Final Price Neglect in Multi-Product Promotions: How Non-Integrated Price Reductions Promote Higher-Priced Products

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Price reductions take either an integrated form (e.g., a discount shown directly on the price tag) or a non-integrated form (e.g., a discount contained in a coupon sent to consumers and thus separate from the price tag). This research examines how non-integrated versus integrated promotions influence choices among vertically differentiated products. Under an integrated promotion (e.g., $10 off) applicable to multiple products (e.g., original list prices: $50 vs. $30), consumers directly compare these products' post-promotion final prices displayed on their price tags (after a reduction of $10: $40 vs. $20). In contrast, under a non-integrated promotion of the same monetary value, consumers simply compare these products' original list prices ($50 vs. $30) and neglect their post-promotion final prices, which require calculations. The list prices ($50 vs. $30; relative to the final prices: $40 vs. $20) as a basis for price comparison reduce the perceived price difference between these products. Consequently, a non-integrated promotion (compared to an integrated promotion) increases consumers' choice of higher-priced products. A series of experiments ($N = 5{,}187$) demonstrate this effect and support the final price neglect mechanism. Furthermore, although attenuated, this effect still emerges for price reductions of a smaller magnitude or in a percent-off format.

Keywords: discount, coupon, multi-product promotion, behavioral pricing, vertical differentiation, numerical cognition

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Across many product and service categories, consumers often choose among vertically differentiated offerings (Allard, Hardisty, and Griffin 2019; Jia et al. 2018; Sela and LeBoeuf 2017). Accordingly, sales promotion events may offer the same price reduction for several products that are substitutable but differ in performance and price (e.g., $10 off a series of portable hard drives with different memory capacities and prices), taking the form of a multi-product promotion (Jia et al. 2018).

Such multi-product promotions may vary in whether the price reduction is integrated with the price information. Specifically, in an "integrated" form of multi-product promotion (hereafter as *integrated promotion* for simplicity), the prices of all promoted products are lowered on their price tags and displayed together with the price reduction. For instance, in one promotion on *Office Depot*'s web store, the same price reduction of $50 is shown as an integral part of the price information for two vertically differentiated computer monitors that vary in screen sizes (figure 1A). Alternatively, a multi-product promotion can be provided in a "non-integrated" form in terms of its relation to the price information (hereafter as *non-integrated promotion* for simplicity). Printing the price reduction on a coupon represents a typical "non-integrated" form of multi-product promotion. Coupons are provided to consumers and remain separate from the price information. For instance, in a promotion of *Quill* (a competitor of *Office Depot* in the office supply market), a $50-off coupon code can be applied to the computer monitors mentioned above, but the price reduction is shown on the coupon rather than on the price tags on *Quill*'s web store (figure 1B).

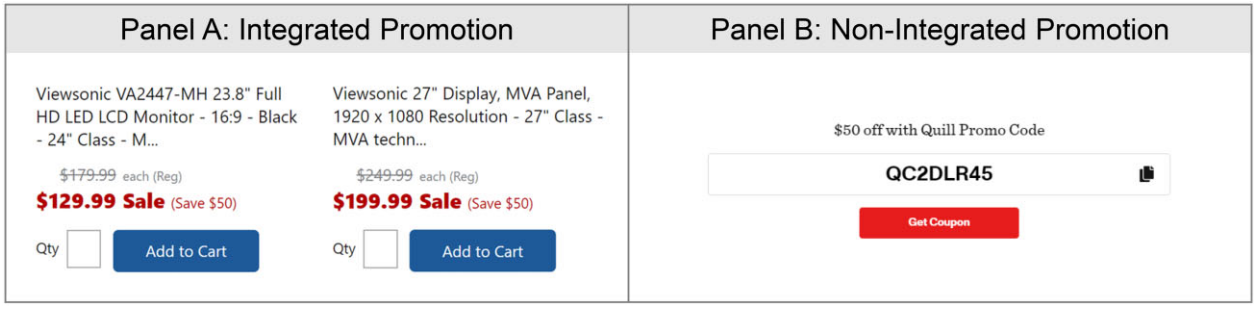
From an economic standpoint, integrated and non-integrated promotions of the same monetary value provide the same utility to consumers because they achieve the same price reduction. Given this similarity, extant research has not devoted much attention to the distinction between these two modes of promotion. Nevertheless, could a price reduction's integration into versus separation from the price information possibly lead to different consumer choices among vertically differentiated products and achieve different promotional objectives? The prevalence of integrated and non-integrated promotions makes this intriguing research question crucial for both consumer researchers and practitioners.

We propose that compared to an economically equivalent integrated mode, a non-integrated mode can better unleash the potential of a multi-product promotion—in terms of successfully converting an increase in purchase incidence into consumers' choice of higher-priced products—when consumers choose among vertically differentiated products. In an integrated promotion, we expect that consumers simply compare the products' post-promotion final prices. In a non-integrated promotion, however, we propose a *final price neglect* hypothesis—consumers do not bother to calculate the eligible products' final prices, which are not readily available, and instead resort to the products' original list prices in the price comparison. Because the same numerical difference appears smaller between two larger numbers (e.g., list prices) than between two smaller numbers (e.g., final prices), such final price neglect reduces the perceived price difference between the products and thus makes higher-priced products more attractive in non-integrated promotions than in integrated promotions. As a result, non-integrated promotions lead to a larger choice share of higher-priced products than integrated promotions.

Fourteen experiments ($N = 5{,}187$) support this proposition, including one field experiment examining real purchases and six experiments examining incentive-compatible choices. Our studies demonstrate that non-integrated promotions lead to a larger choice share of higher-priced products, relative to economically equivalent integrated promotions. We provide robust and consequential evidence across functional and experiential purchases. Mediation and moderation approaches provide convergent support for the final price neglect

FIGURE 1

REAL-WORLD EXAMPLES OF MULTI-PRODUCT PROMOTIONS



mechanism. Importantly, we show that our proposed effect is unique to consumers' choices among vertically differentiated products, but not applicable to decisions regarding a single promoted product. Finally, our proposed effect is attenuated but still emerges when price reductions have a smaller magnitude or adopt a percent-off format.

The current research makes three contributions to the related literature. First, scant research attention has been paid to a price reduction's integration into versus separation from price information (Chen, Monroe, and Lou 1998; DelVecchio, Henard, and Freling 2006; DelVecchio, Lakshmanan, and Krishnan 2009), in sharp contrast to their prevalence in marketing practice and relative to the tremendous body of empirical research on price promotions in the literature over the past decades. Our research generates novel insights into this theoretically and practically crucial issue by uncovering the differential impacts of non-integrated versus integrated promotions in terms of their promotional effectiveness.

Second, by examining the unique and important context in which consumers choose among vertically differentiated products under the same price reduction, our research also contributes to the literature on numerical cognition. We document final price neglect as a novel bias in consumers' processing of numerical information in sales promotions (Bagchi and Davis 2012; Chen et al. 2012; Chen and Rao 2007; Cheng and Cryder 2018; Davis and Bagchi 2018; Thomas and Morwitz 2009).

Third, our findings offer a comprehensive theoretical framework for managing the mode of price reduction (non-integrated vs. integrated) by considering whether a merchant is promoting a single product or a series of vertically differentiated products (Allard et al. 2019; Jia et al. 2018; Sela and LeBoeuf 2017), whether the magnitude of a price reduction is small or large (Raghubir 1998), and whether a price reduction takes an amount-off or percent-off format (Chen et al. 1998; DelVecchio, Krishnan, and Smith 2007; González et al. 2016; Hardesty and Bearden 2003). This framework provides actionable guidelines for the effective management of price promotions.

CONCEPTUAL FRAMEWORK

Price Reduction and Price Information

Price reductions may differ in whether they are integrated with the price information (Chen et al. 1998; DelVecchio et al. 2009). In an integrated mode, the price reduction is directly shown on the price tag, as part of the price information. In a non-integrated mode, the price reduction is not directly shown on the price tag and thus remains separate from the price information.

Earlier research has suggested that integrated and non-integrated price reductions may induce different psychological reactions (Lichtenstein, Netemeyer, and Burton 1990). It is important to note that such psychological reactions could be driven by different contexts in which integrated and non-integrated price reductions are offered (e.g., a coupon in a non-integrated mode may need to be clipped from a newspaper, whereas a discount in an integrated mode may be observed inside a store; Cotton and Babb 1978). Nevertheless, such potential differences become less relevant in the contemporary digitally mediated shopping environment. For instance, consumers may notice a non-integrated coupon code shown on the headline of a shopping site, where the same price reduction can alternatively be presented in an integrated mode on the price tag on the same webpage. In this case, consumers encounter non-integrated and integrated price reductions within the same context rather than from different contexts.

Whereas earlier research on integrated versus non-integrated price promotions has focused on consumers' perceptions, expectations, and intentions regarding a single promoted product (Chandran and Morwitz 2006; Chen et al. 1998; DelVecchio et al. 2009), we shift the research focus to vertically differentiated products (Jia et al. 2018). Under vertical differentiation, products with better performance are priced higher (Spiller and Belogolova 2017). Orthogonal to prior research that focuses on how either changes in a price reduction's monetary value or changes in the focal promoted options' price levels influence consumers' decision outcomes (Irons, Little, and Klein 1983; Jia et al. 2018; Mills and Zamudio 2018; Reibstein and Traver 1982; Ward and Davis 1978), we hold these factors constant to examine how a mere change in the price reduction mode from *integrated* to *non-integrated* shifts the choice shares of vertically differentiated products.

Price Comparison in Integrated Multi-Product Promotions

To simplify the discussion, we focus our theoretical analyses on a basic setup in which consumers choose between two vertically differentiated products: one product with a lower performance level and a lower price (hereafter as lower-priced product) and the other product with a higher performance level and a higher price (hereafter as higher-priced product). In our empirical testing, we also generalize this setup to circumstances under which consumers compare more than two products or can choose not to make a purchase.

When deciding which one to purchase among vertically differentiated products, consumers make a tradeoff between performance and price. Because a product's performance is fixed after production, consumers' decision-making can be simplified to be based on the price difference between higher-priced and lower-priced products (Allard et al. 2019; Yan 2019). We denote the price difference as $\Delta P = P\text{high} - P\text{low}$, where $P\text{high}$ and $P\text{low}$ refer

to the respective prices of the higher-priced and lower-priced products. Normatively, consumers should be more likely to choose the higher-priced product as ΔP decreases because a smaller ΔP represents a smaller marginal monetary sacrifice that consumers need to make to obtain the better product.

When a merchant offers a multi-product promotion, there are two prices for each product: the list price (denoted by $P\text{high}_{\text{list}}$ and $P\text{low}_{\text{list}}$) and the final price (denoted by $P\text{high}_{\text{final}}$ and $P\text{low}_{\text{final}}$). The list price represents the regular price prior to the price reduction, and the final price represents the net price after the price reduction. For each product, the list price is higher than the final price ($P\text{high}_{\text{list}} > P\text{high}_{\text{final}}$; $P\text{low}_{\text{list}} > P\text{low}_{\text{final}}$).

In an integrated promotion, the price reduction is included on the price tag, and the final price information is readily available to consumers. Thus, consumers should evaluate the price difference simply based on the final prices of both products: $\Delta P_{\text{integrated}} = P\text{high}_{\text{final}} - P\text{low}_{\text{final}}$. Nevertheless, we expect that the basis for the price comparison will be different when consumers encounter a non-integrated promotion, which we discuss further in the next section.

The Final Price Neglect Hypothesis in Non-Integrated Multi-Product Promotions

Consumers have constraints in working memory and cognitive capacity (Johnson 2008) and therefore often process complex information insufficiently, especially when relevant information is not directly available (Frederick et al. 2009; Sela and LeBoeuf 2017). Such insufficient processing is particularly common for numerical information presented in a complex format, which further increases the cognitive challenge and effort required in information processing (Bagchi and Davis 2012; Berman et al. 2016; Chen et al. 2012; Chen and Rao 2007; Cheng and Cryder 2018; Davis and Bagchi 2018; Sevilla, Isaac, and Bagchi 2018; Thomas and Morwitz 2009).

Similarly, we expect that constraints in working memory and cognitive capacity cause consumers faced with non-integrated promotions to engage in insufficient processing because the numerical information in the focal decision task is both complex (two prices, the list and final prices, per product to be considered) and not directly available (the final prices to be calculated rather than directly shown, due to the separation of the price reduction from the price information). Specifically, we argue that consumers may not bother to carefully calculate the eligible products' final prices under non-integrated promotions because such calculations would be cognitively taxing in the absence of external aids (e.g., paper-and-pencil). Instead, consumers may simply base their product choice on the price difference between the eligible products' list prices, which remain salient in the price comparison (as $\Delta P_{\text{non-integrated}} = P\text{high}_{\text{list}} - P\text{low}_{\text{list}}$). We term this proposition the *final price neglect* hypothesis. Put differently, although consumers are clearly aware that they will pay less than the list prices in non-integrated promotions, they may still base their price comparison on the list prices for convenience.

Final Price Neglect and Greater Preference for Higher-Priced Products

Based on the above discussions, in both integrated and non-integrated promotions, the *actual* price difference between the two products remains the same ($\Delta P_{\text{integrated}} = \Delta P_{\text{non-integrated}} = \Delta P$). Nevertheless, we expect the *perceived* magnitude of the same price difference to vary between the two promotion modes, due to the different baselines that consumers rely on to perceive the same price difference. In integrated promotions, the price difference is evaluated against the final prices ($[P\text{high}_{\text{final}} - P\text{low}_{\text{final}}]/P\text{low}_{\text{final}} = \Delta P/P\text{low}_{\text{final}}$). In contrast, in non-integrated promotions, the price difference is evaluated against the list prices ($[P\text{high}_{\text{list}} - P\text{low}_{\text{list}}]/P\text{low}_{\text{list}} = \Delta P/P\text{low}_{\text{list}}$), due to final price neglect. As a consequence, consumers should perceive the same price difference to be smaller under non-integrated promotions than under integrated promotions ($\Delta P/P\text{low}_{\text{list}} < \Delta P/P\text{low}_{\text{final}}$), given that the list prices used as the baseline for the comparison (in the case of non-integrated promotions) are higher than the final prices used as the baseline for the comparison (in the case of integrated promotions).

The above analysis is consistent with Weber's law, which states that the numerical difference between two larger numbers (i.e., two list prices) is perceived to be smaller than the same numerical difference between two smaller numbers (i.e., two final prices) because humans have a diminished sensitivity to numerical magnitude (Dehaene 2003; Pandelaere, Briers, and Lembregts 2011). To provide a vivid numerical illustration, we examine a simplified example, in which a merchant provides a price reduction of \$10 for product A (list price = \$35; final price = \$25) and product B (list price = \$50; final price = \$40). The actual price difference between products A and B is always \$15. When there is an integrated promotion, consumers evaluate this price difference against the final prices, such that product B appears to be 60% (\$15/\$25) more expensive than product A. When there is a non-integrated promotion, although the price difference between the two products is still \$15, consumers do not bother to calculate the final prices and instead simply evaluate this price difference against the list prices, such that product B appears to be 43% (\$15/\$35) more expensive than product A.

This example illustrates that the price difference between higher-priced and lower-priced products appears smaller under non-integrated promotions than under integrated promotions. Because non-integrated promotions decrease the *perceived* price difference, the relative

attractiveness of the higher-priced product over the lower-priced product increases, compared to when integrated promotions are run. Therefore, we propose that non-integrated promotions will lead to a larger choice share of higher-priced products than integrated promotions.

> **H1:** When consumers choose among vertically differentiated products, non-integrated promotions will result in a larger choice share of higher-priced products than economically equivalent integrated promotions.

As discussed above, a natural consequence of final price neglect is that consumers perceive the price difference between higher-priced and lower-priced products to be smaller in non-integrated promotions than in integrated promotions ($\Delta P/P\text{low}_{\text{list}} < \Delta P/P\text{low}_{\text{final}}$). A smaller perceived price difference, in turn, drives a larger choice share of higher-priced products. We formally hypothesize the sequential mediating roles of final price neglect and perceived price difference (non-integrated versus integrated promotions → final price neglect → smaller perceived price difference → larger choice share of higher-priced products):

> **H2:** (a) Final price neglect and (b) perceived price difference will sequentially mediate the effect of price reduction mode (non-integrated vs. integrated) on product choice.

Theoretically Motivated and Managerially Relevant Moderators

In addition to revealing the final price neglect mechanism via a mediation approach, we will also demonstrate this mechanism by examining two theoretically motivated and managerially relevant moderators. As discussed earlier, final price neglect in non-integrated promotions occurs because the focal decision task features numerical information that is both *complex* (multiple list and final prices to be processed) and *not directly available* (final prices to be figured out by consumers). According to this rationale, factors that affect either information *complexity* or *availability* should determine the occurrence of final price neglect and thus moderate the effect of price reduction mode (non-integrated vs. integrated) on consumers' choices among vertically differentiated products (see figure 2 for the conceptual framework).

First, according to our final price neglect hypothesis, consumers receiving non-integrated promotions do not bother to carefully calculate the final prices that are not directly available. Instead, they resort to the list prices as their basis for evaluating the price difference. According to this theorization, if the final prices are not directly displayed in integrated promotions, consumers should also evaluate the price difference against the list prices instead of calculating the final prices by themselves. In this case, our proposed effect of price reduction mode (non-integrated vs. integrated) on product choice should be attenuated.

> **H3:** The effect of price reduction mode (non-integrated vs. integrated) on product choice will be attenuated when the final price information is absent in integrated promotions.

Second, our final price neglect hypothesis posits that consumers do not bother to carefully calculate the multiple final prices in non-integrated promotions due to the complexity of the numerical processing involved. This theorization suggests that if the complexity of the numerical processing of prices is reduced, the trigger of final price neglect should also be removed, hence reducing the difference in the decision outcome between non-integrated and integrated promotions. Following this rationale, we expect that when the focal purchase decision is no longer between two vertically differentiated products, but instead whether to buy a single promoted product, consumers' decision outcomes should not differ much between non-integrated and integrated promotions. This is because under this circumstance, only one final price needs to be figured out in non-integrated promotions, and this task is less difficult and cognitively taxing. Given that consumers can easily base their decisions on the single product's final price in both non-integrated and integrated promotions, the decision outcomes tend to be similar.

> **H4:** The effect of price reduction mode (non-integrated vs. integrated) on product choice will be attenuated when the purchase decision involves only a single promoted product.

OVERVIEW OF STUDIES

Seven experiments (and seven supplementary experiments in web appendix A) test our conceptual framework, including one field experiment examining real purchases and six incentive-compatible controlled experiments (see table 1 for a summary of the main experiments). The experiments were conducted in various countries (China, the United Kingdom, and the United States), demonstrating the broad applicability of our findings.

The first set of experiments establishes our core proposition that, compared to equivalent integrated promotions, non-integrated promotions increase the choice share of higher-priced products (hypothesis 1) in a field experiment (study 1) and an incentive-compatible experiment explicitly measuring purchase incidence and directly comparing non-integrated and integrated promotions with no promotion (study 2). We further generalize the basic effect to a mail-order catalog scenario involving promotional materials in physical form (study 3) and a three-option choice setup (study 4), both with incentive-compatible product choices.

The second set of experiments illustrates the final price neglect mechanism. Study 5 supports the final price neglect

FIGURE 2

CONCEPTUAL FRAMEWORK

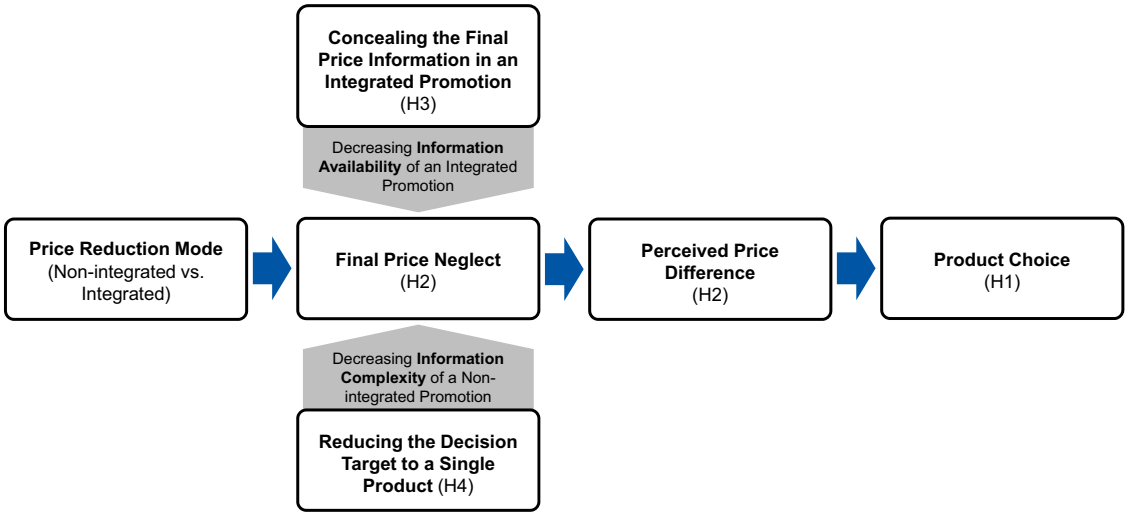


TABLE 1

SUMMARY OF MAIN STUDIES

Study	Stimulus	Choice measure	Choice share of higher-priced products		Statistical value
Study 1 ($N = 294$; field study)	Portable charger	Real purchase	Integrated (24.1%)	Non-integrated (**51.6**%)	$\chi^2 = 4.61^{*}$
Study 2 ($N = 305$; preregistered)	USB flash drive	Incentive compatible	Integrated (13.5%)	Non-integrated (**33.7**%)	$\chi^2 = 9.54^{**}$
			No promotion (16.7%)		$\chi^2 = 7.20^{**}$
Study 3 ($N = 266$; preregistered)	USB flash drive	Incentive compatible	Integrated (23.6%)	Non-integrated (**38.5**%)	$\chi^2 = 6.77^{**}$
Study 4 ($N = 301$; preregistered)	Portable hard drive	Incentive compatible	Integrated (68.7%)	Non-integrated (**79.4**%)	$\chi^2 = 4.01^{*}$
Study 5 ($N = 200$; preregistered)	Computer monitor	Regular	Integrated (33.3%)	Non-integrated (**57.3**%)	$\chi^2 = 10.34^{***}$
Study 6 ($N = 310$; preregistered)	USB flash drive	Incentive compatible	Integrated (24.1%)	Non-integrated (**54.7**%)	$\chi^2 = 16.94^{***}$
			No final price (42.5%)		$\chi^2 = 2.69^{NS}$
Study 7 ($N = 601$; preregistered)	USB flash drive	Regular	Two products		
			Integrated (14.1%)	Non-integrated (**39.7**%)	$\chi^2 = 21.05^{***}$
			Single product		
			Integrated (62.9%)	Non-integrated (64.7%)	$\chi^2 = 0.10^{NS}$

$^{*}p < .05$.
$^{**}p < .01$.
$^{***}p < .001$.

mechanism by showing the sequential mediating roles of final price neglect and perceived price difference (hypothesis 2). Study 6 demonstrates that concealing the final price information in integrated promotions attenuates the proposed effect (hypothesis 3). Study 7 shows that changing the decision from a choice between two vertically differentiated products to a purchase decision about a single product mitigates the effect of price reduction mode (non-integrated vs. integrated) on decision outcome (hypothesis 4).

STUDY 1: FIELD EXPERIMENT

Study 1 aims to demonstrate the effect of price reduction mode (non-integrated vs. integrated) on consumers' choices

between two vertically differentiated products in a field experiment, in which consumers' real purchase decisions were recorded.

Method

We collaborated with a bookstore located on the campus of a university in China and launched a sales event over a 3-day period on weekdays (Tuesday/Wednesday/Thursday), in which we introduced a price reduction for two vertically differentiated portable chargers (aka, power banks). We set up posters in prime locations on campus and distributed flyers to passersby who were attracted by the posters. The posters and flyers provided basic information about the portable chargers and informed the viewers about the availability of a price reduction. However, no exact pricing or price reduction information was mentioned on the posters and flyers.

To access the details of the promotion and purchase the portable chargers, consumers needed to scan the QR code shown on the posters or flyers with their phone. Upon QR code scanning, consumers were randomly assigned to either the integrated promotion condition or the non-integrated promotion condition. They browsed the detailed promotion, product, and price information and made a choice on their phone, after which they picked up the ordered product from the bookstore. The lower-priced portable charger had an original price of RMB 44.99 (approximately $6.70) and a battery capacity of 10,000 mAh. The higher-priced portable charger had an original price of RMB 66.99 (approximately $10.00) and a battery capacity of 20,000 mAh.

In the integrated promotion condition, participants were first informed that they were eligible for a RMB 25 (approximately $3.70) discount off the portable chargers in the sales event. On the next screen, participants examined the product and price information, on which we highlighted "RMB 25 off" beneath each original price, followed by the final price after the price reduction for each portable charger. In the non-integrated promotion condition, participants first received a RMB 25-off coupon that could be applied to all the eligible portable chargers in the sales event. On the next screen, where participants examined the product and price information, only the original price was shown beneath each product. To ensure that consumers clearly understood the coupon's applicability, we also added a tag beneath each product to highlight that both products were eligible for coupon redemption (see web appendix B for the stimuli). We expected that the choice share of the higher-priced portable charger would be larger in the non-integrated promotion condition than in the integrated promotion condition (hypothesis 1).

Results

Purchase Incidence. According to the record, a total of 294 consumers scanned the QR code during the sales event. Although the specific condition could not be recorded if consumers scanned the QR code but quit without ordering a product, it is reasonable to assume an equivalent number of such consumers per condition due to the random assignment. Among all consumers who had scanned the QR code, 60 consumers eventually placed an order. Specifically, 29 orders were from the integrated promotion condition, and 31 orders were from the non-integrated promotion condition. A comparison of the total order counts indicated that purchase incidence did not differ across the two price reduction modes ($\chi^2(1) = 0.07, p = .796$).

Product Choice. More central to our prediction, the choice share of the higher-priced portable charger was larger in the non-integrated promotion condition (51.61%) than in the integrated promotion condition (24.14%; $b = 1.21$, SE = 0.56, $\chi^2(1) = 4.61$, $p = .032$; odds ratio = 3.35), supporting hypothesis 1.

Discussion

Examining consumers' real purchases in a field experiment, study 1 demonstrates that, resulting in a similar level of purchase incidence in the first place, a non-integrated promotion increases the choice share of the higher-priced product, relative to an integrated promotion of the same monetary value. We conceptually replicate and generalize this effect in follow-up controlled experiments.

STUDY 2: NO PROMOTION AS A BASELINE

Study 2 aims to conceptually replicate the effect of price reduction mode (non-integrated vs. integrated) on consumers' choices between two vertically differentiated products in an incentive-compatible controlled experiment, with choice options from a well-known brand and with purchase incidence explicitly measured. More importantly, to depict a full picture of how non-integrated and integrated promotions exert differential impacts on purchase incidence and specific product choice, study 2 additionally compares the two price promotion scenarios with a no-promotion scenario, in which no price reduction is provided. We expect that both non-integrated and integrated promotions incentivize more consumers to make a purchase in the first place than when no promotion is run, because promotions make all eligible products more affordable to consumers. More importantly, we predict that, going beyond increasing purchase incidence, non-integrated promotions further encourage the choice of higher-priced products, compared to integrated promotions.

Method

We aimed to recruit 300 US-based participants on Prolific and received 305 responses (212 females; M_{age} = 27.99 years, SD = 10.03). Study 2 adopted a one-way, three-cell (price reduction mode: integrated, non-integrated, vs. no promotion) between-subjects design and was preregistered (https://aspredicted.org/9HF_62Z).

Participants were instructed to choose between two Samsung USB flash drives at an online store. The price information, product descriptions, and product images presented to participants were adapted from Amazon.com. The lower-priced USB flash drive had an original price of $22.99 and a memory capacity of 128 GB. The higher-priced USB flash drive had an original price of $40.99 and a memory capacity of 256 GB. To make the choice measure incentive compatible, we informed participants that two of them would be randomly selected to receive a bonus worth $50 in total, including the chosen USB flash drive and an Amazon e-gift card for the remaining amount (i.e., $50 minus the price paid for the chosen USB flash drive).

Participants learned that the online retailer of the USB flash drives was running a sales promotion. In the integrated promotion condition, we highlighted "You Save: $10.00" below the original price and above the final price for each USB flash drive. In the non-integrated promotion condition, participants were first shown an image of a $10-off coupon and clearly informed that the coupon could be applied to all eligible USB flash drives, which will be shown later. On the next screen, participants were shown the original price below each product only (see web appendix B for the stimuli). In the no-promotion condition, only the original price information was shown to participants, and no price reduction was offered. After examining the product information, participants made a choice between the USB flash drives and could also choose to buy neither, so that there were three choice options in total (no purchase, lower-priced product, and higher-priced product).

At the end of the integrated and non-integrated promotion conditions, we set two comprehension checks. The first question checked whether participants clearly understood that the price reduction was equally applicable to both products. The second question checked whether participants misunderstood original prices as final prices. There were no such comprehension checks in the no-promotion condition, in which the two questions were irrelevant because no promotion was offered. As noted in the preregistration, we excluded participants who failed to pass either or both checks from the formal data analysis (12.75% of the integrated promotion sample and 11.88% of the non-integrated promotion sample, which did not differ significantly: $\chi^2(1) = 0.04$, $p = .851$).

We report statistical analyses based on the valid responses in the main text. The results remained similar when all responses (including those failing comprehension checks) were included in this study and our other studies (web appendix C).

Results

Purchase Incidence. We dummy coded the experimental conditions and conducted logistic regressions. Compared to when there was no promotion (85.29%), both the integrated promotion (93.26%; $b = 0.87$, SE = 0.51, $\chi^2(1) = 2.94$, $p = .086$; odds ratio = 2.39) and the non-integrated promotion increased purchase incidence (94.38%; $b = 1.06$, SE = 0.54, $\chi^2(1) = 3.90$, $p = .048$; odds ratio = 2.90). Importantly, the integrated and non-integrated promotion conditions did not differ in purchase incidence ($b = 0.19$, SE = 0.62, $\chi^2(1) = 0.10$, $p = .756$; odds ratio = 1.21; figure 3).

Product Choice. Confirming hypothesis 1, the choice share of the higher-priced product in the non-integrated promotion condition (33.71%) was larger than that in either the no-promotion condition (16.67%; $b = 0.93$, SE = 0.35, $\chi^2(1) = 7.20$, $p = .007$; odds ratio = 2.54) or the integrated promotion condition (13.48%; $b = 1.18$, SE = 0.38, $\chi^2(1) = 9.54$, $p = .002$; odds ratio = 3.26). There was no difference in the choice share of the higher-priced product between the integrated promotion and no-promotion conditions ($b = -0.25$, SE = 0.41, $\chi^2(1) = 0.37$, $p = .541$; odds ratio = 0.78; figure 3).

Shift in the Choice Share Distribution. We further examined the shift in the choice share distribution across conditions. First, compared to no promotion, although the integrated promotion increased purchase incidence, the increase in purchase incidence mainly shifted to the choice share of the lower-priced option ($b = 0.93$, SE = 0.51, $\chi^2(1) = 3.31$, $p = .069$; odds ratio = 2.54) rather than to the choice share of the higher-priced option ($b = 0.57$, SE = 0.61, $\chi^2(1) = 0.86$, $p = .354$; odds ratio = 1.77; see figure 3 for the choice share distributions).

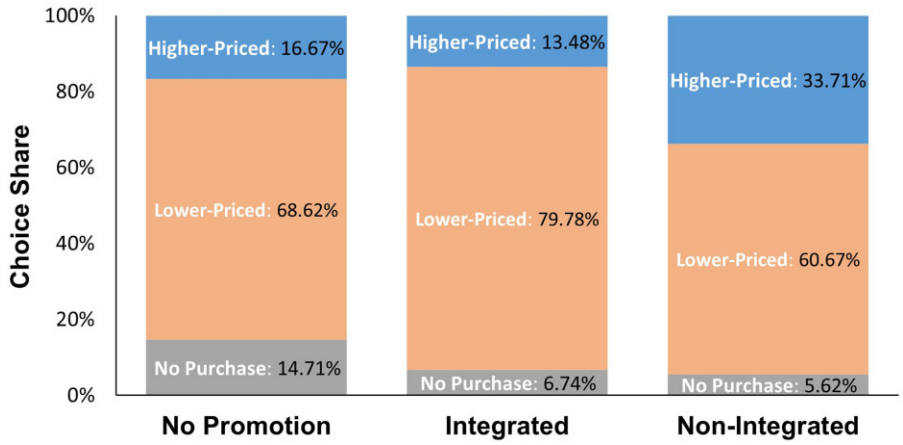
Second, compared to no promotion, the non-integrated promotion increased purchase incidence and, more importantly, shifted the increase in purchase incidence mainly to the choice share of the higher-priced option ($b = 1.67$, SE = 0.60, $\chi^2(1) = 7.74$, $p = .005$; odds ratio = 5.29) rather than to the choice share of the lower-priced option ($b = 0.84$, SE = 0.55, $\chi^2(1) = 2.35$, $p = .125$; odds ratio = 2.31; see figure 3 for the choice share distributions).

Discussion

By both examining purchase incidence and comparing non-integrated and integrated promotions with no promotion, study 2 clearly illustrates the differential impacts of non-integrated and integrated promotions on purchase incidence and product choice. Importantly, compared to

FIGURE 3

CHOICE SHARE DISTRIBUTION (STUDY 2)



integrated promotions, non-integrated promotions can better unleash the potential of multi-product price reductions in terms of converting the increase in consumers' purchase incidence into their choice of higher-priced products. In contrast, integrated promotions merely turn the increase in consumers' purchase incidence into their choice of lower-priced products.

To corroborate the differential impacts of non-integrated versus integrated promotions on purchase incidence (non-integrated = integrated) and choice of higher-priced products (non-integrated > integrated), we conducted two replication studies, both with incentive-compatible choices (studies W1 and W2 in web appendix A). Study W1 replicated our findings with the same USB flash drive stimuli as in study 2. Study W2 further generalized our findings to choice options among different brands, which involve a tradeoff between price and performance. This generalization not only provides additional support for our core proposition but also has profound implications, as consumers may receive store-level credits or gift cards (e.g., an Amazon or Walmart gift card) that can be redeemed for any brands carried by the retailer.

In the next set of studies, we provide extensions of our proposed effect. Since four studies (1, 2, W1, and W2) demonstrate that non-integrated and integrated promotions are equally effective in increasing purchase incidence, our following studies focus on consumers' specific product choice without considering purchase incidence to simplify the study design.

STUDY 3: MAIL-ORDER CATALOG

Extending studies 1, 2, W1, and W2, in which promotion evaluations and product choices were all made in a purely digital environment, study 3 extends our findings to a traditional, offline setting, in which consumers receive promotional materials in physical form and make a purchase in a mail-order catalog scenario. Particularly, participants received a physical coupon and had to write down a coupon code for redemption in the non-integrated promotion condition. The receipt of the physical coupon and action of coupon redemption provided an opportunity for participants to deliberate more on the focal promotion and evaluate the available product options more thoroughly. We aim to show that even in such a decision context that might trigger more deliberation, the proposed final price neglect persists, resulting in a larger choice share of the higher-priced option in the non-integrated promotion condition.

Method

Study 3 used a one-way, two-cell (price reduction mode: integrated vs. non-integrated) between-subjects design and was preregistered (https://aspredicted.org/P61_S5N). We aimed to collect 300 responses from the subject pool of a large university in the United States, and 266 undergraduate students (120 females; $M_{age} = 20.40$ years, SD = 1.66) finally participated in this study for partial course credit. We excluded three participants who did not indicate their product choice and one participant who did not complete the study. Because the experimental procedure involved the distribution and examination of promotional materials provided in physical copies, the two experimental conditions (integrated vs. non-integrated) were rotated across sessions to facilitate the experiment administration and prevent participants from being exposed to a slightly different stimulus from the other condition.

All participants were informed that a leading technology company for computer accessories was designing a

promotional program that offered computer accessories for students and staff at promoted prices, and the purpose of the study was to understand students' preferences for USB flash drives. Participants received a physical copy of the mail-in order form along with a promotional offer and were instructed to place a mail-in order. To make participants' product choice incentive compatible, we informed participants that five students would be randomly selected to receive a bonus worth \$30 in total, including the chosen USB flash drive and a cash bonus for the remaining amount (i.e., \$30 minus the price paid for the chosen USB flash drive). The mail-in order form presented two USB flash drives. The lower-priced USB flash drive had an original price of \$10.99 and a memory capacity of 32 GB. The higher-priced USB flash drive had an original price of \$17.99 and a memory capacity of 64 GB.

In the integrated promotion condition, we showed both a \$5-off discount and the final price beneath the original price for each USB flash drive directly on the mail-in order form. In the non-integrated promotion condition, participants received a separate, physical \$5-off coupon in the size of a standard business card, on which a coupon code was shown. Participants were instructed to write this coupon code in the mail-in order form to get \$5 off the USB flash drive of their choice. Only the original price and a tag indicating "Eligible for Coupon Redemption" were shown beneath each USB flash drive on the mail-in order form in the non-integrated promotion condition (see web appendix B for the stimuli). Participants were instructed to put a cross mark below the USB flash drive of their choice on the form and return all the materials at the end of the session. The choice between the two USB flash drives served as the dependent variable.

Results

Once again, supporting hypothesis 1, the choice share of the higher-priced USB flash drive was larger in the non-integrated promotion condition (38.52%) than in the integrated promotion condition (23.57%; $b = 0.71$, SE = 0.27, $\chi^2(1) = 6.77$, $p = .009$; odds ratio = 2.03).

Discussion

Focusing on a traditional mail-order catalog context and employing promotional materials in physical form, study 3 conceptually replicates our findings. Moreover, a supplementary study (study W3 in web appendix A) generalizes our findings from functional offerings (portable chargers in study 1, USB flash drives in studies 2, 3, and W1, and portable hard drives in study W2) to experiential offerings (hotel rooms in study W3).

STUDY 4: THREE-OPTION SETUP

In study 4, we further extend the choice set from two options to three options to demonstrate the robustness of our proposed effect in an incentive-compatible design.

Method

We aimed to recruit 300 US-based participants on Prolific and received 301 responses (182 females; $M_{age} = 27.97$ years, SD = 8.61). Study 4 employed a one-way, two-cell (price reduction mode: integrated vs. non-integrated) between-subjects design and was preregistered (https://aspredicted.org/HW7_R7C). Responses from participants who failed either or both comprehension checks for their understanding of the promotion and price information were excluded from the formal data analysis (10.67% of the integrated promotion sample and 9.93% of the non-integrated promotion sample, which did not differ significantly: $\chi^2(1) = 0.04$, $p = .834$), as noted in the preregistration and detailed in study 2.

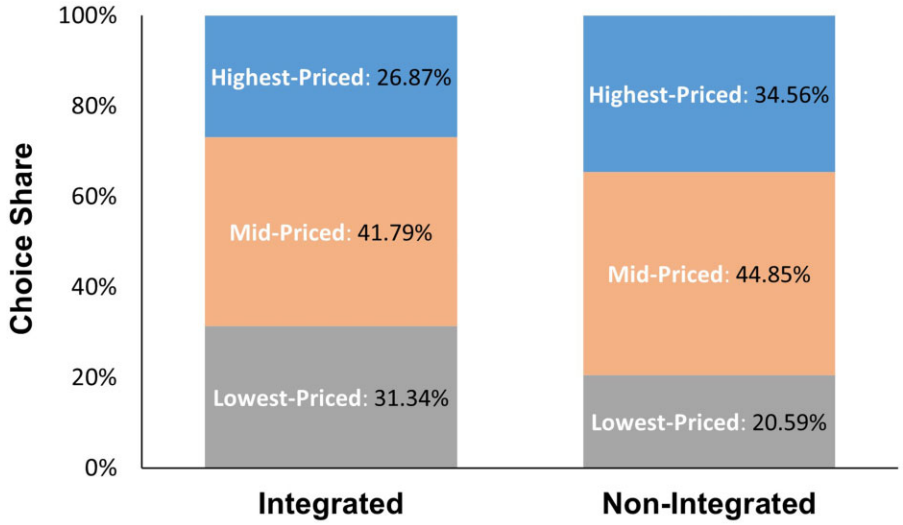
We adopted a similar incentive-compatible paradigm (two participants to be randomly drawn to receive an extra reward worth \$80 in total) as in our other studies. Participants imagined that they were shopping for a portable hard drive via an online retailer, which was running a sales promotion. They were presented with three portable hard drives. The lowest-priced option had a memory capacity of 500 GB and an original price of \$39.99, the mid-priced option had a memory capacity of 1,000 GB and an original price of \$49.99, and the highest-priced option had a memory capacity of 2,000 GB and an original price of \$69.99. Participants received a price reduction of \$15, either provided as a discount in the integrated promotion condition or presented as a coupon in the non-integrated promotion condition. The coupon was shown prior to the screen that displayed the products. The coupon's applicability to all three products was made clear in the study instruction. After examining the information, participants chose one among the three portable hard drives (coded as 1 = lowest priced, 2 = mid-priced, 3 = highest priced). A larger value of this dependent measure represents a choice of a higher price level.

Results

Supporting hypothesis 1, an ordinal logistic regression showed that the price level of the purchased product was higher in the non-integrated promotion condition than in the integrated promotion condition ($b = 0.46$, SE = 0.23, $\chi^2(1) = 4.01$, $p = .045$; odds ratio = 1.58). The choice shares of the lowest-, mid-, and highest-priced options were 31.34%, 41.79%, and 26.87% in the integrated promotion condition and shifted upward to 20.59%, 44.85%,

FIGURE 4

CHOICE SHARE DISTRIBUTION (STUDY 4)



and 34.56% in the non-integrated promotion condition (figure 4).

Discussion

Study 4 generalizes our proposed effect from the two-option setup to the three-option setup. The next set of studies tests the proposed final price neglect mechanism.

STUDY 5: SEQUENTIAL MEDIATION

We argue that consumers presented with a non-integrated promotion do not bother to calculate multiple final prices and thus simply base their price difference judgments on the more salient list prices. As a result, they perceive the price difference to be smaller than when they evaluate the same price difference against the final prices in an integrated promotion. Consequently, the smaller perceived price difference makes the higher-priced product more attractive in the non-integrated promotion than in the integrated promotion. Study 5 examines the sequential mediating roles of final price neglect and perceived price difference (hypothesis 2).

Moreover, this study explores two alternative explanations. First, consumers might expect that non-integrated promotions (e.g., coupons) are rarer for higher-priced products. Thus, they might be more likely to seize the rarer opportunity to apply a non-integrated promotion to higher-priced products. Second, one might wonder whether non-integrated promotions enlarge the perceived quality difference between higher-priced and lower-priced products and thus increase preference for higher-priced products. To test these alternative explanations, we directly measured anticipated promotion frequency and perceived product quality difference in study 5.

Method

We aimed to recruit 200 US-based participants from Prolific and received 200 responses (110 females; M_{age} = 32.84 years, SD = 12.32). This study adopted a one-way, two-cell (price reduction mode: integrated vs. non-integrated) between-subjects design and was preregistered (https://aspredicted.org/D4G_FHL). Participants failing either or both comprehension checks for their understanding of the promotion and price information were excluded from the formal data analysis (6.06% of the integrated promotion sample and 11.88% of the non-integrated promotion sample, which did not differ significantly: $\chi^2(1) = 2.00$, $p = .158$), as preregistered and detailed in study 2.

To further generalize our findings, we presented two computer monitors as the stimuli. The lower-priced monitor had a 19-inch screen and an original price of $85.99. The higher-priced monitor had a 22-inch screen and an original price of $129.99. The same $25-off price reduction was presented as either a discount shown together with the final price information in the integrated promotion condition or a coupon separate from the final price information in the non-integrated promotion condition (see web appendix B for the stimuli). The coupon was shown prior to the screen where the two monitor options were displayed, and the coupon's applicability to both options was made clear in the instruction.

After examining the product and promotion information, participants made a binary choice between the monitors, which served as the dependent measure. Next, participants indicated the extent to which they thought "the price difference between the above two monitors is small or large" (1 = very small, 7 = very large). This item served as the measure of one mediator, perceived price difference. Then, participants answered the question "when deciding which monitor to buy, what prices did you compare?" (1 = My decision was based on the comparison between the two monitors' original prices, 7 = My decision was based on the comparison between the two monitors' final prices [i.e., the promoted prices after the discount/coupon is applied]). This item served as the measure of the other mediator, final price neglect. We reverse-coded this measure so that a larger value represents a greater degree of final price neglect (i.e., greater reliance on the original price information).

Finally, participants rated which monitor they expected to be "more frequently on sale (i.e., promoted in a way as shown in this survey)?" (i.e., anticipated promotion frequency; 1 = the lower-priced monitor is more frequently on sale, 4 = equally frequently, 7 = the higher-priced monitor is more frequently on sale) and the extent to which they thought that "the quality difference between the above two monitors is small or large" (i.e., perceived product quality difference; 1 = very small, 7 = very large), which served as two control measures.

Results

Product Choice. Supporting hypothesis 1, the choice share of the higher-priced monitor was larger in the non-integrated promotion condition (57.30%) than in the integrated promotion condition (33.33%; $b = 0.99$, SE = 0.31, $\chi^2(1) = 10.34$, $p = .001$; odds ratio = 2.68).

Perceived Price Difference. An ANOVA showed that the non-integrated promotion led to a relatively smaller perceived price difference than the integrated promotion ($M_{\text{non-integrated}} = 4.30$, SD = 1.06 vs. $M_{\text{integrated}} = 4.99$, SD = 1.19; $F(1, 180) = 16.76$, $p < .001$, $\eta_p^2 = 0.09$).

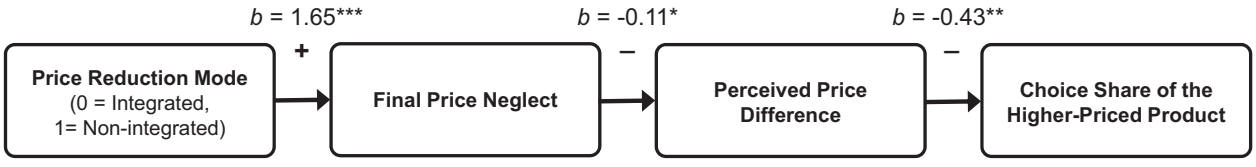
Final Price Neglect. Another ANOVA indicated that the non-integrated promotion resulted in a relatively greater degree of final price neglect than the integrated promotion ($M_{\text{non-integrated}} = 3.71$, SD = 2.24 vs. $M_{\text{integrated}} = 2.05$, SD = 1.43; $F(1, 180) = 35.60$, $p < .001$, $\eta_p^2 = 0.17$).

Sequential Mediation Analysis. We conducted a bootstrapping-based mediation analysis with 5,000 resamples (PROCESS model 6; Hayes 2013). We found a significant indirect effect of *price reduction mode* (0 = integrated, 1 = non-integrated) → *final price neglect* → *perceived price difference* → *product choice* (0 = lower-priced monitor, 1 = higher-priced monitor) in the sequential mediation model ($b = 0.08$, SE = 0.05; 95% CI: 0.01, 0.19). In support of hypothesis 2, the non-integrated (vs. integrated) promotion increased final price neglect ($b = 1.65$, SE = 0.28, $t = 5.97$, $p < .001$), final price neglect led to a smaller perceived price difference ($b = -0.11$, SE = 0.04, $t = -2.43$, $p = .016$), and a smaller perceived price difference resulted in a larger choice share of the higher-priced product ($b = -0.43$, SE = 0.15, $z = -2.85$, $p = .004$; figure 5).

Control Measures. The price reduction mode manipulation did not influence perceived product quality difference ($F(1, 180) = 0.25$, $p = .617$), which thus could not explain the results of this study. Although participants perceived non-integrated promotions to be more common than integrated promotions for higher-priced products ($M_{\text{non-integrated}} = 4.43$, SD = 1.62 vs. $M_{\text{integrated}} = 3.76$, SD = 1.60; $F(1, 180) = 7.76$, $p = .006$, $\eta_p^2 = 0.04$), the sequential mediating effects of final price neglect and perceived price difference remained similar ($b = 0.08$, SE = 0.05; 95% CI: 0.01, 0.20) when anticipated promotion frequency was added as a covariate in PROCESS model 6 (with 5,000 resamples; Hayes 2013). The non-integrated (vs. integrated) promotion increased final price neglect ($b = 1.72$, SE = 0.28, $t = 6.11$, $p < .001$), final price neglect led to a smaller perceived price difference ($b = -0.11$, SE = 0.05, $t = -2.38$, $p = .019$), and a smaller perceived price difference resulted in a larger choice share of the higher-priced product ($b = -0.43$, SE = 0.15, $z = -2.84$, $p = .005$). Moreover, anticipated promotion frequency did not affect

FIGURE 5

SEQUENTIAL MEDIATION ANALYSIS (STUDY 5)



NOTE.— *$p < .05$, **$p < .01$, ***$p < .001$.

final price neglect ($b = -0.11$, SE = 0.09, $t = -1.26$, $p = .209$), perceived price difference ($b = 0.02$, SE = 0.05, $t = 0.65$, $p = .654$), or product choice ($b = -0.11$, SE = 0.10, $z = -1.10$, $p = .271$).

Discussion

Supporting our theorization, study 5 demonstrates the sequential mediating roles of final price neglect and perceived price difference in driving the advantage of non-integrated (vs. integrated) promotions in increasing consumers' choice of higher-priced products. This study also shows that anticipated promotion frequency and perceived product quality difference could not adequately explain our findings. Moreover, in an ancillary lab study employing a similar pair of monitor stimuli, we collected eye-tracking data as additional process evidence to supplement the mediating evidence for the role of final price neglect. In the eye-tracking study, we examined participants' attention to the original price information as a proxy for final price neglect, as final price neglect means that more attention is allocated to the original price information. Focusing on the key metrics employed in recent research on pricing (Hodges and Chen 2022), the additional eye-tracking data reveal that participants paid more attention to the original price information in the non-integrated promotion condition than in the integrated promotion condition, consistent with our final price neglect hypothesis (see the additional eye-tracking study in web appendix A). Furthermore, we conceptually replicated study 5 with a different operationalization of the perceived price difference mediator in another supplementary study (study W4 in web appendix A). Next, we provide process evidence via moderation approaches.

STUDY 6: CONCEALING FINAL PRICES IN INTEGRATED PROMOTIONS

Study 6 aims to lend further support to the final price neglect hypothesis by directly manipulating the availability of the final price information. In an integrated promotion, a discount is typically displayed on the price tag alongside the final price information. However, if the final price information is concealed in an integrated promotion, consumers should not bother to calculate the final prices either. Instead, they should evaluate the price difference against the more salient list prices, just as they do in a non-integrated promotion. As a consequence, our proposed effect of price reduction mode (non-integrated vs. integrated) should be attenuated (hypothesis 3). We examine this prediction in study 6.

Method

We aimed to recruit 300 US-based participants from Prolific and obtained 310 responses (130 females; M_{age} = 36.62 years, SD = 12.47). This study used a one-way, three-cell (price reduction mode: integrated, non-integrated, vs. integrated/no final price) between-subjects design and was preregistered (https://aspredicted.org/MPN_PQW). As preregistered, participants failing either or both comprehension checks for their understanding of the promotion and price information were excluded from the formal data analysis (15.53% of the integrated promotion sample, 8.65% of the non-integrated promotion sample, and 15.53% of the integrated promotion/no final price sample, which did not differ significantly: χ^2s < 2.25, ps $> .134$).

We adopted the same product stimuli (two Samsung USB flash drives) and incentive-compatible choice paradigm (two participants to be randomly drawn to receive an extra reward worth $50) as in study 2. In the integrated promotion condition, we showed both a tag indicating "You Save: $10.00" and the final price beneath each product's original price. In the non-integrated promotion condition, we showed a $10-off coupon on the screen prior to displaying the product and price information and a tag indicating "Eligible for Coupon Redemption" beneath each product's original price. In the integrated promotion/no final price condition, we showed only a tag indicating "You get $10.00 off the Original Price" beneath each product's original price (see web appendix B for the stimuli).

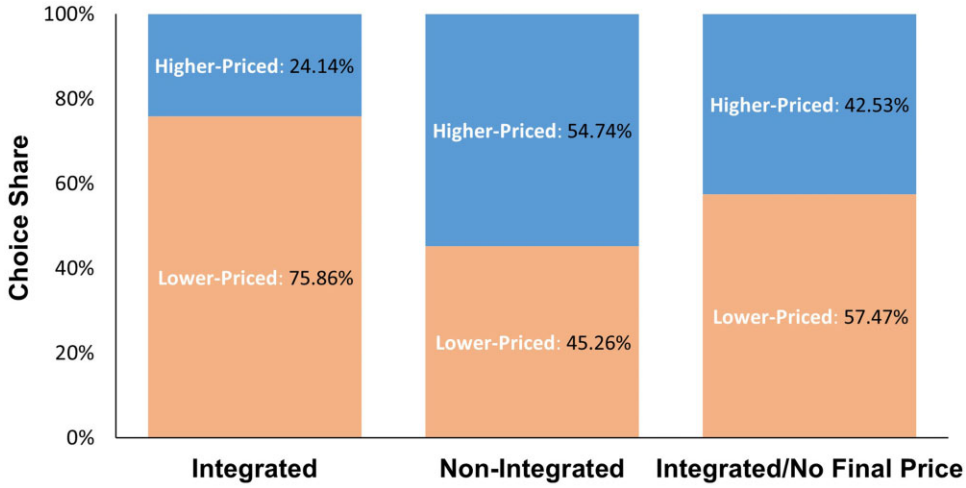
Results

Basic Effect. Replicating our previous results, the choice share of the higher-priced USB flash drive was larger in the non-integrated promotion condition (54.74%) than in the integrated promotion condition (24.14%; $b = 1.34$, SE = 0.32, $\chi^2(1) = 16.94$, $p < .001$; odds ratio = 3.80).

When the Final Price Information is Concealed. We dummy coded the experimental conditions and conducted logistic regressions. When the final price information was not directly provided in the integrated promotion, the difference in the choice shares of the higher-priced USB flash drive between the non-integrated promotion condition (54.74%) and the integrated promotion/no final price condition was attenuated to non-significance (42.53%; $b = 0.49$, SE = 0.30, $\chi^2(1) = 2.69$, $p = .101$; odds ratio = 1.63). Moreover, the choice share of the higher-priced USB flash drive was larger in the integrated promotion/no final price condition (42.53%) than in the integrated promotion condition (24.14%; $b = 0.84$, SE = 0.33, $\chi^2(1) = 6.49$, $p = .011$; odds ratio = 2.33; figure 6). Together, these results support hypothesis 3.

FIGURE 6

CHOICE SHARE DISTRIBUTION (STUDY 6)



Discussion

Examining a special form of integrated promotion that omits the final price information, study 6 provides convergent evidence for the final price neglect hypothesis by showing that concealing the final price information in integrated promotions can similarly result in final price neglect and thus attenuate the proposed effect of price reduction mode (non-integrated vs. integrated) on consumers' choices among vertically differentiated products.

Intriguingly, in addition to the aforementioned attenuation, we also observed that the choice share of the higher-priced product was directionally larger in the non-integrated promotion condition than in the integrated promotion/no final price condition (figure 6). This directional difference is consistent with the recent findings that displaying two numbers simultaneously in a manner consistent with the subtraction principle (i.e., displaying the price reduction underneath the original price in the integrated promotion/no final price condition) increases the ease of mental calculation, compared to displaying two numbers separately (i.e., in the non-integrated promotion condition; Biswas et al. 2013; Sokolova, Seenivasan, and Thomas 2020). This might be the reason why the integrated promotion/no final price condition fell between the integrated and non-integrated promotion conditions, in terms of the choice share of the higher-priced product.

STUDY 7: A PAIR OF PRODUCTS VERSUS A SINGLE PRODUCT

Study 7 has three main objectives. First, our proposed final price neglect mechanism states that consumers do not bother to calculate multiple final prices, given that the resultant calculation represents a complex task. If we remove the lower-priced product from the choice set so that only one product is to be considered, the calculation of a single final price should be less complex and cognitively taxing. In this case, the trigger of final price neglect (i.e., information complexity) will be removed, and thus, the decision outcome should not differ between non-integrated and integrated promotions (hypothesis 4). Study 7 tests this hypothesis.

Second, the predicted differential effects of non-integrated versus integrated promotions on the decision outcome pertaining to a pair of products versus a single product underscore the uniqueness of our research on choices among vertically differentiated products, in contrast to extant research on consumers' perceptions and evaluations of a single promoted product.

Third, we extend our findings to an extreme case, in which the monetary value of a multi-product promotion is very close to the price of the lower-priced option. In this extreme case, we expect our core effect to still hold due to final price neglect in non-integrated promotions.

Method

We aimed to recruit 600 UK-based participants on Prolific and received 601 responses (385 females; M_{age} = 41.42 years, SD = 12.80). This study used a 2 (price reduction mode: integrated vs. non-integrated) × 2 (decision target: pair vs. single) between-subjects design and was preregistered (https://aspredicted.org/1XR_1Z3).

We adopted the same price reduction mode manipulation and USB flash drive stimuli as in study 2, with several modifications. We changed the currency to the British Pound to match our participant pool (see web appendix B

for the stimuli). The lower-priced USB flash drive had an original price of £22.99 and a memory capacity of 128 GB. The higher-priced USB flash drive had an original price of £40.99 and a memory capacity of 256 GB. We set the price reduction to £20, which is quite close to the price of the lower-priced option (£22.99).

In the pair conditions, participants chose between the lower-priced and higher-priced USB flash drives and could also choose to buy neither. Thus, there were three choice options in total (no purchase, lower-priced product, and higher-priced product). In the single conditions, we removed the lower-priced USB flash drive from the choice set, and participants decided whether or not to buy the focal USB flash drive remaining in the choice task. Therefore, there were two choice options in total (no purchase and higher-priced product). Of note, we retained the higher-priced USB flash drive in the choice set because our conceptualization focuses on how price promotions impact consumers' choice of higher-priced products. Importantly, we expect the predicted interaction (i.e., price reduction mode affects choice in the pair conditions but not in the single conditions) to remain similar if the low-priced USB flash drive was retained in the choice set instead.

In summary, in all conditions, participants made a choice between the higher-priced USB flash drive and either one alternative (no purchase in the single conditions) or two alternatives (no purchase and lower-priced product in the pair conditions). When testing the overall interaction, we coded the dependent variable as binary (high-priced vs. not) to maintain consistency across all four conditions to facilitate statistical analysis. In the simple contrast for the pair conditions, we further decomposed the results to examine both purchase incidence and specific product choice.

Participants failing either or both comprehension checks regarding their understanding of multi-product promotions were excluded from the formal data analysis (10.00% of the integrated promotion/pair sample and 9.33% of the non-integrated promotion/pair sample, which did not differ significantly: $\chi^2(1) = 0.04$, $p = .845$), as noted in the preregistration. The comprehension checks designed for multi-product promotions were not relevant to single-product promotions and thus not included in the two single-product conditions.

Results

We entered price reduction mode (0 = integrated, 1 = non-integrated), decision target (0 = pair, 1 = single), and their interaction into a logistic regression on product choice (0 = lower-priced/no-purchase option, 1 = higher-priced option). Price reduction mode and decision target were mean centered to make their main effects interpretable. The analysis revealed a main effect of price reduction mode ($b = 0.70$, SE = 0.19, $\chi^2(1) = 13.36$, $p < .001$; odds ratio = 2.01), a main effect of decision target ($b = 1.68$, SE = 0.19, $\chi^2(1) = 75.50$, $p < .001$; odds ratio = 5.37), and, importantly, a price reduction mode × decision target interaction effect ($b = -1.32$, SE = 0.39, $\chi^2(1) = 11.57$, $p = .001$; odds ratio = 0.27; figure 7).

When participants chose between two USB flash drives in a multi-product promotion, once again, purchase incidence did not differ across the non-integrated promotion condition (96.30%) and the integrated promotion condition (96.32%; $b = 0.01$, SE = 0.64, $\chi^2(1) = 0.0001$, $p = .991$; odds ratio = 1.01; figure 7). Concerning our focal interest, the choice share of the higher-priced option was larger in the non-integrated promotion condition (39.70%) than in the integrated promotion condition (14.08%; $b = 1.39$, SE = 0.30, $\chi^2(1) = 21.05$, $p < .001$; odds ratio = 4.02; figure 7). These results replicated our previous findings.

In contrast, when participants decided whether to buy the one available USB flash drive in a single-product promotion, the choice share did not significantly differ between the non-integrated promotion condition (64.67%) and the integrated promotion condition (62.91%; $b = 0.08$, SE = 0.24, $\chi^2(1) = 0.10$, $p = .752$; odds ratio = 1.08; figure 7), supporting hypothesis 4.

Discussion

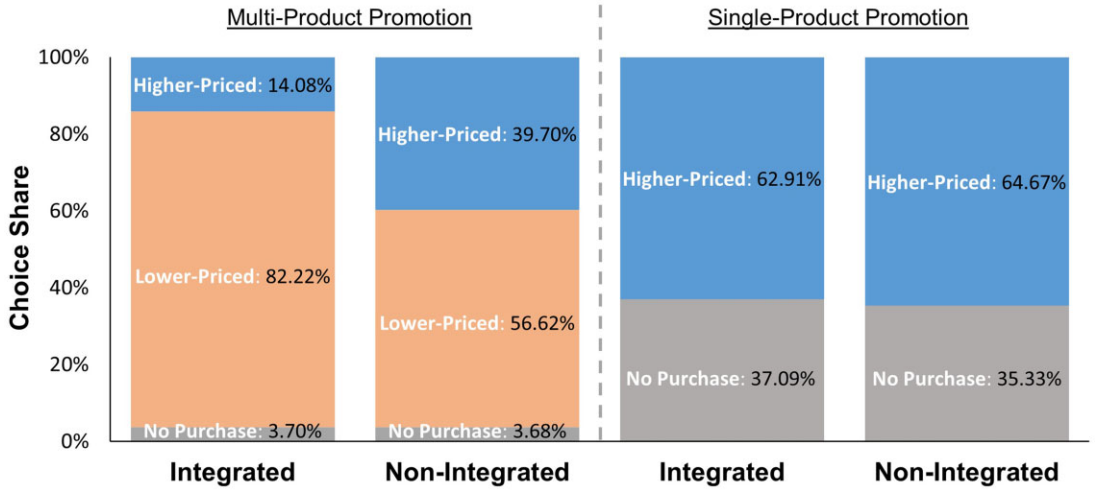
By demonstrating that non-integrated (vs. integrated) promotions affect the choice between a pair of products (high information complexity) but not the likelihood of buying a single product (low information complexity), study 7 supports our proposed final price neglect mechanism, for which the complexity of numerical information serves as one trigger. When the complexity of numerical processing is reduced from calculating multiple final prices to determining one final price for a single product, final price neglect is attenuated.

Moreover, the results of study 7 rule out alternative explanations based on consumers' evaluations of the promoted products or the promotion itself. If the non-integrated promotion (relative to the integrated promotion) led to more favorable evaluations, we would have found a significant effect of price reduction mode (non-integrated vs. integrated) in the single-product conditions as well, contrary to what we predicted and actually observed in study 7. Importantly, the findings of study 7 speak to the unique contribution of our research, which applies specifically to multi-product promotions, but not to decisions in single-product promotions.

Finally, we conducted another three supplementary studies (studies W5–W7 in web appendix A). Studies W5 and W6 reveal that the effect of price reduction mode (non-integrated vs. integrated) on product choice is attenuated when a smaller price reduction is offered. Study W7 demonstrates that the percent-off format (relative to the amount-off format) attenuates the effect of the price

FIGURE 7

PRICE REDUCTION MODE, DECISION TARGET, AND CHOICE OUTCOME (STUDY 7)



reduction mode on product choice. Of managerial relevance, these three studies also show that, while attenuated, our proposed effect still occurs for price reductions of a smaller magnitude and price reductions in a percent-off format.

GENERAL DISCUSSION

Seven main experiments and seven supplementary experiments consistently support our core proposition—when a price reduction applies to vertically differentiated products, the choice share of higher-priced products is larger under non-integrated promotions than under integrated promotions. This effect is consequential in a real-world setting and robust across functional and experiential purchases. We provide convergent evidence for our proposed final price neglect mechanism underlying this effect via mediation and moderation approaches and identify managerially crucial boundary conditions for this effect.

Theoretical Contributions

Decades of research have produced numerous findings and offered many insights into the management of price promotions (Hock, Bagchi, and Anderson 2020). Nevertheless, research specifically dedicated to the distinction between integrated and non-integrated price promotions has been relatively scant (Chen et al. 1998; DelVecchio et al. 2009). We examine this key distinction (integrated vs. non-integrated) in a unique context of muti-product promotion. This novel combination enables us to develop our final price neglect hypothesis and uncover its intriguing consequence on consumers' choices among vertically differentiated products. In doing so, the current work generates additional research implications beyond the insightful findings of prior research on price promotions.

To the best of our knowledge, this is the first research that directly illustrates how the same promotional offer produces differential impacts on consumer decisions between multi- and single-product promotions. This documented difference suggests the possibility that multi-product promotions, as a prevalent yet under-researched context, might potentially modify some principles established in the well-researched context of single-product promotion. Together with recent findings on how sales promotion designs affect consumers' choices among vertically differentiated products (Jia et al. 2018; Taylor, Noseworthy, and Pancer 2019), our novel discovery underscores that multi-product promotions constitute a new and promising research area, in contrast to the dominant paradigm in existing price promotion research focusing on single-product promotions (Chen et al. 2012; Davis and Bagchi 2018; Thomas and Morwitz 2009). The differences between multi- and single-product promotions manifest in two aspects. First, specific product choice is a decision outcome that is applicable only to multi-product promotions; it is not relevant in single-product promotions, where purchase incidence or conversion rate is the key research focus. Second, compared to single-product promotions, multi-product promotions necessarily involve more price information, leaving more room for consumers to adopt various strategies in information processing. These two unique features make product choices under multi-product

promotions a fruitful avenue for future research to produce intriguing findings that better inform price promotion practice.

The current research also adds to the broad consumer research literature on consumers' insufficient processing of information, especially regarding numerical information. Sufficient information processing can be hindered by two features of information. First, insufficient processing is more likely to occur when the information is not readily available. For instance, when outside options are not made salient, consumers tend to neglect the opportunity costs of their actions (Frederick et al. 2009); when the basic default option is not made salient, consumers are more inclined to make an upgrade decision (Sela and LeBoeuf 2017). Second, when numerical information has a complex form, consumers tend to rely on simplified yet inaccurate rules for computation (Chen et al. 2012; Chen and Rao 2007; Davis and Bagchi 2018). Adding to these findings, we identify consumers' application of non-integrated promotions to vertically differentiated products as another purchase decision context that leads to insufficient information processing, reflected in final price neglect. Furthermore, we demonstrate that information unavailability and information complexity jointly contribute to final price neglect.

Under multi-product promotions, final prices are what consumers actually must pay and thus serve as an objectively more diagnostic decision input for consumers than list prices. Nevertheless, consumers rely on such diagnostic information only when final prices are readily available under integrated promotions. In contrast, consumers tend to neglect such diagnostic information when they have to calculate final prices by themselves under non-integrated promotions; instead, consumers simply resort to list prices as a decision input for their product choices. The reliance on this less diagnostic information (i.e., list prices) and the insufficient processing of more diagnostic information (i.e., final prices) represent one bias in information processing under non-integrated promotions. Another way to understand this bias is as follows: although consumers clearly know that they will ultimately pay less than list prices, they still base their price comparison on the list prices. The reason why consumers are biased by the readily available list price information and simply neglect final prices is because the presence of multiple prices makes it challenging for consumers to calculate each final price and then compare the multiple calculated final prices, given consumers' limited working memory and cognitive capacity. Accordingly, either making final price information readily available or reducing the complexity of price calculation might serve as an effective debiasing strategy.

The complexity of numerical information can be driven by various factors on different levels. For instance, compared to integers, decimals and percentages are more complex for consumers (Chen et al. 2012); compared to numbers that have natural units (e.g., money and time), numbers whose meanings are artificially assigned (e.g., 5-star rating scales) are perceived to be more ambiguous and thus more complex (Jia, Wan, and Zheng 2023); compared to a single number, multiple numbers presented together are more complex (Chen and Rao 2007; Davis and Bagchi 2018). In our research, information complexity under multi-product promotions results from a combination of the multiple list prices of vertically differentiated products being promoted, the price reduction being provided, and the resultant multiple final prices, which also commonly involve decimals or percentages. Here, the greater complexity involved distinguishes multi-product promotions from mere choices among vertically differentiated options when no price reduction is offered, as examined in prior research (Allard et al. 2019; Sela and LeBoeuf 2017). The complex price information presented in multi-product promotions thus makes consumer decisions potentially susceptible to other biases, in addition to final price neglect, which merit more systematic research.

The design of a price promotion event involves several decisions, including whether to apply the price reduction to a single product or several vertically differentiated products (Jia et al. 2018), whether to provide an integrated or non-integrated promotion (Chen et al. 1998), whether to offer a large or small price reduction (Raghubir 1998), and whether to adopt an amount-off format or a percent-off format (Chen et al. 1998; DelVecchio et al. 2007; González et al. 2016; Hardesty and Bearden 2003). While prior research has examined these four important decisions with disaggregate approaches, the current research builds an integrative conceptual framework. This integration contributes to both a deeper theoretical understanding of the interactive effects of the four decisions and novel practical insights that enable marketers to design price promotions more effectively.

Managerial Implications

The findings of this research provide a comprehensive and actionable framework for the effective management of price promotions. When marketers offer a price reduction on a single promoted product only, consumers' decisions do not seem to vary between economically equivalent integrated and non-integrated promotions. However, when marketers are running multi-product price promotions for vertically differentiated products, it is imperative to choose the mode of price reduction that fits the promotion objective.

Multi-product price promotions can effectively increase purchase incidence, regardless of whether non-integrated or integrated promotions are provided. Nevertheless, not all types of multi-product price promotion can effectively transform the increase in purchase incidence into an increase in the choice share of higher-priced products.

Specifically, when a multi-product price reduction takes an integrated form, the increase in purchase incidence mainly shifts to consumers' choice of lower-priced products. In contrast, an equivalent non-integrated promotion can transform the increase in purchase incidence into consumers' choice of higher-priced products. Our findings suggest that non-integrated promotions are preferable if the primary objective is to promote higher-priced products, while integrated price promotions are preferable if the primary objective is to clear out lower-priced products.

We find that the effect of the price reduction mode (non-integrated vs. integrated) on product choice tends to decrease as the magnitude of a price reduction decreases. Therefore, when retailers provide multi-product price reductions of a moderate or large magnitude, they should pay even more attention to the mode of price promotion (i.e., integrated vs. non-integrated).

Importantly, the managerial implications derived from our findings can be generalized to related contexts. First, our findings extend to promoted products from different brands, as long as these products are alignable on the most primary performance criteria, and the tradeoff between price and performance is the most important determinant of product choice. Second, while non-integrated promotions are more effective than integrated promotions in selling higher-priced products when the price reduction is offered in the amount-off format, the effectiveness of non-integrated promotions persists, although at a relatively smaller magnitude, when the price reduction is offered in the percent-off format.

Future Research Directions

In this research, we identify a final price neglect mechanism that explains the differential effects of non-integrated versus integrated price promotions. We acknowledge the relative nature of final price neglect, whereby non-integrated promotions are more likely to induce final price neglect than integrated promotions, rather than suggesting that all consumers necessarily exhibit final price neglect in non-integrated promotions. Future research may thus explore what consumer segments might be less subject to final price neglect.

Future research may also examine other possible mechanisms that could be activated differentially by non-integrated and integrated price promotions. The identification of novel mechanisms may uncover additional insights into the promotional effectiveness of non-integrated and integrated price promotions, as well as their potential downstream consequences on unrelated spending decisions (Shaddy and Lee 2020).

In our theorization, final price neglect is jointly determined by information availability (final price information not directly available in non-integrated promotions) and information complexity (multiple final prices to be calculated and compared in multi-product promotions). While our research focuses on final price neglect in consumers' choices among multiple products, future research might explore whether a similar final price neglect would also occur when multiple price reductions are applied to a single product.

While we primarily focus on amount-off price reductions, we demonstrate that our proposed effect also emerges for percent-off price reductions, although attenuated to some extent. In this initial exploration, we examine only a sales promotion event in which a 25%-off price reduction is offered. Future research can test the applicability of our findings at other levels of percent-off price reductions.

Another direction for future research is to compare the effects of other types of sales promotions, beyond non-integrated and integrated price promotions. For instance, free gifts and free shipping are common promotion tactics (Chandran and Morwitz 2006; Wu, Zhao, and Chen 2021), and they might trigger divergent consumer choices among vertically differentiated products, relative to integrated and non-integrated price promotions. These research endeavors contribute to an even more comprehensive framework for the effective management of sales promotions.

DATA COLLECTION STATEMENT

The first and third authors managed the collection of data for study 1 (spring 2022) in collaboration with a bookstore on the campus of the Chinese University of Hong Kong, Shenzhen. The first author managed the collection of data for studies 2 (fall 2021), 4 (fall 2021), 5 (spring 2022), 6 (fall 2021), 7 (fall 2022), W1 (fall 2021), W2 (fall 2021), W3 (summer 2021), W4 (summer 2021), W5 (fall 2022), W6 (fall 2022), and W7 (summer 2021) from Prolific Academic. The second author managed the collection of data for study 3 (fall 2021) in the marketing subject pool at Ohio State University. The first and fourth authors managed the collection of data for the additional eye-tracking study (summer 2022) in the marketing subject pool at the University of Hong Kong. The first, second, fourth, and fifth authors jointly analyzed the data. The data and study materials are currently stored on the Open Science Framework at https://osf.io/kuh6r/?view_only=e8b2309842ce43c0a2e951ddf244df8a.

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