



What brand do I use for my new product? The impact of new product branding decisions on firm value

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Abstract

Every new product introduction entails a branding decision: whether to name the product using a direct extension, a sub-brand, or a new brand. While previous research has focused on how consumers evaluate alternatives in lab settings, or, in studies based on secondary data, on the effectiveness of brand extensions in general, a comprehensive framework of the antecedents and consequences of new product branding decisions is lacking from the literature. The authors propose a theoretical framework that organizes product-, category-, and firm-level determinants of firms' new product branding decisions, and empirically test the framework's predictions using a large sample of new product introductions, documenting with real world data how managers choose among three branding alternatives. In addition, using both product-specific and firm-specific valuation metrics, the authors quantify the negative impact on firm value of misaligning the new product branding decisions with the conditions facing new products. Conceptually, the authors bridge the branding and new product performance literatures, and present findings that extend knowledge from behavioral research on brand extensions. Empirically, the authors provide evidence to managers on how to choose brand names for new products in a way that enhances the stock market value of firms.

Keywords New product introduction · Branding decisions · Brand extensions · Firm value · Tobin's Q · Event study

Over 250,000 new products are introduced globally every year (Wong, 2010). The market performance of these products is critical to the survival of their parent firms, particularly in ultra-competitive markets, such as consumer packaged goods (CPG), where “marketers who fail to lead the evolution [...] will be pushed out of the way—and literally right off the retail

shelves” (IRI New Product Pacesetters, 2014, p. 2). In response, researchers have analyzed determinants of new product success, ranging from product features to the resources that support the product launch (e.g., Henard & Szymanski, 2001). One of the key decisions that can make the difference between success and failure is the *brand name* that is given to each new product.

Regardless of the strategic reason for launching a new product (e.g., to defend a market position or enter a new market), managers need to give it an appropriate brand name. Although finer-grained distinctions can be drawn to capture strategic logic,¹ most branding alternatives simplify to one of three primary types: use an existing brand name (i.e., a direct extension), modify an existing brand name (i.e., sub-branding), or create a new brand name. In a *direct extension*, a firm pairs an existing brand name with a generic description that connotes unique characteristics of the new product or its uses (Milberg et al., 1997; e.g., Procter and Gamble's (P&G) Tide Washing Machine Cleaner). In *sub-branding*, a firm takes an existing brand, but combines it with a new proper name so that it stands apart from the parent (Milberg et al., 1997; Sood & Keller, 2012). For example, P&G paired

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¹ For example, super brands, bridge brands, and co-brands have been discussed (Keller, 2013).

existing brand, Olay, with a new name, ProX, to create the new sub-brand Olay ProX, a name that does not connote any particular function or use, but is simply created to distinguish a new line of products, while still connecting to the parent brand. Finally, firms can introduce a new product under a *completely new name* (e.g., when the Coca-Cola Company launched a sports drink, Powerade).

Beyond avoiding the costs and risks associated with launching a new brand, the appeal of using an existing brand—whether in a direct extension or a sub-brand—stems from the power of existing brand associations held by customers that make a strong brand a powerful strategic resource for its owner (Capron & Hulland, 1999). These associations can increase recognition and trial for a new product, decreasing marketing costs associated with launching the product (Keller, 1993). For example, Cherry Coke benefited greatly from positive parent brand associations and was deemed a success soon after its introduction, despite receiving limited marketing support (Pitta & Katsanis, 1995). But new products can also harm brands. Weak or failed brand extensions can dilute the parent brand and negatively affect its evaluations (Chen & Chen, 2000). Consider the Adolph Coors Company. To capitalize on the brand association for their beer products of having a touch of spring water from the Rocky Mountains, in 1990 it introduced a non-alcoholic beverage named Coors Rocky Mountain Sparkling Water, a direct extension in a new category. This product failed to gain any traction in the marketplace because it confused some consumers about its alcohol content, but it also hurt the brand, because it prompted competitors to suggest that Coors products are based on tap water. Since this concern was more salient for a water product than for beer, the product floundered and was eventually discontinued, but the negative publicity spilled over to the entire Coors brand (Eidson, 2016).

As these examples suggest, choosing the right brand name for a new product requires balancing risks against potential rewards of leveraging a brand resource, a notion also supported by prior research and theory. Specifically, when brands possess strong, distinctive, and positive associations in the minds of consumers (Keller, 1993), they constitute important strategic resources (valuable, rare, difficult to imitate, and non-substitutable; Barney, 1991; Capron & Hulland, 1999; Wernerfelt, 1984). Such resources, according to the resource-based view theoretical paradigm (hereafter, RBV), can strengthen the competitive advantages of their parent firms. Strong and positive brand associations “may create and sustain competitive advantage because [they] serve as both ex-ante limits to competition and ex post limits to competition” (Rahman et al., 2018, p. 115). Thus, the RBV provides a good theoretical foundation for understanding how managers seek to leverage existing brands and resources in new product introductions, but also why managers seek to protect brands from being overextended or suffering damage to their associations.

However, markets evolve constantly through strategic conflict among competitors (who launch new entries), as well

as through changing environmental conditions and changing customer tastes (Teecce et al., 1997). In dynamic markets, branding new products requires managers to best leverage or “reconfigure” brand resources to fit these changing conditions, while protecting the brand from harm (Morgan & Slotegraaf, 2012, p. 103). Those who do so effectively possess dynamic branding capabilities (Brodie et al., 2017). Such capabilities include determining which new-product branding alternative (brand extension, sub-brand, new brand) is most appropriate to leverage and protect brand assets, given the specific market conditions.

Although matching branding alternatives to market conditions has been suggested to be an important dynamic capability (Brodie et al., 2017; Morgan & Slotegraaf, 2012), its deployment has not been examined empirically. We do so by addressing two research questions in sequence. First, we ask *What branding alternative should firms use for their new products?* Because brands are such valuable resources, managers must weigh leveraging brand equity to increase awareness for the new product against the risk that brand equity may be damaged if the product fails. Moreover, as managers deploy their dynamic branding capabilities, they need to consider that these “are partially constrained” by the availability of other resources (Pisano, 2017, p. 748), including firm-specific assets such as financial and marketing resources needed to support the opportunities pursued by firms (Palmatier et al., 2013). Using institutional logic (Anderson, 1988; DiMaggio & Powell, 1983), and taking these resource constraints into account, we develop a model to identify the right branding-alternative decisions for given market conditions. Second, we examine the financial impact of dynamic brand management capability: *How does choosing or deviating from the “right decision” (i.e., aligned with prevailing industry branding practice for new products) affect firm value?* We use measures of firm value at the product level (using an event study) and at the firm level (using quarterly and annual measures of Tobin’s Q) to provide the first empirical evidence that answers this question.

In sum, in this paper we propose and empirically test a theoretical framework of the determinants of new product branding decisions. Integrating insights from the RBV paradigm with research on dynamic capabilities, we draw from the brand extension and new product performance literatures (e.g., Aaker & Keller, 1990; Gatignon & Xuereb, 1997; Völckner & Sattler, 2006) to classify these determinants according to two forces that influence the choice of a particular new product branding alternative, as well as its outcomes: the *risks* to be mitigated and the *resources* that firms can leverage. Regarding risks, those can come from the new product to which the brand name is attached (e.g., “fit,” Völckner & Sattler, 2006; “innovativeness,” Calantone et al., 2006) and from the category into which the new product is launched (Bergen et al., 1996; Dacin & Smith, 1994). Regarding resources, possessing a powerful brand resource is not enough (Capron & Hulland, 1999). We include in our framework other resources (e.g., advertising dollars) needed to leverage a given

brand to name a new product, since a firm “must also have the [other] requisite capabilities to utilize that resource to take advantage of it” (Rahman et al., 2018, p. 114; see also Teece et al., 1997 and Palmatier et al., 2013). The overarching argument that underlies our hypotheses is that firms seek to protect key brands; consequently, to the extent to which managers are capable of assessing market conditions and determining which branding alternative offers the most attractive combination of lowering risk and leveraging existing resources, managers are more likely to choose it.

Consistent with these theoretical lenses and empirical precedence, our framework comprises product, firm, and category characteristics for a sample of 19,099 new product introductions made by 69 firms in 47 categories between 2000 and 2012. The model estimated on these observed branding decisions captures the prevailing industry practice. Following Anderson (1988) and DiMaggio and Powell (1983), we posit that this model has normative value and that it yields the most appropriate branding alternative for the specific context of each new product introduction. We further find that departing from these industry norms, contingent upon product-, category- and firm-specific factors that determine the *type* of brand that should be used for new products, has negative implications for firm value.

We make three main contributions to research and practice. First, we compare *three* primary branding alternatives using a cohesive theoretical framework and an empirical model estimated with actual new product introduction data to shed light on whether the choice of a particular strategic branding alternative is in line with prevailing industry practice and to isolate the performance impact of deviating from this benchmark. As illustrated in Table 1, there are several points of differences between our research and prior studies that utilize secondary data, which pertain to the types of extensions studied, their antecedents, as well as the manner in which the consequences of these extensions are evaluated. In terms of the types of extensions studied, most comparisons in the literature feature brand extensions versus new brands, without differentiating between direct extension and sub-brand (Hennig-Thurau et al., 2009; Sullivan, 1992), or study brand-extension performance without comparing it to other branding options (e.g., Lane & Jacobson, 1995; Reddy et al., 1994). Moreover, our study enables insights that complement those from behavioral research on brand extensions (summarized in the Web Appendix A), but also new insights outside the scope of lab studies. For example, prior research reveals that relying on a repeatedly extended brand leads to more positive consumer evaluation of the new product (Dacin & Smith, 1994). Our results refine this view by showing that such brands are better leveraged as sub-brands, rather than direct extensions. Additionally, we highlight the importance of using a new brand for risky new product introductions, instead of a sub-brand as suggested by behavioral brand research (e.g., Milberg et al., 1997; Sood & Keller, 2012).

Second, to our knowledge, our paper is the only one to use a brand portfolio analysis, in addition to studying the consequences of branding decisions at the product level (Table 1). An analysis that relies on branding decisions being aggregated at the brand portfolio level provides a more holistic view of branding decisions taken as a whole, including their potential spillover effects, on firm value. Positive or negative spillover can result from the performance of a new product, impacting parent brand associations for existing products that carry that brand.

Third, by linking branding decisions to firm value (at product and portfolio levels), we contribute to a growing stream of research into the value relevance of marketing decisions (Joshi & Hanssens, 2010; Srinivasan & Hanssens, 2009), where scholars call for research to better understand the financial impact of branding (e.g., Madden et al., 2006). While the branding of an individual new product could be seen a minor corporate action, our research demonstrates that, taken as a whole, these decisions significantly impact the stock market value of firms.

We next hypothesize the determinants of the new product branding decisions and firm-level consequences. We then describe the data, explain our methods, and present results. We conclude by identifying theoretical and managerial implications, along with limitations.

Theory and conceptual development

Types of branding alternatives for new products

The branding decisions we consider in this paper are relevant to firms that follow either a house-of-brands strategy (i.e., operate an “independent set of stand-alone brands” and do not use a corporate brand on any products; Aaker & Joachimsthaler, 2000, p. 10) or a mixed-branding strategy (i.e., use a corporate brand on some products and independent brand names on others; Rao et al., 2004). These brand decisions are not relevant to firms that follow a corporate-branding strategy (i.e., that use only the corporate brand to name new products).²

² We reiterate that our focus is on the *naming* decision of new product in relation to the brands that firms already own, rather than on the strategic reasons behind the introduction. From a naming perspective, our classification covers all branding decisions. We do control for co-branded status of a new product rather than treating co-branding as a separate strategy. This is because within co-branded products we observe firms using all three branding alternatives (e.g., Crunch Toons—a *new brand* introduced by Poore Brothers with Disney characters on the package; Pampers Feel ‘n Learn - Advanced Trainers Training Pants - Dora the Explorer – a *sub-brand*; Febreze - Candle - with Gain Original Scent – a *direct extension*).

Table 1 Secondary data studies on new product branding decisions

Paper	Dependent variables	NP branding options studied (DE/SB/NB)*	Sample	Brand/product-level analysis	Multiple categories studied	Compare some branding options	Compare DE, SB, and NB	Portfolio-level analysis	Effect of branding decisions on firm value	Models determinants of branding choice
Sinapuelas et al., 2015	Line extension trial	Brand line extension (no distinction between DE and SB)	196 line extensions across 23 CPG categories	X	X					
Erdem & Chang, 2012	Consumer learning spillover effects (risk attitudes, price sensitivity, quality perceptions)	Distinction not made between types of branding	Household panel scanner data on five categories in three countries	X	X					
Hennig-Thurau et al., 2009	Revenues	Brand extension (no distinction between DE and SB); NB	101 movie sequels and matched sample of non-sequels	X		X				
Sood & Drière, 2006	Brand extension evaluations; Sequel ratings; likelihood of releasing an additional sequel	Brand extension (no distinction between DE and SB)	317 movie sequels	X						
Balachander & Ghose, 2003	Parent brand choice	Brand extension (no distinction between DE and SB)	Household panel scanner data for yogurt and powdered detergent	X	X					
Erdem & Sun, 2002	Advertising and sales promotion spillover effects	Distinction not made between types of branding	Household panel scanner data for toothpaste and toothbrush categories	X	X					
Swaminathan et al., 2001	Parent brand choice and market share; Brand extension trial and repeat purchase	Brand Extension (no distinction between DE and SB)	Household panel scanner data on six brand extensions	X	X					

Table 1 (continued)

Paper	Dependent variables	NP branding options studied (DE/SB/NB)*	Sample	Brand/product-level analysis	Multiple categories studied	Compare some branding options	Compare DE, SB, and NB	Portfolio-level analysis	Effect of branding decisions on firm value	Models determinants of branding choice
Erdem, 1998	Consumer quality perceptions, perceived risk, and choice	Distinction not made between types of branding	Household panel scanner data for toothpaste and toothbrush categories	X	X					
Lane & Jacobson, 1995	Cumulative Abnormal Returns	Brand extension (no distinction between DE and SB)	89 brand extension announcements by 59 brands	X	X				X	
Reddy et al., 1994	Incremental market share of brand line extension	Brand line extension (no distinction between DE and SB)	75 line extensions of 34 cigarette brands	X						
Sullivan, 1992	Survival probabilities; Market Share	Brand extension (no distinction between DE and SB); NB	95 brands in 11 nondurable consumer goods categories	X	X	X				
Gatignon et al., 1990	Market share; Level of marketing effort	NB	68 new brands in the pharmaceutical industry	X						
<i>This Paper</i>	Branding strategy choice; annual and monthly Tobin's Q; short- and long-term Abnormal Returns	DE; SB; NB	19,099 NP introduction in 47 CPG categories	X	X	X	X	X	X	X

*NP = New Product; DE = Direct Extension; SB = Sub-brand; NB = New Brand

Strong brand names fulfill the RBV criteria of a strategic resource (Capron & Hulland, 1999; Rahman et al., 2018). As a result, firms seek to leverage them, with the goal of helping new products that carry those brand names attain and hold unique and inimitable market positions (Keller, 2016). However, just as the RBV makes clear that firms try to protect any resource that is critical to sustainable competitive advantage (Barney, 1991; Wernerfelt, 1984), firms seek to protect brands to avoid having their equity eroded. Table 2 summarizes prior literature on the extent to which direct extensions, sub-brands, and new brand names leverage a firm's existing resources and/or expose them to risk.

Determinants of new product branding decisions

We combine insights from the RBV with research on dynamic capabilities—defined as “firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments” (Teece et al., 1997, p. 516)—to assert that firms that can effectively match or reconfigure brand resources to fit new market conditions possess dynamic branding capabilities. These capabilities underline decisions that managers make under the constraint that “resource endowments are ‘sticky:’ at least in the short run, firms are to some degree stuck with what they have and may have to live with what they lack” (Teece et al. p. 514). Our review of literature highlights two forces that firms face as they deploy their dynamic branding capabilities—risks and resources—we structure our hypotheses around them. First, managers carefully consider the risks associated with a new product launch and strive to mitigate these risks to protect their existing brand equity, given the unique set of conditions in the market the new product will enter (Keller, 2016). Second, managers take stock of available firm-specific resources to ensure they have the means needed to either leverage an existing brand in a manner that maximizes positive spillover, or build a new one (Rahman et al., 2018, p. 114).

Managing risks and leveraging resources are simply broad categories of the factors that managers consider when making brand-naming decisions to increase the likelihood that a new product succeeds. To identify specific factors within these categories that relate to new product success (and thus may impact the branding decision), we turn to two influential papers that examine factors that drive the success of new products, in general (Henard & Szymanski, 2001), and the success of brand extensions, in specific (Völckner & Sattler, 2006). In a meta-analysis that takes stock of the range of the determinants of new product success documented in empirical research, Henard and Szymanski (2001) identify three types of factors: product advantage/innovativeness, competitive conditions facing the new product, and relevant firm resources and capabilities. All three types of factors also

play a role in the branding decision. Specifically, innovative products that compete in categories characterized by stiff competition are more likely to need unique brand names that make them stand out. In addition, resources necessary to implement a chosen brand strategy such as the portfolio of brands from which to choose, are critical inputs into the branding decision. Völckner and Sattler (2006) reinforce these insights and highlight product characteristics, marketing support, and brand portfolio characteristics (e.g., history of brand extensions) as some of the most important drivers of extension success. Drawing from these two papers and related literatures, we choose a set of six product-, category- and firm-specific factors that collectively cover the domain of drivers of product and brand success. Three of these product, category, and resource factors relate to mitigating risk and three capture resource advantages that can be leveraged.

Branding decision: Mitigating risk factors

A major threat to the equity of a brand is that of negative *reciprocal* spillover, which can occur when a brand extension fails. Effects of negative spillover range from dilution of parent-brand image to lowered evaluations and lower probability of repeat purchases of the parent brand (Chen & Chen, 2000; Loken & John, 1993; Milberg et al., 1997; Swaminathan et al., 2001). We argue that to avoid negative spillover, firms should refrain from using established brands (which are strategic resources vital to ongoing competitive advantage, Rahman et al., 2018) when the uncertainty of the success of the product is relatively high. To capture risk factors that may negatively affect new product success, we consider specific characteristics of the new product—fit and product innovativeness—and the competitiveness of the category into which the product is introduced—category new product prevalence—that could affect its success.

One of the most critical determinants of extension success highlighted in the brand literature is the *fit between the extension product and the parent brand* (e.g., Aaker & Keller, 1990; Völckner & Sattler, 2006). *Fit*, i.e., the degree to which the new product matches current products and brands in the firm's portfolio, has been typically operationalized using similarity of the new product's category and brand's existing categories (Aaker & Keller, 1990; Monga & John, 2007). Prior literature finds that low fit is a strong predictor of brand extension failure and poor brand extension evaluations (Aaker & Keller, 1990; Boush & Loken, 1991; Park et al., 1991). Building on this literature, it is clear that managers seek to avoid harming the equity of a strategically important brand. Thus, we posit that if the fit between the product and available brands is low, firms are unlikely to use an existing brand either in the form of a direct extension or a sub-brand, in order to avoid hurting the equity of the existing

Table 2 Comparison of direct extensions, sub-brands, and new brands based on prior literature

	Advantages	Disadvantages
<p>Direct extension: the use of an existing brand along with a generic description to name a new product</p>	<ul style="list-style-type: none"> Using an existing brand may reduce the costs associated with introducing a new product and may enhance its potential revenues (Aaker & Keller, 1990). The stock market reacts positively to the launch of brand extensions of a high-quality parent brand (Lane & Jacobson, 1995). Successful direct extensions can reinforce and strengthen the image of the parent brand, and can even broaden its meaning, thereby significantly contributing to its equity (Aaker, 1990; Brexendorf et al., 2015). 	<ul style="list-style-type: none"> Using a generic description in the product name, such as Dove Firming Body Wash, may make it harder for the product to stand out among competitors. Consumers may also be quicker to link an unsuccessful direct extension to the parent brand than if the extension had carried a more distinct name. This can lead to brand image dilution and potentially poorer brand performance in other categories (Swaminathan et al., 2001). A successful new product named using an existing brand can also damage the equity of the parent brand by creating undesirable associations that are inconsistent with the parent brand image (Aaker, 1990; Ambler & Styles, 1996).
<p>Sub-brand: launching a new product using a combination of an existing brand name and a proper name not previously associated with the brand.</p>	<ul style="list-style-type: none"> This option may be used for products that are positioned differently than the flagship brand products (e.g., Courtyard by Marriott, a lower-end alternative of a high-end hotel chain), as well as for products introduced into categories in which differentiation is critical (e.g., Flora by Gucci, a perfume that evokes the quality perceptions associated with Gucci, while creating a unique identity). Milberg et al. (1997) show that using sub-brands rather than direct extensions improves consumer evaluations of the product and mitigates the negative effects that occur when a new product elicits brand associations that do not fully align with the image of the parent brand. 	<ul style="list-style-type: none"> Although sub-brands may allow the product to forge an independent set of associations, they also carry the risk of diluting the parent brand image, but less so than direct extensions.
<p>New brand: creating a completely new brand for a new product</p>	<ul style="list-style-type: none"> New brands allow the firm to choose the most appropriate positioning for the new product without creating incompatible brand associations that damage the equity of existing brands. It also allows firms to target niche segments (Aaker & Joachimsthaler, 2000), as well as categories and markets for which the associations of existing brands are not appropriate (Aaker, 1990). Each newly created brand is a valuable asset that can be a foundation for future growth and can be leveraged into new extensions. Indeed, Aaker refers to a “forgone opportunity to create a new brand equity” as “the worst consequence of a brand extension” (Aaker, 1990, p. 54). 	<ul style="list-style-type: none"> Building a brand from the ground up takes time and requires higher expertise and deployment of resources (e.g., advertising and promotional expenditures). Introducing new products under unknown brand names creates a high degree of uncertainty and is riskier than brand extensions (Aaker & Keller, 1990; Ambler & Styles, 1996). Consequently, managers may prefer to rely on existing brands to facilitate the launch of new products, even though no conclusive empirical evidence exists to indicate that products branded under a new name are more likely to fail (Ambler & Styles, 1996; Morrin, 1999).

brand or creating undesirable associations; instead, they are more likely to prefer a new brand alternative.

H1a A firm introducing a new product that has a low fit with brands in the firm's portfolio is more likely to use a new brand (versus a direct extension or a sub-brand) to name the product.

The second product-level risk factor is the *innovativeness* of the new product. Prior research distinguishes between new products that are incrementally innovative (e.g., sustaining innovation) and those that provide either a significant improvement in consumer or in technology benefits (or both, i.e., radical innovation, in the terms of Chandy & Tellis, 1998). In this paper we use the more general definition previously used in the literature (Moorman et al., 2012; Sorescu & Spanjol, 2008), whereby a new product is deemed to be innovative if it incorporates significantly new consumer or technology benefits.

Extant literature suggests that it is more difficult to predict the success of innovative new products (e.g., Robinson & Min, 2002). Innovativeness can even be detrimental to new product success if customers are not sufficiently familiar with the nature of the new product (Calantone et al., 2006). Thus, the more innovative the new product, the more difficult it is to accurately predict its success and market acceptance—by channel partners and customers. While using an existing brand may mitigate the uncertainty associated with the launch, should the new product fail, the damage to an existing brand could extend beyond the losses associated with that particular product. To protect existing brands from such harm, we predict that firms are more likely to use a new brand on an innovative product.

H1b A firm introducing an innovative new product is more likely to use a new brand (versus a direct extension or a sub-brand) to name the product.

The competitiveness of the category into which a new product launches can raise the probability of intense competitive reaction (Henard & Szymanski, 2001), making that product more likely to fail (Bergen et al., 1996; Dacin & Smith, 1994), and increasing the potential for damage to a brand's equity (Brexendorf et al., 2015). Although firms protect brands through litigation (Ertekin et al., 2018), competitors can encroach on brand associations in ways that do not violate trademark laws. As the number of competing products increases within a category, it is more likely that some competitor achieves a position close to that of the focal brand, making the focal brand less rare and differentiated, and reducing its value as a strategic resource. Moreover, the higher the number of new products introduced into a category, the more difficult it is for a new product to be noticed by consumers (Hauser & Wernerfelt, 1990; Iyengar & Lepper, 2000). Thus, to capture the risk factor of competitive

conditions, we examine the degree of *new product prevalence in the new product's category* (Slater & Narver, 1994).

In such highly competitive environments, we argue that firms are likely to leverage one of their existing brands in order to increase the probability of a new product survival and success. At the same time firms should also try to shield their existing brands from potential harm in case of new product failure. Using a sub-brand allows firms to do that as sub-brands maintain a link to the parent brand, while also forging an independent set of associations. As a result sub-brands diminish negative reciprocal spillover effects, protect the parent brand from dilution, and improve consumer evaluations. (Milberg et al., 1997; Sood & Keller, 2012; Kirmani et al., 1999). We thus expect that high new product prevalence in a category into which the new product is introduced will increase firms' likelihood of using a sub-brand (versus a direct extension or a new brand) to name the new product.

H1c A firm introducing a new product into a category with high new product prevalence is more likely to use a sub-brand (versus a direct extension or a new brand) to name the product.

Branding decision: Leveraging firm-specific resources

For a new product to succeed, the brand name chosen must "fit" the product (Völckner & Sattler, 2006); thus, firms benefit from having a broad portfolio of brand resources from which to choose. The brand must also have strong and unique associations (Keller, 2016), suggesting that it should not be diluted across too many new products. Beyond a given brand, other firm-specific resources are needed to support the chosen brand strategy (Capron & Hulland, 1999). Thus, our framework accounts for the: 1) breadth of firm's active brand portfolio, 2) extent to which those brands are already leveraged to brand new products, and 3) availability of financial resources needed to support the launch.

Active-portfolio breadth is defined as the number of brands in a firm's brand portfolio that have been recently used on new product introductions. It represents the set of brands from which the firm can choose when selecting an appropriate name for a new product. Brands that have not been recently used on any new products are not considered to be in the firm's active portfolio; perhaps they are neither flexible or current enough to match the company's new products. A broad active portfolio of brands is a valuable and inimitable resource that confers the advantage of using an existing brand that more precisely fits the new product. This minimizes the need for a new brand or a unique sub-brand and increases the likelihood of using a direct extension which may result in positive reciprocal spillover (Balachander & Ghose, 2003), attract existing

customers, and increase market share, all while decreasing new product introduction costs. Further, extending an existing brand to a new product prompts faster customer response (due to familiarity) compared to launching a new brand or a sub-brand (Keller, 1993). As the likelihood of success and the attractiveness of the potential outcomes are high, a firm should be motivated to employ a direct extension when portfolio breadth is high. We therefore hypothesize that:

H2a A firm with a high-breadth active portfolio of brands is more likely to use a direct extension (versus a sub-brand or a new brand) to name a new product.

Active-portfolio leverage is the extent to which, on average, the brands in the firm's portfolio have been used in past new product introductions. A highly leveraged brand name that has been used on a variety of products is likely to be a broader umbrella and enjoy high brand awareness that could benefit a new product. However, brands that have been repeatedly used on new products also bear a risk of overextension, where the brand is stretched and no longer has a clear image and positioning (Morrin, 1999). When the active portfolio leverage is high, we conjecture that firms will more likely use a sub-brand. A sub-brand is preferred to a new brand because it allows firms to use their existing branding resources, and it is preferred to a direct extension because it prevents overextension of overused brands. We therefore hypothesize that:

H2b A firm with a high-leverage active portfolio of brands is more likely to use a sub-brand (versus a new brand or a direct extension) to name a new product.

Finally, turning to financial resources needed to support the launch, we focus on *advertising resources* that firms can expend. Because introducing a new brand to channel partners and customers is costly, firms that have the resources to provide strong advertising support for a new product are more likely to take on a capital-intensive task of building a new brand. Successful new brands represent opportunities for growth, create value for firms, and can boost long-term profitability; thus, we expect firms that are able to support their new products with higher advertising resources to be more likely to use a completely new name for their new products. However, firms that do not have adequate advertising resources to support a new brand are less likely to deploy one even if the product has other characteristics that would warrant the use of a new brand. Maintaining a broad portfolio of brands requires substantial resources and can reduce net cash flows (Gruca & Rego, 2005). Thus, firms with low advertising expenditures will be more likely to introduce direct extensions and sub-brands.

H2c A firm with low advertising expenditures is less likely to use a new brand (versus a sub-brand or a direct extension) to name a new product.

Branding decision and firm value

We next examine the financial consequences of a firm's dynamic branding capability, i.e., managers' ability to choose the right branding alternative given a set of market conditions. To do so, we follow the isomorphism logic theorized by DiMaggio & Powell, 1983 and Anderson, 1988, and we propose that our model of the determinants of the branding decision has normative industry value. We draw from two distinct theoretical domains to justify this assertion—population ecology and institutional theory—which advocate that entities operating in the same space tend to take isomorphic approaches and converge on the same best practices.

First, Anderson (1988) uses population ecology theory to argue that prevailing industry practice has normative value because market mechanisms enforce optimal behavior. While individual mistakes occur, rational firms will, in aggregate, make correct decisions because market forces penalize “wrong” decisions (also see Lilien, 1979). Applying this argument to our context, firms that adopt industry norms in choosing brand types (i.e., extension, sub-brand, new brand) for their new products will have higher market value than firms that deviate from them. Note that this prediction does not refer to the market position of the specific brand *name* (where a unique positioning could improve performance), but rather to the *type* of brand chosen for a product, relative to industry norms that have emerged following thousands of new product introductions. Moreover, our arguments do not suggest that firms should avoid product or strategic differentiation; on the contrary, our brand-*type* decision model suggests that each brand-type decision is contingent upon a rich set of product, firm, and industry characteristics.

Second, an institutional-theory view posits that firms competing in the same context end up following similar strategies because “individual efforts to deal rationally with uncertainty and constraint often lead, in the aggregate, to homogeneity in structure, culture, and output” (DiMaggio & Powell, 1983, p. 147; also see Thornton & Ocasio, 1999). Following the same strategy is not akin to imitation in product design or in the timing of introduction of new products. Rather, firms can display relative heterogeneity in output and behavior while still following certain general norms that represent best practices in their specific context.

These two theoretical lenses support our assertion that there are certain norms in each industry that well-performing firms tend to follow. Firms that conform to such industry norms in choosing a new product branding alternative,

contingent upon risk and resource factors, will enjoy improved firm performance; in contrast, deviating from industry norms will affect their performance negatively. These arguments have been applied in the marketing literature, among others, by Keller et al. (2016), who propose a framework of determinants of branding decisions for private labels and then test the extent to which following this framework affects firm-level financial performance of companies.

Adherence to prevailing industry practice can be documented at the product or firm level. A product-level view allows us to isolate the impact of individual new product branding decisions on firm performance, whereas a firm-level (portfolio) approach allows us to account for positive or negative spillover effects on the parent brand. While we use both avenues to empirically assess these consequences, from a theoretical stance we argue that examining the aggregate effect of all branding decisions at the firm level (per unit of time) provides a more complete picture of the direct and indirect effects of branding decisions on firm value that incorporates positive and negative spillover effects.

Finally, we expect the negative effect associated with departing from industry norms to be smaller for market leaders (i.e., firms with high market share in their categories). Such firms have significant market power that makes them more likely to actively introduce new products and adopt new technology and business processes (Blundell et al., 1999; Cohen, 2010). Because they have a strong customer base, market leaders may experiment and potentially uncover conditions under which they can successfully deviate from prevailing industry practice in branding new products. Thus, we expect market leadership to mitigate the negative effects of deviating from industry norms for choice of new-products branding alternatives:

H3a The more a firm departs from industry norms, contingent upon product-, category-, and firm-specific factors that determine how new products should be branded, the lower the stock market value of the firm.

H3b Market leadership mitigates the negative effect that deviating from industry norms, contingent upon product-, category-, and firm-specific factors that determine how new products should be branded, has on the stock market value of the firm.

Method

Data and sample

To test our hypotheses, we need a large number of new product branding decisions across a variety of firms. After considering a number of options, we chose the context of

the CPG industry, one of the largest in the U.S., with sales reaching almost \$836 billion in 2019 (IRI Times and Trends Report, 2019). Moreover, CPG is characterized by frequent new product introductions across varied categories, which results in many CPG firms having a complex portfolio of brands. We conclude that CPG is an appropriate context for our study which aims to examine product-, category- and firm-level determinants of new product branding choice.

We obtain data on new product introductions from Global Data's Product Launch Analytics. The database contains product-level information, including name and introduction date, manufacturer, category in which the product is introduced, co-branded status, and a rating of the new product's innovativeness. The database has been used to examine fluctuations in private label share (Lamey et al., 2012), the financial value of co-branding (Cao & Sorescu, 2013), and the consequences of delaying new product introductions (Moorman et al., 2012).

For our sample, we started with the complete set of firms that are publicly traded in the U.S., obtained from the CRSP database. We then merged these firms with their product portfolios from Product Launch Analytics database, retaining all the firms for which both financial and product data were available. Our resulting sample contains 19,099 new products introduced between 2000 and 2012 by 69 publicly traded US firms. We were restricted to this period as Product Launch Analytics changed ownership and data collection procedures after 2012, significantly reducing the reported new products in 2013 and thereafter. We also use data from 1995 to 2000 from the same database to compute variables that require a backward-looking time window, such as variables that pertain to the characteristics of the portfolio of brands owned by the firms in our sample. The sample excludes firms that follow a corporate branding strategy as these do not typically introduce new brands. Firm-level information, including advertising expenditures, firm size, and firm value, is obtained from COMPUSTAT and CRSP.

Measures and models

We use two types of models to test our hypotheses. First, to empirically test hypotheses H1a-H1c and H2a-H2c, we model the choice of new product branding decision as a function of product, category, and firm characteristics. This model describes the effects of firm risk factors and resources on the choice of a branding alternative for a new product, capturing prevailing industry practice. Second, assuming prevailing industry practice approximates a benchmark that most firms follow (Anderson, 1988; DiMaggio & Powell, 1983), we model the impact of branding decisions on firm value to examine how deviating from this benchmark in branding new products affects firm value (H3a and H3b). We follow the standard approach used in prior research

and calculate these deviations using the output of the new product branding choice model and then include them as determinants of firm value (Brouthers et al., 2003; Keller et al., 2016).³ We present our main results on the financial consequences of branding decision at a portfolio level, using an annual Tobin's Q measure, but we also report, for robustness, results obtained with quarterly data, results from a short-term event study, and results from a calendar time portfolio analysis. These measures provide different vantage points for examining the effect of deviating from industry practice at the product level. We next explain our models and describe the variables that are used in each model. We provide details on these variables in Table 3.

Modeling the new product branding choice

To test the determinants of the new product branding decision, we use a conditional logit model (McFadden, 1973), with the choice among three branding alternatives (direct extension, sub-brand, and new brand) as dependent variable, and product, firm, and category characteristics as independent variables that tap relevant resources and risks. The conditional logit model is appropriate in our context because it allows us to model the utility of each alternative as a function of alternative invariant terms (e.g., characteristics of the firm), as well as alternative specific terms (e.g., how often the alternative has been used in the past) (Greene, 2012). The conditional logit model should only be used for nominal outcomes that are distinct and independent (i.e., the utilities associated with different outcomes are uncorrelated with each other and the odds of choosing one alternative over another are not affected by the presence or absence of additional alternatives); this assumption is also known as the "Independence of Irrelevant Alternatives" (IIA). We test this assumption using Hausman-McFadden test (Hausman & McFadden, 1984), which compares the fit of model parameters estimated using the full choice set and a restricted choice set. The IIA assumption holds as the test statistic is insignificant at 0.1.

We now describe our branding choice model. Let U_{ijk} be firm i 's utility of choosing branding strategy j for product k introduced in year t . We have,

$$\begin{aligned}
 U_{ijk} = & \alpha_j + \beta_{1j} \text{Fit}_{ikt} + \beta_{2j} \text{Innovativeness}_{ikt} + \\
 & \beta_{3j} \text{Category New Product Prevalence}_{ikt} + \beta_{4j} \text{Active Portfolio Breadth}_{it} + \\
 & \beta_{5j} \text{Active Portfolio Leverage}_{it} + \beta_{6j} \text{Advertising}_{it} + \beta_{7j} \text{Past Use}_{jt} + \\
 & \beta_{8j} \text{Cobranded}_{ikt} + \beta_{9j} \text{Licensed}_{ikt} + \beta_{10j} \text{Category Growth Rate}_{ikt} + \\
 & \beta_{11j} \text{Sales Growth}_{it} + \beta_{12j} \text{Firm Size}_{it} + \beta_{13j} \text{Extendibility}_{ikt} + \beta_{14j} \text{SKUs}_{ikt} + \\
 & \beta_{15j} \text{House of Brands}_{it} + \sum_{2001}^{2012} \beta_{1j} \text{Year dummy}_1 + e_{ijk}
 \end{aligned} \quad (1)$$

³ A similar two-stage approach and deviation analysis has also been previously used in the context where the first stage model has a continuous dependent variable (e.g., Mooi & Ghosh, 2010).

where e_{ijk} is a random error, assumed to have an extreme value distribution (Guadagni & Little, 1983). We control for year fixed effects with year dummies and use robust standard errors.

Let P_{ijk} be the probability of branding strategy j being chosen for product k by firm i at time t .

$$P_{ijk} = P(y = j|x) = \frac{e^{U_{ijk}}}{\sum_{j=1}^J e^{U_{ijk}}} \quad (2)$$

Note that the branding strategy with the highest predicted probability P_{ijk} among the three alternatives is considered to be the choice predicted by the model.

Dependent variable *New Product Branding Alternative*. Product Launch Analytics provides the complete name of each new product. We use this information to determine which branding alternative was used (i.e., new brand, direct extension or a sub-brand) as follows:

- *New Brand*: A new product was coded as a new brand if its brand name was used by the firm for the first time. We determined this by searching the entire Product Launch Analytics database (dating back to circa 1980). If a brand was not found in the database, we conducted Internet and Factiva database searches to verify no mentions of the brand name prior to 1980.
- *Direct Extension*: A new product was coded as a direct extension if its brand name was previously used by the firm and it appears on the focal product alongside a generic description (i.e., a common descriptive dictionary word or combination of words). Examples coded as direct extensions include *Tide* Liquid Laundry Detergent, *Farmland* Fully Cooked Meat, *Heinz* Fruit and Vegetable Wash Spray, *Avon* Hand Lotion, *Del Monte* Tomato Sauce.
- *Sub-brands*: Products assigned to a sub-brand category are those whose name includes an existing brand, paired with another proper name/non-dictionary word (e.g., *Estee Lauder* Re-Nutriv, *Max Factor* Lipfinity, *Dial* NutriSkin) or a dictionary word that does not constitute a direct, generic description of product use (e.g., *Avon* Smooth Minerals, *Olay* Total Effects, *Arm & Hammer* Complete Care, *Revlon* Luxurious Color).

Coding was done by the authors. To assess the reliability of our coding, an independent rater, unfamiliar with the project, coded a subsample of 1000 branded products randomly selected from the sample. The Index of Reliability (Perreault & Leigh, 1989) between the coders indicated acceptable reliability ($I_r = .82$).

Independent variables *Fit* between the new product and firm's existing brands is constructed using the category

Table 3 Variables, measures, and data sources

Variable	Description	Data Source
A. Dependent and Independent Variables		
<i>Dependent Variables</i>		
<i>New Product Branding Alternative</i>	Dummy variables for 1. Direct Extension 2. Sub-Brand 3. New Brand	Product Launch Analytics
<i>Tobin's Q</i>	Ratio comparing the market value of a company's stock with the replacement value of its tangible and intangible assets	COMPUSTAT CRSP CSRP
<i>Abnormal Returns</i>	1. Short-term cumulative abnormal returns computed with the market model, respectively the Fama French model 2. Calendar-time portfolio abnormal returns	
Independent Variables		
<i>Fit</i>	Low- the product is introduced into a new segment for the firm Medium – the product is introduced into a new category for the firm but is within firm's existing segment High – the product is introduced into one of the firm's existing categories	Product Launch Analytics
<i>Innovativeness</i>	Dummy variable: 1 if innovative 0 otherwise	Product Launch Analytics
<i>Category New Product Prevalence</i>	Log of number of products introduced in the same category as the new product during five years preceding its introduction	Product Launch Analytics
<i>Active Portfolio Breadth</i>	Total number of brands used for new products during the five years prior to the new product introduction	Product Launch Analytics
<i>Active Portfolio Leverage</i>	Total number of brands divided by the total number of new products over a 5 year backward rolling window	Product Launch Analytics
<i>Advertising Deviation Rate</i>	Total advertising expenditures of a firm Total number of deviations divided by total number of new products introduced by a firm in one year	COMPUSTAT Product Launch Analytics
<i>Market Share</i>	Percentage of sales attributed to the firm in its dominant segment	COMPUSTAT
B. Control Variables		
<i>New Product Branding Choice Model Variable</i>	Description	Data Source
<i>Past Use</i>	Alternative specific variable: Total number of products introduced as direct extensions, sub-brands, and new brands in the past five years prior to each new product introduction	Product Launch Analytics
		Rationale Firms that have greater experience with one of the branding alternatives may be more likely to use the same alternative again.

Table 3 (continued)

<i>Co-branded</i>	Dummy variable: 1 if co-branded (brand names, logos, or other brand identifiers of another firm present on the new product) 0 otherwise	Product Launch Analytics	Firms entering a co-branding agreement intend to capitalize on the positive associations of the existing brands; therefore, for co-branded products, the probability of using a direct extension or a sub-brand (compared to a new brand) may be higher.
<i>Licensed</i>	Dummy variable: 1 if licensed 0 otherwise	Product Launch Analytics	Similar to co-branded products, licensed brands indicate an intention to capitalize on the equity of this brand; therefore, for licensed products, the probability of using a direct extension as compared to a sub-brand or a new brand may be higher. ^a
<i>Category Growth Rate</i>	Percentage increase in the number of new product introductions from the previous year	Product Launch Analytics	Prior research shows that category growth rate may affect new product performance (Cooper, 1984; Henard & Szymanski, 2001) and thus can influence new product branding decisions.

Table 3 (continued)

<i>Sales Growth</i>	Percentage increase in sales from previous year	COMPUSTAT	Firms with high sales growth may be more likely to build a new brand, while firms with declining sales should leverage brand equity of their existing brands and introduce a direct extension or a sub-brand.
<i>Firm Size</i>	Number of employees	COMPUSTAT	Prior research suggests larger firm size signals competence and reliability to consumers (Aaker, 2004); it may therefore be easier to extend existing brands belonging to larger firms. Alternatively, large firms may be more likely to introduce new brands, as they have the slack to deploy resources needed for brand building.
<i>Extendibility</i>	Number of times brand, used for a new product, was used during 5 years prior to the new product introduction	Product Launch Analytics	Brands with high extendibility can be deemed more successful, increasing the probability of using a direct extension.
<i>SKUs</i>	The number of stock-keeping units the new product has	Product Launch Analytics	Products with higher number of SKUs may be more likely to be introduced using a new brand in order to avoid overextending an existing brand.

Table 3 (continued)

Firm-level Branding Strategy	Dummy variables for	Product Launch Analytics	House-of-Brands firms, which have more experience building new brands, may be more likely to introduce new brands, while firms with Mixed strategy may be more likely to extend existing brands.
Tobin's Q Model	Ratio of long-term book debt to total assets	COMPUSTAT	Leverage has been previously shown to affect firm value (Rao et al., 2004).
Enter New Category	Dummy variable: 1 if firm entered a new category in a given year 0 otherwise	Product Launch Analytics	If a firm enters a new product category, it may be indicative of growth and could therefore positively impact Tobin's Q.
Number of New Products	Log the total number of products introduced by firm in year t-1	Product Launch Analytics	New product introductions have been shown to positively affect firm value (Sorescu & Spanjol, 2008).
Firm Size	Number of employees	COMPUSTAT	Prior research has documented the effect of firm size on Tobin's Q (Krasnikov et al., 2009; Morgan & Rego, 2009).
Sales Growth	Percentage increase in sales from previous year	COMPUSTAT	Sales growth is a standard control variable in Tobin's Q models (Dotzel et al., 2013; Nath & Mahajan, 2008).

^aWe observe that cobranded and licensed products can be branded using any of the three branding strategies. An example of a new brand is Crunch Toons – a new brand introduced by Poore Brothers with Disney characters on the package

information provided by Product Launch Analytics. The database categorizes all products into *product segments*, which are very broad, and more granular *product categories*. Our sample includes 47 categories (e.g., make-up, oral hygiene, personal hygiene, skin-care, soft drinks, spirits) nested within eight product segments: alcoholic beverages, non-alcoholic beverages, food, household products, other consumer products, personal care, pet care and animal feed, and tobacco. We use this information to construct a fit variable with three levels: high fit (i.e., the product is introduced into one of the firm's existing categories), medium fit (i.e., introduced into a category that is new for the firms but is within a segment in which the firm already has a presence), and low fit (i.e., introduced into a new segment for the firm).

Product Innovativeness is based on the classifications given by Product Launch Analytics to each product in the database. When a new product is included, the database staff classifies it as non-innovative or innovative (relative to all other products in the industry) across five specific domains: formulation, technology, positioning, merchandising, or packaging benefits. Similar to previous research, we assign the value 1 if a product is rated as innovative in any of the five domains and 0 otherwise (e.g., Cao & Sorescu, 2013; Moorman et al., 2012).⁴

Category New Product Prevalence is computed as the logarithm of the total number of products introduced into the same category as each new focal product during the five years preceding its introduction. A high number of new product introductions indicates high market potential and high competition in the category.

Active Portfolio Breadth is a firm-level variable that captures the *total* number of brands used for new products during five years prior to the new product introduction. In contrast, *Active Portfolio Leverage* is a firm-level variable that indicates the extent to which the firm has brands that were extended in the past. Specifically, *Active Portfolio Leverage* is computed as the total number of brands used on new products over the five-year window prior to the focal new product introduction divided by the total number of new products introduced by the firm over the same time period. A portfolio leverage value of 1 indicates that every new product introduction in the past five years has used a different brand from the firm's portfolio. A value of portfolio leverage smaller than 1 suggests that the firm uses the same brands repeatedly over multiple product introductions. While *Active Portfolio Breadth* represents the choice set of brands that the firm can draw from when considering an appropriate name for a new product, *Active Portfolio Leverage* captures

the extent to which the firms' brands are flexible enough to be used, on average, to name new products; in our sample, the correlation of these two variables is .02.

Advertising is the annual total advertising expenditures (in dollars) of each firm.

Control variables We use nine control variables in our model (*Past Use*, *Co-brand*, *Licensed*, *Category Growth Rate*, *Sales Growth*, *Firm Size*, *Extendibility*, *Number of Stock Keeping Units (SKUs)* and *Firm-Level Branding Strategy*). We describe, in Table 3, Panel B, the rationale and operationalization of each control variable.

Modeling the impact of new product branding choice decision on firm value

We now describe our second model, which we use to test the relationship between firm value and deviations from industry norms in new product branding decisions. We follow the two-step methodology proposed by Keller et al. (2016). First, we identify all instances where the firm's actual branding choice was different from that predicted by the new product branding choice model (Eq. 1). Then, we aggregate these instances at the firm-year level, and we use the resulting variable (Deviation Rate) as a predictor in the following model:

$$\begin{aligned} \text{Tobin's } Q_{it} = & \beta_0 + \beta_1 \text{Deviation Rate}_{it} + \beta_2 \text{Market Share}_{it} \\ & + \beta_3 \text{Deviation Rate}_{it} * \text{Market Share}_{it} + \beta_4 \text{Leverage}_{it} \\ & + \beta_5 \text{Enter New Category}_{it} + \beta_6 \text{Number of New Products}_{it} \\ & + \beta_7 \text{Sales Growth}_{it} + \beta_8 \text{Firm Size}_{it} + \sum_{2001}^{2012} \beta_j \text{Year Dummy}_j \\ & + u_i + e_{it} \end{aligned} \quad (3)$$

Where i refers to the firm and t to the year. We use a fixed effects model to account for unobserved heterogeneity among firms (in addition to year fixed effects to account for aggregate time trends). The variables are described below.

Dependent variable *Tobin's Q*, i.e., the ratio of the firm's market value to the replacement cost of its assets, is a forward-looking measure of firm performance that captures the extent to which the firm is expected to produce future cash flows, given its asset base. It has been used as a measure of firm value and firm performance (Dotzel et al., 2013; Lee & Grewal, 2004; Rao et al., 2004). In the branding literature, Tobin's Q has been used to document the financial value of corporate branding strategies (e.g., Rao et al., 2004) and of trademark activities (Krasnikov et al., 2009). Recent advancements have corrected a shortcoming of the previous operationalization of Tobin's Q, which did not properly account for the value of intangibles in calculating the market value of assets of the firm (Bendle & Butt, 2018). We use a

⁴ Although this operationalization may appear to be a low threshold for a product to be categorized as innovative, only a small proportion of products in our sample (less than 4.5%) reached this standard.

recent measure of Tobin's Q proposed by Peters and Taylor (2017). This operationalization is widely used in the finance and has recently been included in a review of the marketing finance literature (Edeling et al., 2020). The Peters and Taylor operationalization of Tobin's Q overcomes the limitations outlined by Bendle and Butt (2018) by incorporating both tangible and intangible assets in the measurement of the replacement cost of assets (the denominator of the measure), as follows:

$$\text{Tobin's } Q_{it} = \frac{V_{it}}{K_{PHY_{it}} + K_{INT_{it}}} \quad (4)$$

Where V is market value, K_PHY is the book value of property, plant and equipment, which represents the replacement cost of *tangible* assets and K_INT represents *intangible* assets. The details on the calculation of this measure of Tobin's Q can be found in Web Appendix B. We report additional empirical analyses that leverage other measures of firm value as robustness tests later in the paper.

Independent variables To compute the *Deviation Rate* for the firm, we find the total number of instances in a year when the firm makes new product branding decisions that differ from those predicted by the new product branding choice model. We divide this number by the total number of products introduced by the firm that year to obtain a firm-level, annual measure of deviation from the branding practice used in the industry, given product, firm and category characteristics.

Market Share is the proportion of sales the firm has in its *dominant* product segment. We obtained this information from COMPUSTAT Segments. Finally, the five control variables used in the Tobin's Q model are described in Table 3, Panel B.

Results

Results from the new product branding choice model

Descriptive statistics Of the 19,099 new products in our sample, 12,816 (67%) were introduced as sub-brands, 5746 (30%) as direct extensions, and 537 (3%) were new brands. Building a new brand is a long, difficult, and capital-intensive task; not surprisingly, most CPG firms rely on existing brands to introduce new products. The fit between the new product and the firm's other products tends to be high. Since CPG is a mature industry, new category and new segment entries are rare, resulting in low and medium fit being

observed in less than 2% of new products. Firms in our sample tend to leverage brands in their portfolio, with the average leverage ratio being .12, while firms' active portfolios contained an average of just under 44 brands. Innovative new products constitute 4.5% of our sample. Table 4 presents summary statistics and the correlation matrix for all variables used in the new product branding choice model.

To test hypotheses H1a-c and H2a-c, we estimate a conditional logit model (Eq. 1). The results obtained from estimating the conditional logit model are summarized in Table 5. A positive (negative) coefficient indicates that the variable increases (decreases) the probability of the firm selecting one branding alternative compared to a base alternative. The three columns in Table 5 are to be interpreted as follows: Column 1 (respectively, column 2) uses the direct-extension alternative as the base and shows the effect of the independent variables on the probability of a firm selecting a new brand (respectively, a sub-brand) relative to a direct extension. Column 3 uses the sub-brand as the base alternative and tests the effect of the independent variables on the probability of selecting a new brand relative to a sub-brand.

Determinants of new product branding decision: risk factors In H1a-c, we predict the branding choice firms will make when they undertake a risky new product introduction, i.e., introduce a product that has low fit with their existing brands (H1a), introduce an innovative product (H1b), or enter a category with high *New Product Prevalence* (H1c). We expect innovative and low-fit products to be branded using a new brand name (H1a and H1b). In support of H1a and H1b, we find that products with low fit ($\text{fit} = 1$) are more likely to use a new brand as compared to a direct extension ($\beta = 1.29$; $p < 0.05$), or compared to a sub-brand ($\beta = 1.92$; $p < 0.01$). *Innovativeness*' coefficient is positive and significant in all three pairwise comparisons: when firms introduce innovative products, they are more likely to use a new brand compared to a direct extension ($\beta = 1.10$; $p < 0.01$) or compared to a sub-brand ($\beta = .81$; $p < 0.01$). Firms also prefer a sub-brand to a direct extension for an innovative new product ($\beta = .29$; $p < 0.01$). Findings do not support H1c as the coefficient of category *New Product Prevalence* is only significant when a sub-brand is compared to a brand extension ($\beta = .21$; $p < 0.01$) (no difference is found between new brand and direct extension ($\beta = .09$; $p > 0.1$) or between sub-brand and new brand ($\beta = -.12$; $p > 0.1$)).

Determinants of new product branding decision: firm resources

H2a-c predict that firms' choices of branding alternatives depend on their resources. In H2a, we posit that firms with broad active brand portfolios are more likely to introduce a direct extension versus the other two

Table 4 Descriptive statistics and correlation matrix for the branding choice model

Variable	Mean	SD	1-1	1-2	1-3	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
1. Fit																				
1 low	.002	.04	1.00																	
2 medium	.009	.10	-0.00	1.00																
3 high	.989	.10	-0.41	-0.91	1.00															
2. Innovativeness	.045	.21	0.01	0.02	-0.02	1.00														
3. Category New Product Prevalence	7.59	.90	-0.06	-0.13	0.14	-0.07	1.00													
4. Active Portfolio Breadth	43.80	37.71	-0.03	-0.05	0.06	0.00	-0.15	1.00												
5. Active Portfolio Leverage	.12	.11	0.04	0.13	-0.14	0.07	-0.34	0.02	1.00											
6. Advertising ^a	1612.34	2268.71	-0.02	-0.05	0.05	-0.01	-0.08	0.81	-0.07	1.00										
7. Past Use	235.44	387.85	-0.02	-0.04	0.05	-0.02	0.13	0.08	-0.30	0.14	1.00									
8. Co-branded	.06	.24	-0.00	-0.00	0.00	-0.00	-0.06	0.06	0.05	0.02	-0.05	1.00								
9. Licensed	.06	.24	0.00	0.00	-0.01	-0.02	-0.05	-0.01	0.04	-0.02	-0.03	0.35	1.00							
10. Category Growth Rate	.07	.28	0.06	0.08	-0.10	0.03	-0.16	-0.02	0.02	-0.01	0.00	-0.02	-0.01	1.00						
11. Sales Growth	.08	.60	0.01	0.09	-0.09	0.01	-0.01	-0.04	0.10	-0.01	-0.02	0.00	0.00	-0.02	1.00					
12. Firm Size ^b	57.60	57.32	-0.01	-0.04	0.04	0.01	-0.08	0.63	-0.03	0.59	0.09	0.04	-0.02	-0.01	-0.02	1.00				
13. Extensibility ^c	240.88	493.28	-0.02	-0.04	0.04	-0.00	0.22	-0.33	-0.43	-0.24	0.35	-0.09	-0.06	0.02	-0.01	-0.11	1.00			
14. SKUs	2.83	3.83	0.00	-0.00	-0.00	0.00	0.03	0.02	-0.01	0.05	0.00	-0.03	-0.03	0.02	-0.00	-0.01	-0.01	1.00		
15. House of Brands	.32	.47	0.00	0.00	-0.00	0.02	-0.28	0.69	0.18	0.52	0.01	0.09	0.04	-0.01	-0.03	0.37	-0.28	0.01	1.00	

^a Statistics are in millions of dollars

^b Statistics are in thousands

^c We conducted a check to verify that firms have indeed used brands as frequently as this statistic indicates. The average is inflated by a firm which has used its corporate brand on a disproportionately large number of products: Avon. We have repeated all analyses without Avon observations included in the sample and we obtain substantively similar results

Table 5 Results from the conditional logit model of new product branding choice

	Branding Choice Models		
	New Brand vs Direct Extension (base)	Sub-Brand vs Direct Extension (base)	New Brand vs Sub-Brand (base)
Independent Variables			
Fit 1-low	1.29 (.55)**	-.63 (.45)	1.92(.70)***
Fit 2-medium	.36 (.31)	-.12 (.19)	.49 (.32)
Innovativeness	1.10 (.23)***	.29 (.08)***	.81 (.22)***
Category New Product Prevalence	.09 (.07)	.21 (.02)***	-.12 (.07)
Active Portfolio Breadth	-.01 (.003)***	-.01 (.001)***	-.003 (.003)
Active Portfolio Leverage	-2.21 (.42)***	-2.85 (.23)***	.64 (.45)
Advertising	.0003 (.0001)***	.0001 (.00002)***	.0001 (.0001)**
Co-branded	-.54 (.26)**	-.49 (.07)***	-.06 (.26)
Licensed	.35 (.19)*	-.95 (.08)***	1.29 (.18)***
Category Growth Rate	-.69 (.29)**	.004 (.07)	-.70 (.29)**
Sales Growth	-.08 (.08)	-.002 (.03)	-.08 (.08)
Firm Size	-.005 (.002)***	-.001 (.0004)***	-.003 (.002)**
Brand Extendibility	-17.87 (.09)***	.0002 (.0001)**	-18.08 (.09)***
SKUs	.02 (.02)	.02 (.01)***	-.003 (.02)
Mixed Firm Strategy	-.23 (.15)	-.30 (.05)***	-.06 (.15)
Alternative Specific Variable			
Past Use	0.001 (.0001)***		
<i>Wald χ^2</i>	53,619.94***	53,619.94***	54,854.59***

* $p \leq 0.10$, ** $p \leq 0.05$, *** $p \leq 0.01$

Standard errors are in parentheses. The models include year dummies which are omitted from the table for parsimony

branding options. In support of H2a, the coefficients of *Active Portfolio Breadth* are negative and significant for the new brand ($\beta = -.01$; $p < 0.01$) and the sub-brand ($\beta = -.01$; $p < 0.01$) when these alternatives are compared to the base alternative of direct extension. Next, we hypothesized that firms with a highly leveraged active portfolio of brands are more likely to introduce a sub-brand (H2b). In line with our prediction, firms with highly leveraged brands (low values of *Active Portfolio Leverage* ratio), are more likely to select a sub-brand than a direct extension ($\beta = -2.85$; $p < 0.01$). However, new brands are also more likely to be preferred to direct extensions by these firm ($\beta = -2.21$; $p < 0.01$), with no difference in probabilities between a sub-brand and a new brand ($\beta = .64$; $p > 0.10$). Thus, H2b is partially supported. The stronger preference for new brands versus direct extensions suggests that managers prefer to undertake the difficult task of creating a new brand rather than risk overextending their current brands. We also find support for H2c, which predicts that firms with high advertising expenditures are more likely to introduce a new brand. The coefficients of *Advertising* are positive and significant when the new brand is compared to the

direct extension ($\beta = .0003$; $p < 0.01$) and compared to the sub-brand ($\beta = .0001$; $p < 0.05$). In addition, firms with high levels of advertising are more likely to choose a sub-brand than a direct extension ($\beta = .0003$; $p < 0.01$). We summarize all results in Table 6.

The effects of control variables are in line with expectations. For example, we find that co-branded products are more likely to be introduced as direct extensions than new brands or sub-brands. This is not surprising, because a main reason firms engage in co-branding arrangements is to capitalize on the equity of their existing brands.

Results from the Tobin's Q model

Descriptive statistics We use the output of the conditional logit model to calculate the extent to which firms deviate (i.e., the deviation rate) from the predictions of the branding choice model in branding new products. The average deviation rate in our sample is .41. Firms tend to deviate more from sub-branding strategy (mean deviation rate = .22) than from direct extensions (mean deviation rate = .15) or a

Table 6 Summary of the results from the conditional logit model of determinants of the new product branding decision

	Branding Alternatives		
	Direct Extension	Sub-Brand	New Brand
Determinants – Risk Factors			
Low fit	x	x	✓
Innovative product	x	x✓	✓
Category with high new product prevalence	NS	NS	NS
Determinants – Resources			
High breadth active portfolio	✓	x	x
Highly leveraged active portfolio	x	✓	✓
High advertising expenditures	x	x✓	✓

x - Least likely alternative (based on significance of the coefficient with $p < 0.10$ or better)

x✓- Alternative less likely than alternative with ✓ and more likely than x (based on significance of the coefficient with $p < 0.10$ or better)

✓- Most likely alternative (based on significance of the coefficient with $p < 0.10$ or better)

NS – no difference between branding alternatives - Coefficients are non-significant with $p > 0.10$

Table 7 Descriptive statistics and correlation matrix for Tobin’s Q model

Variable	Mean	SD	1	2	3	4	5	6	7	8
1. Tobin’s Q	1.33	1.54	1.00							
2. Deviation Rate	.41	.28	0.08	1.00						
3. Market Share	.84	.33	−0.12	−0.10	1.00					
4. Leverage	.27	.25	−0.14	−0.15	0.09	1.00				
5. Enter New Category	.21	.41	−0.02	0.02	−0.06	−0.04	1.00			
6. New Products	2.38	1.52	−0.01	−0.15	0.02	0.13	0.10	1.00		
7. Sales Growth	.15	1.09	0.01	−0.02	0.03	0.01	0.05	−0.02	1.00	
8. Firm Size ^a	28.20	44.46	0.03	0.012	−0.17	−0.03	0.09	0.45	−0.03	1.00

^aStatistics are in thousands

Table 8 Results from the Tobin’s Q model

Variables	Coefficient (SE)
Constant	2.17 (.42)***
Deviation Rate	−2.17 (.52)***
Market Share	−.85 (.34)**
Deviation Rate x Market Share	2.63 (.56)***
Leverage	−.81 (.49)*
Enter New Category	−.11 (.12)
New Products	.07 (.08)
Sales Growth	.07 (.08)
Firm Size	−.005 (.002)**
F	2.77***

* $p \leq 0.10$; ** $p \leq 0.05$; *** $p \leq 0.01$

Standard errors are in parentheses. The models include year dummies which are omitted from the table for parsimony

new brand strategy (mean deviation rate = .04). Descriptive statistics and the correlation matrix of the variables used in Tobin’s Q model are presented in Table 7.

The impact of new product branding decision on firm value

The results from the Tobin’s Q model appear in Table 8. H3a predicts that departing from industry norms, contingent upon product, category and firm specific factors in branding new products, will negatively affect firm value. In support of H3a, the coefficient of deviation rate is negative and significant ($\beta = -2.17$; $p < 0.01$). This suggests that firms tend to have higher firm value when they take into account product, firm, and category characteristics, and brand their new products in line with our risks-and-resources framework. We also observe a positive coefficient of the interaction term between deviation rate and market share of the firm ($\beta = 2.63$; $p < 0.01$). This finding supports H3b and suggests that when a company with a high market share deviates from industry norms in branding new products, the negative effect of deviation rate on firm value is mitigated. The negative and significant effect of market share on Tobin’s Q is a reflection of mature firms, who typically are the market share leader, being less likely to have a high market value relative to their book value of assets compared to smaller firms with a higher growth potential.

Table 9 Results from robustness models: alternative-specific deviations, endogeneity controls, and quarter-level analysis ^a

	Tobin's Q 2SLS	Tobin's Q Alternative Specific Deviations	Quarter-level Tobin's Q	Quarter-level Tobin's Q Alternative Specific Deviations
Deviation Rate	-2.60 (.77)***		-.84 (.29)***	
Deviation Rate x Market Share	2.88 (.80)***		1.06 (.32)***	
Deviation from Direct Extension		-.29 (.67)		-.04 (.38)
Deviation from Direct Extension x Market Share		.95 (.69)		.36 (.41)
Deviation from Sub-Brand		-2.42 (.61)***		-.68 (.27)**
Deviation from Sub-Brand x Market Share		2.67(.68)*		.81 (.30)***
Deviation from New Brand		-4.26 (.80)***		-2.09 (.51)***
Deviation from New Brand x Market Share		4.94 (.97)***		2.55 (.58)***
<i>F</i>		3.35***	3.57***	3.41***
<i>Wald</i> χ^2	1036.00***			

* $p \leq 0.10$; ** $p \leq 0.05$; *** $p \leq 0.01$

^aDue to space limitations only the effects of focal variables are shown in this table. Full results are available from the authors. Standard errors are in parentheses. The models include year dummies which are omitted from the table for parsimony

Robustness checks

Endogeneity We considered the possibility that Eq. (3) may suffer from endogeneity. Specifically, despite our rich set of controls, there could be firm-specific characteristics we have omitted from our model, such as managerial skill, that could affect both the magnitude of deviations and firm value. In order to test for the presence of endogeneity, we constructed an instrument for the deviations measure: average annual deviation rate in the industry, as defined by the four-digit Standard Industrial Classification [SIC] codes. This variable satisfies the relevance assumption as we expect it to correlate with focal-firm deviations for isomorphism reasons. Specifically, if the focal behavior is prevalent in the industry, any firm is more likely to adopt it. Thus, if a particular industry is characterized by a lower propensity to follow industry norms in branding new products, any firm operating in this industry is also less likely to follow these norms. At the same time, this industry-level instrument satisfies the exclusion restriction as there is no a priori reason why it would be correlated with omitted variables in the main performance model (Germann, Ebbes, and Grewal 2015). In addition, to account for potential endogeneity of the interaction between deviation rate and market share, we follow standard procedures and interact the proposed instrument with market share. We use this interaction as the second instrument. We estimate the model using 2SLS estimation and find that both instruments are significant predictors in their respective first stage models. The results of the first stage regressions are summarized in Web Appendix C. The results from the second stage of a 2SLS estimation are presented in Table 9. The instrumented deviations remain significantly negative in the second stage equation ($\beta = -2.60$; $p < 0.01$), and

the instrumented interaction with market share is positive and significant ($\beta = 2.88$; $p < 0.01$). We also find that the Davidson-MacKinnon test of exogeneity is non-significant ($p = .46$), indicating that endogeneity of deviations is not a significant problem in our model.

The effect of alternative-specific deviations on stock market value and performance In Eq. (3) we used an aggregate measure of deviation rate that does not differentiate among the branding alternatives from which the firm deviated. To assess how deviating from each alternative affects firms' value, we separately compute the deviations from a direct extension, from a sub-brand, and from a new brand. Specifically, we find all instances in which a firm deviated from each branding alternative and divide by the total number of new products the firm introduced each year. We use the resulting three deviation-rate variables in the Tobin's Q model to test the effect of each type of deviation on firm value (see Table 9). Deviating from a sub-brand and a new-brand strategy has a significant negative effect on Tobin's Q ($\beta = -2.42$; $p < 0.01$ and $\beta = -4.26$; $p < 0.01$) and this negative effect is mitigated by the market share. We find no effect of deviating from the direct extension strategy ($\beta = -.29$; $p > 0.1$).

Quarter-level Tobin's Q analysis To address a potential concern that Tobin's Q, measured at the annual level, does not sufficiently align with the product-level decisions, we conduct a quarter-level analysis. We use quarter-level Tobin's Q (Shin & Kim, 2002) which is more refined and more closely aligned with the periodicity of branding decisions. We calculate quarterly Tobin's Q using the same procedures outlined in Web Appendix B and Eq. (4), but we do so using

quarterly financial data obtained from COMPUSTAT. In the quarterly Tobin's Q analysis, we use the same controls as in Eq. (3) measured at the quarterly level, with the exception of firm size (operationalized using the number of employees) and market share, which are measured at the annual level due to data availability and low quarterly variability. We use panel data fixed effects model with the same specifications as in the annual analysis. The quarterly models include year-quarter fixed effects and are estimated using robust standard errors clustered at the firm level. The results of the quarterly analysis are summarized in Table 9. Although the number of firms in the quarter-level analysis decreased by 10% compared to the annual analysis due to the missing financial data, we fully replicate all of the finding of the annual level analysis and show that quarter-level deviation rate negatively affects Tobin's Q ($\beta = -0.84$; $p < 0.01$). This negative effect is mitigated if the firm has high market share ($\beta = 1.06$; $p < 0.01$). We also replicate the effect of alternative-specific deviations. In sum, the results from these analyses suggest that deviations from predictions that the new product should be branded using a sub-brand or a new brand appear to have a stronger impact on performance than deviations from prescriptions of direct extensions.

Additional analysis: Examining the effect of individual branding decision deviations on short-term and long-term abnormal returns

The analysis described thus far examines the effect of deviating from industry norms in branding new products *at the firm level*. The model described in the previous section shows that branding decisions that are misaligned with our proposed risk and resources framework, aggregated at the portfolio level, have a negative effect on firm value. To explore the effect of branding deviations at the *product level*, we conduct a short-term event study and a long-term calendar time portfolio analysis to assess stock market reaction to new product introductions branded in line with our proposed framework and those deviated from it.

Short-term event study

Event studies have been used in marketing to assess the stock price movement attributed to a particular event. In our study, the event of interest is a new product introduction. We obtain the introduction date for each product in our sample from Product Launch Analytics. Using this information, we calculate abnormal returns (AR) as the difference between the observed and expected rate of return of the stock. Observed rate is the realized rate on the day of introduction and the expected rate is the rate of return that the firm should have had

in the absence of the product introduction. We obtain the realized rate from CRSP and calculate expected return using two benchmark asset pricing models: i.e., Market Model (MM) and Fama–French–Carhart four-factor model (FF4) (see Sorescu et al., 2017 for a detailed description of these measures). After calculating the ARs, we aggregated them around the introduction date over the time window $(-2, 2)$ to obtain cumulative abnormal returns (CARs). We selected the $(-2, 2)$ time window based on the most significant test statistics (Swaminathan & Moorman, 2009). From our original sample, the sample size decreased to 18,399 in the event study due to missing stock price data.

Event study results

Table 10, Panel A presents results of the event study. As it has been previously documented in the literature, new product introductions elicit, on average, positive significant abnormal returns (MM: CAR = .12%, $p < .01$; FF4: CAR = .12%, $p < .01$), which, in our sample, is equivalent to a \$17,352,467 increase in firm value. However, this only holds for products that were branded in line with our proposed framework. Parent firms introducing products branded in line with our model's predictions experience significant positive abnormal returns (MM: CAR = .18%, $p < .01$; FF4: CAR = .16%; $p < .01$) which amounts to a \$25,966,354 increase in firm value. Products that deviated in their branding choice from the predictions of our model do not enjoy positive abnormal returns (MM: CAR = -.01%, $p > 0.1$; FF: CAR = .02%, $p > 0.1$). The difference between the CARs of deviating and non-deviating products is statistically significant (MM: Δ CAR = .19%; $p < .01$; FF4: Δ CAR = .13%, $p < .05$).

Cross-sectional model

To further explore the effect of branding deviations on CARs, we estimate a cross-sectional model with CARs as the dependent variable and deviation indicator variable as the main independent variable of interest. Control variables used in this model are similar to those used in the Tobin's Q model. Specifically, we include firms' market share and sales growth, as they can indicate the firms' relative market position; we also include leverage and firm size as they have been previously shown to affect CARs (Raassens et al., 2012; Sorescu et al., 2007). Finally, we account for firms' new product introduction activity with the log-transformed number of new products introduced in the year preceding the focal product introduction; and include an indicator variable for the firm-level branding strategy. The cross-sectional model is as follows:

$$\begin{aligned} \text{CARs}_{(-2;2)j,k} = & \alpha_0 + \alpha_1 \text{Deviation}_{i,k} + \alpha_2 \text{Market Share}_i \\ & + \alpha_3 \text{Leverage}_i + \alpha_4 \text{Number of New Products}_i \\ & + \alpha_5 \text{Sales Growth}_i + \alpha_6 \text{Firm Size}_i \\ & + \alpha_7 \text{House of Brands}_i + \sum_{2001}^{2012} \alpha_j \text{Year Dummy}_j + e_{ik} \end{aligned} \quad (5)$$

Table 10 Examining the consequences of deviations at the product level

A. Short-term event study results			
	CARs Market Model (−2;2)	CARs FF4 (−2;2)	Sample size
All new product introductions	.12%***	.12%***	18,399
New products that followed proposed framework in their branding choice	.18%***	.16%***	12,974
Products that deviated from the proposed framework in their branding choice	−.01%	.02%	5,365
B. Cross-sectional model results			
Variables	MM Coefficient (SE)	FF4 Coefficient (SE)	
Deviation	−.002 (.001)**	−.001 (.0006)*	
Market Share	.002 (.001)**	.003 (.001)**	
Leverage	.003 (.003)	.001 (.003)	
Number of New Products	.0002(.0003)	.0003 (.0003)	
Sales Growth	−.0003 (.0001)***	−.0007 (.0001)***	
Firm Size	−2.63e-06 (5.72e-06)	−2.13e-06 (5.63e-06)	
House of Brands	−.0001 (.001)	.0002 (.001)	
<i>F</i>	11.07 ***	14.49***	
C. Calendar-time portfolio analysis results			
Entire Sample	1.01%**		
Portfolio1: Sample of firms that followed industry norms in branding new products	1.01%***		
Portfolio2: Sample of firms that deviated from industry norms in branding new products	.89%**		
Difference in abnormal returns of Portfolio 1 and Portfolio 2	.27%**		

* $p \leq 0.10$, ** $p \leq 0.05$, *** $p \leq 0.01$

Where i stands for firm, k stands for product, e_{ik} is a random error and *Deviations* is an indicator variable which takes 1 if the product deviated from the predictions of the choice model (Eq. 1) and 0 otherwise. We use robust standard errors and include year fixed effects in the model.⁵

Estimation results are presented in Table 10, Panel B. Similar to the results of the event study and the Tobin's Q model, in the cross-sectional analysis we find that deviating from industry norms reduces firm value. Firms that did not align their new product branding decision with industry norms enjoy significantly lower abnormal returns, compared to firms that considered these factors in their branding choice (MM: $\alpha = -.002$, $p < 0.05$; FF4: $\alpha = -.001$, $p < 0.1$).

Calendar-time portfolio analysis

To assess the long-term consequences of misbranding new products, we use the calendar-time portfolio method (Liu et al., 2017; Sorescu et al., 2007). We first construct a portfolio of stocks of firms that followed industry norms in

branding new products, and a separate portfolio of stocks of firms that deviated from these norms. Both portfolios are constructed by adding firms at the time of a new product introduction and holding them over a 6-month period (for more details on calendar-time portfolio methodology please see Sorescu et al., 2017). Focusing on the six-month period after introduction allows us to capture the long-term effects of branding new products without introducing too much noise due to overlapping introductions. Additionally, we test the difference in abnormal returns of these two constructed portfolios to assess the differential effect of misbranding. We use the product introduction dates provided by Product Launch Analytics database and exclude observations where the parent firms hold the monopolistic position in the category (i.e., market share over .99%) to account for the moderating effect of market share.

Calendar-time portfolio analysis results

The results of the calendar-time portfolio analysis are presented in Table 10, Panel C. We find that the 6-month calendar-time abnormal returns (CTAR) of the whole sample of new product introductions are positive and significant (1.01%, $p < .05$). This finding is consistent with prior research on new product introductions (e.g., Sorescu et al.,

⁵ The interaction term between deviations and market share is not significant and is excluded from the CARs model.

2007). The abnormal returns of the portfolio of deviating firms are .89% ($p < .05$), while the abnormal returns of the non-deviating portfolio are 1.01% ($p < .01$). The difference in abnormal returns of these two portfolios is statistically significant ($\Delta\text{CTAR} = .27\%$, $p < .05$). These results suggest that while both deviating and non-deviating portfolios enjoy positive abnormal returns (as a result of additional cash flows from new products), the returns are greater for the non-deviating firms. These results are consistent with the findings of the short-term event study and firm-level Tobin's Q analysis.

Discussion, implications and limitations

From the standpoint of *naming* a new product, firms choose among three primary alternatives: use a new brand, or use an existing brand either as a direct extension or sub-brand. To the best of our knowledge, our paper is the first to provide a conceptual framework of product-, category-, and firm-contingent factors for the decision to brand a new product, which includes all three of these branding alternatives. Our empirical analysis examines the extent to which firms in the CPG sector follow our theory-grounded predictions in branding their new products. We also show, using both product- and portfolio-level analyses, that firms that deviate from the predictions of our model have relatively lower stock-market value.

Comparing the alternatives across a large sample enables novel insights that complement prior research. Specifically, while scholars have touted the benefits of direct extensions, particularly in behavioral research, our study shows that this branding alternative is only appropriate where the risk of product failure is relatively low. Moreover, when market outcomes are highly uncertain, such as when firms launch innovative or low-fit new products, building a new brand is better than using a sub-brand or a direct extension, in contrast to what prior literature suggests (Milberg et al., 1997; Sood & Keller, 2012). We also show that if the brands in the firm's portfolio are highly leveraged, the firm should refrain from using a direct extension to prevent overextension of the brand; instead, they should introduce a sub-brand or a new brand. Finally, firms that have the resources to invest in heavy advertising are better positioned to launch a new brand.

Implications for theory

A significant part of the brand extension literature has focused on identifying determinants of brand-extension success. Most studies start from the premise that the brand-extension decision has been made, and examine how factors such as brand associations and product characteristics

contribute to the success of the extension. For instance, Sinapuelas et al. (2015) show that non-innovative products introduced as direct extensions are very limited in their ability to leverage the equity of the parent brand. However, an alternative to this less-than-ideal branding option is not provided. We contribute to the branding literature by providing a framework that compares the three primary branding alternatives for a new product, balancing the power of leveraging a strategic brand resource against the risk of damaging it, contingent upon firm and category characteristics.

Our work also reinforces the importance of viewing managerial decision-making for new-product branding as a dynamic capability. In addition to other ongoing sources of change (competition, technology, etc.), the entry of a new product into a market disrupts current conditions. Our findings demonstrate that the ability to assess those changing conditions and choose the best branding alternative impacts firm value over the short- and long-term. Future research could build off of our examination of choices regarding broad branding alternatives (brand extension, sub-brand, new brand) and use a dynamic capabilities lens to examine other aspects of reconfiguring brands to match changing market conditions. For example, how can managers align finer-grained aspects of a specific brand name to market conditions to affect customer choice and a firm's financial outcomes?

We also contribute to the new product development literature. While researchers have documented, on average, positive changes in stock returns to new product introductions (Pauwels et al., 2004; Sorescu & Spanjol, 2008), the variance of these returns is high. The eventual success of a new product depends on many contingent factors, and the type of brand name given to the new product is one such factor. Our research demonstrates that misbranding a new product not only fails to increase firm value, but consistent with an institutional theory perspective, actually diminishes it, as reflected in the negative effects of this misbranding on Tobin's Q. Because of the forward-looking nature of Tobin's Q, which accounts for all expected future cash flows, this negative effect could be driven by either the market failure of misbranded new products and/or by the spillover negative effect that such products may have on the parent brand. Moreover, our examinations of stock returns (short- and long-term) confirm the negative effect of deviations from prevailing industry practice in branding decisions. The firm-level analysis clearly shows that, on average, new products that are not branded in line with the market conditions they face, do not receive a positive reaction by investors. This is a significant finding, given the decades of evidence on the positive stock market reaction to new product introductions (e.g., Sood & Tellis, 2009; Warren & Sorescu, 2017). Our results suggest that investors use the branding alternative chosen to name the new product, and not just its

characteristics, to make inferences about the future expected cash flows that these products will generate.

Implications for practice

The CPG industry that provided the empirical context for our analysis has some unique features. This industry is economically significant, fast-paced, and characterized by frequent new product introductions (Bronnenberg et al., 2007; Keller, 2013; Sorescu & Spanjol, 2008). Thus, branding decisions are a frequent managerial decision in this industry. This is why the propensity to use sub-brands may be higher in CPG than in other industries, because direct extensions can only be used a limited number of times in a product category before cannibalization becomes a concern. The summary of results presented in Table 6 can provide managers with guidance as they consider the most appropriate branding alternative to use for a new product, given its idiosyncratic context, but these results show that sub-brands are only appropriate in some (but not other) contexts. For example, if a new product has a low fit with the existing brands in the firm's portfolio, our model suggests that a new brand should be preferred to a sub-brand. We see this pattern when the Coca-Cola company introduced Dasani and Powerade as new brands when the company entered new product categories where its old brands could have not been easily extended. Our model also suggests that a new brand should be preferred to a sub-brand on an innovative new product. For example, P&G, despite an impressive portfolio of existing brands, chose a completely new brand name, IntelliClean, for their innovative "toothbrush and toothpaste in-one" product.

In the same vein, another characteristic of the CPG context is that many firms operate large brand portfolios with complex structures that include multiple brands, brand extensions, and sub-brands. Consequently, as these portfolios become increasingly unwieldy, and as firms' new product outputs and branding strategies need to be co-managed, executives must be mindful of how many brands they can manage. This is a top-of-mind issue; for example, P&G has sold off over 100 brands since 2014 (Coolidge, 2017), more than half of its brand portfolio, while continuing to introduce many new products. Our research highlights the fact that brand-deletion decisions may impact the success of products to be launched in the future, as these decisions impact portfolio characteristics, such as breadth and leverage, that are important factors in determining how to brand a new product. At the same time, for managers of complex brand portfolios, our findings offer guidelines on how to best leverage existing brands so that new products introduced by the firm help increase its market value.

Limitations and future research

Our study has limitations. While we used an extensive dataset of actual new product introductions, we do not have data on physical features of the products in our sample. Although these features may not influence the overall branding decision, an examination of our sample suggests that they may determine the choice of the sub-branded part of the product name. This issue is also a potentially interesting future research topic. Additionally, as noted in our robustness analyses, due to empirical limitations we were not able to account for the possibility of interactions between the contingency factors in making the new product branding decision. Lab studies could disentangle the simultaneous effect of multiple factors on customer evaluations of each new branding alternative. While we only consider branding decisions made for new products at the time of the introduction, future research can explore the depth to which our findings generalize to other branding decisions (e.g., the decision to re-brand or change brand positioning, expand/alter brand meaning, create additional brand associations). Moreover, future research into the consequences of branding decisions could be designed to tease apart the differing degrees of market value that are destroyed by struggles of the new product versus by negative spillover to the parent brand from those struggles. Another interesting avenue for future research is to examine the effect of branding decisions in industries where innovative products and technological discontinuities are more frequent; it is possible that building product and brand associations for radical innovations may involve a more frequent usage of new brands than in mature industries, such as CPG, and that industry branding norms may be less pronounced.

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Declarations

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

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