolis et al. (2007) conclude that despite the considerate amount of attention the relationship has received, the literature has failed to give definite answers. A general challenge for this literature is the potentially endogenous nature of the relationship, for example, due to reverse causality. Better financial performance might be caused by investments into CSR or, alternatively, higher CSR investments might stem from better firm performance.

IIlustratively, Margolis et al. (2007) conclude in their review that the correlation between CSR investments and firm performance can largely be explained by firms' prior financial performance, a conclusion in line with that of other (meta-)studies (e.g. Krüger, 2009; Orlitzky et al., 2003). More importantly, the relationship between financial performance and CSR investments is stronger than the reverse, a finding imperative to better understand the complex relationships between CSR and firm performance but which "tend[s] to get overlooked" (Margolis, Elfenbein, and Walsh, 2007, p. 24). In this thesis, we provide causal evidence that changes in firms' cost of financing affect CSR investments.

To overcome the serious challenge of endogeneity, we make use of plausibly exogenous variation in firms' cost of internal financing generated by the passage of the American Jobs Creation Act (AJCA) of 2004. The passage of the AJCA improved firms' access to internal funds "trapped" in foreign subsidiaries (Blouin and Krull,

[1]For the latest overview see Rost and Ehrmann (2015).

2009). The Act provided a significant and one-off reduction in tax related costs to profits repatriated from foreign subsidiaries back to the U.S. based parent firm (the tax rate was lowered to 5.25 percent from the standard 35 percent). For example, the pharmaceutical firm Pfizer repatriated $37 billion from its foreign operations under the AJCA. This amount is equal to 41 percent of repatriations of all pharmaceutical firms or to 12 percent of the total amount of repatriations under the AJCA which according to the IRS is $313 billion. The one-off tax cut led to an increase in the total amount of repatriation equal to over 1 percent of the U.S. GDP (Dharmapala et al., 2011).

As we argue further below, the AJCA represents an exogenous ease of firms' costs of internal financing – it lowers funding costs of domestic investments with foreign cash – particularly for firms that were financially constrained in their domestic operations (Faulkender and Petersen, 2012). The AJCA has been used as an exogenous shock to test for the causal impact of lower internal costs of financing on firms' investment decisions (Dharmapala et al., 2011; Faulkender and Petersen, 2012), disclosure quality (Irani and Oesch, 2014), profitability of foreign acquisitions (Edwards et al., 2015) and workplace safety (Cohn and Wardlaw, 2015).

We empirically test the relationship between financial performance and CSR investments with a sample of firms listed in Standard and Poor's 1500 stock market index (S&P 1500) as well as in the Kinder, Lyndenberg, Domini, & Co. (KLD) social performance database which we use to measure CSR. Information on firms' repatriation activity is not readily available in databases and had to be collected manually from thousands of firm filings. We use a difference-in-difference (DiD) approach to isolate the effect of the Act on firms' CSR investments. Results clearly indicate that reductions in firms' internal cost of financing lead to increases in CSR investments. To refer back to the example of Pfizer, in the year of the repatriation, Pfizer increased its CSR by an astonishing 66 percent.

Furthermore, we test how the level of financial constraints firms faced in the years prior to the Act affects investments in CSR. Interestingly, when we account for these constraints, we find that constrained firms decrease investments in CSR in

absolute terms and relative to firms that were unconstrained. In contrast, initially unconstrained firms increase investments in CSR.

This thesis makes multiple important contributions. First, it contributes to recent empirical studies on the direction of causality in the relationship between CSR and financial performance. For example, Flammer (2015b) provides evidence that the stock market reacts positively to close-call adoptions of CSR related shareholder proposals. We add to this recent stream of literature by providing causal evidence that improved financial performance affects firm-level CSR investments. Understanding, if and when financial performance affects CSR and/or the reverse is imperative as a basis to further advance the scholarship studying CSR (Margolis et al., 2007). Results in our study indicate the importance for future studies in the CSR and financial performance domain to account for firm-level financial constraints.

Moreover, our study adds to the literature that directly addresses the impact of CSR investments on firms' financial constraints. Cheng et al. (2014) show that financial constraints are sensitive to CSR investments in that higher spending correlates with relaxed financial constraints. In contrast, we provide causal evidence for the reverse relationship and, more importantly, that the effect is multidirectional. Reduction in financial constraints increases CSR investments but the effect differs depending on firms' initial level of financial constraints. Initially constrained firms decrease their CSR investments, whereas unconstrained firms increase CSR investments.

Finally, we contribute to the literature on the strategic use of CSR as a signaling instrument (e.g. Cheng et al., 2014; Jones and Murrell, 2001). The empirical setting in our work allows us to study how firms react when the need to use CSR as a signal diminishes.

This thesis proceeds as follows. First, we give a short description of the AJCA and explain how it impacts firms' internal costs of financing. Second, we argue for the link between financial performance and firms' investments in CSR. Further, we hypothesize about how the effect of the Act leads to different results depending on firms' initial level of financial constraints. Third, we describe the empirical setting.

In part four, we explain the data and variables. Part five, six and seven contain results, robustness tests and discussion.

2 Background

In this section, we first explain the AJCA and then explore the link between financial performance and CSR. Furthermore, we relate the existence of uncertainty and asymmetric information on capital markets to financing constraints.

2.1 The American Jobs Creation Act of 2004

As an attempt to encourage domestic investment and to address legislators' fear over the loss of jobs as a result of outsourcing, the U.S. Congress passed the American Jobs Creation Act of 2004 (AJCA). The main rationale behind the Act was to create incentives for firms with overseas operations to take advantage of a one time tax break and to repatriate foreign permanently reinvested earnings to the U.S. parent. This allowed firms' to access funds "trapped" in their foreign subsidiaries (Blouin and Krull, 2009). As a result, firms could finance domestic projects, potentially unattainable before, with dividends brought back from foreign subsidiaries (Faulkender and Petersen, 2012). Therefore, the underlying assumption of the AJCA is that beneficiaries are capitally constrained firms as firms with unrestricted access to external financing and the ability to generate domestic internal funds already invest at the optimum and thus would not be affected by the Act (Faulkender and Petersen, 2012).

The Act gives firms the opportunity to apply once for a reduced tax rate of 5.25 percent as opposed to the usual 35 percent on funds repatriated from operations abroad. As Foley et al (2007) state, US firms have significant amounts of cash accumulated in their foreign subsidiaries which is mainly a result of the high tax related costs associated with repatriating funds to U.S. parents. Signing the AJCA into law induced an exogenous variation in firms' internal costs of financing which

allows us to test for a *causal* relationship between a reduction in firms' internal cost of finance and their investments into CSR.

2.2 Financial Performance and CSR

The vast amount of literature that studies the link between CSR and firm financial performance is broadly divided into two camps. Within the framework of shareholder theory, according to which the sole fiduciary duty of the firm is to maximize shareholder value (Friedman, 1970), CSR initiatives are viewed as an agency cost (Jensen and Meckling, 1976). In general, this stream of the literature characterizes CSR as "self-motivated managerial perquisites" (Lev et al., 2010) that can be limited by increased monitoring (Cheng et al., 2013).

In contrast, other scholars argue that firms have obligations beyond their stockholders and to society at large. Advocates of CSR claim that it can generate value through improved financial performance (Flammer, 2015b), increased customer loyalty and satisfaction (Luo and Bhattacharya, 2006; Lev et al., 2010) and employee retention (Bode et al., 2015). In addition, it can be used for its "insurance-like" properties (Godfrey, 2005), as means to signal responsible firm behavior to stakeholders (Hawn, 2013; Cheng et al., 2014) or to signal to investors lower firm risk leading to cheaper cost of financing (El Ghoul et al., 2011).

Although the body of literature dealing with the relationship between CSR and firm performance is impressive, little attention has been paid to the reverse but equally important relationship between financial performance and CSR. Margolis et al. (2007) conclude in their meta-analysis mentioned in the Introduction that CSR is largely driven by past financial performance[2]. In addition, more successful firms possess enough slack resources to undertake these investments (Preston and O'bannon, 1997). Investors increasingly use firms social performance ratings to differentiate responsible from irresponsible firms (Chatterji et al., 2009) and sell-side analysts are now more often evaluating firms with strong social performance

[2]These findings are also consistent with the earlier meta-study of Orlitzky et al. (2003).

positively (Ioannou and Serafeim, 2010). Moreover, successful firms can be pressured to invest more into CSR by being subject to a larger public audience (Margolis and Walsh, 2003) and more in the focus of the media (Zyglidopoulos et al., 2012).

Similar arguments can be made for firms with significant operations in developing or emerging economies which are usually countries characterized by low institutional requirements (e.g., labor laws or environmental standards). Operations in such low quality institutional environments are prone to be perceived as violating social norms of appropriate business conduct by stakeholders in their home countries, especially when these are characterized by strong institutional norms (Surroca et al., 2013; Marano and Kostova, 2015).

2.3 Asymmetric Information and Financial Constraints

The ability of firms to undertake positive net present value (NPV) projects is directly related to their level of financial constraints. When firms have insufficient internal funds to finance their investments they resort to the capital markets. However, in the presence of uncertainty about the true value of the firm, external parties require a premium when investing or lending due to their risk aversion. In a utility based framework, with an investor or creditor characterized by a concave utility function, the expected utility from an uncertain investment will always be lower than or equal to the utility gained from a certain investment with the same expected payoff [3]. As a consequence, firms perceived more uncertain investments will be subjects to higher risk premia. Thus, reducing the uncertainty about the true value of a firm or its true ability to repay creditors, will reduce the premium that external parties require. A hindrance to doing so is the existence of financial frictions, such as information asymmetries, which occur when one party has more information than the other.

Asymmetric information is of great importance for firms when interacting with external parties on capital markets, e.g. for the purpose of raising capital. Insiders, e.g. managers, usually posses a greater insight into the firms' financial situation

[3] As given by Jensen's inequality: $E[U(X)] \leq U(E[X])$, where X is a random variable, in our case the payoff of an investment.

and future investment opportunities as opposed to creditors or investors (Myers and Majluf, 1984; Akerlof, 1970). As a consequence, the terms under which the firms can raise capital are more unfavorable compared to the conditions for firms where informational asymmetries are reduced. Reducing information asymmetries therefore leads to lower cost of external financing. A way to do so is to use CSR as a signal of strong stakeholder relations or low firm risk (Bénabou and Tirole, 2010; Cheng et al., 2014). As Leland and Pyle (1977) show, in order for the signal to be credible it has to be costly. Otherwise, firms with weak stakeholder relations can imitate firms with strong stakeholder relations or high risk firms can imitate low risk firms.

In the context of our research, we relate theories of signaling and information asymmetries to firms' CSR investments. Specifically, we hypothesize that the strength of financial constraints affects firms' engagement in CSR. We hereby build upon empirical evidence found in Cheng et al. (2014) who show that firms' CSR investments reduce financial constraints. Using a similar signaling framework, we argue that financially constrained firms, relative to unconstrained firms, invest more into CSR to reduce information asymmetries and to improve their access to finance. We expect unconstrained firms to be less in need to use CSR as a signaling instrument as these firms already have sufficient funds to finance their positive NPV projects.

Our baseline hypothesis is that CSR investments are affected by firms' costs of financing. We do not specifically hypothesize about an overall direction of the impact as the central aim of this study is to test whether a causal relationship between firms' cost of finance and subsequent investments into CSR is supported by the data. Furthermore, based on the arguments made above, we theorize that firms which were unconstrained will not alter their CSR investments after a reduction in the cost of financing. These firms already invest into CSR at an optimal level. Thus, any CSR investments beyond the optimal level are likely overinvestments. We further expect that if financial constraints are reduced, initially constraint firms will reduce their investments into CSR, as they have less of a need to use CSR to signal

good stakeholder relations or lower information asymmetries.

3 Methodology

Establishing a causal relationship between financing constraints and firms' CSR investments is challenging due to the issue of endogeneity. To overcome this, we employ a DiD estimation method and make use of the exogenous variation in financing costs induced by the AJCA. DiD is a widely used estimation method in the economics, finance and management literature and is usually applied to identify the effect of a policy change on firm behavior[4].

In its simplest form the DiD estimation includes two groups - a treatment and a control group, where observations under the treatment group have been affected by a policy change, in our case the passage of the AJCA and its foreign dividends provision. There are two time periods included in the estimation - before and after the treatment. The second time period includes the years of the policy change. The principle of a DiD estimation is formally presented in the following equation.

$$CSR = \beta_0 AJCA + \beta_1 T + \beta_2 (AJCA * T) + \beta_3 X + \epsilon \tag{3.1}$$

$AJCA$ is a dummy variable with a value of one for firms affected by the policy change and zero otherwise. The dummy variable T takes on the value of one for the time period after the policy change. The coefficient of interest is β_2, which measures the effect of the policy change. In order for the DiD estimator to be unbiased, the shock (the policy change) must be uncorrelated with unobserved factors hidden in the error term (Wooldridge, 2010). It is unlikely that the passage of the Act is correlated with firms' investments into CSR (the Act was passed independently of firms investments in CSR). We do however expect the Act to be correlated with firms financial constraints, since the rationale behind the AJCA was to decrease internal costs of financing. When we investigate existence of a causal link between

[4]For recent application in the management literature see Flammer and Luo (2015) and Flammer (2015a).

financial constraints and CSR, we include a measure of financial constraints in the estimation which accounts for this correlation.

We follow Faulkender and Petersen (2012) who show that when using the AJCA as a shock it is imperative to control for both the firms possibility to repatriate and the firm's actual decision to repatriate for two reasons. First, the decision to repatriate is endogenous and needs to be instrumented for. Second, in order to identify treatment and control groups correctly, we need to distinguish firms that could not repatriate (group 1), e.g. because they did not have any foreign earnings, from firms that could repatriate but chose not to (group 2) and from firms that repatriated (group 3). Table 3.1 provides an overview of the three groups of firms.

Table 3.1: Data specification accounting for the decision and probability to repatriate

Number	Treatment/Control	Group Name
1	Control	Could Not and Did Not Repatriate under AJCA
2	Control	Could but Did Not Repatriate under AJCA
3	Treatment	Could and Did Repatriate under AJCA

To highlight the importance of correctly specifying control and treatment groups we compare the approach of Faulkender and Petersen (2012) (FP) to two previous research papers by Blouin and Krull (2009) (BK) and Dharmapala et al. (2011) (DFF) which also used the AJCA as an external shock in a DiD estimation. We present the empirical specifications of these approaches in Table 3.2.

Table 3.2: Empirical specification comparison

Paper	Specification	Groups
BK	$CSR_{it} = \beta_0 AJCA_{it} + \beta_1 X_{it} + \lambda_i + \mu_t + \epsilon_{it}$	1 & 2 vs 3
DFF	$CSR_{it} = \beta_0 Pr(AJCA)_{it} + \beta_1 X_{it} + \lambda_i + \mu_t + \epsilon_{it}$	1 vs 2 & 3
FP	$CSR_{it} = \beta_0 Pr(AJCA)_{it} + \beta_1 [AJCA_{it} - Pr(AJCA)_{it}] + \beta_1 X_{it}$ $+\lambda_i + \mu_t + \epsilon_{it}$	1 vs 2 vs 3

The specification employed in BK measures the difference between those who repatriated versus those that did not, measured by the dummy variable $AJCA_{it}$,

which is equal to one if the firm repatriates. The drawback of this approach is that it does not differentiate between firms that could not and did not (e.g. did not have foreign operations or tax incentives) and those that could but chose not to, thus pulling two separate groups together. More importantly, since the decision to repatriate is in itself endogenous, due to self selection bias, using this specification will lead to biased and inconsistent estimates. A partial solution is offered by DFF, who address the issue of self-selection by instrumenting the decision to repatriate. This leads to replacing $AJCA_{it}$ with $Pr(AJCA)_{it}$ which is the probability of repatriating under the AJCA. We estimate the probability with a predictive Logit regression. Although, this specification controls for the self selection bias it does not correctly identify treatment and control groups. The $Pr(AJCA)_{it}$ distinguishes between firms that could not repatriate and firms that could repatriate (e.g. firms with a tax incentive). However, it does not account for the actual decision to repatriate, thus pooling Group 2 and Group 3 together. To account for both the endogeneity issue and the existence of more than two groups, FP combine the two previous methods together. This is also the approach we use in our estimation.

3.1 Predicted Probability of Repatriation

To account for the possibility to repatriate, we calculate the predicted probability of repatriation with a Logit estimation and the dummy *AJCA (firm level)* as dependent variable. The dummy is one for all firm-year observations if the firm repatriates in either 2004, 2005 or 2006. As controls, we include a firm's market value and market-to-book value of assets, EBIDTA scaled by the book value of total assets, a dummy equal to one if the marginal U.S. tax rate (35 percent) is larger than the average foreign tax rate in the last three years prior to the Act. We also include the mean of foreign earnings in the three years prior to the Act scaled by the book value of assets and a dummy equal to one if the mean of a firm's foreign earnings in the three years before the Act is greater than zero. The last three controls account for differences in incentives to repatriate. We describe the construction of control variables in the

Data section further below. We predict the probability of repatriation based on data for year 2003 which is the year prior to the AJCA. We then include the predicted probability as a constant for all years after the act (2004 to 2007). The estimation equation for the probability to repatriate is as follows:

$$\begin{aligned} Pr(AJCA)_{it} &= \alpha_0 Log\left(Total\ Assets\ (MV)\right)_{it} + \alpha_1 MVA_{it}/BVA_{it} \\ &\quad + \alpha_2\ Pre\text{-}invest\ Profit_{it}/BVA_{it} + \alpha_3 For\ Tax\ Rate_{it} \\ &\quad + \alpha_4 ForEarnings_{it}/BVA_{it} + \alpha_5 ForPre\text{-}tax\ Income_{it} + \epsilon_{it} \end{aligned} \tag{3.2}$$

3.2 Baseline Equation

To account for the actual decision to repatriate, we use a dummy equal to one starting in the year a firm actually repatriated funds from abroad and zero in all previous years. We estimate the following specification:

$$\begin{aligned} CSR &= \beta_0 Pr(AJCA)_{it} + \beta_1[AJCA_{it} - Pr(AJCA)_{it}] + \beta_2 X_{it} \\ &\quad + \lambda_i + \mu_t + \epsilon_{it} \end{aligned} \tag{3.3}$$

In equation 3.3, the coefficient β_0 measures the difference between firms in group 1 to firms belonging to groups 2 and 3 combined. The coefficient β_1 is imperative, it captures the difference between firms in group 3 relative to firms in group 2[5]. We refer to β_0 as the coefficient on the probability of repatriation - *Pr(AJCA)*, and to β_1 as the coefficient on *Residual*[6]. X_{it} contains the control variables used in the estimation. We further include firm (λ_i), and time (μ_t) fixed effects. Firm fixed effects control for unobserved heterogeneity that is constant over time. Time dummies account for yearly changes in the general business environment that are common to all firms. Including firm and time fixed effects means that we are running a dummy variable regression equivalent to a Fixed Effects (FE) estimator. An assumption of FE estimators is the absence of serial correlation in the error terms,

[5]See Appendix B for a detailed example.
[6]We refer to $[AJCA_{it} - Pr(AJCA)_{it}]$ as *Residual*.

which we address by using clustered standard errors, a procedure that also accounts for heteroskedasticity (Wooldridge, 2010).

3.3 Financing Constraints

In the following section, we extend the previous specification and additionally account for the different levels of financial constraints firms faced in the years before the passage of the AJCA. We measure financial constraints with the Whited and Wu (2006) (WW) index which is more robust, than for example, the KZ index (for a more elaborate discussion see Farre-Mensa and Ljungqvist (2016) or Hadlock and Pierce (2010)).

To isolate the effect of the Act on investments into CSR for constrained relative to unconstrained repatriating firms, we interact the measure that distinguishes between firms that could and did and firms that could but did not repatriate (the term $[AJCA_{it} - PR(AJCA)_{it}]$ in equation 3.4) with our measure of financial constraints. As main measures of financial constraints we use *Fin Constraints (cutoff)* and *Fin Constr (cont)* which are based on the WW index. As a robustness check, we define financial constraints with the dummy variable *Fin Constr (0/1)*. The dummy has a value one for firms in the top 30 percent and a value zero for firms in the lower 30 percent of the firms in the WW index. In addition, we use a continuous measure of financing constraints based on the Size-Age (SA) index by Hadlock and Pierce (2010). The empirical specification is the following:

$$\begin{aligned} CSR &= \beta_0 PR(AJCA)_{it} + \beta_1[AJCA_{it} - PR(AJCA)_{it}] \\ &\quad + \beta_2[AJCA_{it} - PR(AJCA)_{it}] * Fin\,Constraints \\ &\quad + \beta_3 X_{it} + \lambda_i + \mu_t + \epsilon_{it} \end{aligned} \tag{3.4}$$

Effectively, β_2 now captures the sole effect of loosened financial constraints for the constrained relative to the unconstrained firms. The effect for the unconstrained firms is captured by β_1. In order to ensure that changes in CSR are not caused by

factors other than the Act, we include a measure of financing constraints for the years after the AJCA (2004 through 2007) - *Fin Constr Post*. The variable is zero for the years prior to the act and equal to the measure of financial constraints for all years thereafter. It is calculated for each of the different measures we use: continuous, cutoff and dummy all based on the WW index, and continuous based on the SA index. By including the ex-post measure, *Fin Constr Post*, we isolate the effect of the Act while controlling for the effect of belonging to either the constrained or unconstrained group after the Act.

4 Data and Variables

The final sample consists of 908 firms listed in the S&P 1500 index as of 2001 that are also covered in the Kinder, Lyndenberg, Domini, & Co. (KLD) database. For a firm to be included in the final dataset, we require full information on all control variables which we sourced from Compustat. Information on firm repatriation activity is hand collected from firms' public filings with the SEC. The sample is an unbalanced panel with data for 5331 firm-year observations for the period from 2001 through 2007. The firms in this sample represent a wide variety of industries. As shown in Table 4.1 the largest number of repatriating firms are in the manufacturing industry, followed by the services industry.

Table 4.1: Summary statistics: Distribution of repatriating firms across industries

SIC division	SIC group	Industry categories	N
B	10 - 14	Mining	8
C	15 - 18	Construction	2
D	20 - 39	Manufacturing	179
E	40 - 49	Transportation, Communication, Utilities	17
F	50 - 51	Wholesale Trade	3
G	52 - 59	Retail Trade	14
I	70 - 89	Services	29
J	91 - 99	Public Administration	1
		Total	**253**

4.1 Dependent Variables

As dependent variable and a measure of firms' CSR we use *Total CSR*, which we calculate as the difference between a firm's sum of strengths and sum of concerns as assigned by KLD[7]. KLD is a widely used dataset to measure CSR (Waddock and Graves, 1997; Cheng et al., 2013; Flammer, 2015b) and despite some criticism related to the structure of its data (Rowley and Berman, 2000), it has been labeled "the largest multidimensional CSP (corporate social performance) database available to the public" (Deckop et al., 2006, p. 334). In addition, KLD is considered as one of the "most influential social raters with $8 billion invested in funds based on its index" (Chatterji and Levine, 2008, p. 55). The dataset is very useful to study changes in firms' CSR, since it applies consistent rating criteria from year to year. Most importantly, KLD is the only database of CSR ratings with a broad coverage that is available from the start of the empirical setting of this thesis in 2001. In KLD, firms are rated in seven areas: community, corporate governance, diversity, employee relations, environment, human rights and product. All areas contain a certain number of subcategories of strengths and concerns. To further understand what drives our results we decompose *Total CSR* to its two main components - the sum of CSR strengths (*CSR Strength*) and the sum of CSR concerns (*CSR Weaknesses*). This gives us further insight into the actions taken by firms with regards to CSR. In addition, we look at the individual scores for each of the seven areas.

4.2 Independent Variables

4.2.1 *Measure of firms' repatriation activity*

Information on firms' repatriation activity under the provision of the AJCA is not readily available in databases and had to be hand collected from thousands of firm fillings. Under the AJCA, firms were required to discuss the decision to repatriate

[7]Elements that did not exist throughout the entire sample period were excluded (e.g., *No-Layoff Policy*, *Political Accountability Concern*).

foreign income or not in their 10-K fillings. Publicly listed firms are obliged to file and to submit 10-K filings to the SEC Edgar database. To access, download and structure the thousands of forms companies file with the SEC, we built upon a Python crawler which systematically searched the Edgar database for firms listed in the S&P 1500 index in year 2001. In order to identify firms that discussed the Act and their consequent actions, we programmed a parser which searched in the firm fillings we had downloaded for a discussion of the Act. The parser then extracted these passages. Since the Act had several different provisions we manually read the extracted passages and assessed whether the foreign earnings repatriation was in accordance to the foreign dividend clause of the AJCA. Based on the firms' discussion of the Act in their 10-K filings, we constructed the measure *AJCA*, which is a dummy variable that has value one from the year in which a firm repatriates and zero for prior years. The AJCA was passed in October 2004, however, further regulations were added throughout 2005 (Faulkender and Petersen, 2012). Therefore, we searched firm fillings for discussions of the foreign earnings repatriation provision under the AJCA for the years 2004, 2005 and 2006. Out of the 908 firms in our final sample, 253 firms repatriated under the provision of the AJCA.

4.2.2 *Measures of financing constraints*

The precise classification of firms into constrained or unconstrained is difficult as financial constraints cannot be directly observed. The academic literature mainly relies on proxies, such as dividend payments and credit ratings, or makes use of one of the three indexes: the Kaplan-Zingales (KZ) index, the Hadlock-Pierce (SA) index or the Whited-Whu (WW) index (Farre-Mensa and Ljungqvist, 2016). The indexes are linear combinations of observable firm characteristics, such as firm age, size and leverage. The most widely used one of them is the KZ index as constructed by Lamont et al. (2001)[8]. The index has its origins in the work of Kaplan and Zingales (1997), where the authors estimate an ordered Logit model to find the link between financial constraints and firm characteristics. Kaplan and Zingales (1997)

[8]For an explanation of the construction and elements of the KZ Index see Appendix A.

based their estimation on a comparably small number of 49 firms[9]. Whited and Wu (2006) found that the KZ index has unstable parameters once it is computed for larger samples of firms with greater heterogeneity amongst each other. A further limitation of the KZ index is its dependence on Tobin's Q which is known to be estimated with a large measurement error (Erickson and Whited, 2006). Finally, Farre-Mensa and Ljungqvist (2016) found very little overlap of the KZ index with other indexes (e.g., the WW and SA indexes) in the classification of firms into constrained and unconstrained. Therefore, we use a more rigorous measure, the WW index of financial constraints. In the Robustness Tests section we use the SA index as an alternative measure of financing constraints.

The strength of the WW index is in its underlying theoretical model explaining firm financial constraints leading to stable parameters when applying the index to different data. An advantage in using this approach is avoiding the use of Tobin's Q and thus reducing measurement error (Whited and Wu, 2006). We constructed the WW index using the parameters estimated by Whited and Wu (2006). The WW index is a linear combination of the following accounting variables: 1) cash flow to total assets (CF), 2) long term debt to total assets ($TLTD$), 3) natural log of total assets ($LNTA$), 4) average industry sales growth, estimated separately for each of the 3-digit SIC industry codes in each year (ISG), 5) sales growth for each firm-year observation (SG), 6) dummy variable indicating positive dividends paid ($DIVPOS$). The specification of the WW index is as follows:

$$\begin{aligned} WW\ Index &= -0.091 * CF_{it} + 0.021 * TLTD_{it} - 0.044 * LNTA_{it} + 0.102 * ISG_{it} \\ &\quad -0.035 * SG_{it} - 0.062 * DIVPOS_{it} \end{aligned} \tag{4.1}$$

The WW index has all negative values. For the ease of interpretation of the econometric estimation and separation of the groups, we transformed the variable to be on a zero to one line. We constructed an empirical cumulative density function (ECDF), since graphical and statistical examination did not yield supportive

[9]The firms have been classified as constrained by Fazzari et al. (1988) in their original work.

results for either normal or student-t distribution as an adequate cumulative density function (CDF) to fit the values of the WW index. Using the ECDF allows us to transform the negative values of the WW index into a positive index without violating the true data distribution. From the ECDF, we constructed two measures of financing constraints prior to the Act along with two controls for the level of financing constraints post the Act.

The two measures that account for firms' level of financing constraints prior to the AJCA are *Fin Constraints (cont)*, which is a continuous measure, and *Fin Constraints (cutoff)*. The latter measure categorizes the bottom 30 percent as fully unconstrained and the top 30 percent as fully constrained firms, while leaving the middle as continuous. To assign firms the status of fully unconstrained or fully constrained prior to the Act, we calculated the mean ECDF for the years 2001 through 2003. Hence, firms with mean ECDF above 0.7 (top 30 percent) were considered fully constrained, whereas firms with a mean ECDF below 0.3 (bottom 30 percent) were considered fully unconstrained.

The other two measures account for firm's level of financing constraints post the AJCA. We use them as control variables for changes in *Total CSR*, *CSR Strengths* and *CSR Weaknesses* of financially constrained relative to unconstrained firms post the Act relative to the pre-Act period. The variables *Fin Constr Post (cont)* and *Fin Constr Post (cutoff)* are constructed in similar way to the pre-Act measures of financial constraints. However, for the years before 2004 they are assigned values of zero. With the inclusion of the financing constraints measure, we are now able to distinguish between firms that are financially constrained and firms that are financially unconstrained within the group of firms that could and did repatriate (group 3). This allows us to isolate the effect of the AJCA on firms which differ from one another in the level of financing constraints.

To test the robustness of our results, we also constructed a financial constraints measure taking into account only extreme values of the WW index, *Fin Constr (0/1)*. We use the same approach as before and create *Fin Constr Post (0/1)*. Table 4.2 contains the descriptive statistics for unconstrained and constrained firms.

As the data shows, on average unconstrained firms are larger than constrained firms as measured by market value of total assets. Unconstrained firms have higher foreign pre-tax income, foreign earnings and face foreign tax rate lower than the U.S. marginal tax rate. In terms of CSR performance, on average unconstrained firms have more strengths and more concerns than constrained firms. Unconstrained firms rate better than the constrained on community and diversity net scores.

Table 4.2: Summary statistics: Unconstrained and constrained firm

	Unconstrained		Constrained	
	Mean	SD	Mean	SD
Measures of Firm Characteristics				
Log(Total Assets (MV))	9.822	1.091	6.930	0.753
MVA/BVA	1.867	0.978	2.300	1.436
Pre-Invest Profit/BVA	0.147	0.073	0.120	0.141
Measures of Incentives to Repatriate				
For. Tax Rate	0.158	0.365	0.113	0.317
For. Earnings/BVA	0.008	0.022	0.003	0.015
For. Pre-Tax Income	0.235	0.424	0.128	0.334
Pr(AJCA)	0.230	0.281	0.090	0.123
Measures of CSR				
Total CSR	-0.388	3.327	-0.332	1.519
CSR Strengths	3.221	3.219	0.767	1.128
CSR Weaknesses	3.609	2.672	1.099	1.013
Corporate Governance	-0.551	0.755	-0.201	0.621
Community	0.157	0.912	0.020	0.205
Environment	-0.502	1.256	0.034	0.256
Product	-0.499	0.950	-0.015	0.317
Employees	-0.118	1.227	-0.193	0.705
Diversity	1.126	1.601	0.023	0.892
Observations	1851		1174	

As an additional robustness test, we constructed another measure of firm financial constraints, the SA index proposed by Hadlock and Pierce (2010). The authors built upon the methodology of Kaplan and Zingales (1997) but extended the sample to 356 firms. Hadlock and Pierce (2010) then searched 10-K filings of the firms

in the sample looking for evidence that these firms identified themselves as being financially constrained. The authors suggest that it is enough to rely on firm size and age when categorizing firms as financially constrained or unconstrained. The respective index is constructed as follows:

$$SA\,Index = -0.737 * Size_{it} + 0.043 * Size_{it}^2 - 0.040 * Age_{it} \quad (4.2)$$

We calculated the firms' size as the natural logarithm of inflation-adjusted book value of assets in 2004 dollars. We defined firm's age as the respective year less the first year in which the firm appeared in the Compustat database. Hadlock and Pierce (2010) cap the size of firms at $4.5 billion of total assets and at 37 years of age. We did not impose the same restrictions, as the means of size and age for our sample exceed these cap levels. Since the index only takes on negative values, we followed the same procedure as with the WW index and mapped the values on a zero to one line using the ECDF. We then constructed a continuous measure of financial constraints for the period before the Act - *Fin Constr (cont)*, and a control variable for the period after the Act - *Fin Constr Post (cont)*.

4.2.3 *Measures of firms characteristics*

In order to control for firms characteristics we used measures of firm size, profitability of foreign subsidiaries and operations in countries with corporate tax rates lower than the marginal tax rate in the U.S.. We calculated market value of total assets (*Log(Total Assets (MV))*) as the sum of the market value of shareholders equity and the book value of total debt[10]. We log transformed this variable to reduce its skewness. As a further measure of firm characteristics, we included the ratio of the market value of assets to the book value of assets, *MVA/BVA*. The variable is calculated as above market value of total assets divided by the book value of total assets. We accounted for firms' profitability, by including firms' pre-investment

[10]We also followed Kaplan and Zingales (1997) in calculating market value of assets as the book value of total assets plus the difference between the market value of shareholders equity and the book value of shareholders equity plus differed taxes. Both methods yield similar results.

profits (EBITDA) scaled by the book value of total assets, *Pre-Invest Profit/BVA*.

Table 4.3: Summary statistics: Non-repatriating and repatriating firms

	Non-Repatriating		Repatriating	
	Mean	SD	Mean	SD
Measures of Firm Characteristics				
Log(Total Assets (MV))	8.113	1.362	9.125	1.423
MVA/BVA	1.930	1.074	2.328	1.387
Pre-Invest Profit/BVA	0.135	0.095	0.162	0.083
Measures of Incentives to Repatriate				
For. Tax Rate	0.113	0.317	0.249	0.432
For. Earnings/BVA	0.003	0.014	0.013	0.029
For. Pre-Tax Income	0.152	0.359	0.322	0.467
Measures of CSR				
Total CSR	-0.562	2.226	0.404	2.846
CSR Strengths	1.410	1.920	2.892	3.278
CSR Weaknesses	1.972	2.034	2.488	2.338
Corporate Governance	-0.330	0.693	-0.518	0.678
Community	0.027	0.520	0.192	0.754
Environment	-0.232	0.850	-0.059	0.959
Product	-0.186	0.604	-0.283	0.870
Employees	-0.193	0.901	0.081	1.111
Diversity	0.353	1.172	0.990	1.528
Measures of Financial Constraints				
Financial Constraints (WW)	0.487	0.268	0.327	0.225
Financial Constraints (SA)	0.546	0.285	0.421	0.273
Observations	3574		1528	

To control for differences in incentives to repatriate, we use a dummy variable to reflect if foreign tax rates are lower than in the U.S., *For Tax Rate*. The variable is one if the US marginal tax rate of 35 percent exceeds the average foreign tax rate and zero otherwise. The dummy variable *For Pre-tax Income* is one if the average foreign pre-tax income for a firm in the three years before the Act is positive and zero otherwise. In addition we accounted for the level of profitability of a firm's foreign subsidiary and included *For Earnings/BVA*, which is the mean of foreign

earnings for the years prior to the Act scaled by the book value of total assets. The descriptive statistics for non-repatriating and repatriating firms are shown in Table 4.3.

Repatriating firms are larger in size and with higher pre-investment profits. In addition, these firms have higher incentives to repatriate as seen from their higher foreign earnings, pre-tax income and taxes. On average, repatriating firms have more strengths and also more weaknesses than non-repatriating firms. We see the biggest difference in *Total CSR*, where non-repatriating firms have a negative average, while repatriating firms have a positive average. The rest of the measures of CSR show small differences compared to their standard deviation. Lastly, we notice that repatriating firms are in general less financially constrained than non-repatriating firms as indicated by the WW index and the SA index.

5 Results

We report the predicted probability of repatriation under the AJCA along with the marginal effects in Table 5.1. The first two columns, column (1) and column (2), are the results of cross sectional Logit regressions where the dependent variable takes on the value one if the firm repatriates in one of the years and is zero otherwise. The probability of repatriation is estimated in the year 2003, as this is the last year prior to the passage of the Act. The control variables are calculated from firm values for years 2003 and prior. The following two columns, column (3) and column (4) show the respective marginal effects at the means.

We first examine the main firm characteristics associated with the probability of repatriation. Firm size, measured by Log(Total Assets (MV)), significantly and positively affects the probability of repatriation. More precisely, on average, a 10 percent increase in the market value of assets leads to an approximately 1 percent increase in probability of repatriation under the AJCA. Also, firms with greater pre-investment profit or greater access to internal funding, as measured by *Pre-Invest Profit/BVA*, have a higher probability of repatriating under the AJCA. A one unit

increase in the *Pre-Invest Profit/BVA* ratio leads to a 40 percent increase in the probability of repatriation.

Table 5.1: Predicted probability and marginal effects (Logit estimation)

	(1) Repatriate (Y/N)	(2) Repatriate (Y/N)	(3) Marginal Effects	(4) Marginal Effects
Log(Total Assets (MV))	0.527***	0.499***	0.094***	0.081***
	(0.05)	(0.06)	(0.01)	(0.01)
MVA/BVA	0.108	-0.045	0.019	-0.007
	(0.07)	(0.08)	(0.01)	(0.01)
Pre-Invest Profit/BVA	2.251**	3.358***	0.403**	0.544***
	(0.94)	(1.21)	(0.17)	(0.19)
For. Tax Rate		0.632***		0.102***
		(0.21)		(0.03)
For. Earnings/BVA		12.439***		2.014***
		(3.85)		(0.64)
For. Pre-Tax Income		0.992***		0.161***
		(0.25)		(0.04)
Constant	-5.946***	-6.650***		
	(0.48)	(0.59)		
Observations	908	908	908	908

Robust standard errors in parentheses

* p<0.1, ** p<0.05, *** p<0.01

In column (2), we add the control variables for the incentives for firms to repatriate funds from abroad. Firms with foreign operations in low tax countries, measured by the dummy *For Tax Rate*, on average have a 10 percent higher probability of repatriation. The profitability of the firms' foreign subsidiaries is yet another important incentive for firms to repatriate, as going from zero to one in the dummy *For Pre-Tax Income* leads to 16 percent higher probability of repatriation. Moving on to the

level of profitability of foreign subsidiaries we notice that an increase in the ratio of *For Earnings/BVA* of 0.1 units leads to a 20 percent increase in profitability of repatriation. After estimating the probability of repatriation we compare the three model specifications as described in Table 3.2. This allows us to contrast the effects of specifying our model in different ways. The results are reported in Table 5.2. The first column shows the results following the approach of BK. The second and third column, follow DFF and FP respectively.

Table 5.2: Comparison of difference-in-difference specifications

	(1)	(2)	(3)
	Total CSR	Total CSR	Total CSR
AJCA	0.781***		
	(0.16)		
PR(AJCA)		1.834***	2.005***
		(0.32)	(0.33)
Residual			0.545***
			(0.15)
Log(Total Assets (MV))	-0.314**	-0.377**	-0.366**
	(0.15)	(0.15)	(0.15)
MVA/BVA	-0.029	0.013	0.005
	(0.06)	(0.06)	(0.06)
Pre-Invest Profit/BVA	1.279**	1.286**	1.270**
	(0.61)	(0.61)	(0.60)
Observations	5331	5331	5331

Clustered standard errors in parentheses

* p<0.1, ** p<0.05, *** p<0.01

In all of the specifications there is a significant and positive effect of the repatriation on firms' *Total CSR*. The coefficient on *AJCA* in column (1) measures the difference between firms that repatriated versus firms that did not. However, it does not account for the possibility for firms to repatriate which leads to merging

the group of those who could but did not (group 2) with those that could not and did not (group 1). As FP argue, the decision to repatriate ($AJCA$), is endogenous and has to be instrumented for.

In column (2), we report the results of the approach of DFF. As we discussed in the Methodology section, this approach accounts for the self-selection bias in firms decision to repatriate, using predicted probability of repatriation (*Pr(AJCA)*) as an instrument. However, the actual decision to repatriate is not included as a variable in the DiD estimation. The coefficient of 1.834 on *Pr(AJCA)* measures the difference between group 1 and groups 2 and 3 combined. Its magnitude is drastically larger than the other two specifications. In column (3) we follow FP and account for self-selection and the actual repatriation decision. The respective estimation equation is 3.3.

While larger firms, measured by *Log(Total Assets (MV))*, have a higher probability of repatriation, the association with *Total CSR* is negative. The coefficients on *Pr(AJCA)* have similar values in both columns (2) and (3). However, we interpret the effect of the policy shock in column (3) by the coefficient on *Residual*, which in fact is closer in magnitude to the specification in column (1) (0.545 and 0.781 respectively). Despite having very similar results in column (1) and (3), it is the estimation presented in column (3) that is theoretically sound.

Overall, the results confirm that the effect of the policy shock lead repatriating firms (group 3) to increase their *Total CSR* relative to firms that did not repatriate (group 2) (measured by *Residual*). Thus, a repatriating firm increases its *Total CSR* by 0.545 units relative to a non-repatriating firm. Further, results indicate that firms who had the incentive to repatriate (group 2 and 3) increased their CSR relative to firms that did not (group 1) (measured by the coefficient on *Pr(AJCA)*). The positive and significant coefficient on the variable, indicate that going from 0 to 100 percent in the probability of repatriation results in a 2.005 unit increase in firms' *Total CSR*.

5.1 Capital Constraints

In the following section we provide the results of the effect of the policy change on firms' CSR scores depending on the firms level of financial constraints prior to the Act.

Table 5.3 contains the results of our estimation based on equation 3.4. Columns (1) and (2) use *Fin Constr (cutoff)* as a measure of financial constraints. In column (2), we control for the level of financial constraints in the period after the shock by including the variable *Fin Constr Post (cutoff)*. In columns (3) and (4), we use the alternative measure of financing constraints, *Fin Constr (cont)*. We control for the level of firms' financing constraints in the period after the Act by including *Fin Constr Post (cont)* in column (4). In columns (1) and (2), the effect of the Act on firms' *Total CSR* is significant and negative for firms that repatriate and are financially constrained relative to unconstrained firms (as indicated by the coefficient -0.952 on *Resid*Fin Constr (cutoff)*).

The net effect of being financially constrained, which is the sum of the coefficients on *Resid*Fin Constr (cutoff)* and *Residual*, is negative (-0.119). This is in contrast to the effect for the unconstrained and repatriating firms, which on average increase their *Total CSR* by 0.833. The results are robust to including a control for the level of financial constraints in the period after the AJCA (column (2)). Results are similar if we use the continuous measure instead, as reported in columns (3) and (4). We also plot the behavior of constrained and unconstrained firms with regards to *Total CSR* and find graphical support for our results (Figure 6.1). In the pre-treatment period we observe a decreasing and parallel trend between constrained and unconstrained firms. In the post-treatment period the two groups diverge in that unconstrained firms increase their CSR as opposed to constrained firms. In addition, Figure 6.1, which is presented in the Robustness Tests section, provides graphical support for the underlying assumption of DiD, the "parallel paths" assumption.

Table 5.3: *Total CSR* under different measures of financing constraints

	(1)	(2)	(3)	(4)
	Total CSR	Total CSR	Total CSR	Total CSR
PR(AJCA)	2.067***	1.963***	2.077***	1.872***
	(0.33)	(0.38)	(0.33)	(0.37)
Residual	0.833***	0.845***	0.998***	1.040***
	(0.22)	(0.22)	(0.28)	(0.29)
Residual*Fin Constr (cutoff)	-0.952***	-0.996***		
	(0.34)	(0.35)		
Residual*Fin Constr (cont)			-1.305**	-1.430***
			(0.52)	(0.54)
Log(Total Assets (MV))	-0.363**	-0.363**	-0.364**	-0.365**
	(0.14)	(0.14)	(0.14)	(0.14)
MVA/BVA	0.007	0.002	0.006	-0.002
	(0.06)	(0.06)	(0.06)	(0.06)
Pre-Invest Profit/BVA	1.314**	1.325**	1.313**	1.339**
	(0.59)	(0.60)	(0.59)	(0.60)
Fin. Constr. Post (cutoff)		-0.152		
		(0.21)		
Fin. Constr. Post (cont)				-0.397
				(0.30)
Observations	5331	5331	5331	5331

Clustered standard errors in parentheses

* p<0.1, ** p<0.05, *** p<0.01

5.2 CSR Strengths and Weaknesses

In this section, we test whether the effect of the Act is different for the two components that comprise *Total CSR* - the sum of strengths (*CSR Strengths*) and the sum of weaknesses (*CSR Weaknesses*). We use equations 3.3 and 3.4 and report our results in Table 5.4. Columns (1) and (3) contain the results for the sample without taking into account financial constraints. The coefficients on *Residual*, capture the difference in firms' *CSR strengths* and *CSR Weaknesses* for the repatriating firms relative to the non-repatriating firms. Columns (2) and (4) show the results with the continuous measure of financial constraints. The coefficients on *Residual* now capture the difference in our measure of CSR for the unconstrained firms. The coefficients on the interaction term - *Residual*Fin Constr (cont))*, capture the effect of the Act for the constrained relative to the unconstrained firms.

The significant and positive coefficient on *Residual* in column (1) indicates that on average firms repatriating under the Act increased their *CSR Strengths* by 0.402 units. The magnitude of the coefficient is similar to the one reported in Table 5.2 column (3), where *Total CSR* is the dependent variable. This indicates that the increase in *Total CSR* is due to changes in *CSR Strengths*. This conclusion is supported by the insignificant coefficient on *Residual* in column (3) of Table 5.4, where the dependent variable is *CSR Weaknesses*.

Next, we include our continuous measure of financial constraints by interacting it with the *Residual*. In column (2), the negative and highly significant coefficient - 1.779 on the interaction term - *Residual*Fin Constr (cont)* indicates that constrained firms decreased their *CSR Strengths* relative to the unconstrained firms. This result is in contrast with the effect for the unconstrained firms where the coefficient on *Residual* of 1.017 not only remains positive and highly significant, but also more than doubles in magnitude. The results in column (2) are very similar to the ones in Table 5.3 column (2) suggesting that the variation in *Total CSR* is driven by the firms *CSR Strengths*. Furthermore, the coefficients on *Residual* and the interaction term in Table 5.4 column (4), where we use *CSR Weaknesses* as a dependent variable

Table 5.4: *CSR Strengths* and *CSR Weaknesses* with and without financial constraints

	(1) CSR Strengths	(2) CSR Strengths	(3) CSR Weaknesses	(4) CSR Weaknesses
PR(AJCA)	1.885***	1.612***	-0.121	-0.259
	(0.30)	(0.32)	(0.23)	(0.25)
Residual	0.402***	1.017***	-0.143	-0.023
	(0.12)	(0.22)	(0.10)	(0.21)
Residual*Fin Constr (cont)		-1.779***		-0.349
		(0.42)		(0.40)
Log(Total Assets (MV))	-0.204*	-0.204*	0.162*	0.161*
	(0.11)	(0.11)	(0.09)	(0.09)
MVA/BVA	-0.038	-0.051	-0.043	-0.049
	(0.04)	(0.04)	(0.04)	(0.04)
Pre-Invest Profit/BVA	0.781*	0.878**	-0.489	-0.461
	(0.41)	(0.41)	(0.42)	(0.42)
Fin. Constr. Post (cont)		-0.693***		-0.296
		(0.23)		(0.22)
Observations	5331	5331	5331	5331

Clustered standard errors in parentheses

* p<0.1, ** p<0.05, *** p<0.01

are statistically insignificant. Results are similar if we use *Fin Constr (cutoff)* as the measure of financial constraints, as shown in Appendix C Table C.1.

5.3 Individual Components

We further investigate the effect of the Act on the individual components comprising *Total CSR*. The seven subcategories are constructed as the difference between CSR strengths and weaknesses. In this section we are only focusing on the results for constrained and unconstrained repatriating firms. Results are shown in Table 5.5. In addition, we estimate the effect of the Act on repatriating relative to non-repatriating firms following equation 3.3 and report the results in Appendix D Table D.1.

For unconstrained firms we find a positive and significant effect of the AJCA on corporate governance, environment and diversity, with coefficients on the *Residual* of 0.274, 0.412 and 0.269 respectively. For constrained firms, only the environment category remains significant. The coefficient on *Residual*Fin Constr (cont)* in column (2) is negative suggesting that constrained firms experienced a decrease in the environment score relative to the unconstrained firms.

However, when working with the individual scores it is important to keep in mind that there are certain limitations as many companies have a score of zero, which lowers the variation in the dependent variable. This is why we mainly focus on the previous measures (*Total CSR*, *CSR Strengths* and *CSR Weaknesses*).

Table 5.5: Individual components of *Total CSR*

	(1) Corp Governance	(2) Environment	(3) Product	(4) Employee	(5) Diversity	(6) Community
Pr(AJCA)	0.357***	0.451***	0.055	0.501***	0.350**	0.158
	(0.13)	(0.12)	(0.12)	(0.16)	(0.17)	(0.12)
Residual	0.274***	0.412***	-0.080	0.049	0.269**	0.117
	(0.10)	(0.10)	(0.10)	(0.13)	(0.12)	(0.08)
Residual*Fin Constr (cont)	-0.289	-0.673***	0.116	-0.064	-0.361	-0.159
	(0.20)	(0.18)	(0.17)	(0.28)	(0.25)	(0.14)
Log(Total Assets (MV))	-0.109**	-0.213***	-0.001	0.149**	-0.165**	-0.026
	(0.05)	(0.05)	(0.04)	(0.07)	(0.06)	(0.04)
MVA/BVA	0.014	0.033*	0.030*	-0.094***	0.018	-0.003
	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)	(0.02)
Pre-Invest Profit/BVA	-0.003	0.168	-0.034	0.980***	0.122	0.106
	(0.22)	(0.16)	(0.14)	(0.31)	(0.24)	(0.14)
Fin. Constr. Post (cont)	-0.317***	0.022	0.168*	0.287**	-0.586***	0.030
	(0.10)	(0.09)	(0.09)	(0.14)	(0.15)	(0.09)
Observations	5331	5331	5331	5331	5331	5331

Clustered standard errors in parentheses

* p<0.1, ** p<0.05, *** p<0.01

6 Robustness Tests

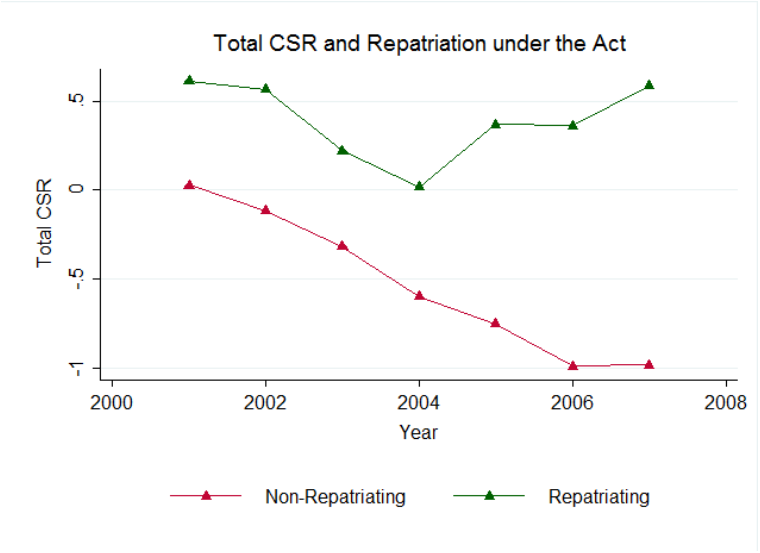
In this section we first ensure the validity of our results by testing for existence of parallel paths between treatment and control groups, which is a necessary condition for conducting a quasi-natural experiment using DiD estimation. Second, we investigate the sensitivity of our results to using the SA Index as an alternative measure of financial constraints. We conclude the section by conducting placebo experiments to test whether our main results are in fact driven by the AJCA and not by unobserved factors.

6.1 Parallel Trends Assumption

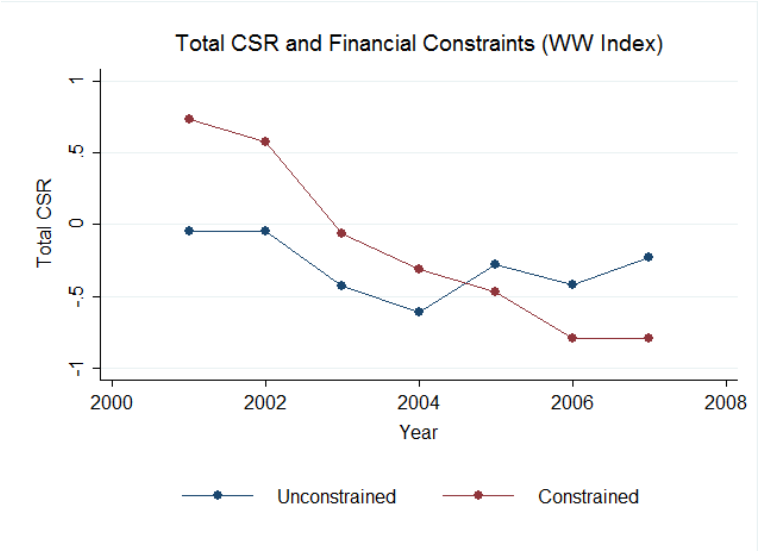
The results from this thesis indicate that *Total CSR* increased for the repatriating firms relative to the non-repatriating firms. This suggests that the AJCA had a positive effect on firms' CSR. In general, the shock to the internal cost of financing led repatriating firms to increase their CSR more than the non-repatriating ones. Taking into consideration the firm level of capital constraints, we found evidence that the impact of the Act affected constrained and unconstrained firms differently. Among all firms that repatriate, initially unconstrained firms increase CSR investments after the act whereas initially constraint firms decrease CSR investments. For the DiD estimation to be valid we have to ensure that the treatment and control groups exhibit a parallel trend in the period before the AJCA.

The existence of parallel paths is the underlying assumption of the DiD method. We test for its validity by checking whether *Total CSR* for constrained and unconstrained firms followed a parallel trend prior to the program. The graphical representation in Figure 6.1 a) and b) shows that repatriating and non-repatriating firms as well as financially constrained and unconstrained firms had very similar paths prior to the Act. A divergence is observed in the years after the passage of the AJCA. Hence, the parallel trend assumption is graphically validated. Since comparing the groups shows that they have been affected similarly by macroeconomic factors in the period from 2001 through 2003, we are confident that they would not

have been affected in a different way by such factors in the years from 2004 through 2007.



(a) Total CSR for repatriating and non-repatriating firms



(b) Total CSR for constrained and unconstrained firms (WW index)

Figure 6.1: Parallel paths assumption: Graphical representation

In addition, we formally tested for differences in the pre-treatment trends between treatment and control groups by calculating the change in *Total CSR* separately for constrained and unconstrained firms and then performing a two-sample t-test. The results of the formal test are shown below in Table 6.1.

Table 6.1: T-test for parallel trends prior to the AJCA

	Unconstrained	Constrained	Difference
Mean Trend	-0.162	-0.074	-0.088
	(0.057)	(0.110)	(0.158)
Observations	482	68	

With a t-statistic of -0.561 we fail to reject the null hypothesis. Thus, we cannot reject that there are no difference in the pre-treatment trends between treatment and control groups, indicating support for the main assumption of the DiD method.

6.2 Alternative Measures of Financial Constraints

6.2.1 *Extreme values of financial constraints based on WW index*

In this section we test the sensitivity of our results to a different specification of the financial constraints measure - *Fin Constr (0/1)*. This measure includes only firms in the top 30 percent (financially constrained) and in the bottom 30 percent (financially unconstrained). The previously used measures, were a mix of continuous and extreme values (*Fin Constr (cutoff)*) and only continuous values (*Fin Constr (cont)*). If the results become insignificant when using the extremes only measure it would indicate that the observations in the middle are the ones driving the results. This would be unlikely if our measure of financial constraints categorizes firms consistently. The results are shown in Table 6.2. We compare the coefficients on the *Residual* and the interaction term with earlier results (Table 5.3 and Table 5.4). The results remain highly significant, indicating that it is not the middle group of firms that drives the results. We can conclude that our results are robust to different ways of specifying the WW based financial constraints measure (mixed, continuous or extreme).

Although using the extreme values of capital constrained and unconstrained firms allows us to clearly distinguish between the groups, it provides less variation in the interaction term subsequently leading to a less stable estimation. The interaction

term (*Residual*Fin Constr (0/1)*) produces many zeros compared to the sample size making fixed effects estimation difficult. Hence, we need to use a measure of financial constraints that is as fine grained as possible. We therefore use mixed (cutoff) and continuous (cont) measures.

Table 6.2: *Total CSR*, *CSR Strengths* and *CSR Weaknesses* for fully unconstrained and fully constrained firms (WW index)

	(1)	(2)	(3)
	Total CSR	CSR Strengths	CSR Weaknesses
Pr(AJCA)	2.303***	2.460***	0.157
	(0.53)	(0.49)	(0.38)
Residual	1.031***	0.927***	-0.104
	(0.27)	(0.21)	(0.20)
Residual*Fin Constr (0/1)	-0.861**	-1.080***	-0.219
	(0.35)	(0.24)	(0.27)
Log(Total Assets (MV))	-0.653***	-0.438***	0.215
	(0.22)	(0.15)	(0.16)
MVA/BVA	0.109	0.013	-0.095*
	(0.08)	(0.06)	(0.06)
Pre-Invest Profit/BVA	0.795	0.508	-0.287
	(0.82)	(0.49)	(0.59)
Fin Constr Post (0/1)	-0.044	-0.102	-0.058
	(0.23)	(0.18)	(0.18)
Observations	2777	2777	2777

Clustered standard errors in parentheses

* p<0.1, ** p<0.05, *** p<0.01

6.2.2 *Hadlock - Pierce measure of financial constraints: SA index*

To further test the robustness of our results we use the SA index instead of the WW index as an alternative way of measuring financial constraints. As described in the

Data and Variables section, the SA index solely depends on the size and the age of the firms. Using this alternative measure allows us to test for the sensitivity of our results to differences in the way firms are categorized as constrained or unconstrained. Table 6.3 contains the results of the estimation.

Table 6.3: *Total CSR*, *CSR Strengths* and *CSR Weaknesses* with financial constraints (SA index)

	(1)	(2)	(3)
	Total CSR	CSR Strengths	CSR Weaknesses
Pr(AJCA)	2.047***	1.922***	-0.125
	(0.34)	(0.31)	(0.23)
Residual	0.837***	0.679***	-0.157
	(0.26)	(0.22)	(0.18)
Residual*Fin Constr (cont)	-0.682	-0.662	0.020
	(0.49)	(0.40)	(0.29)
Log(Total Assets (MV))	-0.376**	-0.213**	0.163*
	(0.15)	(0.11)	(0.10)
MVA/BVA	0.010	-0.032	-0.042
	(0.06)	(0.04)	(0.04)
Pre-Invest Profit/BVA	1.272**	0.776*	-0.495
	(0.61)	(0.42)	(0.43)
Fin Constr Post (cont)	0.098	0.089	-0.009
	(0.26)	(0.20)	(0.17)
Observations	5102	5102	5102

Clustered standard errors in parentheses

* p<0.1, ** p<0.05, *** p<0.01

We compare the results in column (1) of the table above, where the dependent variable is *Total CSR* to the results in column (4) in Table 5.3. The coefficients on the probability of repatriation (*PR(AJCA)*) and the coefficient measuring the effect of the Act for unconstrained firms (*Residual*) remain positive and highly significant.

The same holds for the controls of firm characteristics *Log(Total Assets (MV))* and *Pre-Invest Profit/BV*. We observe an important change in the coefficient of the interaction term (*Residual*Fin Constr (cont)*). The coefficient not only becomes insignificant, but its magnitude is now smaller (-0.682 compared to -1.430 previously). The pattern is similar when we use the *CSR Strengths* as dependent variable. For the regression with *CSR Weaknesses* we continue to observe insignificant results. We compare the results to Table 5.4 columns (2) and (4).

The above results indicate the importance of the measure of financial constraints used to conduct the econometric analysis. We further investigate the source of the differences. As we employ the continuous measure of financing constraints based on the SA index, we can construct a scatter plot relating the SA index to the WW index. Figure 6.2 depicts this relationship.

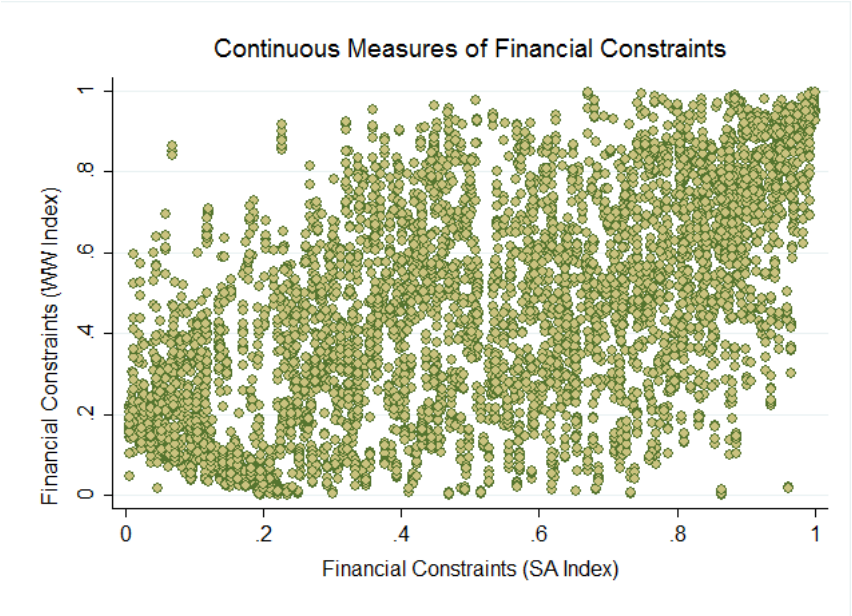
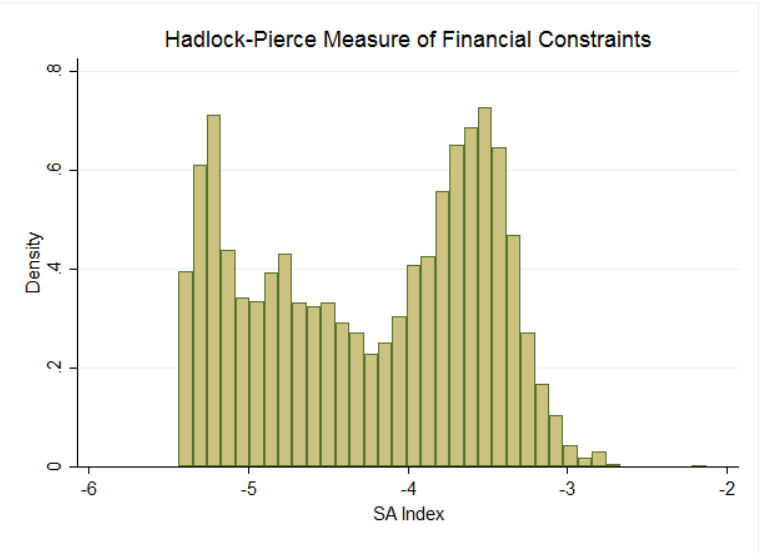


Figure 6.2: Scatter plot of SA and WW index

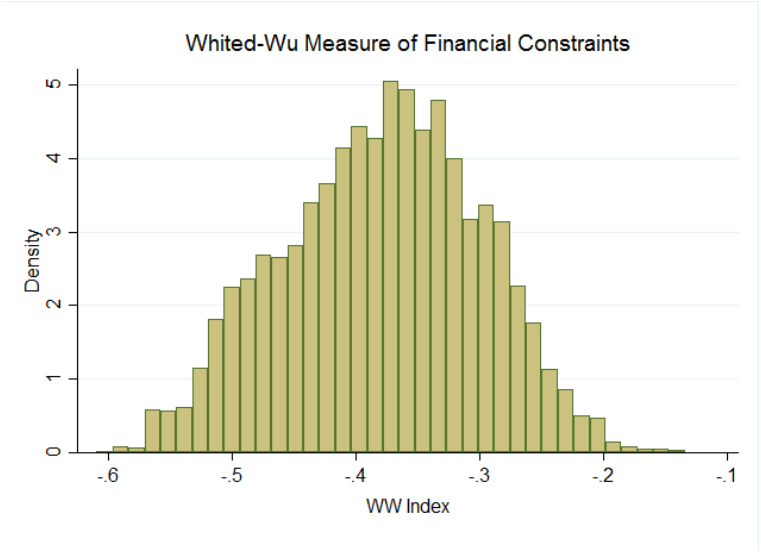
The relationship between the two indexes is not a one-to-one as the observations do not lie on a straight line from [0,0] to [1,1]. Observations crowd in the two extremes, however, as we move away from the corners there seems to be no clear relationship between the two measures of financial constraints. Therefore, Figure 6.2 suggests that the two indexes have differently categorized a large part of the

sample. This provides an explanation for the change in our results when exchanging the WW index with the SA index.

Figures 6.3 a) and b) show the marginal distributions of the SA and WW indexes. The figures indicate that the two indexes have differently shaped distributions.



(a) Distribution of SA index



(b) Distribution of WW index

Figure 6.3: Measures of financial constraints: Data distribution

The WW index appears to be almost normally distributed with fewer observations in the extremes than in the middle. However, the SA index appears to follow a "U-shaped" distribution, putting more observations to the extremes. Intuitively,

one would expect most observations to be in the middle instead of being crowded out at the ends as it is unlikely for the majority of the sample to be either fully constrained or unconstrained. The WW index meets our expectations for the shape of the distribution, while the SA index does not. A major drawback of the SA index is that it only takes into account firms' age and size, classifying younger firms as constrained and older firms as unconstrained. This issue is illustrated in Figures 6.4 and 6.5.

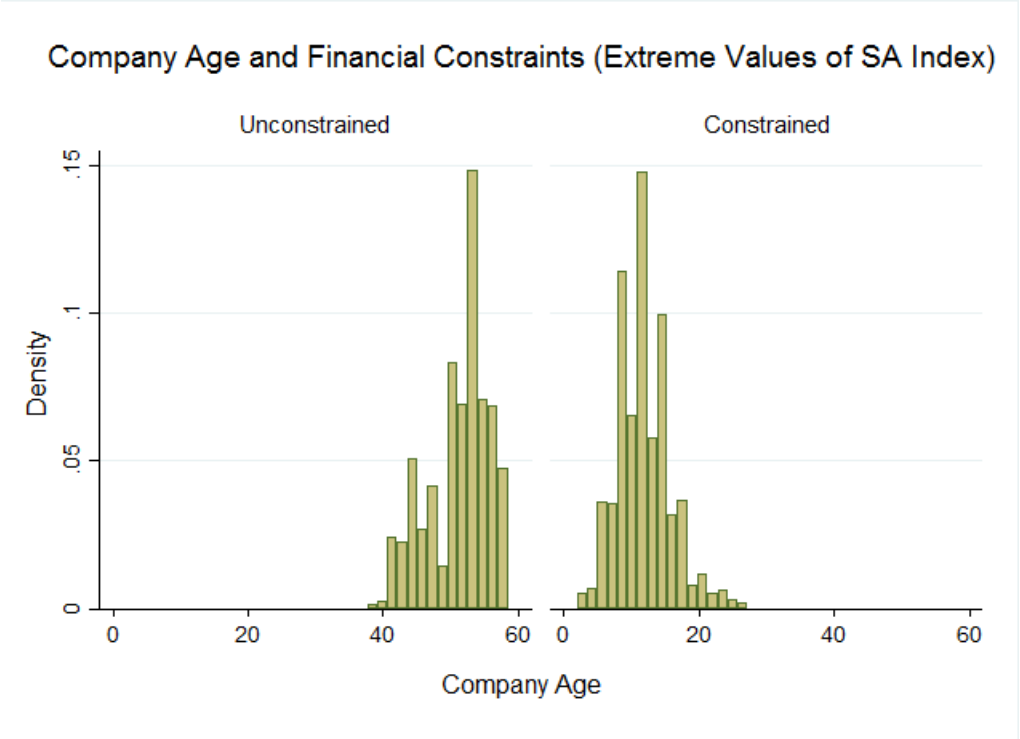


Figure 6.4: Company age for unconstrained and constrained firms (SA index)

The SA index clearly associates age with level of financial constraints. This could be problematic, since it is highly unlikely that age is the sole factor determining the level of financial constraints for firms. The WW index still classifies older firms as unconstrained more often than young firms. However the index appears less dependent on the age of the firms.

In summary, our results remain significant to the use of the extreme measure of financial constraints (*Fin Constr (0/1)*). Using the alternative measure of financial constraints, the SA index, we still have significant results for the unconstrained

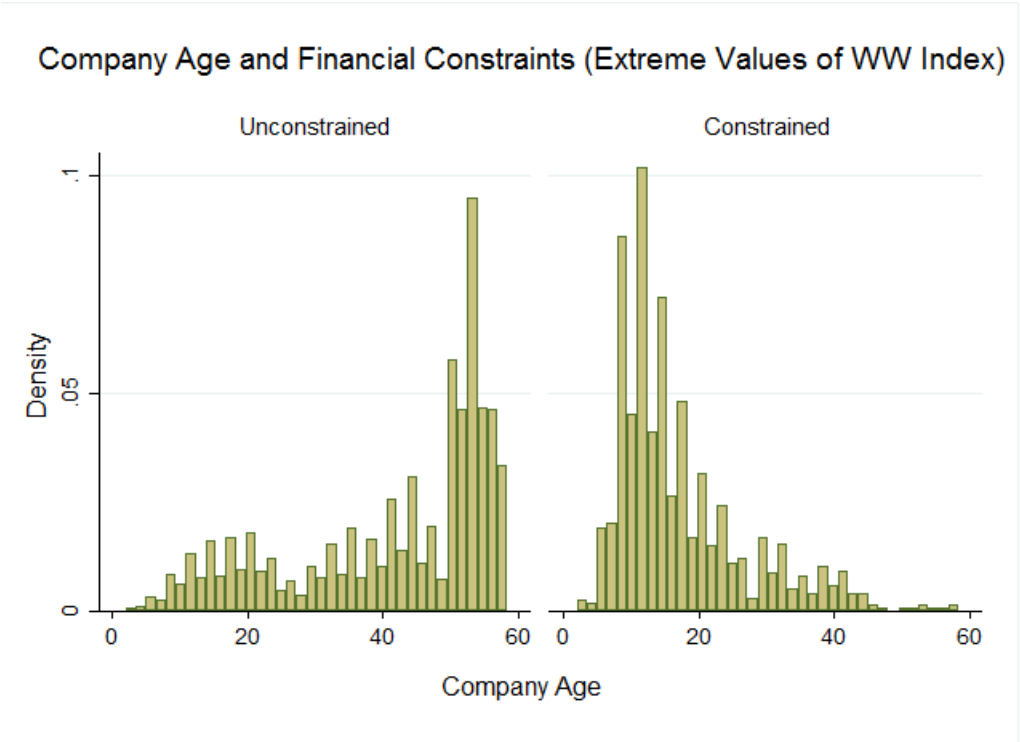


Figure 6.5: Company age for unconstrained and constrained firms (WW index)

firms. The constrained firms, however, appear sensitive to this change of measure. Thus, our results show the importance of selecting a rigorous and multidimensional measure of financial constraints. Employing a more simple measure, such as the SA index, can significantly alter the results of an econometric investigation. In our case, the SA index could very well be substituted with a dummy classifying older firms as unconstrained and younger firms as constrained. These results show further support for using the WW index as a measure of firm financing constraints.

6.3 Placebo Test

To verify that our results capture the effect of the Act and not other unobserved factors, we conduct a placebo test. To do so, we impose an artificial shock year in a period before the actual shock. In our case, we set the year of the AJCA passage to be in 2002.

The rationale behind placebo tests is to verify that we cannot replicate our results

once we artificially assign the year of the AJCA. To construct our control variables and the predicted probability of repatriation we follow the same procedure as in our main estimation with the pre-treatment year now being 2001, instead of 2001-2003. Similarly, the post-treatment years are now 2002 and 2003 as opposed to 2004-2007. First, we conduct the placebo test comparing repatriating to non-repatriating firms. Second, we include the interaction term (*Residual*Fin Constr (cont)*) to compare financially constrained and unconstrained firms.

Table 6.4: Placebo test for *Total CSR*, *CSR Strengths* and *CSR Weaknesses*

	(1)	(2)	(3)
	Total CSR	CSR Strengths	CSR Weaknesses
Pr(AJCA)	0.733**	0.641***	-0.091
	(0.30)	(0.24)	(0.20)
Residual	0.073	0.001	-0.072
	(0.16)	(0.14)	(0.11)
Log(Total Assets (MV))	0.016	-0.058	-0.074
	(0.23)	(0.16)	(0.16)
MVA/BVA	0.057	-0.029	-0.086
	(0.07)	(0.05)	(0.06)
Pre-Invest Profit/BVA	-0.373	-0.217	0.157
	(1.25)	(0.79)	(0.85)
Observations	1399	1399	1399

Clustered standard errors in parentheses

* p<0.1, ** p<0.05, *** p<0.01

Table 6.4 shows the results of the placebo test for *Total CSR*, *CSR Strengths* and *CSR Weaknesses*. The probability of repatriation (*Pr(AJCA)*) is significant in the first two columns, however with half the magnitude from the previous estimations (Table 5.2 column (3); Table 5.4 columns (1) and (3)). This means that firms that are more likely to repatriate, usually firms that are larger and more profitable, have higher *Total CSR* and *CSR Strengths*. It is important to keep in mind that

Pr(AJCA) solely captures the incentive for firms to repatriate and not the actual decision to repatriate. Thus the coefficient is likely to be capturing a static difference between these groups. Moving on to the coefficient on *Residual*, which is the variable of interest, we see that the results are highly insignificant, suggesting that our DiD estimation is robust and we are not capturing the effect of anything but the Act.

Table 6.5: Placebo test for T*otal CSR*, *CSR Strengths*, *CSR Weaknesses* and financial constraints

	(1)	(2)	(3)
	Total CSR	CSR Strengths	CSR Weaknesses
Pr(AJCA)	0.736**	0.647***	-0.089
	(0.30)	(0.24)	(0.20)
Residual	0.283	0.220	-0.063
	(0.28)	(0.22)	(0.22)
Residual*Fin Constr (cont)	-0.676	-0.703	-0.027
	(0.63)	(0.49)	(0.48)
Log(Total Assets (MV))	0.005	-0.069	-0.074
	(0.23)	(0.15)	(0.16)
MVA/BVA	0.063	-0.022	-0.085
	(0.07)	(0.05)	(0.05)
Pre-Invest Profit/BVA	-0.342	-0.187	0.155
	(1.25)	(0.80)	(0.86)
Observations	1396	1396	1396

Clustered standard errors in parentheses

* p<0.1, ** p<0.05, *** p<0.01

Next, we interact *Residual* with the continuous measure of financial constraints, *Fin Constr (cont)*. The results listed in Table 6.5 show a similar pattern as in the previous placebo test. The coefficient on *Pr(AJCA)* is still significant. However, the coefficients on both *Residual* and the interaction term become highly insignificant. The results indicate that there is no effect of the Act on *Total CSR*, *CSR Strength* and *CSR Weaknesses* for constrained and unconstrained firms. We interpret these findings as support for our estimation approach and consequent results.

7 Discussion

This thesis investigated the causal link between firm financial performance and CSR through lower cost of internal finance. Our baseline estimation and subsequent results provide support for the existence of such casual relationship. The results are economically and statistically significant, showing that firms increase their CSR when their financial constraints are loosened. This finding is in line with Cheng et al. (2014) who establish a positive relationship between CSR and firm financial performance. However, our approach differs in that we test and find causal evidence of the reverse relationship. Establishing causality and the direction of the link is imperative to our understanding of why firms engage in CSR. For example, we find the same correlation as in Cheng et al. (2014), but our theoretical foundation and explanation differs significantly. Perhaps, the most important difference is that their explanation is unidirectional, firms with higher CSR are less financially constrained, while ours is multidirectional, it depends on the level of firm financial constraints.

In the Background section of this thesis we presented our argument that depending on the initial level of financial constraints, we expect different behavior among firms. We find support that constrained firms decrease their CSR, as a result of improved financial conditions. This is in line with our hypothesis based on signaling theory. Since previously constrained firms are no longer solely relying on external financing, they no longer need to incur the cost of signaling through CSR.

Our main measure of CSR is comprised of strengths and weaknesses. Thus a decrease in *Total CSR* can be driven by either a decrease in strengths or an increase in weaknesses. When we decompose our CSR measure to strengths and weaknesses, we find that the decrease in CSR for the constrained firms is driven by a decrease in firms' strengths. We interpret this as the active decisions of firms to decrease their investment in CSR after a reduction in their costs of finance.

While we can explain the behavior of constrained repatriating firms through the theory of signaling, our prediction for the behavior of the unconstrained firms is not supported by the data. Following basic financial theory we would expect that un-

constrained firms invest into CSR at an optimal level already. Therefore, improved access to financing should not lead to a change in their behavior. However, our results show that unconstrained firms increase their CSR as a consequence of the cash windfall. Similar to the constrained firms, the result is driven by the *CSR Strengths* and not by *CSR Weaknesses*, indicating an active choice of the firm to increase CSR. The volunatry increase in CSR can be considered an overinvestment and thus an agency problem. Therefore, we test whether long-term sustainable investments increase together with firms' CSR. Following Souder and Bromiley (2012) and DesJardine (2015) we constructed a *New Asset Durability* measure that captures long term sustainable investments. The construction of this measure is presented in Appendix F. We found no evidence of an increase in long-term sustainable investments for unconstrained firms. The result is also in line with the findings of Faulkender and Petersen (2012), who show that financially unconstrained firms do not alter their investments as a result of the eased financing constraints.

These results are in line with the argument we provided in the Background section, namely that unconstrained firms are already at optimum. The lack of an effect of the shock to firms' internal cost of financing on tangible investments, as measured by *New Asset Durability*, indicates that overinvestment does not take place.

8 Conclusion

In this paper we make use of the exogenous variation in firms' cost of internal financing, induced by the passage of the AJCA in 2004. The passage of the Act allows us to test for a causal link between firm financial performance and CSR investments. Our empirical specification and use of the DiD methodology allowed us to overcome the issues of endogeneity (unobserved heterogeneity and reverse causality) that often plague research in CSR. Further, to account for the self selection bias that stems from the endogenous decision of firms to repatriate, we used an instrumental variable approach and the predicted probability of firms to repatriate as an instrument. We

later used this instrument to correctly specify and compare different groups of firms with one another.

Our results clearly indicate a causal relationship between firms' financial performance and investments in CSR. We also show that the effect of access to cheaper financing differs based on the level of financial constraints firms faced before the reduction. Firms that were unconstrained increased their investments into CSR, whereas firms that were constrained decreased their CSR investments. These findings remain robust to different specifications of our financial constraints measure based on the WW index. When using a measure of financial constraints based on the SA index, we still have robust results for the unconstrained firms. However, the results for the constrained firms become insignificant. We explain this with the difference in the categorization of firms according to the WW and SA indexes. To further test the validity of our experiment we conducted placebo tests, which showed that the effect of the Act is non-existent in the years preceding the actual passage of the Act.

We interpret our results for the constrained firms as being broadly consistent with the strategic use of CSR as a means of signaling good relations with stakeholders and low firm-risk. Previously constrained firms decreased their CSR in the period post the Act, as their need for signaling diminished. The study revealed a behavior of the unconstrained firms inconsistent with finance and economic theory. This is an interesting topic for future research, as the results could be due to a strategic use of CSR from unconstrained firms (e.g. insurance-like properties of CSR) or due to agency problems.

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Appendices

A Kaplan-Zingales (KZ) Index

The KZ index represents a linear combination of five accounting variables, constructed from Compustat: 1) cash flow to lagged total assets (CF/AT), 2) cash dividends to lagged total assets (DIV/AT), 3) cash balances to lagged total assets ($CASH/AT$), 4) leverage ($DEBT$) , 5)Q as the market value of equity plus total assets and minus book value of common equity to total assets. The index is constructed as follows:

$$\begin{aligned} KZindex &= -1.002 * CF_{it}/AT_{it-1} - 39.368 * DIV_{it}/AT_{it-1} - 1.315 * CASH_{it}/AT_{it-1} \\ &\quad +3.139 * DEBT_{it} + 0.283 * Q_{it} \end{aligned} \tag{A.1}$$

B An Illustrative Example of the DiD Estimation

Following Faulkender and Petersen (2012), we present an example to provide further understanding of the suggested empirical strategy. We have two firms with all values being the same, however, one firm repatriates the other does not. Thus β_1 captures the change in CSR from loosened financial constraints, while probability of repatriation under the act and firm characteristics are kept constant constant.

$$\begin{aligned} CSR(Repatriating)_{it} &= \beta_0 Pr(AJCA)_{it} + \beta_1[1 - Pr(AJCA)_{it}] + \beta_2 X_{it} \\ CSR(Non - Repatriating)_{it} &= \beta_0 Pr(AJCA)_{it} + \beta_1[0 - Pr(AJCA)_{it}] + \beta_2 X_{it} \\ \Delta CSR_{it} &= \beta_1([1 - Pr(AJCA)_{it}] - [0 - Pr(AJCA)_{it}]) \\ \Delta CSR_{it} &= \beta_1 \end{aligned}$$

C Results: Financial Constraints Cutoff Specification (WW Index)

Table C.1: *CSR Strengths*, *CSR Weaknesses* and financial constraints (cutoff)

	(1) CSR Strengths	(2) CSR Strengths	(3) CSR Weaknesses	(4) CSR Weaknesses
Pr(AJCA)	1.949***	1.718***	-0.118	-0.245
	(0.30)	(0.33)	(0.23)	(0.25)
Residual	0.705***	0.732***	-0.128	-0.113
	(0.17)	(0.17)	(0.16)	(0.16)
Residual*Fin Constr (cutoff)	-0.999***	-1.099***	-0.047	-0.102
	(0.27)	(0.28)	(0.25)	(0.25)
Log(Total Assets (MV))	-0.201*	-0.202*	0.162*	0.161*
	(0.11)	(0.11)	(0.09)	(0.09)
MVA/BVA	-0.036	-0.047	-0.043	-0.049
	(0.04)	(0.04)	(0.04)	(0.04)
Pre-Invest Profit/BVA	0.827**	0.852**	-0.487	-0.473
	(0.41)	(0.41)	(0.42)	(0.42)
Fin. Constr. Post (cutoff)		-0.339**		-0.187
		(0.15)		(0.15)
Observations	5331	5331	5331	5331

Clustered standard errors in parentheses

* p<0.1, ** p<0.05, *** p<0.01

D Results: Individual Components w\o Financial Constraints

Table D.1: Individual components of *Total CSR* for repatriating and non-repatriating firms

	(1)	(2)	(3)	(4)	(5)	(6)
	Corp Governance	Community	Environment	Product	Employee	Diversity
Pr(AJCA)	0.511***	0.133	0.402***	-0.028	0.344**	0.643***
	(0.13)	(0.10)	(0.12)	(0.11)	(0.15)	(0.14)
Residual	0.175***	0.062	0.178***	-0.041	0.025	0.146**
	(0.06)	(0.04)	(0.06)	(0.05)	(0.07)	(0.07)
Log(Total Assets (MV))	-0.108**	-0.026	-0.214***	-0.002	0.149**	-0.164**
	(0.05)	(0.04)	(0.05)	(0.04)	(0.07)	(0.06)
MVA/BVA	0.020	-0.004	0.032*	0.027	-0.101***	0.030
	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)
Pre-Invest Profit/BVA	-0.030	0.102	0.147	-0.021	0.993***	0.078
	(0.22)	(0.13)	(0.16)	(0.14)	(0.31)	(0.25)
Observations	5331	5331	5331	5331	5331	5331

Clustered standard errors in parentheses

* p<0.1, ** p<0.05, *** p<0.01

E Results: Individual Components with Financial Constraints (WW Index)

Table E.1: Individual components of *Total CSR* and financial constraints (cutoff)

	(1) Corp Governance	(2) Environment	(3) Product	(4) Employee	(5) Diversity	(6) Community
Pr(AJCA)	0.380***	0.456***	0.049	0.488***	0.418***	0.171
	(0.14)	(0.12)	(0.12)	(0.16)	(0.16)	(0.12)
Residual	0.224***	0.309***	-0.054	0.061	0.211**	0.094
	(0.08)	(0.08)	(0.07)	(0.10)	(0.09)	(0.07)
Residual*Fin Constr (cutoff)	-0.168	-0.434***	0.049	-0.113	-0.224	-0.106
	(0.13)	(0.11)	(0.11)	(0.19)	(0.16)	(0.09)
Log(Total Assets (MV))	-0.109**	-0.213***	-0.001	0.150**	-0.164**	-0.025
	(0.05)	(0.05)	(0.04)	(0.07)	(0.06)	(0.04)
MVA/BVA	0.014	0.034*	0.031*	-0.094***	0.019	-0.002
	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)	(0.02)
Pre-Invest Profit/BVA	-0.010	0.165	-0.030	0.987***	0.108	0.104
	(0.22)	(0.16)	(0.14)	(0.31)	(0.24)	(0.14)
Fin. Constr. Post (cutoff)	-0.202***	0.036	0.116**	0.195**	-0.342***	0.045
	(0.07)	(0.06)	(0.06)	(0.10)	(0.10)	(0.06)
Observations	5331	5331	5331	5331	5331	5331

Clustered standard errors in parentheses

* p<0.1, ** p<0.05, *** p<0.01

F New Asset Durability Measure

We followed Souder and Bromiley (2012) and DesJardine (2015) and constructed a measure of long term sustainable investments - *New Asset Durability*. The measure is calculated in the following steps:

Step 1:

We decompose firms depreciation expense into depreciation for assets carried forward and depreciation for newly acquired asses. We can find the assets carried forward as follows:

$$CarryForwardPPE_{it} = GrossPPE_{it} - CAPEX_{it} \quad \text{(F.1)}$$

Step 2:

Calculate the depreciation expense attributable to *CarryForwardPPE* as follows:

$$CarryForwardDeprExp_{it} = CarryForwardPPE_{it} * DeprRate_{i,t-1} \quad \text{(F.2)}$$

Step 3:

Find the depreciation on newly acquired assets as follows:

$$NewCAPXDeprExp_{it} = DeprExp - CarryForwardDeprExp_{it} \quad \text{(F.3)}$$

Step 4:

Calculate the average expected life of the capital expenditure acquired in year t.

$$NewAssetDurability_{it} = CAPEX_{it}/NewCAPXDeprExp_{it} \quad \text{(F.4)}$$