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The influence of effort expectancy, performance expectancy, and social influence on perceived risk, behavioral intention, and actual use moderated by user trust in social commerce in Indonesia

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Abstract: This research aims to investigate the effects of performance expectancy, effort expectancy, and social influence on perceived risk, behavioral intention, and actual use; the effect of perceived risk on behavioral intention and actual use; and the effect of behavioral intention on actual use, as well as the moderating role of trust in the relationship between perceived risk and actual use. The population for this study is not limited, thus a sampling method is required. The sampling method used in this study is purposive sampling. The criteria for determining the sample in this study are respondents aged 18 and above, as it is expected that respondents can understand the questions in the questionnaire and provide valid answers, and consumers who have made online purchases in social commerce in the last month. A total of 270 respondents were obtained after distributing the questionnaire, which were then analyzed using SEM analysis with the help of AMOS 22. The results show that performance expectancy has a significant effect on perceived risk, performance expectancy has a significant effect on behavioral intention, performance expectancy has no significant effect on actual use, effort expectancy has no significant effect on perceived risk, effort expectancy has a significant effect on behavioral intention, effort expectancy has no significant effect on actual use, social influence has no significant effect on perceived risk, social influence has no significant effect on behavioral intention, social influence has no significant effect on actual use, perceived risk has no significant effect on behavioral intention, perceived risk has no significant effect on actual use, behavioral intention has a significant effect on actual use, and trust significantly moderates the effect of perceived risk on actual use.

Keywords: *Actual use, Behavioral intention, Effort expectancy, Perceived risk, Performance expectancy, Social influence.*

1. Introduction

Social Commerce (S-Commerce) has become a popular tool for expanding e-commerce globally through sharing, promoting, and selling products and services from businesses to consumers as well as from consumer to consumer [1]. S-commerce is a form of commerce facilitated by social media that involves interactions between online and offline environments [2]. In other words, social commerce involves the use of internet-based media that enables people to participate in marketing, purchasing, and sharing products and services in both online and offline markets, as well as in communities [3]. Although s-commerce has become part of e-commerce, there are unique characteristics that differentiate the two terms [4]. For example, commerce is said to deal with service products, focusing on selling well-known brands and actively using social networking services like Twitter and Facebook. The use of s-commerce is also believed to have created new opportunities for businesses to promote themselves to potential consumers at lower costs and with greater advertising reach [4].

The development of s-commerce, particularly in Indonesia, is rapidly increasing. A McKinsey report states that around 40% of the e-commerce market in Indonesia consists of social commerce. In simple terms, a social commerce platform leverages the networks owned by end users to facilitate buying and

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selling transactions. In summary, social commerce is the use of social media for promotion, selling, and buying directly on social media applications. Several reasons explain the growing reliance on trading via social media. About 63% of respondents believe that social media makes it easier to reach a wider potential market; 57% feel that it is easier to start a business on social media; and 48% say that these platforms can enhance networks with friends and acquaintances that can drive business growth [5]. Supporting this report, Facebook (50.7%) is noted as the most visited social media by respondents, followed by Instagram (17.8%), YouTube (15.1%), Twitter (1.7%), and LinkedIn (0.4%) [5].

In addition to these advantages, there is a phenomenon of a lack of integrated payment systems. As the McKinsey report indicates, online shopping in social commerce does not integrate payment and delivery. The entire process must be manually handled by sellers, which can be time-consuming [5]. This phenomenon poses a problem for sellers in gaining consumer trust, as consumers may perceive this limitation as a risk in transacting in s-commerce. This is because payments made outside of the s-commerce platform can lead to fraud risks, such as non-delivery of goods after payment. This differs from e-commerce platforms that offer escrow payments, reducing the risk of fraud. Such concerns are the main apprehensions of s-commerce users, which contribute to their perception of online risk [6]. This has also been confirmed in a study conducted in the context of India, which indicated that people are worried about the safety and security of automated and online services. The perceived risks or behavioral barriers can significantly increase in the case of s-commerce due to financial involvement and related product issues. Despite the risks associated with transacting on s-commerce platforms, these platforms are still widely used by social media users for online shopping. Therefore, there is a need for studies to determine factors that can mitigate risks when shopping through s-commerce platforms.

Existing literature on the use or adoption of online services indicates that one of the risk-mitigating variables, as described by researchers, is trust, which plays a crucial role in influencing behavioral intentions and their consequences [8]. Many prior researchers have identified the important role of perceived risk and trust in the online context; however, the relationship between trust and perceived risk has not been clearly depicted in the literature [9]. It is essential to include trust as a moderator because it is a factor that can reduce perceived risk [10], yet there is still a lack of research on trust as a mitigating factor in the context of s-commerce. Thus, this study incorporates trust moderation into the technology acceptance model framework to fill the knowledge gap. In the first part of this paper, we present a theoretical framework of the researched issue along with an overview of previous research, which forms the basis of our assumptions. We then explain the research methods and sample structure. The subsequent section presents our research findings. Finally, we discuss the main findings and present the managerial implications derived from them. The last section of this paper outlines the limitations of this research.

2. Theoretical Background

To develop a better understanding of what determines behavioral intention in s-commerce platforms, this study adopts the lens of the Unified Theory of Acceptance and Use of Technology (UTAUT). The UTAUT theory proposes four core constructs: Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), and Facilitating Conditions (FC). UTAUT was developed by combining eight user acceptance and motivation theories [11][12]. These theories include the Theory of Reasoned Action (TRA), the Theory of Planned Behavior (TPB), the Motivation Model, the Technology Acceptance Model (TAM), the combined TPB and TAM, Social Cognitive Theory, the PC Utilization Model, and the Diffusion of Innovations Theory.

[11] defines Performance Expectancy as "the degree to which an individual believes that using the system will help them achieve gains in job performance." Effort Expectancy is defined as "the level of ease associated with using the system" [11]. Social Influence is defined as "the degree to which an individual perceives that important others believe they should use the new system" [11]. Facilitating Conditions are defined as "the degree to which an individual believes that organizational and technical infrastructure exists to support the use of the system" [11].

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The four UTAUT constructs are direct determinants of behavioral intention and actual use concerning technology acceptance. [11] states that UTAUT explains up to 70% of the variance in behavioral intention, which is significantly higher than any of the six previous theories and models, where the maximum explanation was around 40%. [11] acknowledges several limitations in content validity and recommends that future research should revalidate the scales developed for each construct to examine different technologies and/or expand UTAUT with new measures. However, the current research model does not include the Facilitating Conditions variable, which refers to consumers' perceptions of the resources and support available for shopping in s-commerce. One main reason is that facilitating conditions can be confounded with ease of use (i.e., effort expectancy) [13]. Furthermore, most recent studies have found little or no support for the effects of facilitating conditions in self-service environments, such as mobile retail applications [13], reducing the need to include facilitating conditions in this research.

While the concept of perceived risk has been studied by many researchers [14][15], there is limited research focused on the s-commerce context to predict the influence of the Unified Theory of Acceptance and Use of Technology (UTAUT) model from [11] on behavioral intention directly through perceived risk. UTAUT exclusively addresses various drivers of technology acceptance and use by consumers [16]. The direct effects of the UTAUT model on perceived risk have also been examined in previous literature [17], yet there is still a lack of research in the s-commerce context investigating the mediating role of risk in the relationship between the UTAUT model and behavioral intention, which may subsequently lead to actual use. Therefore, this study develops and empirically validates a research framework that examines the relationship between the UTAUT model and behavioral intention through perceived risk.

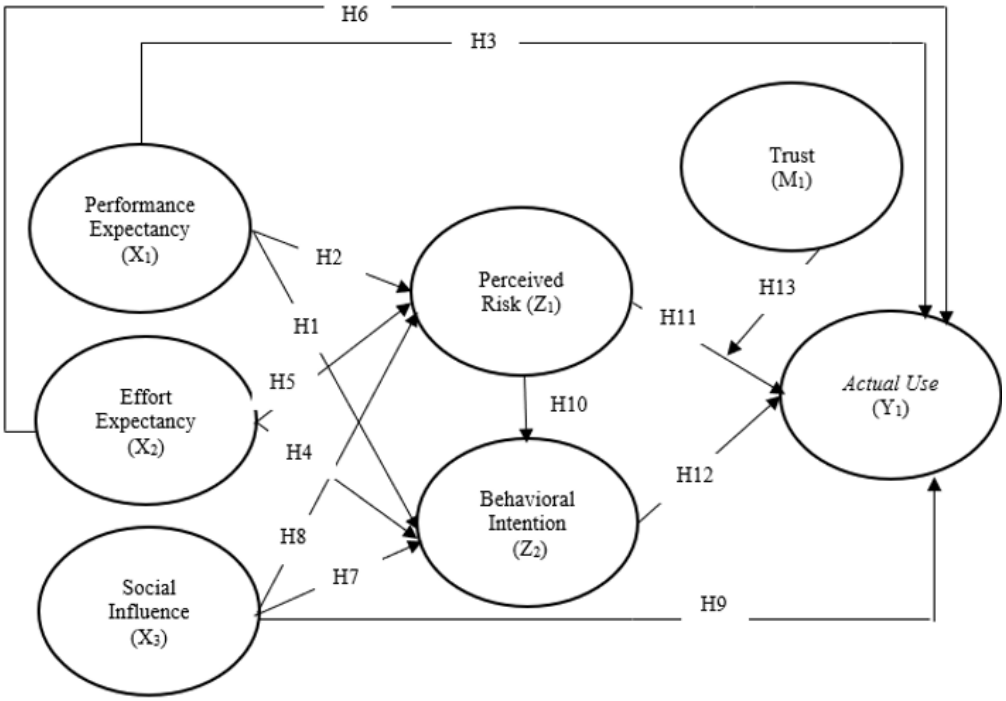

Figure 1.
Hypothesized research model.

Performance expectancy, as considered by [11], refers to "the degree to which an individual believes that using a specific system will help them achieve gains in task performance." This showcases

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users' perceptions of performance improvement through the use of s-commerce, such as time savings, convenience, service effectiveness, and cost-effectiveness [11][3][18]. In UTAUT, performance expectancy is shaped by various job-related constructs such as perceived usefulness, job fit, relative advantage, extrinsic motivation, and outcome expectations from established theories/models in consumer behavior, social psychology, and information systems [19][20]. Among these constructs, perceived usefulness from TAM [21][22] shares characteristics most similar to performance expectancy. Perceived usefulness has been shown to be a significant predictor of behavioral intention in most studies [23][15] related to TAM, TAM2, and the theory of planned behavior decomposition [24], similar to relative advantage as proposed in the innovation diffusion theory [25], job fit in The Model of Personal Computer Utilization (MPCU) [26], extrinsic motivation in the motivation model [27], and outcome expectations in Social Cognitive Theory [28]. Previous literature indicates that performance expectancy is the most influential factor explaining behavioral intention [11].

[3] found a positive and significant relationship between task-technology fit and performance expectancy in the context of mobile banking. Similarly, [29] revealed that performance expectancy is a strong determinant of technology acceptance in a cross-cultural study. In the context of internet banking, [30][31] found that perceived benefits (similar to performance expectancy) are important factors in explaining behavioral intention. [32] also reported the significance of perceived benefits on the intention to use mobile money services. Based on previous research findings, it is expected that if individuals feel that using the system will enhance their performance, they are more likely to adopt and use it [33][11]. Furthermore, earlier researchers found significant positive effects of performance expectancy on behavioral intention [34][35][36][37][38]. Therefore, we propose the following hypothesis:

H_1: Performance expectancy significantly affects behavioral intention.

Performance expectancy, defined as the degree to which an individual believes that using a specific system will help achieve performance gains, can also influence perceived risk when shopping online. [39] views user anxiety as an important element in the interaction between humans and machines, with the perceived uncertainty of purchases being influenced by the shopping interface used. When a shopping site offers more useful and explicit information, consumer anxiety decreases, leading to more positive reactions [40]. [41] argues that good human-computer interaction facilitates user learning, thus reducing the number of mistakes made. Therefore, higher quality interactions between a website and consumers can lead users to perceive the website as credible, thereby reducing the risks associated with making purchases from it. Research on performance expectancy's effects on perceived risk has found a significant negative influence [42][43]. Thus, this study proposes the following hypothesis:

H_2: Performance expectancy significantly affects perceived risk.

Consumers also perceive usefulness differently across different social networking applications (Lim et al., 2011); for instance, social networking applications should provide useful functions for users in terms of sharing information and joining special interest groups [44]. Based on various supports, we can conclude that if users find a social networking application beneficial, the adoption rate of the application will be higher. Researchers [45][46][47] state that performance expectancy will significantly affect behavioral intention and actual use in technology adoption. [48] used UTAUT to identify factors affecting teachers' use of digital learning applications. [49] also showed that performance impacts positively on consumers' intention to use and actual use in mobile shopping contexts. This is supported by [50], highlighting that consumer decisions about whether to use mobile applications depend on their usefulness in making tasks easier to complete. Therefore, this study proposes the following hypothesis:

H_3: Performance expectancy significantly affects actual use.

Effort expectancy is conceptualized as "the level of ease associated with using a specific system" [11]. An individual's intention to use a specific system is influenced not only by positive performance outcomes but also by the ease of using that system [51]. Effort expectancy is equivalent to perceived

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ease of use in TAM [21][52] and complexity in the innovation diffusion theory (IDT) [53] and The Model of Personal Computer Utilization (MPCU) [26]. The definition of perceived ease of use shares the same definition as effort expectancy, which is the level of belief that using the system will be free of effort [21][34]. The relationship between effort expectancy and behavioral intention has often been debated due to the varied results observed in previous literature. [9] found that perceived ease of use (PEOU) (similar to effort expectancy) influences behavioral intention but is not the strongest predictor. Similarly, [18] and [51] found that effort expectancy has a positive and significant effect on behavioral intention. Conversely, [15] found that PEOU has an insignificant impact on behavioral intention. In the context of this research, if users feel that s-commerce is easy to use and does not require much effort, they are likely to use it. Conversely, if users find s-commerce difficult to use, they are likely to refrain from using it [54][55]. Thus, we propose the following hypothesis:

H_4: Effort expectancy significantly affects behavioral intention.

When consumers intend to make purchases on shopping sites, they must first learn how to use them. If the process is difficult and complex, consumers will feel they cannot fully understand the online shopping process, thereby viewing it as riskier to use the website [56]. Therefore, if service providers make their websites easy to use and navigate, users will feel that the company has invested in ensuring the security and privacy of transactions and data handled [24]. Based on the studies above, reducing the difficulty or complexity of shopping sites will decrease the perceived risk when consumers wish to browse or purchase. Previous researchers have also found a significant negative relationship between effort expectancy and risk [42]. Thus, the following hypothesis is proposed:

H_5: Effort expectancy significantly affects perceived risk.

When a system is perceived as easier to use, it is more likely to be accepted by users. Although most studies find perceived usefulness directly related to use, some findings do not show a significant impact on use, such as [57]. There are also many studies that find effort expectancy influences system use [27][21][58]. Therefore, the hypothesis proposed in this study is as follows:

H_6: Effort expectancy significantly affects actual use.

Regarding social influence, [11] defines it as "social pressure arising from the external environment that can influence an individual's perceptions and behaviors, such as the opinions of friends, family, colleagues, supervisors, or social groups." This construct is arranged in UTAUT2 from variables included in integrated models like subjective norms from TRA [59], TAM2 [60], TPB [61], and C-TAM-TPB [27], social factors from MPCU [26], and image from IDT [15]. Most empirical studies find that social influence is an important antecedent of behavioral intention [11][18][34][62]. The relationship between social influence and behavioral intention is further supported by [3] and [63], who show a positive and significant impact of social influence on mobile banking adoption. This is based on the fact that customer decision-making processes are heavily influenced by the ideas and opinions of social groups (friends, family, colleagues) [20]. If customers have no prior experience using a system, subjective norms will be stronger. Consumers will interact with their social networks to consult on their adoption decisions [62]. In the current context, if a friend/colleague/family member recommends using the internet for banking, a person is likely to use it, enhancing their social status within the group [15]. Thus, the following hypothesis is proposed:

H_7: Social influence significantly affects behavioral intention.

Social influence is a phenomenon involving behavior change, actions, or viewpoints as a result of stimuli in the environment. Most customers are significantly influenced by the prevalent uncertainties in online banking, which ultimately impacts the opinions of others in their social groups. Thus, if individuals in the referenced group believe that using a specific system will yield negative outcomes, an individual is likely to share the same belief, hindering their usage [11][64]. When customers assess risks in the online environment, they often recall the opinions of knowledgeable and credible referents [65]. Reference groups employ social influence informatively and normatively based on their value-expressive contemplation in the minds of customers who are concerned about potential personal losses arising from using online banking [66]. This is further explained by [9] in their research, stating that

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if individuals tend to believe that people in their social groups approve of using online banking services, the risks associated with adoption will decrease. [42][15] found a negative relationship between social influence and risk. Therefore, the following hypothesis is proposed:

H_8: Social influence significantly affects perceived risk.

Previous research [18] has shown that individuals are likely to follow what reference groups say and do if those referenced individuals have the power and authority to influence desired behaviors and punish non-behavior. For instance, an individual's behavior in using technology can be influenced by advertisements appearing on television, newspapers, radio, and the internet. These media influences are categorized as mass media influence. Furthermore, [67] testified that the behavior of young adults in using mobile applications is significantly influenced by peers rather than family members based on a survey conducted at a Midwest US university. Interpersonal influence, typically generated from reference groups, affects the opinions, attitudes, and behaviors of individuals, such as family, friends, colleagues, and more. Moreover, social influence significantly affects consumers' actual use, especially in social networking applications compared to other mobile applications [68]. Young generations in Malaysia prefer using Facebook over many other social networking applications because their friends and family also use it, and people around them believe they should use it too. Thus, the following hypothesis is proposed:

H_9: Social influence significantly affects actual use.

Perceived risk refers to the likelihood of adverse outcomes arising from using online banking, such as transaction security, hacking attempts, phishing by fraudsters, internet outages, or site/application failures, and loss of status within social groups [15]. All these threats act as barriers to online banking usage. Many researchers in the field of information systems have shown that perceived risk negatively relates to behavioral intention [23][69][7]. The negative relationship between perceived risk and behavioral intention can be explained by the idea that "attitude typically leads to action," as explained in the Theory of Reasoned Action [59]. To maintain consistency with the underlying theories, it is expected that reducing perceived risk will enhance customers' willingness to transact. This attitude-action phenomenon has been specifically explained by [15], stating that perceived risk related to online transactions reduces perceived behavioral and environmental control, and this lack of control, in turn, diminishes customers' behavioral intentions. In justifying this argument, it is assumed that customers are likely to transact online if their perceived risks regarding behavioral and environmental uncertainty are reduced. Thus, if consumers perceive more risk in online shopping within s-commerce, they are less likely to use it. Conversely, reducing perceived risks in s-commerce online shopping will increase consumers' intentions to shop. Therefore, the following hypothesis is proposed:

H_{10}: Perceived risk significantly affects behavioral intention.

Perceived risk can be defined as the likelihood that customers suffer losses in pursuit of the desired consequences of online shopping [23]. Several studies have paid particular attention to issues related to perceived risk [70][71]. Indeed, aspects related to perceived risk have been widely considered as important negative determinants of actual use [72][73]. Special interest in these factors may be linked to the high uncertainty, intangibility, heterogeneity, and ambiguity characterized in the online banking area, along with the absence of human interaction [70][23][15][18]. Thus, this study assumes the following hypothesis:

H_{11}: Perceived risk significantly affects behavioral intention.

Previous findings reveal a significant positive relationship between s-commerce adoption and actual use of s-commerce [35]; Farah et al., 2018). This implies that if customers adopt s-commerce and experience positive changes, their actual usage of s-commerce is likely to increase to a certain extent. These findings align with the Technological Acceptance Model (TAM), which has been tested in numerous studies such as [21][74][27]. The model states that the behavioral intention to use significantly impacts users' actual ability to utilize the system. Therefore, the following hypothesis is proposed:

H_{12}: Behavioral intention significantly affects actual use.

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[75] highlights that in electronic markets, trust reduces anxiety about uncertainty and privacy issues by acting as a catalyst in online transactions. The trust relationship is key to mitigating expectations of opportunistic behavior, which in turn reduces the effect of perceived risk on actual use [76]. Thus, the presence of trust in any relationship serves as a guarantee against risks and unpredictable behavior [10]. The level of trust may vary according to the level of risk, but to achieve the right balance between risk and trust, the level of trust must be stronger than the perceived risk [77]. This is because the belief that one operating at a high-risk level will disclose personal information only if the level of trust exceeds the perceived risk. On the other hand, a lack of trust will drive consumers to focus solely on the risks arising from internet transactions, hindering their use of online shopping platforms. It is therefore expected that trust moderates the negative relationship between perceived risk and actual use, becoming more pronounced at lower levels of trust:

H_{13}: Trust moderates the effect of perceived risk on actual use.

3. Methods

The research design used is Causal Explanatory Research, which aims to demonstrate the positions of the variables under study and the influence between one variable and another. The population in this study consists of all online shopping consumers who have transacted on s-commerce platforms in Indonesia. The sampling method employed in this study is purposive sampling. According to [79], purposive sampling is a technique for determining samples based on specific considerations. The criteria for sample selection in this study include respondents aged 18 and above, as it is expected that they can understand the questions in the questionnaire and provide valid answers, as well as respondents who have made online purchases in social commerce within the last month. The determination of the sample size in this study is based on the opinion of [80].

The data collection technique used in this research is through a questionnaire (Google Form), which is distributed online to respondents via social media. Respondents' subjective responses are measured using a 5-point Likert scale, where 1 = strongly agree and 5 = strongly disagree. A total of 270 respondents filled out the questionnaire, which will be analyzed using SEM analysis with the aid of AMOS 24 software.

We measure each construct of the model reflectively using several items based on previous scientific studies to ensure their validity. The inclusion of items in the study is subject to specific criteria. The factor loading must exceed a value of 0.7. To ensure the reliability of this research instrument, the internal consistency is confirmed using Cronbach's alpha coefficient ($\alpha > 0.7$). Table 2 shows the research variables and their respective factor loadings.

Table 1.
Respondent characteristics.

	Total	Persentase (%)
Gender		
Male	192	71.1
Female	78	28.9
Age		
17 - 27	17	6.3
28 - 38	44	16.3
39 - 49	98	36.3
≥ 50	111	41.1
Education		
High School/Vocational School	39	14.4
Diploma 3 (D3)	18	6. 7
Bachelor's Degree (S1)	112	41.5

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Master's Degree (S2)	90	33.3
Doctorate (S3)	11	4.1
Occupation		
Student	15	5. 6
Private Employee	52	19.3
Homemaker	10	3.7
Civil Servant	50	18.5
Entrepreneur	85	31.5
Others	58	21.5
Income		
< Rp 1.000.000	0	0
Rp 1.000.000 - ≤Rp.2.000.000	18	6. 7
> Rp 2.000.000 - ≤Rp 3.000.000	22	8.1
> Rp 3.000.000 - ≤Rp 4.000.000	26	9.6
> Rp 4.000.000 - ≤Rp 5.000.000	47	17.4
> Rp 5.000.000	157	58.1

As shown in Table 1, the data on respondents by gender indicate that out of 270 individuals studied, the majority, 192 respondents (71.1%), are male. The data on respondents by age reveal that the largest group, 111 respondents (41.1%), are over 50 years old. In terms of education, the majority of respondents, 112 individuals (41.5%), have a Bachelor's degree (S1). Regarding income, most respondents, 157 individuals (58.1%), have an income of more than Rp. 5,000,000..

Table 2.
Researched variables and factor loading.

Latent construct	Loading factor	Manifest variable	Source
X1.1	0.717	The performance of s-commerce is good in online trading activities.	Venkatesh et al. (2003)
X1.2	0.775	Shopping on s-commerce increases my effectiveness in purchasing products.	
X1.3	0.745	Shopping on s-commerce allows me to complete product purchases more quickly.	
X1.4	0.778	Shopping on s-commerce makes product purchasing easier.	
X2.1	0.796	It is very easy for me to become skilled at shopping on s-commerce.	Venkatesh et al. (2003)
X2.2	0.697	Searching for products on s-commerce is very easy.	
X2.3	0.905	I find it easy to use s-commerce.	
X2.4	0.869	Learning to shop on s-commerce will be easy for me.	
X3.1	0.953	People who influence me suggest that I use social commerce.	Venkatesh et al. (2003)
X3.2	0.890	People who are important to me think I should use social commerce.	
X3.3	0.756	People who use social commerce have a higher profile.	
X3.4	0.881	People who use social commerce have more authority than those who do not.	
X3.5	0.867	Using social commerce is a status symbol.	
Y1.1	0.739	There is a high risk of loss if I make online purchases	Alcantara-

		through this e-commerce.	Pilar et al. (2018)
Y1.2	0.662	There are significant risks involved in making purchases through this e-commerce.	
M1.1	0.888	I believe that s-commerce sites can be trusted.	Gefen et al. (2003)
M1.2	0.858	I trust s-commerce sites.	
M1.3	0.719	I have no doubt about the honesty of s-commerce sites.	
M1.4	0.911	I feel confident that the legal and technological structure sufficiently protects me from issues with s-commerce sites.	
Y2.1	0.849	I will shop on s-commerce regularly in the future.	Lee (2009), Martins et al. (2014), Roy et al. (2017)
Y2.2	0.901	I would highly recommend others to shop on s-commerce.	
Y2.3	0.864	I hope shopping on s-commerce continues in the future.	
Y2.4	0.885	I intend to make transactions on the s-commerce platform.	
Y2.5	0.873	I plan to shop on s-commerce for easy access to purchasing products.	
Y3.1	0.849	In the last month, I have used s-commerce to purchase products online.	Chopdar et al. (2018),
Y3.2	0.901	In the last month, I have used s-commerce to shop for products from different online retailers.	
Y3.3	0.864	In the last month, I have used s-commerce for personal purchases.	
Y3.3	0.704	I have used various types of s-commerce in the last month.	

4. Results

The reliability results in this study were calculated using composite construct reliability, with a minimum cutoff value of 0.6. All variables demonstrated scores above this threshold. The results of the reliability test indicated that all variables attained a Cronbach's Alpha coefficient above 0.7, as recommended by [81].Furthermore, based on the SEM analysis for validity testing, all indicators met the validity requirements (loading factor > 0.5). Overall, all constructs passed the reliability test with a cutoff value greater than 0.6.

Table 3.
Validity and reliability.

Indikator	Loading factor	Description	Construct reliability	Description
X1.1	0.717	Valid	0.839	Reliabel
X1.2	0.775	Valid		
X1.3	0.745	Valid		
X1.4	0.778	Valid		
X2.1	0.796	Valid	0.883	Reliabel
X2.2	0.697	Valid		
X2.3	0.905	Valid		
X2.4	0.869	Valid		
X3.1	0.953	Valid	0.938	Reliabel
X3.2	0.890	Valid		
X3.3	0.756	Valid		
X3.4	0.881	Valid		

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X3.5	0.867	Valid		
Y1.1	0.739	Valid	0.653	Reliabel
Y1.2	0.662	Valid		
M1.1	0.888	Valid	0.853	Reliabel
M1.2	0.858	Valid		
M1.3	0.719	Valid		
M1.4	0.911	Valid		
Y2.1	0.849	Valid	0.838	Reliabel
Y2.2	0.901	Valid		
Y2.3	0.864	Valid		
Y2.4	0.885	Valid		
Y2.5	0.873	Valid		
Y3.1	0.849	Valid		
Y3.2	0.901	Valid	0.899	Reliabel
Y3.3	0.864	Valid		
Y3.4	0.704	Valid		

The model fit results from AMOS 24.0 showed a CMIN/DF value of 1.050. This value is below the recommended threshold of <2, indicating that the model fits relatively well. The probability (Sig. Probability) was 0.262, which is above the significance level of 0.05, suggesting a good model fit. The RMSEA value was 0.014, well below the recommended limit of <0.08, indicating a good fit with the data.The GFI value was 0.90, exceeding the minimum recommended value of >0.90, which further suggests a good model fit. The RMR value was 0.030, also below the recommended threshold of <0.05, confirming the model's fit. The TLI value was 0.996, surpassing the minimum recommended value of >0.95, indicating strong model fit. Similarly, the CFI value was 0.997, exceeding the minimum threshold of >0.95, which demonstrates that the model fits the data well.

Overall, the analysis results indicate that the model fits the observed data well, with values supporting the interpretation that the model effectively explains the relationships among the variables.

Table 4.
Model fit test.

Criteria	Cut-off value	Test result	Status
CMIN/DF	< 2	1.050	Fit
Sig. probability	> 0.05	0.262	Fit
RMSEA	< 0.08	0.014	Fit
GFI	> 0.90	0.922	Fit
RMR	< 0.05	0.030	Fit
TLI	> 0.95	0.996	Fit
CFI	> 0.95	0.997	Fit

Table 5 shows the relationships between latent variables. Based on this, we can arrive at the results of the established hypotheses (outlined in Table 5). From the explanation above, it can be stated that at an alpha level of 0.05, only hypotheses H1, H2, H5, and H12 are statistically accepted, while the other hypotheses are not statistically supported. Additionally, the role of the moderating variable in this study (H13) is also statistically accepted.

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Table 5.
Hypothesis testing.

Relationship	Estimate	S.E.	C.R.	P	Status
Y1 <--- X1	-0.444	0.150	-2.960	0.003	Hypothesis Accepted
Y1 <--- X2	0.070	0.107	0.658	0.511	Hypothesis Rejected
Y1 <--- X3	-0.031	0.046	-0.675	0.500	Hypothesis Rejected
Y2 <--- X2	0.201	0.059	3.402	***	Hypothesis Accepted
Y2 <--- X3	-0.009	0.024	-0.396	0.692	Hypothesis Rejected
Y2 <--- X1	0.488	0.085	5.764	***	Hypothesis Accepted
Y2 <--- Y1	0.037	0.056	0.651	0.515	Hypothesis Rejected
Y3 <--- X1	0.224	0.134	1.676	0.094	Hypothesis Rejected
Y3 <--- X2	0.053	0.085	0.624	0.533	Hypothesis Rejected
Y3 <--- X3	0.022	0.035	0.631	0.528	Hypothesis Rejected
Y3 <--- Y1	0.145	0.078	1.869	0.062	Hypothesis Rejected
Y3 <--- Y2	0.858	0.152	5.634	***	Hypothesis Accepted
Y3 <--- Moderation	-0.005	0.002	-2.806	0.005	Hypothesis Accepted

5. Discussion

The results of the data analysis confirm that Performance Expectancy has a significant impact on Risk Perception in the context of social commerce, validating the first hypothesis that Performance Expectancy influences consumer risk perception. The research indicates that the higher the performance expectations regarding social commerce, the lower the consumers' risk perception towards the platform, and vice versa. This underscores the importance of Performance Expectancy in shaping how consumers view risks associated with using social commerce. In the UTAUT framework, Performance Expectancy is considered a point at which individuals realize that using a system will help them achieve their goals while reducing their perception of risk. Despite contrasting findings in previous studies, the complexity in the relationship between performance expectations and risk perception highlights the need for further research to better understand this dynamic. These findings also support earlier research, such as studies by [42] and [43], which also found a significant negative influence of Performance Expectancy on Risk Perception.

The data analysis further confirms that the variable "Performance Expectancy" significantly affects consumers' "Behavioral Intent" in the context of adopting social commerce. This finding strengthens the hypothesis stating that the higher the performance expectations consumers have towards social commerce platforms, the higher their intention to shop there. The concept of Performance Expectancy, as explained in the Unified Theory of Acceptance and Use of Technology (UTAUT), plays a key role in understanding the intention to use technology, consistent with previous research results that show a positive relationship between performance expectancy and behavioral intention. However, differing results across studies indicate complexity in the influence of this variable, emphasizing the importance of considering context and additional factors that may affect consumer behavior in technology use.

The data analysis shows that the variable "Performance Expectancy" does not have a significant influence on actual consumer behavior in using social commerce platforms, leading to the rejection of the hypothesis stating that Performance Expectancy affects Behavioral Intent. Nevertheless, the positive coefficient indicates that the higher the performance expectations consumers have towards a platform, the more likely they are to use it, even if this is not statistically significant. This finding emphasizes the importance of understanding the complexities of the factors influencing consumer behavior in technology adoption, such as differences between expectations and actual user experiences, the influence of external factors, and the effectiveness of platforms in meeting user needs. These results also indicate inconsistencies with theories such as the Unified Theory of Acceptance and Use of Technology (UTAUT) and the Theory of Planned Behavior (TPB), stressing the need for further research to understand the factors affecting the adoption and actual use of social commerce platforms

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and their managerial implications for developing effective marketing strategies. This research aligns with studies conducted by [82], which found that perceived preferences and benefits do not significantly influence electronic payment usage.

The analysis indicates that the variable "Effort Expectancy" does not significantly influence consumers' risk perception in the context of using social commerce platforms. Although it is theoretically expected that ease of use would reduce risk perception, these findings suggest a misalignment between existing theory and empirical findings. Consumer behavior complexities and other factors such as transaction security and privacy policies may play a more dominant role in influencing risk perception than the ease of use of the platform. This emphasizes the need to understand specific contexts and additional factors influencing consumer behavior in technology adoption, as well as the importance of developing more holistic marketing strategies to enhance social commerce platform adoption. This research supports previous findings that Effort Expectancy has an insignificant effect on risk perception [43].

The data analysis reveals that the variable "Effort Expectancy" has a significant influence on consumers' behavioral intention in the context of using social commerce platforms, particularly on Shopee. This finding supports the hypothesis that the easier or more efficient consumers find the shopping process on Shopee, the higher their intention to engage in that behavior. The concept of Effort Expectancy, which describes the level of ease involved in using a system, proves to be an important factor influencing users' behavioral intentions in technology adoption. This finding aligns with theories stating that the lower the perceived effort or difficulty in using social commerce platforms, the higher the likelihood of consumers' intention to shop online. The research provides deeper insights into how ease of use becomes a key factor in shaping consumers' behavioral intentions in the context of social commerce, consistently supported by previous research findings [63]; [62].

The analysis indicates that the variable "Effort Expectancy" does not significantly influence actual consumer use in the context of social commerce platforms. Although consumers' expectations regarding ease of use in online shopping tend to enhance their intention to use the platform, empirical results show that these expectations do not directly lead to actual usage. Factors such as navigation complexity, discomfort in transactions, or technical issues may hinder consumers from active usage, even if they have high expectations regarding ease of use. This finding highlights the importance of understanding the more complex dynamics behind actual use of social commerce platforms, as well as its strategic implications for developing more effective user experiences. While theories like the Unified Theory of Acceptance and Use of Technology (UTAUT) and the Theory of Planned Behavior (TPB) emphasize the critical role of Effort Expectancy in shaping user behavior, this research shows a discrepancy between theory and empirical findings, indicating the need for further study to understand the factors affecting adoption and actual use of social commerce platforms.

The analysis indicates that the variable "Social Influencer" does not have a significant influence on consumers' risk perception in the context of social commerce platforms. Although the social influence of key figures may tend to reduce individuals' risk perception towards social commerce platforms, empirical findings reject the hypothesis that a significant influence exists. Factors such as trust in influencers, the relevance of influencers to the advertised products or services, and other dominant factors affecting risk perception, such as data security or independent reviews, may contribute to the insignificance of social influence on risk perception. While theories like UTAUT and previous studies indicate the important role of social influence in shaping behavior and perceptions, these findings highlight the complexity of the factors influencing consumers' risk perception in the context of social commerce. Thus, a deeper understanding of the interaction between social influence and risk perception can provide important insights for companies in designing more effective marketing strategies and understanding consumer behavior holistically in the digital environment. This research aligns with previous studies [75].

The analysis indicates that the variable "Social Influencer" does not have a significant influence on consumers' behavioral intention in the context of social commerce platforms, leading to the rejection of

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Vol. 8, No. 6: 4683-4699, 2024
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the hypothesis that states a significant influence exists. However, the positive coefficient suggests that the greater the social influence impacting individuals to use social commerce, the higher their behavioral intention towards using the platform. Although not statistically significant, this finding indicates that social influence can affect consumers' behavioral intentions regarding social commerce. Nonetheless, factors such as personal preferences, perceived benefits, and service quality may be more dominant in shaping users' behavioral intentions. This underscores the complexity of social influence's role in shaping behavioral intentions and emphasizes that in the context of social commerce, other factors may have a greater impact on shaping individual behavioral intentions. Therefore, a deeper understanding of the interaction between social influence and other factors in shaping consumers' behavioral intentions can provide more comprehensive insights for designing effective marketing strategies for social commerce platforms. This research aligns with studies conducted by [83].

The analysis indicates that the variable "Social Influence" does not have a significant impact on consumers' actual use in the context of social commerce platforms, leading to the rejection of the hypothesis stating such an influence exists. Although not statistically significant, this finding suggests a tendency for consumers more influenced by social factors, such as recommendations from friends or public figures, to use social commerce platforms more frequently for shopping. However, individual preferences, direct experiences with the platform, or economic conditions may also play significant roles in determining consumers' actual use of the platform. Therefore, these results highlight the complexity of consumer behavior and demonstrate that social influence is not always the sole determinant of actual platform usage. Thus, a deeper understanding of the interaction between social influence and other factors in the context of social commerce can provide more comprehensive insights for designing effective marketing strategies to enhance social commerce platform usage.

The analysis indicates that the variable Risk Perception does not have a significant influence on consumers' Behavioral Intent in the context of social commerce platforms, leading to the rejection of the hypothesis that states such an influence exists. Although not statistically significant, there is a tendency for consumers who perceive risks in using social commerce platforms to have a stronger intention to shop on those platforms. This finding highlights the complexity of consumer behavior and shows that risk perception is not always the sole determining factor in shaping consumers' behavioral intentions. Explanations for this phenomenon may include considerations of perceived benefits outweighing the risks, the influence of other factors on behavioral intent, or the possibility that risk perception is viewed as a less relevant factor in the context of using social commerce platforms. Thus, this finding provides valuable insights into the factors influencing consumers' behavioral intentions in the context of social commerce, which may differ from previous research findings and demonstrate the complex dynamics of consumer behavior in the digital environment. This research aligns with previous studies that found the influence of risk perception to be statistically insignificant on behavioral intentions [84].

The analysis shows that the variable Risk Perception does not have a significant influence on consumers' actual use in the context of social commerce platforms, leading to the rejection of the hypothesis that states such an influence exists. Although not statistically significant, there is a tendency for consumers with a high perception of risk towards using social commerce platforms to have a stronger intention to shop on those platforms. This finding indicates that in the context of social commerce, risk perception is not always the sole determining factor affecting consumers' actual use. Explanations for this phenomenon may involve considerations of perceived benefits being more dominant than the risks, the influence of other factors on consumers' behavioral intentions, or even a higher tolerance for risk in the social commerce environment. Thus, these results provide important insights into the complexities of consumer behavior in the digital environment, suggesting that the influence of risk perception can be balanced by other factors in affecting consumers' actual use of social commerce platforms. This research supports findings from previous studies conducted by [84].

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6. Conclusions

Based on the research findings presented, it can be concluded that psychological and social factors such as Performance Expectancy, Effort Expectancy, Social Influence, Risk Perception, Behavioral Intention, and Trust play a role in consumer behavior on social commerce platforms. Performance Expectancy and Effort Expectancy influence consumers' behavioral intentions, while Performance Expectancy also affects risk perception. Although Social Influence does not directly impact behavior, high Behavioral Intention correlates with higher actual use. Risk Perception does not directly affect either Behavioral Intention or actual use, but Trust significantly moderates its impact on actual use. This highlights the importance of strengthening consumer trust as a strategy to address the barriers posed by risk perception in using social commerce platforms. Overall, these findings provide valuable insights for practitioners and researchers in understanding consumer behavior and developing effective marketing strategies in the context of social commerce.

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