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Short-Asking with Long-Encouraging (SALE): A simple method to increase purchase quantity

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Abstract

Marketers often use messages such as “Stock up and save” to encourage consumers to buy more units of a product. Governments use messages such as “Store at least a two-week supply of water and food” to encourage consumers to stock up on essentials for emergencies. This research finds that these messages may not work as effectively as hoped and introduces a method that can increase consumers' purchase quantity in these situations. Dubbed as SALE (“Short-Asking with Long-Encouraging”), this method couples a “long-encouraging” statement (e.g., “Stock up for two weeks”) with a “short-asking” statement (e.g., “Think about how many you will consume in one day”) in an advertisement. Two field studies, four lab experiments and a survey with salespeople demonstrated the effectiveness and novelty of SALE and identified the mechanism, moderators and boundary conditions of the effect.

Keywords Sales promotion · Unit-asking · Emergency preparation · Field experiments · Scope sensitivity

Existing marketing research has identified numerous factors that can impact a consumer's purchase decisions and demonstrated various tools to promote consumers' purchase of a product. Among these tools, some have stronger effects on consumers' purchase choice or intention (i.e., what/which/whether to buy), while some have stronger effects on consumers' purchase quantity (i.e., how many/much to buy). The present research is focused on consumers' purchase quantity decisions, which has been understudied in the existing

literature (see web Appendix A for a review) and introduces a novel advertising or promotion message that can significantly increase consumers' purchase quantity of a product.

Dubbed as SALE (“Short-Asking with Long-Encouraging”), this message includes two statements in an advertisement—a “long-encouraging” statement (encouraging consumers to buy for a long time frame; e.g., “Stock up for two weeks”), and a “short-asking” statement (asking consumers to think about their consumption quantity of the advertised product in a short time frame; e.g., “Think about how many you will consume in one day”). Through two field studies, four lab experiments and a survey with practitioners, the present research demonstrates that SALE can significantly increase consumers' purchase quantity of a product compared to no long-encouraging or no short-asking, that the effect of SALE is mediated by the amount of upward adjustment in consumers' estimation process, and that SALE is novel to practitioners. The findings of the present research are important both practically and theoretically.

Practically, marketers often encourage consumers to stock up during price promotions (e.g., “Stock up and save!” by Amazon, Godiva, Uber Eats, Walgreens, etc.). Governments also recommend consumers stock up on essentials for emergencies (e.g., “Store at least a two-week supply of water and food” by the U.S. Federal Emergency Management Agency and local governments). See Fig. 1. However,

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the present research shows that merely telling consumers to "stock up and save" (without long-encouraging and without short-asking) or merely telling consumers to "store at least a two-week supply" (without short-asking) does not work as well as combining short-asking with long-encouraging (i.e., SALE) in the advertisement (see Studies 1-6a). Of note, the efficacy of SALE is not obvious, as a survey with experienced salespeople (see Study 6b) shows that SALE is novel and that salespeople cannot well predict the effect of SALE.

Theoretically, the present work greatly extends the current research on the anchoring-and-adjustment heuristic in consumer purchase decisions (see Table 1 for a review). While a good body of research has examined how the anchoring-and-adjustment heuristic impacts consumers' evaluation of a product or purchase intention of a product, less research has investigated its impact on consumers' purchase quantity of a product (Wansink et al., 1998; Zhang et al., 2021). Wansink et al.'s idea (1998) is to provide consumers with a specific quantity as an anchor (e.g., "2 for \$1.50," "Limit 12 per customer," "Purchase 18 for your freezer"). They proposed that consumers would make *insufficient adjustment* from the provided anchor and therefore the provided anchor would lead to a *larger* than normal purchase quantity. However, as Zhang et al. (2021) demonstrated, the provided anchor (e.g., "Get the first 3 free") could also lead to a *smaller* than normal purchase quantity if the anchor is lower than consumers' normal purchase quantity yet acceptable for consumers. This suggests that the success of the anchoring-oriented strategies in Wansink et al. (1998) relies on good knowledge of consumers' normal purchase quantity of the target product; otherwise, those strategies could backfire. In comparison, our

work examines how SALE prompts *more upward adjustment* in consumers' purchase quantity decisions. Specifically, we show that SALE increases consumers' purchase quantity of a product because short-asking produces a contrast to long-encouraging and leads to more upward adjustment in consumers' estimation of their purchase quantity (see Study 3). We also show multiple moderators of the short-asking effect that support the contrast effect (see Studies 4-6a).

The rest of the paper is organized as follows: First, we introduce the theoretical background of this research and propose four hypotheses. Then, we present two field studies, four lab experiments and one survey that support the main hypothesis, rule out alternative explanations, identify the moderators or boundary of the main hypothesis, and demonstrate its novelty to practitioners. Finally, we discuss the theoretical and practical implications of the present findings and recognize some open questions (limitations) of the current work.

Theoretical background and hypotheses

The anchoring-and-adjustment heuristic refers to people's tendency to start with information they know and then adjust until a value that appears plausible is reached (Tversky & Kahneman, 1974). A large body of literature has demonstrated that the adjustment is often highly insufficient (e.g., Epley & Gilovich, 2001, 2006; Mowen & Gaeth, 1992; Tversky & Kahneman, 1974; see Table 1 for research that supports insufficient adjustment in consumer purchase decisions).

GODIVA
Belgium 1926
FREE STANDARD SHIPPING on shipments \$65 - \$100 use code TRUFFLES

What's New Dipped Strawberries Chocolate Menu Gifts & Baskets

Memorial Day Sale

Stock Up & Save

UP TO 40% OFF

Shop Online Find a Boutique

Stock Up and Save on Amazon Brands
Save 20% when you spend \$50 on select everyday essentials.
Shop now

CNN
Some California residents are urged to prepare 2 weeks of essentials ahead of expected flooding
Officials in California are imploring residents to prepare for a powerful storm set to lash the region with torrential rain later this week...
Mar 8, 2023

SFG SFGATE
Big Sur residents urged to stock up on 2 weeks of supplies
Big Sur residents should stock up at least two weeks worth of essential supplies in anticipation of another major storm poised to hit the...
Mar 7, 2023

Fig. 1 Examples of messages encouraging consumers to stock up

Table 1 Review of research on anchoring-and-adjustment in consumer purchase decisions

Research	Independent variable(s)	Moderator(s)	Dependent variable(s)	Studied purchase quantity?
Bagchi and Davis (2012)	Presentation order: price-quantity vs. quantity-price	Package size, difficulty of calculating the unit price	Choice likelihood of a product	No
Jung et al. (2016)	External reference price: high vs. low vs. none	N/A	Willingness to pay (WTP) for a product	No
Kamins et al. (2004)	External reference price: high vs. low	N/A	WTP for a product	No
Krishna et al. (2006)	External reference price: extreme vs. nonextreme	Relatedness, contiguity of the presentation	WTP for the focal product	No
Morwitz et al. (1998)	Combined vs. partitioned pricing	Format of the surcharge: percentage vs. dollar	WTP for a product, choice likelihood of a product	No
Nunes and Boatwright (2004)	Incidental price: high vs. low	Applicability, display order of incidental prices	WTP for a product	No
Raghubir and Krishna (1999)	Height of the package	N/A	Perceived volume, choice/preference between the tall (vs. short) package	No
Raghubir and Srivastava (2002)	Exchange rate of a foreign currency	Time pressure, experience	WTP for a product	No
Simonson and Drolet (2004)	Arbitrary anchor: elicited vs. not elicited	Articulating the basis of pricing: yes vs. not	WTP for a product, willingness to accept for a product	No
Wansink et al. (1998)	Multi- vs. single-unit pricing, suggesting vs. not suggesting a specific purchase quantity	N/A	Purchase quantity of a product	Yes
Yadav (1994)	Bundling vs. not bundling	Valence of the anchoring item: excellent vs. poor	Evaluation of a bundle	No
Zhang et al. (2021)	Number of discounted units before the price goes up	Acceptability of the price-increase point	Purchase quantity of a product	Yes

Meanwhile, a large body of research on contrast effects has shown that providing a reference point in consumers' evaluation process can prompt more adjustment and boost consumers' evaluation of an object (e.g., Adaval & Monroe, 2002; Desai & Ratneshwar, 2003; Einwiller et al., 2006; Lichtenstein & Bearden, 1989; Lynch et al., 1991; Miniard et al., 2018; Nam & Sternthal, 2008; Pounders et al., 2015; Simonson & Tversky, 1992; Urbany et al., 1988). For example, consumers would perceive the price of a product to be higher if they have just encountered a lower price than if not (Adaval & Monroe, 2002).

Based on prior research on the anchoring-and-adjustment heuristic and contrast effects, we propose that, holding a long-encouraging statement (e.g., "Stock up for two weeks") constant, adding a short-asking statement (e.g., "Think about how many you will consume in one day") in the advertisement would generate a reference point and produce a contrast effect, prompting consumers to make more upward adjustment in their estimation of how many units of the product they should purchase for the time frame in the long-encouraging statement, which would lead to a larger purchase quantity of the advertised product.

For ease of exposition, we use the symbol $T_{encouraging}$ to denote the time frame in the long-encouraging statement, the symbol T_{asking} to denote the time frame in the short-asking statement, the symbol $Q(T_{encouraging})$ to denote how many units of the advertised product a consumer would purchase for $T_{encouraging}$, and the symbol $Q(T_{asking})$ to denote how many units of the advertised product a consumer would consume in T_{asking} . In terms of these labels, our main proposition is that holding $T_{encouraging}$ constant, $Q(T_{encouraging})$ would be larger if there is a short-asking statement that contains a T_{asking} shorter than $T_{encouraging}$ than if there is not.

To explain, let us imagine the advertised product is drinking water. Since the U.S. Federal Emergency Management Agency always recommends consumers store at least a two-week supply of water for emergencies, imagine the long-encouraging statement is "Stock up for two weeks!" (i.e., $T_{encouraging}$ = two weeks) and the short-asking statement, if provided, is "Think about how many gallons you would consume in one day" (i.e., T_{asking} = one day).

When there is no short-asking statement in the advertisement, consumers are not asked to think about how many gallons of drinking water they will consume in a short time frame. In comparison, when there is a short-asking statement

in the advertisement, consumers are explicitly asked to think about how many gallons of drinking water they will consume in a specific short time frame T_{asking} (one day) before they decide how many gallons to buy for $T_{encouraging}$ (two weeks). Since T_{asking} is explicitly provided in the short-asking statement, we predict that the short-asking statement would increase the likelihood that consumers estimate their consumption quantity of drinking water in T_{asking} (i.e., $Q(T_{asking})$) and use the estimated $Q(T_{asking})$ as a reference point for $Q(T_{encouraging})$. According to the assimilation-contrast literature, a reference will produce a contrast effect if it is sufficiently distant from the focal target (e.g., Herr, 1986; Herr et al., 1983; Hovland et al., 1957; Sherif et al., 1958). Assuming consumers consume significantly less drinking water in T_{asking} than in $T_{encouraging}$, we predict that the estimated $Q(T_{asking})$ will produce a contrast effect, prompting consumers to make more upward adjustment in their estimation of $Q(T_{encouraging})$. As a result, $Q(T_{encouraging})$ will be larger in the short-asking condition than in the no-asking condition.

We summarize the above proposition in the following hypothesis:

H1 The short-asking effect: Holding $T_{encouraging}$ constant, consumers will buy more units of a product if the advertisement asks consumers to think about their consumption quantity in a short T_{asking} ($< T_{encouraging}$) than if it does not.

Building on the above theorization, we also predict that the length of T_{asking} will moderate the short-asking effect in H1. Specifically, we predict that holding $T_{encouraging}$ constant (e.g., two weeks), if there are two options of T_{asking} (e.g., one day vs. one week), the shorter T_{asking} (i.e., one day) is more likely to produce a contrast effect than the less short T_{asking} (i.e., one week). As a result, holding $T_{encouraging}$ constant, the shorter T_{asking} will produce a larger short-asking effect than the less short T_{asking} will do.

The above prediction is supported by prior research that shows the distance between the reference and the focal object can influence the relative prevalence of the contrast effect (e.g., Herr et al., 1983; Herr, 1986; Hovland et al., 1957; Lee & Suk, 2010; Manis et al., 1988; Meyers-Levy & Sternthal, 1993; Moskowitz & Skurnik, 1999; Sherif et al., 1958). For example, Sherif et al. (1958) found that, in a weight-lifting task, contextual stimuli *more distant* from the target stimuli were *more likely* to produce a *contrast* ("pushing") effect than an *assimilation* ("pulling") effect. Similarly, Herr et al. (1983) found that when asking subjects to judge the ferocity or size of ambiguous animals, exemplars with extreme levels of ferocity or size led to contrast effects, whereas exemplars with moderate levels of ferocity or size did not. These findings suggest

that, holding $T_{encouraging}$ constant, a shorter T_{asking} is more likely to produce a contrast effect, prompting more upward adjustment and leading to a larger purchase quantity for $T_{encouraging}$. Therefore, we propose the following as our secondary hypothesis:

H2 Holding $T_{encouraging}$ constant, the short-asking effect in H1 will be larger if the short-asking statement uses a shorter T_{asking} than if it uses a less short T_{asking} .

We further predict that, holding $T_{encouraging}$ and T_{asking} constant, the difficulty of estimating $Q(T_{asking})$ would moderate the size of the short-asking effect. Multiple lines of literature support this prediction. First, if $Q(T_{asking})$ is difficult to estimate and consumers do spend the effort estimating $Q(T_{asking})$, it would undermine the amount of cognitive effort they are willing to or able to exert on the estimation of $Q(T_{encouraging})$. As prior research has demonstrated, contrast effects demand more cognitive effort than assimilation effects (Martin et al., 1990; Meyers-Levy & Sternthal, 1993). Therefore, if $Q(T_{asking})$ is difficult to estimate, the short-asking statement would be less likely to produce a contrast effect and more likely to produce an assimilation effect. Second, if $Q(T_{asking})$ is difficult to estimate and consumers are asked to estimate $Q(T_{asking})$, they tend to replace the difficult estimation task with a less difficult one (Kahneman & Frederick, 2002). For example, if the short-asking statement asks consumers how many boxes of cereal (10.8 oz in a box) they would likely consume in *one day*, consumers may find it difficult to answer that question and therefore estimate how many boxes they would likely consume in *one week* instead. As a result, the short T_{asking} (one day) would work in a similar way to a less short T_{asking} (one week). According to H2, holding $T_{encouraging}$ constant, a less short T_{asking} is less likely to produce a contrast effect. Third, if $Q(T_{asking})$ is difficult to estimate, $Q(T_{asking})$ would not be readily available in mind. As a result, when asked to think about $Q(T_{asking})$, consumers tend to underestimate their overall consumption frequency of the product (Tversky & Kahneman, 1973) and be less likely to buy the product (Fitzsimons & Morwitz, 1996; Morwitz et al., 1993). Hereby, we propose the following moderator of SALE:

H3 Holding $T_{encouraging}$ and T_{asking} constant, the short-asking effect in H1 will be attenuated if it is difficult for consumers to estimate $Q(T_{asking})$ (i.e., how many units of the advertised product they would consume in T_{asking}).

So far, we have assumed that the encouraging statement recommends consumers stock up for a specific $T_{encouraging}$. What happens if the encouraging statement recommends consumers stock up but does not provide a specific time frame (e.g., "Stock up and save")? We predict that without a

specific $T_{encouraging}$ in the encouraging statement, the short-asking effect will disappear.

There are two reasons why we predict so. First, according to our theorization of the main hypothesis (H1), the contrast effect occurs because the reference (how many units of the product one would consume in a short T_{asking}) is sufficiently distant from the focal object (how many units of the product one should purchase for a long $T_{encouraging}$). Without a specific $T_{encouraging}$ in the encouraging statement, there would be no salient comparison between $Q(T_{asking})$ and the purchase quantity. As a result, the estimated $Q(T_{asking})$ would not produce any contrast effect on one's purchase quantity. Second, without $T_{encouraging}$ in the encouraging statement, T_{asking} in the short-asking statement (e.g., one day) might produce an anchoring effect on consumers' decision of how long they should stock up for. As a result, they might stock up for a shorter time frame (e.g., one day) than consumers who are provided with a specific $T_{encouraging}$ in the encouraging statement (e.g., two weeks). Based on the above reasoning, we predict an interaction between the short-asking statement and the provision of $T_{encouraging}$ in the encouraging statement:

- H4** The short-asking effect in H1 will disappear if the encouraging statement does not provide a specific $T_{encouraging}$.

Overview of studies

We present seven studies in the main manuscript. See Table 2 for an overview. Study 1 and Study 2 were conducted in the field (one in physical stores and the other on a mobile app) and provided preliminary evidence for our primary hypothesis (H1) that holding a long-encouraging statement constant, adding a short-asking statement would generate a larger purchase quantity. These two studies also ruled out mere-asking as a potential alternative explanation for SALE.

Study 3 demonstrated the underlying mediating process of the effect of SALE. The results supported our theorization that the effect of SALE is mediated by the amount of upward adjustment in the estimation process. This study also ruled out a potential alternative explanation for SALE, namely, SALE increases purchase quantity because it makes the estimation of $Q(T_{encouraging})$ easier.

Studies 4–6a tested the moderators and boundary of SALE. Study 4 held $T_{encouraging}$ constant and manipulated the length of T_{asking} . The results demonstrated that a shorter T_{asking} led to a larger effect of SALE (H2). Study 5 held both $T_{encouraging}$ and T_{asking} constant and manipulated

the package size of the advertised product (i.e., volume of the product per package) as a proxy for the difficulty of estimating $Q(T_{asking})$. The results showed that, holding T_{asking} constant at one day, when the advertised product was sold in a large (vs. small) package size, it was more difficult for consumers to estimate their $Q(T_{asking})$ and the effect of SALE was attenuated (H3). Study 6a held T_{asking} constant and manipulated the specification of $T_{encouraging}$. The results revealed the specification of $T_{encouraging}$ as a boundary condition for the short-asking statement to increase the purchase quantity of a product (H4).

Study 6b was a survey with salespeople in the United States with an average of 8.59 years of sales experience. The results highlighted the novelty of SALE to practitioners.

We did not set upper limits on purchase quantities in our studies, so some responses were extremely high. To reduce their undue influence, we adopted a consistent a priori outlier-exclusion criteria for all studies: we excluded purchase quantities in each condition that were three standard deviations from the mean. By this standard, we excluded three responses in Study 1, seven responses in Study 2, five responses in Study 3, seven responses in Study 4, seven responses in Study 5 and nine responses in Study 6a. For all studies, we report the pre-exclusion sample sizes and the post-exclusion results. All data and stimuli are available in the Open Science Framework (OSF): https://osf.io/bt7ve/?view_only=000bdf30fb5d4874a5b33f5c1405343c.

Study 1: A preliminary test of the effect of SALE in the field

Study 1 was designed to test our primary hypothesis (H1) in a real purchase context. We conducted the study in two similar fruit stores (by the same owner) in a capital city in East China. Because the two stores were 2.3 miles apart and selling the same products, we assumed that customers of the two stores had similar demographic characteristics.

Cashiers of each store, who were blind to our hypothesis, kept a record of how many customers visited the store on each day, whether each customer purchased the target product (mandarin oranges), and if so, how many kilograms each customer purchased.

This study chose mandarin oranges as the target product for two reasons. First, mandarin oranges were in season at the time of the study (the first two days of December, early winter), so we expected this product would be popular enough to yield an adequate sample size. Second, mandarin oranges were on sale (20% off) at the time of the study, so it was natural to post an advertisement that encourages customers to stock up.

Table 2 Overview of main studies and main findings

Study	Product	T_{asking}	$T_{encouraging}$	Other moderators	Purchase units	Mean (SD)	Main findings	Other findings
1 (field)	Mandarin orange (kg.)	One day One month	One month	-	2.93 (1.15) ^a 2.51 (0.97) ^b		Supported H1	Ruled out mere-asking as an alternative explanation
2 (field)	Game token	One day One month None	One month	-	519.24 (674.51) ^a 371.03 (496.46) ^b 349.32 (455.64) ^b			
3	Mixed nuts (oz.)	One day None	One month	-	15.27 (13.05) ^a 8.12 (5.96) ^b		H1 was mediated by the amount of upward adjustment in the estimation process	Ruled out the ease of estimating the purchase quantity as an alternative explanation
4	Breakfast cereal (1.8 oz. cup)	One day One week None	One month	-	8.32 (8.17) ^a 5.90 (4.84) ^b 3.95 (3.85) ^c		H1 was moderated by the length of T_{asking} (H2)	Ruled out the perceived size of the purchase quantity as an alternative explanation
5	Breakfast cereal	One day None One day None	Two months	Package size = 1.8 oz. (cup) Package size = 10.8 oz. (box)	13.74 (16.50) ^a 3.42 (3.25) ^b 2.41 (2.07) ^c 1.43 (1.03) ^d		H1 was moderated by the difficulty of estimating $Q(T_{asking})$ (H3)	Holding T_{asking} constant at one day, it was more difficult to estimate $Q(T_{asking})$ if the product was sold in a large (vs. small) package size
6a	Canned soup	One day None One day None	Two weeks None	-	19.52 (14.36) ^a 13.94 (10.59) ^b 10.90 (6.58) ^c 10.58 (7.32) ^c		H1 was moderated by the specification of $T_{encouraging}$ (H4)	Participants did pay attention to the short-asking and the long-encouraging manipulations
6b (survey)	Canned soup	Salespeople were invited to predict the order of magnitude of purchase quantities in the four conditions in Study 6a			Salespeople couldn't well predict H1/H4			Salespeople knew the well-documented sales techniques

In each study, means (standard deviations in parentheses) with different subscripts are significantly different at $p < 0.05$

Method

The study held $T_{encouraging}$ constant at one month because the target product could stay good for a month at the time of this study (early winter).

The study included two between-participants conditions: short-asking (T_{asking} = one day) versus equal-asking (T_{asking} = one month). The manipulation occurred in a yellow advertising poster attached to the window right behind the mandarin oranges. Pictures of the actual advertising posters are available in web Appendix B. Messages on the posters are provided below.

Condition	Message
Day-asking (Short-asking)	Fresh Mandarin Oranges 20% OFF, Limited Time Think about How Many You Would Eat in 1 Day Stock Up for 1 Month
Month-asking (Equal-asking)	Fresh Mandarin Oranges 20% OFF, Limited Time Think about How Many You Would Eat in 1 Month Stock Up for 1 Month

We collected data at the two fruit stores on two consecutive days for about 12 consecutive hours each day (approximately 8 a.m. to 8 p.m.). To minimize potential confounds, we counterbalanced the conditions: on the first day, store A displayed the short-asking poster and store B displayed the equal-asking poster; on the second day, store A displayed the equal-asking poster and store B displayed the short-asking poster.

We wish to note that this study used the equal-asking condition as the control condition, because it would allow us to address an alternative explanation for our primary hypothesis (H1). Specifically, prior research on mere-asking suggests that merely asking consumers to think about a certain product might increase their likelihood of purchasing the product (e.g., Fitzsimons & Morwitz, 1996; Morwitz et al., 1993). Therefore, an alternative explanation for H1 could be that the asking statement in the short-asking condition (which does not exist in the no-asking condition) increases consumers' purchase likelihood of a product, hence their purchase quantity of the product. Comparing the short-asking condition with the equal-asking condition (instead of the no-asking condition) would allow us to examine this alternative explanation.

Results and discussion

During the two-day study, a total of 555 customers visited the two fruit stores. Specifically, on the first day, 121 customers visited store A (short-asking condition), and 105

customers visited store B (equal-asking condition); on the second day, 157 customers visited store A (equal-asking condition), and 172 customers visited store B (short-asking condition). Thus, 293 customers were exposed to the short-asking poster, and 262 were exposed to the equal-asking poster.

Of the 555 customers, 277 purchased mandarin oranges. Specifically, on the first day, 53 customers purchased mandarin oranges at store A and 42 customers purchased mandarin oranges at store B; on the second day, 88 customers purchased mandarin oranges at store A and 94 customers purchased mandarin oranges at store B. Thus, mandarin oranges were purchased by 147 out of 293 customers who were exposed to the short-asking poster, and by 130 out of 262 customers who were exposed to the equal-asking poster. The short-asking manipulation did not alter the percentage of customers who purchased mandarin oranges (50% vs. 50%; $\chi^2(1) = 0.02$, $p = 0.90$).

Among those who purchased mandarin oranges, we observed a significant short-asking effect: customers who were exposed to the short-asking poster purchased more kilograms of mandarin oranges ($M = 2.93$, $SD = 1.15$) than customers who were exposed to the equal-asking poster ($M = 2.51$, $SD = 0.97$; $t(272) = 3.26$, $p < 0.01$; $d = 0.39$).

To summarize, Study 1 provided preliminary evidence for the efficacy of SALE in a naturally-occurring setting with real purchase behaviors. Moreover, the results suggested that SALE would not affect consumers' purchase *likelihood* of the target product, only the purchase *quantity*.

Study 2: Replicating the effect of SALE in a field experiment

Like Study 1, Study 2 tested the effect of SALE with real purchases. However, Study 2 made two improvements compared to Study 1. First, while Study 1 used equal-asking as the control condition, Study 2 included both equal-asking and no-asking conditions. Second, while Study 1 counterbalanced the short-asking and equal-asking conditions to minimize potential confounds, Study 2 used random assignment to avoid any potential confound (i.e., subjects in this study were randomly assigned into different conditions).

We conducted this study on the mobile app of a party game called "Werewolf," and the target product was virtual diamonds (tokens) that could be used to purchase certain game features (e.g., a preferred character in the game). The game developer told us that the typical user's consumption quantity of virtual diamonds was very flexible; a user might not consume any virtual diamonds one day but consume dozens or hundreds the next day.

Method

The study held $T_{encouraging}$ constant at a month and manipulated T_{asking} with three levels: short-asking (T_{asking} = one day), equal-asking (T_{asking} = one month), and no-asking.

The study set $T_{encouraging}$ as one month for two reasons: First, the game company ran a price promotion almost every month, so it would not make sense to encourage users to stock up for more than one month. Second, the most active users routinely purchased hundreds of virtual diamonds (e.g., \$14.99 for 686 virtual diamonds) every two or three weeks, so it would not make sense to ask these users to stock up for only one week.

The game company ran a promotion (20% bonus with any purchase) to boost virtual diamond consumption during the Chinese Spring Festival holiday. We conducted the study on eleven consecutive days during the holiday promotion. During the eleven-day period, every user was randomly assigned to one of the three versions of a banner advertisement and saw the same version every time they opened the app. Screenshots of the banner ads are available in web Appendix B. Messages on the ads are provided below.

Condition	Message
Day-asking (Short-asking)	Stock Up on Diamonds for One Month! Think About How Many Diamonds You Will Use in One Day?
Month-asking (Equal-asking)	Stock Up on Diamonds for One Month! Think About How Many Diamonds You Will Use in One Month?
No-asking	Stock Up on Diamonds for One Month!

Results and discussion

During the study period, the target product (virtual diamonds) was purchased by 346 users: 127 in the short-asking condition, 127 in the equal-asking condition, and 92 in the no-asking condition.

A one-way ANOVA on the purchase quantity (among those who purchased virtual diamonds) yielded a main effect of the asking manipulation ($F(2, 336) = 3.16, p < 0.05$). A planned pairwise contrast analysis found that users in the short-asking condition ($M = 519.24, SD = 674.51$) purchased more virtual diamonds than both users in the equal-asking condition ($M = 371.03, SD = 496.46; F(1, 336) = 4.36, p < 0.05; \eta_p^2 = 0.01$) and users in the no-asking condition ($M = 349.32, SD = 455.64; F(1, 336) = 4.85, p < 0.05; \eta_p^2 = 0.01$), with no significant difference between the equal-asking and no-asking conditions ($F(1, 336) = 0.08, p = 0.78$).

To summarize, Study 2 lent further support to the primary hypothesis (H1) by showing that short-asking led to larger

purchase quantities than both equal-asking and no-asking (which led to similar purchase quantities). This study also served as a demonstration of the easy application of the SALE strategy in mobile marketing.

Study 3: Demonstrating the underlying mediating mechanism of SALE

According to our proposition, SALE increases consumers' purchase quantity because holding the long-encouraging statement constant, the short-asking statement produces a contrast effect, leading to more upward adjustment in the estimation of $Q(T_{encouraging})$. Study 3 was designed to test the proposed mechanism of SALE, namely, whether the amount of upward adjustment in the estimation process mediated the effect of SALE on consumers' purchase quantity.

Method

One hundred and eighty-one adults from Connect, a crowdsourcing platform powered by CloudResearch for online research, completed the study for a nominal payment (51% female, 47% male, 1% non-binary or third gender, 0.5% prefer not to say; mean age = 40.16; consumers of the advertised product in real life, located in the United States, never participated in a very similar study before and passed the comprehension check question).

The study held $T_{encouraging}$ constant at one month and included two between-participants conditions: no-asking and short-asking (T_{asking} = one day). All participants were instructed to imagine the following:

You are shopping at a reputable grocery store now. You find walnuts, pecans and almonds are on sale. See below the advertisement on the store's digital display. These nuts can stay good in the pantry for a long time. You may mix as many kinds of them in one bag as you'd like. The price is by ounce.

Then participants were randomly assigned to one of the two conditions. Each condition used a different version of the advertisement. Images of the advertisements are available in web Appendix B; messages on the advertisements are provided below.

Condition	Message
Day-asking (Short-asking)	Stock Up Your Pantry for a Month and Save! Think about how many ounces you would likely eat in one day before you decide how many to buy for one month
No-asking	Stock Up Your Pantry for a Month and Save!

Then participants reported how many ounces of these nuts they would likely buy at the store.

For the manipulation check, on a separate page, we asked participants to recall their decision process on the previous page and to report whether they first estimated their consumption quantity in a day and then adjusted it upward to get their purchase quantity for a month (1 = strongly disagree, 5 = strongly agree).

After that, to examine the underlying mediator of SALE, we asked participants to report the amount of upward adjustment, if any, in their estimation process (in ounce).

Because a potential alternative explanation for the effect of SALE could be that SALE makes the estimation of $Q(T_{encouraging})$ less difficult and therefore increases one's purchase quantity (Novemsky et al., 2007), we also asked participants whether it was easy/difficult to estimate how many ounces to buy in the above situation (1 = extremely easy, 5 = extremely difficult).

Finally, we asked participants a few covariates (household income, household size, normal consumption frequency of the advertised product, household primary grocery shopper, difficulty of imagining the purchase situation) and their gender and age.

Results and discussion

First of all, in support of the primary hypothesis (H1), participants in the short-asking condition would purchase significantly more ounces of the target product ($M = 15.27$, $SD = 13.05$) than participants in the no-asking condition ($M = 8.12$, $SD = 5.96$; $t(174) = 4.60$, $p < 0.001$; $d = 0.69$).

In support of the short-asking manipulation, participants in the short-asking condition reported that they first estimated their consumption quantity in a day and then adjusted it upward to get their purchase quantity for a month to a larger extent ($M = 3.21$, $SD = 1.68$) than participants in the no-asking condition ($M = 2.40$, $SD = 1.33$; $t(171) = 3.51$, $p < 0.001$; $d = 0.53$).

More importantly, in support of the proposed mechanism, participants in the short-asking condition reported a greater amount of upward adjustment in their estimation process ($M = 5.05$, $SD = 8.34$) than participants in the no-asking condition ($M = 2.52$, $SD = 4.39$; $t(174) = 2.48$, $p = 0.01$; $d = 0.38$), which mediated the effect of SALE on participants' purchase quantity of the advertised product ($b = 2.26$, $SE = 0.91$, $CI95\% = [0.63, 4.23]$).

Note that, participants did not find it significantly more or less difficult to estimate their purchase quantity in the short-asking condition ($M = 2.14$, $SD = 1.12$) than in the no-asking condition ($M = 2.43$, $SD = 1.17$; $t(174) = 1.66$, $p = 0.10$). A parallel mediation analysis with 5,000 bootstrapping samples (Hayes, 2012), treating the amount of upward adjustment in

the estimation process and the difficulty of the estimation process as competing mediators, revealed that the amount of upward adjustment in the estimation process mediated the effect of short-asking on the intended purchase quantity of the advertised product ($b = 2.26$, $SE = 0.92$, $CI95\% = [0.58, 4.16]$), whereas the difficulty of the estimation process did not ($b = -0.04$, $SE = 0.20$, $CI95\% = [-0.48, 0.36]$). These results ruled out the potential alternative explanation that SALE increased purchase quantity because it made the estimation of one's purchase quantity less difficult.

For each measured covariate, a regression of the intended purchase quantity was conducted as a function of the short-asking manipulation, the covariate and their interaction term. None of the covariates moderated the short-asking effect (all p 's > 0.05). Controlling for these covariates, the short-asking effect held significant. See Table 3.

To summarize, Study 3 replicated the findings of the previous studies and demonstrated the underlying mediating process of SALE, namely, holding $T_{encouraging}$ constant, the amount of upward adjustment in the estimation of $Q(T_{encouraging})$ mediated the effect of short-asking on consumers' purchase quantity. Results of this study also ruled out ease of estimation (specifically, ease of estimating $Q(T_{encouraging})$) as a potential alternative explanation for SALE.

Study 4: Testing the length of T_{asking} as a moderator of the SALE effect

Study 4 tested the length of T_{asking} as a moderator of SALE (i.e., H2). According to our theorization, the short-asking effect occurs because holding the long-encouraging statement constant, the short-asking statement makes $Q(T_{asking})$ more salient and produces a contrast effect on $Q(T_{encouraging})$. Prior research on the contrast effect has demonstrated that a contrast effect is more likely to occur if the reference is more distant from the focal object. Therefore, we predict that, holding $T_{encouraging}$ constant, a shorter T_{asking} will produce a larger contrast effect and leads to a larger purchase quantity for $T_{encouraging}$. Study 4 tested the above prediction (i.e., H2) by holding $T_{encouraging}$ constant at one month and comparing no-asking vs. two different short-asking statements: day-asking vs. week-asking.

In a pre-test, sixty adults from Connect (mean age = 39.02; 57% female, 42% male, 1% non-binary or third gender; located in the United States) were shown the image of the product in Study 4 (Cheerios breakfast cereal in a 1.8 oz single serve cup), estimated how many units of the product they would consume in T_{asking} (T_{asking} was either one day or one week), and rated how easy/difficult it was for

Table 3 Results of regression analyses of purchase quantities

	Study 3		Study 4		Study 5		Study 6a	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
(Baseline)								
Short-asking (d)	7.15*** (1.55)	5.02** (1.51)	4.37*** [‡] (0.85)	4.50*** [‡] (0.81)	18.57*** (2.28)	17.46*** (2.25)	0.33 (1.49)	0.11 (1.50)
Less-short-asking (d)	-	-	1.95* (0.84)	1.72* (0.81)	-	-	-	-
Package size (d)	-	-	-	-	9.24*** (2.27)	9.27*** (2.23)	-	-
Short-asking x Package Size	-	-	-	-	-7.88* (3.21)	-8.10* (3.15)	-	-
Long-encouraging (d)	-	-	-	-	-	-	3.36* (1.45)	3.09* (1.47)
Short-asking x Long-encouraging	-	-	-	-	-	-	5.25* (2.08)	5.61** (2.11)
Household income		-0.11 (0.22)		0.11 (0.12)		0.11 (0.24)		-0.10 (0.18)
Household size		0.25 (0.18)		0.03 (0.28)		0.57 (0.65)		0.48 (0.44)
Normal consumption frequency of the product		4.98*** (0.89)		1.10*** (0.26)		3.26*** (0.74)		-0.09 (0.69)
Primary shopper (d)		0.10 (2.11)		-		1.26 (2.35)		-0.87 (1.67)
Difficulty of imagining the purchase situation		0.81 (0.61)		-1.54** (0.34)		2.74** (0.95)		-0.90 (0.53)
R ²	0.11	0.26	0.08	0.18	0.15	0.19	0.11	0.12
Adjusted R ²	0.10	0.24	0.08	0.16	0.14	0.18	0.10	0.10

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. [‡] indicates significant differences between "short-asking" and "less-short-asking" at $p < 0.01$. Standard errors are in parentheses. (d)=dichotomous. Baseline is "no-asking" in Studies 3–4 that only manipulated T_{asking} , "no-asking and small package size" in Study 5 that manipulated both T_{asking} and the package size, and "no-asking and no-encouraging" in Study 6 that manipulated both T_{asking} and $T_{encouraging}$. Purchase quantities in Study 5 were converted into ounces before regression

them to estimate it. Results showed that the difficulty of estimating $Q(T_{asking})$ was the same whether T_{asking} was one day or one week ($M_s = 1.41$ vs. 1.58, $SD_s = 0.63$ vs. 0.62; $t(58) = 1.04$, $p = 0.30$).

Method

Three hundred adults from MTurk Toolkit powered by CloudResearch completed the study for a nominal payment (40% female, 59% male, 0.3% non-binary or third gender, 0.7% prefer not to say; mean age = 40.20; previous HITs approval rate > = 95%; located in the United States).

The study held $T_{encouraging}$ constant at one month and included three between-participants conditions: no-asking, short-asking ($T_{asking} =$ one day) and less-short-asking ($T_{asking} =$ one week). All participants were instructed to imagine the following:

You are shopping at a reputable grocery store now. You find a popular brand of breakfast cereal on sale (See below the advertisement of this product on the store's digital display).

Then participants were randomly assigned to one of the three conditions. Each condition used a different version of the advertisement. Images of the advertisements are

available in web Appendix B; messages on the advertisements are provided below.

Condition	Message
Day-asking (Short-asking)	Stock Up for a Month and Save! Think about how many cups you would likely eat in one day before you decide how many to buy for one month
Week-asking (Less-short-asking)	Stock Up for a Month and Save! Think about how many cups you would likely eat in one week before you decide how many to buy for one month
No-asking	Stock Up for a Month and Save!

Then participants reported how many cups of the cereal they would buy.

Afterwards, we asked participants how difficult it felt to store the amount of breakfast cereal that they stated they would buy (1 = extremely easy, 5 = extremely difficult), because a potential alternative explanation for the effect of SALE could be that SALE makes the intended purchase quantity appear smaller and therefore easier to store (Gourville, 1998).

Finally, we asked participants a few covariates (see Table 3) and their gender and age.

Results and discussion

A one-way ANOVA found a significant main effect of the asking statement on participants' intended purchase quantity ($F(2, 290) = 13.33, p < 0.001; \eta_p^2 = 0.08$). Planned contrast analyses revealed that, in support of the primary hypothesis (H1), participants in the day-asking condition would purchase significantly more units of the target product ($M = 8.32, SD = 8.17$) than participants in the no-asking condition ($M = 3.95, SD = 3.85; F(1, 290) = 26.56, p < 0.001; \eta_p^2 = 0.08$). Similarly, participants in the week-asking condition would also purchase significantly more units of the target product ($M = 5.90, SD = 4.84$) than participants in the no-asking condition ($M = 3.95, SD = 3.85; F(1, 290) = 5.40, p = 0.02; \eta_p^2 = 0.02$).

More importantly, in support of our secondary hypothesis (H2), the shorter T_{asking} (i.e., day-asking, $M = 8.32, SD = 8.17$) led to a larger intended purchase quantity than the less short T_{asking} (i.e., week-asking, $M = 5.90, SD = 4.84; F(1, 290) = 8.27, p < 0.001; \eta_p^2 = 0.03$).

Note that, a one-way ANOVA found no significant effect of the short-asking statement on participants' perception of how easy or difficult it was to store the amount of the product they intended to buy ($M_s = 1.74$ vs. 1.83 vs. $1.93, SD_s = 0.94$ vs. 0.96 vs. 1.00 in the no-asking, day-asking and week-asking conditions; $F(2, 290) = 0.93, p = 0.40; \eta_p^2 =$

0.01). This finding ruled out the alternative explanation for SALE that short-asking (vs. no-asking) made the intended purchase quantity appear smaller and therefore increased their purchase quantity of the product.

For each measured covariate, a regression of the intended purchase quantity was conducted as a function of the day-asking manipulation, the week-asking manipulation, the covariate, the interaction term between the day-asking manipulation and the covariate, and the interaction term between the week-asking manipulation and the covariate. None of the covariates moderated the short-asking effects (all p 's > 0.05). Controlling for these covariates, the short-asking effects held significant. See Table 3.

To summarize, Study 4 replicated the findings of the previous studies (H1) and provided supporting evidence for the secondary hypothesis (H2) that, holding $T_{encouraging}$ constant (one month), the short-asking effect in H1 will be larger if the short-asking statement uses a shorter T_{asking} (one day) than if it uses a less short T_{asking} (one week). Results of this study also showed that SALE increased consumers' purchase quantity not because it made the purchase quantity appear smaller and easier to store.

Study 5: Testing the difficulty of estimating $Q(T_{asking})$ as a moderator of the SALE effect

Study 5 tested another moderator of SALE (H3) that, holding $T_{encouraging}$ and T_{asking} constant, the short-asking effect in H1 will be attenuated if it is difficult for consumers to estimate $Q(T_{asking})$.

To test H3, this study held $T_{encouraging}$ constant at two months and T_{asking} constant at one day and manipulated the package size of the advertised product (i.e., volume of the product per package) as a proxy for the difficulty of estimating $Q(T_{asking})$. Specifically, we chose the same product as in Study 4 (Cheerios breakfast cereal) but examined two different package sizes of this product – 1.8 oz (in a single serve cup) and 10.8 oz (in a larger box). We adapted the product descriptions, images and regular prices from Walmart.com and held the price discount constant at 12% off in all conditions.

A pre-test supported that the package size successfully impacted the difficulty of estimating $Q(T_{asking})$. Specifically, one hundred adults from Connect (mean age = 38.15; 58% female, 43% male, 2% non-binary or third gender; located in the United States) were shown the image of the Cheerios breakfast cereal (either in the 1.8 oz package or in the 10.8 oz package), estimated how many units of the product they would consume in one day, and rated how easy/difficult it was for them to estimate it. Results showed that it was more difficult to estimate how many units of the product one would consume in one day if the product was

sold in the 10.8 oz package size ($M = 1.87$, $SD = 1.14$) than if sold in the 1.8 oz package size ($M = 1.38$, $SD = 0.73$; $t(98) = 2.57$, $p = 0.01$; $d = 0.51$).

Also note that, while previous studies all held $T_{encouraging}$ constant at one month, this study extended the previous studies by examining the effect of SALE when $T_{encouraging}$ was two months.

Method

Six hundred adults from Connect completed the study for a nominal payment (52% female, 46% male, 1.5% non-binary or third gender, 0.5% prefer not to say; mean age = 40.85; located in the United States).

The study held $T_{encouraging}$ constant at two months and adopted a 2 (T_{asking} : one day vs. not specified) $\times$ 2 (package size: 1.8 oz vs. 10.8 oz) between-participants factorial design. All participants were instructed to imagine the same cover story as in Study 4. Then participants were randomly assigned to one of the four conditions. Each condition used a different version of the advertisement. Images of the advertisements are available in web Appendix B; messages on the advertisements are provided below.

Then participants reported how many cups/boxes of the above breakfast cereal they would likely buy at the store. After that, we measured the same covariates as in Study 3 (see Table 3) and asked participants about their gender and age.

Condition	Package size: 1.8 oz	Package size: 10.8 oz
Day-asking (Short-asking)	Stock Up for Two Months and Save! Think about how many cups you would likely consume in one day before you decide how many to buy for two months	Stock Up for Two Months and Save! Think about how many boxes you would likely consume in one day before you decide how many to buy for two months
No-asking	Stock Up for Two Months and Save!	Stock Up for Two Months and Save!

Results

Intended purchase quantities (how many cups/boxes of the cereal one would buy) were all converted into ounces so that they were comparable across different package sizes. A regression of the intended purchase quantity (in ounce) was conducted as a function of the short-asking manipulation (no-asking = 0, day-asking = 1), the package size (small = 0, large = 1) and their interaction. Results showed a positive main effect of the short-asking

statement ($b = 18.57$, $SE = 2.28$, $p < 0.001$), a positive main effect of the package size ($b = 9.24$, $SE = 2.27$, $p < 0.001$), and more importantly, a negative interaction between the short-asking statement and the package size ($b = -7.88$, $SE = 3.21$, $p = 0.01$).

Pairwise comparisons revealed that, in support of the primary hypothesis (H1), participants in the short-asking condition would purchase more ounces of the advertised product than participants in the no-asking condition, whether the product was sold in a small package size ($M_s = 24.73$ vs. 6.15, $SD_s = 29.70$ vs. 5.84; $t(293) = 7.53$, $p < 0.001$; $d = 0.88$) or in a large one ($M_s = 26.08$ vs. 15.39, $SD_s = 22.35$ vs. 11.12; $t(296) = 5.19$, $p < 0.001$; $d = 0.60$).

Notably, the negative interaction between the short-asking statement and the package size on the intended purchase quantity revealed that short-asking (vs. no-asking) would increase participants' purchase quantity to a smaller extent if the product was sold in a larger package ($b = -7.88$, $SE = 3.21$, $p = 0.01$). As shown in the pretest, holding $T_{encouraging}$ constant at two months and T_{asking} constant at one day, the large (vs. small) package size made the estimation of $Q(T_{asking})$ more difficult. Therefore, the above results supported H3 that, holding $T_{encouraging}$ and T_{asking} constant, the short-asking effect would be attenuated if it is difficult to estimate $Q(T_{asking})$.

None of the covariates moderated the short-asking effect or the main effect of the package size (all p 's > 0.05). Controlling for these covariates, the main effects and the two-way interaction held significant. See Table 3.

Discussion

Study 5 supported our primary hypothesis (H1) and provided evidence for H3 that, holding $T_{encouraging}$ and T_{asking} constant, the effect of SALE would be attenuated if it is difficult to estimate $Q(T_{asking})$. Results of this study suggest that, when applying SALE, marketers should choose the T_{asking} that matches the feature of the advertised product (e.g., the package size of the product) to ease the estimation of $Q(T_{asking})$ and maximize the efficacy of SALE.

We also hope to note that, according to additional pairwise comparisons, in the no-asking condition, participants would purchase more ounces of the advertised product if the product was sold in the large package size ($M = 15.39$, $SD = 11.12$) than if sold in the small one ($M = 6.15$, $SD = 5.84$; $t(295) = 9.00$, $p < 0.001$; $d = 1.04$). Considering the regular unit price of the product was lower when it was sold in the large package size (34.1 ¢/oz, on Walmart.com) than in the small one (62.8 ¢/oz, on Walmart.com) and all conditions applied the same discount rate (12% off) to the regular prices, this result corroborates prior research finding that consumers are more sensitive to the

unit price than to the package size of a consumer packaged good (Çakır & Balagtas, 2014). Interestingly, in the short-asking condition, participants would purchase similar ounces of the product whether the product was sold in the large package size ($M = 26.08$, $SD = 22.35$) or in the small one ($M = 24.73$, $SD = 29.70$; $t(294) = 0.44$, $p = 0.66$). These results suggest that short-asking might encourage consumers to give the package size of a product (i.e., volume of the product per package) more consideration in their purchase quantity decisions.

Study 6a: Testing the specification of $T_{encouraging}$ as a boundary of the SALE effect

Study 6a tested the specification of $T_{encouraging}$ as the boundary condition of SALE (i.e., H4). According to our theorization, short-asking would increase consumers' purchase quantity because $Q(T_{asking})$ would produce a contrast effect on $Q(T_{encouraging})$. If $T_{encouraging}$ is not specified in the encouraging statement (e.g., "Stock up and save" as by Amazon, Godiva in Fig. 1), there would be no contrast between $Q(T_{asking})$ and $Q(T_{encouraging})$. As a result, adding a short-asking statement in the advertisement should not increase consumers' purchase quantity.

While previous studies all examined the effect of SALE during price promotions, Study 6a examined another scenario – stocking up during the hurricane season (without a price promotion). According to the National Oceanic and Atmospheric Administration (Hurricane Research Division) (2021), a total of 301 hurricanes have hit 19 states in the U.S. since 1851. The Federal Emergency Management Agency (FEMA) and the Red Cross always recommend citizens in the affected areas stockpile at least a 2-week supply of food and water for each family member (Federal Emergency Management Agency, 2004). Therefore, this study sought to test whether SALE would work on emergency preparations (in the absence of price promotions).

Furthermore, previous studies held $T_{encouraging}$ constant either at one month or two months. This study tested the generalizability of SALE by examining its effect when $T_{encouraging}$ was two weeks.

Method

Four hundred adults from Connect completed the study for a nominal payment (48% female, 51% male, 1% non-binary or third gender; mean age = 39.60).

All participants were randomly assigned to four between-participants conditions in a $2 (T_{asking}: \text{one day vs. not specified}) \times 2 (T_{encouraging}: \text{two weeks vs. not specified})$ factorial design.

In the conditions where $T_{encouraging}$ was specified as two weeks, all participants were instructed to vividly imagine the following:

You live in a city that is susceptible to hurricanes. It's hurricane season now. The city recommends every citizen stock some canned foods that can sustain them two weeks in case of emergencies. You are at a reputable local grocery store. You see the following advertisement: [Images of the advertisements are provided in web Appendix B; messages on the advertisements are provided below]

In the conditions where $T_{encouraging}$ was not specified, all participants were instructed to vividly imagine the following scenario:

You live in a city that is susceptible to hurricanes. It's hurricane season now. The city recommends every citizen stock some canned foods in case of emergencies. You are at a reputable local grocery store. You see the following advertisement: [Images of the advertisements are provided in web Appendix B; messages on the advertisements are provided below]

Condition	$T_{encouraging}$ = two weeks	$T_{encouraging}$ not specified
Day-asking (Short-asking)	Stock Up for Two Weeks! \$1.50 / can (Think about how many cans you would likely consume in one day before you decide how many to buy for two weeks .)	Stock Up Today! \$1.50 / can (Think about how many cans you would likely consume in one day before you decide how many to buy.)
No-asking	Stock Up for Two Weeks! \$1.50 / can	Stock Up Today! \$1.50 / can

After viewing the advertisement, all participants were asked "Given these canned foods can stay good for a long time, how many cans would you buy?"

Then, to check whether participants paid attention to the long-encouraging manipulation and the short-asking manipulation, we asked all participants "What time horizon were you stockpiling the canned foods for in the above situation?" and "What time unit(s) did you use to estimate how many to buy for the above time horizon?"

Finally, we measured the same covariates as in the previous study (see Table 3) and asked participants about their gender and age.

Results

A regression of the intended purchase quantity was conducted as a function of the short-asking manipulation (no-asking = 0, day-asking = 1), the specification of $T_{encouraging}$ in the

encouraging statement (no=0, yes=1) and their interaction. Results showed no main effect of the short-asking statement ($b=0.33$, $SE=1.49$, $p=0.83$), a positive main effect of the specification of $T_{encouraging}$ ($b=3.36$, $SE=1.45$, $p=0.02$), and a positive interaction between the short-asking statement and the specification of $T_{encouraging}$ ($b=5.25$, $SE=2.08$, $p=0.01$). The positive interaction suggests that the short-asking statement would increase the efficacy of a long-encouraging statement in increasing consumers' purchase quantity.

Pairwise comparisons revealed that, in support of the primary hypothesis (H1), when $T_{encouraging}$ was specified as two weeks, participants in the day-asking condition would purchase significantly more units of the target product ($M=19.52$, $SD=14.36$) than participants in the no-asking condition ($M=13.94$, $SD=10.59$; $t(198)=3.13$, $p<0.01$; $d=0.44$). More importantly, in support of H4, when $T_{encouraging}$ was not specified, participants in the day-asking condition would purchase the same amount of the target product ($M=10.90$, $SD=6.58$) as participants in the no-asking condition ($M=10.58$, $SD=7.32$; $t(189)=0.32$, $p=0.75$).

None of the covariates moderated the short-asking effect, the long-encouraging effect, or the interaction between short-asking and long-encouraging (all p 's > 0.05). Controlling for these covariates, the two-way interaction held significant. See Table 3.

Discussion

To summarize, Study 6a identified the specification of $T_{encouraging}$ in the encouraging statement as a boundary condition for the short-asking statement to significantly increase consumers' purchase quantity of a product. Since marketers often recommend consumers "Stock up and save" without specifying a time frame that consumers should stock up for (see examples in Fig. 1), this study has practical implications as it reminds marketers of the importance of providing a specific $T_{encouraging}$ in the encouraging statement when applying SALE.

For manipulation checks, Study 6a also asked each participant what time frame they were purchasing the product for and what time frames they used in the process of estimating their purchase quantity. Participants' responses supported the success of the long-encouraging manipulation and the short-asking manipulation. See web Appendix C for more detail.

Analyses of the manipulation check questions also revealed that, in the baseline condition (without short-asking and without long-encouraging), 1% of the participants were stockpiling the product for one day, 27% for one week, 23% for two weeks, 3% for three weeks, 33% for four weeks (i.e., one month) and the remaining 12% not for specific time frames. Interestingly, among participants

who were stockpiling for specific time frames, their purchase quantities were indifferent to the length of the time frame they were stockpiling for ($r(85)=0.16$, $p=0.14$). These findings suggest that, without SALE in the advertisement, consumers' purchase quantities of a product are insensitive to the length of the time frame they are purchasing the product for.

To examine the potential impact of SALE on consumers' scope sensitivity, in a supplemental study (see Study S1 in web Appendix D), we adopted a 2 (T_{asking} : one day vs. not specified) $\times$ 2 ($T_{encouraging}$: one week vs. two months) factorial design. The results showed that participants' purchase quantities of the advertised product were not sensitive to the length of $T_{encouraging}$ when there was no short-asking statement in the advertisement but were sensitive to the length of $T_{encouraging}$ when a short-asking (i.e., day-asking) statement was present in the advertisement. These results show that SALE improves consumers' scope sensitivity in their purchase quantity decisions. See web Appendix D for more detail.

Study 6b: Testing the novelty of SALE to practitioners

Study 6b tested whether the effect of SALE would be too obvious to real-world practitioners. To test the novelty of SALE, we asked a group of salespeople to predict the effect of SALE (H1) and the necessity of the long-encouraging statement for SALE to work (H3).

Method

Fifty-four adults in the United States who were working on a sales job or had worked on a sales job at the time of survey were recruited from Connect and participated in this survey (mean age = 37.35; 54% female, 46% male; 6% of Hispanic, Latino or Spanish origin; with an average of 8.59 years of sales experience).

We first showed participants the advertisement in the baseline (no-asking and no-encouraging) condition in Study 6a and asked them to provide some advice on how to improve that advertisement to increase sales of the advertised product.

Afterwards, we showed participants the advertisements in the four conditions in Study 6a (namely, no-asking and no-encouraging, no-asking and long-encouraging, short-asking and no-encouraging, short-asking and long-encouraging) and asked participants to predict the order of magnitude of customers' average purchase quantity under the four advertisements.

Finally, we asked participants about their demographic information.

Results and discussion

Participants provided an average of 3.78 pieces of advice on how to improve the advertisement in the baseline condition to increase customers' purchase quantity of the advertised product. The content of the advice they provided showed that participants were familiar with the well-established sales techniques (e.g., bundle pricing, limited-time sale, multi-unit pricing, price discount, etc.). However, none of the participants proposed anything close to SALE (short-asking with long-encouraging), suggesting SALE was novel to them.

More importantly, only 24% of the respondents predicted that the advertisement using the SALE message would lead to higher purchase quantity than the other three advertisements, 41% of the respondents predicted that no-encouraging and no-asking would produce the highest purchase quantity, 15% of the respondents predicted that merely long-encouraging would produce the highest purchase quantity, 13% of the respondents predicted that merely short-asking would produce the highest purchase quantity, and the remaining 7% of the respondents stated that they could not make any prediction. These results showed that the effect of SALE was not obvious to most of the participants, who had an average of 8.59 years of sales experience.

General discussion

In the present research, two field studies, four lab experiments and a survey with experienced salespeople demonstrated the efficacy and novelty of SALE in increasing consumers' purchase quantity of a product, revealed the underlying mechanism, and identified moderators or boundary of the short-asking effect. Results showed that the short-asking effect could be generalized from day-asking (see Studies 1-6a) to week-asking (see Study 4) and 2-month-asking (see Study S3 in web Appendix F) in different product categories. Results also ruled out multiple alternative explanations for the effect of SALE, namely, mere-asking, ease of estimating the purchase quantity, or perceived size of the purchase quantity.

Two extra studies (Study S2 in web Appendix E and Study S3 in web Appendix F) replicated the efficacy of SALE regardless of whether a price discount was provided for the advertised product or not and regardless of the time unit used in T_{asking} (60-day-asking or 2-month-asking). These findings supported the robustness of the effect of SALE.

Theoretical contributions

The present research contributes to several lines of existing literature. First, the present work extends the current knowledge of consumers' behavioral frequency estimation (e.g., "how many boxes of cereal have you purchased in the last six months", Menon, 1993, p. 1). Specifically, prior research in this domain took a *cognitive-effort* perspective or an anchoring perspective (assuming *insufficient adjustment*) to examine how the difficulty of the estimation task (Blair & Burton, 1987; Menon, 1993, 1997) or the magnitude of the response alternatives in the survey (Menon et al., 1995, 1997) would impact consumers' *estimation strategy* or *estimation accuracy*. In comparison, the present work demonstrates how an advertising message (SALE) impacts consumers' *purchase quantity* (e.g., "how many boxes of cereal will you purchase for a month") by prompting *more upward adjustment* in their estimation process, *without significantly altering the cognitive effort* of the estimation (see Study 3).

Second, the present research extends the current knowledge of the temporal framing effects in consumer decisions (e.g., Burson et al., 2009; Chandran & Menon, 2004; Gourville, 1998; Monga & Bagchi, 2012; Pandelaere et al., 2011; Ülkümen & Thomas, 2013; Ülkümen et al., 2008; Zhang & Schwarz, 2012). For example, Gourville (1998) found that pricing an expensive product in the form of "pennies-a-day" would *make the full price appear smaller* and therefore increase consumers' purchase likelihood of the product. Our studies found that asking consumers to think about their consumption quantity of a product in a day would produce a contrast effect and therefore increase their purchase quantity of the product *without altering the perceived size* of the purchase quantity (see Study 4). As another example, Ülkümen et al. (2008) find that consumers cushion their budget for a longer time frame with more upward adjustment due to *lack of confidence*. As a result, consumers' yearly budget is often larger than twelve times of their monthly budget. In comparison, we find that, without a short-asking prompt, consumers do *not* cushion their purchase quantity for a longer time frame with more upward adjustment (see Study S1 in web Appendix D), suggesting *more confidence* in purchase quantity decisions than in budgeting decisions.

Lastly, the present research extends the current knowledge of scope neglect (e.g., Ariely et al., 2003; Evangelidis & Van den Bergh, 2013; Frederick & Fischhoff, 1998; Hsee & Zhang, 2010; Hsee et al., 2013; Morewedge et al., 2009). Scope neglect refers to the phenomenon that people's evaluation of an object is insensitive to the scope of the object. For example, Ariely et al. (2003) found that, when evaluating the unpleasantness of a noise by indicating how much

money they would accept for listening to the noise, people would ask for \$3.78 for listening to the noise for 100 s and \$5.16 for 600 s (when evaluating the 100-s noise and the 600-s noise in separate occasions). Since \$5.16 is much smaller than six times \$3.78, their finding has been recognized as evidence of people's scope neglect by abundant research. The present work is the first to show scope neglect in consumers' purchase quantity decisions (see initial evidence in Study 6a and more evidence in Study S1 in web Appendix D). More importantly, the present work examines how to alleviate scope neglect from the perspective of contrast effects. This new perspective generates novel findings, namely, whether eliciting a reference point (i.e., $Q(T_{asking})$) improves consumers' scope sensitivity depends on the distance between the reference point and the target (see Study 4), the ease for consumers to retrieve the reference point (see Study 5), and the salience of the scope of the target (see Study 6a).

Practical implications

The present work also has important practical implications. First, not only marketers encourage consumers to stock up during sales promotions, governments and NGOs also encourage consumers to stock up for emergencies. The present work shows that telling consumers to stock up for a long time frame (e.g., "stock up for two weeks", as some governments and NGOs have been practicing) is better than merely telling consumers to "stock up and save" (as most marketers have been practicing). More importantly, asking consumers to think about their consumption quantity in a shorter time frame (e.g., one day) would make the appeal "stock up for two weeks" even more effective in increasing consumers' purchase quantities (see Study 6a). Notably, our work shows that SALE can be easily implemented in both brick-and-mortar stores (see Study 1) and online stores (see Study 2).

Second, the present work not only demonstrates the efficacy of SALE in increasing consumers' purchase quantities, but also shows factors that would moderate the effect of SALE. While Study 4 suggests that, holding the long-encouraging statement constant, a shorter time frame in the asking statement would generate a larger effect of SALE, Study 5 suggests that the time frame in the short-asking statement should match consumers' norms around the advertised product (i.e., it should be easy for consumers to estimate how many units of the product they would consume in the given short time frame) in order for SALE to work most effectively.

Lastly, while previous research suggests that price promotions (Gupta, 1988; Mela et al., 1997, 1998; Mishra & Mishra, 2011; Neslin et al., 1985; Pauwels et al., 2002) can increase consumers' purchase quantities, Study 6a and

Study S2 (in web Appendix E) show that SALE can increase consumers' purchase quantities in the absence of price discounts, suggesting SALE as an additional tool to price promotions in boosting consumers' purchase quantities.

Open questions and limitations

The present work still has a few open questions unaddressed. First, would SALE work equally to all products or product categories? In the present Study 3 and Study 4, holding $T_{encouraging}$ constant at one month and T_{asking} constant at one day, SALE had the same effect size on different products. Specifically, the effect size of SALE on mixed nuts (unpackaged) in Study 3 was medium to large (Cohen's $d=0.69$) and the effect size of SALE on breakfast cereal (packaged) in Study 4 was the same (Cohen's $d=0.69$). However, products in these two studies were rather inexpensive. Some products or product categories have higher prices, which might inhibit the efficacy of SALE through budget constraints (Stilley et al., 2010). Therefore, it awaits further evidence whether SALE has the same effect size in more expensive product categories.

Moreover, the present Study 5 tested H3 by manipulating the package size of the same product. However, holding $T_{encouraging}$ and T_{asking} constant, the difficulty of estimating $Q(T_{asking})$ may also vary by product, depending on consumers' various norms around different products. For example, consumers may normally replace an AC air filter every 2 months. It might be easier for them to estimate how many AC air filters they use in 2 months than to estimate how many cups of breakfast cereal they eat in 2 months. Therefore, holding $T_{encouraging}$ constant (e.g., at one year), a short-asking statement that asks consumers to think about how many units of the product they would consume in 2 months (vs. no short-asking statement) might have a larger effect on consumers' purchase quantity of AC air filters than on their purchase quantity of breakfast cereal. Study S3 in web Appendix F has demonstrated the efficacy of 2-month-asking (vs. no-asking) in increasing consumers' purchase quantity of AC air filters for a year. It awaits further examination whether consumers' consumption patterns of different products impact the difficulty of estimating $Q(T_{asking})$ and moderate the effect of SALE.

Second, would SALE influence the purchase quantity of a product in the long term? So far, we have only examined consumers' purchase quantity or intended purchase quantity in a single shopping trip. It is not clear how implementing SALE might influence consumers' purchase likelihood and purchase quantity of the same product in their future shopping trips. While some research found that stockpiling increased consumers' consumption rate of a product, increased their repeated purchase of the product and preempted brand switching (e.g., Ailawadi & Neslin, 1998; Ailawadi et al.,

2007; Chandon & Wansink, 2002), it awaits further evidence for the long-term effect of SALE in future work.

Third, is there any cultural or personal characteristic of the consumer that moderates the effect of SALE? In one study (Study S2 in web Appendix E), we examined whether individual differences in math anxiety (Hopko et al., 2003) would moderate the effect of SALE. We found that math anxiety had no main effect on consumers' purchase quantity and did not moderate the effect of SALE. We conjecture that math anxiety did not show any significant effect because estimating the purchase quantity of the advertised product in that study was not complicated. In another study (Study S4 in web Appendix G), we examined whether individual differences in long- vs. short-term orientations (Bearden et al., 2006) would moderate the effect of SALE. We found that long-term orientation had a positive main effect on consumers' purchase quantity, but no moderation on the effect of SALE. It awaits further exploration whether other individual characteristics moderate the effect of SALE.

Last but not least, does SALE need to be in the form of an advertisement? Would it work as a sales pitch? In the end of Study S3 (in web Appendix F), a participant shared their thoughts about the use of the advertised product and asked what the study was actually about. After we explained SALE to them, the participant showed interest in applying SALE to personally selling at work (quote of this participant: "Interesting. I'll try to use that at work to sell more air filters."). We find this very encouraging and suggest future research investigate whether SALE would work outside of advertising materials, in particular, in sales pitches.

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