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ORIGINAL EMPIRICAL RESEARCH

CEO narcissism, brand acquisition and disposal, and stock returns

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Abstract

Chief executive officer (CEO) narcissism is an ingrained personality trait referring to the degree to which an individual CEO has an inflated level of self-admiration and seeks to gain attention and social praise by pursuing vanity-driven strategic objectives. We find evidence that narcissistic CEOs are less likely to dispose of brands but more likely to acquire brands than their less narcissistic counterparts. Further, narcissistic CEOs are more likely than their counterparts to lead their companies to acquire high-awareness brands and more likely to dispose of low-awareness brands. We also propose a moderated mediation model in which CEO narcissism increases target brand asset overvaluation, and through this mediator, CEO narcissism has a negative indirect impact on the acquirer's abnormal returns but a positive indirect impact on the seller's abnormal returns associated with the brand transactions. Brand awareness and perceived quality weaken the relationship between target brand asset overvaluation and abnormal returns.

Keywords CEO narcissism · Brand acquisition · Brand disposal · Brand awareness · Perceived quality · Brand asset overvaluation · Abnormal returns

Introduction

Brands are reputational assets that contribute to firm performance. In addition to developing brands internally, executives actively formulate brand acquisition and disposal strategies that often lead to the most substantial investments that firms undertake (Gruca & Rego, 2005; Wiles et al., 2012). Despite active markets for acquiring and disposing of brand assets, our understanding of the antecedents and financial consequences of brand acquisition and disposal is still incomplete (Bahadir et al., 2008). The bulk of prior research in this area has focused on the role of brand characteristics and marketing capability on stock returns (Wiles et al., 2012). However, the role of the chief executive officer (CEO)—who is often the ultimate decision maker in these transactions—has not been closely studied.

The upper echelon literature views *narcissism* as a fundamental personality trait of CEOs that influences firm-level outcomes (Kashmiri et al., 2017; Ham et al., 2018). CEO narcissism is an ingrained personality trait referring to the degree to which a CEO has an inflated level of self-admiration and seeks to gain attention and social praise by pursuing vanity-driven strategic objectives (Resick et al., 2009). Brands help individuals earn admiration and enhance their self-esteem through their brand affiliations (e.g., Escalas et al., 2013), and brand transactions give CEOs the opportunity to gain visibility. The perceptual filtering mechanism (England, 1967) suggests that narcissistic CEOs are likely to have heightened awareness of any market information that can help obtain stakeholders' attention and gather social praise (Kashmiri et al., 2017). Thus, CEOs devote substantial attention toward brand transactions.

Anecdotal evidence also suggests that CEOs' narcissism may play a role in firms' brand acquisition and disposal decisions, the type of brands they choose to trade, and the financial consequences of the brand transaction. Oracle's Larry Ellison mused about the acquisition of PeopleSoft, "Am I doing it for purposes of vanity or because of my obligation to the shareholders?" (Trainer, 2016). There are also examples of CEOs

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characterized as narcissistic whose branding strategies misfired. For instance, Joseph Nacchio, the CEO of Qwest, was described as having a narcissistic personality (Rijsenbilt & Commandeur, 2013). He turned Qwest into an attractive target for the regional Bell operating companies, but he refused to sell Qwest and instead acquired another company in 2000, which led to a 40% fall in Qwest's stock price. Steven Ballmer, former CEO of Microsoft, was known for his flamboyant stage appearances. During his tenure, Microsoft acquired Nokia's mobile device business in 2013, when Nokia was ranked as the 19th most valuable global brand (Cioban, 2012). However, this deal turned into a $7.5 billion write-down in 2016 after Microsoft conceded that this acquisition did not turn Microsoft into a viable mobile competitor. In contrast, Jeff Bewkes, described as a low-key CEO of Time Warner (2008–2018) (Hagey, 2016), built his reputation on shrinking the media conglomerate down to focus on TV and film content. He sold Time Warner to AT&T in 2016 for $85 billion when Time Warner's value was at its highest.[1]

Moreover, a CEO's narcissism has also been suggested to generate positive influences; research found that CEO narcissism positively affects firm-level outcomes such as EPS, stock price, and ROA (e.g., Olsen et al., 2014; Cragun et al., 2020). Thus, because of the mixed evidence, it is unclear how CEO narcissism may impact the financial outcomes of brand transactions or through what mediators and moderators such impact occurs.

Our research contributes to the literature in three ways. First, we bring a novel perspective to the brand literature by focusing on CEO personality and documenting the link between CEO narcissism and brand disposal and acquisition decisions. This perspective contrasts with prior research about brand transactions, which has mainly focused on firm-level and brand-level attributes, such as channel capabilities, brand portfolio, and marketing capabilities (e.g., Wiles et al., 2012). We provide a literature review on the topic of brand acquisition and disposal in Table A2.

Second, this research is the first to examine CEO narcissism's effects on both brand acquisitions and brand disposals in one simultaneous empirical study. As can be seen in Table A3, a scarcity of empirical research exists on brand disposals and their associated financial consequences (Mao et al., 2009). Examining both acquirers' and sellers' CEO narcissism sheds light on the differential impacts of CEO narcissism in the acquisition and disposal contexts.

Third, our research explores through which underlying mechanism CEO narcissism's influences on financial performances are generated. The mixed findings of CEO narcissism's direct effects on firms' financial performance suggest that more research is needed on the mediating paths between CEO narcissism and financial performance. The substantial differences in the extent of bias in brand valuation have been documented previously (Kallapur & Kwan, 2004). Given upper echelons' influence on asset valuation, our research focuses on *brand asset overvaluation*, defined as the overpayment for a brand asset above its fair value, through which CEO narcissism can affect the transaction's financial returns.

Practitioners can also benefit from the knowledge regarding how CEOs' narcissism influences brand acquisitions and disposals and the financial returns of the brand transactions. We find mixed mediation effects; CEO narcissism can have a positive or negative influence, depending on specific scenarios. Through its impact on brand asset overvaluation, acquirer CEO narcissism lowers the deal-associated returns by 0.9% ($42 million), while seller CEO narcissism increases the deal-associated returns by 0.7% ($50 million) on average. In addition, narcissistic CEOs are less likely (a 15% lower possibility) to dispose of brands but more likely (a 13% higher possibility) to acquire brands than their less narcissistic counterparts; they are also more likely to acquire high-awareness brands but dispose of low-awareness brands. These findings may help marketing managers predict their competitors' actions and formulate strategies to gain competitive advantages. Boards of directors can use this knowledge when selecting CEOs to evaluate the fit between the CEO's narcissism and the firm's strategic focus on expanding or shrinking brand portfolios. Investors can be better informed to anticipate the influence of CEO narcissism on their brand acquisition and disposal events in order to make financially viable decisions.

Specifically, we first assess the relationships between CEO narcissism and the likelihood of brand acquisition and disposal. Second, we focus on CEO narcissism's impact on the firm's choice of higher- (lower-) awareness target brands. Third, we examine whether brand asset overvaluation mediates the relationship between CEO narcissism and firms' abnormal returns. Fourth, we consider to what extent the target brand's brand awareness and perceived quality moderate the relationships between brand asset overvaluation and abnormal returns.

Theoretical background

CEO narcissism and brands

Narcissism refers to the degree to which an individual has inflated self-admiration and self-absorption (Rosenthal & Pittinsky, 2006). Narcissistic CEOs seek to have their inflated self-views repeatedly reaffirmed by showcasing their superiority and devaluing others through actions that may induce applause and admiration (Campbell, 1999; Carlson et al., 2011).

[1] Table A1 in the Appendix shows more anecdotal examples of CEOs with different narcissism levels and the brand transactions under their leaderships.

This research aims to understand the impact of CEO narcissism on brand transactions. One major benefit of brands is to help consumers earn attention and admiration, among other social and emotional benefits (Escalas et al., 2013). Individuals, including employees, use brand affiliations to affirm, express, and enhance their self-esteem (Bearden & Etzel, 1982; Solomon, 1983). Prior research indicates that executives' organizational identities are associated with brand value (Tavassoli et al., 2014). Among CEO traits,[2] we consider narcissism the one that makes CEOs the most aware of brands' benefits in capturing audience attention and social praise. Narcissistic CEOs likely devote more effort to managing brand assets.

CEO characteristics have been rarely associated with brands in the marketing literature, although some research does exist on how consumers' narcissism may affect their brand choices. Research has suggested that narcissists prefer branded goods (Pilch & Górnik-Durose, 2017), and they are prime targets for flashy products (Neave et al., 2020). Narcissists' inflated self-esteem is satisfied by displaying their associations with admiring and highly positive entities (Campbell, 1999). Narcissistic consumers have a greater tendency than their non-narcissistic counterparts to sacrifice utilitarian aspects for symbolic ones (Sedikides et al., 2007). Although we acknowledge that executive decisions are more complex than the average consumer decisions, prior findings about narcissistic individuals' tendencies may provide a basis for exploring CEO narcissism's influences in the context of brand transactions.

CEO narcissism and firm-level outcomes

Prior research's findings regarding CEO narcissism's impacts on financial performance have been mixed (Chatterjee & Hambrick, 2007; Olsen et al., 2014; Ham et al., 2018). Although some evidence suggests that CEO narcissism negatively affects a firm's profitability (e.g., Ham et al., 2018), a recent meta-analysis (Cragun et al., 2020) shows that the overall relationship between CEO narcissism and firm performance (e.g., ROA, total shareholder returns) is positive.

In addition, prior research has examined CEO narcissism's impacts on strategic outcomes, including innovation (Kashmiri et al., 2017), acquisition emphasis, international diversification (Zhu & Chen, 2015), aggressiveness in adopting technology discontinuities (Gerstner et al., 2013), and risk-taking (Chatterjee & Hambrick, 2011; Aabo & Eriksen, 2018). In contrast, little scholarly attention has been devoted to the impact of CEOs on firms' reputational asset outcomes (Whitler et al., 2020).

Regarding the relationship between CEO narcissism and acquisition, prior research finds that the acquirer's stock market returns associated with acquisitions are lower when the acquirer CEO is more narcissistic (Aabo et al., 2020) and when the target CEO is more narcissistic (Aktas et al., 2016). Although prior research under the auspices of broader constructs might offer some implications about CEO narcissism and asset disposition, the mediation mechanism underlying the stock market's negative reaction to CEO narcissism and how to mitigate the negative financial consequences of CEO narcissism were not specifically examined until now. We provide a literature review on the relationship between CEO narcissism and firm outcomes in Table A3.

Hypotheses

CEO narcissism and brand acquisition/disposal decisions

Narcissistic CEOs have an excessive desire for attention and social praise (Kashmiri et al., 2017; Campbell, 1999; Morf & Rhodewalt, 2001). The motivational aspect of narcissism suggests that narcissistic CEOs take every possible opportunity to engage in vanity-driven actions to reaffirm their superiority (Gerstner et al., 2013). This process allows them to confirm their own grandiose and self-inflated views (Rosenthal & Pittinsky, 2006).

Brands are created to attract attention and establish positive perceptual associations, and brand affiliations can help employees, including CEOs, reaffirm and enhance self-esteem (Solomon, 1983; Tavassoli et al., 2014). By acquiring a brand, a narcissistic CEO can attract substantial attention from business media, which narcissists thrive on (Wallace & Baumeister, 2002). Acquiring brands from other firms also provides CEOs the opportunity to maximize the reputational transfer from the brands (Tavassoli et al., 2014). Thus, brand acquisitions offer a narcissistic CEO the desired social stage upon which to demonstrate superiority to their followers, competitors, and investors. As such, narcissistic CEOs will excessively desire immediate personal gratification and self-absorption from undertaking a bold course of brand acquisitions. Narcissistic CEOs are therefore more likely to acquire brands than their less narcissistic counterparts.

In contrast, divestitures are seen as mistakes by the market (e.g., Dranikoff et al., 2002; Dev, 2018; Pricewaterhouse Coopers, 2004), and divestitures reduce the set of organizational entities over which CEOs can exert control. Therefore,

[2] Some other personality traits, such as *overconfidence* and *sensation seeking*, have been studied in the upper echelon literature. Overconfidence refers to the tendency of CEOs to believe that they are better than they really are in terms of capability and judgment (Hirshleifer et al., 2012), and "they are acting in the interest of shareholders" (Malmendier & Tate, 2008, p. 22). Sensation seeking is defined as "the seeking of varied, novel, complex and intense sensations and experiences" (Zuckerman, 1994, p. 27). Overconfident CEOs or sensation-seeking CEOs are not necessarily driven by audience attention and social praise when performing their duties, and thus are different from narcissistic CEOs.

brand disposals may be viewed by narcissistic CEOs as actions that reduce their superiority and defeat their obsessive need for praise. Narcissistic CEOs are more likely than their less narcissistic peers to seek constant "external validation" to maintain their grandiose self (Nevicka et al., 2011, p. 911; Morf & Rhodewalt, 2001). Similarly, narcissistic CEOs, characterized by fragile self-esteem, tend to be sensitive to external criticisms (Rosenthal & Pittinsky, 2006). Thus, they are motivated to achieve positive outcomes but avoid criticism-inducing activities such as asset divestitures (Patel & Cooper, 2014). Although a CEO is supposed to focus on the economic benefits of disposing of a brand (e.g., sell it at an optimal price and use the proceeds for value-added initiatives), a more narcissistic CEO may overweight unfavorable personal consequences associated with brand disposal (i.e., losing a social stage, vanity, damaging personal image) and be less likely to dispose of brands.

Consequently, narcissistic CEOs, due to their strong desire to showcase their superiority on the social stage, are likely to show stronger preference toward brand acquisitions and stronger aversion toward brand disposals than less narcissistic counterparts.

H1a Firms with more narcissistic CEOs are more likely to acquire brands than firms with less narcissistic CEOs.

H1b Firms with more narcissistic CEOs are less likely to dispose of brands than firms with less narcissistic CEOs.

CEO narcissism and brand awareness

Prior studies considered brand awareness a primary attribute of brand value in consumers' minds (Aaker, 1996; Rego et al., 2009). Brand awareness reflects how well consumers are informed about the existence and the availability of a brand (Alba & Hutchinson, 1987; Kent & Allen, 1994); it suggests the brand's salience to consumers. Since publicity and social admiration are important suppliers of narcissism, the higher the brand awareness of the acquired brand, the more attention it attracts, and the more personal gratification and self-absorption a narcissistic CEO can obtain. Relatedly, research has shown that narcissistic individuals tend to display their associations with high-status (admiring and highly positive) entities to satisfy their inflated self-esteem (e.g., Campbell, 1999), and the organizational identities of executives are associated with brand value (Tavassoli et al., 2014). We argue that more narcissistic CEOs tend to attach excessively higher importance to the target brand's awareness than their less narcissistic peers.

Because high-awareness brands are well known, they are often expensive (Liu & Krystyniak, 2021); buying them will not constitute a positive financial value for every acquirer, but only for firms that can allocate adequate financial resources and integrate marketing capability to further grow these acquired brands. Narcissistic CEOs are more likely to overvalue high brand awareness, and thus they are more likely to pursue the opportunities to acquire high-awareness brands than non-narcissistic CEOs, irrespective of the brands' perceived quality or the deal's costs.

In contrast, association with an inferior brand poses a threat to self-esteem. Narcissistic leaders tend to have fragile self-esteem behind their strong self-admiration and are sensitive to feelings of inferiority (Rosenthal & Pittinsky, 2006). Thus, narcissistic CEOs will have stronger motivation to be disassociated with brands that have low awareness. However, divesting a low-awareness brand may not be the best strategic option for every company. A low-awareness brand may have economic strengths (e.g., stable cash inflow) that should be kept in the corporate brand portfolio. We expect that, controlling for brands' perceived quality, narcissistic CEOs are more likely to dispose of low-awareness brands than their counterparts.

H2a The acquirer with a more narcissistic CEO is more likely to acquire a target brand with high brand awareness than firms with less narcissistic CEOs.

H2b The seller with a more narcissistic CEO is more likely to sell a target brand with low brand awareness than firms with less narcissistic CEOs.

The mediating path: CEO narcissism and the target brand asset overvaluation

The valuation of intangible assets is at management's discretion and is often influenced by managerial bias (e.g., Hayward & Hambrick, 1997). A brand asset as an intangible asset can be influenced by CEO narcissism. Under the financial accounting standard of SFAS 141, acquirers should allocate costs to acquired assets (both tangible and intangible) and liabilities based on their fair values on the acquisition date. Whereas tangible assets and liabilities can be easily identified and valued, estimating the fair value of intangible assets such as brands is subjective (Barth et al., 1998; Watts, 2003). For example, Kallapur and Kwan (2004) find a substantial and persistent bias in brand valuation among firms. Prior surveys have shown that 54% of chief financial officers did not consider using independent third-party intangible asset valuers to prepare the valuations of intangible assets, including brand assets (Brand Finance, 2016). This factor increases the unreliability of brand asset estimations.

We consider brand asset overvaluation as the degree to which the brand value reported in the financial statements of the acquiring firm is higher than the brand's fair value inferred from brand performance. We expect that more narcissistic CEOs are more likely to overvalue intangible brand assets in brand acquisitions and disposals. First, narcissistic CEOs will tend to show the audience that they are more capable of bringing unidentifiable future revenue-generating resources from the target's brand assets than others. The CEO's unrealistic mapping of the brand asset's future cash flows can make the financial value of brands in the deal exceed the brand's fair value. In particular, narcissistic individuals tend to overweight the symbolic element due to their pursuit of vanity (Sedikides et al., 2007). Brand assets, the intangible part of the deal, are likely to be overvalued by both narcissistic acquirer CEOs and seller CEOs.

The narcissism literature reveals that high-narcissism CEOs put self-absorption through attracting attention before shareholder interests (e.g., Zhu & Chen, 2015), and it can be challenging for outsiders to evaluate the strategic value of acquiring a brand and the cost-effectiveness of the purchase in the short term (Eccles et al., 1999). Thus, paying more for the target brand will provide the acquirer CEO a brighter spotlight and more personal gratification. For narcissistic seller CEOs, inflating a brand asset's financial value can also attract attention, reaffirm their superiority, and compensate for the inferior feeling associated with selling brands. Thus, a narcissistic acquirer (seller) CEO is likely to pay (obtain) a higher price for a target brand, thereby increasing the possibility of brand asset overvaluation.

H3a The acquirer's CEO narcissism is positively associated with the target brand asset overvaluation.

H3b The seller's CEO narcissism is positively associated with the target brand asset overvaluation.

The mediating path: Target brand asset overvaluation on abnormal returns

Brand acquisitions/disposals are significant corporate events and can provide opportunities for investors' long/short positions. As a unique reputational asset that involves psychological influences and human interpretations, brand asset valuation has received increasing attention from investors (e.g., Larkin, 2013).

Public market investors can find it difficult to judge the brand asset's fair value based on financial reports (e.g., Rego et al., 2009). Investors use additional information beyond company-disclosed, transaction-specific financial details to guide their analysis. Thus, investors are likely to compare the financial value of the brand asset reported in the deal filing with other third-party reports on the brand valuation and performance (e.g., customers' brand rating, customer loyalty, brand revenue). The overvaluation gap between the brand's financial value in the deal and other benchmarks about the brand performances suggests that the acquirer paid (the seller earned) more than the brand asset's fair value. The overvaluation increases the future possibility of negative cash flow for the acquirer but of financial benefits for the seller.

Thus, we expect that target brand asset overvaluation exerts a negative impact on the acquirer's abnormal returns associated with the deal but positively impacts the seller's abnormal returns. Given the possible positive association of CEO narcissism on brand asset valuation, we expect that brand asset overvaluation may act as an information intermediary in promulgating CEO narcissism's impacts to equity investors' reactions. CEO narcissism can have an indirect influence on both the acquirer's and seller's deal-associated stock performances through brand asset overvaluation. Specifically,

H4a The target brand asset overvaluation has a negative impact on the acquirer's abnormal returns associated with the brand transaction such that the target brand asset overvaluation mediates the negative relationship between the acquirer's CEO narcissism and the acquirer's abnormal returns associated with the deal.

H4b The target brand's asset overvaluation has a positive impact on the seller's abnormal returns associated with the brand transaction such that the target brand asset overvaluation mediates the positive relationship between the seller's CEO narcissism and the seller's abnormal returns associated with the deal.

Moderating effects of brand awareness and perceived quality

Investors favor a brand's unique power in differentiating its corporate parent from competitors (e.g., Harford, 2005; Rosen, 2006). It is well-established in research and practice that brand awareness and perceived quality are two primary dimensions of brand value (Aaker, 1996; Rego et al., 2009). Consumers' attitude toward and awareness of brands allows firms to differentiate themselves from their rivals and achieve higher levels of return (Elmasr, 2007).

First, a brand's perceived quality provides valuable financial information to investors (Aaker & Jacobson, 1994); critically, perceived brand quality represents consumers' views of how well a brand meets their expectations in the sense that they perceive the brand as being better than others (Keller & Lehmann, 2006; Mitra & Golder, 2006). Information about how brands are perceived by consumers can reduce information asymmetry between the focal brand and the investors (Wernerfelt, 1988). Second, brand awareness suggests the brand's existence and availability to consumers (Kent & Allen, 1994). High brand awareness can grab investors' attention and make investors ascribe even higher cash flows to that brand; prior research shows that investors are more likely to buy stocks with high awareness created through advertising and media coverage (e.g., Barber & Odean, 2008; Grullon et al., 2004).

Therefore, if the customer market evidence shows that the target brand has higher brand awareness and perceived quality, public market investors are likely to be more confident in the brand's future growth and adjust their estimation of the brand's economic value upward. Stronger brand awareness and perceived quality, as trading signals, may inform investors that the acquirer (seller) actually does not pay (obtain) much more than the actual value of the brand asset. We expect that brand awareness and perceived quality reduce the stock market's reaction to brand asset overvaluation; they reduce the decrease in the acquirer's return and the increase in the seller's return associated with brand asset overvaluation. By influencing this mediation path between brand asset overvaluation and financial returns, they may weaken CEO narcissism's indirect effect on brand transactions' financial returns.

H5a The target brand's brand awareness and perceived quality weaken the negative relationship between target brand asset overvaluation and the acquirer's abnormal return associated with the brand transaction.

H5b The target brand's brand awareness and perceived quality weaken the positive relationship between target brand asset overvaluation and the seller's abnormal return associated with the brand transaction.

In sum, our arguments suggest a set of relationships that amount to a *moderated mediation model of the effect of CEO narcissism on abnormal return* associated with the brand transaction, whereby target brand asset overvaluation is the mediator and brand awareness and perceived quality are the two moderators of the relationship between target brand asset overvaluation and abnormal returns (Fig. 1b in the Appendix).

Methods

Data and sample

The empirical context to test our hypotheses is publicly traded U.S. firms' CEOs and the brand acquisitions and disposals conducted by their firms from 2007 to 2015. We test our hypotheses using data from six main sources:

1. **CEO narcissism data** We measure CEO narcissism using data about each CEO's photo size in annual reports, the CEO's compensation, and the CEO's prominence in the company's press releases (Chatterjee & Hambrick, 2011; Gerstner et al., 2013). Researchers in marketing, finance, and management have used these kinds of unobtrusive measures for their empirical studies (e.g., Malmendier & Tate, 2008). We collect the CEOs' photos and compensation data from each company's annual reports in the Securities and Exchange Commission's (SEC's) EDGAR database. We obtain press releases about the CEOs from the Factiva database.
2. **Brand awareness and perceived quality data** Harris Interactive's EquiTrend collects annual data on brand equity by conducting an online survey of more than 20,000 U.S. consumers for over 1300 brands across categories. These survey data about brand familiarity and perceived quality reflect consumers' awareness of the brand and the strength of positive brand associations.
3. **Brand acquisition and disposal deals and announcements** To identify brand acquisitions and disposals undertaken by the firms, we search firms' annual reports, the Securities Data Company (SDC) Platinum database, and news on firms' websites. We first use the SDC Platinum database from Thomson Reuters to identify the merger & acquisition (M&A) deals that involve the brands on the EquiTrend list from 2007 to 2015. Since this research focuses on examining the trading of brand assets, the sample does not include the deals that do not involve brand assets. For those firms that trade a brand, we collect from the SDC the names of the partner firms (acquirer and target) and the deal characteristics, such as asset values. We then conduct Factiva searches to identify brand transaction events (the announcement of a sale/pending sale or an acquirement agreement of a brand). We consider only the earliest announcement that mentions the event and we follow the standard practice to remove events that have confounding information within the 2-day window surrounding the brand transaction event.
4. **Abnormal returns and other financial variables** We retrieve information from the Center for Research in Security Prices (CRSP) database to calculate the abnormal returns associated with the announcements of brand acquisitions/disposals. We augment the data with information on firm-level control variables collected from Compustat.
5. **CEO's other characteristics** We obtain CEOs' background information from the company's annual reports, including age, tenure, whether an insider or outsider, and board independence.

We begin with a list of brands derived from EquiTrend's brand score data and identify those brands that are target brands acquired or disposed of by public companies. Next, we combine the brand data with the CEO data and the firm's financial data. After we drop observations for which complete data are not available, our final sample includes 230 brand transactions from the EquiTrend list traded by publicly traded companies. Our sample size is comparable with the average sample sizes of other event studies (King et al., 2004; Stahl & Voigt, 2008).

To correct the sample bias caused by our examination of only brands involved in acquisition and disposal in the sample period, we compare the brands that were traded with those brands that were not traded to identify the drivers of firms' brand transaction decisions. We identify 215 brands from EquiTrend that also belonged to public companies and operated in the same 2-digit SIC categories as the traded brands but were not involved in transactions in the years when those brand transaction deals happened. The brands that did transactions and the brands that were not involved in deals constitute the selection model's sample—445 observations—for testing the determinants of brand acquisition/disposal decisions.

Measures

CEO narcissism Following previous research (Chatterjee & Hambrick, 2011; Gerstner et al., 2013), we measure *CEO narcissism (narcissism)* by calculating the mean after standardizing the three indicators described below. According to a recent meta-analysis (Cragun et al., 2020), this index method has become the most frequently used measure for CEO narcissism.

First, a more narcissistic CEO can be expected to appear in more prominent photos in annual reports to emphasize his or her leadership. Thus, we code the prominence of the CEO's photograph in annual reports as 1 point if the annual report includes no photograph of the CEO; 2 points if the CEO is photographed with other executives and the photo occupies less than half a page; 3 points if the CEO is photographed with other executives and the photo occupies more than half a page; 4 points if the photo is of the CEO alone and occupies less than half a page; and 5 points if the CEO's photo is of him or her alone and occupies more than half a page. We obtain annual reports from the SEC EDGAR database.

Second, on various business matters, companies issue press releases that are under the CEO's control. A more narcissistic CEO will have his or her name mentioned more often as an exercise of vanity and a reminder of the leadership. We measure CEO prominence as the number of times the CEO is mentioned by name in the company's press releases divided by the total number of the company's press releases. We obtain press release data from Factiva.

Third, because the CEO almost entirely controls the compensation of other executives, a narcissistic CEO is likely to create a larger pay gap between him or herself and the second-highest-paid executive to underline that he or she is far more valuable. We use the compensation data from the SEC EDGAR database, which is supplemented by Compustat's Execucomp. We measure the CEO's relative compensation as the CEO's total compensation (salary, bonus, and non-cash compensation) divided by that of the second-highest-paid executive in the firm.

Brand acquisition and disposal possibility We measure brand disposal decisions (*brand_disposal*) as a dummy variable that takes a value of 1 if the target brand from the EquiTrend database is disposed of by the seller company and becomes a target brand; otherwise, it is 0. Similarly, we measure brand acquisition decisions (*brand_acquisition)* as a dummy variable that takes a value of 1 if the target brand is acquired by the acquirer company. To predict the decision of disposal (acquisition), we assemble a control sample of brands from EquiTrend that also belonged to public companies and operated in the same 2-digit SIC categories as the traded brands but were not disposed of (did not acquire brands) during our sample period. *Brand_disposal* and *brand_acquisition* decisions are the dependent variables of the sample selection models in the first step because the second-step models that estimate acquirers' and sellers' abnormal returns are limited to the samples of target brands being traded.

Brand awareness and perceived quality of the target We measure the target brand attributes, including *brand awareness (awareness)* and *perceived quality (quality),* using Harris Interactive's EquiTrend data. Consistent with marketing literature (Bharadwaj et al., 2011; Keller, 1993; Rego et al., 2009), brand awareness is assessed as the percentage of respondents who can recognize and recall a firm's brands and thus can rate brand awareness (Clark et al., 2009). Perceived brand quality is measured by consumer ratings; each consumer is asked to rate the overall quality of a brand on an 11-point scale (0 = unacceptable/poor, 5 = quite acceptable, and 10 = outstanding/extraordinary).

In our sample, the average brand equity rating is 59, with a median of 61.4 and a standard deviation of 7.9. The average awareness score is 64.92, and the average perceived quality score is 6.03, which is close in range to prior research's reported statistics (Akdeniz et al., 2014; Clark et al., 2009). To predict firms' choices of target brands (i.e., choosing to acquire/dispose of high-awareness brand and high-perceived quality brand), we categorize brand awareness and perceived quality into high versus low by their medium values. These dichotomized measures of brand attributes are used in the choice model (Eqs. 3a and 3b).

Brand asset overvaluation Brand asset overvaluation refers to the degree to which the brand value reported in the financial statements is higher than the brand's fair value that can be inferred from brand performance. When investors react to the brand value reported in acquisition filing, they use market research, third parties' reports, and heuristics to understand the current and future brand value (Hogan et al., 2006) and determine how much the brand asset is overvalued/undervalued. Thus, we measure *brand asset overvaluation* (*brand_overvaluation*) as the part of the firm-reported financial value of a brand that is unexplained by the third party's brand valuation and brand performance. By benchmarking the firm-reported brand value against other benchmarks, we use the residual as a proxy for brand asset overvaluation. Prior research has used residuals as a proxy for the unexplained (i.e., abnormal) part of the variable. For example, Morgan and Rego (2009) use the residuals to represent the variance in customer perceived value that is not explained by perceived quality. Huang et al. (2014) estimate the abnormal tone of words in firms' earnings press releases by using the residual to capture that portion of the tones that are otherwise unexplained.

It is challenging to capture the true value of brands for measuring brand asset overvaluation. With the limitation of data availability, we include the benchmarks from the popular types of brand value measurements from the literature—customer mind-based measure, financial market-based measure, and product market-based measure (e.g., Aaker, 1996; Ailawadi et al., 2003). Specifically, we compute brand asset overvaluation by regressing the firm-reported financial value of the brand (the dollar value of the target brand that acquirer firms report in the filings as the dependent variable) on the following four variables:

(1) The third party's customer mind-based brand value (Equitrend's brand equity rating based on customer research). (2) A dummy variable created based on a third party's financial market-based brand value.[3] It takes a value of 1 if the target brand features on the list of Brand Finance top 500 global brands, and the ranking is based on the dollar value estimation of brand equity. (3) Customer loyalty as a product-market measure of brand value. We use customer preference data provided by BAV Group; we measure it as the total percentage of the participants who only buy the brand and the participants who buy the brand as one of several brands that they buy. Product-market measure is considered an attractive middle ground between customer mindset and financial market measures in terms of objectivity and relevance to marketing (Ailawadi et al., 2003). Customer loyalty measures, such as share of category requirements, were suggested in prior studies for measuring brand equity (e.g., Aaker, 1996). (4) Profitability of the business (ROA of the seller).

Then, we estimate the residuals of the regression. A positive (negative) residual suggests an overvaluation (undervaluation) of the brand asset.

Abnormal stock returns Our dependent variables are the firm's abnormal return (AR_brand acquisition, AR_brand disposal) computed from a Fama-French-Momentum (FFM) model over a window of 5 days around the deal announcements (−2, +2). The parameters of the FFM model are estimated over a 255-day estimation window ending 46 days before the event. The calculation of the abnormal returns is specified in the Appendix A7.

We use control variables that measure the characteristics of the firm, the CEO, and the brand acquisition/disposal transactions. We describe those measures in Table 1.

Models

Five relationships are tested. First, companies with higher CEO narcissism are *more* likely to acquire brands (H1a) and *less* likely to dispose of brands (H1b). Second, companies with higher CEO narcissism are likely to choose to acquire brands that have higher brand awareness (H2a) and to dispose of brands that have lower brand awareness (H2b). Third, the acquirer's and seller's CEO narcissism is positively associated with the target's brand asset overvaluation (H3a and H3b). Fourth, the target's brand asset overvaluation has a negative impact on the acquirer's return and a positive impact on the seller's return (H4a and H4b). Thus, CEO narcissism indirectly increases the abnormal returns associated with brand transactions through its influence on brand asset overvaluation (the mediation path). Fifth, brand awareness and perceived quality weaken the effect of brand asset overvaluation on abnormal returns (H5a and H5b, the moderation path). These relationships are shown in Fig. 1. The variables' definitions and measures are summarized in Table 1. The estimation method proceeds as follows.

Endogeneity of CEO narcissism To begin, we account for the endogeneity of CEO narcissism that arises from a potential omitted variable that may influence both CEO narcissism and brand acquisition/disposal decisions and related financial performance. We model CEO narcissism in Eqs. 1a and 1b as a function of firm performance and CEO power in the previous year (Petkova et al., 2013; Tan, 2016); we use firm assets, firm age, ROA, CEO

[3] While Interbrand, BrandZ, and Brand Finance all provide finance-based brand valuation, we use Brand Finance's ranking list because Brand Finance measures brand values with a Royalty Relief method that makes it more popular among accountants and finance professionals. Its brand value reflects the value (in millions of U.S. dollars) a company would pay for its brand license if it did not own it.

Table 1 Variables, measures, and data sources

Variable	Label	Definitions	Source
Main variables			
Brand transaction	Brand Transaction	1 if the brand was disposed of by the focal company (acquired by another company), 0 otherwise.	SDC premium
Abnormal return	AR	Abnormal return associated with the brand acquisition or disposal event (Fama-French momentum model).	CRSP
Brand awareness	Awareness	The target brand's brand familiarity rating.	EquiTrend
Perceived quality	Quality	The target brand's perceived quality rating.	EquiTrend
Brand asset overvaluation	Brand Overvaluation	Residual obtained by regressing financial value of brand asset onto brand performance benchmarks (customer mind-based rating, financial value-based ranking, customer loyalty, firm profitability).	SEC filing Equitrend Brand Finance ranking BAV COMPUSTAT
Narcissism	Narcissism	The mean of the standardized values of CEO photo size rating, CEO relative media exposures ratio, and CEO relative compensation ratio.	Edgar; Factiva
Brand-level control variables			
Brand media coverage	Media Coverage	The total number of press releases about the target brand in mainstream media. The degree to which external observers are interested in the brand/firm may facilitate or hinder the company's strategies (Tan 2016).	Factiva
Brand performance	Brand Performance	1 if a brand features on the Brand Finance Global 500 list in the year before the announcement and 0 otherwise (Gielens et al. 2018). A brand's power can influence the deal's performance.	Brand Finance global 500
Deal-level control variables			
Deal value	Deal Value	The present log value of incremental future cash flows that accrue to the target brand. Deal value can influence firm decisions and financial returns (Aktas et al. 2016).	SDC premium; SEC filing
Cash	Cash	1 if the payment is all in cash, 0 otherwise. Cash payment can affect deal-related firm decisions (Aktas et al. 2016).	SEC filing
Multiple bidders	Multiple Bidders	1 if more than one potential bidder is mentioned in the relevant SEC filing, 0 otherwise. Competition among bidders can affect deal-related firm decisions (Aktas et al. 2016).	SEC filing
Industry relatedness	Industry Relatedness	1 if the acquirer and the target have the same 2-digit SIC codes, 0 otherwise. The fit between the participants can influence decisions and performances (Wiles et al. 2012).	Announcement
Motive of acquisition/-disposal	Motive Growth, Motive Profit, Motive Strength, Motive Debt, Motive Buyback	1 if the acquirer's motive is to grow the business, increase profit, or strengthen the core business; 0 otherwise. 1 if the seller's motive is to pay debt or buy back shares, 0 otherwise. Motives behind the transaction can affect investors' reactions (Wiles et al. 2012).	Announcement
Earnings impact	Earnings Impact	Whether the analysts expect the acquisition/disposal would have an accretive (1), dilutive (−1), or no impact (0) on the year's earnings. Analysts' expectations may affect the stock market reactions (Wiles et al. 2012).	Announcement
Transaction trend	Transaction Trend	The number of brand acquisitions and disposals in the industry.	Announcement
Entire firm[11]		1 if purchasing the brand involves acquiring an entire firm, 0 otherwise. Buying entire firms for their brand assets may reduce returns (Wiles et al. 2012)	Press reports
Firm-level control variables (firms' financial characteristics at *t-1* may shape aspirations and thus affect a CEO's motivation to change the brand portfolio and also affect the returns)			
Firm age	Age	Firm age.	Field-Ritter
Firm size	Size	Log of firm assets.	Compustat
Marketing capability	Mktg Capability	Efficiency score from stochastic frontier estimation (Dutta et al. 2005; Bahadir et al. 2008). Acquirer and seller firms with stronger marketing capability may expect a higher level of cash flow from the target brand (Bahadir et al. 2008) because they can more effectively leverage the target brand by improving cost-efficiency or extending the brand to new markets. This could increase brand asset overvaluation.	Compustat, patent databases
Brand portfolio diversity	Brand Diversity	The number of brands/number of categories. Acquirer firms with a broader brand portfolio may expect a higher level of cash flow from the target brand because they are more likely to enjoy the economies of scale in marketing spending and to keep the target brand active after the acquisition. The seller firms with a diverse brand portfolio also have more strategic options to extend the brands and grow the	Compustat, USPTO

Table 1 (continued)

Variable	Label	Definitions	Source
		business (Bahadir et al. 2008). This could increase the possibility of brand asset overvaluation.	
Sales growth	Sales Growth	The current change in sales.	Compustat
Market share	Market Share	The firm's sales divided by the 3-digit SIC group's total sales over the fiscal year.	Compustat
Advertising expense	Advertising	Log of selling, general, and administrative expense (SGA) expenditures.	Compustat
R&D expense	R&D	Log of R&D expenditures.	Compustat
Leverage	Leverage	Financial leverage.	
ROA	ROA	Operating income divided by assets.	Compustat
Target industry competition	Concentration	The sum of the top three market shares in the seller firm's four-digit SIC code. A stronger industry competition may affect the valuation of assets.	Compustat
Acquirer financing consideration	Acquirer Financing Consideration	Short-term debt $_{t-1}$/total assets $_{t-1,}$ reflecting the firm's need to raise capital in the short term (Bahadir et al. 2008).	Compustat
CEO-level control variables (CEO characteristics related to CEO power and experience that may affect CEO narcissism, firm decisions and stock market reactions (e.g., Chatterjee and Hambrick 2011; Petkova et al. 2013; Tan 2016)			
CEO compensation	CEO Compensation	Compensation of the CEO in the year.	Edgar/ExecuComp
CEO ownership	CEO Ownership	The percentage of shares owned by the CEO out of shares outstanding.	Edgar/ExecuComp
CEO tenure	CEO Tenure	Tenure length of the CEO in the year.	Edgar/ExecuComp
CEO age	CEO Age	The CEO's age in the year.	Edgar
CEO tenure	CEO Tenure	The number of years of CEO's tenure.	SEC
Board independence	Board Indep	Percentage of the independent directors on the board.	SEC
CEO insider	CEO Insider	1 if the CEO is hired from inside the company, 0 otherwise.	SEC
Adulthood recession	Adulthood Recession	The average national unemployment rate during the years when the CEO's ages are 18–25.	Edgar

ownership, CEO tenure, board independence, insider/outsider CEO, and economic recession during the CEO's emerging adulthood to predict CEO narcissism. We run a firm fixed-effect model for stricter identification:

$$\begin{aligned} Acquirer\_narcissism_{it} = {} & \beta_1 Adulthood\_recession_{it} + \beta_2\ CEO\_ownership_{it} + \beta_3\ CEO\_tenure_{it} \\ & + \beta_4\ Board\_indep_{it} + \beta_5\ CEO\_insider_{it} + \beta_6\ CEO\_age_{it} + \beta_7\ Media\_coverage_{it} \\ & + \beta_8\ Firm\_size_{it} + \beta_9\ ROA_{it} + \beta_{10}\ Sales\_growth_{it} + \beta_{11}\ Market\_share_{it} + \omega_{1it} \end{aligned} \tag{1a}$$

$$\begin{aligned} Seller\_narcissism_{it} = {} & m_1 Adulthood\_recession_{it} + m_2\ CEO\_ownership_{it} + m_3 CEO\_tenure_{it} \\ & + m_4\ Board\_indep_{it} + m_5 CEO\_insider_{it} + m_6\ CEO\_age_{it} + m_7 Media\_coverage_{it} \\ & + m_8 Firm\_size_{it} + m_9\ ROA_{it} + m_{10} Sales\_growth_{it} + m_{11} Market\_share_{it} + \omega_{2it} \end{aligned} \tag{1b}$$

where i refers to the firm, and ε_{it} andω_{it} are the error terms. We also control for year dummies and firm dummies. The residuals obtained from Eqs. 1a and 1b, p, are later used in a control function approach in Eqs. 2–6.

The economic condition in the CEO's emerging adulthood meets the exclusion restriction. Economic conditions in the CEO's adulthood are measured using the average national unemployment rate when the CEO's ages were

18–25 (M = 6.1%, SD = 0.98). We mimic previous research's age range for measuring emerging adulthood (Bianchi, 2014; Arnett, 2000).

Regarding its relevance, prior research finds that CEOs who enter adulthood during worse economic times are less likely to be narcissistic (Bianchi, 2014). Macro-environmental experiences at a critical life stage can have lasting implications for how special and deserving people believe themselves to be (Inglehart, 1997; Malmendier & Nagel, 2011). Narcissism can be tempered by adversity and failure (e.g., Morf & Rhodewalt, 2001). Specifically, "the heightened risk aversion and enhanced gratitude likely reflect the more cautious, deliberate, and humbling mood of tumultuous economic times" (Bianchi, 2014). Thus, whether the CEO enters adulthood during economic recessions or prosperous times can affect CEO narcissism.

Regarding how this instrument meets the exclusion restriction, it seems highly unlikely that the economic condition in the CEO's adulthood will have a direct influence on the brand transaction's decisions and financial performance. Economy-wide boom and bust cycles are considered exogenous shocks (e.g., Srinivasan et al., 2011). The economic conditions in the CEO's emerging adulthood are distant from the time period of the brand transaction deals. It is unlikely that an omitted variable such as corporate strategies that are specific to the time period around the transaction deal and specific to the industry will influence economic conditions during the CEO's adulthood and the brand transaction's decision and performances. We also include the time-fixed effects in our model.

We also find evidence that supports the instrument, though it does not prove its validity. The economic condition in the CEO's emerging adulthood is significantly correlated with the endogenous variable ($p < .05$), and in the regression, it has a significant association with CEO narcissism ($p < .05$); this finding supports the instrument's relevance. We do not find a significant correlation between the instrument and the brand transactions' decisions and the abnormal returns associated with the transactions, thereby supporting its exclusion restriction. In addition, we find that the residuals created from the instrument regression are randomly distributed, implying that the instrument is likely to be an exogenous shock.

Brand transaction decisions (sample selection bias correction) Before estimating Eqs. 3–6 (the determinants of the choice of target brands [high versus low brand awareness], brand asset overvaluation, and abnormal returns of the deal), we need to correct sample selection bias because the dependent variables are only observable in the sample where brand transactions happened (brands were disposed of or acquired by the companies). To address the sample bias in the second-step models, we create a selection model (Eq. 2a) to predict the possibility of brands being disposed of by the seller. The dependent variable equals 1 if the brand is disposed of (*brand _disposal*) and 0 otherwise. Similarly, we also estimate Eq. 2b to understand the relationship between CEO narcissism and the possibility of acquisition *(brand _acquisition*).

We model the possibility of a brand being acquired/disposed of as a function of a set of characteristics that include brand awareness; perceived quality; company characteristics such as advertising, R&D investment, leverage, and ROA; the number of brand transaction deals in the industry in the year (e.g., Bahadir et al., 2008; Wiles et al., 2012); and CEO characteristics (e.g., Aabo et al., 2020). To meet the exclusion restriction, we include the number of deals in the industry (*transaction _trend*) as a proxy of industry trends because it links to the likelihood that a firm will consider engaging in such transactions, but it is not a determinant of financial performance of a specific brand transaction. To address the endogeneity of CEO narcissism, we include the residuals p (obtained from Eqs. 1a and 1b) in Eqs. 2a and 2b using a control function approach (Petrin & Train, 2010; Wooldridge, 2015). We run the following linear probability models with firm fixed effects and year dummies. We obtain the inverse Mill's ratio λ from Eqs. 2a and 2b to be used in Eqs. 3–6, which accounts for the unobserved heterogeneity that underlies the decision of letting a brand be involved in a transaction.

$$\begin{aligned}Brand\_disposal_{it+1} = {} & \alpha_1 Seller\_narcissism_{it} + \alpha_2\, Brand\_awareness_{it} + \alpha_3\, Perceived\_quality_{it} \\ & + \alpha_4\, Brand\_media\_coverage_{it} + \alpha_5\, Brand\_performance_{it} + \alpha_6\, Seller\_leverage_{it} \\ & + \alpha_7 Seller\_ROA_{it} + \alpha_8 Seller\_firm\_size_{it} + \alpha_9 Seller\_sales\_growth_{it} \\ & + \alpha_{10} Seller\_market\_share_{it} + \alpha_{11} Seller\_CEO\_tenure_t + \alpha_{12} Seller\_CEO\_age_{it} \\ & + \alpha_{13} Seller\_CEO\_compensation_{it} + \alpha_{14} Transaction\_trend_{it} + p_{1i} + \varepsilon_{1it}\end{aligned} \tag{2a}$$

$$
\begin{aligned}
Brand\_acquisition_{it+1} = {} & t_1\ Acquirer\_narcissism_{it} + t_2\ Brand\_quality_{it} + t_3\ Perceived\_quality_{it} \\
& + t_4 Brand\_media\_coverage_{it} + t_5 Brand\_performance_{it} + t_6 Acquirer\_leverage_{it} \\
& + t_7\ Acquirer\_ROA_{it} + t_8 Acquirer\_firm\_size_{it} + t_9 Acquirer\_sales\_growth_{it} \\
& + t_{10} Acquirer\_market\_share_{it} + t_{11} Acquirer\_CEO\_tenure_{it} + t_{12} Acquirer\_CEO\_age_{it} \\
& + t_{13} Acquirer\_CEO\_compensation_{it} + t_{14}\ Transaction\_trend_{it} + p_{2i} + \varepsilon_{2it}
\end{aligned} \tag{2b}
$$

The choice of brand attributes Next, we need to test if the probability to choose a high-attribute brand (high brand awareness and high perceived quality) depends on the narcissism level of the CEOs. Choice modeling is commonly used to model the decision process of an individual or organization via revealed preferences (e.g., choice of an innovative partner in M&As in Ozcan, 2015). We estimate a linear probability model with firm fixed effect in which the dependent variables *Acquire_strong_brand* and *Dispose_strong_brand* are dummy variables acquiring/disposing brands with high brand awareness (versus low by median value). The control function for the endogeneity of narcissism generated from Eqs. 1a and 1b and the sample selection bias corrector generated from Eqs. 2a and 2b are added to Eqs. 3a and 3b.

$$
\begin{aligned}
& Acquire\_strong\_brand_{ij} = \rho_1\ Acquirer\_narcissism_{ij} + \rho_2\ Perceived\_quality_{ij} \\
& \quad + \rho_3\ Peer\_brand\_awareness_{ij} + \rho_4\ Peer\_perceived\_quality_{ij} + \rho_5\ Brand\_performance_{ij} \\
& \quad + \rho_6\ Industry\_relatedness_{ij} + \rho_7\ Deal\_value + \rho_8 Brand\_media\_coverage_{ij} + \rho_9 Entire\_firm_{ij} \\
& \quad + \rho_{10}\ Acquirer\_sales\_growth_{ij} + \rho_{11} Acquirer\_market\_share_{ij} + \rho_{12} Acquirer\_firm\_size_{ij} \\
& \quad + \rho_{13} Acquirer\_leverage_{ij} + \rho_{14} Acquirer\_advertising_{ij} + \rho_{15} Acquirer\_R\&D_{ij} \\
& \quad + \rho_{16} Acquirer\_ROA_{ij}\ \lambda_{1i} + p_{3i} + v_{1ij}
\end{aligned} \tag{3a}
$$

$$
\begin{aligned}
& Dispose\_strong\_brand_{ij} = x_1 Seller\_narcissism_{ij} + x_2\ Perceived\_quality_{ij} \\
& \quad + x_3\ \ Peer\_brand\_awareness_{ij} + x_4\ Peer\_perceived\_quality_{ij} + x_5 Brand\_performance_{ij} \\
& \quad + x_6\ Industry\_relatedness_{ij} + x_7\ Deal\_value_{ij} + x_8 Brand\_media\_coverage_{ij} + x_9 Entire\_firm_{ij} \\
& \quad + x_{10} Seller\_sales\_growth_{ij} + x_{11} Seller\_market\_share_{ij} + x_{12} Seller\_firm\_size_{ij} \\
& \quad + x_{13} Seller\_leverage_{ij} + x_{14} Seller\_advertising_{ij} + x_{15} Seller\_R\&D_{ij} + x_{16} Seller\_ROA_{ij} \\
& \quad + \lambda_{2i} + p_{4i} + v_{2ij}
\end{aligned} \tag{3b}
$$

where i stands for firm and j for the brand transaction (acquisition/disposal). We control for brand characteristics and firm characteristics that could affect transactions (Wiles et al., 2012; Chatterjee & Hambrick, 2007). We also control for firm and year dummies. λ_{1i} and λ_{2i} are the sample bias correction terms obtained from Eqs. 1a and 1b. p_{3i} and p_{4i} are the residual values generated by Eqs. 2a and 2b for acquirer and seller CEOs' narcissism's endogeneity control. v_{1ij} and v_{2ij} are the error terms.

Endogeneity of brand awareness and perceived quality In addition, unobserved firm or environmental variables may impact both the brand attributes (brand awareness and perceived quality) and the stock returns associated with the transaction. Thus, in order to control the endogeneity of brand awareness and perceived quality in the abnormal return models (Eqs. 5a and 5b), we convert the binary dependent variables in Eqs. 3a and 3b into two continuous variables, the target brand's *brand_awareness* and *perceived_quality*, and then include the residuals from the instrument equations as control functions in the return models.

The weighted peers' brand awareness and the weighted peers' perceived quality (*peer_brand_awareness* and *peer_perceived_quality*) in Eqs. 3a and 3b can be appropriate instruments; if a brand is in a better known and more reputable product category, it is likely to enjoy the spillover effect from peers (e.g., Borah & Tellis, 2016) and to have higher awareness and perceived quality as well. However, the weighted peers' brand attributes should not determine the focal firm's transaction performance because this variable does not offer specific information that investors can use to adjust their expectations of a transaction. Similar to Lim et al. (2020), to measure the weighted peers' brand attributes, we construct peer groups by the 2-digit SIC classifications and calculate the weight of firms by computing the Euclidean distances between a target brand's firm and its peers based on five key firm characteristics (market valuation, financial leverage, ROA, size, and age). This weighted peers' measure helps meet the exclusion restriction because it increases the variation among groups and breaks down the dependence between endogenous and exogenous variables.

Determinants of brand asset overvaluation Next, we test *Path 1* in Fig. 1b, the effect of CEO narcissism on brand asset overvaluation. It is also the instrument equation for generating the control function term that addresses brand asset overvaluation's endogeneity in the abnormal return model. The weighted peers' brand asset overvaluation (*Peer_brand_overvaluation*) is calculated using the brand transactions that involve the focal firm's peers from the same two-digit SIC code in the past two years, and the weight is the peer firms' distance from the focal firm calculated based on firm characteristics. We expect this instrument to meet the exclusion restriction because the peers' evaluation of brand assets in different transactions can inspire the focal firms to adjust their estimation of brand value. However, it is unlikely to influence the abnormal return associated with the particular transaction; peers' brand asset overvaluation is the industry-level information that is already known before the transaction and does not provide new information about the deal to investors. The sample selection bias corrector λ_{3i} and the control function term for the endogeneity of acquirer's and seller's CEO narcissism p_{5i} and p_{6i} are added to Eq. 4. We control for brand characteristics, firm characteristics, and deal characteristics that could affect the valuation of a deal in addition to year dummies and firm dummies.

$$\begin{aligned}Brand\_overvaluation_{ij} = {} & k_1 Acquirer\_narcissism_{ij} + k_2 Seller\_narcissism_{ij} + k_3\, Brand\_awareness_{ij} \\ & + k_4 Perceived\_quality_{ij} + k_5 Peer\_brand\_overvaluation_{ij} + k_6 Brand\_performance_{ij} \\ & + k_7 Industry\_relatedness_{ij} + k_8 Deal\_value_{ij} + k_9 Entire\_firm_{ij} + k_{10} Brand\_media\_coverage_{ij} \\ & + k_{11}\, Cash_{ij} + k_{12} Multiple\_bidder_{ij} + k_{13} Seller\_firm\_size_{ij} + k_{14} Seller\_sales\_growth_{ij} \\ & + k_{15} Seller\_mktg\_capability_{ij} + k_{16} Seller\_brand\_diversity_{ij} + k_{17} Seller\_concentration_{ij} \\ & + k_{18}\, Acquirer\_firm\_size_{ij} + k_{19} Acquirer\_leverage_{ij} + k_{20} Acquirer\_sales\_growth_{ij} \\ & + k_{21} Acquirer\_mktg\_capability_{ij} + k_{22}\, Acquirer\_brand\_diversity_{ij} \\ & + k_{23}\, Acquirer\_financing\_consideration_{ij} + \lambda_{3i} + p_{5i} + p_{6i} + v_{3ij}\end{aligned} \tag{4}$$

Determinants of financial returns We test the *moderated mediation path* in Fig. 1b by examining the moderating effect of brand attributes on the relationship between brand asset overvaluation and the abnormal returns associated with brand acquisition/disposal in Eqs. 5a and 5b. The standard errors are adjusted to account for the inclusion of control function terms and the selection bias corrector by using bootstrapping (Petrin & Train, 2010). Appropriate direct and indirect effects are estimated and reported in the results section.

$$\begin{aligned}AR\_brand\ acquisition_{ij} = {} & \theta_1 Brand\_overvaluation_{ij} + \theta_2\, Brand\_awareness_{ij} \\ & + \theta_3\, Perceived\_quality_{ij} + \theta_4 Brand\_awareness_{ij} {*} Brand\_overvaluation_{ij} \\ & + \theta_5\, Perceived\_quality_{ij} {*} Brand\_overvaluation_{ij} + \theta_6 Acquirer\_narcissism_{ij} \\ & + \theta_7 Seller\_narcissism_{ij} + \theta_8\, Brand\_performance_{ij} + \theta_9\, Industry\_relatedness_{ij} \\ & + \theta_{10}\, Deal\_value_{ij} + \theta_{11} Brand\_media\_coverage_{ij} + \theta_{12} Entire\_firm_{ij} + \theta_{13} Cash_{ij} \\ & + \theta_{14} Multiple\_bidder_{ij} + \theta_{15} Motive\_growth_{ij} + \theta_{16}\, Motive\_profit_{ij} + \theta_{17}\, Motive\_strength_{ij} \\ & + \theta_{18} Earnings\_impact_{ij} + \theta_{19} Acquirer\_firm\_size_{ij} + \theta_{20} Acquirer\_leverage_{ij} \\ & + \theta_{21}\, Acquirer\_sales\_growth_{it} + \lambda_{4i} + p_{7i} + \kappa_{1i} + \gamma_1 \delta_{1i}\, \mu_{1ij}\end{aligned} \tag{5a}$$

$$\begin{aligned} AR\_brand\_disposal_{ij} = {} & \nu_1 Brand\_overvaluation_{ij} + \nu_2 Brand\_awareness_{ij} \\ & + \nu_3 Perceived\_quality_{ij} + \nu_4 Brand\_awareness_{ij}{*}Brand\_overvaluation_{ij} \\ & + \nu_5 Perceived\_quality_{ij}{*}Brand\_overvaluation_{ij} + \nu_6 Acquirer\_narcissism_{ij} \\ & + \nu_7 Seller\_narcissism_{ij} + \nu_8 Brand\_performance_{ij} + \nu_9\ Industry\_relatedness_{ij} \\ & + \nu_{10} Deal\_value_{ij} + \nu_{11} Brand\_media\_coverage_{ij} + \nu_{12} Entire\_firm_{ij} + \nu_{13} Cash_{ij} \\ & + \nu_{14} Multiple\_bidder_{ij} + \nu_{15} Motive\_debt_{ij} + \nu_{16} Motive\_buyback + \nu_{17} Earnings\_impact_{ij} \\ & + \nu_{18} Seller\_firm\_size_{ij} + \nu_{19} Seller\_leverage_{ij} + \nu_{20} Seller\_sales\_growth_{it} \\ & + \lambda_{5i} + p_{8i} + \kappa_{2i} + \gamma_{2i} + \delta_{2i} + \mu_{2ij} \end{aligned} \tag{5b}$$

where i stands for the firm and j for the announcement, and AR_brand acquisition and AR_brand_disposal are the abnormal return for the acquirer/seller i. We control for brand, firm, and deal characteristics, such as the types of transaction motives (e.g., Wiles et al., 2012; Newmeyer et al., 2016), in addition to firm dummies and year dummies. λ_{4i} and λ_{5i} are the inverse Mill's ratio for correcting the sample bias generated from acquisition/disposal decisions; p_{7i} and p_{8i} are the residuals generated from Eqs. 2a and 2b for endogeneity control of CEO narcissism; κ_{1i}, κ_{2i} and γ_{1i}, γ_{2i} are the residuals generated from the instrument equations (described after Eqs. 3a and 3b) for addressing the potential endogeneity of brand awareness and perceived quality, respectively; δ_{1i} and δ_{2i} are the residuals generated from Eq. 4 for endogeneity control of brand asset overvaluation; and μ_{1ij} and μ_{2ij} are the error terms.

In sum, our quantitative modeling approach accounts for the sample bias of brand transaction decisions, the endogeneities of CEO narcissism, brand attributes (awareness and perceived quality), and brand asset overvaluation. The model yields the effects that underscore the relationships between CEO narcissism, transacted brands, and stock returns.

Results

We show the descriptive statistics related to the brand acquisition and disposal transactions in Tables 2, 3 and the correlation statistics in Table A4. We find that the average acquirer's abnormal return is −0.145% and the average seller's abnormal return is 0.716%, which is consistent with the prior findings in the M&A literature that generally hold that, on average, targets' shareholders benefit in asset transaction deals (e.g., Brealey et al., 2011), while acquirers' shareholders at best break even (e.g., Moeller et al., 2005). Our sample includes firms from a variety of industries. In the sample, 51% of the target brands are from the consumer packaged goods industry, 23% of the target brands are in the high-tech industries, and 24% of them are in the service industries. The transaction deals happened from 2007 to 2015, with 2007 and 2015 being the years of the highest number of transactions in the sample (32%) and 2009 and 2013 being the years with the lowest number of transactions in the sample (21%).

We show the results for H1–H4 in Tables 4, 5, 6, 7, 8. Table 4 shows the control function model results on the determinants of acquirer's and seller's CEO narcissism. Table 5 shows the sample selection model results on the determinants of brand transactions. H1 is supported by the evidence that seller's CEO narcissism has a negative effect on the possibility of disposing of brands ($b = -.811$, $p < .001$), and acquirer's CEO narcissism has a positive effect on the possibility of acquiring brands ($b = .358$, $p < .05$). The comparison of the average possibilities of brand acquisition/disposal by CEOs with high narcissism and low narcissism also suggests the differences. We find that the more narcissistic CEOs have 13% higher possibilities to acquire a brand than the less narcissistic CEOs, and the more narcissistic CEOs have 15% lower possibilities to sell a brand than less narcissistic CEOs.

Table 6 shows that H2a and H2b are supported. An acquirer led by a more narcissistic CEO is more likely to acquire a stronger brand that has higher brand awareness ($b = .292$, $p < .05$). A seller run by a more narcissistic CEO is more likely to dispose of brands with lower awareness ($b = -.391$, $p < .05$). A t-test shows the significant difference in the average brand awareness of target brands between more narcissistic CEOs and less narcissistic CEOs; the average brand awareness of target brands is higher for the more narcissistic acquirer CEOs (67.4) than for the less narcissistic acquirer CEOs (56.3), and the average brand awareness of target brands is lower for the more narcissistic seller CEOs (60.2) than for the less narcissistic seller CEOs (70.4).

The results in Table 7 show that H3a and H3b are supported. Both the acquirer's CEO narcissism ($b = .410$, $p < .05$) and the seller's CEO narcissism ($b = .224$, $p < .05$) have significant positive effects on brand asset overvaluation. These findings support our view that CEO narcissism increases brand asset overvaluation of the deal.

As shown in Table 8, H4a and H4b are supported ($b = -.029$, $p < .001$ for the acquirer's return, and $b = .038$, $p < .05$ for the seller's return); we find that brand asset overvaluation of the deal has a negative impact on the acquirer's return and a positive impact on the seller's return associated with the brand transaction.

H5a is also supported; the target brand's brand awareness ($b = .003$, $p < .05$) and perceived quality ($b = .006$, $p < .05$)

Table 2 Descriptive statistics for Eqs. 1 and 2

Variable	Mean	SD	Min.	Max.
Brand disposal sample				
Brand Disposal	.473	.427	0	1
Seller Narcissism	.037	.435	−.538	2.978
Brand Awareness	65.353	28.34	55.23	93.68
Perceived Quality	6.364	.712	5.25	8.32
Media Coverage	16.668	63.346	0	267
Brand Performance	.491	.326	0	1
Leverage	.263	.378	−.034	7.026
ROA	.054	.391	−.897	1.523
Firm Size (ln)	9.823	1.992	3.123	14.795
Sales Growth	.032	.526	−2.165	2.236
Market Share	.414	.365	.065	.951
CEO Compensation ($million)	11.496	12.645	0	380
CEO Age	55.153	8.235	28	100
CEO Tenure	5.659	7.974	0	54
CEO Ownership (%)	1.593	4.562	0	49.213
Board Indep	.758	.084	.111	.933
CEO Insider	.886	.317	0	1
Adulthood Recession	.068	.015	.040	.077
Transaction Trend	6.666	11.038	0	71
Brand acquisition sample				
Brand Acquisition	.542	.336	0	1
Acquirer Narcissism	.018	.473	−.538	8.194
Awareness	61.893	7.995	32.373	79.779
Quality	6.008	.562	5.329	7.293
Media Coverage	14.988	66.039	0	269
Brand Performance	.553	.581	0	1
Leverage	.281	.454	−.056	7.693
ROA	.059	.480	−.778	1.477
Firm Size (ln)	8.894	2.949	2.881	10.732
Sales Growth	.148	.265	−2.126	2.129
Market Share	.369	.222	.032	1
CEO Compensation($million)	10.510	9.662	0	160
CEO Age	54.710	7.057	28	100
CEO Tenure	4.815	6.449	0	52
CEO Ownership (%)	1.028	4.713	0	48.560
Board Indep	.659	.194	.136	.893
CEO Insider	.709	.455	0	1
Adulthood Recession	.066	.016	.040	.077
Transaction Trend	6.852	10.774	0	71

Table 3 Descriptive statistics for Eqs. 3–5

Variable	Mean	SD	Min.	Max.
AR Acquisition (%)	−.145	3.229	−11.476	21.627
AR Disposal (%)	.716	2.045	−12.213	22.323
Acquirer Narcissism	.019	.415	−.538	7.168
Seller Narcissism	.036	.348	−.538	2.978
Brand Asset Overvaluation	0.01	2.375	-3.176	8.133
Brand Awareness	64.921	19.523	55.230	93.680
Perceived Quality	6.032	.912	5.250	7.620
Seller Peer Awareness	65.353	12.625	57.360	91.520
Seller Peer Quality	6.152	.712	5.250	8.320
Deal Value (ln)	6.941	5.881	2.703	11.778
Industry Relatedness	.825	.380	0	1
Media Coverage	14.568	59.256	0	853
Brand Performance	.593	.486	0	1
Entire Firm	.556	.533	0	1
Cash	.421	.581	0	1
Multiple Bidder	.368	.621	0	1
Seller Mktg Capability	78.62	19.56	4.620	100.100
Seller Brand Diversity	7.261	6.329	1	21.5
Seller Concentration	.525	.231	.079	.894
Seller Sales Growth	.123	.316	−2.985	5.689
Seller Firm Size (ln)	8.649	2.156	3.213	15.792
Seller Advertising (ln)	7.795	1.565	1.869	11.423
Seller R&D (ln)	6.762	1.032	1.816	9.369
Seller Leverage	.216	.303	−.025	1.966
Seller ROA	.059	.152	−.762	1.493
Motive Debt	.147	.354	0	1
Motive Buyback	.009	.097	0	1
Seller Earnings Impact	.041	.199	−1	1
Acquirer Mktg Capability	75.264	26.369	2.265	98.263
Acquirer Brand Diversity	8.562	10.326	1	22.5
Acquirer Financing Consideration	.034	.028	0	.189
Acquirer Sales Growth	.163	.289	−2.123	4.965
Acquirer Firm Size (ln)	10.521	1.967	3.189	14.796
Acquirer Advertising (ln)	8.782	1.363	1.821	11.467
Acquirer R&D (ln)	7.296	1.384	1.017	9.469
Acquirer Leverage	.263	.226	−.015	3.675
Acquirer ROA	.072	.190	−.765	1.526
Motive Profit	.143	.350	0	1
Motive Strength	.241	.428	0	1
Motive Growth	.147	.354	0	1
Acquirer Earnings Impact	.257	.451	−1	1

positively moderate the relationship between brand asset overvaluation and the acquirer's abnormal returns associated with the brand transaction. H5b is partially supported; the target brand's brand awareness ($b = -.005$, $p < .05$) weakens the positive relationship between brand asset overvaluation and the seller's abnormal returns. However, the perceived quality's moderating effect is not significant (b = −.002, p < .1).

In addition, the direct effect of CEO narcissism on abnormal returns is significant for the acquirer ($b = -.023$, $p < .05$)

Table 4 Determinants of CEO narcissism

	Acquirer CEO narcissism		Seller CEO narcissism	
Variable	Coefficient	S.E.	Coefficient	S.E.
Adulthood Recession	−.475***	.128	−.293**	.147
CEO Ownership	.081**	.040	.086**	.043
CEO Tenure	.005**	.002	.004**	.002
Board Indep	−.020	.212	.015	.152
CEO Insider	.081**	.034	.079**	.038
CEO Age	.002**	.001	.003**	.001
Media Coverage	.000	.000	.000	.000
Firm Size	.044***	.014	.015	.030
ROA	.179**	.082	.183**	.091
Sales Growth	−.020	.036	−.024	.043
Market Share	.065	.058	.061	.063
Adjusted R-Square	.436		.385	

Note: firm and year dummies are included but not reported. *** $p < .001$, ** $p < .01$, * $p < .05$

but insignificant for the seller ($b = -.007$). These results suggest that the CEO's highly visible role in the firm will make external stakeholders directly identify the acquirer's CEO with the brands the company acquires, and they incorporate the information about the acquirer CEO's narcissism into their evaluation of the deal.

In sum, for both acquirer and seller, CEO narcissism has a negative impact on the return associated with the deal through the mediating effect of brand asset overvaluation. In addition, the path from brand asset overvaluation to both the acquirer and seller's returns is moderated by the target brand attributes (brand awareness and perceived quality).

To formally test the moderated mediation structure (Fig. 1), we follow the procedures that Muller et al. (2005) and Preacher et al. (2007) suggest. Specifically, we use 5000 bootstrapping samples to examine the significance of the conditional indirect effects of an acquirer's CEO narcissism on the returns associated with acquisition through the mediation by brand asset overvaluation. Narcissism's conditional indirect effect on returns depends on the levels of brand awareness and perceived quality; these conditional indirect effects are given by $k_1 \times (\theta_1 + \theta_4 \text{ Awareness} + \theta_5 \text{ Quality})$ for an acquirer and $k_2 \times (\nu_1 + \nu_4 \text{ Awareness} + \nu_5 \text{ Quality})$ for a seller. The results show that the conditional indirect relationship between an acquirer's CEO narcissism and its abnormal returns is negative and significant at the low (one SD below mean) and average levels of brand awareness and perceived quality ($b = -.012$, 95% bootstrap CI = [−.016, −.007]) but not significant at high levels (one SD above mean) of brand awareness and perceived quality.

Table 5 Determinants of brand transaction decisions

	Brand disposals		Brand acquisitions	
Variable	Coefficient	S.E.	Coefficient	S.E.
CEO Narcissism	−.811***	.241	.358**	.154
Brand Awareness	.037	.045	.346***	.027
Perceived Quality	.014	.075	.234***	.025
Media Coverage	.006**	.003	.001	.001
Brand Performance	−.009	.815	.002	.167
Leverage	−1.164**	.517	.827	.412
ROA	6.523**	3.29	−1.594	.844
Firm Size	.005	.128	.038	.035
Sales Growth	−.302*	.162	.076	.164
Market Share	.589	.604	.739***	.196
CEO Compensation	−.019	.028	−.003	.005
CEO Age	.017	.031	−.016	.010
CEO Tenure	−.089	.059	.024**	.011
Transaction Trend	−.081**	.039	.023***	.007
p	3.751	3.262	2.364	2.957
Adjusted R-Square	.451		.589	

Note: firm and year dummies are included but not reported. *** $p < .001$, ** $p < .01$, * $p < .05$

Additional analyses and robustness tests

Alternative window, (−1, +1) for abnormal return calculation

In the main test, we used a (−2, +2) event window around the announcement dates, which is a well-established measure for event studies in the M&A setting (Chang et al., 2019) and CEO narcissism (Aktas et al., 2016). Because brand asset transaction is a substantial event that investors will pay close attention to, we also expect to observe stock market reactions in a shorter time window. We did a robustness test using

Table 6 Effects of narcissism on the acquire/disposal of brands with high awareness

	Fixed effect model				Probit model			
	Acquire_strong_brand		Dispose_strong_brand		Acquire_strong_brand		Dispose_strong_brand	
Variable	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
CEO Narcissism	.292**	.133	−.391**	.198	.935**	.412	−1.833***	.596
Perceived Quality	.005*	.003	.006*	.003	.012*	.007	.016*	.009
Peer Brand Awareness	.064**	.029	.012*	.007	.116**	.058	.053**	.023
Deal Value	−.002	.017	−.006	.015	.005	.001	−.022	.065
Brand Performance	.224**	.101	.093	.112	.572**	.238	.139	.092
Industry Relatedness	−.091	.116	.047**	.022	−.325	.357	−.013	.365
Media Coverage	−.001	.001	−.001	.001	.001	.001	.001	.001
Entire Firm	−.515	.715	−.796**	.324	−1.553*	.852	−.817	.836
Sales Growth	−.040	.282	−.664**	.301	−1.085	1.006	1.102**	.506
Market Share	−.634**	.323	.106	.178	−2.272**	1.063	.763	.642
Firm Size	.047	.036	−.065	.055	.113	.110	−.216	.259
Advertising	.335	.367	.216***	.103	.794***	.296	.278*	.161
R&D	.759	.426	−.311	.257	−.198	.246	.775***	.272
Leverage	−.562	.370	.036	.267	−1.224	1.812	1.192	1.556
ROA	1.964***	.705	−3.603***	.859	−1.978***	.724	−7.165***	4.42
λ	−.393	.327	−.173	.226	.424	1.725	−.726	.863
p	.215	.416	.315	.463	1.348	1.453	1.786	1.554
Adjusted R-Square	.462		.448		.231		.324	

Note: firm and year dummies are included but not reported

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

abnormal returns calculated with the (−1, +1) window and the Fama-French four-factor model. The results of Eqs. 5a and 5b with the alternative abnormal returns are similar to the main test's results and are reported in Table A5.

Using Probit model to estimate hypotheses 2

In the main test, a linear probability model is used to test H_2—the determinants of firms' choices of acquiring/disposing of high versus low awareness target brands—because it allows using fixed effect for stricter identification. However, the linear probability model may have a potential flaw in that it assumes the conditional probability function to be linear. Thus, we also conduct a robustness test for H_2 by estimating a Probit model. The hypotheses are supported in the robustness test. We report the results in the second column of Table 6.

Alternative measurement for brand asset overvaluation

We also use an alternative measurement of brand asset overvaluation to estimate Eq. 4. In the main test, we measure brand asset overvaluation by regressing the firm-reported financial value of the brand on the four variables: (1) the third party's customer mind-based brand value from Equitrend; (2) a dummy variable created using the third party's financial market-based brand value ranking (Brand Finance top 500 global brands list); (3) customer loyalty measure; and (4) ROA. To construct an alternative measure, we replace the variable (1) with BAV's rating of customer mind-based brand (brand strength and brand stature ratings from 1 to 100). All the sample brands collected from Equitrend also have ratings in BAV data, which makes this procedure possible. Next, we replace the variable (2) with a dummy variable created based on another third party's financial market-based brand value ranking (Interbrand's top brands). It is one of the most popular rankings, and it analyzes the company's profit and estimates the future profit. We calculate the residual from this regression and use it as the alternative measure of brand asset overvaluation. The results using the alternative measure have a similar pattern as the main test's results. The results are reported in the second column of Table 7.

Table 7 Determinants of brand asset overvaluation

	Brand Overvaluation		Brand Overvaluation (robustness test measurement)	
Variable	Coef.	Std. Err.	Coef.	Std. Err.
Acquirer Narcissism	.410**	.180	.471**	.211
Seller Narcissism	.224**	.103	.149**	.068
Brand Awareness	.008**	.004	.007**	.003
Perceived Quality	.015	.012	.085	.049
Peer Brand Overvaluation	.325**	.158	.959***	.259
Deal Value	.993***	.113	.989***	.268
Industry Relatedness	.092	.078	−.013	.035
Brand Performance	.230	.125	.129	.098
Media Coverage	.000	.000	.001**	.000
Entire Firm	.108**	.051	.141**	.063
Cash	.381**	.189	.521**	.265
Multiple Bidder	−.372	.612	−.397	.461
Seller Mktg Capability	.008**	.004	.006**	.003
Seller Brand Diversity	.061	.235	.023	.012
Seller Concentration	.095	.103	.131	.156
Seller Sales Growth	.365	.275	.457**	.191
Seller Firm Size	.177***	.055	.916***	.258
Acquirer Mktg Capability	.009	.015	.009	.007
Acquirer Brand Diversity	.054**	.026	.035	.042
Acquirer Financing Consideration	.236	.195	.109	.274
Acquirer Firm Size	.118**	.054	.047	.081
Acquirer Sales Growth	.756	.293	.375***	.141
Acquirer Leverage	1.136***	.345	.726**	.334
λ	5.654***	.984	5.633***	.755
$\rho_{\text{Acquirer narcissism}}$	.058	.156	.063	.095
$\rho_{\text{Seller narcissism}}$	.065	.129	.079	.107
Adjusted R-square	.392		.458	

Note: firm and year dummies are included but not reported. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

Discussion

Implication for theory

A broader upper echelons perspective: The impact of a CEO's personality trait on marketing The psychological processes underlying CEOs' marketing decisions are little known, yet those highly personalized characteristics determine CEOs' strategic decision-making as they interpret opportunities through lenses formed by their individual attributes (Hambrick & Mason, 1984). The existent marketing research investigating the link between top management characteristics and firm strategy/performance focuses on the chief marketing officer (CMO)'s demographics, tenure, and functional experience (e.g., Nath & Bharadwaj, 2020). However, research regarding marketing strategy decisions should consider the impact of not just the CMO, but the broader upper echelons (Whitler et al., 2020). Recently, a few studies have focused on the impact of a CEO's ingrained personality traits on innovation strategies and innovation-associated stock returns (Kashmiri et al., 2017; You et al., 2020). Our study expands the literature by associating CEO personality with marketing strategies and market-based assets.

More specifically, our research focuses on the association between CEO narcissism and brand acquisitions/disposals. Our results document that CEO narcissism explains 3.2% of the variance in brand acquisition possibilities and 3.8% of the variance in brand disposal possibilities. CEO narcissism's effect is comparable to other predictors of brand acquisition decisions suggested in the literature (Wiles et al., 2012), such as financial leverage, which explains 3.5% of brand acquisition possibilities and 2.6% of brand disposal possibilities.

Table 8 Determinants of abnormal returns associated with brand acquisitions and brand disposals

AR Acquisition			AR Disposal		
Variable	Coef.	Std. Err.	Variable	Coef.	Std. Err.
Brand Overvaluation	−.029***	.008	Brand Overvaluation	.038**	.013
Brand Awareness	.016**	.008	Brand Awareness	−.010**	.004
Perceived Quality	.036***	.008	Perceived Quality	−.004*	.003
Brand Awareness* Brand Overvaluation	.003**	.001	Brand Awareness* Brand Overvaluation	−.005**	.002
Perceived Quality* Brand Overvaluation	.006**	.003	Perceived Quality* Brand Overvaluation	−.002*	.001
Acquirer Narcissism	−.023**	.011	Acquirer Narcissism	−.014	.004
Seller Narcissism	−.006	.006	Seller Narcissism	−.007	.009
Deal Value	.001	.007	Deal Value	.011**	.005
Industry Relatedness	−.005	.006	Industry Relatedness	−.001	.003
Media Coverage	.000*	.000	Media Coverage	−.000	.000
Brand Performance	.014	.007	Brand Performance	.016	.012
Entire Firm	−.298**	.152	Entire Firm	.329	.256
Cash	.007	.005	Cash	.005	.004
Multiple Bidder	−.014*	.008	Multiple Bidder	.017**	.008
Acquirer Firm Size	−.001	.004	Seller Firm Size	.002	.003
Acquirer Leverage	.020	.018	Seller Leverage	.090***	.036
Acquirer Sales Growth	.054**	.026	Seller Sales Growth	−.093***	.035
Earnings Impact	−.022*	.013	Earnings Impact	−.020*	.011
Motive Growth	−.003	.023	Motive Debt	−.211***	.018
Motive Profit	.011	.010	Motive Buyback	−.116	.029
Motive Strength	.003	.011	λ	.199	.155
λ	−.077	.097	$\rho_{\text{Acquirer narcissism}}$	.013	.102
$\rho_{\text{Acquirer narcissism}}$	.038	.105	$\rho_{\text{Seller narcissism}}$	.226***	.106
$\rho_{\text{Seller narcissism}}$	.046	.059	κ	−.337**	.098
κ	−.112***	.035	γ	.141	.152
γ	−.018	.029	δ	.076	.103
δ	−.091**	.044	Adjusted R-square	.523	
Adjusted R-square	.426				

Note: firm and year dummies are included but not reported. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

Since resource allocation involves tremendous discretion from CEOs, future research should further explore the relationship between CEO narcissism and other reputation-based assets of firms.

CEO narcissism's differential impacts depending on specific scenarios Prior research on CEO narcissism's financial impact is mixed, with some studies showing positive effects and others showing negative effects. Most prior research examines CEO narcissism's direct impact without exploring the mechanism underlying its positive or negative economic consequences. However, the financial consequences of CEO narcissism can vary in different contexts and should be analyzed in specific settings. In our study context, through brand asset overvaluation's mediating effect, although acquirer CEO narcissism decreases stock returns associated with the acquisition, target CEO narcissism increases stock returns associated with the disposal. By calculating the variance in abnormal returns explained by CEO narcissism's indirect and direct effects (e.g., Fairchild et al., 2009), we find that 7.5% of the variance in abnormal returns is explained by CEO narcissism for the acquirer and 5.8% for the seller, thereby suggesting CEO narcissism's importance in influencing the deal's returns. Future research can explore other mechanisms through which more narcissistic CEOs perform better (or worse) than less narcissistic ones.

The role of brand awareness and quality in moderating CEO narcissism's impact Although prior research finds that executives' narcissism generates a negative impact on firm profitability (e.g., Aktas et al., 2016), it has been unclear what factors can mitigate the financial impact of CEO narcissism. Our research expands the understanding of the financial relevance of brand attributes, such as perceived quality and brand awareness (Mizik & Pavlov, 2017); brand awareness and perceived quality can weaken CEO narcissism's negative financial impact through influencing the relationship between brand asset overvaluation and abnormal returns.

Managerial implications

Narcissistic CEOs' brand transaction decisions

Our findings help predict a company's brand acquisition and disposal actions by incorporating the information about CEO narcissism. For example, investment bankers and analysts can anticipate that narcissistic CEOs are more likely to acquire brands than their less narcissistic counterparts and that it will be especially harder for narcissistic executives to look beyond the stigma associated with selling off to implement proactive brand disposal. The fit between a CEO's personality and a firm's strategic objectives is crucial; a narcissistic CEO's tendency of disposing of fewer brands may create obstacles when a company needs to streamline its resources for strategic refocusing, or the narcissistic CEO's tendency to acquire more brands may contribute to strong growth when the business needs to be expanded.

Narcissistic CEOs' choices of target brands We find that narcissistic CEOs are more likely to acquire high-awareness brands and dispose of low-awareness brands. This finding helps firms predict competitors' actions and formulate strategies to gain advantages when competing firms are rebalancing their brand portfolios. Executives can identify CEO narcissism as a factor in their deal construction and negotiation and try to overcome bias at specific decision points for brand transactions, thereby leading to financially viable strategies.

Narcissistic CEOs' impact on brand asset valuation We find that CEO narcissism is positively associated with brand asset overvaluation. The focal firm needs to have a more objective brand asset evaluation and accounting procedure to minimize the potential influence of CEO narcissism. To capture the true brand value traded in deals, investors such as hedge funds should include CEO attributes such as narcissism in their empirical asset pricing models.

Put CEO narcissism's differential impacts into context Labeling CEO narcissism as a positive or negative trait for all business scenarios is convenient but not adequate. Our finding shows that, through brand asset overvaluation, acquirer CEO narcissism leads to lower returns, while seller CEO narcissism increases stock returns. Our result shows that when CEO narcissism increases from the low level (mean − one SD) to the high level (mean + one SD), its indirect impact through brand asset overvaluation is a 0.9% decrease in the acquirer's return ($42 million) associated with the deal and a 0.7% increase in the seller's return ($50 million) on average. Thus, to serve shareholders' interests, CEO narcissism's impacts should be analyzed for specific settings for both brand acquirers and sellers to optimize managerial decision-making.

Board members' CEO recruiting decisions Narcissistic behavior is a predictable trait that endures over time. Given CEO narcissism's significant financial impacts, narcissism should be considered when designing better corporate governance and selecting the best candidates as CEOs. For example, a board that focuses on expanding the brand portfolio and increasing the firm's brand awareness may find that selecting a narcissistic CEO fits the firm's situation; the same recruiting strategy may not work well for a board that focuses on shrinking brand portfolios. We summarize the suggested practices for board members in Table A6.

Limitations and future research

This study focuses on CEO narcissism on brand transactions and associated stock market returns. Our study has several limitations. First, although our CEO narcissism measure has been well established in both marketing and management (Kashmiri et al., 2017; Zhu & Chen, 2015), this measure is nevertheless imperfect. A future study can measure CEO narcissism by using both the unobtrusive indicators and the behavioral laboratory simulations. Multiple methods will help to fully understand the implications of our measurement limitation.

Second, our research focuses on narcissistic CEOs' attention on brands in the context of brand acquisitions and disposals. To fully document the effects of CEO personality on marketing strategies, future research should examine the relationships between CEO narcissism and other firm activities, such as advertising, product launching, and environmental, social practices. Additional research in this area will provide effective oversight over CEO traits and equip corporate board members and executive teams with tools for achieving the best possible corporate outcomes.

Third, our research focuses on the impacts of CEO narcissism on stock returns. However, to provide a fuller picture of the financial consequences of CEO narcissism, future research can study the association between idiosyncratic risks and CEO narcissism in a marketing context. The marketing literature has shown the significant impact of marketing assets on firms' idiosyncratic risks (e.g., Thomaz & Swaminathan, 2015; Tuli & Bharadwaj, 2009). Investors and managers can benefit from research that reveals whether the acquire and seller firms, under the influence of CEO narcissism, experience higher volatility in returns in the context of marketing asset transactions.

Conclusion

We find that narcissistic CEOs are less likely to dispose of brands but more likely to acquire brands than their less narcissistic counterparts. CEOs with higher narcissism levels are more likely to acquire brands with high brand awareness and to dispose of brands with low brand awareness. We further test a mediated moderation model to reveal that CEO narcissism significantly influences a company's stock returns associated with acquiring or disposing of brands through its impact on brand asset overvaluation. Furthermore, brand awareness and perceived quality weaken the association between brand asset overvaluation and stock returns.

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Declarations

Conflict of interest The authors declare that they have no conflict of interest.

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