Brand equity and mitigation of agency risk

DRAFT OUTLINE

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Abstract

We address agency issues associated with brand equity. High brand equity affects firm value not only through improving returns and altering risk of future cash flow but also through reducing managers' incentives to commit manipulation behaviors. Managers of high brand value firms are likely to have greater incentives to protect their brand value and maintain higher accounting quality and will be less likely to engage in earnings management. In contrast, managers of low brand equity firms seem to believe that they have too little brand reputation to care about when evaluating expected costs of engaging in earnings management. Our results show a negative association between brand equity and discretionary accruals. Our results also show that low brand equity firms' managers tend to participate more in real activities management through cutting their discretionary expenses in the form of advertising, research and development as well as sales, general and administrative costs. This paper adds a new piece to the puzzle of the impact of marketing activities on firm value.

Brand equity and mitigation of agency risk

1. Introduction

The marketing literature has begun to recognize that brand equity can increase firm value. Aaker and Jacobson (1994) document a positive significant relation between brand value and stock returns, where Lane and Jacobson (1995) document a positive relation between brand extension announcement and abnormal stock returns. Kim, Mahajan and Srivastava (1995) document a strong significant relation between stock prices and the net present value of the cash flows attributable to growth in the number of subscribers (in the cellular telephone industry).

Srivastava and Colleagues (1997) document that brand equity can also increase firm value by decreasing financial risk and thereby lowering cost of capital. Madden, Fehle and Fournier (2006) find a negative relation between brand value and systematic risk in a portfolio of stocks. Rego, Billett and Morgan (2009) find that consumer based brand equity is associated with firm risk. Yelen and Larkin (2013) show that positive consumer attitudes about a firm's products allow that firms to have more leverage and lower levels of cash holdings.

We extend this literature by investigating whether companies with valuable brands are more likely to have better accounting quality and are less likely to engage in earnings manipulations. We believe that we are the first to examine the possibility that brand equity may enhance firm value by fostering better corporate governance.

The accounting literature has documented that managers manipulate earnings and stock prices. Some focus on accruals management (Jones, 1991; Dechow, Sloan and Sweeny, 1995; Defond and Jiambalvo, 1994; Guay, Kothari and Watts, 1996; Kothari, Leone, and Wasley, 2005). Others focus on real activities management. Roychowdhury (2006) shows that managers

manage earnings through real activities such as excessive price discounts, lenient credit terms, discretionary expenses cuts and over production.[1]

Regardless of the methods employed, earnings management negatively affects firm value, via increasing cost of capital and litigation risks (DuCharme, Malatesta, and Sefcik, 2004 and Francis, Nanda, and Olsson, 2008). As noted by Verbruggen, Christaens and Milis (2008), because companies involved in earnings management risk losing their reputations, they will only participate in earnings management if the benefits are higher than the costs. Also, boards of directors, creditors and other stakeholders may monitor firms with higher brand equity more closely. Lara, Osma, and Penalva (2009) find that stronger governance firms exhibit a higher degree of accounting conservatism and avoid manipulating earnings. Form the agency theory perspective, we posit that brand equity affects the value of the firm reducing the likelihood of self-interested managers' participation in manipulative behaviors and using accounting numbers at the expense of shareholders' interests.

We investigate whether companies with valuable brands are less likely to engage in earnings management. We derive our measure of brand equity following the methodology offered by Simon and Sullivan (1993). Following the accounting literature, we use absolute discretionary accruals as a proxy for accruals-based earnings management, and three measures, namely, abnormal cash flows, abnormal discretionary expenses, and abnormal production costs as proxies for real earnings management.

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[1] Other form of real activities management include reduced or delayed research and development (R&D) expenditures (Baber, Fairfield, and Haggard, 1991; Bushee, 1998; Bens Nagar, and Wong, 2002), overproduction (Thomas and Zhang, 2002), timing of asset sales (Bartov, 1993), and sales manipulation (Roychowdhury, 2006). Fudenberg and Tirole (1995), Healy and Wahlen (1999) and Dechow and Skinner (2000) show that managers manage earnings through sales acceleration and shipment schedules changes. Kedia and Philippon (2009) model the economic consequences of earnings management and fraudulent accounting. They show that manipulative firms over-invest and over-hire during misreporting periods in order to pool with high productivity firms. These authors find when these activities are detected these firms fire their excess employees and sell that excess plant and equipment.

2. Literature review and hypothesis development

2.1. Brand equity

Brand equity is measured in three ways in the marketing literature. In the consumer based approach (Aaker 1991, Feldwick 1996, and 1993), brand equity is seen as a set of cognitive associations and mental representation in consumers' minds. In the product-based approach (Aaker, 1991, and Ailawadi et al., 2003), brand equity is the price or revenue premium of a specific firm compared to a benchmark competitor. Simon and Sullivan (1993) develop a financial-based measure of brand equity based on the market value of a firm related to its book value. In our study we use the latter method to estimate the value of brand equity due to its important features allowing us to separate brand equity from the other assets of the firm in a forward-looking perspective and incorporate new information available in the market.

Prior studies have documented a positive effect of brand value on firm value. For example, Aaker and Jacobson (1994) show that high brand equity leads to higher stock returns. Bharadwaj, Tuli, and Bonfrer (2011) find that brand quality increases shareholders wealth and that unanticipated changes in brand quality are positively related to stock returns and negatively related to changes in idiosyncratic risk. Larkin (2013) shows that the market value of the brands owned by firms in the Standard and Poor's (S&P) 500 is about 30% of their market capitalization. This author finds that positive consumer attitudes towards a firm's products decrease the volatility of its cash flow and provides additional net debt capacity, measured by higher leverage and lower cash holdings. Stahl, Heitmann, Lehmann, and Neslin, (2012) document that brand equity has a significant predictable impact on customer acquisition, retention, and profitability. Using cross sectional data, Belu, Len, and Vitorino (2013) show that firms with low brand equity have higher average stock returns than firms with high brand equity.

Overall, these studies argue that brand equity may affect firm value via different channels. Our study contributes to this line of literature by introducing a new channel from an agency perspective and suggest that brand value enhances firm value by improving accounting quality and decreasing earnings manipulations.

2.2. Earnings management

Healey and Wahlen (1999) define earnings management as:

> *"managers' use of judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting practices."*

Earnings management can lead to a damaged reputation and litigation, and increase cost of financing (DuCharme, Malatesta, and Sefcik, 2004 and Francis, Nanda, and Olsson, 2008). For a manager to take this risk, associated benefits should outweigh costs. Earnings management is most likely to occur among managers who can significantly benefit from earnings management and those who believe they have nothing to lose. One example of the later group is managers of firms with low value brands. Those managers already have little product reputation (brand value) to worry about when evaluating risks or reputation damage.

The earnings management literature identifies five incentives for engaging in earnings management: meeting analysts expectations (Bartov et al., 2002; Matsunaga and Parks, 2001; and Payne and Robb, 2000); signaling private information (Rosner, 2003; Louis and Robinson, 2005; and Tucker and Zarowin, 2006); reducing political sensitivity (Han and Wang, 1998; (Haw et al., 2005; and Johnson and Rock, 2005); polishing the CEO (Godfrey et al., 2003; and Reitenga and Tearney, 2003); and internal motives (Leone and Rock, 2002; and Murphy, 2001).

These motives exist in almost every firm, however, managers are restricted from freely managing earnings by external constraints such as the Securities and Exchange Commission and auditors, and by their own firm characteristics. Klein (2002) shows that firms with independent boards of directors and audit committees have lower abnormal accruals. Kim and Yi (2006) find that having dispersed ownership, being part of business group and being a publicly traded firm increase firm's engagement in earnings management. Lara, Osma, and Penalva (2009) find that stronger governance firms exhibit a higher degree of accounting conservatism and avoid manipulating earnings.

We contribute to this literature by presenting brand equity as an additional firm characteristic that affects earnings management. Brand equity does not affect earnings management through restricting manager's discretion. Instead, we conjecture that brand equity affects manager's incentives to participate in earnings management and monitoring by lenders, the Board of Directors and other stakeholders.

Managers' use of their discretion on financial reporting is not a stand-alone technique to manage earnings. Recent studies of managers finds that managers take certain actions to manage earnings upwards or downward in what is called real activities management. Roychowdhury (2006) defines real activities management as "management actions that deviate from normal business practices, under taken with the primary objective of meeting certain thresholds." Roychowdhury (2006) shows that managers manage earnings through excessive price discounts, lenient credit terms, discretionary expenses cuts and over production. Managers delay or reduce (R&D) research and development expenditures as documented by prior studies (Baber, Fairfield, and Haggard, 1991; Bushee, 1998; Bens Nagar, and Wong, 2002). Some managers engage in

overproduction (Thomas and Zhang, 2002), sales manipulation (Roychowdhury, 2006), or timing of asset sales (Bartov, 1993) to meet or beat earnings target estimates.

Managing earnings through discretionary expenses is of a special interest to our research question. High brand equity firms particularly those which provide basic products or are in a highly competitive markets cannot afford discretionary expenses cuts while still maintaining their market positions. They need continuous research and development as well as extensive advertising campaigns. Low brand equity firms are not under the same pressure to keep certain level of advertising and / or research and development. Managers of low brand equity firms are expected then to respond to earnings threshold pressure by cutting their discretionary expenses.

2.3. Hypotheses development

Building brand equity generally demands significant resources and complex processes, whereas loss of brand value may be difficult to repair. Companies with higher brand equity are likely to have greater incentives to maintain their brand value. These firms are also more likely to receive greater media coverage and public scrutiny when they disclose accounting problems (Miller, 2006). Therefore we argue that high brand value firms are likely to have better accounting quality in order to avoid public criticisms. We expect managers with more valuable brands to be keener to protect their brands and reputation making high brand equity firms less likely to participate in manipulative accounting practices. Based on these predictions we can develop our hypotheses as following:

> *H1: High brand equity firms have lower abnormal discretionary accruals.*
> *H2: High brand equity firms have lower abnormal discretionary expenses.*
> *H3: High brand equity firms have lower abnormal cash flows.*
> *H4: High brand equity firms are less likely to restate earnings.*

3. Data and methodology

3.1. Data

We describe our data and variables and explain how we estimate brand equity, which is our main focus, discretionary accruals, real activities management, and accounting restatements. We start with all Compustat active and research firms for 1980-2013. We obtain all of our balance sheet and income statement data from Compustat.

One step in our estimation of brand equity involves data for the total number of patents granted for each firm for each year. We obtain these data from the National Bureau of Economic Research (NBER). For US firms for 1976-2006, NBER complies data on individual patents, including the identity of the applying entity and the grant year. We use these data in our calculation of to calculate the

We retrieve earnings restatements data from Audit Analytics for 2000-2006 to correspond to the period for our patent data.

Table 1 shows descriptive statistics. For the entire sample, the mean brand equity value is about 19% of total assets.

3.2. Brand equity

We measure *Brand Equity* using the approach of Simon and Sullivan (1993) because this approach allows us to measure brand equity at the company level rather than the brand level. Hence, we are not restricted to firms that have only one brand. Also, we are able to obtain brand values for each firm for each year so that we can take change in a firm's brand equity over time into account. These yearly values correspond more closely to our earnings management and restatements data. Simon and Sullivan (1993) split a company's assets into tangible and

intangible components and then carve out the brand value from the intangible asset component. Specifically, we begin by noting that:

$$V_I = V^* - V_T \qquad (1)$$

where V^* is the market value of the firm, V_T is replacement cost of the firm's assets, and V_I is the value of intangible assets. We the approach of Chung and Pruitt (1994) to estimate V^* as the summation of market value of common stocks, book value of preferred stocks, book value of long term debts, book value of short term liabilities net of short term assets.

Theoretically, intangible assets could be decomposed as follows:

$$V_I = (V_{b1} + V_{b2}) + V_{nb} + V_{ind} \qquad (2)$$

where V_{b1} is the value of the demand enhancing component of brand equity, and V_{b2} is the value of the expected marketing cost savings that result from established brand equity. The summation of V_{b1} and V_{b2} is our variable of interest 'brand equity.' V_{nb} is the value of non-brand factors that facilitate cost reduction such as patents and R&D. V_{ind} is the value of industry level factors that create monopolistic profits such as regulation.

The next step is to estimate different components of intangible assets based on their determinants. V_{b1} is determined by factors that affect brand perceived quality including current and lagged advertising expenses as well as firm age as a proxy for loyalty and awareness. V_{b2} and V_{nb} are components of intangible assets that influence market share. V_{b2} value is based on its marketing cost advantage, and, hence, is determined by firm's order of entry to its market and advertising expenditures relative to competitors. V_{nb} represents the know- how that firm posses and hence is determined by firm's share of patents relative to competitors and firm's share of R&D expenditures. V_{ind} is the value of industry wide factors that permits monopoly and is determined by market concentration and regulatory environment.

We estimate the following equation for each industry to separate market share attributable to brand factors (V_{b2}) from market share attributable to non-brand factors (V_{nb})

$$S = b_0 + b_1\ ord + b_2\ adshr + b_3\ adshr_{t-1} + b_4\ patshr + b_5\ rndshr + \varepsilon \qquad (3)$$

where S is the firm's market share calculated as firm sales divided by industry sales[2]. Ord is the firm's relative order of entry, which is the order in which the firm entered its major product market divided by the number of firms in that market. $Adshr$ is advertising share calculated as advertising expenses divided by total advertising expenditures of all competitors in the same industry. $Patshr$ is patent share calculated as the number of patents owned by the firm divided by the number of patents owned by competitors in the same industry. $rndshr$ is the firm's R&D stock divided by total stock of R&D of competitors in the same industry.

Coefficient estimates of Equation (5) are used to estimate the market share attributable to V_{b2} and V_{nb} for each firm-year observation as follows:

$$E\ (S_{b2}) = \widehat{b_1}\ ord + \ \widehat{b_2}\ adshr + \widehat{b_3}\ adshr_{t-1} \qquad (4)$$

and, $$E\ (S_{nb}) = \hat{b}_0 + \hat{b}_4\ patshr + \ \hat{b}_5\ rndshr + \hat{\varepsilon} \qquad (5)$$

Putting all components of intangible assets together, we estimate the following equation for each 2 digit SIC code:

$$V_I = \beta_0 + \beta_1\ adv + \beta_2\ adv_{t-1} + \beta_3\ age + \beta_4\ E(S_{b2}) + \beta_5\ E(S_{nb}) + \beta_6\ CR4 + \beta_7\ Reg + \gamma \qquad (6)$$

where V_I is calculated following Equation (3) .adv is firm's advertising expenses. $E(S_{b2})$ and $E(S_{nb})$ are defined by Equations (6) and (7), respectively. $CR4$ is the four firm concentration ratio calculated as total sales accounted for by largest four firms in the industry divided by

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[2] Industry is defined according to 3 digit SIC code.

industry sales. *Reg* is an indicator variable that takes the value of "1" if the firm belongs to regulated industry and "0" otherwise.

Finally, we use estimates from Equation (8) to calculate each firm's brand equity as follows:

$$\hat{V}_b = \hat{\beta}_1\, adv + \hat{\beta}_2\, adv_{t-1} + \hat{\beta}_3\, age + \hat{\beta}_4\, E(S_{b2}) \tag{7}$$

The LHS of equation 7 is our measure of *Brand Equity*.

3.3. Abnormal discretionary accruals (*ADE*)

We use discretionary accruals as a proxy for accrual-based earnings management. We estimate discretionary accruals using the modified Jones model (1991) as described by Dechow, Sloan and Sweeney (1995). For each two-digit SIC code and each specific calendar year, we estimate the following equation:

$$T\_ACR_{i,t} = \beta_1\, 1/TA_{i,t-1} + \beta_2\, (\Delta\, SALE_{i,t} - \Delta AR_{i,t}) + \beta_3 PPE_{i,t} + \varepsilon_{i,t} \tag{8}$$

where T_ACR is the total accruals. TA_{t-1} is the lag value of total assets. $\Delta SALE$ is the change in sales. ΔAR is the change in accounts receivables. *PPE* is the lagged value of property, plant, and equipment. ε is a random error term. Following the literature we scale all variables by total assets at the beginning of the year (which is the end of the precious year). We calculate non-discretionary accruals for each firm-year observation as the fitted values and the discretionary accruals as the residuals in Equation 1. Following the methodology of the accounting literature, we use absolute discretionary accruals as our measure of earnings manipulation.

To calculate total accruals ($T\_ACR_{i,t}$) we follow Teoh, Welch and Wong (1998a, 1998b) and estimate the following equation:

$$T\_ACR \equiv \Delta[AR + INV + OTHER\_CA] - \Delta[AP + TAX\_PAY + OTHER\_CL] \tag{9}$$

where *AR* is accounts receivables (Compustat data item 2). *INV* is total inventories (Compustat data item 3). *OTHER_CA* is total other current assets (Compustat data item 68). *AP* is accounts payable (Compustat data item 70). *TAX_PAY* is taxes payable (Compustat data item 71). *OTHER_CL* is total other current liabilities (Compustat data item 72).

3.4. Abnormal discretionary expenses (*ADE*)

We estimate our first measure of real activities management using discretionary expenses following Roychowdhury (2006). Roychowdhury defines discretionary expenses as the sum of R&D expenses, advertising expenses, and SG&A expenses. He argues that managers cut these expenses to achieve certain earnings targets. Particularly, for each calendar year and two-digit SIC-code, we estimate the following regression

$$DISEXP_t/A_{t-1} = \alpha_0 + \alpha_1 \, (1/A_{t-1}) + \beta(S_{t-1}/A_{t-1}) + \varepsilon_t \qquad (10)$$

where, $DISEXP_t$ is discretionary expenses for the year t defined above. A_{t-1} is lagged total assets. S_{t-1} is lagged sales. For every firm-year, abnormal discretionary expenses is the actual DISEXP minus the "normal" DISEXP calculated using estimated coefficients from the corresponding industry-year model. We expect that high brand equity will have a positive impact on discretionary expenses suggesting that managers are not using discretionary expenses in order to manage earnings.

4. Empirical tests and results

In this section, we investigate the association between brand equity and earnings management measured by discretionary accruals.

4.1. Correlation analysis

Table 2 presents Pearson correlation coefficients for our study variables. Consistent with H2, our results show significant positive association between brand equity and abnormal discretionary expenses, indicating that the higher the brand equity value of a firm the less the managers engagement in real activities management.

[Please insert Table 2 here]

4.2. Brand equity and discretionary accruals

To formally test the relation between brand equity and earnings management, we follow Hong (2014) and Gong () and run the following model,

$$\textbf{\textit{Abnormal Discretionary Accruals}} = \textbf{\textit{b}}_0 + \textbf{\textit{b}}_1 \textbf{\textit{Brand Equity}} + \textbf{\textit{b}}_3 \textbf{\textit{ROA}}$$

$$+\textbf{\textit{b}}_4 \textbf{\textit{Leverage}} + \textbf{\textit{b}}_6 \textbf{\textit{Size}} + \textbf{\textit{\textepsilon}} \qquad (11)$$

where *Abnormal Discretionary Accruals* is estimated as the residuals from the modified Jones model (1991), *Brand Equity* is estimated as shown in Equation 3 through Equation 9. *ROA* is return on assets calculated as net income divided by total assets. *Leverage* is calculated as total liabilities divided by shares holder's equity. *Size* is calculated as the log of firm's market value. We use the lag values of all the independent value except the asset growth variable. We present our regression results in Table 3.

[Please insert Table 3 here]

Regression results are consistent with our Hypothesis H1 and our preliminary correlation results. After controlling for firm size, growth, profitability and leverage we find significant negative relation between discretionary accruals and brand equity. This coefficient estimate provides strong support to our conjectures that higher brand equity affects accounting practices. Managers of high brand equity firms seem to have additional incentive to avoid accounting frauds and

misconducts. One can argue that brand equity, through altering managerial manipulation incentive, helps aligning managers' interests with those of shareholders which ultimately increase firm value.

4.3. Brand equity and real activities management.

Our second hypothesis states that managers of low brand equity firms tend to participate more in real activities management. To formally test the relation between *Brand Equity* and earnings management, we follow the intuition of Hong 2014 and Gong and estimate the following model,

$$Abnormal\ Discretionary\ Expenses = \ b_0 + \ b_1 Brand\ Equity$$

$$+ \ b_3\ ROA + b_4\ Leverage\ + \ b_6\ Size + \ \varepsilon \tag{12}$$

where abnormal discretionary expenses is estimated as the residuals from Roychowdhury (2006) model.

Brand Equity is estimated as shown in Equations 3 through Equation 9. *ROA* is return on assets calculated as net income divided by total assets. *Leverage* is calculated as total liabilities divided by shares holder's equity. *Size* is calculated as the log of firm's market value. We use the lag values of all the independent value except the asset growth variable. We present our regression results in Table 3.

[Please insert Table 4 here]

Table 4 reports coefficient estimates for the relationship between brand equity and real activities management. Our hypotheses states that low brand equity firms have less brand reputation to lose and hence tend to respond to earnings thresholds by cutting their advertising and/or research and development expenses. Results in Table 4 lend strong support to our hypothesis; brand equity is positively associated with abnormal discretionary accruals. Low

(high) abnormal discretionary expenses indicate cuts (boosts) in advertising, R&D, S, G&A expenses and hence showing more (less) real earnings management. The reported positive relationship between brand equity and discretionary expenses indicate that the higher the value of brand equity, the less the managers' participation in earnings management through real activities.

5. Conclusion

We address agency issues associated with brand equity. High brand equity affects firm value not only through improving returns and altering risk of future cash flow but also through reducing managers' incentives to commit manipulation behaviors. Companies with higher brand equity have greater incentives to maintain their brand value and not engage in accounting manipulations. Managers of low brand equity firms seem to believe that they have too little brand reputation to care about when evaluating expected costs of engaging in earnings management. Our results show a negative association between brand equity and discretionary accruals. Our results also show that low brand equity firms' managers tend to participate more in real activities management through cutting their discretionary expenses in the form of advertising, research and development as well as sales, general and administrative costs. This paper adds a new piece to the puzzle of the impact of marketing activities on firm value.

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Table 1
Descriptive statistics
We present descriptive statistics for *Abnormal Discretionary Expenses; Abnormal Discretionary Accruals*, estimated as the residuals from the modified Jones model (1991); *Abnormal Cash Flow*; *Brand Equity* estimated following Simon and Sullivan (1993), (*ROA*), net income divided by total assets; *Leverage*, total liabilities divided by shares holder's equity; and *Size*, the log of firm's market value. We have values for each of these variables for each firm for the years 1980-2006, We present statistics across firms and years.

	Value	Smallest	Largest		
Abnormal discretionary expense (*ADE*)					
1%	-5.76	-1,744			
5%	-1.19	-1,178			
10%	-0.5843	-1,109			
25%	-0.2247	-1,002		Obs	213,938
50%	-0.0388			Mean	1.27e-16
75%	0.0890		2,196	Std	19.1
90%	0.4720		2,228	Variance	363.9
95%	1.033		2,261	Skewness	87.43
99%	4.78		4,230	Kurtosis	16,816
Abnormal discretionary accruals (*ADA*)					
1%	-3.14	-3,848			
5%	-0.6349	-2,801			
10%	-0.3283	-558.5			
25%	-0.1119	-507.3		Obs	208,084
50%	-0.0108			Mean	-.0416
75%	0.0672		634.0	Std	12.45
90%	0.2739		872.6	Variance	155.0
95%	0.5991		1,021	Skewness	-184.6
99%	2.72		1,401	Kurtosis	57,435
Abnormal cash flow (*ACF*)					
1%	-3.83	-762.8			
5%	-0.8197	-701.5			
10%	-0.3363	-629.9			
25%	-0.0667	-386.8		Obs	173,781
50%	0.0297			Mean	-1.74e-16
75%	0.1599		368.9	Std	6.45
90%	0.4126		671.3	Variance	41.66
95%	0.7608		977.8	Skewness	43.12
99%	2.38		1,218	Kurtosis	13,959

Table 1-continued

Brand equity as a percent of total assets (*Brand Equity*)

1%	-51.5	-185,486			
5%	-4.80	-1,592,345			
10%	-1.24	-1,293,701			
25%	-0.0668	-119,431		Obs	253,775
50%	0.0011			Mean	19.85
75%	0.2709		225,248	Std	2,318
90%	3.01		2,261,434	Variance	5,374,151
95%	10.7		226,4301	Skewness	54.11
99%	140.6		226,796	Kurtosis	6,198

ROA

1%	-6.41	-130,077			
5%	-0.9878	-25,885			
10%	-0.4404	-24,358			
25%	-0.0629	-17,703		Obs	276,468
50%	0.0167			Mean	-1.65
75%	0.0622		1,069	Std	262.5
90%	0.1163		1,208	Variance	68,885
95%	0.1640		1,217	Skewness	-448.5
99%	0.3944		1,827	Kurtosis	218,927

Leverage

1%	-17.34	-21,719			
5%	-2.30	-14,708			
10%	0.0324	-6,487			
25%	0.3489	-6,468		Obs	279216
50%	-17.34	-21,719		Mean	66.65
75%	1.06		2,468,809	Std	11,963
90%	2.49		2,632,122	Variance	1.43e+08
95%	8.16		2,795,443	Skewness	207.6
99%	12.59		2,878,359	Kurtosis	44,330

Size

1%	-1.12	-11.04			
5%	0.5945	-9.81			
10%	1.44	-8.52			
25%	2.86	-8.42		Obs	250,864
50%	4.49			Mean	4.55
75%	6.20		13.14	Std	2.48
90%	7.77		13.20	Variance	6.16
5%	8.76		13.30	Skewness	0 .0631
99%	10.48		14.41	Kurtosis	3.06

Table 2
Pearson correlations
We provide a correlation matrix of the variables listed in Table 1. All of the correlations are significant at the 0.01 level.

Variable	Brand equity	ROA	Leverage	Size	ADE
ROA	-0.0558				
Leverage	-0.0001	0.0002			
Size	-0.0037	0.0182	0.0045		
ADE	0.0233	-0.1581	-0.0003	-0.0010	

Table 3
The relationship between brand equity and accounting management variables
We report the results of the regression of *Abnormal Discretionary Accruals*, estimated as the absolute residuals from the modified Jones (1991) model, *Abnormal Cash Flow*, and *Abnormal Discretionary Expenses*, against the following variables: *Brand Equity* estimated following Simon and Sullivan (1993). *MTB* is the market to book value calculated as the end of year market value divided by end of year book value of equity. *ROA* is return on assets calculated as net income divided by total assets. *Asset Growth* is the change of assets scaled by lagged assets. *Leverage* is total liabilities divided by shares holder's equity; and *Size* is the log of firm's market value. We report P-values in parenthesis.

	ADA		ACF		ADE	
	Coefficient	t-stat.	Coefficient	t-stat.	Coefficient	t-stat.
Constant	-0.0819	-1.43	-0.1672	-4.40	-0.091	-0.95
Brand Equity	0.0001	6.36	-0.0001	-4.87	0.0002	6.54
ROA	0.0545	203.2	0.0013	8.17	-0.0311	-66.26
Size	0.0222	2.02	0.0329	4.63	0.0163	0.87
Leverage	-4.24e-06	-0.04	5.72e-06	0.09	-0.0001	-0.13
Obs.	168,894		168,894		179,384	
Adj. R-sq.	0.1966		0.0008		0.0244	

Preliminary results of Heckman estimation

The first equation predicts whether the firm has a restatement of -5% or less (Resdum = 1 if negative restatement <= 5%; 0 otherwise). The second equation predicts, given that the firm had a restatement, the effect of brand equity on ADA. Higher brand equity significantly reduces Abnormal Discretionary Accruals (ADA).

Parameter	DF	Estimate	Standard Error	t Value
ADA.Intercept	1	2.966360	1.110852	2.67
ADA.brand_equity	1	-0.007902	0.001973	-4.01
ADA.leverage	1	-0.067387	0.046444	-1.45
ADA.roa	1	0.204020	0.054422	3.75
ADA.size	1	-0.206246	0.104337	-1.98
_Sigma.ADA	1	2.608982	0.217430	12.00
resdum.Intercept	1	-1.227100	0.127322	-9.64
resdum.ADETA	1	-0.076236	0.055990	-1.36
resdum.leverage	1	-0.001968	0.002353	-0.84
resdum.roa	1	-0.067537	0.018485	-3.65
resdum.log_mv	1	-0.022010	0.022947	-0.96
_Rho	1	-0.319407	0.207564	-1.54