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Single Discount Versus Double Discount: Errors in Processing Double Discount Percentage Changes

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Abstract
Sales induced through price discounts relaying on discount depth. and so, firms and marketers use various tactics in their attempts to increase consumers' perceptions of discount depth, however, double discounts are a new format to increase discount depth compared to a financially equivalent single discount. this study showed that double discounts e.g., (40 % followed by 25%) increase consumers' response and discount depth perceptions compared to a financially equivalent single discount (55%) depending on discount depth and heuristic approaches. this study reveals the effects on consumers 'response with findings from this study, in addition to contributing to research on price promotions, behavioral pricing, and numeric processing, Finally, the paper concludes with a present implications, limitations, and directions for future research.
Keywords: Framing, Double discount, Price Discounts, Discount Depth, Purchase Intention.

Introduction

Imagine price discounts presented in two different formats (economically equivalent): The first format offers a single discount (50%); the second format offers double discounts (30% followed by 30%); which format is best to increase the discount depth? extant literature showed that sales induce through price discount relaying on discount depth. and so most research focused on how best to present a price promotion to maximize people's perceptions of the discount depth (Grewal et al., 1996). For example, the presence of a semantic cue, novelty, and location, all may increase discount depth perceptions. (Biswas at al., 2013) showed that discount depth is influenced by the display location of the sale price, whereby displaying the discounted price to the right of the original price can increase consumers' propensity to calculate discount depth Kim and Kramer (2006) offering a novel type of discount presentation (e.g., "Pay 60% off the original price") versus using a financially equivalent discount presentation (e.g., "Get 40% off the original price"). Similarly (Chen and Rao, 2007) argued that using double discount vs single discount (financially equivalent discount) may increase perceived discount depth. Typically, consumers perceive the discount depth as the difference between the original price and sale price. If the original price is $100, and the sale price is $80, the price promotion is 20% off or emphasizes that the sale price is 20% (discount = $100 – $80 = $20; discount depth = $20/$100 = 20%).

Double discount is defined as two discounts offered simultaneously that can be combined to create a bigger discount than any of the single discount equal in percentage (Ammar & Alleil, 2019). Double discounts might require consumers to engage in difficult calculation to estimate the true discount level. For example, to determine the true value of double discounts such as "an additional discount of 10% on top of an original discount of 20%," the overall discount is 1-(1-20%) *(1-10%) = 1-72% =28%.," the computation of the total discount involves use of percentage, subtraction, multiplication and fractions, such complex computations tax the consumers' working memory capacity. In response, consumers may use simplifying heuristics process rather than engaging in more accurate but more difficult, such heuristics process (Systematic computational error) may result in an upward bias in discount depth and purchase intentions in case of double discounts rather than when a single discount of the same value is presented.

Literature Review

Double Discount

Research on double discount has shown that consumers prefer double discount over a financially equivalent single discount. By double discount we "refer to two discounts offered simultaneously that can be combined to create a bigger discount than any of the single discount knowing that the sale price for both single discount and double discount are equal". (Chen and Rao, 2007) argued that Double discounts engorge consumers' perception of promotion offer and purchase intentions compared to an economically equivalent single discount, and they referred to Systematic Computational Error, where participants added percentages without recognizing that the first percentage have changed the base price. Similarly, (Dib and Alleil, 2022) confirmed that double discounts enhance consumers' deal evaluation compared to an economically equivalent single discount at discount level (medium and high) in the same context (Schley, 2013) confirmed that double discounts enhance consumers' purchase intentions compared to not economically equivalent single discount and referred to "Perceived rarity of the discount", where Consumers get attracted to the double discounts without engage in task calculation. On contrast (Davis and Bagchi, 2018) found that double discount leads consumers to anchor on the first discount presented to them and insufficiently adjust the evaluation based on the second discount, which Predicts lower Perception of deal evaluation associated with double discounts. However, no paper attempted to know the underlying process consumers go through when evaluating double discounts. Are they getting anxious about the difficult calculation required to understand the net value of double discounts?

The previous studies did not include the sale price when comparing double discount to economically equivalent single discount. This is one of the motivations of this paper and the intention is to provide a cognitive account of why and when the purchase intention associated with double discounts is higher or even lower than that with an economically equivalent single discount.

How Consumers may Process Double Discounts

According to dual processing theories, such as the Cognitive Experiential Self-Theory (CEST) developed by (Pacini and Epstein, 1999) people process stimuli via either a cognitive system (which is analytical and effortful) or an experiential system (which is more associationalistic and intuitive). The intuitive-experiential system is fast, automatic, and can more easily

process and attend to concrete bits of information. Furthermore, when processing absolute numbers, the experiential system gives processing primacy to factors like numerosity (Reyna and Brainerd, 2008) CEST clarifies why consumers are influenced or biased by absolute numbers, such as price
discounts, evaluation of foreign currencies. Gonzalez et al (2016) argued that an item priced at item priced $480, $120 off was perceived more valuable than 25% off, but for an item priced at $48, 25% off and $12 off were perceived similarly. These findings propose that consumers use an absolute number heuristic, preferring price discounts involving a higher value vs lower value number, regardless of the economic value implied by these numbers. Research in numeric cognition and ratio bias shows that participants appear to be influenced more by the numbers with higher absolute value, and less by the ratios/ percentages implied by these numbers, for example (Denes-Raj and Epstein, 1994) showed that when incented to draw a winning item, participants preferred to draw from a bag with 9 winning items out of 100 items, then draw from a bag with 1 winning item out of 10 items. In other words, participants appear to be influenced more by the numbers with higher absolute value, and less influenced by the ratios/ percentages implied by these numbers. In the context of double discount, consumer would prefer double discount compared to single discount, for example when retailer present an offer (original price $150 / sale price $96) with double discount 20% off plus additional discount 20% off, the double discounts may be perceived as 40% compared to an economically equivalent single discount (36%). And so, consumers may be influenced by discount depth when encountering double discounts, such that double discount offers are perceived to provide larger discount than an equivalent single discount.

There have been other dual-process theories such as the heuristic-systematic model developed by (Chaiken, 1980) information is processed either systematically or heuristically. In the following, several typical heuristic approaches (systematic computational error, numerosity cue bias, anchoring and adjusting) are proposed and special attention is drawn to the conditions under which specific heuristic processing is applied by consumers and the consequences of utilizing such heuristics.

Systematic Computational Error

In the double discount's context, consumers perceive each discount to be independent of each other, therefore are likely to mistakenly add up the individual discounts together to estimate the true value discount. For example, consumers may add 25% + 20% = 45% and perceive a higher discount than the actual discount of 40% (Dib and Alleil, 2022) found that a larger proportion of participants (90%) Erroneously added percentages without recognizing that the base price for the second discount has decreased. Similarly (Chen and Rao, 2007) found that a larger proportion of participants (59%) erroneously added percentages compared to the participants who selected the correct answer (26%). The double discounts lead to an overestimation of the overall discount level. In a field experiment (Chen and Rao, 2007) manipulated the price discount (double discounts vs. single discount) for stimuli (cutting boards) for a period of time and examined its effect on the number of sales volumes, revenue and profit. Double discounts improved the performance on all the dependent variables compared to single discount.

Numerosity Cue Bias

People are especially sensitive to numerosity as a cue for judging quantity or probability, that is people sometimes judge amount or likelihood on the basis of number of units into which a stimulus is divided without fully considering other important variables (e.g. the size of units) (Pelham et al., 1994) argued that participants found an eight-room house is larger than a six-room house, knowing that the two houses are equal in size. this Because consumers rely on the numerosity heuristics when their cognitive resources are limited or they lack motivation to thoroughly process information. In the double discount context, (Ammar & Alleil, 2019) argued that double discounts (25% plus 20%) contain more pieces of discount information which lead to in an upward bias in discount depth compared with an economically equivalent single discount (40%).

Anchoring and Adjustment

This process of anchoring and adjustment heuristic was originally proposed by (Tversky and Kahneman ,1974). such that adjustments tend to be insufficient and final estimates are close to the original anchor. The initial anchor could be suggested by the formulation of the problem. For example (Tversky and Kahneman,1974) show that time constrained participants give very different estimates of 8!, depending on the presentation order (1 _ 2 _ 3 _ 4 _ 5 _ 6 _ 7 _ 8 vs. 8 _ 7 _ 6 _ 5 _ 4 _ 3 _ 2 _ 1). Because people focus on initial numbers to generate their overall estimates. In the double discount context, anchoring and adjustment takes place when consumers likely anchor on the first percentage and adjust insufficiently for the second percentage. For example, when consumers see the price promotions “get 10% discount off” and “an additional discount “5% off,” consumers may pay less attention for the second discount due to some factors e.g., cognitive skills, information overload, Time pressure, motivation, etc. (Suri and Monroe, 2003; Bettman et al., 1991) Consequently, they would focus their attention on the first discount and ignore the second discount. If this happens, consumers conclude a smaller discount depth than an economically equivalent single discount depth. And, underestimation of the overall discount would result and consumers would perceive double discount offers less favorably. In double discount context (Davis & Bagchi, 2018) found that participants anchor on the first discount (11%) and insufficient adjustment with the second discount (4%).

Another steam of research has shown how consumers tend to neglect base values associated with percentages when processing percentage change information.

Base Value Neglect (BVN)

Previous research has confirmed that consumers often made a computational error in the processing of percentages change information, (Chen et al., 2012) shown that consumers tend to neglect base value associated with percentages and the impact of this tendency on their preferences for one of two commonly used promotion tactics: price discounts and bonus packs, through two promotion offers either a 35%-off price discount on the regular price or a bonus pack of 50% more free, consumers preferred bonus pack over price discount. Knowing that (Economically a bonus pack of 50% more free is equivalent to a price discount of 33.33% off). In double discount context, If the consumers neglect the BVN associated with double discounts percentage (20% plus 20%) consumers’ perception of discount depth for double discounts will be higher (40%) compared with discount depth for an economically equivalent single discount (36%).

Discount Depth

In the previous sections, we explained in detail how consumer may process double discount. In this section we examine how the discount depth may influence double discount evaluations and how such evaluations might be moderated by discount depth. Biswas et al (2013) argued that Adaptation-level theory suggests that discount depths that result in prices close to consumers' adaptation levels evoke a neutral response, whereas discount depths that produce prices markedly different from those adaptation levels evoke stronger responses (Alba et al., 1999). Along similar lines, assimilation and contrast theory suggests that smaller discounts are absorbed within consumers' latitude of acceptable prices, with little impact on their valuations in comparison with the original price, whereas larger discounts create a salient contrast with the original price and thus trigger increased evaluations. Thus, a moderate discount depth of 30% is far more effective for increasing consumers' evaluations than a low discount depth of 10%. Similarly, (Grewal et al., 1996) suggests that discount size may affect consumers' motivation to process the additional information contained in a price promotion. In another word, when the discount size is perceived to be low, consumers are unlikely to expend the cognitive effort needed to process additional information because the price promotion is deemed to be of little value. But when the discount size is judged to be acceptably, consumers are expected to process additional information in the price promotion. (Lichtenstein et al, 1993) found that semantic cues had a greater effect when the discount was approximately 33 % than when it was about 10 %. -Apparently, the focus or extent of consumers' processing of this type of message is contingent on the magnitude of discount.

Based on the Arguments Discussed above, three Hypotheses are Assumed

H1

Discount depth levels moderate the relationship between discount framing and (A) purchase intentions (B) deal evaluation, such that when the discount depth is low, a financially equivalent single discount is higher compared with double discounts.

H2

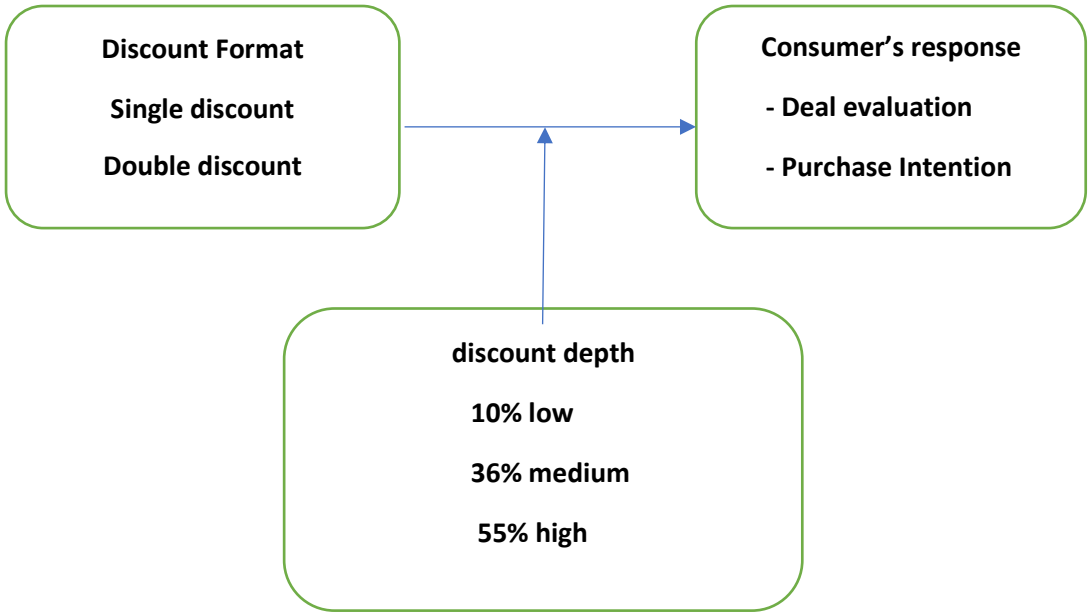
Discount depth levels moderate the relationship between discount framing and (A) purchase intentions (B) deal evaluation, such that when the discount depth is medium, double discounts is higher compared with a financially equivalent single discount.

H3

Discount depth levels moderate the relationship between discount framing and (A) purchase intentions (B) deal evaluation, such that when the discount depth is high, double discounts is higher compared with a financially equivalent single discount.

Research Model and Variables

Figure 1: Hypothesized model of the Effect of Independent Variable on Dependent Variables, and the moderating role of discount depth.



Methodology

This study examined whether the discount depth in which the double discounts were presented influenced consumer's response. Moderating variables that could affect consumer perceptions of price promotions in this study is the discount depth. The discount depth may motivate different evaluation processes of the price discounts. An experiment of 2 (discount format: single discount, double discounts) X 3(discount depth: low, medium, high) between subjects' design was used

Pretests

3 pretests were conducted to determine the product type, product Price and discount depth to be used in the main study, Product type as stimuli (wireless Bluetooth Earphone), product price (SYP 68,000), Three discount levels, and two discount formats (single discount vs. double discounts) at each discount depth level (low discount depth: 10% vs. 6% +4%; medium discount depth : 36% vs. 20%+20%; high discounts depth: 55% vs. 40%+25%). The data for the empirical study were obtained from a controlled experiment involving undergraduate and post graduate students.

Measures

Deal evaluation were measure by two items: "How good of a deal is this wireless Bluetooth Earphone?" "How good are these discounts?" (1=" Not good at all"; 7=" very good" for both); is based on (Davis & Bagchi, 2018).

Purchase Intention were measure by two items: "I would consider buying this wireless Bluetooth Earphone with this price discount?" "I would purchase wireless Bluetooth Earphone with this price discount?" (1 Strongly Disagree"; 7=" Strongly Agree" for both); is based on (Lee et al., 2018).

Discount depth perceptions were measure by two items: "The discount at which the wireless Bluetooth Earphone is offered by the retailer provides very good value?" "The discount offered by the retailer for the wireless Bluetooth Earphone is very attractive?" (1 Strongly Disagree"; 7=" Strongly Agree" for both); is based on (Grewal et al., 1996)

Sample and Procedure

Data were collected from a 240-student sample at higher institute of Languages (Syria). Participants were randomly assigned between six conditions. Participants examined a scenario involving the purchase of a wireless Bluetooth Earphone, originally priced at (SYP 68,000**),** in the low discount depth the sale price was (SYP 61.200), so the promotional ad read either "6% off plus additional discount 4% off" or, in a financially equivalent "10% off". In the medium discount depth, the sale price was (SYP 43.520), so the promotional ad read either "20% off plus additional discount 20% off" or, in a financially equivalent "36% off". In the high discount depth, the sale price was (SYP 30.600), so the promotional ad read either "40% off plus additional discount 25% off" or, in a financially equivalent "55% off". We elicited deal evaluation, purchase intentions, then asked manipulation check (Discount depth perceptions) and demographic questions.

Data Analysis and Evaluation

The data obtained during the study was analyzed and interpreted using SPSS 24.0, eight participants dropped from the final analysis, leaving 232 participants in the analyses. Reliability analysis of deal evaluation scale α = (0.90); Purchase Intention α = (0.78); Discount depth perceptions α = (0.88). Mean, frequency distribution and percentage for sample, the demographic data of the sample used in analysis is shown in Table (1).

Table (1)
Demographic data of the sample

Demographics	**Frequency**	**Percentage (%)**
Gender	**232**	**%100**
Male	113	44%
Female	119	56%
Age		
Less than 18	15	7%
18-24	155	67%
25-30	47	20%
More than 30	15	6%
qualification		
Secondary/Institute	22	10%
college	202	87%
post graduate /Master	5	2%
post graduate /Ph.D.	3	1%

Hypotheses Test

An analysis of variance (ANOVA) with dependent variables confirm the predicted two-way interaction, deal evaluation (F (5.657), $p < .05$); Purchase Intention (F (6.348), $p < .05$), Contrast analysis showed that in the low discount depth condition single discounts was associated with larger perception of deal evaluation, Purchase intention than double discounts but the results reversed in the discount depth (medium, high), H1, H2, H3 are supported. Table 2 shows the means for dependent variables across conditions.

Table (2)
The Effect of Discount Format and discount depth on Dependent Variable

Dependent variables	Discount format	Discount depth					
		Low		Medium		High	
		Mean	SD	Mean	SD	Mean	SD
Deal Evaluation	Single	3.71	1.12	4.31	1.24	5.26	1.24
	Double	3.15	1.18	4.93	1.41	5.87	1.34
	Sig	.034		.041		.039	
Purchase Intention	Single	3.63	1.44	4.28	1.34	5.01	1.68
	Double	2.89	1.11	4.97	1.46	5.73	1.50
	Sig	.015		.034		.049	
*The mean difference is significant at the 0.05 level							

Although the participants saw the sale price, double discounts induced higher perception of deal evaluation and purchase intention in medium and high conditions compared with a financially equivalent single discount similarly to (Dib and Alleil,2022),the increase in perception of deal evaluation and purchase intention with double discounts provided support to the Systematic Computational Error in that double discounts lead to upward bias regarding the processing double discount percentage (40% Plus 25%)and hence resulted in higher perceived discount depth(65%) compare to a financially equivalent single discount percentage(55%). And so independent samples t-test was conducted to reveal how consumer perceive discount depth at single discount comparing with double discount at each discount level (Low, Medium, High). Table (3) shows the means for perception of the discount depth across conditions.

Table (3)
Means of discount depth for single discount & double discount across Conditions

Dependent variables	Discount format	Discount depth					
		Low		Medium		High	
		Mean	SD	Mean	SD	Mean	SD
Discount depth	Single	3.85	1.72	4.41	1.62	5.32	1.06
	Double	3.00	1.92	5.10	1.39	5.80	0.90
	Sig	.049		.047		.033	
*The mean difference is significant at the 0.05 level							

Table (3) shows the low-discount depth of single discount, ($M_{\text{single discount}}$ =3.85) has a greater influence on perceived discount depth than double discounts ($M_{\text{Double discount}}$ =3.00). but the results reversed in the discount depth (medium, high). In the medium discount depth of double discount, ($M_{\textit{double}\ \text{discount}}$=5.10) has a greater influence on perceived discount depth than single discounts ($M_{\text{single discount}}$ =4.41). as well as in the high discount depth of double discount, ($M_{\textit{double}\ \text{discount}}$ =5.80) has a greater influence on perceived discount depth than single discounts ($M_{\text{single discount}}$ =5.32). And thus, we confirm that double discount increase discount depth perception compared to financially equivalent single discount and conclude that hypotheses (H1, H2, H3) are supported.

Conclusion

Discussion

we examined the moderating role of discount depth size, showing that the double discount effects were relatively lower when discount depth was low. Similarly, (Davis & Bagchi,2018) found that when two discounts appear simultaneously, consumers anchor on the first discount and insufficiently adjustment for second discount which lead to reduce the discount depth size. In the discount depth size (medium, high) double discount increase discount depth size and so higher perception of deal evaluation and purchase intention compared to an economically equivalent single discount, these results are consistent with findings (Dib & Alleil,2022) where found that a larger proportion of participants erroneously added percentages without recognizing that the first percentage has changed the base price which led to higher perception in deal evaluation.

Implications

- *Contributions to Theory*

This study contributes to multiple streams of research, notably those on price promotions and numeric processing. First, we examine a different type of discount framing that highlights the discount depth by comparing the single discount against the double discount. As a key finding, across an experimental study, we show that using the double discount increases perceptions of discount depth compared to single discount and thus increases deal evaluation and purchase intentions, subject to some boundary conditions. Second, this paper offers the first evidence of how reframing the discount depth, by comparing single discount against the double discounts, and so double discount can increase discount depth perceptions and thus enhance deal evaluation and purchase intentions. Our effects are consistent with the idea that when evaluating advertisement information involving percentages, consumers tend to use an absolute number heuristic. As the absolute value of the number in the promotional advertising increases, consumers are influenced more by this absolute value, and influenced less by the economic value of the numeric information in the promotional advertising. Specifically, consumers appear to be more swayed by the face value of the number that appears in the percentage information, and less swayed by the economic value that is represented by that percentage information.

- *Contributions to Practice*

This study has interesting contributions to the practices that firms and marketers use to offer their price promotions. First, marketers can make selective use of the double discount to increase consumers' response. This practice is relatively simple to implement, requiring a change only in the signs displaying promotional ads, and not requiring changes in actual prices. Second, the double discount frame is likely to be less impactful when discount depth is low. Given that previous research has shown that low discount depth is generally less impactful (Dib & Alleil ,2022; Grewal et al, 1996) in general, there are a number of product categories wherein discount depth levels are "not low", and so there are a number of opportunities for marketers to implement the suggested double discount and so increase consumer's response. Finally, the implications of this work may extend beyond sale prices. e.g. (Nutrition information, quality, ….)

Limitations and Future Research

There are some limitations of this study. The first limitation concerns the product used in the current study. Only one product was examined. Future research could examine the different product categories, such as an electronics product. The second limitation concerns the brand of products is not considered in the current study. The brand name has various implications to consumers and might reinforce the price-quality effect. Future research could examine the interaction between discount framing and brand name (Grewal et al, 1998). Finally, other variables may influence the way consumer's process double discounts (Perceived quality, product type, price level).

References

Ammar, N., & Alleil, J. (2019). When 25% Off Plus 20% off is Equal to 40% Off: Multiple Discount Promotions are Preferred to Single-Discount Promotions. International Journal of Academic research in business and sciences, 9(6).

Alba, J. W., Carl, F. M., Terence, A. S., & Joel, E. U. (1999). The Effect of Discount Frequency and Depth on Consumer Price Judgments. Journal of Consumer Research,26 (2) 99–114.

Biswas, A., Bhowmick, S., Guha, A., & Grewal, D. (2013). Consumer Evaluations of sale prices: Role of the subtraction principle. Journal of Marketing, 77(4), 49–66. https://doi.org/10.1509/jm.12.0052

Bettman, J. R., Johnson, E. J., & Payne, J. W. (1991). Consumer Decision Making. In Handbook of Consumer Behavior, T. Robertson AND H. Kassarjian, Eds. Prentice Hall, 50–84.

Chen, H. A., Marmorstein, H., Tsiros, M., & Rao, A. R. (2012). When more is Less: The Impact of Base Value Neglect on Consumer Preferences for Bonus Packs over Price Discounts. Journal of Marketing, 76(4), 64–77. https://doi.org/10.1509/jm.10.044

Chaiken, S. (1980). Heuristic versus systematic information processing and the use of source versus message cues in persuasion. Journal of Personality and Social Psychology, 39(5), 752–766. https://doi.org/10.1037/0022-3514.39.5.752

Chen, H. A., & Rao, A. R. (2007). When Two Plus Two Is Not Equal to Four: Errors in Processing Multiple Percentage Changes. Journal of Consumer Research, 34(3), 327–340. https://doi.org/10.1086/518531

Davis, D. F., & Bagchi, R. (2018). How Evaluations of Multiple Percentage Price Changes Are Influenced by Presentation Mode and Percentage Ordering: The Role of Anchoring and Surprise. Journal of Marketing Research, 55(5), 655–666. https://doi.org/10.1177/0022243718808554

Dib, H., & Alleil, J. (2022). How Evaluations of Double Discount Are Influenced by Discount Level: The Role of Anchoring and Systematic Computational Error. International Journal of Academic Research in Business and Social Sciences, 12(5), 614 – 622

Schley, D. R. (2013). When 15% Off Plus 10% Off is More Than 30% Off: Multiple-Discount Promotions are Preferred to Larger Single-Discount Promotions. NA - Advances in Consumer Research, 41, 733-734.

Denes-Raj, V., & Seymour, E. (1994). Conflict between Intuitive and Rational Processing: When People Behave Against their Better Judgment. Journal of Personality and Social Psychology,66(5), 819–829.

Grewal, D., Monroe, K. B., & Krishnan, R. (1998). The Effects of Price-Comparison Advertising on Buyers' Perceptions of Acquisition Value, Transaction Value, and Behavioral Intentions. Journal of Marketing, 62(2), 46. https://doi.org/10.2307/1252160

Grewal, D., Marmorstein, H., & Sharma, A. (1996). Communicating Price Information through Semantic Cues: The Moderating Effects of Situation and Discount Size. Journal of Consumer Research, 23(2), 148. https://doi.org/10.1086/209473

González, E. M., Eduardo, E., Roggeveen, A. L., & Dhruv, G. (2016). Amount off versus Percentage off—When Does It Matter? Journal of Business Research, 69(3), 1022–1027.

Kim, H. M., & Kramer, T. (2006). "Pay 80%" versus "get 20% off": The effect of novel discount presentation on consumers' deal perceptions. Marketing Letters, 17(4), 311–321. https://doi.org/10.1007/s11002-006-9309-7

Lichtenstein, D. R., Ridgway, N. M., & Netemeyer, R. G. (1993). Price Perceptions and Consumer Shopping Behavior: A Field Study. Journal of Marketing Research, 30(2), 234. https://doi.org/10.2307/3172830

Lee, J. E., & Chen-Yu, J. H. (2018). Effects of price discount on consumers' perceptions of savings, quality, and value for apparel products: mediating effect of price discount affect. Fashion and Textiles, Springer, Volume (5).

Pacini, R., Epstein, S. (1999). The Relation of Rational and Experiential Information Processing Styles to Personality, Basic Beliefs, and the Ratio-bias Phenomenon. Journal of Personality and Social Psychology,76, 972–987.

Pelham, B. W., Sumarta, T. T., Myaskovsky, L. (1994). The easy path from many to much: The numerosity heuristic. Cognitive Psychology, Vol. 26 Issue 2, p103, 31p.

Reyna, V. F., Brainerd, C. J. (2008). Numeracy, Ratio Bias, and Denominator Neglect in Judgments of Risk and Probability. Learning and Individual Differences, 18 (1), 89-107.

Suri, R., & Monroe, K. B. (2003). The Effects of Time Constraints on Consumers' Judgments of Prices and Products. Journal of Consumer Research, 30(1), 92–104. https://doi.org/10.1086/374696

Tversky, A., & Kahneman, D. (1974). Judgment under Uncertainty: Heuristics and Biases. Science, 185(4157), 1124–1131. https://doi.org/10.1126/science.185.4157.1124