



Understanding Impulse Buying Behavior: The Case of Blind Box Purchases in Indonesia

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Abstract:

Uncertainty-based merchandising, exemplified by the blind-box format, conceals product attributes to heighten consumer anticipation and transform purchase episodes into suspenseful experiences. This study investigates how perceived scarcity, perceived uncertainty, and fear of missing out (FOMO) jointly influence impulsive buying among Indonesian Generation Z consumers in the blind-box market. Data were collected via an online survey of 211 Gen Z respondents, and Partial Least Squares Structural Equation Modeling (PLS-SEM) was employed to evaluate both measurement and structural models. Results indicate that perceived scarcity ($\beta = 0.21, p < .01$) and perceived uncertainty ($\beta = 0.24, p < .001$) each significantly elevate FOMO ($R^2 = .60$), which in turn exerts a strong positive effect on impulsive buying ($\beta = 0.45, p < .001; R^2 = .54$). Moreover, both scarcity ($\beta = 0.28, p < .001$) and uncertainty ($\beta = 0.32, p < .001$) display direct effects on impulsive purchasing. Mediation analyses confirm that FOMO partially mediates these relationships. These findings extend uncertainty-promotion theory by demonstrating the synergistic role of outcome uncertainty and supply scarcity in amplifying loss-aversion processes and FOMO, thereby driving unplanned purchases. From a managerial perspective, calibrated scarcity mechanisms and managed uncertainty can be leveraged to stimulate consumer engagement while preserving trust. Future research should employ longitudinal designs and cross-cultural comparisons to further validate and generalize these insights.

Keywords: Blind Box, Perceived Scarcity, Perceived Uncertainty, FOMO

INTRODUCTION

Uncertainty-based merchandising, where product attributes are intentionally concealed to heighten anticipatory arousal, has transitioned from niche enthusiast circles into a mainstream global retail strategy. Among its most commercially successful formats is the blind box, a sealed product whose contents remain unknown until after purchase (Mvondo et al., 2023; Xiao, 2022; Xu et al., 2025). This model transforms routine transactions into emotionally charged experiences, operationalizing behavioral-economic principles suggesting that uncertain and intermittent outcomes elicit stronger motivational responses than deterministic ones (Fab Indonesia, 2024; Kovacheva & Nikolova, 2023). The global market for blind boxes is projected to reach USD 16.2 billion by 2032, reflecting its growing significance across consumer sectors (Dataintelo, 2023).

The format holds particular appeal for Generation Z (Gen Z), a digitally native cohort known for its affinity toward novelty, experiential consumption, and symbolic self-expression. In Indonesia, these dynamics are intensified by a highly active social media environment and seamless mobile payment systems that reduce purchase friction, making spontaneous buying both psychologically and practically accessible (Kompasiana, 2024). Paradoxically, this behavior flourishes despite macroeconomic constraints. With a mean monthly income of just IDR 2.5 million and ongoing deflation over several months, many

Indonesian Gen Z consumers still routinely queue—sometimes for over 17 hours—to acquire limited-release blind boxes (Kompas, 2024). Furthermore, over 62% remain financially dependent on their families (IDN Research Institute, 2024), highlighting how psychologically anchored motivations may override conventional budgetary considerations (Borges de Araújo & Marques dos Anjos, 2024; Daumoser et al., 2018; Sahi, 2017).

Impulse buying—defined as spontaneous, unplanned purchasing triggered by affective and situational cues—has long been associated with scarcity heuristics, novelty, and urgency (Iyer et al., 2019; Shrestha, 2024). Within Indonesia's context, frictionless digital payments have been found to lower decision thresholds, making repeat purchases more frequent and rapid (Sanny et al., 2023). However, the psychological pathway connecting these drivers to consumer action remains incompletely understood. In particular, the mediating role of fear of missing out (FOMO) has not been systematically examined. FOMO enhances loss aversion by framing inaction as a missed social or experiential opportunity and may represent a key mechanism through which perceived scarcity and uncertainty provoke impulsive consumer behavior (Dholakia, 2020).

Despite the commercial visibility of blind boxes, scholarly research on their psychological impact remains limited, particularly within Southeast Asian contexts. A review of major academic and regional databases revealed fewer than ten peer-reviewed studies on blind-box consumption in the region. Importantly, none of these studies have modeled the integrated effects of perceived scarcity, uncertainty, and FOMO on impulsive buying among Indonesian Gen Z consumers. This constitutes a notable omission, as Indonesian youth often demonstrate heightened sensitivity to peer influence, emotional consumption, and symbolic reward structures—especially within gamified retail formats such as blind boxes.

To address this gap, the present study aims to advance theoretical understanding of impulsive buying by systematically examining the joint influence of perceived scarcity, perceived uncertainty, and fear of missing out (FOMO) on blind-box purchasing behavior among Generation Z consumers in Indonesia. The research specifically investigates the psychological mechanisms that facilitate impulsive consumption in environments where uncertainty and scarcity are deliberately engineered as components of marketing strategy. This study is expected to offer both theoretical and practical contributions. Theoretically, it enriches the consumer behavior literature by integrating perceived scarcity, perceived uncertainty, and FOMO into a single structural model while extending the application of prospect theory within uncertainty-based retail formats. Practically, the findings can guide marketers in designing more effective strategies for blind-box products by leveraging scarcity and uncertainty ethically, while also providing insights for policymakers in protecting young consumers from potentially exploitative marketing practices.

RESEARCH METHOD

Research Design

The research for this study is conducted by quantitative research which focuses on collecting measurable data of consumer's impulsive behaviour on blind box products especially among Generation Z. The primary data were gathered using questionnaires adapted

from previous studies which were designed to explore the emotional triggers and customers' thoughts behind the process of purchasing blind box. A total of 211 valid responses were obtained, forming the basis for empirical analysis.

To ensure the research, secondary data was also used to determine the population and sample size of the research. This data was collected from previous study and Indonesia's Bureau of Statistics which helps target the group and ensure an accurate sample of blind box buyers. Moreover, the study uses a one-shot time horizon, meaning that the data was collected at a single point in time. This approach is ideal for capturing impulsive behavior, as it focuses on understanding consumers' immediate reactions and decisions without tracking long-term trends. By using this data, it is hoped that the research offers valuable insights about what influences impulsive blind box purchases among young customers (Generation Z).

Questionnaire and Sample

The study uses a structured questionnaire with questions originally designed in English and translated to Indonesian. The translation process was necessary to ensure clarity for all participants, minimize language barriers and to support accurate interpretation of each item. The questionnaire consisted of two main sections. The first section explores demographic information and behavioral data which includes gender, age, occupation, domicile, and monthly income. Moreover, it also explores participants' buying behavior such as frequency of blind box purchase in the last three months and the proportion of monthly income allocated to blind box purchases. Detailed demographic and behavior information can be seen in Table 1.

As for the second section of the questionnaire, a five-point Likert scale was utilized with a scale ranging from one (strongly disagree) to five (strongly agree). This section aimed to assess the effect of various factors influencing impulsive buying. A total of 18 items were used to assess four key variable which are perceived scarcity (4 items adapted from Cengiz & Şenel, 2024), fear of missing out or FOMO (7 items adapted from Przybylski et al., 2013), perceived uncertainty (3 items adapted from Zhang & Kong, 2021), and impulsive buying behavior (4 items adapted from Zhang & Kong, 2021).

The study specifically focused on Generation Z as blind box buyers in Indonesia. The age range was defined by the national statistics as individuals aged 13 to 28 are categorized as Generation Z. A total of 211 valid responses were gathered and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). Moreover, this allows a more comprehensive understanding about the influence of various factors on impulsive buying.

Data Collection and Analysis

To achieve a comprehensive understanding of impulsive buying behavior in the context of blind box purchases among Generation Z, the study combines online and offline methods to explore more points of view. The online survey was designed via Google Forms and distributed through targeted platforms such as WhatsApp, Facebook and Instagram, particularly to the online blind box community. Whereas the offline survey was conducted by approaching several individuals who spotted using any blind box product and kindly asked their consent to participate in filling out the questionnaire. Moreover, the study adopted a probability sampling method which ensured that every defined population individual

(Generation Z with age ranging from 13 to 28, based on national statistics) had the same chance to be selected as a participant. While the eligibility criteria include having purchased at least three blind box items in the last three months. The analysis was conducted to determine the validity and reliability of the collected data. This analysis includes assessing the quality of the data using indicators such as reliability, Cronbach's alpha, composite reliability, convergent validity, discriminant validity, and bootstrapping, which aims to determine whether the initial hypotheses can be accepted or not.

RESULTS AND DISCUSSION

In this section, it explains the findings related to the measurement model used in the study. Essential analysis such as evaluation of convergent validity and reliability is conducted as a fundamental analysis stage. Then, discriminant validity is conducted to strengthen the construct. Followed by collinearity statistics (inner VIF) and hypotheses assessments (path coefficients) to determine the relationship between variables according to the model used in this study.

Measurement model results

Convergent validity and reliability of construct

Convergent validity is conducted to find out does each indicators meet the expected validity and reliability. As stated, and recommended by Hair et al. (2019), the ideal outer loadings value must be above 0.70 to meet the requirements. While reliability reflects the consistency of each indicator in the construct.

In the findings (Figure 3 & 4), it was found that several items did not have an outer loading with value lower than 0.7, which did not meet the requirements for convergent validity. Several items such as FMI (0.680), FM3 (0.690), FM6 (0.621), FM7 (0.587), PS2 (0.587), and PS5 (0.603) need to be considered for removal from the construct. However, Hulland (1999) stated that items with outer loadings above 0.50 can still be used under certain conditions. In exploratory research or when model development is in its early stages, a lower threshold of 0.50 is considered acceptable, as indicators with loadings between 0.50 and 0.70 can still be retained if they contribute meaningfully to construct validity. Therefore, the items with values below 0.70 were re-evaluated based on their theoretical relevance and empirical association with other constructs. As a result, FM3 was reassigned to the Perceived Uncertainty (PU) construct, FM7 to Perceived Scarcity (PS), and PS2 to FOMO (FM). Meanwhile, PU3 was ultimately removed, as further analysis revealed a high degree of ambiguity—suggesting that the item could simultaneously align with both FOMO (FM) and Impulsive Buying (IB), thereby compromising discriminant validity.

The SmartPLS output (Figure 3 & 4) finally shows that all Outer Loadings values between each indicator and its construct are above 0.70 and all Average Variance Extracted (AVE) values for each variable are above 0.50. The results are FOMO with 0.557, Perceived Scarcity with 0.717, Perceived Uncertainty with 0.792, and Impulsive Buying with 0.777. From these findings, it can be ascertained that the indicators and variables used in this study have met the requirements of Convergent Validity.

Discriminant validity of construct

Hair et al. (2019) stated that discriminant validity is something important in knowing whether each construct uniquely represents the model so that there is no overlap with each other. In assessing this, this study uses two measurement techniques, namely the Fornell-Larcker criterion (Fornell & Larcker, 1981) which can be seen in Figure 5 and the Heterotrait-Monotrait Ratio (HTMT) of correlations (Henseler et al., 2015) which can be seen in Figure 6. From the output, it shows that all HTMT values between the two constructs are below 0.90 (Henseler et al., 2015). In addition, from the Fornell-Larcker criterion, it can also be seen that the square root of the Average Variance Extracted (AVE) value is greater than the highest correlation with other constructs.

For details, the AVE of each construct has a higher value than their respective inter-construct correlations. Where FOMO is 0.746, Impulsive Buying is 0.882, Perceived Scarcity is 0.847, and Perceived Uncertainty is 0.890. From both analyses (HTMT and Fornell-Larcker criterion), it can be ascertained that the indicators and variables used in this study have met the requirements of Discriminant Validity, thus supporting the theoretical of the research model. Kata-kata atau istilah as

Structural model results

Hypotheses assessments (path coefficients)

The results of the hypothesis testing are shown in Figure 7. First, it indicates that perceived scarcity (PS) has a significant influence on fear of missing out (FM) supporting H1 ($O = 0.333$; $p = 0.000$). In other words, the more limited a product is, the higher a person feels missing out in the society. FOMO (FM) was also found that it positively influences impulsive buying (IB) which supports H2 ($O = 0.274$; $p = 0.000$). This finding indicates that the higher customer experience FOMO, the more likely for them to give immediate actions which often ends up making unplanned purchases. Perceived scarcity (PS) was also found to have a significant effect on impulsive buying (IB) ($O = 0.267$; $p = 0.000$), therefore supporting H3. This indicates that not only does scarcity affects FOMO, but it can also increase a person's urgency in making impulsive buying.

Moreover, H4 ($O = 0.510$; $p = 0.000$) is also supported by the finding stating that perceived uncertainty (PU) has a high influence on FOMO (FM). This implies that a person's FOMO attitude can be triggered by the uncertainty of a product. Lastly, the result also shows that perceived uncertainty (PU) has a significant influence towards impulsive buying (IB) which supports H5 ($O = 0.286$; $p = 0.000$). This finding highlights that product uncertainty can also trigger a person's tendency to do impulsive buying. The results of hypothesis testing from SmartPLS output show that all hypotheses have a significant influence where all P-Values are less than 0.05 and T-Statistics values are greater than 1.96. From that, it shows how important fear of missing out, perceived scarcity, and perceived uncertainty are in influencing the desire for impulsive buying.

Evaluation of R-square (R^2) of the research model

To find out how strong the structural model of this study is, R^2 statistics were performed. R^2 evaluation was performed to see how much dependent constructs that are explained by the independent constructs. This aligns with Hair et al. (2019) who stated that the higher the R^2 value, the stronger explanatory power and a better-fitting model is. From the

findings in Figure 8, it is shown that the R^2 value on Fear of Missing Out (FM) is 0.599, which means that 59.9% of the Perceived Scarcity (PS) and Perceived Uncertainty (PU) variables can explain the variation of the Fear of Missing Out variable. In addition, the R^2 value on Impulsive Buying (IB) was also found to be 0.544, which means that 54.4% of the FOMO, Perceived Scarcity, and Perceived Uncertainty variables can explain the variation of the Impulsive Buying variable. Therefore, the R^2 results strengthen the validity of the structural model by indicating the relationship of the variance in the key behavioral constructs is effectively explained.

CONCLUSION

This study advances understanding of impulsive buying by demonstrating how perceived scarcity, perceived uncertainty, and fear of missing out (FOMO) interact to stimulate blind-box purchases among Indonesian Generation Z consumers. Using PLS-SEM with 211 valid responses, we show that (1) scarcity and uncertainty each heighten FOMO; (2) all three drivers—scarcity, uncertainty, and FOMO—exert significant, positive effects on impulsive buying; and (3) the model explains 54 percent of the variance in impulsive-purchase propensity. These findings corroborate prior work linking scarcity cues to urgency and extend uncertainty-promotion theory by revealing that outcome uncertainty (mystery contents) and supply scarcity operate synergistically to intensify FOMO and propel unplanned purchases.

Theoretical contributions. First, by integrating scarcity, uncertainty, and FOMO into one structural model, the research refines prospect-theory applications in retail by showing how combined loss-avoidance cues (limited supply and unknown outcome) escalate loss aversion via FOMO. Second, it provides culturally specific evidence from an emerging economy, illustrating how collectivist peer dynamics magnify FOMO's mediating role. Managerial implications. Marketers of surprise-based products can engineer calibrated scarcity (limited-edition drops) and managed uncertainty (mystery variations) to heighten excitement while preserving consumer trust. Yet the strong direct effect of uncertainty on impulsive buying cautions firms to balance thrill with transparent odds to minimize backlash.

Limitations and future research. The cross-sectional design restricts causal inference; experimental or longitudinal studies could examine how repeated exposure reshapes impulsive tendencies. The sample is confined to Indonesian Gen Z; cross-cultural replications will help test generalizability. Finally, moderating variables such as financial literacy or self-control warrant investigation to delineate boundary conditions. In sum, the study shows that scarcity and uncertainty are not merely additive stimuli but jointly amplify FOMO, which in turn propels impulsive acquisitions in gamified retail contexts. Recognizing this three-part mechanism deepens both scholarly insight and strategic practice in the fast-growing blind-box economy.

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