

The Influence of Fear of Missing Out (FOMO) and Live Streaming on Impulsive Purchases, with Shopee Pay-Later as a Moderating Variable, Among Gen Z in Indonesia

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Abstract

Keywords:

live streaming, Fear of Missing Out (FOMO), impulsive buying, Shopee Pay-Later, Generation Z

Advances in digital technology have significantly transformed consumer behaviour, particularly in online shopping through e-commerce and social commerce. In Indonesia, internet penetration has reached 80.66%, with approximately 229.4 million users, accelerating the growth of digital consumption. This study aims to analyse the effect of live streaming on Fear of Missing Out (FOMO) and impulsive buying, as well as the moderating role of Shopee Pay-Later among Generation Z in Indonesia. This research adopts a quantitative approach using a survey method involving 100 Generation Z respondents who actively use e-commerce, watch live streaming, and have made online purchases, with purposive sampling and data analysed using SEM-PLS. The findings reveal that live streaming has a positive and significant effect on both FOMO and impulsive buying, and FOMO also positively influences impulsive buying behaviour. However, Shopee Pay-Later does not moderate the relationship between live streaming, FOMO, and impulsive buying. These results indicate that impulsive buying behaviour among Generation Z is more strongly driven by emotional factors and interactive live streaming experiences than by the convenience of digital payment features. This study supports the Stimulus Organism Response (SOR) theory and provides practical implications for e-commerce practitioners to design more interactive and responsible marketing strategies.

INTRODUCTION

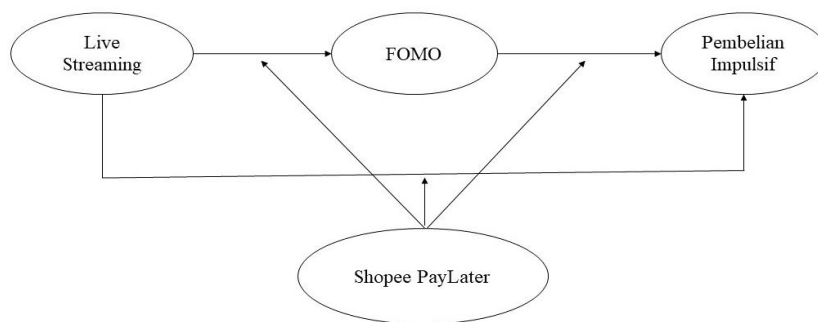
Advances in digital technology are driving changes in consumer behavior, particularly in online shopping through e-commerce and social commerce. The increase in internet penetration in Indonesia, which has reached 80.66% with approximately 229.4 million internet users, has further accelerated the growth of digital consumption among the public (APJII, 2025). Generation Z has become one of the most active consumer groups using e-commerce and digital media in their daily lives (Jakpat, 2025). Additionally, the development of live streaming commerce has also seen rapid growth. Data from Enciety Business Consult (2025) indicates that the volume of video commerce transactions in Indonesia reached approximately 2.6 billion transactions in 2025, with an annual growth rate of 90%. This trend demonstrates that live streaming has become an integral part of the public's digital consumption behavior.

Live-streaming commerce enables real-time interaction between sellers and consumers, thereby creating a more interactive and engaging shopping experience (Wongkitrungrueng & Assarut, 2020). This can trigger Fear of Missing Out (FOMO), which is the anxiety of missing out

on specific information, trends, or opportunities (Przybylski et al., 2013). FOMO drives consumers to make spontaneous, impulsive purchases without careful planning (Rook, 1987). Additionally, the convenience of Buy Now Pay Later (BNPL) services like Shopee Pay-Later further enhances consumers' ability to make transactions quickly and flexibly.

Several previous studies have shown that live-streaming commerce and FOMO have a positive effect on impulsive buying (Kang et al., 2021; Dhir et al., 2021). However, the results of previous studies remain inconsistent. Li et al. (2024) found that the effect of live streaming on impulsive buying is influenced by the level of consumer trust in the host, whereas Zhang et al. (2022) showed that the relationship between FOMO and impulsive buying is influenced by consumer self-control. Furthermore, most prior studies have examined the relationships between live streaming, FOMO, and impulsive buying separately and have not integrated them within a Stimulus–Organism–Response (SOR) framework. Research on Shopee Pay-Later generally treats these variables as independent or mediating variables, while studies positioning them as moderating variables remain relatively limited, particularly regarding Generation Z in Indonesia.

Given this research gap, this study aims to analyze the effect of live streaming on FOMO and impulsive buying and to examine the role of Shopee Pay-Later as a moderating variable among Generation Z in Indonesia. This study integrates live streaming, FOMO, impulsive buying, and Shopee Pay-Later within the Stimulus–Organism–Response (SOR) framework.



H1: Live streaming has a positive effect on Fear of Missing Out (FOMO) among Gen Z consumers in Indonesia.

H2: Fear of Missing Out (FOMO) has a positive effect on impulse buying among Gen Z consumers in Indonesia.

H3: Live streaming has a positive effect on impulse buying among Gen Z consumers in Indonesia.

H4: Shopee Pay-Later moderates the effect of live streaming on Fear of Missing Out (FOMO) among Gen Z consumers in Indonesia.

H5: Shopee Pay-Later moderates the effect of live streaming on impulsive purchasing among Gen Z consumers in Indonesia.

H6: Shopee Pay-Later moderates the effect of Fear of Missing Out (FOMO) on impulsive purchasing among Gen Z consumers in Indonesia.

METHODS

This study employs a quantitative approach using a survey design to examine the relationship between live streaming, Fear of Missing Out (FOMO), impulsive buying, and Shopee PayLater. This approach was chosen because the study aims to empirically test the relationships among these variables through statistical analysis. This study is based on the Stimulus–Organism–Response (SOR) framework, in which live streaming is positioned as the stimulus, FOMO as the organism, and impulsive buying as the consumer’s behavioral response.

The sampling technique used in this study was purposive sampling because respondents had to meet specific characteristics in line with the research objectives, namely Generation Z individuals who had watched live streams on e-commerce platforms and had made online purchases. A sample size of 100 respondents was deemed adequate for Structural Equation Modeling–Partial Least Squares (SEM-PLS) analysis. Hair et al. (2021) state that PLS-SEM can be used with relatively small sample sizes and still produce good statistical power, particularly in complex research models. Furthermore, PLS-SEM does not require strict assumptions regarding data distribution, making it suitable for studies with limited sample sizes.

The research instrument was developed based on indicators adapted from previous studies. The live streaming variable was adapted from Wongkitrungrueng and Assarut (2020), Fear of Missing Out (FOMO) was adapted from Przybylski et al. (2013), and impulsive purchasing was adapted from Rook (1987). Meanwhile, the Shopee Pay-Later indicator was developed based on the Buy Now Pay Later (BNPL) concept and research on digital consumption behavior. All items were measured using a five-point Likert scale, ranging from 1 = strongly disagree to 5 = strongly agree. The research data consists of primary data collected through an online questionnaire distributed via Google Forms. The questionnaire was distributed to respondents who met the study criteria, namely Generation Z individuals who had watched live streams and made online purchases. In addition to primary data, this study also utilized secondary data obtained from scientific journals, statistical reports, and relevant literature to support the study’s theoretical framework.

Data analysis was conducted using Partial Least Squares-based Structural Equation Modeling (SEM-PLS) with the assistance of Smart-PLS software. The analysis was conducted in two stages: evaluation of the outer model and the inner model. The outer model evaluation was used to test the validity and reliability of the constructs through convergent validity, discriminant validity, composite reliability, and Cronbach’s alpha. Subsequently, the inner model evaluation was conducted to test the relationships between variables and the research hypotheses through a bootstrapping procedure by examining path coefficients, t-statistics, and p-values.

RESULTS AND DISCUSSION

Characteristics of the Respondent Profile

By gender, female respondents accounted for 83% of the study’s participants, while male respondents made up 17%. This predominance of female respondents indicates that women tend to be more active in online shopping, particularly in using live streaming features as a means of exploring products and making purchasing decisions.

Meanwhile, based on residence, the majority of respondents 91% were from the Bali and Nusa Tenggara regions, while the remainder were from other regions in Indonesia. This was because the questionnaire was distributed online via social media and with the assistance of several of the researchers’ friends, resulting in a higher proportion of respondents from areas within the questionnaire’s reach. Nevertheless, the respondents obtained still met the research criteria, namely Generation Z who actively use e-commerce, watch live streams, and have made online purchases. Overall, the characteristics of the respondents in this study indicate that the sample obtained

through purposive sampling aligns with the research objectives, making the data relevant for explaining impulsive buying behavior in the digital environment.

Measurement Model Evaluation

The measurement model was evaluated to ensure that each indicator adequately represented the research construct. The evaluation was conducted using convergent validity and construct reliability by examining the outer loading, Cronbach's Alpha, Composite Reliability, and Average Variance Extracted (AVE) values. Hair et al. (2021) state that a construct is considered to meet validity and reliability criteria if it has outer loading, Cronbach's Alpha, and Composite Reliability values above 0.70 and an AVE value above 0.50. However, indicators with loading values between 0.60 and 0.70 may still be retained if the construct's AVE and Composite Reliability values continue to meet the required criteria.

Table 1. Construct Reliability and Convergent Validity

Construct/item	Loading factor	CR	AVE	Cronbach's Alpha
Fear of Missing Out (FOMO)		0.931	0.659	0.912
1) I worry about missing out on information or current trends	0.775			
2) I want to stay up to date on the latest activities or trends in digital media	0.667			
3) I feel the need to keep up with what others are talking about	0.820			
4) I'm afraid of missing out on exciting opportunities during live streams	0.769			
5) I'm interested in watching live streams so I don't feel left behind by trends	0.902			
6) I feel the need to stay connected to the latest information on social media	0.866			
7) I feel uncomfortable if I'm not aware of the latest trends	0.862			
Live Streaming		0.963	0.787	0.955
1) Live streaming makes me interested in seeing the product firsthand	0.861			
2) The host's interaction during the live stream makes me more interested in buying the product	0.923			
3) The product information in the live stream is easy to understand	0.937			
4) Live streaming makes the shopping experience more engaging	0.925			
5) I feel more confident about buying the product after watching the live stream	0.877			
6) Live streaming helps me get more complete product information	0.836			

7) Live streaming makes it easier for me to compare products	0.843			
Impulsive Buying		0.909	0.666	0.875
1) I often make impulse purchases while watching live streams	0.804			
2) I buy products without planning ahead	0.851			
3) I buy products on a whim	0.795			
4) I find it hard to resist the urge to buy while a live stream is going on	0.869			
5) I buy products without first considering my needs	0.756			
Shopee Pay-Later		0.955	0.778	0.943
1) Shopee Pay-Later makes it easy for me to shop online	0.902			
2) Shopee Pay-Later helps me buy products even when I don't have enough money	0.891			
3) Shopee Pay-Later's instalment payment system makes transactions easier	0.919			
4) Shopee Pay-Later gives me more flexibility when shopping	0.889			
5) Shopee Pay-Later makes the payment process more convenient	0.860			
6) I'm interested in using Shopee Pay-Later because of its easy payment options	0.830			

Source: Primary data analyzed using Smart-PLS 4 (2026)

Based on the test results in Table 1, all research constructs met the validity and reliability criteria. The outer loading values were mostly above 0.70, although there was one indicator in the Fear of Missing Out (FOMO) variable with a loading value of 0.667, which is still acceptable because it is above the minimum threshold of 0.60. Furthermore, all constructs have Composite Reliability and Cronbach's Alpha value above 0.70, as well as Average Variance Extracted (AVE) values above 0.50. Thus, all constructs are deemed valid and reliable and are suitable for further analysis.

Table 2. Results of the Discriminant Validity Test (HTMT)

Variable	FOMO	Impulse Buying	Live Streaming	Shopee Pay-Later
FOMO	-			
Impulse Buying	0,552	-		
Live Streaming	0,480	0,465	-	
Shopee Pay-Later	0,539	0,352	0,451	-

Source: Primary data analyzed using Smart-PLS 4 (2026)

The test of discriminant validity in this study used the Heterotrait Monotrait Ratio (HTMT) method. According to Hair et al. (2021), a construct is considered to meet discriminant validity if

the HTMT value is below 0.90. Based on the test results in Table 2, all HTMT values are below 0.90; therefore, all constructs are deemed to meet discriminant validity and are suitable for use in further analysis.

Structural Model

The structural model (inner model) was evaluated by examining the R-squared value to determine the ability of the independent variables to explain the dependent variable in the research model. The R-squared value indicates the extent to which the variation in the endogenous variable can be explained by the exogenous variables used in the study. According to Hair et al. (2021), an R-squared value of 0.75 is classified as strong, 0.50 as moderate, and 0.25 as weak.

Table 3. R-Square Values

Endogenous Variables	R-Square	R-Square Adjusted
Fear of Missing Out (FOMO)	0,355	0,335
Impulsive Buying	0,348	0,314

Source: Primary data analyzed using Smart-PLS 4 (2026)

The R-squared value indicates that the research model has a moderate ability to explain the endogenous variable. This suggests that impulsive buying is influenced not only by live streaming, FOMO, and Shopee Pay-Later, but also by other factors outside the scope of this study.

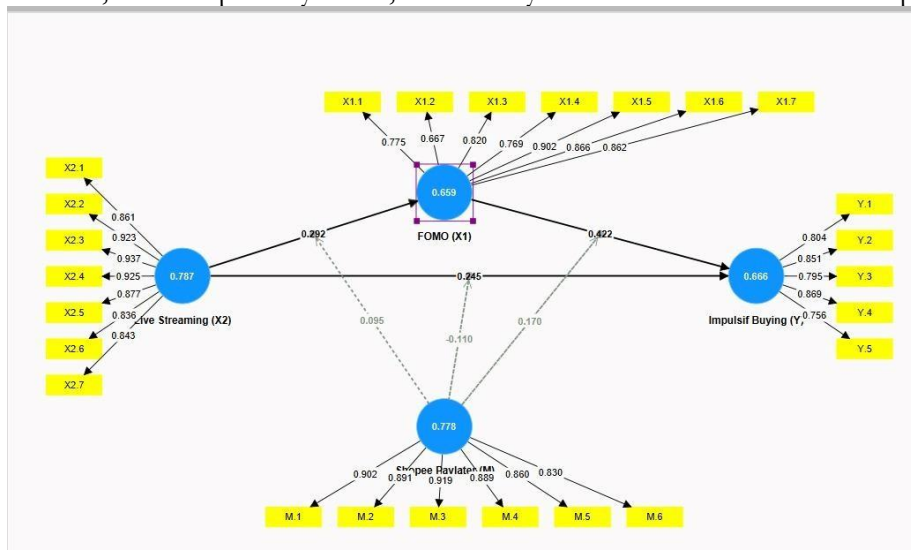


Figure 1. Research Structural Model

Hypothesis testing was conducted to determine the relationships among the variables in this study using bootstrapping analysis in SEM-PLS. A hypothesis was accepted if the t-statistic was greater than 1.96 and the p-value was less than 0.05. The results of the hypothesis testing in this study are presented in Table 4.

Table 4. Hypothesis Testing Results

Hypothesis	Relationships Among Variables	Path Coefficient	T-Statistics	P-Values	Result
H1	Live Streaming → FOMO	0,292	2,795	0,005	Accepted
H2	FOMO → Impulsive Buying	0,422	3,812	0,000	Accepted

H3	Live Streaming → Impulsive Buying	0,245	2,099	0,036	Accepted
H4	Shopee PayLater × Live Streaming → FOMO	0,095	1,180	0,238	Rejected
H5	Shopee PayLater × Live Streaming → Impulsive Buying	-0,110	1,258	0,209	Rejected
H6	Shopee PayLater × FOMO → Impulsive Buying	0,170	1,665	0,096	Rejected

Source: Primary data analyzed using Smart-PLS 4 (2026)

The first hypothesis posits that live streaming influences Fear of Missing Out (FOMO). The test results indicate that live streaming has a positive and significant effect on FOMO, with a path coefficient of 0.292, a t-statistic of 2.795, and a p-value of 0.005; therefore, the first hypothesis is accepted. These results indicate that the interactivity in live streaming can increase consumers' tendency to experience FOMO. This finding aligns with the research by Kang et al. (2021) and Chen et al. (2023), who found that live streaming can enhance consumers' emotional engagement and psychological responses in digital shopping activities.

The second hypothesis posits that Fear of Missing Out (FOMO) influences impulsive buying. The test results indicate that FOMO has a positive and significant effect on impulsive buying, with a path coefficient of 0.422, a t-statistic of 3.812, and a p-value of 0.000; therefore, the second hypothesis is accepted. These results indicate that the emotional drive caused by FOMO can increase the tendency toward impulsive buying among Generation Z consumers. This finding supports the research by Dhir et al. (2021) and Tandon et al. (2021), which shows that FOMO can increase the tendency toward impulsive consumption behavior in digital environments.

The third hypothesis posited that live streaming influences impulsive purchasing; the test results showed that live streaming has a positive and significant effect on impulsive purchasing, with a path coefficient of 0.245, a t-statistic of 2.099, and a p-value of 0.036, thus accepting the third hypothesis. These results indicate that live streaming can drive impulsive purchasing through an interactive and persuasive shopping experience. This finding is consistent with the research by Kang et al. (2021) and Chen et al. (2023), who found that live streaming commerce can increase impulsive buying through a more interactive and emotional digital shopping experience.

The fourth hypothesis posits that Shopee Pay-Later moderates the effect of live streaming on Fear of Missing Out (FOMO). The test results indicate that this relationship is not significant, with a path coefficient of 0.095, a t-statistic of 1.180, and a p-value of 0.238; therefore, the fourth hypothesis is rejected. These results indicate that FOMO in live streaming is more influenced by emotional and social factors, such as real-time interaction and the fear of missing out on trends, compared to the convenience of payment via Pay-Later. Although Generation Z is familiar with digital services, consumers still have reservations about using Pay-Later, so the existence of Shopee Pay-Later has not been able to significantly strengthen consumers' psychological responses.

The fifth hypothesis posits that Shopee Pay-Later moderates the effect of live streaming on impulsive purchases. The test results indicate that this relationship is not significant, with a path coefficient of -0.110, a t-statistic of 1.258, and a p-value of 0.209; therefore, the fifth hypothesis is rejected. These results indicate that impulsive buying behavior is more influenced by the interactive experience of live streaming than by the ease of payment via Pay-Later. Generation Z consumers also tend to consider their financial capacity and the risks of using Pay-Later before making impulsive purchases.

The sixth hypothesis posits that Shopee Pay-Later moderates the effect of Fear of Missing Out (FOMO) on impulsive purchasing. The test results indicate that this relationship is not significant, with a path coefficient of 0.170, a t-statistic of 1.665, and a p-value of 0.096; therefore, the sixth hypothesis is rejected. These results indicate that even though consumers experience FOMO, impulsive purchasing decisions are not entirely influenced by the ease of payment via Pay-Later. Generation Z consumers tend to still consider their financial capacity and exercise self-control when using the Pay-Later service. Additionally, some consumers also prioritize personal values and exercise caution regarding debt use in digital consumption. These findings align with Sulhaini et al. (2025), who demonstrated that Pay-Later usage among young consumers is influenced not only by transaction convenience but also by self-control and religious considerations in consumption behavior.

DISCUSSION

This study aims to analyze the effect of live streaming on Fear of Missing Out (FOMO) and impulsive buying, as well as to examine the role of Shopee Pay-Later as a moderating variable among Generation Z in Indonesia. The results indicate that live streaming has a positive and significant effect on FOMO and impulsive buying. Additionally, FOMO was also found to have a positive effect on impulsive buying. These findings suggest that the interactivity and real-time shopping experience in live streaming can heighten consumers' emotional responses, which in turn drive impulsive buying behavior.

However, Shopee Pay-Later was unable to moderate the relationship between live streaming and FOMO, live streaming and impulsive buying, or FOMO and impulsive buying. These results indicate that impulsive buying behavior among Generation Z is not entirely influenced by the ease of digital payments, but is also influenced by self-control, financial considerations, and personal values in consumption behavior.

Theoretically, this study reinforces the application of the Stimulus Organism Response (SOR) theory in the context of live streaming commerce by positioning live streaming as the stimulus, FOMO as the organism, and impulsive buying as the response. Furthermore, this study also demonstrates that Buy Now Pay Later (BNPL) services such as Shopee Pay-Later do not always reinforce impulsive consumption behavior among young consumers.

From a managerial perspective, the research findings indicate that e-commerce operators and digital marketing practitioners need to leverage live streaming in a more interactive manner through real-time communication, engaging product demonstrations, and limited-time promotions to boost consumer engagement. However, marketing strategies should not focus solely on the convenience of Pay-Later payments, but also on creating a shopping experience that fosters emotional engagement with consumers. Additionally, Pay-Later service providers also need to enhance education regarding the wise use of digital payment services so that consumers remain able to control their consumption behavior.

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