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Brand Equity, Earnings Management, and Financial Reporting Irregularities

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Brand Equity, Earnings Management, and Financial Reporting Irregularities

Abstract

Owning valuable brands enhances the financial well-being of firms not only through increased revenues and profitability but also by mitigating agency problems, earnings management, and financial reporting irregularities. Firms with high brand equity are less likely to have income-inflating discretionary accruals, announce earnings restatements, or experience SEC investigations. Brand equity reduces the likelihood of manipulation through incentive and opportunity channels, which we capture in CEO characteristics and compensation, and corporate governance measures. Brand equity reduces the likelihood of financial reporting irregularities more for durable goods firms and firms with shorter-tenured CEOs, as the latter are most vulnerable to performance pressures. (*JEL* G31, G34, M31, M37, M41, M42)

Brand Equity, Earnings Management, and Financial Reporting Irregularities

Firms manage earnings in various ways to achieve their desired financial reporting outcomes. The prior literature suggests two reasons that corporate managers engage in earnings management. First, incentives, such as stock-based compensation, are offered to managers to reward their skill and performance. Healy (1985) and Guidry, Leone, and Rock (1999) show that managers exercise accounting discretion to maximize the present value of their bonus compensation. Under significant market pressure, executives are also likely to manage earnings to meet or beat analysts' estimates (Degeorge, Patel, and Zeckhauser 1999; Almeida 2019).¹ Second, managers engage in opportunistic earnings management in the presence of weak governance mechanisms, especially when managers have more power and discretion over the board (Hossain et al. 2011). Regardless of the reasons, in the long-run aggressive earnings management sometimes entails sacrificing economic value (Graham, Harvey, and Rajgopal 2005) and can damage the firms' image, reputation, and trust (Raman and Shahrur 2008). Such outcomes adversely affect firms' shareholders and other providers of capital (Dechow, Sloan, and Sweeney 1996; Hribar and Jenkins 2004; Palmrose, Richardson, and Scholz 2004), auditors (Huang and Scholz 2012), and top executives (Hazarika, Karpoff, and Nahata 2012).² Given these adverse effects, we expect that firms invest in specific activities that build trust and limit earnings management practices.

We argue and present evidence that firms with high brand equity use more cautious accounting methods and strive to avoid earnings management and financial reporting irregularities. Brand equity encompasses customer perceptions of a brand along several dimensions, such as brand

¹ Almeida (2019) discusses evidence on earnings management and the practice of chasing certain earnings targets.

² Additionally, researchers have paid considerable attention to studying actions companies undertake to fix reputational losses following financial reporting irregularities. See, for example, Farber (2005), Cheng and Farber (2008), and Wilson (2008).

loyalty and trust, perceived quality and leadership, and brand personality and organizational associations (Aaker 1996). Thus, a firm's brand equity depends on not only unique value propositions derived by customers but also the organizational characteristics (people, values, and programs) underlying the brand. High-brand-equity firms, such as Apple, Google, Coca Cola, Procter & Gamble, and Disney, enjoy various inherent characteristics that can reduce incentives and possibly opportunities for earnings management and financial reporting irregularities.

First, earnings management and financial reporting irregularities cost high-brand firms more. Raman and Shahrur (2008) show that earnings management leads to a loss of trust by a firm's stakeholders, which adversely affects customer-supplier relationships. Further, accounting irregularities can lead to changes in trade terms with customers (Karpoff, Lee, and Martin 2008) and cost of reputation-rebuilding actions (Chakravarthy, deHaan, and Rajgopal 2014). Since high-brand-equity firms depend on their relations with customers more (Raman and Shahrur 2008), they are expected to suffer higher costs if manipulation is uncovered, due to more significant changes in trade terms and reputation-building actions. For example, according to Brand Finance (2020), a brand valuation consultancy company, Wells Fargo was an extremely valuable bank brand in 2015. However, in September 2016, the bank announced that it fired 5,300 employees over several years for creating millions of fake accounts (Egan 2016). The bank also replaced longtime CEO John Stumpf, discarded its wildly unrealistic sales goals that led to the bad behavior, and apologized for mistreating workers. According to CNN, surveys showed that 30% of Wells Fargo's customers considered dumping the scandal-ridden bank, putting \$93 billion of (or 7% of its total) deposits at risk. Customers' top complaint was that Wells Fargo engaged in “dishonest, unethical, or illegal practices” (Egan 2018).³

³ High equity-based compensation may have factored in the scandal. The bank's former CEO earned \$83 million by exercising vested stock options, although an additional \$41 million in unvested stock awards

Second, because of the intensive media coverage directed to high-brand-equity firms, accounting scandals can lead to a more substantial reputational loss for the responsible executives. Tavassoli, Sorescu, and Chandy (2014) show that executives achieve nonpecuniary utility by working for firms with valuable brands as a trade-off for accepting lower compensation. Thus, to maximize their utility, managers avoid behaviors, such as earnings management, that may induce a loss in brand value. In summary, high brand equity can reduce incentives for earnings management, both at the firm level and at the executive level.

Further, because brand building entails highly specialized investments, the value of these investments depends on the prospects of the business relationship (Raman and Shahrur 2008). Consequently, high-brand-equity firms may enhance governance mechanisms and adopt an organization culture that limits managerial opportunism that is associated with earnings management and encourages managers to focus on long-term, brand-building efforts. Therefore, we hypothesize that brand equity can affect firm value by reducing aggressive accounting and the likelihood of the value- and reputation-destroying earning restatements. This new channel is in addition to enhancing performance and returns and helping hire executives at lower pay as documented in previous studies (Tavassoli, Sorescu, and Chandy 2014; Aaker and Jacobson 1994; Lane and Jacobson 1995; Srivastava, Shervani, and Fahey 1998, 1999; Krasnikov, Mishra, and Orozco 2009). We call this the *precaution hypothesis*. Alternatively, if high brand equity is indicative of excessive market power or monopolistic possession of technology, substituting a firm's products might be extremely difficult or costly for customers. As a result, high brand equity can protect against the consequences of accounting scandals. We call this the *market power*

were forfeited (Cowley 2017). The CEO's total direct compensation in 2015 was just over \$19 million (Avalos 2017).

*hypothesis.*⁴

Our empirical results support the *precaution hypothesis*. We use the perpetual inventory approach following Vitorino (2014) and Belo, Lin, and Vitorino (2014) to capture long-term brand equity instead of tactical advertising expenditures. Our baseline empirical results uncover a negative association between brand equity and the likelihood of both earnings misstatements and earnings management. Our baseline method employs discretionary accruals, which are measured by the modified Jones' (1991) method following Dechow, Sloan, and Sweeney (1995). Our results also show that, when high-brand-equity firms report earnings restatements, they are less likely to have a misstatement that eventually involves a Securities and Exchange Commission (SEC) investigation.

Because financial reporting irregularities may exert ex-post influence on customer relationships (Karpoff, Lee, and Martin 2008), reverse causality between brand equity and financial reporting irregularities could be a concern in our baseline results. Further, our baseline results may also suffer from omitted variable bias because decisions regarding investment in brand equity and selection of accounting methods are both internally made. We conduct several robustness tests to reduce the likelihood that our findings are driven simply by endogeneity. First, we use instrumental variable (IV) regressions following Jha and Cox (2015) and Ferrell, Liang, and Renneboog (2016) to address both omitted variable bias and simultaneous causality issues. Specifically, we use firm age as an instrument for brand equity. Simon and Sullivan (1993) suggest that firm age is one firm characteristic that influences a firm's brand equity. To the best of our knowledge, firm age is not a direct determinant of a firm's propensity to manage earnings or to engage in acts that lead to earnings restatements. Firms engage in accounting manipulation regardless of their age unless they

⁴ We thank an anonymous referee for suggesting this alternative hypothesis.

design proper mechanisms that prevent such behavior. We argue that as firms age, to preserve their brand value, firms are more likely to build an organizational structure and corporate culture that restrains manipulative behavior. We also conduct relevance and exogeneity tests to assure the validity of firm age as an instrument. Results of our IV regression using both two-stage least squares (2SLS) and Generalized Method of Moments (GMM) mirror our baseline ordinary least squares (OLS) results: firms with high brand equity are less likely to misstate earnings or manage earnings using discretionary accruals.⁵

Second, we use several alternative measures of brand equity including the financial-based measure of brand equity proposed by Simon and Sullivan (1993) to address the disagreement in the prior literature about the best way to measure brand equity (Johansson, Dimofte, and Mazvancheryl 2012) and to eliminate a possible measurement error in estimating our main proxy of brand equity. We also use several alternative measures of financial reporting irregularities, such as severe restatements that result in SEC investigations. Further, we test the robustness of our baseline results using a performance and growth adjusted measure of discretionary accruals to account for firm performance and growth (Collins, Pungaliya, and Vijh 2017). Also, because our measure of brand equity constructed using advertising expenses may be related to the estimate of discretionary accruals, we confirm the robustness of our baseline results using an alternative measure of discretionary accruals adjusted for advertising expenses.

We test two different channels that can explain the negative effect of brand equity on earnings restatements and earnings management. To test the incentive channel at the firm level, we differentiate between nondurable and durable goods firms. Macneil (1980) suggests that typical

⁵ In addition to using firm age as an instrument, we also use the average brand equity of a firm's industry (excluding the firm for which the IV is being calculated) as an alternative instrument. Results of that test are similar to our reported results and are available on request.

relational contracts include ongoing implicit claims between a firm and its. Extending his study, Bowen, DuCharme, and Shores (1995) argue that customers purchasing durable products are also purchasing implicit claims related to the specified quality of performance and availability of service over the life of the product. Because the useful life of the product is relatively long, implicit claims with customers related to durable products are likely to be significant. Thus, the importance of brand equity increases in industries of durable products due to the significance of customers' implicit claims in these industries. Consequently, we expect accounting scandals to most disastrously affect the customer relationships of firms making durable goods. Our results show that the mitigating effect of brand equity on financial reporting irregularities is more substantial for firms in durable product industries.

To test for the incentive channel at the executive level, we differentiate between firms with CEOs who have high versus low career concerns. Because of the excessive media coverage received by high-brand firms, accounting scandals are expected to have a larger reputational loss for executives involved in such scandals. Consistent with this conjecture, our results show that the mitigating effect of high brand equity on financial reporting irregularities is stronger for firms whose CEOs have higher career concerns.

We test the opportunity channel as a second channel of the mitigating effects of brand equity on earnings management practices. Specifically, we differentiate between firms with high versus low board independence. Independent boards serve as a check on managerial opportunism and limit the opportunity to manage earnings easily. Indeed, our results show that the mitigating effect of high brand equity on earnings management is more substantial for firms with higher board independence, a finding that lends support to the idea that both incentives and a lack of opportunities are channels through which brand equity affects a firm's propensity manage

earnings.⁶

To explore additional evidence regarding the association between ex ante brand equity and the likelihood of engagement in earnings management and financial reporting irregularities, we investigate whether high-brand-equity firms have preexisting cautious accounting policies unrelated to their direct investment in brand equity. Specifically, we examine the dynamic effects of *BE* on various measures of earnings restatements using the dynamic regression method following Simintzi, Vig, and Volpin (2014) and Klasa et al. (2018). We find that preexisting cautious accounting practices in high-brand-equity firms do not drive our results. Further, our results are robust to the exclusion of the great recession years and do not disappear after the Sarbanes Oxley Act (SOX).⁷

Our contributions to the literature are twofold.⁸ First, we contribute to the finance and accounting literature by showing that brand equity affects the choice of accounting methods and the likelihood of engaging in earnings management and financial reporting irregularities. Two studies closely related to ours focus on the determinants and consequences of earnings management in the context of a firm's relationship with suppliers and customers. Raman and Shahrur (2008) find that earnings management adversely affects the duration of customer-supplier relationships and may influence the perception of suppliers/customers about the firm's prospects. Chakravarthy et al.

⁶ Hossain et al. (2011) show that, in the presence of weak governance mechanisms, managerial opportunism is associated with greater levels of earnings management. A firm's brand-building efforts may encompass improving governance mechanisms that improve executive behavior and lead to lower earnings management. To test this channel, we conduct additional tests that control for governance measures, such as board independence and institutional ownership; compensation measures, such as pay-performance sensitivity (Delta) and the risk-taking incentives (Vega); and CEO characteristics, such as CEO age, tenure, gender, and ownership. The results of these tests are untabulated and are available on request.

⁷ These additional robustness checks are untabulated and are available on request.

⁸ Previous studies focus on various firm characteristics, such as sales growth, profitability, operating cycle, leverage, and fixed assets (Dechow and Dichev 2002; Francis et al. 2005; Dechow, Ge, and Schrand 2010), but ignore brand equity.

(2014) show that following a serious accounting restatement, firms implement a reputation repair strategy targeted to each stakeholder, and these actions generate positive market returns. Extending these studies, we show that by investing in brand equity, firms act pro-actively and reduce incentives and opportunities for earnings management.

Second, we contribute to the marketing literature by identifying another channel through which brand equity affects firm value. The previous marketing literature focuses on the relation between brand equity and size and frequency of customers' purchases, revenues, profitability, stock returns, cash flow volatility, and uncertainty about the firm's idiosyncratic risk.⁹ We show that high brand equity can affect firm value not only by enhancing performance and returns and helping hire executives at lower pay but also by reducing engagement in aggressive accounting and the likelihood of the value- and reputation-destroying earnings restatements.

1. Review of the Literature

1.1. The impact of brand equity on earnings management and financial reporting irregularities

Financial reporting irregularities negatively affect many different groups of stakeholders, including customers, employees, and local communities. For example, Karpoff, Lee, and Martin (2008) show that reputational losses from financial reporting irregularity are estimated to be 27% of a firm's preresatement market value, comprise two-thirds of a firm's total restatement-related value loss, and are 7.5 times the sum of penalties imposed through the legal and regulatory system. The authors claim that the reputational losses include possible loss of trust by customers that leads to changes in trade with a firm. Similarly, Raman and Shahrur (2008) argue that earnings

⁹ See, for example, Aaker and Jacobson (1994), Lane and Jacobson (1995), Srivastava, Shervani, and Fahey, (1998, 1999), Krasnikov, Mishra, and Orozco (2009), Rego, Billett and Morgan (2009), and Stahl, Heitmann, and Lehmann (2012).

management can lead to termination of customers' relationships, and the loss in customers' trust is positively associated with a firm's reliance on implicit contracts with customers.¹⁰ Because the value of a firm's investments in building customer-supplier relationships depends on its prospects, the firm will focus on preserving such trust-based relationships. According to Chakravarthy, deHaan, and Rajgopal (2014), following announcements of financial reporting irregularities, firms undertake significant reputation-repair actions directed toward customers, employees, and communities such that these activities are positively correlated with the degree to which a firm derives value from its stakeholder-specific relation.

Based on the above discussions, firms with more reliance on high-value customer relationships that are mostly built on a trusted brand and a strong corporate culture will be negatively affected to a greater extent when a firm is involved in earnings manipulation. These firms will design proper incentives and governance systems to limit the opportunistic behavior of managers and focus on increasing the value of brand equity. In addition to the role that high brand equity may play at the firm level, it can also disincentivize manipulation by executives and managers. High-brand-equity firms are usually subject to higher media coverage. Consequently, accounting scandals in such firms are expected to have a more destructive impact on executives' reputation than in low brand equity counterparts. Therefore, we predict that firms with higher investment in customer relationships use less aggressive accounting methods and strive to avoid financial reporting irregularities. To the best of our knowledge, ours is the first empirical work on the impact of

¹⁰ Implicit claims can be defined as the implied commitments toward stakeholders that have no legal standing. Specifically, Bowen, DuCharme, and Shores (1995, p. 256) state that “although firms often enter into explicit contracts with their stakeholders, many ongoing relations remain implicit (e.g., implied promises of continuing availability of parts and service to customers who purchase durable goods). Since implied commitments generally have no legal standing, they have been viewed as self-enforcing.”

investment in brand equity on a firms' choice of accounting methods and the likelihood of engagement in financial reporting irregularities.

The prior literature differentiates between the effect of severe and minor misstatements or earnings management. Teoh, Welch, and Wang (1998a) show that issuers report the worst performance following seasoned equity offerings (SEOs) with unusually large income-increasing accounting adjustments before the offering.¹¹ Further, Owers, Lin, and Rogers (2002) show that restatements accompanied by an SEC investigation have abnormal returns that are significantly more negative than those of other firms, indicating that the restatements accompanied by the SEC investigations are terrible news. Hennes, Leone, and Miller (2008), who classify restatements associated with an SEC investigation as irregularities instead of minor errors, make similar arguments. These authors claim that SEC-investigation-accompanied restatements are more likely to involve managerial misbehavior. SEC investigations are also distinct from discretionary accruals-based measures of earnings management because the investigations are not a function of the magnitude of a firm's advertisement expenses. Because of their higher value-destroying impact and their stronger signal of managerial misbehavior, SEC-investigation-accompanied restatements are expected to result in a much greater negative impact on supplier-customer relationships and to impose higher opportunity costs on companies. Consequently, we expect firms with high brand equity to avoid severe financial reporting manipulation that has the potential to invite SEC investigations.

¹¹ Similarly, Teoh, Welch, and Wang (1998b) document similar patterns for initial public offerings (IPOs). Allen, Larson, and Sloan (2013) show that extreme accruals exhibit a high frequency of subsequent reversals that predict future accruals, earnings, and stock returns.

1.2. The impact of brand equity on firm value

Although popular estimates indicate that brands account for a significant percentage of the value of S&P 500 companies, studies have found mixed results about how much brands are worth and the source of brand value. Prior literature shows that brands generate value by affecting customers' thoughts and actions (Sorescu and Sorescu 2016). These thoughts can lead to the market power that allows higher prices (Ailawadi, Lehmann, and Neslin 2003), or sales (Mizik and Jacobson 2009). Srivastava, Shervani, and Fahey (1998, 1999) show that brand equity can create value by causing customers to buy more, buy sooner, and buy consistently. Ertekin, Sorescu, and Houston (2018) show that the long-run performance of firms that successfully defend their brands in court is positive.

The relation between brand equity and economic performance has also received attention. Madden, Fehle, and Fournier (2006) demonstrate that brand development strategies create shareholder value.¹² Other research identifies several channels through which brand equity can affect firm value. Specifically, brand equity has been shown to increase the size and frequency of customers' purchases, revenues, profitability, and stock returns, and to reduce cash flow volatility and uncertainty about firm's idiosyncratic risk (Aaker and Jacobson 1994; Lane and Jacobson 1995; Srivastava, Shervani, and Fahey 1998, 1999; Krasnikov, Mishra, and Orozco 2009; Rego, Billett, and Morgan 2009; Stahl, Heitmann, and Lehmann 2012). Similarly, Robinson, Tuli, and Kohli (2015) show that positive abnormal returns follow brand licensing. Further, Hariharan, Bezawada,

¹² Similarly, Himme and Fischer (2014) investigate the joint and interactive role of customer satisfaction, brand value, and corporate reputation for stock market beta and credit ratings, which reflect variation in equity and debt risk premiums across firms. Fischer and Himme (2017) develop a model showing how advertising and other brand investments increase customer-based brand equity, which, in turn, affects firms' financial leverage and credit spread and ultimately elevates the firms' level of financial resources. Hsu, Fournier, and Srinivasan (2016) study the effect of brand strategy on stock returns and idiosyncratic risk. Johansson, Dimofte, and Mazvancheryl (2012) show that high brand equity helped stabilize financial returns and reduce share price volatility during the 2008 financial crisis.

and Talukdar (2015) argue that brand extensions could affect revenue and firm value not only through the spillover effect and the extension effect but also through the aggregate market impact of the brand extensions.¹³

Tavassoli, Sorescu, and Chandy (2014) conjecture that by focusing on customer-based brand equity, the previous literature understates brands' actual contribution to firm value. Specifically, they develop and test the concept of employee-based brand equity, which they define as "the value that a brand provides to a firm through its effects on the attitudes and behaviors of its employees." These authors show that executives derive nonpecuniary utility by working for firms with valuable brands, and, consequently, accept less compensation because of the benefits they receive from working for these branded firms (Tavassoli, Sorescu, and Chandy 2014, p. 676–77). The arguments of Tavassoli, Sorescu, and Chandy (2014) could provide an additional explanation for our conjectures and results. If a manager's utility is maximized by being affiliated with a valuable brand, s/he will avoid risky behaviors, such as financial reporting irregularities, that might harm brand value (Karpoff, Lee, and Martin 2008). Financial reporting irregularities are costly to high-brand firms and their executives. Tavassoli, Sorescu, and Chandy (2014) highlight the effect of brand equity at the time of hiring, that is, sacrificing part of one's pay in exchange for a valuable affiliation with a high-brand firm. However, less is known about the possible impact of brand equity on managers' behavior and decision-making beyond that point, especially for financial reporting irregularities, which are the focus of our paper.

¹³ Brand equity also reduces firms' cash flow volatility (Krasnikov, Mishra, and Orozco 2009), provides additional net debt capacity, measured by higher leverage and lower cash holdings (Larkin 2013), increases profitability (Stahl, Heitmann, and Lehmann 2012), increases investors' attention (Lou 2014), and predicts firm-specific unsystematic risk (Rego, Billett, and Morgan 2009).

2. Data and Methods

We acquire financial data for all Compustat firms for the period 1990–2018. We exclude ADRs, REITs, small business institutes (SBIs), exchange-traded funds, closed-end funds, regulated firms with a Standard Industrial Classification (SIC) code between 4900 and 4999, and financial firms with SIC between 6000 and 6999. Following Belo, Lin, and Vitorino (2014), we exclude all firm-year observations with missing advertising expenses. Our primary source of data on earnings restatements is Audit Analytics. We complement restatement data using the Governmental Accountability Office (GAO) files. We follow prior literature in removing restatements associated with clerical errors (Hennes, Leone, and Miller 2008). After estimating our main proxy for earnings management, discretionary accruals, and merging all databases, our sample comprises 47,216 firm-year observations covering the period 1990–2018. We obtain data on CEO characteristics and ownership from Compustat ExecuComp database.

We follow the methodology of Belo, Lin, and Vitorino (2014) and Vitorino (2014) to define brand equity, BE , our main explanatory variable. The advantage of this measure of brand equity is that it uses advertising expenses, which capture a firm's investment in customer-specific relationships. Further, it provides a firm level instead of a brand-level measure of brand equity. Specifically, we use advertising expenditures, which creates persistent brand value (Wang, Zhang, and Ouyang 2009; Fischer and Himme 2017), to calculate BE using the perpetual inventory method as follows:

$$BE_t = (1 - \delta)BE_{t-1} + A_t, \quad (1)$$

where BE_t is a firm's brand equity and A_t is a firm's investment in its brands as measured by advertising expense.¹⁴ δ denotes the depreciation rate required to implement the perpetual

¹⁴ For more details on the construction of this measure of brand equity, see Belo, Lin, and Vitorino (2014).

inventory method, reflecting the decay in brand equity over time. Following Belo, Lin, and Vitorino (2014), we use a depreciation rate of $\delta = 50\%$.¹⁵ We scale our measure of brand equity by a firm's total assets.

We use discretionary accruals as a proxy for earnings management. Our measure of total accruals is similar to Teoh, Welch, and Wong (1998a, 1998b) in using balance sheet and income statement variables. We calculate total accruals (*TACR*) as follows:

$$TACR = \Delta CA - \Delta CL - \Delta CASH - \Delta STD - DEP, \quad (2)$$

where all independent variables are defined in the appendix. We estimate discretionary accruals, *Disc_accruals*, as the residual ε_i from the Jones' (1991) model modified following Dechow, Sloan, and Sweeney (1995). Specifically, for each calendar year and two-digit SIC code, we estimate the following regression equation:

$$TACR_{i,t} = \beta_1 1/TA_{i,t-1} + \beta_2 (\Delta SALE_{i,t} - \Delta REC_{i,t}) + \beta_3 PPEN_{i,t} + \beta_4 TACR_{i,t-1} + \varepsilon_{i,t}, \quad (3)$$

where *TACR* denotes total accruals calculated from Equation (2) and $\varepsilon_{i,t}$ denotes a random error term. We control for the lagged value of *TACR*. Further, following the accounting literature, all variables are scaled by TA_{t-1} . Nondiscretionary accruals are measured as the fitted value of Equation (3). Lastly, *Disc_Accruals* is measured as the model's residual, ε_i .

Collins, Pungaliya, and Vijh (2017) argue that discretionary accruals estimated by the Jones' (1991) model using quarterly data are misspecified because it fails to control for accruals associated with performance and growth. To address this concern, we estimate another measure of discretionary accruals that accounts for performance and growth, *DA_PG*. Specifically, for each firm-year, we first estimate discretionary accruals as the residual from the modified Jones' (1991)

¹⁵ All our results use a 50% depreciation rate (a more sustainable brand equity). The baseline model using 20% as a depreciation rate is presented in the robustness section. Further, all results using that depreciation rate are available on request.

model. Then, within each year and industry (two-digit SIC code), we construct five quintile ranks based on growth (sales growth) and operating performance (*ROA*), resulting in 25 unique portfolios within each industry-year. *DA_PG* is the firm-year discretionary accruals, *Disc_accruals* minus the median discretionary accruals of the performance and growth-matched portfolio for the same year and industry.

Further, to address the concern that our measure of discretionary accruals is mechanically affected by the accounting treatment of advertising expenses (which is used to estimate our proxy for brand equity), we estimate a third measure of discretionary accruals, *DA_Adv*. This measure of discretionary accruals accounts for accruals that are caused by a firm's advertising expenses in each year. Recall that discretionary accruals are the residuals from a model where all the variables are scaled by total assets and that *BE* is also a percentage of assets.

Table 1, panel A, presents descriptive statistics for our main dependent and explanatory variables. Around 11.5% of our firm-year observations are classified as earnings misstatement years. Further, the average company in our sample has a *Disc_accruals* of 0.013 and *BE* of 0.081. Table 1, panel B, presents descriptive statistics for alternative measures of earnings management and financial reporting irregularities. These descriptive statistics show that around 56% of our sample firms announced an earnings restatement at least once during the sample period (*Restater*), and that out of the sample of firms that experience earnings restatements, around 10% of the cases experienced Securities and Exchange Commission (SEC) investigation (*SEC_Inv*). When adjusting our discretionary accruals measure to performance and growth (using *DA_PG*), the average firm in our sample has a mean discretionary accrual of 0.003. Further, the average discretionary accruals adjusted to advertising expenses, *DA_adv*, is 0.005. To ensure the robustness of our tests, we use all of these alternative measures of irregularities.

Table 2 presents the Pearson correlation coefficients. Consistent with our main conjecture, we observe a negative association between *BE* and the likelihood of misstating financial reports (*Misstatement*) and the degree of earnings management (*Disc_accruals*). High-brand-equity firms adopt more cautious accounting policies by having lower income-inflating discretionary accruals and are less likely to engage in actions that could lead to misstating earnings reports. *MB* and both *ROA* and *Disc_accruals* are positively correlated. These correlations are consistent with the conjecture of Collins, Pungaliya, and Vijh (2017) that estimates of discretionary accruals based on Jones (1991) are correlated with a firm's profitability and growth. Further, our untabulated results show a negative correlation between *BE* and our alternative measures of earnings restatements (*Restater* and *SEC_Inv*) and alternative measures of earnings management (*DA_PG* and *DA_adv*).

3. Analysis and Results

3.1. Brand equity and financial reporting quality

Our central premise is that firms with high investment in customer relationships strive to avoid financial reporting irregularities. Table 3 presents univariate tests of this conjecture by comparing the likelihood of misstating earnings and the level of discretionary accruals between high and low-*BE* firms.

Table 3, panel A, reports the mean *Misstatement* and *Disc_accruals* for firms with *BE* above and below its median. Firms with high *BE* are less likely to misstate their earnings. The mean *Misstatement* of firms with high *BE* is 10.7%, which is significantly lower than the 12.2% reported for firms with low *BE*. Further, firms with high *BE* have a mean *Disc_accruals* of -0.001, which is significantly lower than the 0.027 reported for firms with low *BE*. This stark difference in the use of discretionary accruals indicates that while the average firm with high *BE* employs more cautious accounting methods (income-decreasing accruals), the average low-*BE* firm employs

more aggressive accounting methods (income-increasing accruals). Table 3, panels B and C, report *Misstatement* and *Disc_accruals* for firms based on quartile and decile ranking on *BE*, respectively. Statistics in panel B shows that while the likelihood of misstating earnings is 11% for high *BE* firms, it is significantly higher (about 14%) for low *BE* firms.

Further, these results (Table 3) show that companies on the top quartile of *BE* have income-decreasing discretionary accruals of -0.009. In contrast, firms in the bottom quartile of *BE* have average income-increasing discretionary accruals of 0.037. Similarly, statistics in panel C show that while the likelihood of misstating earnings is 10.5% for the top decile *BE* firms, it is significantly higher (about 14.4%) for firms in the lowest *BE* decile. These results also show that companies in the top *BE* decile have income-decreasing discretionary accruals of -0.022, while firms in the bottom *BE* decile have average income-increasing discretionary accruals of 0.042. Across all panels in Table 3, the differences between *Misstatement* and *Disc_accruals* of high and low *BE* firms are both economically significant and statistically significant at the 1% level.¹⁶ Since *Disc_accruals* is estimated as a percentage of a firm's total assets, the 0.066 difference in means between top and bottom *BE* deciles is equivalent to a \$206.6 million average difference in discretionary accruals.¹⁷ These statistics provide preliminary support to our main conjecture that high investment in brand equity is associated with more cautious accounting methods and to a lower propensity to engage in earnings misstatements.

To formally test the association between brand equity and our proxies of earnings management, we control for the other determinants of earnings restatements and earnings management in the following regression model:

¹⁶ Similar results are reported when using the Wilcoxon rank-sum difference in median *Disc_Accruals* tests.

¹⁷ The average total assets in our sample size is \$3.13 billion.

$$\text{Earnings management} = \alpha + \beta BE_{i,t} + \delta X_{i,t} + \varepsilon_{i,t}, \quad (4)$$

where *Earning management* is measured by *Misstatement* and *Disc_accruals*, respectively, in separate regressions. We control for return on assets (*ROA*) and multiyear negative operating performance (*Neg_ROA*) following the literature that finds a relation between performance and manipulation (Beasley 1996). We control for the proportion of assets in receivables and inventory (*AR_IN*) because fraud is more likely when this proportion is high (Summers and Sweeney 1998). We also control for growth measured by the market-to-book ratio (*MB*). We include year dummy variables to control for between-year variations. We also include industry (two-digit SIC code) dummy variables following Kedia, Koh, and Rajgopal (2015), who document an industry spillover effect of financial reporting irregularities.

Table 4 presents the results of this baseline test. The dependent variable in Models 1–3 is *Misstatement*, and in Models 4–6 is *Disc_accruals*. The coefficients for *BE* across all models are negative and statistically significant. When controlling for year and industry fixed effects, we find that the coefficient for *BE* in Model 3 is -0.311, indicating that increasing investment in *BE* leads to a reduced likelihood of engaging in activities that lead to financial reporting misstatements. Similarly, the coefficient for *BE* in Model 6 is -0.140 and statistically significant at the 5% level. High brand equity is associated with more cautious use of income-increasing discretionary accruals. Further, there is a significant positive association between discretionary accruals and *AR_IN* (Summers and Sweeney 1998). Our results also show that highly levered firms use less income-increasing discretionary accruals.¹⁸

¹⁸ In addition to these tabulated results, to account for the possible impact of *ROA* and *MB* on discretionary accruals (Collins, Pungaliya, and Vijh 2017), we run our baseline model for subgroups of firms based on *ROA* and *MB*. The results of those tests are similar to our baseline models and are available on request.

3.2. Brand equity and earnings management: Addressing endogeneity

Our baseline results show a negative association between brand equity and the likelihood of both misstating financial reports (*Misstatement*) and earnings management measured by discretionary accruals. We argue that such a negative association is due to a causal relation in which investments in customer relationships *ex ante* reduces a firm's tendency to use aggressive accounting methods and to engage in actions that could trigger earnings restatement. However, endogeneity may be a concern in our baseline model for several reasons. First, since the levels of both advertising and accounting methods are determined internally, both *BE* and *Disc_Accruals* are determined by a factor(s) not controlled for in our model. Second, Chakravarthy, deHaan, and Rajgopal (2014) argue that customer demand (and hence brand equity) is likely to decline following announcements of accounting fraud. As a result, simultaneous causality might be another concern in our baseline results using *Misstatement*. Further, previous studies have disagreed about the best way to measure brand equity (Johansson, Dimofte, and Mazvancheryl 2012), our results might suffer an error-in-measurement issue related to our brand equity measure. In this section, we address each of these issues.

We start by addressing the simultaneous causality and the omitted variable bias issues. Specifically, we use firm age as an instrument for our measure of brand equity. Simon and Sullivan (1993) suggest that firm age is one of the firm characteristics that influence a firm's brand equity. We believe a firm age does not have a direct effect on earnings management. Firms manipulate their earnings due to poor corporate culture and misaligned incentives, not because of their age.

In contrast, as firms age, their brand visibility improves with time, and to preserve their brand value, firms are more likely to build an organizational structure and corporate culture that restrains manipulative behavior. Further, to the best of our knowledge, the prior literature does not provide

evidence that older companies are more (or less) likely to engage in financial reporting irregularities.¹⁹ Further, we conduct tests of relevance and exogeneity to assure the validity of our instrument. Specifically, in an untabulated test of exogeneity, we confirm that the coefficient estimates of firm age in a model that uses the residual from our baseline regression as a dependent variable is statistically insignificant. We use F -statistics to assess the strength of our IV. Our first-stage regression F -statistic is significantly higher than the typical threshold of 10, as well as any of the critical values in the Wald test. Further, all R^2 's in the first-stage regression models of the two-stage least square (2SLS) regressions are high, confirming the strength of our instrument.²⁰

Table 5 reports the results of our IV models. The IV regression results lend support to our findings in the baseline OLS regressions. The coefficient for our IV, \ln_firm_age , is significant and positive at the 1% level in our first-stage regression (column 1). Consistent with our baseline models, the coefficients for our instrumented BE in Models 2 and 3 are both statistically significant at the 5% level. This test diminishes the possibility that this negative association is caused by a two-way relationship between BE on one hand and $Misstatement$ and $Disc_Accruals$, on the other hand, or an omitted variable in our baseline models.

¹⁹ In addition to using firm age as an IV, we use an alternative IV that is the average BE of a firm's industry (excluding the one firm for which the IV is being calculated) following Jha and Cox (2015) and Ferrell, Liang and Renneboog (2016). Our results using that alternative IV are similar to those using firm age and are available on request.

²⁰ To address possible heteroscedasticity, we conduct our tests using the Generalized Method of Moments (GMM) in addition to the two-stage least squares (2SLS). That the results of the GMM are almost identical to those using 2SLS refutes the possibility that our 2SLS results are affected by heteroscedasticity.

3.3. Incentive channel and opportunity channel

As we mention above, accounting choices and the tendency to engage in earnings restatements are functions of both managerial incentives and the opportunity to participate in earnings management. In this section, we further investigate the channels through which *BE* affects earnings management. Specifically, we test whether the negative association between *BE* and *Misstatement* and *Disc_Accruals* is stronger for firms and managers with less incentive and lower opportunity to engage in earnings management.

We first capture the incentive to engage in financial reporting irregularities at the firm level. Bowen, DuCharme, and Shores (1995) argue that the importance of brand equity increases in industries of durable products due to the significance of customers' implicit claims in these industries. Consequently, accounting scandals are expected to most disastrously affect the firm-customer relationships for firms in durable goods industries. In other words, if *BE* creates a high disincentive for earnings management, this effect should be stronger for firms in durable product industries. We identify firms in durable products industries following John (1993) and Titman and Wessels (1988). Specifically, firms involved in the construction or manufacturing of durable products are those with SIC codes 150–179, 245, 250–259, 283, 301, and 324–399. Next, we capture incentives to engage in financial reporting irregularities at the executive level. Because of the intensive media coverage directed to high-*BE* firms, executives of these firms are expected to have a larger reputational loss when they engage in irregularities. However, this disincentive is stronger for executives with greater career concerns, which we measure by whether the CEO has been in this position fewer years than the median for all CEOs. Ali and Zhang (2015) examine the changes in CEOs' incentive to manage their firms' reported earnings during their tenure and show that earnings overstatement is greater in the early years than in the later years of a CEOs' service. They attribute these results to the notion that new CEOs try to favorably influence the market's perception

of their ability in their early years of service when the market is more uncertain. Consequently, we investigate the effect of CEO tenure on the association between brand equity and earnings management.

Next, we investigate the possible effect of corporate governance on our results. Because of the higher cost of earnings management, firms may precautionarily enhance corporate governance to reduce the managerial opportunity to engage in aggressive earnings management and actions that can trigger earnings restatements. To capture corporate governance, we used the percentage of independent members on a firm's board of directors. Our objective is to test whether the impact of *BE* on earnings restatements and earnings management is mediated by erosion in the managerial opportunity of engagement in such acts, through enhanced corporate governance.

Table 6 reports the results of testing each channel, namely, incentives and opportunities. Panel A (B) in Table 6 reports results for models that use *Misstatement* (*Disc_Accruals*) as a dependent variable. In Table 6, Models 1–4 and 5–6 test the incentive and opportunity channels, respectively. Results of tests that capture the impact of durability (Models 1 and 2) show that the negative association between brand equity and *Misstatement* (panel A) and *Disc_Accruals* (panel B) is stronger for firms engaged in Durable products industries. For example, in panel A, the coefficient for *BE* in the durable subsample (Model 1) is -0.567, which is statistically significant at the 5% level. For the nondurable subsample (Model 2), the coefficient is -0.208, which is not statistically significant. A similar result is reported when using *Disc_Accruals* as the dependent variable in panel B. The results of tests that capture the impact of CEOs' career concern (Models 3 and 4) show that the negative association between brand equity and *Misstatement* (panel A) and *Disc_Accruals* (panel B) is stronger for firms which CEOs have greater career concerns. For example, in panel A, the coefficient estimate of *BE* for firms for which CEOs have greater career

concerns (Model 3) is -1.176 and is statistically significant. But for firms whose CEOs have low career concerns (Model 4), it is 0.476 and is statistically insignificant. A similar result is reported when using *Disc_Accruals* as the dependent variable in panel B. These results support the incentive channel. Brand equity plays a more substantial role in reducing the propensity of financial reporting irregularities when such irregularities can hurt the firm and its executives' reputations.

Next, we discuss the findings for the opportunity channel. We find that (Table 6, Models 5 and 6) the negative association between brand equity and *Misstatement* (panel A) and *Disc_Accruals* (panel B) is stronger for firms with a higher degree of board independence. For example, in panel A, the coefficient estimate of *BE* for firms with a high level of board independence (Model 5) is -1.580 and is statistically significant at the 1% level, while it is -0.630 and not statistically significant for firms with a low level of board independence (Model 6). We obtain similar results when using *Disc_Accruals* as a dependent variable (panel B). Overall, these results support our conjecture that brand equity reduces both incentives and opportunities for earnings management.²¹

4. Robustness Checks

One of our main arguments is that high-brand-equity firms avoid financial reporting irregularities because of the higher costs these companies may incur as a result of these irregularities (Karpoff, Lee, and Martin 2008; Raman and Shahrur 2008). In this section, we further investigate this relation using a difference-in-differences test of the change in profitability following the restatement announcement for a treatment sample of *High_BE* firms to verify that higher reputational costs are indeed driving lower irregularities for high-brand-equity firms.

In Table 7, Model 1, we use *ROA*, which captures the decline in customers' demand and possible changes in margins following restatement announcements, to measure profitability. To account for

²¹ Our untabulated results show that the difference in coefficient estimates for *BE* between Models 1–4 and 5–6 are statistically significant.

potential stock buybacks as a reputation-rebuilding mechanism following restatements (which might affect the number of shares outstanding), we use earnings per share before extraordinary items (EPS_X) as a dependent variable in Model 2. Further, to address the possible impact of nonoperations factors on profitability, we use earnings per share from operations (EPS_Op) as a dependent variable in Model 3. Our DID variable is $High_BE * Post$.

Coefficient estimates for $High_BE * Post$ across all these models are negative and statistically significant, indicating that, in the post-restatements period, high-brand-equity firms experience a greater decline in profitability than low-brand-equity firms, lending support to our excessive-cost-of-restatement hypothesis. This excessive cost can include erosion in a firm's ability to charge higher prices for its products, changes in trading terms with customers, termination of customer relationships, and reputation-rebuilding activities (Karpoff, Lee, and Martin 2008; Raman and Shahrur 2008; Chakravarthy, deHaan, and Rajgopal 2014).

Our results so far support a causal relation at which high BE ex ante reduces a firm's propensity to engage in financial reporting irregularities. However, an alternative explanation to our causality explanation of our results is that the preexistence of cautious accounting policies in firms with high BE is due to an omitted variable(s) not related to a firm's specific investment in brand equity. To test this alternative explanation and to further establish the causality between BE and earnings restatements, we examine the dynamic effects of BE on various measures of earnings restatements (Simintzi, Vig and Volpin 2014; Klasa et al. 2018). Specifically, we add to our baseline model, a lead, a contemporaneous, and several lagged values of BE . Our dynamic regression model is as follows:

$$Irregularities_{i,t} = \alpha + (\beta_1 - \beta_4)BE_{i,t-2,t+1} + \delta X_{i,t} + \varepsilon_{i,t}, \quad (5)$$

where $BE_{i,t-2,t+1}$ is a series of BE variables starting with a 2-year-lagged BE , BE_{t-2} , and ending with

BE measured 1 year into the future, BE_{t+1} . We include the same set of control variables used in our baseline model. Using this specification, we can observe whether high *BE* leads to reducing financial reporting irregularities (hence confirming the causality hypothesis), or preexisting cautious accounting policies in high *BE* firms drive the observed negative association.

Table 8 reports the results of this test. The coefficients for the lead *BE* variable, BE_{t+1} , in the models presented in Table 8 allow us to assess whether cautious accounting methods can be found before the effect of change in *BE*. If the coefficient for BE_{t+1} is statistically significant, it could be symptomatic of pre-*BE* trends in the corporate use of cautious accounting methods. Using *Disc_accruals*, *Disc_accruals_adj*, and *Misstatement_year* as measures of financial reporting irregularities, we find that the estimated coefficients for BE_{t+1} are not statistically significant across all specifications. These findings provide evidence that preexisting accounting conservatism does not cause our results. Moreover, coefficients for the *BE* variable are negative and statistically significant across all specifications. These findings support our causal interpretation of the negative association between investment in brand equity and corporate use of accounting methods and propensity to engage in financial reporting irregularities.

Also, we conducted many untabulated robustness tests to check the sensitivity of our baseline results to several statistical specifications and additional controls. The results of these tests are available on request. In addition to the IV approach, we test our results with alternative measures to rule out potential endogeneity concerns among the variables used in the baseline estimations. Although we use the *BE* measure that is well-grounded in the marketing literature, the literature also offers additional ways to capture brand equity (Johansson, Dimofte, and Mazvancheryl 2012). By conducting additional robustness tests with these alternative measures, we address the issue of potential error in the measurement of brand equity and also rule out remaining endogeneity

concerns about the advertisement based measures. But first, we employ a more sustainable version of our primary measure of brand equity that uses a lower brand depreciation rate. Specifically, while our primary measure of brand equity uses a depreciation rate of 50%, the more sustainable alternative measure, BE_{20} , assumes a 20% depreciation rate. Second, we employ the financial-based measure of brand equity of Simon and Sullivan (1993) that is not based only on advertising expenses alone. Like our primary measure of BE , 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. However, Simon and Sullivan's (1993) measure employs a more comprehensive approach to estimate brand equity by including patents, Research and Development (R&D), and market share, among other variables. Like our baseline results, when measuring earnings management by *Misstatement* and *Disc_accruals*, these alternative measures of brand equity are negative and statistically significant. These results support our main argument that firms with high brand equity are less likely to engage in aggressive earnings management.

Further, to address the possible misspecification in the measurement of our dependent variables—*Misstatement*, and *Disc_accruals*—we use several alternative measures of earnings management. Specifically, as an alternative measure of the likelihood of engaging in earnings restatements, we use *Restater*, which is a firm-level dummy variable that equals one if a firm ever had a restatement announcement during the sample period. The prior literature on financial reporting irregularities differentiates between the effect of severe and minor misstatements or earnings management (Teoh, Welch, and Wang 1998a, 1998b; Allen, Larson, and Sloan 2013; Owers, Lin, and Rogers 2002). Restatement events that are accompanied by SEC investigations have always been classified as irregularities instead of minor errors and are more likely to involve managerial misbehavior (Hennes, Leone, and Miller 2008). Because of their higher value-

destroying impact and their stronger signal of managerial misbehavior, SEC-investigation-accompanied restatements are expected to result in a much greater negative impact on supplier-customer relationships (Raman and Shahrur 2008) and to impose higher opportunity costs on companies. Consequently, we expect firms with higher brand equity to avoid severe financial reporting manipulation that has the potential to invite SEC investigation. We identify such incidents using the variable *SEC_Inv*, which is a firm-year dummy variable that equals one if a firm has a misstatement that involves an SEC investigation in a given year.

Further, we estimate two alternative measures of discretionary accruals. Our first alternative measure of discretionary accruals, *DA_PG*, addresses the concerns of Collins, Pungaliya, and Vjih (2017) that Jones' (1991) models of discretionary accruals are misspecified because they fail to account for performance and growth. This issue is particularly important in our context because high-brand-equity firms (firms with established brands) might be characterized by low growth, and consequently, low growth-related discretionary accruals. Our second alternative measure of discretionary accruals, *DA_adv*, provides a measure of discretionary accruals free of the accounting treatment of a firm's advertising expenses. This measure should also help address the concerns of simultaneous causality between *BE* and our baseline measure of discretionary accruals.

We find that *BE* is negative and statistically significant at the 1% level. Increases in *BE* reduce the likelihood that a firm would announce an earnings restatement at least once in our sample period. Specifically, given that the standard deviation for *BE* is 0.142, a one standard deviation increase in *BE* is associated with a decline in the likelihood of restating earnings at least once by around 4.1%. Further, even if high-*BE* firms have a misstatement, they are expected to avoid a SEC investigation, because an investigation could potentially disastrously affect relations with different groups of stakeholders, including customers. The coefficient for *BE* is negative and statistically

significant at the 10% level. Within restating firms, an increase in *BE* reduces the likelihood that a firm would engage in practices that would trigger an SEC investigation. Specifically, a one standard deviation increase in *BE* is associated with a decline in the likelihood of experiencing an SEC investigation by around 11.3%. These results lend support to our conjecture that high investments in *BE* are associated with a declining likelihood of engaging in financial reporting irregularities.

We also use an alternative measure of discretionary accruals, *DA_PG*, and *DA_adv* as dependent variables. Like the models that use our baseline measure of discretionary accruals, coefficient estimates of *BE* are negative and statistically significant. Performance and growth do not seem to fully explain the negative association between brand equity and discretionary accruals in our sample. Further, the possible mechanical association between advertising expenses and our baseline measure of discretionary accruals does not seem to fully explain the negative association between *BE* and our baseline measure of earnings management. However, consistent with the assumptions of Collins, Pungaliya, and Vijh (2017), and with the assumption that some accruals might be linked to advertising expenses, the coefficients for *BE* are much smaller when using *DA_PG* and *DA_adv*.

We also test the robustness of our results in controlling for corporate reputation. Cao, Myers, and Omer (2012) uncover a negative association between earnings restatement and corporate reputation as measured by membership in Fortune's most admired companies list. Despite the conceptual difference between reputation (which focuses on how business professionals perceive a company) and brand equity (which focuses on the relationship with customers), one might argue that brand equity is just a mirror image of a firm's reputation. To address this concern, we control for *Most_Admired*, which is a dummy variable that equals one if a firm is listed in the Fortune most admired companies list in a given year. Further, we conduct our tests while excluding the great

recession years of 2007 and 2008 and using a pre-SOX (1990–2000) and post-SOX (2001–2018) periods. The coefficients for *BE* are negative and statistically significant across all these specifications.

5. Concluding Remarks

Firms make highly specialized investments in brand building, the value of which is determined by prospects of the customer-supplier relationships. Because accounting scandals may harm these relationships and cause more reputational loss to executives, we argue that firms with high investment in brand equity strive to avoid financial reporting irregularities. Our results show that high-brand-equity firms are less likely to misstate their earnings and to have income-inflating discretionary accruals. Further tests show that firms with valuable brands are less likely to announce restatements that involve an SEC investigation.

We show that the impact of brand equity on financial irregularities flows through two channels: incentive and opportunity. Because firms with high brand equity derive greater value from customer-supplier relationships and provide nonpecuniary benefits for the executives that depend on brand value, these firms are more likely to offer incentives that discourage earnings manipulations and adopt an organization culture that limits managerial opportunism.

The negative association between brand equity on one hand and earnings misstatements and discretionary accruals, on the other hand, is robust to the use of growth/performance adjusted measure of discretionary accruals, advertising expenses measure of discretionary accruals, and to the use of several alternative measures of brand equity. Our results are robust after controlling for CEO characteristics, measures of corporate governance, and measures of CEO incentives and risk-taking behavior. Lastly, our results are not sensitive to the enactment of SOX and did not change by excluding the great recession years. We recognize that due to the influence of financial reporting

irregularities, reverse causality between brand equity and financial reporting is possible. Because managers use their discretion to build brand equity and select accounting methods, our baseline results may also suffer from omitted variable bias. We use instrumental variable regression and dynamic regression estimation methods to reduce the likelihood that the negative association between brand equity and financial reporting irregularities is due to endogeneity. We conclude that higher brand equity positively affects the reliability of corporate financial statements.

The prior literature on corporate finance has relatively underexplored the role of brand equity and other intangible assets on agency issues. Srinivasan and Hanssens (2009) propose that future research needs to expand our understanding of the benefits that flow from intangible assets focusing on the channel(s) through which greater intangible value increases shareholder value. We extend this field of research by focusing on accounting misconduct. We show that investing in brand equity can increase firm value through cost savings due to lower agency costs and reduced likelihood of corporate misconduct hence justifying the allocation of more resources into brand-related investments.

Our findings also have implications for financial market participants. Accounting standards require the recognition of advertising expenses as current-period expenses, suggesting that the benefits of advertising expenses are short-lived. We show that building brand equity through investing in unrecognized intangible assets provides longer-term benefits such as a lower likelihood of financial reporting irregularities. Our findings also suggest that analysts' forecasts may be more accurate for high-brand-equity firms, which are less likely to restate their earnings and engage in aggressive earnings management. Information environments without restatements and earnings management are more transparent.

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Table 1
Descriptive statistics

<i>A. Baseline model (N = 47,216)</i>					
	Mean	SD	25th perc.	50th perc.	75th perc.
<i>Misstatement</i>	0.115	0.318	0.000	0.000	0.000
<i>Disc_accruals</i>	0.013	0.439	-0.056	0.005	0.076
<i>BE</i>	0.081	0.142	0.011	0.032	0.085
<i>ln_MVE</i>	5.214	2.637	3.276	5.208	7.117
<i>Leverage</i>	0.290	0.512	0.016	0.182	0.371
<i>MB</i>	2.801	7.553	0.942	1.896	3.639
<i>ROA</i>	-0.161	0.959	-0.089	0.025	0.084
<i>Neg_ROA</i>	0.294	0.455	0.000	0.000	1.000
<i>AR_IN</i>	0.299	0.212	0.120	0.263	0.442
<i>R&D</i>	0.056	0.123	0.000	0.003	0.067
<i>KZ_index</i>	1.061	4.815	-0.017	0.771	1.744
<i>Segments</i>	1.953	1.536	1.000	1.000	3.000
<i>HHI</i>	0.243	0.184	0.109	0.193	0.310
<i>Foreign</i>	0.649	0.477	0.000	1.000	1.000
<i>B. Other measures of financial reporting irregularities (N = 47,216)</i>					
	Mean	SD	25th perc.	50th perc.	75th perc.
<i>Restater</i>	0.563	0.496	0.000	1.000	1.000
<i>SEC_inv</i>	0.101	0.302	0.000	0.000	0.000
<i>DA_PG</i>	0.003	0.290	-0.044	0.000	0.044
<i>DA_adv</i>	0.005	0.274	-0.053	0.000	0.052

Panel A reports descriptive statistics for our main dependent variables (*Misstatement* and *Disc_accruals*) and baseline model control variables. Panel B describes additional measures of financial reporting irregularities. We define all variables in the appendix and winsorize continuous variables at the 1% and 99% levels.

Table 2
Pearson correlation coefficients

	<i>Misstatement</i>	<i>Disc_accruals</i>	<i>BE</i>	<i>Size</i>	<i>Leverage</i>	<i>MB</i>	<i>ROA</i>	<i>Neg_ROA</i>	<i>AR_IN</i>	<i>R&D</i>	<i>KZ_index</i>	<i>Segments</i>	<i>HHI</i>
<i>Disc_accruals</i>	0.000												
<i>BE</i>	-0.012	-0.046											
<i>Size</i>	0.083	0.025	-0.140										
<i>Leverage</i>	0.009	-0.066	0.156	-0.183									
<i>MB</i>	-0.007	0.008	-0.020	0.144	-0.115								
<i>ROA</i>	-0.033	0.094	-0.179	0.203	-0.433	0.062							
<i>Neg_ROA</i>	0.017	-0.049	0.098	-0.357	0.209	-0.009	-0.357						
<i>AR_IN</i>	-0.082	0.031	0.080	-0.275	-0.010	-0.055	0.072	-0.112					
<i>R&D</i>	-0.010	-0.030	0.066	-0.118	0.123	0.007	-0.291	0.269	-0.040				
<i>KZ_index</i>	0.014	-0.046	0.124	-0.130	0.403	-0.065	-0.387	0.181	0.025	0.087			
<i>Segments</i>	0.052	0.014	-0.085	0.302	-0.031	-0.014	0.081	-0.123	-0.084	-0.115	-0.035		
<i>HHI</i>	-0.025	-0.012	-0.023	-0.071	-0.018	-0.009	0.018	-0.037	0.204	-0.054	-0.010	0.027	
<i>Foreign</i>	-0.129	0.012	-0.061	0.100	-0.131	0.030	0.160	-0.124	0.119	0.004	-0.073	0.041	0.041

We report Pearson correlation coefficients for our main dependent variables (*Misstatement* and *Disc_accruals*) and our baseline model control variables. We define all variables in the appendix and winsorize continuous variables at the 1% and 99% levels.

Table 3
Brand equity, earnings restatement, and earnings management: A univariate analysis

	<i>Misstatement</i>	<i>Disc_accruals</i>
<i>A. Misstatement and Disc_accruals for two groups of firms ranked by BE (N = 23,608)</i>		
Below-median <i>BE</i>	0.122	0.027
Above-median <i>BE</i>	0.107	-0.001
Difference	0.015*** (0.000)	0.028*** (0.000)
<i>B. Misstatement and Disc_accruals for four groups of firms ranked by BE (N = 11,804)</i>		
<i>BE</i> Q1	0.139	0.037
<i>BE</i> Q2	0.105	0.016
<i>BE</i> Q3	0.104	0.005
<i>BE</i> Q4	0.110	-0.009
Difference (Q1 – Q4)	0.028*** (0.000)	0.046*** (0.000)
<i>C. Misstatement and Disc_accruals for ten groups of firms ranked by BE (N = 4,722)</i>		
<i>BE</i> D1	0.144	0.042
<i>BE</i> D2	0.143	0.041
<i>BE</i> D3	0.113	0.020
<i>BE</i> D4	0.106	0.021
<i>BE</i> D5	0.104	0.007
<i>BE</i> D6	0.096	0.008
<i>BE</i> D7	0.106	0.003
<i>BE</i> D8	0.113	0.007
<i>BE</i> D9	0.114	-0.003
<i>BE</i> D10	0.105	-0.022
Difference (<i>D1</i> – <i>D10</i>)	0.038*** (0.000)	0.066*** (0.000)

We classify firms according to whether *BE* is above or below median (panel A), based on quartiles (panel B) and deciles (panel C). For each of these classifications, in turn, we present the mean for earnings restatement (*Misstatement*) and discretionary accruals (*Disc_accruals*). *Misstatement* is a dummy variable that equals one if the company misstates its financial reports in a given year. *Disc_accruals* is the residual from the Jones' (1991) model. *BE* is our measure of a firm's brand equity. Differences in means are based on *t*-statistics. We define all variables in the appendix and winsorize continuous variables at the 1% and 99% levels. We report *p*-values in parentheses. **p* < .1; ***p* < .05; ****p* < .01.

Table 4
Brand equity, earnings restatement, and earnings management: A regression analysis

	<i>Misstatement</i>			<i>Disc_accruals</i>		
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Constant</i>	-2.025*** (0.000)	-2.039*** (0.000)	-6.987*** (0.000)	0.024*** (0.000)	0.037*** (0.000)	-0.036 (0.231)
<i>BE</i>	-0.261** (0.015)	-0.201* (0.070)	-0.311*** (0.009)	-0.135*** (0.000)	-0.079*** (0.000)	-0.140** (0.032)
<i>ln_MVE</i>		0.077*** (0.000)	0.039*** (0.000)		-0.001 (0.214)	-0.007* (0.059)
<i>Leverage</i>		-0.038 (0.252)	0.008 (0.806)		-0.025*** (0.000)	-0.053*** (0.008)
<i>MB</i>		-0.007*** (0.000)	-0.005** (0.013)		-0.000 (0.981)	0.000 (0.492)
<i>ROA</i>		-0.064*** (0.000)	-0.064*** (0.000)		0.033*** (0.000)	0.023 (0.102)
<i>Neg_ROA</i>		0.100*** (0.009)	0.025 (0.520)		-0.009* (0.073)	-0.029*** (0.000)
<i>AR_IN</i>		-0.405*** (0.000)	-0.112 (0.261)		0.048*** (0.000)	0.244*** (0.000)
<i>R&D</i>		-0.478*** (0.001)	-0.532*** (0.000)		0.004 (0.832)	-0.135* (0.066)
<i>KZ_index</i>		0.005 (0.169)	0.005 (0.114)		-0.000 (0.435)	-0.001 (0.689)
<i>Segments</i>		0.059*** (0.000)	0.014 (0.144)		0.003** (0.048)	0.004* (0.056)
<i>HHI</i>		-0.158* (0.060)	-0.161 (0.110)		-0.057*** (0.000)	-0.023 (0.348)
<i>Foreign</i>		-0.601*** (0.000)	-0.026 (0.472)		-0.003 (0.502)	0.010 (0.309)
No. of observations	47,216	47,216	47,216	47,216	47,216	47,216
Year and industry FE	No	No	Yes	No	No	Yes
Adjusted R^2 (%)				0.7	1.1	2.6
- log likelihood	16,801	16,444	15,001			

We report results of estimates of our baseline logistic (OLS) models with *Misstatement* (Models 1–3) and *Disc_accruals* (Models 4–6) as the dependent variables. *Misstatement* is a dummy variable that equals one if the company misstates its financial reports in a given year. *Disc_accruals* is the residual from the Jones' (1991) model. *BE* is our measure of a firm's brand equity. We define all variables in the appendix and winsorize continuous variables at 1% and 99% levels. We use robust standard errors and cluster at the firm level. We report p -values in parentheses. * $p < .1$; ** $p < .05$; *** $p < .01$.

Table 5
Brand equity and earnings restatement and management: IV analysis

	<i>First-stage</i>	<i>Second-stage</i>	<i>Second-stage</i>
	<i>BE</i>	<i>Misstatement</i>	<i>Disc_accruals</i>
	(1)	(2)	(3)
<i>Constant</i>	0.045*** (0.000)		0.032 (0.185)
<i>Instrumented_BE</i>		-1.255** (0.020)	-1.149** (0.026)
<i>ln_firm_age</i>	0.008*** (0.000)		
<i>ln_MVE</i>	-0.004*** (0.000)	0.001 (0.629)	-0.006** (0.047)
<i>Leverage</i>	0.026*** (0.000)	0.030* (0.067)	0.002 (0.913)
<i>MB</i>	0.000* (0.062)	-0.000 (0.226)	0.000 (0.914)
<i>ROA</i>	-0.014*** (0.000)	-0.027*** (0.004)	0.018 (0.180)
<i>Neg_ROA</i>	0.003 (0.159)	0.016** (0.012)	-0.007 (0.318)
<i>AR_IN</i>	0.046*** (0.000)	0.012 (0.703)	0.137*** (0.000)
<i>R&D</i>	0.065*** (0.000)	0.040 (0.385)	0.030 (0.609)
<i>KZ_index</i>	0.001*** (0.000)	0.002** (0.022)	0.001 (0.405)
<i>Segments</i>	-0.001 (0.177)	0.005** (0.028)	0.001 (0.588)
<i>HHI</i>	0.003 (0.707)	-0.008 (0.658)	-0.005 (0.736)
<i>Foreign</i>	-0.002 (0.419)	-0.061*** (0.000)	-0.006 (0.298)
No. of observations	47,216	47,216	47,216
Robust SE	Yes	Yes	Yes
Year and industry FE	Yes	Yes	Yes
Adjusted R ₂ (%)	15.6		
Wald chi ₂		503	280
First-stage F-stat.	17.89		

We report results of estimates of 2SLS instrumental variable (IV) models that use *ln_firm_age* as an instrument. Columns 1 and 2 show coefficient estimates of the first- and second-stage models for which *Misstatement* is the dependent variable in the second stage. Columns 1 and 3 show coefficient estimates of the first- and second-stage models for which *Disc_accruals* is the dependent variable in the second stage. We define all variables in the appendix and winsorize continuous variables at 1% and 99% levels. We report *p*-values in parentheses. **p* < .1; ***p* < .05; ****p* < .01.

Table 6
Brand equity and financial reporting irregularities: Incentive and/or opportunity

<i>A. Brand equity and earnings misstatements (Misstatement)</i>						
	<i>Incentive channel</i>				<i>Opportunity channel</i>	
	<i>Durable = 1</i>	<i>Durable = 0</i>	<i>Career_conc. = 1</i>	<i>Career_conc. = 0</i>	<i>BOD_indep. = 1</i>	<i>BOD_indep. = 0</i>
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Constant</i>	-6.716*** (0.000)	-2.243*** (0.000)	-0.475 (0.698)	1.001 (0.200)	-1.694** (0.027)	-3.775*** (0.002)
<i>BE</i>	-0.567** (0.037)	-0.208 (0.116)	-1.176** (0.014)	-0.476 (0.302)	-1.580*** (0.000)	-0.630 (0.181)
No. of observations	16,808	28,349	7,038	7,038	7,669	6,374
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year and industry	Yes	Yes	Yes	Yes	Yes	Yes
FE						
- log likelihood	4,707	10,244	2,720	2,360	3,073	2,258
<i>B. Brand equity and earnings management (Disc_accruals)</i>						
	<i>Incentive channel</i>				<i>Opportunity channel</i>	
	<i>Durable = 1</i>	<i>Durable = 0</i>	<i>Career_conc. = 1</i>	<i>Career_conc. = 0</i>	<i>BOD_indep. = 1</i>	<i>BOD_indep. = 0</i>
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Constant</i>	-0.057* (0.059)	-0.051** (0.010)	-0.003 (0.941)	-0.066* (0.074)	-0.054* (0.078)	0.010 (0.829)
<i>BE</i>	-0.147** (0.012)	-0.073** (0.021)	-0.094*** (0.008)	0.009 (0.853)	-0.046* (0.100)	-0.046 (0.370)
No. of observations	16,808	28,349	7,038	7,038	7,669	6,374
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year and industry	Yes	Yes	Yes	Yes	Yes	Yes
FE						
Adjusted R ₂ (%)	4.3	3.7	6.6	4.4	6.8	3.5

This table reports the results of regression models using several subsamples. The dependent variable in panel A is *Misstatement*, and panel B is *Disc_accruals*. *Durable* is a dummy variable that equals one for firms in durable products industries. *Career_Conc.* is a dummy variable that equals one if a CEO has a below-median tenure. *BOD_indep.* is a dummy variable that equals one if the percentage of outside directors in a firm's BOD is above median. We define all variables in the appendix and winsorize continuous variables at the 1% and 99% levels. We use robust standard errors and cluster at the firm level. We report *p*-values in parentheses. **p* < .1; ***p* < .05; ****p* < .01.

Table 7
Profitability following restatement announcements: A DID test

	<i>ROA</i>	<i>EPS_X</i>	<i>EPS_op</i>
	(1)	(2)	(3)
<i>Constant</i>	-0.297** (0.027)	0.792** (0.011)	0.444** (0.040)
<i>High_BE * Post</i>	-0.081* (0.077)	-0.170** (0.038)	-0.141** (0.027)
<i>High_BE</i>	-0.048 (0.171)	0.105* (0.082)	0.112** (0.018)
<i>Post</i>	0.072** (0.014)	0.024 (0.675)	0.023 (0.614)
<i>ln_MVE</i>	0.060*** (0.000)	0.280*** (0.000)	0.301*** (0.000)
<i>Leverage</i>	-0.644*** (0.000)	0.075** (0.014)	0.119*** (0.000)
<i>MB</i>	0.004 (0.152)	0.004** (0.043)	0.000 (0.894)
<i>AR_IN</i>	0.502*** (0.000)	0.934*** (0.000)	0.949*** (0.000)
<i>R&D</i>	-1.582*** (0.000)	-0.834*** (0.000)	-0.850*** (0.000)
<i>KZ_index</i>	-0.070*** (0.000)	-0.021*** (0.000)	-0.014*** (0.000)
<i>Segments</i>	0.021*** (0.000)	0.006 (0.706)	0.034*** (0.005)
<i>HHI</i>	-0.263*** (0.002)	0.307** (0.015)	0.304*** (0.003)
<i>Foreign</i>	0.177*** (0.000)	-0.254*** (0.000)	-0.135*** (0.000)
No. of observations	7,613	7,613	7,613
Year and industry FE	Yes	Yes	Yes
Adjusted R_2 (%)	40.5	17.7	27.2

This table reports results of difference-in-differences (DID) tests of the impact of restatement announcements on profitability. *High_BE* equals one if a firm has above-median *BE*, and 0 otherwise. *Post* equals one for the post-restatement announcement period. *High_BE * Post*, which is our RHS DID variable of interest, is the interaction term of *High_BE* and *Post*. The dependent variables in Models 1, 2, and 3 are *ROA*, *EPS_X*, and *EPS_Op*, respectively. To eliminate the effect of confounding events, we restrict our test to the 3 years before and after the restatement announcement year. We define all variables in the appendix and winsorize continuous variables at the 1% and 99% levels. We use robust standard errors and cluster at the firm level. We report *p*-values in parentheses. **p* < .1; ***p* < .05; ****p* < .01.

Table 8
Brand equity and financial reporting irregularities: Dynamic analysis

	<i>Misstatement</i>		<i>Disc_accruals</i>	
	(1)	(2)	(3)	(4)
<i>Constant</i>	-6.476*** (0.000)	-6.472*** (0.000)	-0.087*** (0.009)	-0.085** (0.011)
<i>BE_{t+1}</i>	0.001 (0.960)	0.000 (0.988)	0.025 (0.142)	0.025 (0.141)
<i>BE</i>	-0.340** (0.027)	-0.246* (0.071)	-0.204** (0.032)	-0.195** (0.042)
<i>BE_{t-1}</i>	-0.001 (0.979)	0.005 (0.895)	0.012 (0.818)	0.012 (0.808)
<i>BE_{t-2}</i>		-0.096 (0.323)		-0.030 (0.198)
<i>ln_MVE</i>	0.021** (0.022)	0.020** (0.023)	-0.002 (0.546)	-0.002 (0.556)
<i>Leverage</i>	0.010 (0.814)	0.010 (0.813)	-0.053** (0.046)	-0.053** (0.045)
<i>MB</i>	-0.006** (0.012)	-0.006** (0.013)	0.000 (0.422)	0.000 (0.406)
<i>ROA</i>	-0.046** (0.042)	-0.048** (0.035)	0.038** (0.047)	0.038** (0.050)
<i>Neg_ROA</i>	0.041 (0.380)	0.039 (0.398)	-0.019** (0.037)	-0.019** (0.034)
<i>AR_IN</i>	-0.142 (0.227)	-0.148 (0.209)	0.274*** (0.000)	0.274*** (0.000)
<i>R&D</i>	-0.407** (0.030)	-0.417** (0.026)	0.022 (0.838)	0.019 (0.865)
<i>KZ_index</i>	0.012*** (0.003)	0.012*** (0.003)	-0.002 (0.356)	-0.002 (0.369)
<i>Segments</i>	0.018* (0.093)	0.018* (0.096)	0.004 (0.129)	0.003 (0.137)
<i>HHI</i>	-0.155 (0.181)	-0.156 (0.177)	-0.017 (0.488)	-0.017 (0.486)
<i>Foreign</i>	-0.034 (0.419)	-0.034 (0.416)	0.016 (0.126)	0.016 (0.125)
No. of observations	33,901	33,901	33,901	33,901
Year and industry FE	Yes	Yes	Yes	Yes
Adjusted <i>R</i> ₂ (%)			0.030	0.030
- log likelihood	11,264	11,264		

We report the results of estimates of dynamic regression models of the determinants of financial reporting irregularities. The dependent variable is *Misstatement* in Models 1 and 2 and *Disc_accruals* in Models 3 and 4. We define all variables in the appendix and winsorize continuous variables at the 1% and 99% levels. We use robust standard errors and cluster at the firm level. We report *p*-values in parentheses. ***p* < .1; ****p* < .05; *****p* < .01.

Appendix

Table A1. Variable definitions

Variable	Definition
Brand equity variables	
<i>BE</i>	Brand equity scaled by <i>TA</i> . Brand equity is calculated using the perpetual inventory method $(1 - \delta)B_{t-1} + A_t$
<i>BE₂₀</i>	Sustainable brand equity calculated using a 20% depreciation rate instead of a 50% one
<i>BE_{SS}</i>	Measure of brand equity following the Simon and Sullivan (1993) definition
Earnings management and earnings restatement variables	
<i>Misstatement</i>	A firm-year-level dummy variable that equals one if the company misstates its financial reports in a given year
<i>Restater</i>	A firm-level dummy variable that equals one if the firm ever announces a restatement during the sample period
<i>SEC_Inv</i>	A firm-year-level dummy variable that equals one if the firm has a misstatement that involves SEC investigation during the year
<i>Disc_Accruals</i>	The residual from Jones' (1991) model modified following Dechow, Sloan, and Sweeney (1995). Specifically, for each calendar year and two-digit SIC code, we estimate the following equation: $TACR_{i,t} = \beta_1 1/TA_{i,t-1} + \beta_2 (\Delta SALE_{i,t} - \Delta REC_{i,t}) + \beta_3 PPEN_{i,t} + \beta_4 TACR_{i,t-1} + \varepsilon_{i,t}$ where <i>TACR</i> is total accruals calculated as $TACR = \Delta CA - \Delta CL - \Delta CASH - \Delta STD - DEP$, and $\varepsilon_{i,t}$ is a random error term. We control for the lagged value of <i>TACR</i> . Further, following the accounting literature, all variables are scaled by total assets at the beginning of the year. Nondiscretionary accruals are measured as the fitted value of Equation (3). Finally, <i>Disc_Accruals</i> is measured as the model's residual, $\varepsilon_{i,t}$
<i>DA_PG</i>	Discretionary accruals adjusted for growth and performance. For each firm-year, we first estimate discretionary accruals as the residual from the modified Jones' (1991) model. Then, within each year and industry (two-digit SIC code), we construct five quintile ranks based on growth (sales growth) and operating performance (<i>ROA</i>), resulting in 25 unique portfolios within each year/industry. <i>Adjusted_DA</i> is the firm-year discretionary accruals, <i>Disc_Accruals</i> minus the median discretionary accruals of the performance/growth-matched portfolio for the same year and industry
<i>DA_Adv</i>	Discretionary accruals that eliminate the effect of the accounting treatment of advertising expenses. In this measure, discretionary accruals are defined as the residual from the following model: $TACR_{i,t} = \beta_1 1/TA_{i,t-1} + \beta_2 (\Delta SALE_{i,t} - \Delta REC_{i,t}) + \beta_3 PPEN_{i,t} + \beta_4 TACR_{i,t-1} + \beta_5 Advertising_exp_{i,t} + \varepsilon_{i,t}$
Control variables	
<i>ln_MVE</i>	The natural logarithm of a firm's total equity
<i>Leverage</i>	Firm's total debt divided by total assets
<i>MB</i>	The ratio of market value to book value of total equity

<i>ROA</i>	Returns on assets defined as income before extraordinary items divided by total assets at the beginning of the year
<i>Neg_ROA</i>	A dummy variable that equals one if a firm has 2 consecutive years with negative ROA (current and previous year)
<i>R&D</i>	The ratio of research and development expenses to a firm's total assets
<i>KZ-index</i>	The index that measures a firm's dependency on external financing (Kaplan and Zingales 1997)
<i>Segments</i>	Number of a firm's business segments
<i>ln_firm_age</i>	The natural logarithm of the age of a firm calculated using the first year a firm has data on Compustat
<i>HHI</i>	$\sum_{i=1}^N \text{sales}_i^2$, where sales_{ijt} is the market share of firm i industry j in year t Market shares are computed based on firms' sales
<i>Foreign</i>	A dummy variable that equals one if a firm has foreign sales
<i>Durable</i>	A dummy variable that equals one for firms involved in the construction and/or manufacturing of durable products, identified as firms with SIC codes 150–179, 245, 250–259, 283, 301, and 324–399
<i>Career_Concern</i>	A dummy variable that equals one when a CEO has a below-median tenure
<i>BOD_Independence</i>	The percentage of independent members on the board of directors
<i>CA</i>	Current assets
<i>CL</i>	Current liabilities
<i>Cash</i>	Cash holdings
<i>STD</i>	Short-term debt
<i>TA</i>	Total assets
<i>Sale</i>	Total sales
<i>Rec</i>	Trade receivables
<i>PPEN</i>	Net property, plant, and equipment
<hr/>	
DID test variables	
<i>EPS_X</i>	Earnings per share before extraordinary items
<i>EPS_Op</i>	Earnings per share from operations
<i>High_BE</i>	A dummy variable that equals one if a firm has above-median <i>BE</i> in a given year
<i>Post</i>	A dummy variable that equals one for the 3 years following earnings restatement announcement year
<i>High_BE * Post</i>	The interaction term of <i>High_BE</i> and <i>Post</i>