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Doctoral Thesis

Purchasing through Social Platforms with Buy Buttons: Academic and Practical Considerations

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Programa de Doctorado en
Ciencias Económicas y Empresariales

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To my parents and my wife

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Abstract
Social commerce sales are considerably increasing in recent years. Social platforms (e.g., Facebook, Instagram, and WeChat) play a strategic role in world economy. However, social platforms ran into several burning issues: low ad conversion rates, social platform users' free-riding behaviors, etc. Although buy buttons, a clickable navigation element leading users from a social platform to an e-commerce platform, could be a solution for such issues, the outcomes of using buy buttons did not reach many professionals' expectation. This thesis studied four issues related to social shopping with buy buttons. First, as it is undetermined whether a social platform should roll out the buy-button feature or not, it is necessary to study whether the presence of buy button is associated with better outcomes (e.g. users' higher willingness to purchase through the social platform) or not. Second, as social commerce is a remote shopping mode in which buyers and sellers cannot have face-to-face interactions, high risk and low trust could be two crucial barriers of social commerce. Hence, it is needed to study how risk- and trust-related factors influence users' direct purchasing behavior. Third, considering that social commerce could be risky, this thesis wants to examine whether the presence of safe shopping measures (vs. an unsafe shopping scenario) can improve the performance of social shopping or not. Finally, social commerce involves a purchase path from a social platform to an e-commerce platform. There are many pain points (e.g., re-entering billing and shipping information) in the purchase path. Meanwhile, as social shopping risks and pain points in the purchase path could be caused by a same factor, the silos between social platforms and e-commerce platforms. It is interesting to study how safe shopping measures and integrated path-to-purchase (users can complete a purchase without leaving the social platform; vs. separated path-to-purchase in which users have to leave the social platform and go to the e-commerce platform to complete a purchase) jointly influence users. In order to answer these questions, three essays have been included in this thesis. Several online surveys were conducted. The between-subjects experimental design and the Structural Equation Modeling (SEM) technique were used. The results showed that the presence of buy button was related to better outcomes. It found that risk- and trust-related factors significantly influenced users' direct purchasing behavior. Both the safe shopping measures and the integrated path-to-purchase design can generate better outcomes of using a buy button in social shopping. In most circumstances, users showed more positive reactions when the safe shopping measures or the integrated path-to-purchase was present. However, no significant interaction effects between the safe shopping measures (vs. an unsafe shopping scenario) and the integrated path-to-purchase (vs. the separated path-to-purchase) were found. The theoretical contributions have been discussed in contrast to previous literature. This thesis has added academic value by offering new insights for previously established variable relationships in a different research context and studying variable relationships that have not been examined in previously relevant studies. From a practical viewpoint, as buy buttons inject e-commerce capabilities into social platforms, this thesis implies that socially focused platforms could reap benefits from social commerce by rolling out a buy-button feature. It is recommended that social platforms wanting to roll out buy buttons take safe shopping measures and create a seamless shopping experience for users.

Keywords
Social platform; buy button; social commerce; safe shopping; trust; risk; purchase willingness.

1. Introduction

1.1. The strategic role of social platforms in the world economy

Social platforms (e.g., Facebook, Twitter, Youtube) are playing a strategic role in world economy. Many firms incorporate social platforms into their advertising strategy and sales strategy. Firms' social ad spending in total will likely reach over 100 billion dollars in 2020 (Zote, 2020). Social platform ads can reach over one billion consumers, surpassing traditional print media's reach capability (Shareef et al., 2019; Schulze, Schöler and Skiera, 2014). The superiority of social platforms against traditional print media is reliant on social, interactive and informative elements that social platforms inject into advertising or marketing communication (Alalwan, 2018; Barreda et al., 2016; Lee and Hong, 2016; Mangold and Faulds, 2009; Swani et al., 2017; Wu, 2016).

Sales is determinant for a firm's survival and growth, but the outcomes of many firms' current sales strategies do not reach their expectation. Sales strategies such as cold calls or cold emails are becoming ineffective. Every 330 cold calls generated approximately one appointment (Lampertz, 2012). Only 24.3% of salespeople exceeded their sales quota in 2018 (Marcwayshak.com, 2019). 40% of salespersons reported getting a response from customers was more difficult (HubSpot, cited in Ye, 2018). The difficulties in sales place more pressure on firms which heavily rely on traditional sales strategy (Ancillai et al., 2019). By contrast, firms' adoption of social commerce strategy is able to bring about more opportunities and sales. Sales deriving from social platforms will reach 84.2 billion dollars in 2024, a considerable increase from 22 billion dollars in 2019 (Clement, 2020). 30% of consumers stated that they are willing to buy directly through social platforms (Absolunet, cited in Llewellyn, 2019). Social commerce is becoming an important part of many firms' corporate strategy. Research has revealed that approximately 84% of companies stated that their sales function used social platforms; in the eyes of top leaders (i.e., CEO, CFO, CIO), achieving sales is a major outcome of conducting commercial activities through social platforms (Kiron et al., 2013). Social platforms are designed for building and maintaining relationship, so firms can discover and monetize social capital gained from using social platforms to reach and contact customers. Two real cases are introduced to reveal that social platforms can be used for achieving sales. Nike used Snapchat, a social platform to sell out their new shoes -Air Jordan III "Tinker"- in less than half an hour (Dickey, 2018). Artlog, a company that sells tickets of art events, ran Facebook Ads to promote ticket sales; for every 75 dollars this company spent on Facebook, it saw 200 dollars in sales (Keath, 2012).

1.2. Critical issues that social platforms face

In practice, social platform companies face several burning issues. First, advertising is many social platforms' major revenue source, but the average conversion rate of social platforms is not satisfactory. Major social platforms such as Facebook and Youtube have the highest traffic compared to other digital channels, accounting for around 14% of website visits, but their conversion rates are considerably low (Priceonomics, 2018). A recent survey showed that paid search (2.9%), organic search (2.8%), and emails (2.3%) generated higher conversion rates (in brackets) than social platforms (1%) (Episerver, cited in Chaffey, 2020). Second, users perform free-riding behaviors to collect product information from a seller's social post and then complete the purchase at another place such as another seller's website or physical store. A survey related to social platform users have showed that social platforms (Instagram,

Facebook, and Snapchat) only represented around 19% of all purchases of products discovered on the social platform, indicating that most deals were closed through other channels such as Amazon.com and bricks-and-mortar stores (see Garcia, 2018). Last, quality content is a social platform's most valuable asset to attract users. However, content producers could unwillingly keep developing and sharing content for free; when producers cannot make money from a social platform, they would leave and look for other platforms where they can make money (Team Laal Patti, 2018). When premium content producers left, social platforms could see a significant decrease in content quality. This can provoke users' dissatisfaction, and eventually drive users to other competitors.

1.3. Buy buttons: a solution

Buy buttons could be a solution for resolving issues that social platforms face. A buy button in this thesis refers to a click-to-buy button, an actionable link, or a clickable product picture leading customers from a social platform to an internal or external product webpage to complete a purchase. Social platforms' adoption of buy buttons could help social platforms increase ad conversion rates, avoid consumer free-riding, and motivate creators to continually create premium content.

The silos between social platforms and e-commerce platforms are a major barrier for direct purchases made through social platforms. Social platforms are designed for building and maintaining relationships with others and offering social networking services. In contrast, e-commerce platforms are designed for the selling and buying of products online. These differences result in the silos between these two platforms. Buy buttons are a connection between social platforms and e-commerce platforms. Using buy buttons can remove efforts involved in a social platform user's purchase journey from awareness to purchase, eventually increasing the ease of social shopping (Turban, Strauss and Lai, 2016). As buy buttons can shave down the time and effort involved in making a purchase through social platforms, social platforms' adoption of buy buttons can help increase conversion rates (Constine, 2014). Also, it is reasonable to predict that free-riding behaviors will decrease because the easiness of purchase fueled by buy buttons may lower the likelihood that users discover a product on a social platform and then go to another channel to buy it. In a word, using buy buttons are possible to break down the silos between social platforms and e-commerce platforms.

Social platforms' adoption of buy buttons can also motivate content producers. With buy buttons, content producers can monetize their social influence on followers. People can use buy buttons to sell products or services directly via social platforms (Emoghene, 2018). Product or service information can be explicitly or implicitly entailed in social posts. Furthermore, digital content such videos, e-novels, and music can be directly sold through shoppable posts. For example, Weibo, China's answer to Twitter, has rolled out a feature of paid articles by which creative writers can sell articles or novels to their followers. This strategy motivates content producers to continually create premium content for this platform. Weibo stated that it created a paid-content income of over 20.7 billion in 2017, which was a 183% year-over-year increase (Gui, 2017). Since Facebook rolled out "Facebook Buy Button" in around 2014, many other leading social media companies (e.g., Twitter, Pinterest, Youtube) joined this wave and launched their e-commerce strategy. Big companies' adoption of buy buttons signals that buy buttons could entail enormous business opportunities.

Apart from practical value generated by buy buttons, buy buttons also entail opportunities for academic research in social commerce. On the one hand, previous social commerce literature pay attention to social factors such as product recommendation and social interaction, and studied how social factors influenced consumers (see Hu et al., 2016; Lin et al., 2017). Research related to commercial factors on socially focused platforms such as Facebook and Instagram was scarce. On the other hand, another research line in social commerce literature focuses on e-commerce websites adding social elements such as Mogujie.com (Hu et al., 2016), Kaboodle.com, and Polyvore.com (Olbrich and Holsing, 2011). Albeit these websites added social elements such as user community and online interaction, they are oriented to the selling and buying of products online rather than social activities. My research target is buy buttons on socially focused platforms and relevant commercial activities. Socially focused platforms refer to general social platforms such as Facebook and Instagram oriented to offer social networking services rather than online shopping services. Affected by socially focused platforms' specific characteristics, users of such platforms could display different behavioral patterns in contrast to their counterparts of societal e-commerce platforms. In a word, socially focused platforms adding a commercial feature (buy buttons) may entail some opportunities for social commerce research.

1.4. The problem related to purchasing through social platforms with buy buttons

Business research should focus on crucial problems of significance in the practice of business (Raffield, Vang and Lundsten, 2016), therefore it is needed to indicate problems related to social shopping with buy buttons. The major use of buy button is allowing clickers to make a purchase through a social platform, so incorporating a buy button into a person's post makes viewers easily perceive this person's selling intention. A prior study has indicated that people are unwilling to be annoyed by commercial posts when they are engaged in their online social gatherings (Clemons, 2009). Concerning buy buttons on social platforms, research has demonstrated that 45% of the surveyed US adults stated that they had no interest in using them (see Business Insider Intelligence, 2016). Albeit Facebook and Twitter rolled out buy buttons since around 2014, over 30% of the respondents in a survey said that they had never bought an item directly through a social platform (Statista, 2017). Twitter, one of the most popular social platforms in the world, aborted its e-commerce business, removed buy buttons in platform, and refocused on social networking services (Del Rey, 2017). In a word, albeit buy buttons seem an appealing idea of injecting e-commerce capabilities into social platforms, the use of buy buttons in practice is not satisfactory.

1.5. Initial analyses of the problem related to purchasing through social platforms with buy buttons

Initial analyses of the problem help firms identify strategies or measures that social platforms can take to avoid or resolve the problem. The analysis results are also helpful to further delineate the research questions of this thesis.

1.5.1. The analysis on the necessity of incorporating buy buttons into social platforms

Concerning buy buttons, companies should think strategically first: to do or not to do

it. This section will discuss the pros and cons of incorporating buy buttons into social platforms, qualitatively analyzing the necessity of incorporating buy buttons into social platforms.

In the case of Facebook buy buttons, when clicking buy buttons, Facebook users will go to a product webpage without exiting Facebook and do not need to re-enter their payment information if such information has been stored previously (Constine, 2014). Clicking "buy" and "confirm", users just wait for products shipped to their hands (Constine, 2014). Buy buttons are able to largely increase the ease of purchase by decreasing time and effort involved in customers' purchase journey. In the meantime, social platforms usually impose restrictions on texts or pictures that can be displayed in a social post. Clicking a buy button on a social platform can lead users to a product webpage in which they can gather more information about the product, so users can make a more informed decision.

Introducing buy buttons into social platforms are also questioned by many professionals. They argue that the core value proposition of a social platform should be offering social networking services. Social platforms' adoption of buy buttons could damage a social media company's core value proposition, and eventually hurt competiveness and performance. As people use social platforms for online interaction and keeping up with friends, they will unlikely have a shopping mindset to make a purchase in between having social activities with their friend (Halzack, 2016). Critics argue that social platforms do not have to rely on e-commerce to achieve monetization. There are other monetizing approaches such as donations and ad-free premium services. For example, it is recommended that Facebook adopts ad-free premium services to make money (Constine, 2018). In a word, whether introducing buy buttons into social platforms or not is debatable. Further studies are needed to resolve this issue and offer implications for social platforms to make a strategic decision of adopting buy buttons or not.

1.5.2. The risk and trust analysis of social shopping

High risk and low trust is a common issue for electronic, remote commercial activities in which buyers and sellers cannot have face-to-face interactions with each other. This section analyzes risk and trust issues associated with social shopping with buy buttons.

In a social shopping context, risk refers to "a consumer's belief about the potential uncertain negative outcomes from the online transaction" (Kim, Ferrin and Rao, 2008: p. 546). Social shopping entails two types of risk: platform risk and seller risk. Seller risk is a barrier for social shopping. Seller risk derives from a seller's opportunistic behaviors. Sellers on social platforms can not only perform fraudulent behaviors (e.g., selling fake products, unrealistic product description) same as traditional online sellers do, but can also take advantage of buyers by accessing and misusing buyers' social profile and daily posts. Regarding platform risk, in contrast to traditional e-commerce websites, risk associated with using a social platform for purchasing is greater. Most social platforms do not take ex ante measures to crack down sellers' opportunistic behaviors. Also, as most social platforms that are designed for offering online social networking services do not have their own e-commerce platforms and thus have limited control on e-commerce activities, undesired events could occur when users leave the social platform and go to the e-commerce platform. The silos

between social platforms and e-commerce platforms may lead to risks such as financial loss or privacy disclosure (Farivar, Turel and Yuan, 2017). If social platforms take steps to mitigate platform risk, it is expected that sellers' opportunistic behaviors could be harnessed because social sellers have to follow respective safe shopping protocols with the platform. For example, if a seller wants to sell directly through Instagram, she has to follow particular guidelines rolled out by Instagram. Hence, if a social platform decides to introduce buy buttons, it is plausible to reduce platform risk and seller risk first.

Trust refers to an individual's confident belief that another party will act beneficially because another party cares about this individual's welfare (Saparito, Chen and Sapienza, 2004). A survey has indicated the trust issue associated with social platforms: 40% of the surveyed respondents stated that they have deleted a social media account because they did not trust the social platform (see Arnold, 2018). Trust is always linked to risk. Trust will become more crucial when risk is high (Mutz, 2005). When users start to distrust the social platform, they are more unwilling to take risks and shop through the social platform. Considering that most social platforms do not offer ex ante measures for social shopping, trust plays a more crucial role for users willing to enter into this risky shopping scenario (Ratnasingham, 1998). It is reasonable to assume that users exhibit low trust in social shopping. The value proposition of a social platform is to offer social networking services. Shopping is a merely secondary feature of a social platform to fulfill particular users' shopping needs. There are many users that solely use social platforms for social purposes (Ko, 2018). In practice, due to the lack of shopping safeguards, most social platforms do not offer a trustworthy shopping environment for users, which further decreases the trustworthiness of social shopping.

In a word, current social commerce practices involve risk and trust issues. One the one hand, it is needed to discern how risk and trust influence social platform users' purchase behavior. On the other hand, it is necessary to explore what measures social platforms can take to reduce risk and increase trust.

1.5.3. The analysis of social platform users' path-to-purchase

This section will analyze consumers' pain points in their path-to-purchase through social platforms with buy buttons. Path-to-purchase refers to a path in which consumers actively engage in making a purchase and satisfying an occasion-specific need (Shankar et al., 2011; Jones and Runyan, 2016). Path-to-purchase analysis can indicate which parts of the purchase path positively or negatively influence consumers (Baxendale, Macdonald and Wilson, 2015). In particular, pain points in a user's purchase path from a social platform to an e-commerce platform can be identified through path-to-purchase analysis.

The current purchase path from a social platform to an e-commerce platform entail four steps: first, social platform users discover commercial posts with buy buttons; second, users are directed to an e-commerce website and select products; third, users enter transaction-related information such as payment and shipping information; last, users place the order and make payment (Sismeiro and Bucklin, 2004). The current purchase path involves many pain points. When users leave the social platform and go to the e-commerce platform, users have to login in, enter transaction-related information every time, considering that different social sellers could use different

e-commerce platforms. Moreover, risk and privacy concerns could occur when users go to an unfamiliar e-commerce website. These pain points are caused by the silos between social platforms and e-commerce platforms. This loose structure between the social platforms and the e-commerce platforms injects many frictions in a social platform user's path-to-purchase, causing a bad shopping experience. To summarize, based on the above discussion, the current purchase path involves many pain points, which is caused by the silos between social platforms and e-commerce platforms. As risk concerns and pain points in current social shopping could be caused by a same factor, the silos between social platforms and e-commerce platforms, it is very interesting to see whether shopping safeguards and an integrated path-to-purchase can jointly optimize social shopping activities.

1.6. Research questions and research motivation

1.6.1. Should buy buttons be incorporated into social platforms?

As previously mentioned, an initial analysis shows that the pros and cons of incorporating buy buttons all seem salient. It is hard to draw a conclusion on whether buy buttons should be incorporated into social platforms or not. Therefore, it is needed to conduct in-depth research to study this issue. From a practical perspective, companies planning to inject e-commerce capabilities into their social platforms could need this study to get evidence that they can reap benefits from incorporating buy buttons.

From an academic perspective, research on social shopping with buy buttons can also contribute to social commerce research. Previous studies shed light on hyperlinks, a concept close to buy buttons. From a technical viewpoint, buy buttons' technical bases are same to hyperlinks: both are clickable navigation elements leading viewers from a platform to another platform (Yi and Jin, 2008), but buy buttons refers to a specific form of hyperlinks connecting social platforms and e-commerce platforms. Considering that social platforms play a crucial role in current world economy, buy buttons on social platforms merit specific studies tailored to social platforms' unique characteristics and contexts. These unique characteristics and contexts may alter or update prior knowledge established in studying hyperlinks in contexts of general websites (e.g., World Wide Web). For example, social platforms add social or interactive elements (e.g., comments, likes, shares, etc) into general websites. The social and interactive elements enable users to create value for social commerce activities such as recommending products to their friends and having conversations with social sellers. These nuances differentiate the present research from the previous research.

Prior relevant research studied shopping links that brands or retailers offer on social shopping websites (Olbrich and Holsing, 2011). Buy buttons in this thesis are specific commercial features offered by socially focused platforms in an attempt to develop e-commerce capabilities. In prior knowledge body of social commerce, social platforms act as a referral role by delivering social information (e.g., product review, peer-to-peer recommendations) and leveraging social features (e.g., shopping communities, social networking) (see Hu et al., 2016; Lin et al., 2017). In the present research, buy buttons reshape and enable socially focused platforms (e.g., Facebook, WeChat, and Instagram) to play an online marketplace role by leveraging social features and commercial features. A distinction between the present research and the previous research is that social platforms can take a cut or reap monetary returns from

online sales achieved through buy buttons.

In summary, this study approaches a novel commercial feature (buy buttons) in social shopping which is barely examined in prior literature, so a study is needed to discuss whether social platforms should incorporate buy buttons. This study can generate valuable practical value as well as meaningful academic value.

1.6.2. Should social platforms align safe shopping measures with buy button use?

Previously, I have revealed that current social commerce involves platform risk. Platform risk is a major barrier of social commerce. In particular, safe shopping measures taken by social platforms are absent in the social commerce practices. Therefore, this thesis argues that shopping guarantees and safeguards offered by social platforms may be able to increase shopping safety. Shopping safeguards such as free returns give buyers the remorse right to return purchases they are not satisfied with. A social platform's privacy protection assurances (e.g. privacy data encryption) can increase users' confidence in using the platform for shopping. In the current knowledge body of e-commerce, guarantees are classified into "internally provided" guarantees and "externally provided" guarantees (Bahmanziari, Odom and Ugrin, 2009; Karimov and Brengman, 2014). Internally provided guarantees are offered and operated by sellers, and much reliant on the sellers' honesty and capability (Karimov and Brengman, 2014). In social shopping, it is commonplace to see internally provided guarantees offered by social sellers, but externally provided guarantees offered by social platforms are absent in many cases. It is scarce to find social commerce research examining the effects of externally provided guarantees and shopping safeguards offered by social platforms. In other words, it is plausible that social platforms can protect buyers somehow (e.g., free return policy, privacy data encryption, etc) and let them know that social shopping is safe and trustworthy.

Although existing literature has stressed the crucial role of security and privacy protection in social commerce (Hansen, Saridakis and Benson, 2018; Huang and Benyoucef, 2013; Lu, Zeng and Fan, 2016), few studies profoundly examine how security and privacy protection measures influence social platform users. Regarding security measures, research has recommended that anti-fraud security features and protection measures can reduce social media users' risk concern (Williams, 2018). In terms of privacy protection measures, research has stated that privacy protection influences purchase willingness through trust and social interactions (Wang and Herrando, 2019). As purchasing directly through social platforms was relatively novel at the moment when I was devising the thesis, there was not a study considering both security and privacy protection measures and aligning these measures with the use of buy buttons. This thesis aims to approach this research gap, and offers practical implications for social platforms wanting to improve social commerce performance by introducing buy buttons. To summarize, this research on shopping guarantees and safeguards can add value to current social commerce research and can also offer practical value for social platforms.

1.6.3. How do risk and trust influence direct purchasing through social platforms with buy buttons?

As mentioned previously, purchasing through social platforms could be risky. Risk and trust are two key factors in influencing social platform users' direct purchasing behavior. Social shopping risks can be divided into two major forms: platform risk

and seller risk. By uncovering how different risks influence social platform users' purchase intentions, social platforms and social sellers will discern whether platform risk and seller risk can hinder users' purchase intentions. Practical value wise, if people knows which kind of risk can discourage users to buy, they should reduce accordingly this risk to boost social sales.

Albeit risk and trust are common constructs in e-commerce research, this study can make an academic contribution. On the one hand, this thesis studies social commerce, which is different from e-commerce. Prior research studied risk- and trust-related issues and commercial activities conducted through internet platforms such as online banking (Kim, Prabhakar and Park, 2009), e-tailing (Hong, 2015), and C2C e-marketplaces (Meents and Verhagen, 2018; Wei et al., 2019). In particular, this thesis studies socially focused platforms equipped with commercial features. Hence, risk and trust research in a different context may produce new knowledge. On the other hand, this thesis also differs from previous risk and trust research in social commerce contexts. The previous research has focused on e-commerce websites equipped with social elements, such as Groupon (an American e-commerce marketplace), Coupang (a South Korean e-commerce platform) (Kim and Park, 2013), and Etsy (American e-commerce website) (Farivar, Turel and Yuan, 2017). Some literature has studied risk and trust issues in social media contexts, but they studied such issues in social interaction contexts such as knowledge and information sharing (see Wang, Min and Han, 2016), which is different from my research context. In addition, this thesis does not approach the concept of trust same as prior research did. Prior research coined it as trust in a social networking site (Hajli et al., 2017), trust in social media (Lin et al., 2016), or trust in a community (Chen and Shen, 2015). In this thesis, trust refers to users' confident belief in using a social platform for shopping. Users could trust using a social platform for social interactions, while this does not imply that users would trust using the platform for shopping because social platforms are designed for social interactions. The latter kind of trust has not been documented in existing literature, this thesis will approach this research gap and study how this trust influences users' direct purchasing behavior. Therefore, risk and trust research related to social shopping with buy buttons can make an academic contribution.

1.6.4. How do users react to safe shopping measures and different path-to-purchase scenarios?

The path-to-purchase analysis of social shopping has indicated many pain points in the current purchase path from a social platform to an e-commerce platform. Purchasing across two platforms creates a fragmented shopping experience. In order to remedy this weakness in social shopping, this thesis wants to explore whether an integrated path-to-purchase can produce better outcomes. In the previous purchase path, users need to leave the social platform and go to an external e-commerce website. For example, WeChat, the most popular social platform in China, could add a notice page before users are directed to an external website, saying they are about to leave WeChat and visit an external website. In the integrated purchase path, users can complete the purchase without leaving the social platform. The integrated purchase path creates a seamless shopping experience because social platforms and e-commerce platforms are closely aligned or have reached strategic partnership in social commerce. In practice, some social platforms reach strategic partnerships with e-commerce companies. Instagram has been experimenting with "Checkout on Instagram" by which users can click shoppable posts and go through a checkout

process without leaving Instagram (Instagram, 2019). After a user's first order is completed, her information (e.g., billing information and shipping address) will be saved for her convenience of the next time she shops (Instagram, 2019). Repetitive actions (e.g., enter credit card and shipping information) can be avoided when the integrated purchase path has been offered. In contrast to the separated purchase path, the integrated purchase path creates a seamless purchasing experience from a social platform to an e-commerce platform.

Previous literature on hyperlinks has studied how trust is transferred from a linker's website to a linkee's website (Stewart, 2003, 2006; Lee, Lee and Hwang, 2014). Buy buttons are not just leading social platform users to an external e-commerce website. It also aims to lead users to buy in the follow-up product webpage. This is a major difference between the present research and the previous research. Also, albeit prior literature on hyperlinks has studied online shopping and online buyers' purchase intention (Stewart, 2003), social shopping is unique in contrast to traditional online shopping. The discovery of products is usually serendipitous and unplanned, therefore impulse purchase behavior, a specific purchase behavior, should be taken into account. In other words, whether integrated path-to-purchase design will elicit users' higher impulse buying intention or not will be examined in this thesis.

Moreover, as I previously analyzed, the silos between social platforms and e-commerce platforms could be related to social shopping risks as well as pain points in social shopping experiences. Therefore, an interesting interaction relationship between shopping safeguards and path-to-purchase merits an in-depth study. As integrated purchase paths are able to break down the silos, it is expected that the effect of shopping safeguards could be further reinforced. In other words, social platform users could display more positive reactions toward social shopping when purchasing through an integrated path-to-purchase. From the viewpoint of practitioners, it is also needed to discern how shopping safeguards and integrated path-to-purchase jointly influence consumers.

To settle these four questions, I have written three articles that are published or waiting for proof and release in three JCR-ranked journals (Journal of Business Research, Electronic Commerce Research and Applications, Journal of Organizational and End User Computing). This thesis is made of a compilation of the three articles. Minor revisions were also made to keep three articles cohesive for the thesis. More information (specifically, all the author information is indicated) can be seen below. I have been granted the right to include the following articles in this thesis.

1. Martínez-López, F. J., Li, Y., Liu, H., & Feng, C. (2020). Do safe buy buttons and integrated path-to-purchase on social platforms improve users' shopping-related responses?. Electronic Commerce Research and Applications, 39, 100913. Copyrighted by Elsevier B.V..
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2. Martínez-López, F. J., Li, Y. , Su, W., & Feng, C. (2019). To have or have not: Buy buttons on social platforms. Journal of Business Research, 105, 33-48. Copyrighted

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3. Martínez-López, F. J., Li, Y., Feng, C., & López-López, D. Buying through Social Platforms: Perceived Risks and Trust. Journal of Organizational and End User Computing (JOEUC), forthcoming. Copyrighted by IGI Global.
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2. To have or have not: buy buttons on social platforms

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Abstract
Buy buttons are not only links allowing social platform users to complete a purchase directly by clicking on them, but they are also key to social platform monetization. Shedding light on the use of these buttons is, thus, particularly interesting for their practical value. We have conducted two between-subject experiments to analyze two basic issues: first, how buy buttons can affect social platform users' shopping-related attitudinal and behavioral responses; and, how providing users with a safe shopping environment can affect their shopping-related responses. The results from two samples (Spanish and Chinese) showed that displaying a buy button on social platform posts is related to better user shopping attitude and willingness to purchase; also, when users are on a platform that offers safeguards and guarantees, their shopping responses improve, with users' perceived risk towards shopping on such a platform ameliorated by its positioning as trustworthy mediator in the purchasing process.

Keywords
Buy button; social platforms; social commerce; perceived risk; trust; willingness to buy.

2.1. Introduction

Buy buttons are links attached to commercial information posted on social platforms which allow users to make purchases through them. In 2014, Facebook introduced a buy button that directed users' traffic to third-party commercial sites, and automatically inserted users' payment information when they desired to purchase an item, thus letting users purchase merchandise from retailers entirely within its platform (Constine, 2014). Almost at the same time, other social platforms like Twitter, Pinterest, WeChat and Weibo matched Facebook by adding a variety of buy buttons. The rush by major platforms to join this buy-button race would imply new forms of monetization (Halzack, 2016). The possibility of direct and actual purchase on social platforms powered by buy buttons could dramatically increase the number of purchases and strengthen brand advocacy, making social platforms a direct selling channel instead of merely a communication tool (Lindsey-Mullikin & Borin, 2017). Buy button use on social platforms is expected to make users more likely to purchase online, increasing brand engagement and sales (McCue, 2018). Therefore, it is of strategic interest to study and understand how social platforms should use buy buttons and extract maximum value from them.

However, buy buttons do not seem to perform very well. In a recent survey, 45% of subjects said they would not be interested in using a buy button on a social platform; 72% of vendors reported no sales coming from buy buttons; over 40% of retail marketers planned to reduce buy-button use in 2017 (Business Insider Intelligence, 2016). In January 2017, Twitter officially withdrew its e-commerce operation and removed buy buttons from its platform (Lunden, 2017). According to another survey conducted in October 2017, 34.6% of users never directly purchased an item from social platforms (Statista, 2017); ViSenze surveyed over 1,000 users in the USA: 80% of respondents had never bought a product via a buy button on a social platform (Roesler, 2017). It has even been suggested that buy buttons are unsuitable for social platforms because people might not be in shopping mode when using social platforms (Halzack, 2016). Therefore, it is clear and imperative to explore whether social platforms' buy buttons can be beneficial for their monetizing strategies. Moreover, if they can, what measures should social platform companies take to improve their performance?

Studying these questions can generate useful theoretical and practical contributions for buy-button introduction. This paper discusses what buy buttons are, and their likely strategic effects on social platforms. In addition, from a safe shopping perspective, it explores whether a social platform's assurance regarding user purchases when clicking on its buy buttons can improve users' attitudinal and behavioral responses towards these buttons and using them to buy.

This paper can contribute to existing theories on how social platforms' technical features (buy buttons in our case) affect user behaviors. On the one hand, the technical features on which prior publications focused are related to social shopping features such as product recommendation and social interaction (see Hu et al., 2016; Lin et al., 2017). To the best of our knowledge, our work is the first attempt to unveil how buy buttons influence users' shopping-related attitudinal and behavioral responses. On the other hand, prior studies mainly focused on social shopping websites, which are more commercial-focus platforms where users share product comments and opinions, such as Mogujie.com (Hu et al., 2016), Kaboodle.com, and Polyvore.com (Olbrich &

Holsing, 2011). However, these platforms are quite different from general social platforms such as Facebook and WeChat, which are more social-focus platforms where users mainly share content related to their everyday lives. In such a context, users may show strong resistance towards new features such as buy buttons, and do not use them intentionally. This research context may bring about new insights into how users react to such features that social platforms roll out to bolster commercial activities. Hence, our research context examines whether prior theories drawn from social shopping websites can be applied to general social platforms.

Our work may also benefit social platform companies which try to profit from e-commerce. These companies first need to strategically consider whether or not to launch their e-commerce business. This paper approaches this question by examining the effect of explicit buy-button presence on users' willingness to purchase and attitudes. Moreover, from a safe shopping perspective, users could abandon purchases due to poor security and privacy protection associated with buy-button use (Sharma, Menard & Mutchler, 2017; Zarouali et al., 2017). For instance, users may be wary of sellers abusing and disclosing their private data. Therefore, this paper aligns safe-shopping measures with buy buttons — safe buy buttons — by which social platform companies may be able to improve consumer perceptions of trust in the safe use of buy-buttons.

This paper is structured as follows. First, we present a discussion on the use of buy buttons on social platforms, and illustrate measures that could improve buy-button performance from a safe shopping perspective. Second, we introduce the hypotheses on the effects of using explicit buy buttons on platforms on two shopping-related attitudinal and behavioral responses. Third, we describe our experiment-based research method and multi-sample strategy, and present the results of study 1. Fourth, we discuss another set of hypotheses related to the effects of providing users with safe buy buttons, and then describe study 2. Finally, we present a theoretical discussion, pointing out our main contributions, offer some practical implications, and end by acknowledging some limitations and suggesting potential research opportunities.

2.2. Background

In general terms, buy buttons aim to enable users to shop on social platforms and increase the ease of doing so (Turban, Strauss & Lai, 2016). They are regarded as a commercial feature by which a social platform can monetize via e-commerce (Rezaei, 2017). Purchases made via social media could increase if ease of purchase was powered by buy buttons (Lindsey-Mullikin & Borin, 2017). Buy buttons are more than just about placing buyable ad links on social platforms. For ad links, a nice click-through rate or click-out (Olbrich & Holsing, 2011) may be enough, but buy buttons also provide valuable information on how many purchases are made through buy buttons. Moreover, users can attach a shopping link to their messages or posts allowing their friends to click through it and make purchases. The idea of introducing a buy button feature to a social platform is to make those shoppable links explicit and official, thereby allowing social platforms to profit from the businesses behind the buy buttons, for example, by taking a cut of each sale.

In practice, social platforms have created diverse buy buttons. The Facebook buy button is a call-to-action button on ads and posts to let users buy directly from a business without leaving Facebook (Facebook Business, 2014); however, it has not

been a great success. More recently, Facebook has enabled users to add a "Shop Now" blue button to their pages, letting other interested users check out on another website. Sellers wanting to add a buy button on Facebook need to use third-party applications such as Shopify. Although Twitter's buy buttons have been withdrawn, it was initially conceived as an idea to transform Twitter into a shopping mall with buy buttons on tweets (Hern, 2014). Pinterest is a photo-sharing platform with buyable photos allowing users to redirect to a seller's site to complete a purchase. WeChat allows business users to add shoppable buttons to their "Official Account" and offers WeChat Pay as an in-built payment method for users to make in-platform purchases, which makes WeChat "a powerful shopping destination" (Minter, 2017). Weibo has partnered with Alibaba to roll out e-commerce features. Users can tap on product pictures shared by sellers, then go to an e-commerce site, and complete purchases. YouTube added a click-to-shop button on pre-roll ads by which users could go directly to a brand website. Douyin, a viral video-sharing platform, allows popular influencers to send shoppable messages to followers. By tapping on these messages, followers would be directed to Alibaba's e-commerce sites.

To summarize, a buy button refers to buttons, icons or images that allow users to make a purchase through social platforms. Buy buttons can be divided into two kinds: buttons used for in-platform purchases or off-platform purchases. Current buy-button practices mostly aspire to create off-platform purchases.

2.2.1. Buy buttons: yes or no

Buy buttons are not a mandatory option for transactions via social platforms. Social platform users can complete transactions without them. For example, although WeChat has yet to roll out a buy-button feature on 'Moment', akin to Facebook's News Feed, buyers can place orders by messaging sellers. The idea of introducing an explicit buy button is to link a social platform's conversational content to sellers' external websites. This action enables potential buyers to access much more detailed information on items and allows them to place orders and make payments easily and conveniently. The display of an explicit buy button is clearly telling others that it is commercial, or promotional, content, so that interested users can tap on it to access more information.

However, it is difficult to monetize social platforms through e-commerce (Clemons, 2009). Ko (2018) found that users on social networking sites are apt to show a weaker desire to undertake shopping activities than to participate in social activities. People believe that there should be a clear boundary between commercialization and well-being. Social networking sites are designed to offer social networking services and online social interactions in which friends should be free from annoying commercials and promotional posts. Considering that many advertising-based platforms allow users to pay for and access an ad-free premium version, it is debatable whether Facebook should offer ad-free subscriptions and turn instead to a less commercial approach to monetize (Constine, 2018). As it stands, social platforms are still undecided as to whether to adopt buy buttons, because they may hinder users' online social interactions, which is their core business.

Today's consumers still seem to feel more comfortable shopping on traditional e-commerce sites or at bricks-and-mortar stores than on social platforms. But consumer behavior has been evolving over time. Social platforms are hampered in

their attempts to present a wide variety of products and brands because social-related content should always be the most prominent on the platform. However, social platforms are good at creating communities and interest groups, allocating various people to share and comment on brands and products (Martínez-López et al., 2015), which can lead to "Likes" becoming purchases (Pöyry, Parvinen & Malmivaara, 2013). In Facebook's "buy and sell" groups, users increasingly use Facebook to merchandise to their friends by posting ads or commercials to others, eventually influencing other users' purchase behavior (Chen, Su & Widjaja, 2016). Research shows that social interactions have significant positive impacts on users' willingness to purchase in social network communities (Ng, 2013), which probably need an actionable buy button to translate purchase willingness into purchase actions.

2.2.2. Buy buttons from a safe shopping perspective

The use of existing buy buttons can arouse consumers' concern over shopping security and privacy issues related to commercial transactions on social platforms. A successful application of buy buttons, then, should properly deal with these issues. The safe shopping perspective denotes that shoppers' purchase security and private data safety are a prerequisite of online purchasing (Sharma, Menard & Mutchler, 2017). Considering this, it is interesting to analyze how providing safe buy buttons can affect their performance on social platforms.

Despite the fact that security and privacy protection are usually intertwined in increasing the safety of online shopping, they are different concepts. In this paper, security protection refers to assurances given, and mechanisms applied, by an online platform to complete online transactions safely; privacy protection refers to measures that an online platform takes to protect users' private information gathered during online transactions from unauthorized use or information leakage (Kim, Ferrin & Rao, 2008). The safe shopping perspective aims to create a safe shopping environment which entails an online platform protecting buyers' security and privacy (Hsu, Chuang & Hsu, 2014). From such a perspective, social platform companies can experience fundamental changes brought about by introducing buy buttons. For example, social platforms may need to consider how to cope with users buying a fake product via their buy button. Should social platforms take responsibility for handling the return of the purchase or disclaim any responsibility related to the purchase? Specifically, should a social platform provide safeguards and guarantees for buyers clicking on a buy button (e.g., buyers can return items for free if there is a quality issue; buyers can return items and get a full refund within a specific time period; buyers' phone number, address, payment information and many other private data are well protected.)? From the social platform perspective, it is much more complicated to manage such commercial activities, which could involve dealing with sellers, buyers, e-commerce partners, and even requiring it to develop its own e-commerce infrastructure and business. For example, Snapchat has rolled out its own Snap Store, allowing users to purchase exclusive merchandise. For social platforms sticking to their core social business, they would prefer sellers to take responsibility for protecting buyers' security and privacy. Their role is to enable sellers to sell directly to the customer via a buy button and generate a direct sale. But from the buyer perspective, users may have more positive perceptions of making purchases through buy buttons if the social platform took responsibility for security and privacy issues related to their purchases. Users' positive perceptions of buy buttons may eventually lead to a purchase, which is crucial for social platforms to profit from this new business.

Data security and privacy is a basic user need when engaging with social networking sites (Zhu & Chen, 2015). Security beliefs are crucial for shopping attitude towards social platforms (Cha, 2009). Social platform users' skeptical attitude arising from privacy concerns could reduce their willingness to buy from ads (Zarouali et al., 2017). Sharma, Menard & Mutchler (2017) asserted that privacy and security risk is an inevitable obstacle to the development of commercial activities on social platforms. It has been suggested that social networking sites should regard security as a crucial dimension in system design (Huang & Benyoucef, 2013), and adopt security-related practices to increase safety in transaction, and thereby boosting online sales (Kim & Park, 2013). In practice, many online shopping websites have provided shopping safeguards or assurances by displaying safe-shopping claims on their webpages, in order to increase customers' trust beliefs (Kim & Benbasat, 2010). Mousavizadeh, Kim & Chen (2016) found that online shopping websites can garner more sales by allaying privacy and security concerns by issuing assurances on their website. It is, then, interesting to know what would happen if social platforms offered safe-shopping guarantees to their users, aligning safe-shopping measures with buy-button use.

Safe shopping is a classic issue in e-commerce, but few researchers have examined this issue in relation to a specific social commerce context with a buy button. Two reasons could explain this phenomenon. On the one hand, well-known Western social media giants' attempts to apply buy buttons (like Facebook and Twitter) have not matched researchers and practitioners' high expectations; therefore, they remain unconvinced about their success in the future and have focused on other research areas. Yet in China, social platforms have a deeper relationship with e-commerce. For example, Pinduoduo, a company combining WeChat and its e-commerce platform, had 1.08 million active daily users in 2017, far behind Taobao's 3.29 million but slightly higher than JD.com's 1.05 million (Bhandari, 2018). Their more extensive use of buy buttons is reviving interest in this subject in the academic community (see Gibreel, AlOtaibi & Altmann, 2018; Ko, 2018; Leong, Jaafar & Ainin, 2018; Lindsey-Mullikin & Borin, 2017; Osatuyi & Qin, 2018); naturally, researchers need time to study this new feature and publish their findings, so existing publications directly relevant to buy buttons are still limited.

In a nutshell, buy-button research needs to tackle two issues: a) whether displaying an explicit buy button (e.g., Facebook buy button) will yield positive outcomes in platform users; b) taking users' security and privacy concerns into account, whether the social platform needs to provide users with safeguards and guarantees when clicking on a buy button.

Next, two studies are presented: to display or not display an explicit buy button; and, the effects of a safe buy button.

2.3. To display or not display an explicit buy button

2.3.1. Hypotheses

As mentioned above, the use of buy buttons is still a controversial issue for social platforms. Here, we explore whether displaying an explicit buy button can lead to users' positive shopping-related outcomes. In particular, we focus on two aspects. First, the idea of buy buttons is to nudge users into making a purchase through social platforms. Ideally, researchers could study directly actual purchase behaviors through

a social platform, but these are difficult to track and measure because purchases are mainly made on a third-party site (Curty & Zhang, 2011). Therefore, it is reasonable for researchers to examine users' willingness to purchase through the social platform as a key proxy to predicting actual purchase behavior (Hu, et al., 2016). On the other hand, we are interested in exploring the buy-button effect on users' overall attitude towards using a social platform for shopping. It should be considered that, even though introducing buy buttons may result in more sales, these social platforms could also decide to remove them if their users, in general, disliked such an explicit commercialization of the platform. Based on the above, we decided to work with two dependent variables (see Figure 1): attitude towards using the platform for shopping, and willingness to make purchases through the platform.

Purchasing through a social platform could be more complicated than doing so through a traditional e-commerce site. Social platform users usually do not have a clear shopping goal in mind; they come across items and slip into potential shopping situations, instead of actively seeking them out. In other words, planned purchase behavior is not uppermost when consumers are on social platforms. And although interest in an item could arise, the funnel from interest to purchase is narrow in this context: platforms do not usually provide users with options to purchase items posted by other users or companies; or, when they do, users might need to contact sellers directly to place an order; or click through a shopping linkage, login in at the seller's website and add shipping and payment information. This check-out process could be tedious each time users want to buy an item of interest that they have come across on a social platform (Constine, 2014; Halzack, 2016). So, a buy button could help eliminate these steps.

For example, when Facebook was experimenting with buy buttons, users did not have to leave this platform and their friends, and did not need to re-enter their payment details if they had stored them previously; they would just have to click "Buy" and "Confirm", and then their order would be placed (Constine, 2014). By reducing the time and effort from interest to purchase, and transforming each piece of content into a digital and buyable store window, buy buttons can dramatically increase the ease of shopping (Turban, Strauss & Lai, 2016) and even allow users to make immediate purchases (Leong, Jaafar & Ainin, 2018). On the other hand, some social platforms limit the number of words and pictures in user-generated content, so that regular posts or tweets do not completely describe items or convey product value to consumers like traditional e-commerce websites' product webpages do. In practice, the greater the variety of buy buttons there are, the more likely they are to lead users to a product page on which users can collect more detailed information. For example, Weibo's strategic alignment with Alibaba allows users tapping on a "Buy Now" button to visit a Tmall-style product webpage and then complete the purchase on it.

In a scenario without buy buttons, social platform users may be interested in some products posted by sellers but cannot make purchases directly, and they may find it irksome to communicate with sellers and place orders. In the online social context, it could be that the sellers are their friends or acquaintances; in this case, it could be very embarrassing if the user finally decided not to buy after having a conversation with the seller. In order to avoid jeopardizing their friendship with other users, social platform users may desist from purchasing all together even though they are interested in a product. However, in the scenario with buy buttons, social platform users may

feel more comfortable browsing and collecting product information on the product webpage without informing the seller. They can contact the seller after they have already decided to make the purchase. Furthermore, social platform users seeing an explicit buy button may have a more positive attitude towards using such platforms for shopping and be more willing to make purchases of products and/or services suggested on such platforms. In a word, the core benefit of introducing a buy button is to facilitate shopping by increasing convenience and ease of use. Prior research in other contexts supports the fact that online platforms which increase ease of use can positively influence attitude (Guritno & Siringoringo, 2013; Schierz, Schilke & Wirtz, 2010) and purchase willingness (Bleize & Antheunis, 2017; Chiu, Lin & Tang, 2005; Cho & Sagynov, 2015). Thus, we hypothesize that:

H1: Users of social platforms having (vs. not having) the buy button will show a better (vs. worse) attitude toward using such platforms for shopping.
H2: Users of social platforms having (vs. not having) the buy button will be more (vs. less) willing to make purchases of products and/or services suggested on such platforms.

The hypotheses above are depicted in figure 1.

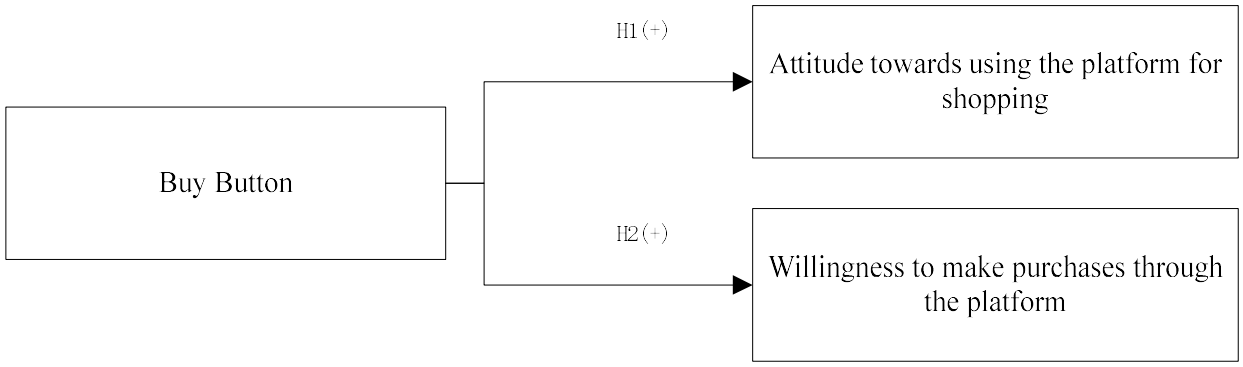

Figure 1. Study 1's research hypotheses

2.3.2. Study 1

We designed a between-subject experiment (with an explicit buy button vs. without an explicit buy button) to fulfill our research purpose. Wessling, Huber & Netzer (2017) and Goodman & Paolacci (2017) argue that researchers should try to use a multi-sample approach to identify potential moderating background factors and increase the robustness of results. For our study, we worked with samples from two countries: Spain and China; the former is a good representation of Western countries with a high degree of social media penetration; the latter is the most prominent country in Asia, with the world's biggest e-commerce markets, also in terms of users using social platforms for commerce. Spain and China are countries with distinct backgrounds (e.g., economy, politics, society, and culture, etc.), so our results would be more valid if similar conclusions were drawn from the two samples. The samples' participants were recruited using different methods, but all were required to be active users of Facebook (Spanish study) or WeChat (Chinese study); otherwise they might not have been able to recognize new features added by us to the social platform's experimental scenarios that we used.

2.3.2.1 Method

2.3.2.1.1 Participants and procedure

For the Chinese sample (n=220), we recruited subjects from all over the country, then randomly assigned them to each experimental cell. The sample size was calculated by G*Power software, using conventional parameters (F-test, one-way ANOVA, effect size f=0.25, alpha error probability=0.05, power=0.8, number of groups=2). Based on this software, the minimum sample size required to fulfill those parameters was 128 individuals. This was a basic sample size requirement for both the Chinese and Spanish samples. We balanced the number of subjects in each cell because unbalanced data could create problems when estimating variance components and other parameters (Deutskens et al., 2006). Participants were recruited by the Chinese online crowdsourcing platform Wjx.cn, which is akin to the US's MTurker. However, online panels have two potential drawbacks: 1) the anonymity of an online environment may allow subjects to misrepresent themselves; 2) previous exposure to similar treatments may affect research results (Wessling, Huber & Netzer, 2017). To solve this, we reminded subjects that we were only interested in their choices and asked them to give intuitive answers. We also followed Wessling, Huber & Netzer's (2017) suggestions: offer a reasonable time estimate for each survey; approve their work quickly and promptly pay the amount agreed with Wjx; insist that their private information would be well protected; assign each subject a single task only; provide an email address and suggest subjects let us know if there were any factors or objects that influenced them while participating in the survey. 52.3% of subjects were between 25-34 years old, 23.6% between 35-44; 14.1% between 18-24; 48.2% were male. The subjects were required to use their computer to complete the survey (specifically, in both samples, we told subjects that they would be participating in a survey related to social media but we did not mention that the survey was an experiment). When subjects clicked on the link to the survey we sent them, they were asked to imagine they were browsing content on a social platform and would find a seller's promotional post and receive respective treatments (the stimulus material is presented in Appendix 1). After asking participants to spend some time processing the post, they were required to answer a questionnaire.

For the Spanish sample (n=156), we recruited college students at the University of Granada who were randomly assigned to each cell (the number of subjects in each cell was also balanced). 85.9% of subjects were between 18 and 24 years old; 54.5% were male. The major difference in terms of recruitment between the samples was that subjects in the Chinese sample arrived via the online panel described above, while the Spanish sample participated in person; after receiving some introductory guidelines from one of the researchers, they completed a questionnaire. In our experiment lab, the researcher controlled the environment, ensuring that no external factors bothered the participants, who were asked to fill in the questionnaire independently and in silence.

The study 1 dependent variables were measured by 7-point Likert scales adapted from Vijayasarathy (2004) and Liu et al. (2017). See Appendix 2 for full details.

2.3.2.1.2 Stimulus material

The social platform. We selected Facebook for the Spanish sample and WeChat for the Chinese sample. These social platforms are probably the most popular in both

countries; Facebook is the biggest platform worldwide, and has a large base of users in Spain, so it was easy for us to find enough participants for the study. Ideally, to fully homogenize treatments, we should have worked with just one platform for both samples. However, Facebook is not available in China, so for the Chinese sample we opted to use WeChat, its equivalent platform in terms of penetration in China. Also, since users in both countries mainly use the mobile phone version of these social platforms, we designed our stimuli material for the mobile version of Facebook's News Feed and WeChat's Moment; the idea being for the layout of the two platforms in our experiments to be viewed as authentic posts; true stimuli are important as users may have felt weird if the pictures in the experiments are not from the Facebook or WeChat pages they are used to.

The experimental product and post. We needed to develop a promotional post for the experiment. Wei & Lu (2013) suggested that it is better to use real rather than fake content in experiment-based research to arouse subjects' true responses. Specifically, we followed Amazon's Facebook account and selected a real promotional post related to a loudspeaker. We adapted this post to our experiment so that its content could be easily translated into Chinese and used in the Chinese sample. The texts, the product, the seller and the logo were identical in each group. As the original product name and the seller name (Amazon) might disrupt the effects of the treatments, we designed neutral names for the seller and the product. Also, we selected a cheap, water-resistant speaker which could be used in the shower; this low-involvement product could be similarly appealing to people from different backgrounds (e.g., age, education, gender and nationality) and was tailored to a low level goal-oriented search model (Nysveen & Pedersen, 2005) in a social commerce setting. In the post of the experimental group, we added a "buy" icon; given that purchasing through social platforms is far from mature, a visual and explicit "buy" icon can more vividly convey the idea that the product can be purchased directly. In the follow-up product page (only subjects in the experimental group could see this page), there was a text stating that more detailed product information was available on another page, however, we did not include the information and just let participants assume that they could go to this page and complete the purchase through the button, because we wanted to avoid participants being potentially influenced by additional information that could distort the effects of the experimental treatment. In the reference group, subjects could see a similar post but without the buy button, which was omitted; they were specifically told that they could not directly purchase the speaker from the post, but they could go to the seller's website to get more product information or place an order by contacting the seller.

2.3.3. Results

2.3.3.1 Validity and reliability

To work with the ANOVAs as rigorously as possible in relation to the average values of the multi-item scales used for the dependent variables, we firstly assessed each scale's reliability by analyzing their internal consistency; the Cronbach's alpha coefficient of each scale in the two samples exceeds the conventional minimum threshold of 0.7. Further, we ran a Confirmatory Factor Analysis to see whether each scale could correctly measure each construct. The goodness of fit indexes was satisfactory (Spanish sample: χ^2/d.f.=1.613, GFI=0.991, RMSEA=0.063, CFI=0.988, TLI=0.962, NFI=0.971, IFI=0.989; Chinese sample: χ^2/d.f.=1.131, GFI=0.992, RMSEA=0.024, CFI=0.999, TLI=0.998, NFI=0.992, IFI=0.999). The convergence validity of each construct was also good: attitude ($AVE_{Spanish}$=0.738, $CR_{Spanish}$=0.846;

AVE_{China}=0.579, CR_{China}=0.733), willingness ($AVE_{Spanish}$=0.847, $CR_{Spanish}$=0.943; AVE_{China}=0.717, CR_{China}=0.884). Finally, the square root of each variable's AVE was higher than its correlations with other variables indicating that the discriminant validity of all the scales was also satisfactory.

2.3.3.2 Hypotheses testing

Study 1 had an experimental factor with two levels (post with a buy button vs. without a buy button), so we used a one-way ANOVA to test hypotheses. ANOVA analysis requires a one-item variable, so we transformed all multi-item scales into one-item variables by calculating the mean value of all item scores. The suitability of this procedure was supported by the analyses shown above.

The effect of buy button on attitude. Results show that an explicit buy button is associated with better user attitude in both samples. $F_{Spanish}(1, 154)=3.675$, $p\text{-value}_{Spanish}=0.057<0.1$, $F_{Chinese}(1, 218)=10.378$, $p\text{-value}_{Chinese}<0.01$. With the display of a buy button, users show a better attitude towards using the platform for shopping ($M_{Spanish\_buy\ button}=3.769>M_{Spanish\_no\ buy\ button}=3.327$; $M_{Chinese\_buy\ button}=4.723>M_{Chinese\_no\ buy\ button}=4.245$). Therefore, H1 is supported in the two samples.

The effect of buy button on willingness to buy. An explicit buy button has a significant effect on users' willingness to buy in both samples. $F_{Spanish}(1, 154)=14.992$, $p\text{-value}_{Spanish}<0.01$, $F_{Chinese}(1, 218)=5.844$, $p\text{-value}_{Chinese}<0.05$. With the display of a buy button, users are more willing to make purchases through the platform ($M_{Spanish\_buy\ button}=3.389>M_{Spanish\_no\ buy\ button}=2.509$; $M_{Chinese\_buy\ button}=4.512>M_{Chinese\_no\ buy\ button}=4.064$). Therefore, H2 is supported by both samples.

2.4. The effects of a safe buy button

2.4.1. Hypotheses

Here, we discuss whether providing certain safeguards and guarantees when users click on a buy button to purchase on a social platform – let us call it a "safe" buy button – to ensure users' safe shopping, might generate better user responses than when such benefits are not provided (i.e. an "unsafe" buy button). In other words, it is interesting to assess whether social platforms that protect their users' purchases via their buy buttons can achieve better performance in key shopping-related variables. In general, it is plausible to say that the aim of social platforms' security and privacy measures is to improve buy button performance by increasing shopping security. In other words, they want to see increased user purchase behavior and trust by mitigating the risk associated to purchasing through buy buttons. Hence, we decided to work with these four variables, which are discussed below: willingness to buy, trust, seller risk and platform risk.

Trust is a cornerstone of social commerce (Chen & Shen, 2015; Farivar, Turel & Yuan, 2017; Hajli, 2015; Hajli et al., 2017; Hansen, Saridakis & Benson, 2018; Lin et al., 2016; Lu, Fan & Zhou, 2016; Shi & Chow, 2015; Wang, Min & Han, 2016; Yahia, Al-Neama & Kerbache, 2018). In a shopping scenario on a social platform not offering safeguards and guarantees for shopping, people need to activate stronger defensive trust behaviors when transacting with sellers, as the expectation is that the buy buttons will perform badly. On the contrary, social platforms aligning buy buttons to safeguards and guarantees for safe shopping are expected to be better appreciated.

Risk is a significant inhibitor of social commerce success (Farivar, Turel & Yuan, 2017; Featherman & Hajli, 2016; Hansen, Saridakis & Benson, 2018; Wang, Min & Han, 2016). Safe buy buttons should be able to mitigate users' risk perception. In a scenario where a social platform disclaims any responsibility for protecting buyers, transactions made through buy buttons are largely determined by sellers' integrity and morality. Here, we want to explore whether safe buy buttons might mitigate users' risk perception associated to a seller, so they can feel more confident about purchasing from sellers on those social platforms that provide them with an outlet.

Likewise, apart from the interpersonal risk perception between sellers and buyers, it is worth analyzing whether there is a cross-level risk reduction mechanism: the presence of a safe buy button can initially reduce users' platform-level risk perception, then this risk reduction can influence users' shopping-related responses via the platform. In other words, can the effects of a safe buy button on users' attitudinal- and behavioral-related responses be mediated by perceived platform risk?

Social platform protection of users' purchases should be an effective way to boost trust and limit risk. Current research supports this point. Guarantees (e.g. a money back guarantee) can actively reinforce users' trust (Bahmanziari, Pearson & Crosby, 2003), making them feel more secure when shopping online. Platforms can also use a third-party guarantee to signal "institution-based trustworthiness" (McKnight, Kacmar & Choudhury, 2004) and communicate their commitment to security (Belanger, Hiller & Smith, 2002).

So, providing users with a safer way to shop is expected to reduce users' perception of risk and increase trust. Some users may think they do not need platform protection as they trust the sellers they deal with and perceive low seller risk, as they might have purchased from them before, or the sellers could be friends or acquaintances with strong ties to them. Yet the power of social networking sites cannot be fully redeemed if so many unfamiliar friends or weak ties remain unexploited (Ellison, Steinfield & Lampe, 2007). For instance, prior studies show that weak ties can generate positive effects or provide novel sources for social commerce (Huang, 2016; Wang & Chang, 2013). On the other hand, it could be an advantageous strategy for a social platform to offer safeguards and guarantees under its name. Comparing the trustworthiness of a regular seller to that of a social platform, users may tend to trust the platform more because they might have been using it for a long time and have developed a trust relationship with the platform. This trust relationship can be transferred to the safeguards and guarantees offered by the platform, thereby enabling the social platform's safe buy buttons to increase user trust belief and reduce seller risk. Based on the above, we hypothesize that:

H3: Users of a social platform providing a safe (vs. unsafe) buy button will show stronger (vs. weaker) trust in using such a platform for shopping.
H4: Users of a social platform providing a safe (vs. unsafe) buy button will perceive less (vs. more) risk in buying from the seller through the platform.

Some researchers have found users' perceived security to be a significant factor that influences consumer attitudes towards online purchasing (Elliot & Fowell, 2000; Guo & Jaafar, 2011). In a sense, security is one of the most important factors that make

users afraid, or hesitate, to purchase online (Guo & Jaafar, 2011).This explains why users feel safer to purchase online when they perceive that sellers have implemented security mechanisms (Inegbedion, Obadiaru & Bello, 2016). On the other hand, many online shoppers also refuse to purchase online due to privacy issues; they see data misuse (e.g. offensive data access, data collection, errors and unauthorized personal data use) as a major privacy concern (Swaminathan, Lepkowska-White & Rao, 1999), so they might be unwilling to buy unless sellers commit to properly handling and respecting their privacy as shoppers. Social platform users may be wary of their private information being misused by sellers because sellers may not only be able to access users' transaction-related information – e.g., shipping address, phone numbers, and payment information –, but also other private information in their profiles, such as personal data, academic qualifications, friends, photos, etc.

Adopting the Principal Agent Theory to this context, if a platform supervises the buyer/principal-seller/agent relationship and guarantees users' purchases from others selling on it, users should be less fearful of sellers' opportunistic behaviors; so, it is expected that the safe buy button will have a positive effect on their willingness to buy via such a platform, so we hypothesize that:

H5: Users of a social platform providing a safe (vs. unsafe) buy button will be more (vs. less) willing to buy merchandise from the seller via such a platform.

Buy buttons turn a social platform into an online marketplace. Thus, it is plausible to think that users' buy-button-related responses on the platform may be mediated by how safe-for-shopping the platform is regarded. In comparison to seller risk, which is mostly associated with a particular seller's misconduct, platform risk is defined as an individual's belief that he or she would suffer severe consequences as a result of a platform's weaknesses in e-commerce and online transaction operations, in that the platform would be unable to prevent sellers from committing fraud or opportunistic behavior (Meents & Verhagen, 2018). If social platform users feel that it is very risky to buy through the platform, this should negatively condition them towards making transactions with sellers on that platform.

On the one hand, research suggests that users' perception of high privacy and security protection reduces perceived risk (Kim, Ferrin & Rao, 2008). In this paper, we are interested in whether users' perceived risk when buying on a platform is mitigated when this platform offers safeguards and guarantees to its users. On the other hand, in the consumer realm, perceived risk represents a belief that negative consequences might stem from the purchasing of products (Michaelidou & Christodoulides, 2011; Yang, Sarathy & Lee, 2016), and thus perceived risk has always been identified as having a negative influence on online purchasing behavior (Kim, Ferrin & Rao, 2008). First, it is rational to argue that a reduction in users' perceived risk when buying through the platform helps them feel safer when using the platform for shopping. According to Pavlou (2003), one primary source of perceived risk is the technological uncertainty surrounding the online environment. In our case, users may feel that a social platform is unreliable and incompetent in managing transactions and handling payments because they think that social platforms are designed merely for social interactions rather than e-commerce. Due to technological uncertainty, a higher perceived risk would negatively affect trust (Hong & Cha, 2013). Second, if a platform gives its users a safe or less risky impression, this impression should

positively condition its users' risk perception and willingness to buy from the seller via the social platform. For instance, when people download and install a developer's app from two platforms, one being a popular app store (e.g. Apple Store) and the other an unknown and unfamiliar site with disturbing pop-out ads, people should be more willing to download and install the app from the former. In sum, users' risk perception about the platform is expected to mediate the effects of providing them with a safe buy button on the platform. Therefore, we argue that:

H6: The effect of providing users with a safe buy button on their trust in using the platform for shopping is mediated by the users' perceived risk about shopping via the platform. In particular, higher perceived risk will negatively affect trust.
H7: The effect of providing users with a safe buy button on their perceived risk about making a purchase from a seller on a platform is mediated by the users' perceived risk about shopping via the platform. Specifically, higher perceived risk of using the platform for shopping will increase the users' perceived risk of buying from a seller via the platform.
H8: The effect of providing users with a safe buy button on their willingness to purchase from a seller on the platform is mediated by the users' perceived risk about shopping via the platform; higher perceived risk will negatively affect the users' willingness to make purchases from a seller via the platform.

The hypotheses above are shown in figure 2.

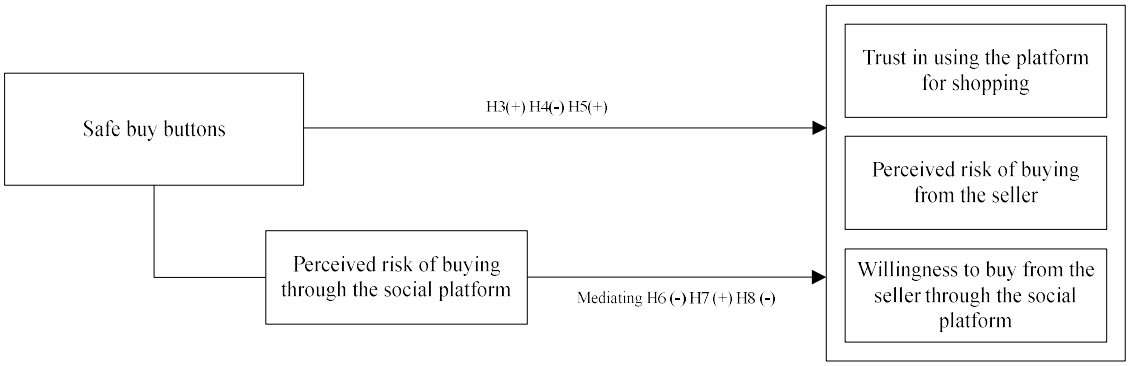

Figure 2. Study 2's research hypotheses

2.4.2. Study 2

Study 2 is a between-subject experiment (safe buy button or, providing users with guarantees/safeguards when using a buy button to purchase via the social platform vs. unsafe buy button). Basically, we adopted the same approach as for study 1: we used two samples, Spanish and Chinese, applying the same procedures, and, to ensure sample independence, no individual who participated in study 1 was allowed to participate in study 2, and vice versa.

2.4.2.1 Method

2.4.2.1.1 Participants and procedure

For the Chinese sample (n=842), we recruited subjects with different backgrounds from all over China, and then randomly assigned them to each experiment cell. The sample size was calculated by G*Power software with strict parameters (F-test, ANCOVA, effect size f=0.1, alpha error probability=0.05, power=0.8, number of groups=2, number of covariate=1). Based on this software, the estimated sample size

was 787 individuals. This was a sample size requirement for the Chinese sample only, based on funds available to use panel data and recruit more participants. We balanced the number of subjects in each cell; 38.2% were between 25 and 34 years old, 14.6% between 35-44, and 33.4% between 18-24; 39.2% were male. All participants were required to use their computer to complete the survey. When subjects clicked on the online experiment link we sent, they were asked to imagine that they were browsing content on a social platform and would find a seller's promotional post with different treatments. Finally, subjects were required to answer some questions.

For the Spanish sample (n=168), we recruited college students attending the University of Granada to our experiment labs and randomly assigned them to each cell (the number of subjects in each cell was balanced). The sample size was calculated by G*Power software with conventional parameters (F-test, ANCOVA, effect size f=0.25, alpha=0.05, power=0.8, number of groups=2, number of covariate=1). The software gave an estimated sample size=128; 96.4% of subjects were between 18 and 24 years old. 45.2% were male.

2.4.2.1.2 Stimulus material

Stimulus material was designed similarly as for study 1; we also selected Facebook for the Spanish sample and WeChat for the Chinese sample. We retained the pictures of an explicit buy button used in study 1 (see Appendix 1), and then added text describing both the safe and the non-safe purchase scenarios.

For the safe scenario, we worked with a set of policies for the experiment. Following the discussion of the role of safeguards and guarantees above, we focused on protecting buyers' shopping security and personal privacy. It has also been noted that privacy/security-related treatments do not influence users' decision making as these policies are too complicated for end users to understand (Acquisti, Adjerid & Brandimarte, 2013). In practice, when apps want to demonstrate a new feature after users have downloaded the updated version, apps usually use very simple and understandable text or pictures to present their new feature or function (e.g., in our case, a simple, clear and brief introduction to the safeguards and guarantees available when using the buy button). To avoid user aversion and misunderstanding when reading the clauses, we adapted Alibaba's shopping safeguard policies to our case, thus making them simple and clear. In the experimental group, subjects saw the same picture and a text introducing the buy button and how it worked, but they also found a short text describing its safeguards and guarantees (see Appendix 1). For the reference group, we designed a text saying that the social platform disclaimed any responsibility for protecting purchases made using the buy button.

2.4.2.1.3 Measures

There were three dependent variables (platform trust, seller risk, willingness to buy from seller) and a mediating variable (platform risk) for study 2 all of which were measured by 7-point Likert scales. Trust in using the platform for shopping was measured by a four-item scale adapted from Lu, Fan & Zhou (2016). Perceived risk of buying from the seller was measured by a four-item scale adapted from Verhagen, Meents & Tan (2006). Willingness to buy from the seller through the social platform was measured by a four-item scale adapted from Vendemia (2017). Perceived risk of buying through the social platform was measured by a four-item scale adapted from Bianchi & Andrews (2012). As we had added a text related to the social platform's

safeguards and guarantees that required respondents' acknowledgement, we also adapted a five-item scale (Escobar-Rodríguez & Carvajal-Trujillo, 2014) to measure security perception, which was used for the manipulation check. Full details of the scales are seen in Appendix 2.

2.4.3. Results

2.4.3.1 Validity and reliability

The Cronbach's alpha of each scale in both samples was over 0.7. We also did a Confirmatory Factor Analysis. Goodness of fit was satisfactory; Spanish sample: χ^2/d.f.=1.515, GFI=0.919, RMSEA=0.056, CFI=0.971, TLI=0.963, NFI=0.921, IFI=0.972; Chinese sample: χ^2/d.f.=3.385, GFI=0.952, RMSEA=0.053, CFI=0.977, TLI=0.972, NFI=0.968, IFI=0.977. The convergence validity of each construct was also good: platform risk ($AVE_{Spanish}$=0.654, $CR_{Spanish}$=0.789; AVE_{China}=0.673, CR_{China}=0.892), trust ($AVE_{Spanish}$=0.548, $CR_{Spanish}$=0.826; AVE_{China}=0.706, CR_{China}=0.906), seller risk ($AVE_{Spanish}$=0.562, $CR_{Spanish}$=0.826; AVE_{China}=0.719, CR_{China}=0.911), willingness ($AVE_{Spanish}$=0.653, $CR_{Spanish}$=0.882; AVE_{China}=0.711, CR_{China}=0.908). The square root of each construct's AVE compared to its correlations with the rest also indicated good discriminant validity.

2.4.3.2 Manipulation check

The treatment in study 2 differed from that in study 1. In study 1, the experimental treatment was the explicit presence of a buy button, which did not involve any subjective evaluation. However, study 2's experimental treatment was a text illustrating the social platform's safeguards and guarantees that required participants to evaluate them, as they could still feel unsafe in the safe scenario, and this would undermine the internal validity of our experiment. Thus, even though we adapted the text from a real case, we still needed to check whether subjects in the experimental group significantly perceived a higher level of security than those in the control group. We used a one-way ANOVA to check manipulation in both samples; as noted previously, the multi-item scale used is shown in Appendix 2. The results showed a significant difference in users' security perception between the experimental and reference groups. Subjects in the experimental group felt safer than those in the reference group ($M_{Spanish\_safe}$=4.426>$M_{Spanish\_unsafe}$=3.752, p-value$_{Spanish}$<0.01; $M_{Chinese\_safe}$=4.586>$M_{Chinese\_unsafe}$=3.856, p-value$_{Chinese}$<0.01). Therefore, our treatment design was deemed successful.

2.4.3.3 Hypotheses testing

We used a one-way ANOVA to test the treatment effects, and used a joint one-way ANOVA and ANCOVA to test the mediation effect. As in study 1, we transformed all multi-item scales into one-item variables by calculating the mean value of all item scores.

The effect of a safe buy-button/shopping scenario on trust. The result shows that the safe buy button is related to better trust in two samples. $F_{Spanish}(1, 166)$=42.302, p-value$_{Spanish}$<0.01, $F_{Chinese}(1, 840)$=25.030, p-value$_{Chinese}$<0.01. In a safe shopping context, users have greater trust in using the platform for shopping ($M_{Spanish\_safe}$=4.256>$M_{Spanish\_unsafe}$=3.155; $M_{Chinese\_safe}$=4.373>$M_{Chinese\_unsafe}$=3.898). Therefore, H3 is supported by two samples.

The effect of a safe buy-button/shopping scenario on seller risk. The result shows that the safe buy button was associated with lower seller risk in the two samples; $F_{Spanish}(1, 166)=14.211$, $p\text{-value}_{Spanish}<0.01$, $F_{Chinese}(1, 840)=18.514$, $p\text{-value}_{Chinese}<0.01$. Within a safe buy button scenario, users perceive less risk in buying from the seller ($M_{Spanish\_safe}=5.235<M_{Spanish\_unsafe}=5.810$; $M_{Chinese\_safe}=4.198<M_{Chinese\_unsafe}=4.644$). Therefore, H4 is supported by two samples.

The effect of a safe buy-button/shopping scenario on willingness to buy. The result shows that the safe buy button is positively related to willingness to buy in both samples; $F_{Spanish}(1, 166)=8.308$, $p\text{-value}_{Spanish}<0.01$, $F_{Chinese}(1, 840)=17.309$, $p\text{-value}_{Chinese}<0.01$. When the platform provides buyers with safeguards and guarantees, users are more willing to buy from the seller ($M_{Spanish\_safe}=3.753>M_{Spanish\_unsafe}=3.190$; $M_{Chinese\_safe}=4.033>M_{Chinese\_unsafe}=3.618$). Therefore, H5 is supported by two samples.

Platform risk mediating the effect of a safe buy-button/shopping scenario on trust. In this paper, we adopted Teas & Agarwal (2000) and Aqueveque's (2006) approach to test the mediator effects of platform risk. In general, there are three conditions required to establish mediation: 1) the independent variable or experimental factor influences the mediator; 2) the experimental factors influence the dependent variable; and 3) when the experimental factor and the mediating variable are regressed on the dependent variable, "the mediator is significant and the effect of the [experimental factor] is reduced (for partial mediation) or not significant at all (for complete mediation)." (Aqueveque, 2006, p. 242)

We used a one-way ANOVA to assess the first condition. The experimental factor was related to lower platform risk in both samples; $F_{Spanish}(1, 166)=43.878$, $p\text{-value}_{Spanish}<0.01$, $F_{Chinese}(1, 840)=17.858$, $p\text{-value}_{Chinese}<0.01$. Within a safe buy button scenario, users perceive less risk in buying through the social platform ($M_{Spanish\_safe}=3.768<M_{Spanish\_unsafe}=5.125$; $M_{Chinese\_safe}=3.714<M_{Chinese\_unsafe}=4.169$). Therefore, the result satisfied condition 1. Regarding H3, condition 2 is also satisfied: the experimental factor had a positive effect on trust. Next, we used ANCOVA to see if condition 3 was satisfied. The result showed that when platform risk was taken into consideration, the safe buy button was still associated with better levels of trust, but the F value was smaller. $F_{Spanish\_with\ mediator}=7.708<F_{Spanish\_without\ mediator}=42.302$, $p\text{-value}_{Spanish\_with\ mediator}<0.01$; $F_{Chinese\_with\ mediator}=10.317<F_{Chinese\_without\ mediator}=25.030$, $p\text{-value}_{Chinese\_with\ mediator}<0.01$. The result showed that platform risk had a significant partial mediator effect in both samples. Additionally, we used regression analysis to test the negative effect of platform risk on trust, also considering the experimental factor as a dummy variable in the regression: platform risk had a significant negative effect on trust in both samples; $\text{standardized coefficient}_{Spanish}=-0.608$, $p\text{-value}_{Spanish}<0.01$, $\text{standardized coefficient}_{Chinese}=-0.532$, $p\text{-value}_{Chinese}<0.01$. Therefore, H6 is supported.

Platform risk mediating the effect of a safe buy-button/shopping scenario on seller risk. We followed the same procedure to test this hypothesis. The three conditions were satisfied in two samples. When platform risk is considered, the effect of the experimental factor on seller risk is weakened, and the F value is smaller. $F_{Spanish\_with\ mediator}=2.522<F_{Spanish\_without\ mediator}=14.211$, $p\text{-value}_{Spanish\_with\ mediator}=0.114$; $F_{Chinese\_with\ mediator}=3.763<F_{Chinese\_without\ mediator}=18.514$, $p\text{-value}_{Chinese\_with\ mediator}=0.053<0.1$. The

result of the Spanish sample shows that platform risk can strongly mediate the effect of the experimental factor (safe-unsafe shopping) on seller risk to an extent that the treatment effect is not significant in this case. In other words, platform risk completely mediates the treatment effect. By contrast, the Chinese sample shows that the mediator effect is not as strong because the treatment effect is lower but still significant; so for the Chinese sample, platform risk partially mediates the treatment effect. Finally, we used regression analysis to test the positive effect of platform risk on seller risk: it had a significant positive effect on seller risk in both samples; standardized $coefficient_{Spanish}$=0.337, $p\text{-}value_{Spanish}$<0.01, standardized $coefficient_{Chinese}$=0.676, $p\text{-}value_{Chinese}$<0.01. Therefore, H7 is supported.

Platform risk mediating the effect of a safe buy-button/shopping scenario on willingness to buy. The three conditions were satisfied in both samples. The effect of the experimental factor, when platform risk is explicitly considered, on the users' willingness to buy is weakened, and the F value is smaller; $F_{Spanish\_with\ mediator}$=0.698<$F_{Spanish\_without\ mediator}$=8.308, $p\text{-}value_{Spanish\_with\ mediator}$=0.405; $F_{Chinese\_with\ mediator}$=5.018<$F_{Chinese\_without\ mediator}$=17.309, $p\text{-}value_{Chinese\_with\ mediator}$<0.05. In the Spanish sample, platform risk completely mediates the effect of the experimental factor on purchase willingness; then, the treatment effect is not significant. However, for the Chinese sample, platform risk partially mediates this relationship; i.e., the treatment effect is still significant. Regression analysis also confirmed a negative effect of platform risk on willingness to buy in both two samples; standardized $coefficient_{Spanish}$=-0.607, $p\text{-}value_{Spanish}$<0.01, standardized $coefficient_{Chinese}$=-0.530, $p\text{-}value_{Chinese}$<0.01. So, H8 is supported.

Table 1. Hypotheses testing of the two studies

Hypotheses	Hypotheses testing		Means				F-value	
			Exp. group		Ref. group			
	Spain	China	Spain	China	Spain	China	Spain	China
H1: Buy button→Attitude	Supported	Supported	3.769	4.723	3.327	4.245	3.675	10.378
H2: Buy button→Willingness	Supported	Supported	3.389	4.512	2.509	4.064	14.992	5.844
H3: Safe buy button→Trust	Supported	Supported	4.256	4.373	3.155	3.898	42.302	25.030
H4: Safe buy button→Seller risk	Supported	Supported	5.235	4.198	5.810	4.644	14.211	18.514
H5: Safe buy button→Willingness	Supported	Supported	3.753	4.033	3.190	3.618	8.308	17.309
H6: Mediator role of platform risk in Safe buy button→Trust	Partial mediation	Partial mediation						
H7: Mediator role of platform risk in Safe buy button→Seller risk	Complete mediation	Partial mediation						
H8: Mediator role of platform risk in Safe buy button→Willingness	Complete mediation	Partial mediation						

In a nutshell, regardless of minor differences between both samples, mainly in terms of degree of mediation of the mediator, all the hypotheses in study 1 and study 2 are supported (see Table 1).

2.5. Theoretical discussion

The display of an explicit buy button is related to better user attitude. This finding further indicates that social platform users would not dislike the idea of a social platform introducing buy buttons (H1). In addition, the presence of a buy button can increase users' willingness to buy (H2). Previous studies concluded that it could be very difficult for social platforms to monetize through online trading between social platform users (Clemons, 2009; Halzack, 2016), but our research concludes that, in both a Western and Eastern context, users could respond positively to a social platform's introduction of such an innovative e-commerce feature, which would then stimulate behaviors such as making purchases through buy buttons. In other words, today's social platform users would not regard social platforms solely as a place for social interactions.

Furthermore, safeguards and guarantees offered by a social platform can significantly increase buy button activity by creating a safe shopping environment. Specifically, safer purchases should make users feel more trusting of social commerce (H3) and deem it less risky (H4) and, most importantly, more willing to purchase products via the social platform (H5). However, current platforms have yet to fully take on many of the responsibilities related to protecting users' purchases; they have mostly shied away from the transactional relationship between buyers and sellers, neglecting to provide buyers with security and privacy-related safeguards. Based on study 2, we conclude that users, seeing the social platform as safe for shopping, have better attitudinal and behavioral responses towards using the platform for shopping. Thus, offering safeguards and guarantees is a good opportunity for platforms to adopt, and eventually cement, buy button practices. Many studies have highlighted the crucial role of security and privacy measures taken by the social platforms (see Bahmanziari, Pearson & Crosby, 2003; Bahmanziari, Odom & Ugrin, 2009; Belanger, Hiller & Smith, 2002; Karimov & Brengman, 2014; Kim, Ferrin & Rao, 2008; McKnight, Kacmar & Choudhury, 2004), but most view the role in a traditional online shopping context. Our contribution here is that we explored and stressed the importance of the role of safeguards and guarantees offered by a social platform in users' shopping-related responses via such a platform.

Another interesting conclusion is the mediator effects of platform risk. As H6, H7 and H8 implied, platform risk is a crucial factor in mediating the effects of buyer protection on user responses. It is reasonable that users first consider the risk of shopping through the platform and then think about making transactions with sellers. The significant mediating role of platform risk suggests an essential prerequisite for buy button success: social platforms need to be seen as safe shopping environments first, and then roll out buy buttons, or the possibility of shopping on the platform. Moreover, in the Spanish sample, platform risk completely mediated the effects of safer shopping on perceived risk of buying from the seller and willingness to buy from the seller. Interestingly, these two variables are related to the seller instead of to the platform. By contrast, in the Chinese sample, platform risk only partially mediated the effects.

To sum up, our research has some major theoretical contributions. First, most publications examine the effect of technical features on the purchase behaviors of customers using social shopping websites (Hu et al., 2016; Olbrich & Holsing, 2011); our research has extended this theoretical boundary by studying the effect on two powerful social platforms, Facebook and WeChat.

Second, existing theories and models in the realm of social shopping or commerce focus on social features such as social interactivity and product recommendation (Hu et al., 2016; Lin et al., 2017); our work has revealed that a simple commercial feature — the buy button — can yield positive outcomes, resulting in more positive user shopping attitudes and stronger purchase willingness.

Third, previous studies have shown that security and privacy protection measures can reduce shopping risk, increase online purchases (Kim & Park, 2013; Mousavizadeh, Kim & Chen, 2016) and trust (Bahmanziari, Pearson & Crosby, 2003; Kim & Benbasat, 2010; McKnight, Kacmar & Choudhury, 2004) in traditional e-commerce settings. In s-commerce settings, researchers have highlighted the crucial role of security and privacy protection (Hansen, Saridakis & Benson, 2018; Huang & Benyoucef, 2013; Lu, Zeng & Fan, 2016). Williams (2018) suggested that social media users' risk concern may be reduced by using anti-fraud security features and protection measures. Our research has provided empirical evidence for this contention and found that users perceived less risk when protection measures were introduced. In terms of the relationship between protection measures and purchase willingness, Wang & Herrando (2019) have concluded that the influence of privacy protection on purchase willingness is mediated by trust and social interactions. However, privacy protection is not enough for social platform users. They also have security concerns when conducting s-commerce activities (Cha, 2009; Lu, Zeng & Fan, 2016; Sharma, Menard & Mutchler, 2017). Our study has considered security protection as well, and found that social platform users have a stronger willingness to purchase when measures to protect privacy and security are introduced. These protection measures have been deemed an approach to building trust (Leong, Jaafar & Ainin, 2018; Shi & Liao, 2017; Wang & Herrando, 2019), but we have not specifically approached trust as past research has done. For instance, previous studies have focused on trust in a social networking site (Hajli et al., 2017), trust in social media (Lin et al., 2016), or trust in a community (Chen & Shen, 2015), but no study has analyzed a particular form of trust associated with using a social platform for commercial as opposed to social purposes. This kind of trust is crucial for bolstering consumer perceptions of trust on general social platforms, yet it is under-researched to date. Our research has helped fill this research gap by revealing that safe buy buttons can provide this trust.

Last, classic e-marketplace literature related to risk transference logic has shown that platform risk is much less conclusive in predicting purchase behaviors on e-marketplaces; it is weakly associated with seller risk (Verhagen, Meents & Tan, 2006) and purchase attitude (Meents & Verhagen, 2018). Interestingly, our research reveals different results: platform risk strongly affects seller risk and purchase willingness. This is possibly because social commerce is still novel for today's users and, therefore, users value more highly a sufficiently safeguarded marketplace.

2.6. Practical implications

This paper also signals many useful implications for social platforms, when devising their own buy buttons or for those that have already rolled out this new feature and want to improve its performance. Credit for the success of buy buttons today may be due to social advertising. Companies and individuals advertise and advocate their business through social platforms. The popularity of social advertising has largely commercialized social platforms. This commercialization, to some extent, creates possibilities for people to conduct commercial activities directly on social platforms. In our cases, Facebook and WeChat both garner considerable revenue from advertising. For instance, at Facebook advertising accounted for 98.3% of its total revenue (Facebook, 2018). In other words, Facebook and WeChat are now good places to do business. People's use of social platforms is becoming more diverse and is no longer purely social (Ko, 2018).

The buy button is a call-to-action feature. It removes many of the frictions from interest to purchase and bolsters ease of shopping (Turban, Strauss & Lai, 2016). Users can click on the button, view items and select, make the payment, then wait for the item to be shipped to their home. By contrast, in a scenario without buy buttons, shoppers are more likely to conduct free-riding behaviors, i.e., purchase a product featured in social ads on traditional e-commerce websites or at bricks-and-mortar stores. Buy buttons create a frictionless path to purchase for users and allow them to complete purchases under the social platform's control. Indeed, if social platforms want to monetize through e-commerce, it is imperative to enable users to make purchases. With this in mind, buy buttons are not just a new feature or a one-click purchasing concept. They are a strategic enabler for a social platform's move into e-commerce. With explicit buy buttons, users can have a more positive attitude and are more willing to conduct e-commerce activities through the social platform. Therefore, for social platforms wishing to monetize via e-commerce, buy buttons are an important feature to enable them to do so. Retailers and brands can use buy buttons on social platforms to increase direct and actual purchases as well as boost social ad conversion rates.

Providing social platform users with a safe shopping environment is key to enabling platforms to profit commercially from that environment too. Even though most social platforms still do not protect their users' purchases, our research indicates that it is beneficial for social platforms to adopt security and privacy measures to protect online purchasing via buy buttons. This should effectively improve buy button performance by making purchasing more trustworthy and less risky.

A social platform needs to consider the interplay between the platform and its target customers before rolling out commercial features. In other words, social platforms need to evaluate whether their platform is suitable for commercialization, and whether its target customers will use their new commercial feature.

2.7. Limitations and future research

Buy buttons will play an increasingly important role in social platform monetization in the future. Buy buttons are not limited to Facebook and WeChat. There are many other popular social platforms such as Instagram, Twitter, Weibo, Pinterest, YouTube and Twitch that deploy them. These social platforms have their own characteristics, which positively or negatively affect the use of buy buttons. Our research focused on

Facebook and WeChat, two of the biggest social platforms, but there are others, so it follows that future studies could explore the use of buy buttons on other social platforms too. Moreover, buy buttons have many types and varieties. They are not limited to the purchase of tangible products, as in our experiment. Future researchers might consider experimenting with other buy buttons, such as subscription buttons, and intangible products, such as video and music.

On the methodological side, demographic discrepancies between samples/subsamples in both Study 1 and Study 2 are due to not having controlled this aspect when recruiting the samples for the experimental cells. As mentioned in the methodology of our studies, to ensure well-designed experiments we mainly focused on controlling that each subsample was balanced in terms of numbers, regardless of its demographics. On the other hand, our research aim was not to compare different populations but to use a multi-sample strategy to reinforce the conclusions of this investigation.

Finally, a buy button can direct a user from a social platform to a purchasing site. In practice, the purchasing site is outside or inside the social platform, depending on whether the social platform operates an e-commerce system and links it to buy buttons. This is also very interesting. Researchers might explore potential differences in providing a buy button that directs users to a shopping site within the social platform, as opposed to an external site, which was the focus of our research.

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Appendix 1. Stimulus materials

Study 1

Please imagine that you are browsing your News Feed on your [social platform name], and you encounter a situation like one in the pictures below. You see that a retailer MegaSmartphone (official website: www.mphone.com; head office: Madrid/Beijing) has posted a paragraph of text and a picture related to a product.

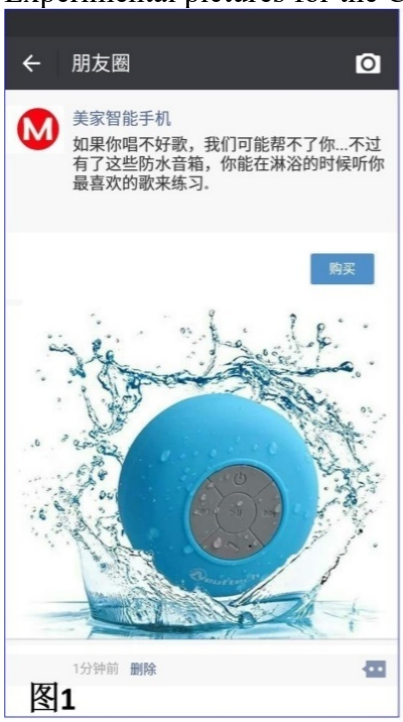
Above the product picture, you find a button named "BUY" (see Figure1). If you were to press this button, you would be directed to a more detailed product page (see Figure 2), where you could examine the product details, buyers' reviews, select the amount to pay, make the purchase, then wait for delivery. [This paragraph will be erased for the scenario without an explicit buy button.]

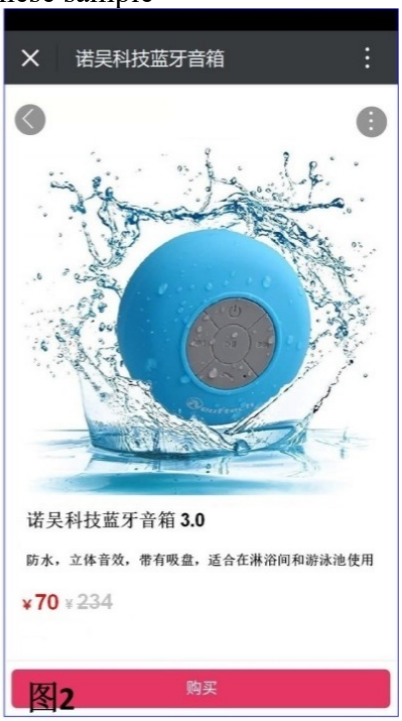
Experimental pictures for the Spanish sample

(These two figures work for the experimental group)

(This figure works for the reference group)

Experimental pictures for the Chinese sample





(These two figures work for the experimental group)

(This figure works for the reference group)

Study 2 (a safe scenario)

1) You can return the goods without giving any reason within 7 days of delivery, but you should return the goods in their original packaging; 2) In the case of product quality issues or unrealistic product description, your money will be refunded (the seller has deposited $10,000 as money back guarantee) and you can return or

exchange the goods within 15 days of delivery; 3) The seller has committed to never sharing your personal and financial information and behavior patterns, or spam you without your authorization; 4) Your transaction will be operated by [social platform name]'s transaction system and guaranteed by a third-party insurance company, paying you for any loss caused by system errors or hackers.

Study 2 (an unsafe scenario)
Even though you can see a "BUY" button on [social platform name], [social platform name] takes no responsibility for any purchases made from any seller on this platform. If there is any problem with, or complaint about, the product purchased, you must deal directly with the seller.

Appendix 2. Measurement scales

Measurement scales for study 1

Attitude towards using the platform for shopping (adapted from Vijayasarathy (2004))
(All items are measured by 1: strongly disagree – 7: strongly agree)
1. Using the social platform for shopping is (would be) a good idea.
2. I like (would like to use) using the social platform for shopping.

Willingness to make purchases through the social platform (adapted from Liu et al. (2017))
(All items are measured by 1: strongly disagree – 7: strongly agree)
1. I intend to make a purchase from the social platform.
2. I would make a purchase from the social platform.
3. I plan to make a purchase from the social platform.

Measurement scales for study 2

Trust in using the platform for shopping (adapted from Lu, Fan & Zhou (2016))
(All items are measured by 1: strongly disagree – 7: strongly agree)
1. As an online marketplace, this social platform can be trusted at all times.
2. As an online marketplace, this social platform can be counted on to do what is right.
3. As an online marketplace, this social platform has high integrity.
4. This social platform is a competent and knowledgeable online transaction platform.

Perceived risk of buying from the seller (adapted from Verhagen, Meents & Tan (2006)).
(All items are measured by 1: strongly disagree – 7: strongly agree)
1. As I consider making a purchase through this social platform, I become concerned about whether the seller will commit fraud.
2. As I consider making a purchase through this social platform, I become concerned about whether the seller will swindle me.
3. As I consider making a purchase through this social platform, I become concerned about whether the seller will offer products that will not perform as expected.
4. As I consider making a purchase through this social platform, I become concerned about whether the seller will behave opportunistically.

Willingness to buy from the seller through the social platform (adapted from Vendemia (2017)). (All items are measured by 1: strongly disagree – 7: strongly agree)
1. It is very likely that I would make purchases from the seller through the social platform in the future.
2. Based on the information shown on the seller's post, I would consider buying from the seller through this social platform.
3. I would feel comfortable purchasing from the seller through this social platform in the future.
4. I am willing to buy from the seller through this social platform.

Perceived risk of buying through the social platform (adapted from Bianchi & Andrews (2012))
(All items are measured by 1: strongly disagree – 7: strongly agree)
1. I would feel safe making purchases on this social platform using my credit card (this "credit card" was replaced by "WeChat Pay" for the Chinese sample because the Chinese subjects who use WeChat to do business mainly use this payment method instead of credit cards). [R]
2. I would feel safe giving my personal details to this social platform if requested. [R]
3. Compared to other ways of making purchases, I think that using this social platform is more risky.
4. There is too much uncertainty associated with using this social platform to make purchases.

Perceived security (for manipulation check; adapted from Escobar-Rodríguez & Carvajal-Trujillo (2014))
(All items are measured by 1: strongly disagree – 7: strongly agree)
1. The social platform implements security measures to protect users.
2. The social platform usually ensures that transactional information is protected from being accidentally altered or destroyed during a transmission on the Internet.
3. I feel secure about the social platform's electronic commerce system.
4. I am willing to use my payment method on the social platform to make a purchase.
5. I feel safe in making transactions on the social platform.

3. Buying through social platforms with buy buttons: perceived risks and trust

Note: Martínez-López, F. J., Li, Y., Feng, C., & López-López, D. Buying through Social Platforms: Perceived Risks and Trust. Journal of Organizational and End User Computing (JOEUC), forthcoming. Copyrighted by IGI Global.
Status: Waiting for proof and release.
Impact factor (JCR 2019): 1.882.
Category: Management. Q3.

Abstract
Social platforms are currently encountering a set of burning issues: low ad conversion rates, cross-channel free-riding phenomena, lack of monetary incentives to retain premium content creators, etc. Direct purchase behaviors between social platform users (e.g., making a direct purchase through a seller's promotional post) can largely resolve these problems. Therefore, it is imperative to study the factors that influence users' direct purchase behavior. This paper focuses on risk- and trust-related factors, proposing a theoretical model that was tested on two samples of Chinese users of WeChat. We concluded that users tend to evaluate the shopping risk associated with the social platform first, then go through a process of building trust in the platform before making purchases. Further, this trust can generate a halo effect on seller risk. Finally, trust and seller risk directly impact on users' purchase intention to buy from the seller on the platform.

Keywords
Social media; social commerce; purchase behavior; social computing; social media monetization; purchase intention; seller risk; platform risk; trust beliefs.

3.1. Introduction

Purchase behaviors are of paramount importance in the monetization of social media platforms. Monetization can be achieved through sales design, promotions and advertising (Kim, 2013), but these approaches must also address the central issue of how purchase decisions are made by social platform users. Conversion rates are the first critical factor in selecting the optimal advertising channel. Social platforms such as Facebook and Twitter may have the highest traffic rates in comparison to other major online platforms, but they also have the lowest ad conversion rates (Priceonomics, 2018). According to a recent survey (Parikh, 2018), the average conversion rates (in brackets) of major social platforms such as Facebook (4.7%), Instagram (3.1%), Twitter (0.9%), Snapchat (0.6%) and YouTube (0.5%) are lower than those of traditional digital advertising channels such as Google (8.2%) and Bing (7.6%). Brands and retailers would be more willing to run their ads on a social platform and pay higher ad fees if the platform was able to convert ads into more direct purchases. Second, content is king. Direct purchase behaviors provide content creators with financial incentives to create and share original content where otherwise they would be reluctant to continually offer premium content for free (Team Laal Patti, 2018), and this could eventually lead to a social platform losing its most prized asset: premium content. This could be why Facebook is testing a paid subscription feature that requires users to pay for access to exclusive premium content in interest groups. Likewise, Weibo has launched paid question answering services to motivate content creators as well as profit from them. For example, a follower can ask a movie star a question (e.g. “What is your favorite food?”) for a fee of around 15 US dollars. Other followers then pay around 15 US cents to access the answer, and all revenue is shared between the questioner (45%), the star respondent (45%) and the platform (10%). Third, sellers who use a social platform to merchandise their product are not willing to tolerate cross-channel free-riding (Chiu et al., 2011), whereby social platform users are interested in items in their messages or posts, but go to other channels (e.g. e-commerce sites, bricks-and-mortar stores) to complete their purchases. It is reported, for example, that over 80% of Instagram users who discovered a brand on Instagram later purchased the item on other channels, such as the brand’s own website, Amazon, or bricks-and-mortar stores (Garcia, 2018). In a word, it is imperative for social platforms to find a way to increase direct sales, thereby resolving these three critical issues. This would explain why many social platforms have rolled out, or are experimenting with, buy buttons (e.g. Facebook buy buttons) to allow users to make direct purchases by clicking on a button that directs them to the seller’s website to complete their purchase without leaving the platform.

The idea is appealing, but relevant practices are far from satisfactory. Previous research has not found e-commerce to be an appealing monetizing opportunity for social platforms, concluding that people are not willing to purchase items while engaged in their online social gatherings (Clemons, 2009). Regarding Facebook and Twitter’s buy buttons, a study revealed that 45% of respondents did not intend to use them (Business Insider Intelligence, 2016). Twitter aborted its e-commerce operations and is sticking with social networking services (Lunden, 2017). Over 30% of social platform users state they have never bought anything directly on a social platform (Statista, 2017). People may believe that social platforms are a good source of information referral for business, but might not trust them for making direct purchases due to risk-related concerns such as security and privacy (Cha, 2009; Sharma, Menard & Mutchler, 2017; Zarouali et al., 2017; Zhu & Chen, 2015). This paper, therefore,

will study how social platform users' direct purchase behaviors are affected by risk- and trust-related factors, and thus determine how to increase direct and actual purchases through social platforms. It will show how platform risk and seller risk influence purchase intention, and the role that trust plays in this causal path to purchase. Understanding this influential relationship can help to make social platforms aware of the factors that significantly inhibit their s-commerce practices, as well as how to improve the social shopping environment and achieve better s-commerce performance.

The paper opens with a discussion of the conceptual aspects of s-commerce and its key inhibitors. The authors then go on to discuss the study's hypotheses, describe the main methodological aspects and present their findings. Theoretical conclusions are then drawn and the managerial implications are discussed. Finally, the authors describe certain limitations and outline future research opportunities.

3.2. Background

Given the multidisciplinary nature of s-commerce, there is no clear definition of the content and boundaries of the field (Turban et al., 2017). By adopting a structural approach to the concept, s-commerce can be regarded as a combination of two intertwined components – e-commerce and the social web (Constantinides, Romero & Boria, 2008) – and hence understood as e-commerce activities delivered by social web applications (Liang & Turban, 2011; Liang et al., 2011). Having conducted a multifaceted analysis of s-commerce based on marketing, online shopping, computer science, sociology and psychology, Huang and Benyoucef (2013) defined s-commerce as "an Internet-based commercial application, leveraging social media and Web 2.0 technologies which support social interaction and user generated content in order to assist consumers in their decision making and acquisition of products and services within online marketplaces and communities" (p. 247). S-commerce sites can be divided into two classes: (1) social networking sites that add commercial elements to support advertising and commerce; and (2) traditional e-commerce sites that add social networking capabilities to utilize the power of social networking (Liang & Turban, 2011). This paper is interested in the former, studying the factors that influence social platform users' direct purchase behavior through a seller's buyable content.

A historic overview can contribute to an improved, dynamic and evolutionary understanding of s-commerce. The term "s-commerce" was first coined in 2005, emerging from several different fields. S-commerce first appeared with the origin of the social web. Social web technologies led to the development of a great deal of efficient, effective social software (e.g. blogs, wikis, social media) which prompted collaboration between employees, partners and customers (Turban et al., 2017). Subsequently, the dramatic increase in mobile commerce has facilitated the wide dissemination of s-commerce, since mobile devices, like smartphones, are generally cheaper, more accessible and convenient than desktop computers and laptops; this explains how s-commerce can flourish in developing and populous countries like China. Finally, awareness of the tremendous business opportunities in social media marketing has boosted s-commerce. As social media have become more and more popular, many social media-based marketing strategies have shifted in support of s-commerce (Turban et al., 2017). S-commerce is able to generate business unicorns even in countries where e-commerce is relatively well developed. Pinduoduo Inc., an

s-commerce-focused startup that became a business unicorn worth 1.5 billion US dollars in 21 months, is now China's fourth biggest e-commerce player (Elstrom & Ramli, 2017). The company's business model is a kind of hybridization of Facebook and Groupon, using Chinese social platforms to launch online group buying. Since its beginnings, s-commerce has continued to evolve as new technologies (e.g. mobile devices), new marketing approaches and business models have become globally prevalent. In the future, it is possible that these forces will render more innovative business models (e.g. advertising models, brokerage models, subscription models) and more monetizing opportunities for social platforms.

Despite the promise of the future of s-commerce, a number of significant inhibitors currently demotivate firms and users from using social platforms for commercial activities. Existing studies have tended to focus on s-commerce facilitators, paying little attention to inhibitors (Farivar, Turel & Yuan, 2017; Zhang & Benyoucef, 2016), particularly in relation to s-commerce activities executed directly through social platforms with buy buttons. Companies are affected by a number of inhibitors: doubts about the efficacy of s-commerce in supporting brand development (Michaelidou, Siamagka & Christodoulides, 2011), waste of time and money on s-commerce campaigns (e.g. Wal-Mart) (Liang & Turban, 2011), integration of existing information systems with new s-commerce platforms, loss of control over companies' brand images and reputations on UGC-dominated sites, and difficulty in measuring the ROI of s-commerce business (Turban et al., 2017), among others. On the user side, factors inhibiting users from involvement in s-commerce include risk, price, cost, responsiveness, social recommendation, interface-friendliness, delivery time, ease of purchase, content credibility, and merchandising approaches. Among these inhibitor factors, risk may be a leading inhibitor of s-commerce as well as of traditional e-commerce (Farivar, Turel & Yuan, 2017; Featherman & Hajli, 2016; Wang & Chang, 2013; Wang, Min & Han, 2016), yet few studies have investigated in depth the influence of the risk mechanism on direct purchase behaviors in s-commerce. Social shopping involves a potential array of risks. For instance, s-commerce transactions can lead to losses of private data, time and money (Featherman & Hajli, 2016). Sellers can access a buyer's transactional information as well as private information and shared content. Risk may be produced by the wide variety of sellers, in that traditional e-commerce platforms primarily allow verified sellers to sell, while social platforms admit verified and unverified sellers, from self-employed households to famous brands. In essence, it may be difficult for a loose, decentralized, virtual social structure to create a reliable and trustworthy shopping environment.

3.3. Theoretical model and hypotheses

This paper shows how social platform users' direct purchase behavior is affected by trust- and risk-related factors. Although many published studies have addressed similar issues in traditional e-commerce settings, further investigation is needed in an s-commerce context, given the significant differences between the two types of commerce (Huang & Benyoucef, 2013); moreover, relevant research in direct purchase behavior remains scarce.

Because perceived risk is a fundamental inhibitor when an online user is considering an online purchase, it is necessary to include this critical antecedent variable in the overall research model. Perceived risk is defined as a user's belief in "the potential uncertain negative outcomes from the online transaction" (Kim, Ferrin & Rao, 2008,

p. 546). As shown in the authors' research model (Figure 1), two types of risks are defined and considered here. Risk refers to potential negative outcomes in s-commerce, and occurs on two levels: at platform level, users may perceive risks associated with using the platform for shopping, such as financial loss or privacy disclosure (Farivar, Turel & Yuan, 2017); at transaction level, users may perceive the sellers as a risk. Both types of risks can influence purchase behavior, but the influence mechanism should be different. Platform-level risk is the consumer's overall perceived risk when using the platform to purchase, not including the specific transaction context in which a buyer transacts with a seller. By contrast, seller risk is believed to directly affect purchase behavior because it is a contextual risk that entails the buyer's involvement and evaluation of a specific transaction context (Hong, 2015). Along these lines, Meents and Verhagen (2018) designed a model to study the direct effect of both platform risk and seller risk on users' attitudes to buying a particular product at a C2C website; their results showed a non-significant direct effect of platform risk, but a significant direct effect of seller risk. The authors of this study therefore propose an indirect influential path for platform risk and a direct path for seller risk.

Moreover, considering the physical separation and low accessibility of products that is a feature of the internet, trust is a crucial predictor of users' internet purchase behavior (Kim, Ferrin & Rao, 2008), and becomes more important when risk is perceived as high (Mutz, 2005). This is congruent with a risky situation in which most current social platforms take inadequate *ex ante* measures to reduce the risks associated with direct purchases. On the one hand, as trust declines, users are more likely to be unwilling to take risks, and will need shopping safeguards to ensure against being cheated. On the other hand, trust explains why a consumer is willing to enter into a risky situation whose outcome they cannot *ex ante* control (Ratnasingham, 1998). An increase in trust can effectively reduce transaction costs and render one party less sensitive to another's opportunistic behavior (Tyler, 1996). In s-commerce, trust may be affected by unique s-commerce characteristics, such as information and experience sharing, as well as by conventional characteristics such as company size and reputation (Kim & Park, 2013). In this paper, our interest is in an environmental form of trust, i.e. trust in using the platform for shopping. Previous research has studied similar trust constructs such as trust in a social networking site (Hajli et al., 2017), trust in social media (Lin et al., 2016), and trust in online communities (Chen & Shen, 2015). Few studies have re-labelled this trust in a commercialized social platform context, however. Social platform users may trust a social platform to conduct social interactions, but this trust may not extend to making purchases. Users may not view social platforms as a suitable marketplace for online transactions, and may require their online social circle to be free of commercialization (Clemons, 2009). Although research has shed light on WeChat users' trust in products and services-related comments posted on WeChat (Lien & Cao, 2014), this trust is different from trust in using a social platform for shopping: users may trust purchase comments made by their social contacts, but be sceptical about the commercial features of the same platform. On the basis of this discussion, the present study includes trust as a crucial prerequisite to making purchases from sellers.

Social platform users' purchasing behavior is crucial for s-commerce performance. Purchase behavior is a processual concept. It reflects a process in which individuals discover, search for, compare and buy products or services to satisfy individual wants

and needs (Chen et al., 2015). Purchase behaviors can emerge via a social platform. For example, a WeChat user finds a product featured in commercial content on WeChat, but searches for it on other channels such as Amazon to complete the purchase. In this case, WeChat gains no monetary value, but this aspect falls outside the scope of this paper. The authors' research interest is the study of purchase behaviors that lead buyers to purchase products directly on social platforms, thereby generating profits for the social platform in question. Many social platforms have rolled out buy buttons that enable sellers to sell directly to buyers; the platforms monetize this activity by using these buttons to take a cut from each sale (i.e. charge per click). As most purchase actions through social platforms with buy buttons are eventually concluded on the seller's website instead of on the platform, it is difficult to observe and measure these purchase behaviors (Curty & Zhang, 2011). It is reasonable, therefore, to use purchase intention to represent actual, direct purchase behaviors (Hu, et al., 2016).

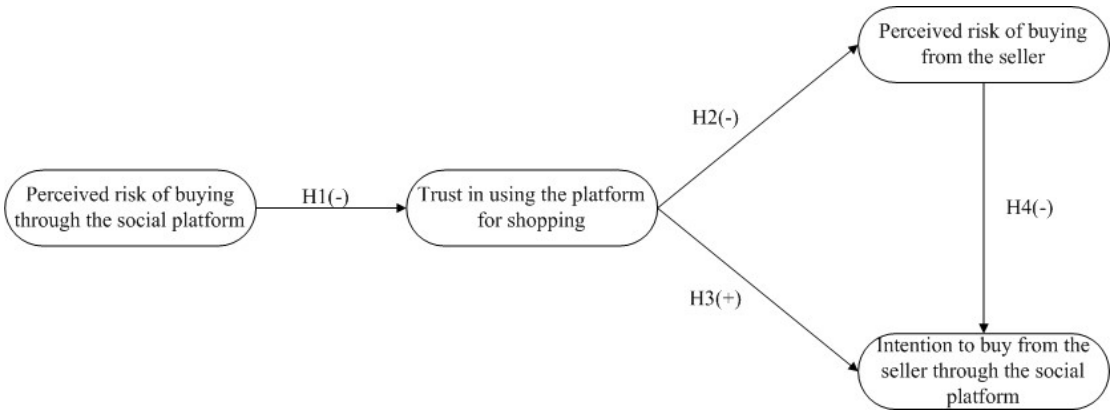


Figure 1. Research model

3.3.1. The effect of platform risk on trust

Social platforms are good at generating interest through digital social interactions, but there are many obstacles in the path from interest to purchase. The first is the user's perceived risk in relation to the social platform in question, such as theft of users' private photos and shared content. Platform risk refers to a user's belief that they will suffer negative consequences due to transaction operation failure on the part of the platform, poor e-commerce regulations and ineffective safeguards against seller fraud, or opportunistic behavior (Meents & Verhagen, 2018).

Risk is often associated with the measures established by a social platform to safeguard online transactions. Facebook, for example, has launched an ad review feature allowing users to make comments on ads. Based on this new feature, if a seller receives a lot of negative comments, Facebook will send them a warning to improve. If the seller does not react accordingly, Facebook will take down their ads. But this only amounts to an *ex post* measure to reduce shopping risk; Facebook offers no pre-purchase safeguards or guarantees now. Thus, the purchase risk related to a particular social platform is often associated with the security and privacy measures the social platform already has in place.

Furthermore, should users fail to detect any measures to safeguard their transactions with sellers on a particular social platform, they will perceive greater risk in using that platform to make purchases. From a cognitive perspective, trust relies on a cognitive

assessment of a situation (Kim, Prabhakar & Park, 2009; Harrison & McKnight, 2001). If a platform appears too risky, its users' assessment of the platform may deteriorate and, as a consequence, their trust levels in using the platform for shopping could drop considerably. Research has also identified the negative effect of risk on trust in different contexts (e.g. Kim, Prabhakar & Park, 2009; Yang et al., 2015). From this discussion, the following hypothesis is proposed:

H1: The higher the user's perceived risk of buying on the social platform, the lower their trust in using the social platform for shopping.

3.3.2. The effect of trust on seller risk

Trust in using a social platform for shopping may attenuate users' perceived risk of purchasing from sellers. The phenomenon by which trust in the platform has a halo effect on the perceived risk associated with in-platform sellers can be understood by Heider's (1958) Cognitive Balance Theory. According to this theory, the user's cognitive dissonance on a social platform depends on the configuration structure of three entities: user, seller, and platform. For example, when Pentina, Zhang & Basmanova (2013) studied the issue of trust in relation to social media brands, they adjusted these entities to brand, follower, and Twitter. The theory implies that users are inclined to maintain a cognitively balanced relationship between the entities. This means that users who trust a social platform will transfer this positive belief to the sellers they follow on such a platform. If a user trusts their favorite social platform, say Facebook, and then comes across an interesting product image and commercial information posted by a "legitimate" seller, this user will tend to maintain the cognitive balance derived from their trust in the platform and will feel less at risk when purchasing this seller's product on the platform. The halo effect should be strengthened when one object is aligned with another. In our case, trust in the platform and seller risk should center on transactional activities. A user's trust in a platform for social activities may not affect their transactional activities with sellers because social activities and purchase transactions are distinct from each other. On the contrary, if a user does not trust a social platform (e.g. certain gossip-based social networks), they will not trust a seller on that platform, even if the seller arouses no security or privacy concerns; nor will they wish to provide the seller with any sensitive information (e.g. credit card number, product preference). Hence, the authors propose the following hypothesis:

H2: The greater the user's degree of trust in using the social platform for shopping, the lower their perceived risk of buying from a seller on that platform.

3.3.3. The effect of trust on purchase intention

Trust is a crucial precursor of cooperative behavior (Shneiderman, 2000). Its working mechanism is this: while individuals are aware of their potential vulnerability in financial, security and privacy issues, they do not believe another party would take advantage of them, even if they could (Friedman, Kahn & Howe, 2000). Within the context of this study, when a user trusts in a social platform for shopping, this trust belief will dictate their shopping-related behaviors, even though they know that sellers are able to access and use their private information.

When trust is scarce or absent, individuals will not engage in financial transactions, nor are they likely to disclose personal information (Cassell & Bickmore, 2000;

Jarvenpaa & Tractinsky, 1999). On the contrary, when trust is present and its working mechanism kicks in, one party becomes more satisfied with their relationship with another party, and this renders outstanding performance in transactional activities (Whipple, Lynch & Nyaga, 2010). In other s-commerce contexts, researchers have found that trust has a significant influence on purchase intention (Chen & Shen, 2015; Hajli, 2015; Kim & Park, 2013; Lu, Fan & Zhou, 2016). Chen and Shen (2015) found that trust in Douban – a crowdsourcing review forum – had a positive effect on intentions to purchase products recommended by Douban users; Hajli (2015) showed that trust in social networking sites positively affects purchase intentions on social networking sites (SNS); Kim and Park (2013) found that trust in an s-commerce company (which uses SNS to promote its deals) had a significant positive influence on purchase intentions on the respective s-commerce site; and finally, Lu, Fan and Zhou (2016) studied traditional e-commerce sites with added social commerce features and pointed out that trust in an s-commerce marketplace positively influences purchase intentions towards a seller. This leads to the following hypothesis:

H3: The higher the user's trust in using social platforms for shopping, the greater their intention to buy from a seller through such a platform.

3.3.4. The effect of seller risk on purchase intention

Wang, Min and Han (2016) conducted a meta-analysis on social commerce- and risk-related papers and found that a direct risk-purchase relationship was not discussed in 43 relevant IS studies between 2006 and 2014. Seller risk is the buyer's belief that they will suffer negative consequences as a result of a seller's misconduct (Meents & Verhagen, 2018). Misdemeanors include misrepresenting products, overcharging for shipping fees or not sending items on time (Pavlou & Gefen, 2005). In s-commerce, this situation can be aggravated by sellers having access, not only to transaction-related information, but also to social-related information such as private photos and shared content. On a social networking site, the likelihood of buyer identity exposure is much higher than with traditional e-commerce sites. Technical affordances of social platforms such as connectivity, visibility and accessibility can easily expose private purchases and render a user's identity recognizable (Fox & Moreland, 2015). Shopping is a private activity, and buyers may not want others to know or disseminate information on what they have bought or commented on; not all buyers are flamboyant show-off shoppers in their online social circles. Unauthorized sharing of their shopping-related and personal information by sellers or third-parties could be perceived by the buyer as damaging to their social image and cause them distress.

Sitkin and Weingart (1995) argue that people will be less likely to undertake risky actions when the risk is perceived as high, as people tend to "associate risk with negative outcomes". When an individual's perceived risk is higher, with a feeling that there is a strong probability of experiencing a loss, thus lowering value expectations of the seller's product (Sitkin & Weingart, 1995), naturally the user is less willing to buy from the seller. The fact that major social platforms provide no protection mechanism or specific regulations for safeguarding purchases made directly through their platform, often disclaiming all responsibility to do so, could explain why direct purchasing is perceived as risky and is, therefore, infrequent on social platforms. Between 2015 and 2019, several s-commerce researchers used different constructs to shed light on how risk directly influences purchase behavior (Farivar, Turel & Yuan,

2017, 2018; Li, Liang & Li, 2018). Farivar, Turel and Yuan (2017, 2018) found that risk associated with using an s-commerce website for commerce has a negative influence on a general intention to purchase from an s-commerce platform. Li, Liang and Li (2018) found that product risk affects intention to purchase the product. The following hypothesis is therefore proposed:

H4: The greater the user's perceived risk of buying from sellers on social platforms, the lesser their intention to buy from a seller through such a platform.

3.4. Method

3.4.1. The social platform and the purchase context

The authors surveyed WeChat users via a Chinese online platform, Wjx.cn, and conducted an online survey to collect data. WeChat was selected as the social platform surveyed. It is China's most popular social platform with 980 million active monthly users (Angrymoo, 2018). WeChat includes many s-commerce features such as WeChat Pay and Mini Programs that allow users to transfer money and share commercial content by messaging their friends; it also integrates many third-party e-businesses such as ride-hailing, rail and flights, food delivery, movie tickets, hotels, flash sales and used items. It is the perfect place for businesses to merchandise and sell their products and, most importantly, it is highly suitable for the purposes of this research. From the range of purchasing activities and methods available, the focus was on a regular purchase context in which a user considers directly purchasing from content generated by a seller. All respondents were told to enter this context by reading a text that began: "Imagine you are browsing your Moment on WeChat, and you are presented with a situation like the one illustrated below. You see that a retailer, MegaSmartphone, has posted a short text and a picture related to a product". To make the purchase context more credible, two screenshots of WeChat were also included to let respondents know they were shopping and making purchases directly on WeChat.

For these screenshots, a real promotional post was adapted for the purposes of this research. Wei and Lu (2013) suggest that it is better to employ real promotion narratives than to invent them, in order to activate the respondents' true emotions. The seller and the brand were renamed in case any respondents were familiar with the real case. A cheap, waterproof loudspeaker that can be attached to a shower room wall was chosen as the product in this context. This low-involvement item was deemed acceptable to respondents from diverse backgrounds (in terms of gender, age and prior experiences). In addition, the original purchase link was replaced with a "Buy" icon, vividly conveying the idea that the item could be purchased directly through the social platform. The following text was inserted to illustrate how respondents could complete this direct purchase: "When you press this button, you will be taken to a more detailed product page, where you can examine the product specifications, make the purchase and view your delivery date." Here, the aim of adding the "Buy" icon and the text was to make it very clear that this was a direct purchase context.

3.4.2. Participants and procedure

The survey link was sent to WeChat users on the Chinese platform Wjx.cn, which is similar to MTurk in the US. Wjx.cn has a huge respondent database across diverse demographics. Potential respondents were invited to take part by means of a survey link sent to them. Once they clicked on the survey link, they would find the text and the pictures (see Appendix 1) that set up the purchasing context. Participants were

then asked to fill in a questionnaire.

Wessling, Huber and Netzer (2017) stated that this online crowdsourcing approach has two disadvantages: one, the anonymity of the online survey platform allows participants to misrepresent their behaviors; and two, many online crowdsourcing workers are experienced in completing surveys because they have received similar surveys before. The authors were aware that these disadvantages could affect their research results, so all participants were asked to answer the questions intuitively, and asked whether they had participated in similar surveys previously; where the answer to the latter was affirmative, those participants' questionnaires were discarded. Measures suggested by Wessling, Huber & Netzer (2017) were also applied: a reasonable answering time (10 minutes) was allowed; workers' questionnaires were approved quickly and all workers received a $2 fee; a statement to the effect that their data would only be used for academic purposes was issued; and an email address was provided to allow participants to inform the authors of any factors or inappropriate objects that caught their attention in the questionnaire.

After collecting all data, the original data set was randomly split into two small samples: one for model estimation (n=420), the other for model validation (n=420). In the estimation sample, 37.4% of participants were aged 26 to 35; 34.3% were aged 18 to 25; 14.3% were aged 36 to 45; and 42.1% were male. In the validation sample, 36.2% of participants were aged 26 to 35; 36.9% were aged 18 to 25; 13.1% were aged 36 to 45; and 36.4% were male. Gender and age in the two samples were coded as two dummy variables (e.g. in the dummy gender variable, 0 represents male and 1 represents female). An independent samples t-test was conducted to check for differences in demographics between the estimation sample and the validation sample. No statistical differences were found between the two samples (p_{gender}=0.09; p_{age}=0.40), leading the authors to conclude that the two samples were similar regarding the two demographic variables considered in the study.

3.4.3. Measurement

The variables in this study were adapted from previously validated scales: Appendix 2 shows all scales and their sources. In particular, the trust variable refers to trust in using the social platform for shopping. It is different from existing scales such as trust in a social networking site (Hajli et al., 2017), trust in social media (Lin et al., 2016), trust in products/services-related comments posted on WeChat (Lien & Cao 2014), and trust in community (Chen & Shen, 2015). The authors needed to measure trust belief in a particular s-commerce context, and required respondents to view the social platform as an online marketplace when scoring these items; Lu, Fan & Zhou (2016)'s trust in marketplace was therefore adapted to the purpose of the study. Purchase intention was measured by four items adapted from Vendemia (2017). In terms of the authors' interest in studying direct purchase behaviors through a social platform with buy buttons, this adaptation emphasized that purchase actions were made "through this social platform". All the study variables were measured with 7-Likert scales.

3.5. Results

3.5.1. Validity and reliability

Covariance-based Structural Equation Modeling (CB-SEM) and Partial Least Square Structural Equation Modeling (PLS-SEM) are both widely applied methods in SEM. In this study, CB-SEM is preferred to PLS-SEM for two reasons. CB-SEM produces

better parameter consistency and accuracy than PLS-SEM when the sample size exceeds a threshold of 250 observations (Reinartz, Haenlein & Henseler, 2009). The sample size in this case is 420 (840 in total), way over this threshold, making CB-SEM a more suitable option. Two samples are also used, requiring the additional action of testing the invariance of our structural model between the two samples. This action requires an SEM technique that generates goodness-of-fit indices for model comparison. Conventional model fit indices (e.g. CFI, GFI, RMSEA) are applicable in CB-SEM, but there are no established goodness-of-fit indices applicable in PLS-SEM (Hair et al., 2017).

First, the reliability of all measurements was assessed by calculating their internal consistency. In both samples, Cronbach's alpha coefficients on four scales exceeded the 0.7 cut-off. Second, we used AMOS 22.0 to conduct a CFA to confirm each scale's construct validity. Several conventional fit indices are reported, including χ^2/df, GFI, RMSEA, CFI, NFI, IFI, and TLI. Ratios of χ^2/df below 5 indicate an acceptable fit (see Bados, Gómez-Benito & Balaguer, 2010). Values for GFI, CFI, NFI, IFI, and TLI greater than 0.9 indicate a good model fit (see Nunkoo & Smith, 2013). Values of RMSEA below 0.1 indicate an adequate fit (see Curran et al., 2011). The fit indices shown in Table 1 satisfied all cut-offs. The measurement models for the estimation sample and the validation sample demonstrated an acceptable fit. Third, the convergent validity of the constructs was good, with values of Cronbach's alpha, average variance extracted (AVE), and composite reliability (CR) greater than conventional cut-offs (see Table 2). Finally, discriminant validity can be assessed by determining whether the square root of a construct's AVE is greater than the construct's correlations with the other constructs (see Martínez-López, Gázquez-Abad & Sousa, 2013). As shown in Table 3, the square root of all the AVE values was greater than all the other cross-correlations. Hence the authors were able to conclude that the discriminant validity of all the scales was adequate.

Table 1. Model fit indices

		χ^2/d.f.	GFI	RMSEA	CFI	NFI	IFI	TLI
Measurement model	Estimation	2.38	0.94	0.06	0.98	0.96	0.98	0.97
	Validation	2.37	0.94	0.06	0.97	0.95	0.97	0.97
Structural model	Estimation	3.85	0.91	0.08	0.95	0.93	0.95	0.94
	Validation	3.95	0.90	0.08	0.94	0.92	0.94	0.93
Unconstrained model		3.90	0.91	0.06	0.94	0.93	0.94	0.93
Constrained model		3.84	0.91	0.06	0.94	0.93	0.94	0.93

Table 2. Lambda loadings and reliability for both the estimation and the validation sample

	Platform risk		**Trust**		**Seller risk**		**Purchase intent**	
	Estim. sample	Valid. sample	Estim. sample	Valid. sample	Estim. sample	Valid. sample	Estim. sample	Valid. sample
Platform risk1	0.79	0.79						
Platform risk2	0.82	0.78						
Platform risk3	0.86	0.84						
Platform risk4	0.85	0.85						
Trust1			0.85	0.78				
Trust2			0.85	0.87				
Trust3			0.87	0.87				
Trust4			0.82	0.80				
Seller risk1					0.87	0.80		
Seller risk2					0.90	0.87		
Seller risk3					0.85	0.80		
Seller risk4					0.85	0.84		
Purchase intent1							0.81	0.77
Purchase intent2							0.84	0.83
Purchase intent3							0.87	0.85
Purchase intent4							0.89	0.89
Cronbach's alpha	0.90	0.89	0.91	0.90	0.92	0.90	0.92	0.90
CR	0.90	0.89	0.91	0.89	0.92	0.90	0.91	0.90
AVE	0.69	0.67	0.72	0.69	0.75	0.69	0.73	0.70

Table 3. Discriminant validity

	Mean	SD	Platform risk	Trust	Seller risk	Purchase intent
Platform risk$_E$	4.14	1.60	**0.83**			
Trust$_E$	4.26	1.43	-0.61	**0.85**		
Seller risk$_E$	4.54	1.53	0.73	-0.46	**0.87**	
Purchase intent$_E$	3.90	1.54	-0.62	0.82	-0.56	**0.85**
Platform risk$_V$	4.02	1.58	**0.82**			
Trust$_V$	4.27	1.44	-0.60	**0.83**		
Seller risk$_V$	4.57	1.53	0.78	-0.53	**0.83**	
Purchase intent$_V$	4.03	1.49	-0.59	0.77	-0.54	**0.84**

Note: Sub-index "E": estimation sample; "V": validation sample; The values along the diagonal line are the square root of the average variance extracted for the construct in the respective column. Below the diagonal line are the correlations between constructs. The negative sign indicates that the two constructs are negatively related.

3.5.2. Hypotheses testing (structural model)

Some conventional fit indices are reported in Table 1. Based on the multiple model fit criteria discussed previously, the structural models for the estimation sample and the

validation sample also demonstrated an acceptable fit.

The path coefficients of our research model can be seen in Figure 2 and Figure 3. The R^2 of trust is: 0.40 (estimation); 0.42 (validation). The results show that the effect of platform risk on trust was significant in both samples ($\beta_{estimation}$=-0.63, p-value<0.001; $\beta_{validation}$=-0.64, p-value<0.001). So, as hypothesized, platform risk will reduce user trust. Therefore, H1 was supported. The R^2 of seller risk is: 0.24 (estimation); 0.33 (validation). The effect of trust on seller risk was significant ($\beta_{estimation}$=-0.49, p-value<0.001; $\beta_{validation}$=-0.57, p-value<0.001): trust beliefs can effectively reduce perceived seller risk. Therefore, H2 was supported. The R^2 of purchase intention is: 0.72 (estimation); 0.63 (validation). The effect of trust on purchase intent was also significant ($\beta_{estimation}$=0.73, p-value<0.001; $\beta_{validation}$=0.71, p-value<0.001): trust beliefs can increase users' purchase intentions. Therefore, H3 was supported. The effect of seller risk on purchase intent was also significant ($\beta_{estimation}$=-0.20, p-value<0.001; $\beta_{validation}$=-0.13, p-value<0.01): perceived seller risk negatively affects users' purchase intentions towards the seller. Therefore, H4 was supported. In sum, all the hypotheses in this study were supported by both the estimation and the validation sample.

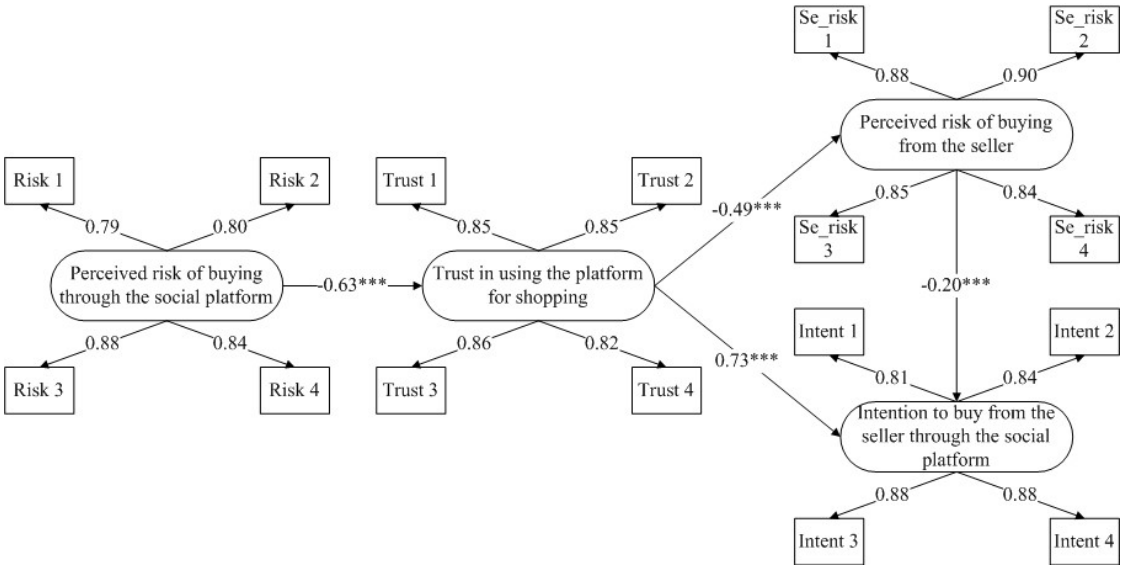


Figure 2. Standardized parameters between constructs (rounded) for the estimation sample (*: p-value < 0.01; ***: p-value < 0.001) and reflective indicator (in squares) loadings with their respective constructs.

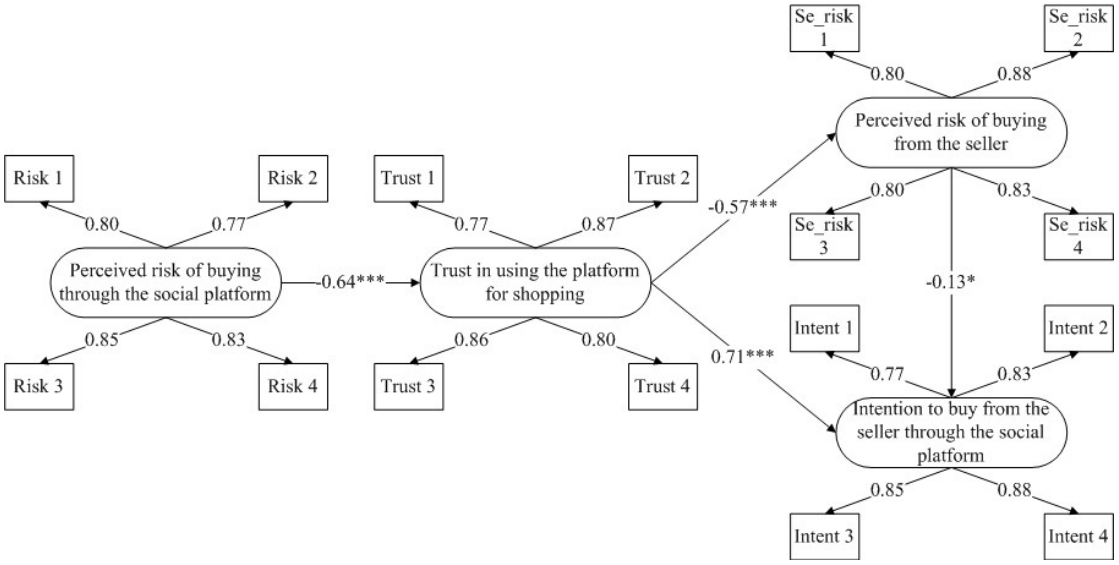


Figure 3. Standardized parameters between constructs (rounded) for the validation sample (*: p-value < 0.01; ***: p-value < 0.001) and reflective indicator (in squares) loadings with their respective constructs.

In addition, a multi-group invariance testing was performed between the estimation and the validation sample to test the generality of the structural model. Following Nien and Duda's (2008) approach, this test begins by estimating the path coefficients, without any parameter constraints, in the two samples simultaneously. This unconstrained model displayed an adequate model fit (see Table 1, χ^2/d.f.<5, RMSEA<0.8, GFI/CFI/NFI/IFI/TLI>0.9). The unconstrained model, which included no equality requirements, was then compared with the constrained model, in which the parameters relating to our four hypotheses were constrained to be equal across both samples. If the model fit of the constrained model had displayed significantly worse results than the unconstrained model, this could have been a sign of non-invariance; in other words, the results would be indicating that at least one of the constrained parameters was variant across both samples (Nien & Duda, 2008). However, as shown in Table 1, no substantial model fit change was found: ΔCFI□ 0.01, ΔTLI□ 0.01, and ΔRMSEA□ 0.015; see Scherer & Siddiq (2015) for these cut-offs. In sum, no statistical differences in the path coefficients of the hypothesized relationships were found between the estimation sample and the validation sample.

3.6. Theoretical discussion

The authors' research concludes that social platform users' direct purchase behaviors are significantly affected by trust- and risk-related variables. Trust is viewed as an underpinning of social commerce (see Farivar, Turel & Yuan, 2017; Hajli et al., 2017; Hansen, Saridakis & Benson, 2018; Lu, Fan & Zhou, 2016; Shi & Chow, 2015; Wang, Min & Han, 2016; Yahia, Al-Neama & Kerbache, 2018), yet few studies have measured consumers' trust in using a social platform for commercial purposes, and therefore the key factor of influence of this construct has yet to be fully explored. As risk is often associated with trust (Farivar, Turel & Yuan, 2017), our study demonstrates a significant risk-trust relationship (H1), in which these two factors are associated with purchasing through a social platform. This finding indicates that a social platform which aspires to win over users' trust in its commercial features must mitigate the generalized perceived risk associated with the platform *per se*. In other

words, social platforms need to analyze their platforms in terms of providing solutions to mitigate environmental risks.

If a social platform were able to effectively reduce the perceived risk associated with it, users would acquire more positive trust beliefs and perceive less seller risk (H2), and this would increase intention to purchase from sellers (H3) on the platform. These two findings imply that trust is a cornerstone of s-commerce, and is based on interpersonal relationships. Some social platform users may overlook the role of environmental trust in s-commerce because they can transact with acquaintances, family members and close friends on the platform. But the full potential of social platforms for s-commerce cannot be unleashed as long as so many weak links remain unresolved (Ellison, Steinfield & Lampe, 2007). For this study, the authors created a seller that was completely unknown to all the participants; however, the findings show that users with a positive trust belief in a platform would have a more positive tendency to enter into a transactional relationship with this seller. To summarize, trust in the platform plays a key role in activating a halo effect linking platform-level factors with transaction-level activities.

Seller risk in this paper does not refer to general risk associated with all sellers, but rather to a context-specific perceived risk derived from an unexpected encounter with promotional content. It has been found that seller risk has a significant effect on users' purchase behavior with a seller (H4) on the platform. This finding implies that purchase intentions are affected, not only by platform-level factors, but also by transaction-level or contextual factors. A purchaser on a social platform needs to form an occasion-specific or context-specific (Shankar et al., 2011; Jones & Runyan, 2016) perceived risk associated with the seller before they will eventually conclude a purchase action.

Two relationships (risk → trust → behavioral intention; trust → risk → behavioral intention) have been considered individually in previous research, but few studies have investigated platform risk and seller risk simultaneously, and made connections between them. The main difference between the present study and prior literature is that two influential paths – i.e. platform risk → trust → purchase intention; trust → seller risk → purchase intention – are simultaneously considered in a context in which users make direct purchasing through social platforms with buy buttons (see Appendix 3 for greater detail on the distinguishing characteristics of this study with regard to previous related research).

In a nutshell, the authors present the following major theoretical contributions. When approaching a potential purchase on a social platform, users will first evaluate the purchase risk associated with the platform, then go through a trust-building process based on this risk evaluation, which could eventually affect how a context-specific perceived risk is related to the seller. Trust in the platform for shopping and seller risk jointly affect the extent to which users are willing to eventually enter into direct purchase actions.

3.7. Managerial implications

The findings of this study have several managerial implications for social platforms wishing to improve their s-commerce performance. Social platforms need to build a safe shopping environment for s-commerce activities, despite the fact that most social

platforms have so far kept their distance from transactions between social platform members. This safe shopping environment underpins social platform monetization. Kim (2013) pointed out that social platforms employ three approaches to monetization: sales design, promotion and advertising. But no matter which approach a social platform adopts, a secure and trustworthy shopping environment is the best facilitator of social platform users' direct purchase behaviors, and could also contribute to increasing sellers' sales and boost ad conversion rates, enabling social platforms to make more profit from interactions between sellers and users. For instance, if ad conversion rates were higher, brands would be more willing to spend money on ads. However, most social platforms offer no pre-purchase safeguards or guarantees as traditional e-commerce companies do, probably because, if they provided guarantees (e.g. a money-back guarantee), they would have to dedicate more time and resources to dealing with shopping security and privacy issues.

It can be inferred that social platforms wishing to monetize via s-commerce first need to become actively involved in commercial activities and, most importantly, broaden the scope of their business operations from social business to a hybrid model encompassing social and commercial business. If they fail to do this, it could be very difficult for social platforms to create a safe shopping environment, earn user trust and boost direct sales. Social platform companies can learn from traditional e-commerce companies in this respect. For instance, to reduce platform risk, social platforms may need to offer free returns and a money-back guarantee for direct purchases through the platform with buy buttons, as well as develop a more cooperative partnership with sellers. For example, a seller will need to agree to a safe shopping protocol issued by the social platform, so that the platform can state that free returns and a money-back guarantee are available for this seller. When a social shopper decides to return an item and wants a full refund, the social platform needs to verify whether this request is reasonable. Specifically, the platform can process transaction payments and transfer money to sellers until the buyer has confirmed their purchase. The platform can also require sellers to deposit an agreed amount with the platform as a reserve for refunds, to prevent sellers from refusing refunds. Meanwhile, the platform can consider developing a transaction system to ensure the security of all payments. In consideration of users' privacy concerns, a social platform should put in place a protection mechanism or regulation to prevent sellers from easily accessing and distributing buyers' private information, from their real identity to private photos. In short, a social platform's roadmap to a safe shopping destination could involve considerable effort on its part.

Social platforms need to work out how the benefits of s-commerce can outweigh such an expenditure of effort. With respect to advertising business, social platforms could command bigger advertising fees from companies operating under a safe shopping protocol. Platforms could apply a brokerage model to merchandising activities in the safe shopping environment, taking a percentage or commission from sellers' sales; they could even consider establishing their own online stores, such as Snapchat's Snap Store, selling directly to their huge user base. As for digital content business such as novels, music and comics, platforms could adopt a subscription model or develop a micropayment system for premium content. It is plausible to develop a profit-sharing mechanism between content creators and participants, as in the case of Weibo mentioned in Section 3.1.

Brands and retailers should reduce the risk associated with them in order to generate more direct sales. For instance, to demonstrate their business integrity, sellers can carry a security notice declaring that they will apply strict security measures to all purchases, thereby attracting greater user attention and converting traffic into purchases (Vladlena et al., 2015). In a social context, sellers should also take advantage of the social platform to reduce the perceived risk associated with them by buyers. Social platforms are a perfect communication tool for sellers to convey their value to buyers and actively respond to buyers' needs and enquiries. For example, sellers could participate in commercial communities that are regulated and trusted by community members, conducting social interactions with members so that, having developed relationships of trust with sellers through long-term interactions, these members feel less exposed to risk.

Based on the authors' cross-level causal path to purchase, purchase behaviors are determined by platform-level and transaction-level factors. Therefore, it is necessary to find and offer a safe shopping solution that works for all parties. Such a solution would take a synthetic view that integrates a central social platform, brands and retailers, e-commerce sites, transaction and payment institutions, insurance companies and logistics systems. Social platforms may need to take the lead in offering safe shopping policies and procedures, and designate each party's responsibilities in this safe shopping ecosystem which could effectively reduce the risks associated with s-commerce, with the resulting boost to online sales.

3.8. Limitations and future research

Purchase behaviors among social platform users are an interesting and promising research topic. Researchers could study which purchase behaviors are valuable to a social platform, how a social platform can profit from these purchase behaviors, and the actions a social platform could take to improve its practices. The authors' study was restricted to one direct purchase behavior, which cannot represent all varieties of purchase behaviors. The purchase context varies according to differences in contextual factors (e.g. sellers, products, merchandising approaches). Future research can vary these contextual factors and study whether changes in contextual factors lead to variations in purchase behaviors. The present study is mainly focused on risk-related factors because it is imperative for social platforms wishing to monetize through s-commerce to reduce risk. However, future studies could study other influential factors, such as merchandising approaches, and different purchase behaviors, such as online group buying.

Our study focused on a single social platform: WeChat. Although it is a popular social platform, WeChat is distinct from other social platforms such as Facebook, Twitter, Pinterest or Instagram, among others. A platform's characteristics can positively or negatively affect purchase behaviors and may influence how a social platform is able to capture value from these behaviors.

Future studies may shed light on how social platforms could use updating technologies to facilitate purchase behaviors; for example, how social platform users react to cloud-based shopping apps and AI-driven chatbots, and make more or fewer purchases via interactions with these technologies.

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Appendix 1. Pictures used in the survey

图1

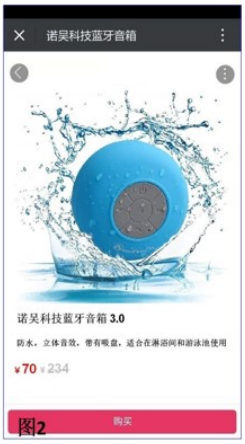

图2

Appendix 2. Scales

Trust in using the platform for shopping (adapted from: Lu, Fan & Zhou, 2016).
(All items are measured by 1: strongly disagree – 7: strongly agree)
1. As an online marketplace, this social platform can be trusted at all times.
2. As an online marketplace, this social platform can be counted on to do what is right.
3. As an online marketplace, this social platform has high integrity.
4. This social platform is a competent and knowledgeable online transaction platform.

Perceived risk of buying from the seller (adapted from: Verhagen, Meents & Tan, 2006).
(All items are measured by 1: strongly disagree – 7: strongly agree)
1. As I consider making a purchase through this social platform, I become concerned about whether the seller will commit fraud.
2. As I consider making a purchase through this social platform, I become concerned about whether the seller will swindle me.
3. As I consider making a purchase through this social platform, I become concerned about whether the seller offers products that will not perform as expected.
4. As I consider making a purchase through this social platform, I become concerned about whether the seller will behave opportunistically.

Intention to buy from the seller through the social platform (adapted from Vendemia, 2017).
(All items are measured by 1: strongly disagree – 7: strongly agree)
1. It is very likely that I would make purchases from the seller through this social platform in the future.
2. Based on the information shown on the seller's post, I would consider buying from the seller through this social platform.
3. I would feel comfortable purchasing from the seller through this social platform in the future.
4. I am willing to buy from the seller through this social platform.

Perceived risk of buying through the social platform (adapted from: Bianchi & Andrews, 2012).
(All items are measured by 1: strongly disagree – 7: strongly agree)
1. I would feel safe making purchases on this social platform using my WeChat Pay. [R]
2. I would feel safe giving my personal details to this social platform if requested. [R]
3. Compared with other ways of making purchases, I think that using this social platform is more risky.
4. There is too much uncertainty associated with using this social platform to make purchases.

Appendix 3. Differences of this study regarding previous related research

Study	Key findings: sequence of relationships	Context	Differences with this article
Kim, Ferrin & Rao, 2008	Trust → risk → purchase intention; trust → purchase intention. Trust negatively affected risk. Risk negatively affected purchase intention. Trust positively affected purchase intention.	E-commerce	These authors studied the trust-risk-purchase sequence in an e-commerce context. However, the present study focused on the specific context of s-commerce, as distinct from e-commerce. In e-commerce, the shopper's mind-set is more commerce-oriented because shopping websites are designed for online shopping. In contrast, social platform users are more social-oriented because the core value proposition of social platforms is to offer online social interactions. This nuance could affect the trust-risk-purchase sequence and warrants particular study in this specific context.
Kim, Prabhakar & Park, 2009	Trust → risk → adoption. Trust influenced adoption through perceived risk.	Online banking	These authors' constructs (trust, risk, and adoption) are related to online banking. The constructs of the present study are different. First, trust in the present article refers to trust in using a social platform for shopping. Second, risk in the present article is associated with a seller. Third, these authors focused on adoption behaviors, whilst the present authors focused on direct purchase behaviors through social platforms.
Kim & Park, 2013	Transaction safety → trust → purchase intention. Transaction safety positively influenced trust. Trust positively influenced purchase intention.	S-commerce	The s-commerce sites studied by these authors, e.g. Groupon (an American e-commerce marketplace), and Coupang (a South Korean e-commerce platform), are different from those studied by the present authors. The present study focused on social platforms endowed with commercial features (e.g. buy buttons), rather

Study	Key findings: sequence of relationships	Context	Differences with this article
			than the socialized commercial websites on which these authors focused.
Yang et al., 2015	Risk → trust → usage intention. Risk negatively affected trust. Trust positively affected usage intention.	Online payment	These authors' constructs (risk, trust, and intention) are related to using online payment. The present authors' constructs are different, and related to using a social platform for shopping.
Hong, 2015	Performance risk → trust expectation → purchase intention. Risk positively influenced trust expectation. Trust expectation positively affected purchase intention.	E-tailing	Trust and purchase intention here are related to an e-tailer. Particularly, trust expectation is different to the kind of trust examined in the present authors' study. E-tailing is also contextually different from s-commerce.
Wang, Min & Han, 2016	Trust was negatively related to risk. Trust was positively related to purchase behavior.	Social media platforms and information system	These authors conducted a meta-analysis related to 43 studies in IS between 2006 and 2014. No risk-to-purchase relationships were considered in IS studies during this period. This relationship was highlighted in the present study, however. Moreover, these authors used a broader search scope, including risk- and trust-related studies, e.g. risk or trust issues in information/knowledge sharing on social media. The present authors' study, by contrast, focuses on a context in which social platforms were used for commercial purposes.
Farivar, Turel & Yuan, 2017	Trust → risk → purchase intention; Trust → purchase intention.	S-commerce	The s-commerce site referred to in these two references is an e-commerce site (Etsy) integrating social media features. By contrast, the present authors

Study	Key findings: sequence of relationships	Context	Differences with this article
	No significant relationship between trust towards s-commerce site and perceived commerce risk was found. Risk was negatively related to purchase intention. Trust was positively related to purchase intention.		focus on social platforms incorporating a commercial feature. S-commerce sites such as Etsy prioritize commercial business. The social platforms focused on in the present study primarily provide social interaction services. Moreover, in contrast to the findings of Farivar, Turel and Yuan (2017)'s work, a significant trust-risk relationship was found in the present authors' study.
Farivar, Turel & Yuan, 2018	Risk → purchase intention. Perceived commerce risk negatively affected purchase intention.		
Meents & Verhagen, 2018	Platform/marketplace risk → seller risk → attitude towards buying. Platform risk positively affected seller risk. Seller risk negatively affected attitude towards buying.	C2C e-marketplace	The present authors' study includes purchase intention when considering platform risk and seller risk simultaneously. This constitutes a major difference from the reference study. Trust is also included in the present model, with the empirical results demonstrating that trust does play a role in influencing social platform users' purchase intentions.
Wei et al., 2019	Trust → Transaction intention; Perceived risk → Transaction intention. Trust positively affected transaction intention. No significant effect of perceived risk on transaction intention was found.	C2C e-marketplace	Although the reference study considered trust- and risk-related factors simultaneously, its aim is to compare the relative influences of risk- and trust-related factors on transaction intention between two samples (buyers and sellers). The present authors' research interest lies only in the purchase behaviors of end users or social shoppers. This constitutes a major difference from the reference study. A significant effect of risk on purchase intention was also found in the present study.

4. Do safe buy buttons and integrated path-to-purchase on social platforms improve users' shopping-related responses?

Note: Martínez-López, F. J., Li, Y., Liu, H., & Feng, C. (2020). Do safe buy buttons and integrated path-to-purchase on social platforms improve users' shopping-related responses?. Electronic Commerce Research and Applications, 39, 100913.
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Abstract
Buy buttons are a strategic enabler of social shopping and social platform monetization, but their use is still far from satisfactory. This paper aims to find effective actions to optimize buy button performance. A two-factor (safe shopping vs. unsafe shopping; an integrated path to purchase vs. a separated path to purchase), between-subject experiment was conducted on China's online crowdsourcing platform, Wjx.cn. A two-way, full factorial ANOVA was used to test hypotheses. The study showed that shopping safeguards and guarantees that a social platform aligns with buy button use can positively influence users' shopping-related attitudinal and behavioral responses, such as shopping attitude and impulse buying intent. In addition, an integrated purchase path, where the user can complete the entire purchasing process on the platform where the item is offered, can result in users adopting a favorable attitude towards using the social platform to make purchases. However, no interaction was found between these two factors, only additive effects. Although major social platforms do not currently offer security and privacy measures for direct purchases, this paper reasonably explains why as well as what measures a social platform can take to optimize buy button performance. This study also indicates that channel integration of a focal social platform and external commercial websites can provide users with an integrated, seamless path to purchase, and can enable social platforms to enhance their value position in today's business ecosystem.

Keywords
Buy button; social platform; social shopping; safe shopping; path to purchase; experimental design.

4.1. Introduction

Buy buttons are a new commercial feature on social platforms. Facebook experimented with buy buttons in 2014, allowing users to buy items entirely within its platform (Constine, 2014). Almost at the same time, Twitter, Pinterest, WeChat and Weibo were trying out new buy buttons and created a wide variety of them. Initial forays by major social platforms into e-commerce business would suggest that buy buttons could have money-making potential (Halzack, 2016). Buy buttons make it possible to make actual purchases through social platforms, thereby leading to a probable increase in direct sales and improving the effectiveness of branding (Lindsey-Mullikin and Borin, 2017). Social platforms can be used to reach a wide audience, as well as to monetize users through commercial actions. The moment that customers hit a buy button represents a possible chance to translate customer value into monetary value. For example, WeChat's partnership with Pinduoduo allowed users to sell by sending purchasable messages to their friends, leading to the creation of a miracle startup – Pinduoduo – which reached a value of 1.5 billion U.S. dollars in a period of 21 months (Elstrom and Ramli, 2017). Hence, it is interesting to study how social platforms can create and seize more monetizing opportunities from buy button use.

Despite the apparent potential, buy buttons did not reach many of their pundits' high expectations. According to a recent survey on the use of Facebook's and Twitter's buy buttons, around 45% of respondents would not use them; over 70% of sellers did not achieve any sales through buy buttons and over 40% of marketers planned to reduce their use in the near future (Business Insider Intelligence, 2016). Cowen and Company surveyed 2,700 U.S. Internet users about the channels that they have used to complete purchases of brands they found on Instagram: direct purchases on Instagram only accounted for 19% of all purchases in comparison to the brand's website (40%), Amazon (29%), the brand's physical store (20%), other digital retailers (17%) and other department stores or warehouse clubs (14%) (Garcia, 2018). These figures suggest that most social shoppers discovering a brand on Instagram eventually complete purchases using other channels. In 2017, Twitter abandoned its e-commerce business and phased out buy buttons (Lunden, 2017). According to a recent survey, one third of U.S. users reported that they had never purchased an item directly through social platforms (Statista, 2017). Some professionals and critics even suggest that Western social platforms may not be suitable for introducing and advocating the use of buy buttons: people who mostly use social platforms to contact others and catch up with news have no intention of using the platform to make purchases (Halzack, 2016).

It is therefore imperative to find what measures social platforms can take to improve buy button performance. This paper explores whether both shopping-related safeguards and an integrated path to purchase on the platform can help buy button performance and elicit positive shopping-related attitudinal and behavioral responses from users. Studying this question can generate insightful theoretical and practical contributions. This paper aligns safe-shopping measures with a special digital artifact – buy buttons – and will give insights into whether a "safe buy button" can have positive effects on important consumption-related responses such as impulse buying intent. Although the role and effect of path-to-purchase design on shoppers has been analyzed by many researchers and practitioners (e.g. Anderl et al., 2016; Baxendale et al., 2015; Favell, 2016; Hall and Towers, 2017; Shankar et al., 2011), few studies have

explored this effect within social shopping contexts, or analyzed both user experience and channel integration together. This study will examine the effects of a path to purchase that integrates a social platform with external e-commerce sites for social platform users.

This paper is structured as follows. First, we present a discussion on buy buttons and the different types that exist. Then, we introduce the theoretical background of our research and discuss its hypotheses. Next, we describe our experimental study, its main methodological aspects and its results. Finally, we provide a theoretical discussion, as well as some practical implications, and finish by pointing out some of the limitations and research opportunities.

4.2. Background

4.2.1. Buy buttons

There is no clear definition of buy buttons. Buy buttons are understood as a social shopping feature through which social platforms can better monetize their mass of users (Rezaei, 2017). Turban et al. (2016) argued that buy buttons are a prominent driver to increase ease of shopping, but security issues in their application need to be resolved. Advertising on social platforms is now much more interactive and includes many call-to-action features. The presence of a buy button in advertisements is about more than just making them purchasable because buy button success is determined not only by how many people use and click buy buttons, but also by how many purchases are made via buy buttons. What is more, our main interests do not lie in shopping links or pictures with shopping links offered by brands or retailers (Olbrich and Holsing, 2011), but in how social platforms can reap the benefits of introducing an official buy button feature, allowing anyone to conduct commercial activities with others.

In practice, different kinds of buy button exist. The Facebook buy button is a call-to-action button, allowing retailers and brands to sell directly through their advertisements (Facebook Business, 2014); however, it did not come into fruition in the end. Facebook now allows brands and retailers to embed a “Shop Now” button, which allows buyers to complete purchases on an external website. For instance, Facebook users can find this button on Estée Lauder’s Facebook page, click on it, and then go to a website (www.esteelauder.com) belonging to Estée Lauder instead of Facebook. Facebook sellers can also add buy buttons by using third-party applications such as Shopify. Twitter was very ambitious in its aim of becoming a shopping mall with buy buttons embedded in tweets (Hern, 2014). Pinterest uses “buyable pins”, which direct users to sellers’ websites to complete their purchases. YouTube added click-to-shop buttons on pre-roll advertisements, which direct viewers to the brand’s website. Snapchat rolled out “shoppable AR” lenses, which allow the consumer to use the Snapchat camera to scan and receive shopping links contained in real images; Snapchat also created its own Snap Store, which sells exclusive items to audiences.

In comparison to buy buttons directed at Western users, China’s buy buttons seem to be better accepted and used. China’s biggest social platform, WeChat, allows business users to create shoppable buttons that direct followers to e-commerce websites within their “Official Account” and, most recently, offers “Mini Programs” – cloud-based apps – allowing users to use shopping apps on WeChat without downloading them. WeChat also has its own payment method, WeChat Pay, which significantly increases

the security level when making payments through the social platform. All of these features turn WeChat into a perfect shopping destination (Minter, 2017). Weibo, another popular social platform in China, has embraced many commercial features, such as subscription buttons, paid answering services, and the social commerce feature – Hongrentao. Hongrentao means that Weibo influencers can add buyable pictures to their posts, which direct followers to an e-commerce site. Likewise, China's viral video-sharing platform, Douyin, now allows influencers with over a million followers to send shoppable messages in their videos.

In short, buy buttons refer to clickable icons, photos, buttons, links, and messages directing users to a follow-up product page to complete a purchase via a social platform. They can direct users to an in-built webpage belonging to the social platform or to an external website that has no relation to the social platform.

4.2.2. Safe buy buttons

Similarly to other online shoppers, social shoppers have a basic safety need when purchasing through buy buttons. The safety of social shopping depends on protecting user security and privacy. Maintaining the security and privacy of personal data and information are a basic consumer need for a continued use of social media (Zhu and Chen, 2015). Users' perceptions of security play a key role in their attitude towards shopping via social networking websites (Cha, 2009). When users are highly concerned with privacy, their skeptical attitude will reduce their intention of purchasing through a retargeting advertisement (Zarouali et al., 2017). Sharma et al. (2017) argue that privacy and security issues may act as "significant inhibitors of social commerce usage". In an online purchasing environment, when users are concerned about their privacy and security, this concern is likely to diminish their trust (Shin, 2010) and increase the perceived risk of the transaction (Amaro and Duarte, 2015); ultimately, this negatively affects their intention to purchase (Amaro and Duarte, 2015). This may explain why some buy button trials failed.

It is commonplace for sellers to take security measures. For instance, on a social networking site, e-tailers use security notices – independent verified artifacts showing that site owners have taken security measures – to prove their business integrity in order to attract the attention of users and increase their intention to purchase (Vladlena et al., 2015). However, social platforms generally omit security and privacy measures, which may jeopardize buy button performance. For instance, social platform users may resist using the buy button due to a high shopping risk and concerns surrounding the privacy of information disclosure; users may think that they could receive a fake product and be unable to get their money back. Therefore, social platforms need to determine whether offering safeguards and guarantees for purchases made through buy buttons – i.e. safe buy buttons – can optimize buy button performance. This means that when users click on a buy button, they will find that their purchase will be protected by the social platform. Prior research has also indicated that social platforms should view security as a key part of website design quality (Huang and Benyoucef, 2013), and take security measures to increase transaction safety, which can eventually increase purchase intention (Kim and Park, 2013). Several studies have shown that offering shopping guarantees and safeguards on their sites contributes to fueling positive consumer responses (e.g. Hu et al., 2010; Karimov and Brengman, 2014; Kim and Kim, 2010; Wu et al., 2010). A safe buy button practice is akin to an online marketplace where users mainly transact with

various sellers under the protection of the platform, which provides an institutional trustable environment (Karimov and Brengman, 2014; Pavlou and Gefen, 2004).

One effective measure may be for a social platform to provide guarantees and safeguards to heighten shopping security. In the realm of e-commerce, guarantees can be divided into "internally provided" guarantees and "externally provided" guarantees (Bahmanziari et al., 2009; Karimov and Brengman, 2014). Internally provided guarantees are offered and operated by the seller, but are not verified by third-party certification bodies (Karimov and Brengman, 2014). In this scenario, commercial activities must rely on sellers' business integrity and ability. On the other hand, guarantees offered by a third party are based on the idea of "making the vulnerable party (the consumer) more comfortable with the transaction and ensuring that 'the other' (the seller; brand/e-tailer) follows through on its promises" (Sivasailam et al., 2002: p. 34). The idea of introducing a safe buy button is to use externally provided guarantees and safeguards. A social platform rolling out a buy button feature could decide to stay away from any commercial activities carried out between buyers and sellers on the platform. But it could also decide to step in and offer guarantees and safeguards for buyers by letting them know sellers are trustable and reliable. For example, a social platform could declare that all purchases made by using buy buttons will be protected with measures such as a free return policy, a money-back guarantee, private information protection protocols and payment security, etc. Social platforms may not be willing to take these kinds of measures, because these may increase their work significantly due to issues such as handling commercial activities and mediating in disputes between buyers and sellers. Also, they may not be willing to have to take responsibility for any fraud or opportunistic behavior by the sellers. In short, safe buy buttons mean that a social platform offers safeguards and guarantees for purchases made through buy buttons. In contrast, an unsafe buy button indicates that a social platform just offers a buy button and does not take responsibility for any purchases made through it.

Cue utilization theory also provides useful theoretical terrain to explain the effects of safe buy buttons on users' shopping-related attitudinal and behavioral responses. Basically, this theory states that a cue utilization process involves cognitive processes based on gathering information in a task environment and using it to complete a particular task (Olson, 1978). First, cues presented in a task environment will catch individuals' attention; second, individuals will select and comprehend cues to form descriptive beliefs; last, individuals will try to organize their beliefs and integrate the information gathered and eventually make a response (for more detail, see Olson, 1978). Prior relevant studies have adapted this theory to e-commerce contexts. Due to a lack of tactile information to assess products online, online shoppers have to seek additional cues (e.g., likes, comments, shopping guarantees) to assist in their decision-making (Hu et al., 2010; Kao et al., 2016; Kim et al., 2019; Shah et al., 2014). Adapting this theory to our research context to explain the effect of a safe buy button on users' shopping-related responses, embedding a safe buy button in a promotional post, can entail two cues. First, a buy button signals that a post is commercial and that a product contained within is buyable. On the other hand, shopping safeguards and guarantees signal that transactions made using such a buy button are protected by the social platform.

Social platforms are different from traditional e-commerce websites where users can

access more shopping-related information (e.g., sellers' sales and rating information, qualification in production or brand franchise). Social platforms focus on offering social-related information. For example, users coming across a promotional post can access a profile page on which there is information from the organization, or the person who posted it. Hence, when a safe buy button is introduced, users need additional safe shopping cues to make inferential beliefs and assimilate such information to reduce risk and uncertainty (Kim et al., 2019; Tuu et al., 2011). With the reduction of risk and uncertainty, a social platform's users can make a better purchase decision when information offered by the platform is limited (Kim et al., 2019), so, users perceiving safe shopping cues will probably have more favorable shopping-related attitudinal and behavioral outcomes.

4.2.3. Path to purchase

The concept of path-to-purchase is beneficial not only for physical retail or service sectors, but also for online commerce businesses, and hence scholars from service science, retailing, marketing and e-commerce have conducted several studies related to path-to-purchase. Even though path-to-purchase and customer/user journeys are used interchangeably in both academic and practical publications (Anderl et al., 2016; Favell, 2016), the conceptual differences between them should be clarified. Path-to-purchase is more related to a variety of channels that users are exposed to in their path to purchase, with an emphasis on channels; while customer journeys are more associated with the experience a user has during the purchasing process, with an emphasis on experiences (Favell, 2016). As users' purchase decision-making is a dynamic and highly flexible process, with individuals making choices that lead to different journeys (Hall and Towers, 2017; Karimi et al., 2015), which cannot be properly understood without a synthetic consideration of channels and user experiences, it is both relevant and essential to have both perspectives in mind. However, as the role of buy buttons in the purchasing process is to connect various channels (social media and e-commerce sites) and the concept of path-to-purchase clearly directs users towards making a purchase, which is congruent with the essence of buy button use, we have decided to prioritize path-to-purchase over customer/user journeys in this paper.

Path-to-purchase is a path on which individuals actively engage in making a purchase and resolving an occasion-specific purchase need (Shankar et al., 2011; Jones and Runyan, 2016). Path-to-purchase could be used to determine which parts of the process have an impact on consumer attitudes and behaviors, and which of these key aspects are not working well (Baxendale et al., 2015). The path-to-purchase on an online platform can be understood as a sequence of tasks, comprising four sequential stages related to a buy button: task 1, the encounter of commercial content (social interactions, commercial information, buy button); task 2, the completion of product configuration (choose style, options, color, warranty, confirmation); task 3, the input of transaction information (payment method, shipping information); and task 4, the order completion (confirmation) (Sismeiro and Bucklin, 2004). However, in many cases, users finish task 1 on a social platform, but have to complete tasks 2 to 4 on the seller's e-commerce site (a separated path-to-purchase scenario). This could be a significant inhibitor of buy button use, as it is painstaking for users to evaluate the trustworthiness of the seller's site, especially if unknown, for shopping.

The theory of shopper marketing argues that the planning and execution of all

marketing activities should focus on the entire path-to-purchase (Shankar et al., 2011). Therefore, a path-to-purchase analysis allows retailers to think strategically about how they should organize, arrange, and manage different parts of the path-to-purchase (Hall and Towers, 2017). Researchers highlighted the fact that companies that want to win at digital adoption must be aware that they need to rebuild and digitize the entire path-to-purchase, because, nowadays, consumers would not want digital versions of the manual, bureaucratic business processes they faced before (Desmet et al., 2015).

According to the customer experience quality model (Lemke et al., 2011), managers should refine communication encounters, service encounters, and usage encounters in users' path-to-purchase to improve customer experience. In social shopping, negative examples of encounters are: re-entering data in the seller's site, waiting time to visit the seller's site, unauthorized sharing of private information by other users/sellers, etc. These encounters can be refined (e.g. save data for repeat use, reduce visiting time and encrypt private data) by integrating the focal social platform with e-commerce sites. For instance, in 2017, China's second largest social media site, Weibo, established strategic alliances with several e-commerce sites, including China's largest e-commerce player, Alibaba. These partnerships provide Weibo with a new feature, which enables users to browse and purchase without leaving the social platform. In other words, when Weibo users click on a buy button, they do not need to exit Weibo.

An integrated path-to-purchase relies on a new governance strategy, which bridges multi-channels (Wu and Wu, 2015). In theory, commercial information can be created, shared, and updated by sellers, e-commerce partners and social platforms. Users do not need to re-enter data on other e-commerce sites, as the social platform has already stored their data. Products, comments and inventory information can be shared and transferred by e-commerce parties to the social platform, allowing users to stay on the social platform to complete purchases.

To summarize, a path-to-purchase can be understood as a sequence of tasks to accomplish a purchase via a social platform. An integrated path-to-purchase indicates that the social platform has integrated commercial features or activities behind buy buttons, so that buyers can complete these tasks on the social platform. A separated path-to-purchase implies that users discovering a product featured in commercial content would have to complete purchase tasks on a seller's external website, which is not part of the social platform.

4.3. Research hypotheses

4.3.1. Brief overview

Safe buy buttons and an integrated path-to-purchase are expected to exert an influence on a set of attitudinal and behavioral variables related to using buy buttons for commerce. Figure 1 depicts the framework of this study.

The classic triplet of PAB (perception, attitude and behavior) has been widely used to study how consumer psychology and behavior are affected by social platform characteristics/attributes/features (e.g. Huang and Benyoucef, 2013; Kim and Park, 2013; Zhang et al., 2014). In our research hypotheses, we selected five PAB-based dependent variables: shopping attitude, perceived ease of purchase, perceived seller risk, intention to impulsively buy and willingness to buy from the seller through the

social platform. These dependent variables can be classified into two levels: two platform-level variables and three transaction-level variables.

Amongst the two platform-level variables, shopping attitude is crucial for buy button success because it can reflect users' overall like or dislike of using the platform for shopping. Moreover, if a user dislikes using the platform for shopping, the likelihood of conducting shopping-related behaviors could be lower.

TAM (Technology Acceptance Model) has demonstrated that perceived ease of use is a critical factor that influences users' adoption and usage behavior (Venkatesh and Davis, 2000). Perceived ease of purchase has been recognized as a major driver of buy button innovation on social platforms (Turban et al., 2016). We, however, narrow down the scope of the general construct "perceived ease of use" and define this variable as "perceived ease of purchase", as it is more appropriate for referring to the buy buttons' one-click-purchase feature. This label is better, as the variable emphasizes the efforts made by consumers in their path to online purchases rather than their overall efforts in using the system (Chiu et al., 2005).

Buy button success is determined by the extent to which social platform users make use of buy buttons to transact with sellers. We therefore selected three transaction-level variables to examine whether our treatments can influence users' attitudinal and behavioral responses in transacting with a seller. For social platforms, it is useful to know whether offering safe buy buttons and an integrated path-to-purchase are helpful in reducing users' risk perception of buying from platform sellers. For sellers, buy buttons are expected to generate more sales from or appeal to buyers who are more willing to purchase merchandise from them. This requires that users form an intention to buy from a particular seller through the social platform. Here, it is notable that purchases using buy buttons should be made through the social platform rather than other places (e.g. a shopper discovering a product on a social platform eventually goes to a physical store to purchase it), because one of the aims of introducing buy buttons is to reduce free-riding phenomena and increase direct purchases. Accordingly, our research interest also lies in purchase behaviors involving buy buttons on a social platform.

Social shopping is quite different from traditional online shopping. Purchasing items through a social platform relies on searching for serendipitous information and scarce content (Chung et al., 2017). Social platform users do not usually have a clear shopping goal in mind; they run into shared content or items rather than actively seeking them. In other words, there is no clear purchase goal prior to purchasing actions made through social platforms (Leong et al., 2018). In this mental mode, users' purchasing behavior is more akin to impulse buying behavior (Chung et al., 2017; Kim and Johnson, 2016; Leong et al., 2018), which should not be overlooked. At any rate, it is interesting to study two kinds of purchase responses: a general intent to purchase from the seller through the social platform; and a specific impulse buying intent. Both responses reflect the extent to which a piece of commercial content can generate direct and actual purchases or convert clicks into sales.

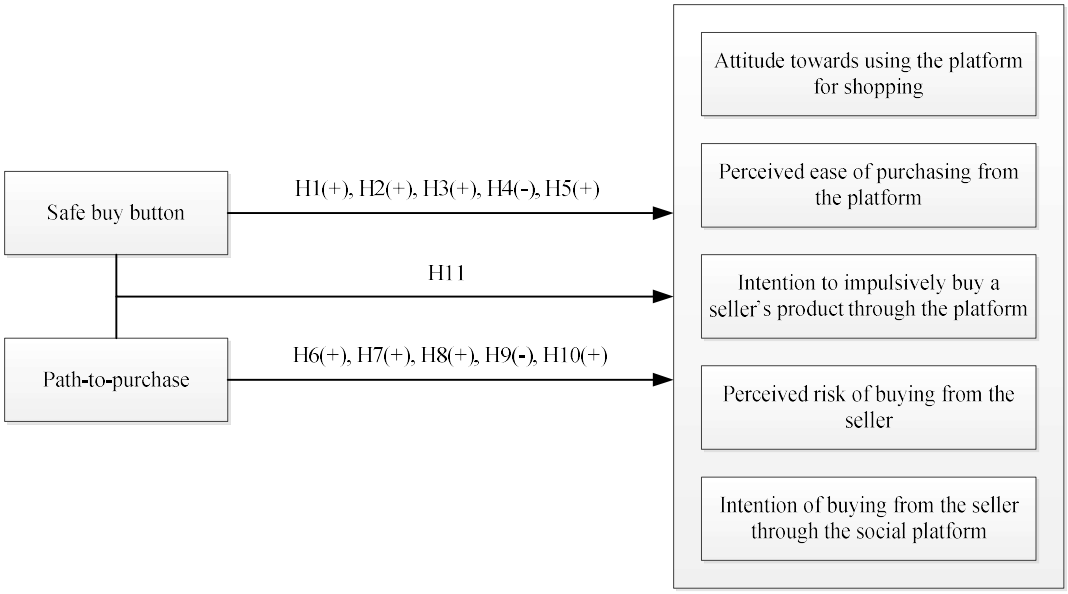

Figure 1. Research hypotheses

4.3.2. Effects of a safe buy button

The cue utilization theory can be used to explain users' attitudinal and behavioral responses towards a safe buy button. When confronted with the uncertainty of the quality of an object, individuals use surrogate information or cues to make inferences about the object's quality (Bahadir et al., 2015; Desai et al., 2008). Safe buy buttons act as safe shopping cues that can be used to better evaluate the seller and the social platform. First, safeguards and guarantees, such as free returns and full refunds, cannot be realized without an *ad hoc* protocol between a social platform and sellers. Sellers are usually the ones to receive returns and approve refunds. Here, we presume that social platforms will not develop a massive logistics system like Amazon has, with warehouses and distribution centers, as we have not seen any examples of a social platform actually doing so. In many cases, social platforms are collaborating with e-commerce companies and logistics companies. Therefore, the safe buy button, although offered by the social platform, entails secure cues to form users' favorable perceptions towards sellers. For example, the social platform declares that all sellers in the safe buy-button scenario will give money back if buyers dislike and return items in a given timeframe. As such, buyers may infer that sellers are trustworthy. Prior research also stated that, as e-sellers presenting third-party privacy/security assurance need to meet certain privacy/security standards established by third-party institutions, cues projected by such assurances can help build users' trust beliefs (Hu et al., 2010; Rifon et al., 2005; Yang et al., 2006). Second, the successful implementation of safe buy buttons also requires a social platform to release cues that they will safeguard users' personal and social data and payments, so the safe buy button also includes cues to form users' positive perceptions towards the social platform. For example, a social platform promises that users' private data and information will be well safeguarded. In current buy button practices, social platforms barely display cues related to externally provided safeguards and guarantees. This may be because these platforms are fearful of assuming the consequences of using similar cues. For example, declaring the information behind the buy button is authentic and credible may be helpful in improving the buy button performance, but once users eventually find that this declaration is untrue, they may have a negative perception towards the platform because the platform does not fulfill its promise.

As previously mentioned, because social platforms mainly offer users social-related information rather than shopping-related information, social platform users may need these additional cues projected by a safe buy button to assist them in making purchasing decisions when information for purchase decision-making is limited (Kim et al., 2019). They need cues to infer that sellers will behave honestly and morally, so that they can feel less concerned about the risk of trading with social platform sellers. What is more, they may also need cues to infer that the platform is reliable and will protect their purchases if disputes arise between them and the sellers. In this case, the platform works as a court to protect buyers' rights and interests. As such, users may feel safer making purchases through buy buttons and have a more positive attitude towards using the platform for shopping. In addition, safe cues might leave users with a positive impression that those buy buttons are easy for making purchases.

Previous literature has also noted that users' perceptions of privacy and security protection, third-party seals and other safeguards are strong predictors of risk (Kim et al., 2008). Users would feel secure in making online purchases whenever they perceive that sellers have implemented security mechanisms (Inegbedion et al., 2016). On the other hand, many online shoppers also refuse to purchase online due to privacy issues (Halimi et al., 2011); they see data misuse (e.g. offensive data access, data collection, errors and unauthorized personal data use) as the main privacy concerns (Swaminathan et al., 1999), so users may be unwilling to buy from sellers unless they commit themselves to properly handling and respecting their privacy. In fact, recent research has revealed that the presence of privacy assurance can act as an information cue to alleviate users' privacy concerns (Zhou et al., 2017).

Most importantly, social platform users may not have a clear shopping goal in mind when using social platforms. Their purchases through them are usually impulsive and improvisational. This characteristic requires more safe cues to reduce risk when transacting with sellers, because users may easily drop their purchase due to security and privacy concerns. In the literature on website design research, a website's security and privacy protection features have shown a positive influence on users' impulse-buying behavior (Parboteeah et al., 2009; Wells et al., 2011). Wells et al. (2011) categorized a website's security protection into environmental cues and proved the direct and positive effect of high-quality environment cues on consumers' online impulse buying. Social platform users may be more concerned about their privacy because sellers can access their private data and information (e.g. education, personal photos, and shared content) through their profile page. If a social platform claimed that its data protection protocol and other privacy and security measures constrained sellers, users would feel less concerned about the risk of transacting with the seller and might then be more willing to buy from the seller and purchase the product impulsively. Hence,

H1: Users of a social platform providing a safe (vs. unsafe) buy button will have a better (vs. worse) attitude towards using the platform for shopping.
H2: Users of a social platform providing a safe (vs. unsafe) buy button will show better (vs. worse) perceived ease of purchasing from the platform.
H3: Users of a social platform providing a safe (vs. unsafe) buy button will show more (vs. less) intention to impulsively buy a seller's product through the platform.
H4: Users of a social platform providing a safe (vs. unsafe) buy button will show

lower (vs. higher) perceived risk of buying from the seller.
H5: Users of a social platform providing a safe (vs. unsafe) buy button will show more (vs. less) intention of buying from the seller through the social platform.

4.3.3. Effects of path to purchase

The affordance theory can contribute to explaining why IT artifacts (e.g. the integrated path-to-purchase) are antecedent to the formation of user attitudes and perceptions (Tsai and Ho, 2013). This theory is widely used to analyze the unified relations between users and information systems (Joinson, 2003; Lee et al., 2014; Norman, 2004; van Vugt et al., 2006); "The affordances […] are what it offers […], what it provides or furnishes, either for good or ill" (Gibson, 1979: p. 127). For example, Internet users feel much more satisfied in an environment with a high-speed Wi-Fi connection in comparison to one with a low-speed Wi-Fi connection. This example would decipher user attitudes and perceptions towards an IT object from its recognizable affordances.

Moreover, the process of how the integrated path-to-purchase (vs. separated path-to-purchase) influences user responses can be broken down into four sub-processes using Hartson's affordance typology, which includes physical affordance, cognitive affordance, sensory affordance, and functional affordance (Hartson, 2003).

First, buy buttons and the e-commerce systems that support them enable users to make purchases directly through the social platform and transform "users" into "shoppers". These physical affordances create a way of empowering users (i.e. "I can do this") and constructing shopper identity (i.e. "I am supposed to do this"), thereby laying a solid foundation for users' attitudes and perceptions (Hartson, 2003).

Second, the wording used for communication in the path-to-purchase enables users to understand that the purchase path behind the buy button will lead them to the platform's e-commerce system. For instance, a clickable and buyable icon alone does not encourage users to complete a direct purchase, and works only if it follows certain conventions (e.g. naming the icon "Buy Now!" or "Purchase", and imitating what e-commerce companies do in their follow-up page) that are easily understood by users (Norman, 1999). These cognitive affordances make physical affordances recognizable and viable.

Most importantly, the "third position" of the affordance theory between determinism and constructivism (Hutchby, 2003) indicates that sensory affordances largely facilitate and support the efficiency of physical and cognitive affordances (Hartson, 2003). Individuals' attitudes and opinions of an information system can be shaped by their interactions with this system (Su et al., 2008). On the one hand, the integration of social platforms and e-commerce sites could draw upon each party's strengths, i.e. social media bring about user traffic and attention while e-commerce providers convert these into purchases (Stephen and Toubia, 2010). On the other hand, the integration of the two platforms/channels largely minimizes users' cognitive deviation because users may perceive that the integrated path-to-purchase creates a seamless purchasing experience for users, as if they were really shopping on an e-commerce platform, even though the products, comments and descriptions are from e-commerce sites. In the separated path-to-purchase scenario, users who were interested in a

product may drop their purchase because undesirable events may occur outside the social platform; for example, a user might have a problem with payment as the seller's website does not support his/her payment method (e.g. some of China's e-commerce sites do not support WeChat Pay). These cognitive deviations could be avoided by using an integrated path-to-purchase because the social platform can control and reduce the possibility of undesirable events occurring by designing a smooth purchase path and showing users the correct way to make a purchase. As such, social platform users may perceive that purchasing via buy buttons is easy and convenient, and thus show a more positive attitude towards using the platform for shopping.

Eventually, integrating a social platform with e-commerce sites provides a new functional affordance of the platform – e-commerce – and promotes the use of IT for purposeful actions (e.g. making a purchase on a social platform) (Hartson, 2003). To summarize, these four affordances offered by the integrated path-to-purchase define the salient commercial features that form the basis for users to develop a favorable attitude and perceived ease of purchase. Hence,

H6: Users of a social platform with an integrated path-to-purchase (vs. separated path-to-purchase) will have more (vs. less) positive attitudes toward using such a platform for shopping.
H7: Users of a social platform with an integrated path-to-purchase (vs. separated path-to-purchase) will show better (vs. worse) perceived ease of purchasing from the platform.

A path-to-purchase via a social platform is neither a marketplace-level path nor a transaction-level path; rather it is a path crossing these two levels. The conceptual use of "platform" indicates that the role of a social platform in commercial activities is to bridge the supply and demand sides. Shoppers have to transact with a wide variety of sellers. The cross-level path inevitably complicates users' paths to purchase because the user characteristics of a social platform are quite different from those of a pure e-commerce site, which basically only allows verified businesses to sell. Users of a social platform may be brands, retailers, e-commerce companies and verified and unverified individuals. The heterogeneity of social platform users obstructs their purchase decision-making processes, since users have to spend more energy and time on judging the seller's integrity and credibility. This concern may stop users moving forward in the path-to-purchase when a user leaves his/her "comfortable" social platform, and goes to an external, unknown e-commerce site.

Prior studies on hypertext links have also shown that the perceived relationship between the linker and the linkee can affect users' perceptions of the link and beliefs in the linkee (Stewart, 2006). The relatedness between a social platform and an external purchasing site may be an indicator of what and to which extent transactions can be made between buyers and sellers. In the integrated path-to-purchase scenario, as the focal platform and e-commerce sites have reached a kind of strategic alliance, the social platform and the e-commerce site might be perceived as closely related. In other words, this integrated scenario indicates a strong tie, namely, a higher level of relatedness (Zha et al., 2015) between the platform and the commercial site. Users can transfer their trust in a social platform to sellers. As such, users may perceive less risk in buying from sellers and thus be more willing to purchase their merchandise. On the

other hand, users may feel delighted when exposed to some interesting promotional content or advertisements on the platform, which might prompt them to make an impulsive or emotionally driven purchase (Kim and Johnson 2016); a well-integrated path-to-purchase may facilitate users' predisposition to impulse purchase in this process.

Conversely, in a separated path-to-purchase scenario, the focal social platform and the seller's external e-commerce site are separated from each other; this lets users perceive that the social platform is less related to the external sites (a low relatedness scenario, Zha et al., 2015), since users feel the platform has no barriers or lacks adequate control over sellers who use buy buttons in their promotional posts or messages. In practice, social platform sellers can use a buyable link without informing the platform or just pay a fee to be authorized to advertise. Such a relationship may represent a loose association structure – easily entered into – while the integrated scenario may create a task-focused cooperative structure (Stewart, 2006). A separated scenario is therefore expected to result in users having a negative perception (e.g. more risk) of the seller's e-commerce site, and could eventually reduce their willingness to buy from the seller and make impulsive purchases. Hence,

H8: Users of a social platform with an integrated path-to-purchase (vs. separated path-to-purchase) will show more (vs. less) intention to impulsively buy a seller's product through the platform.
H9: Users of a social platform with an integrated path-to-purchase (vs. separated path-to-purchase) will show lower (vs. higher) perceived risk of buying from the seller.
H10: Users of a social platform with an integrated path-to-purchase (vs. separated path-to-purchase) will show more (vs. less) intention of buying from the seller through the social platform.

4.3.4. The interaction effects

Finally, a safe buy button and an integrated path-to-purchase are expected to exert an interactive effect on a social platform users' perceptions of making purchases on the platform; conversely, in the worst-case scenario of not having any safeguards and guarantees and making users leave the social platform to purchase – i.e. a separated path-to-purchase, users should display the most negative beliefs and predisposition about purchasing. Furthermore, an integrated path-to-purchase should strengthen and reinforce the expected positive effects of a safe buy button on purchase-related variables. For instance, users in a separated path-to-purchase may wonder how the platform can endorse sellers' credibility and protect their purchases from an external and uncontrollable e-commerce site. By depicting a clear transaction process, the integrated path-to-purchase defines an institutional transaction structure, which is relevant for buy button-enabled transaction activities on the platform. This structure delimits each party's identity (who sells and who buys) and determines how transactions will be conducted. The platform's safeguards and guarantees, which form part of the transaction rules, may not work properly without a basic structural boundary. In theory, the integrated path-to-purchase scenario should be a facilitating factor for reinforcing a platform's safeguards and guarantees because transaction-related information can be stored, retrieved and controlled by the platform. At the same time, it is easier for the platform to encrypt and protect accessible and controllable databases. In contrast, in the separated path-to-purchase scenario, as

buyers have to complete a purchase on a site that is external to the focal social platform, it could be difficult for the social platform to mediate buyer–seller disputes arising on external sites. In short, an integrated path-to-purchase providing a basic transaction structure for social platforms may be able to strengthen the effects of a safe buy button. Thus, we predict that:

H11: There will be a significant interaction between a social platform's path to purchase and safe buy button. In particular, users of a social platform with an integrated path-to-purchase (vs. separated path-to-purchase) and safe (vs. unsafe) buy buttons will have better (vs. worse) perceptions about the dependent variables of this study.

4.4. Method

We designed a two-factor (safe buy button vs. unsafe buy button; integrated path-to-purchase vs. separated path-to-purchase), between-subject experiment to conduct this study. We designed a between-subject experiment because a within-subject design could lead subjects to infer our research purpose and behave in a way that would satisfy our research expectations (Charness et al., 2012). For instance, if we had presented subjects with the safe shopping scenario and the unsafe shopping scenario at the same time, they could have inferred that we wanted them to act positively in the safe scenario and negatively in the unsafe scenario, which might have invalidated our experiment.

4.4.1. Participants and procedure

We recruited subjects (n = 820) from all over China and randomly assigned them to each cell. The sample size was calculated by G*Power software, using strict parameters (F-test, two-way ANOVA, effect size f = 0.1, alpha error probability = 0.05, power = 0.8, numerator d.f. = 1, number of groups = 4); this software gave a minimum sample size of 787 individuals to fulfill these parameters. We balanced the number of subjects in each cell because unbalanced data may result in problems in estimating variance components and other parameters (Deutskens et al., 2006). Specifically, we used the Chinese online panel, Wjx.cn, to recruit subjects. However, we were aware of the potential problems associated with using this kind of panel: 1) subjects may misrepresent themselves in an anonymous online environment; 2) those "experienced" crowdsourcing workers could have previously received many other similar treatments, which could influence results (Wessling et al., 2017). We therefore took a few measures to deal with these two issues. First, we reminded participants to provide intuitive answers. We also asked each subject whether he/she had received similar treatments previously; if so, these subjects' questionnaires were not considered for our research. Furthermore, we adopted some important recommendations by Wessling et al. (2017): give each subjects a reasonable task completion time (15 minutes) at the beginning of the survey; approve every subject's work as soon as possible and offer a fair payment ($2) to all subjects; inform the subjects that their private data were well protected; assign only one task to each subject; provide an email address where subjects could contact us and report any other issues or factors affecting their completion of the task. Regarding the sample, 38.3% of subjects are 25-34 years old, 31.3% are 18-24 years old and 17.4% are 35-44 years old; 38.5% are male. All participants were told to use their computers to complete a questionnaire. Particularly, we only mentioned that they would participate in a survey related to social media and did not indicate that we were carrying out an experiment. Once a

participant clicked the survey link, he/she would be told to imagine that he/she was using a social platform and encountered a seller's promotional post. Subjects were exposed to the respective experiment treatments; the pictures and text materials are shown in Appendix 1. After reviewing that, subjects were asked to answer a questionnaire. Dependent variables were measured by 7-point scales adapted from previously validated scales. See Appendix 2 for full details, where an adapted validated scale used to do a manipulation check is also provided.

4.4.2. Stimulus material

The social platform. We selected WeChat for this experiment; it is China's most popular social platform and has many daily active users. WeChat is an ideal destination for social shopping, encompassing commercial services from flight tickets to food delivery. Moreover, as users in China mostly use the mobile app version of such social platforms, our experimental material was based on the mobile app version of WeChat's Moment – similar to Facebook's News Feed. As such, the layout of the experimental platform could be recognized as a real post on WeChat. True stimuli are crucial because users may behave abnormally if experimental pictures are not shown on the social platform that they are used to.

The experimental product and post. We designed a promotional post, which included a buy button. Prior research shows that it is better to use real rather than fake content in experiments in order to elicit subjects' true responses (Wei and Lu, 2013). In detail, we adapted a piece of real promotional content to our case. In order to avoid variations caused by subjects' recognition deviation, the experimental text, product, seller and picture were identical for all the groups. As the original brand name and seller name could affect the influence of treatments, we created neutral names for them. The experimental product was a cheap, waterproof speaker, which is used in the shower; we selected this low-involvement item for its similar attractiveness for subjects from different backgrounds (e.g. age, sex and education) and fit with a low-degree, goal-oriented search model (Nysveen and Pedersen, 2005) in a social shopping mode. Besides, speakers are one of the most common products sold on social media platforms (Singh, 2018). Specifically, we added a "Buy" icon on that post and put a text next to it explaining its features: users can click on it and then go to a follow-up product page to complete the purchase.

The integrated (vs. separated) path-to-purchase. A buy button can lead users from a social platform to a follow-up product page. In the integrated path-to-purchase scenario, the product page belonged to the social platform. In other words, the social platform had integrated an e-commerce system, thereby allowing users to complete the purchase on the platform. In the separated path-to-purchase scenario, the product page was external to the social platform. Users had to complete the purchase outside the platform. In order to let subjects notice this difference, we inserted text describing the integrated/separated path-to-purchase situation next to the post, and added a notice page in the separated scenario (see Appendix 1). The notice page said: "You will visit a third-party website, which has no relationship to WeChat. Are you sure you want to visit it? Click to visit…".

The safe (vs. unsafe) buy button. We designed two scenarios for this experimental factor. For the safe buy-button scenario, we designed a set of safeguard and guarantee clauses. In accordance with what we stressed when explaining the relevant hypotheses,

safeguards and guarantees are designed to protect the security and privacy of social shoppers. Prior research reported that privacy and security treatments written in a similar way will not perform very well because those clauses are often too legalistic and complex for regular users to read and understand (Acquisti et al., 2013). In a safe buy-button scenario, we selected and adapted Alibaba's safeguards and guarantees to our case, and used a brief, concise text describing them. In the safe buy-button scenario, individuals saw these safe-shopping clauses. In the unsafe scenario, subjects saw that the social platform disclaimed their responsibility in protecting purchases made via the buy button.

Multi-factor experimental design is more complicated than one-factor design because experimental researchers need to consider the optimal presentation of all treatments. For instance, individual responses to the second treatment could be biased because of their exposure to the first treatment (Charness et al., 2012). In order to reasonably arrange and present all treatments, we developed the stimuli material as follows. First, all subjects were told to put themselves into a social-shopping situation: to be using the social platform and encounter a promotional post with a buy button. They would then see a text describing the outcome of using the buy button, leading them to an integrated product page or to another informative page saying that they were going to visit a third-party site. Last, after reading the material, they would find a text clarifying the safe or unsafe scenario. Our arrangement was parallel to reality; most brands' websites present their safe-shopping policy in the follow-up product page after buyers click a buy button or clickable photo.

4.5. Results

4.5.1. Validity and reliability

First, we evaluated the reliability of all the scales by calculating their internal consistency. Cronbach's alpha coefficients exceeded 0.7 in each scale. Second, we conducted a confirmatory factor analysis by AMOS 22.0 to assess the measurement model and run conventional validity analyses. The goodness of fit was good; χ^2/d.f. = 3.391, CFI = 0.98, TLI = 0.973, NFI = 0.972, IFI = 0.98, GFI = 0.961, RMSEA = 0.054. The convergence validity of each construct was satisfactory: attitude (AVE = 0.715, CR = 0.834), ease of purchase (AVE = 0.613, CR = 0.759), impulse buying intent (AVE = 0.579, CR = 0.733), risk (AVE = 0.728, CR = 0.914), willingness to buy (AVE = 0.723, CR = 0.912). Last, the discriminant validity of all scales was good because the root of each construct's AVE was higher than its correlations with each of the other constructs.

4.5.2. Manipulation check

The two experimental factors are distinct from each other. The treatments of path-to-purchase describe two clear and objective scenarios, on or off the platform, when using the buy button and completing a purchase, which do not need subjects' subjective assessment. In contrast, the treatments of shopping safety need to be assessed by subjects because they might still feel unsafe in the safe buy-button scenario, which could undermine the treatment validity. As such, we checked whether subjects in the safe buy-button scenario felt safer to shop than those in the unsafe scenario. A one-way ANOVA was employed to conduct the manipulation check. The results indicated that there was a significant differentiation in subjects' perceived security between the safe scenario and the unsafe scenario. Subjects in the safe scenario felt safer than those in the unsafe scenario. $M_{safe} = 4.485 > M_{unsafe} = 3.961$,

p-value < 0.01.

4.5.3. Hypotheses testing

This study has two experimental factors considering interaction effects, and therefore a two-way full factorial ANOVA was employed to test hypotheses. As ANOVA works with one-item variables, and after concluding good psychometric properties in the constructs' scales (see section 5.1), we worked with the average value of all multi-item scales.

Attitude. The result showed that the treatment of the safe buy button had a significant positive effect on attitude (F = 3.686, p-value = 0.055 < 0.1). In a safe scenario, users showed a more positive attitude towards using the platform for shopping (M_{safe} = 4.305 > M_{unsafe} = 4.106). Therefore, H1 was supported. Referring to the treatments of path-to-purchase, the result showed that the integrated path-to-purchase had a significant positive effect on user attitude (F = 13.942, p-value < 0.01). In an integrated path-to-purchase scenario, users showed a better attitude toward using the platform for shopping ($M_{integrated}$ = 4.399 > $M_{separated}$ = 4.012). Therefore, H6 was supported. However, no interaction effect on attitude was found (F = 0.117, p-value = 0.733). As shown in Figure 2, the safe scenario generated a better attitude than the unsafe scenario; likewise, the integrated-shopping scenario was better in terms of attitude than the separated one.

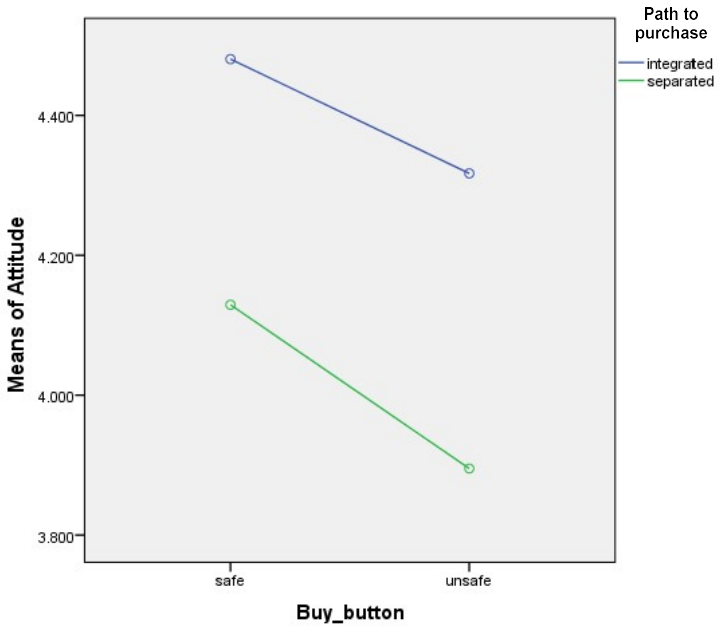

Figure 2. Effects on shopping attitude

Ease of purchase. The result showed that a safe buy button did not have a significant effect on ease of purchase (F = 2.237, p-value = 0.135). Therefore, H2 was rejected. Regarding path-to-purchase, an integrated path-to-purchase had a significant and positive effect on ease of purchase (F = 4.494, p-value < 0.05). In an integrated path-to-purchase scenario, users perceived a higher level of ease of purchase ($M_{integrated}$ = 5.154 > $M_{separated}$ = 4.955). Therefore, H7 was supported. However, no significant interaction effect between both factors was found here (F = 0.759, p-value = 0.384). Figure 3 presented the mean value of ease of purchase in each cell.

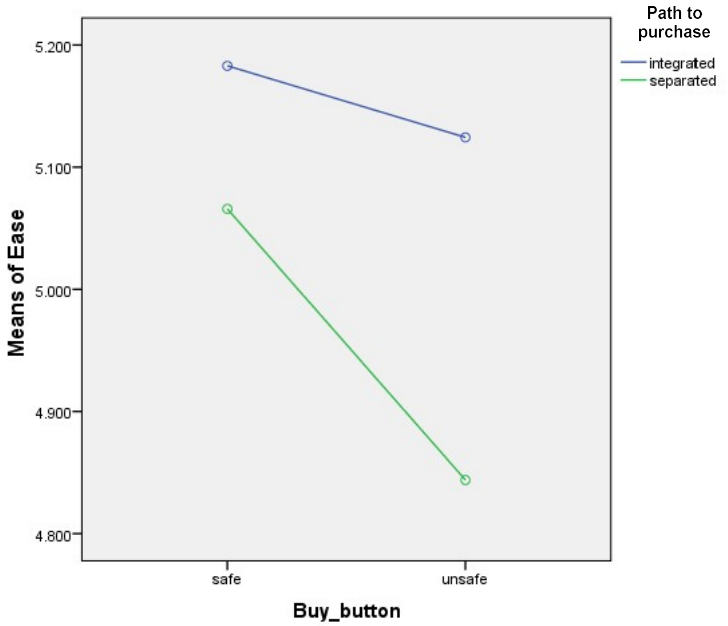

Figure 3. Effects on ease of purchase

Impulse buying intent. A safe buy button also had a significant and positive effect on impulse buying intent ($F = 11.280$, p-value < 0.01). In the safe scenario, users had a stronger impulse purchase intention ($M_{safe} = 3.939 > M_{unsafe} = 3.599$). Therefore, H3 was supported. As for factor path-to-purchase, the integrated path-to-purchase had a significant and positive effect on impulse buying intent in both samples ($F = 5.287$, p-value < 0.05). In the integrated path-to-purchase scenario, users showed a stronger impulse purchase intention ($M_{integrated} = 3.885 > M_{separated} = 3.652$). Therefore, H8 was supported. However, no significant interaction effect between both factors was found ($F = 0.178$, p-value $= 0.674$). In sum, as shown in Figure 4, the safe scenario generated more positive outcomes than the unsafe scenario.

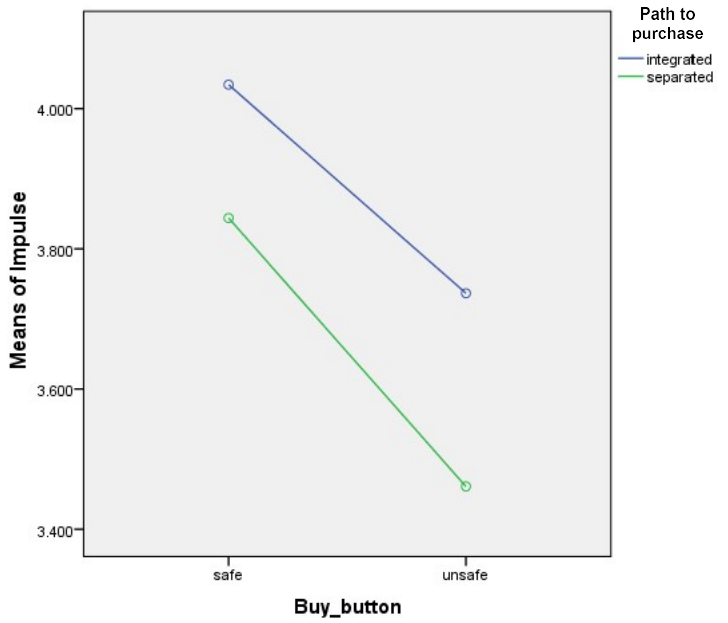

Figure 4. Effects on impulse buying intent

Perceived risk. The treatment with the safe buy button had a significant and negative effect on perceived risk (F = 6.901, p-value < 0.01). In a safe scenario, users perceived less risk of buying from the seller ($M_{safe} = 4.595 < M_{unsafe} = 4.87$). Therefore, H4 was supported. Regarding path-to-purchase, again results showed that the integrated path-to-purchase had a significant and negative effect on perceived risk (F = 3.205, p-value = 0.074 < 0.1). In an integrated path-to-purchase scenario, users perceived less risk of buying from the seller ($M_{integrated} = 4.638 < M_{separated} = 4.826$). Therefore, H9 was supported by the sample. No interaction effect on perceived risk was found (F = 0.016, p-value = 0.898). Figure 5 presents the mean value of perceived risk in each cell.

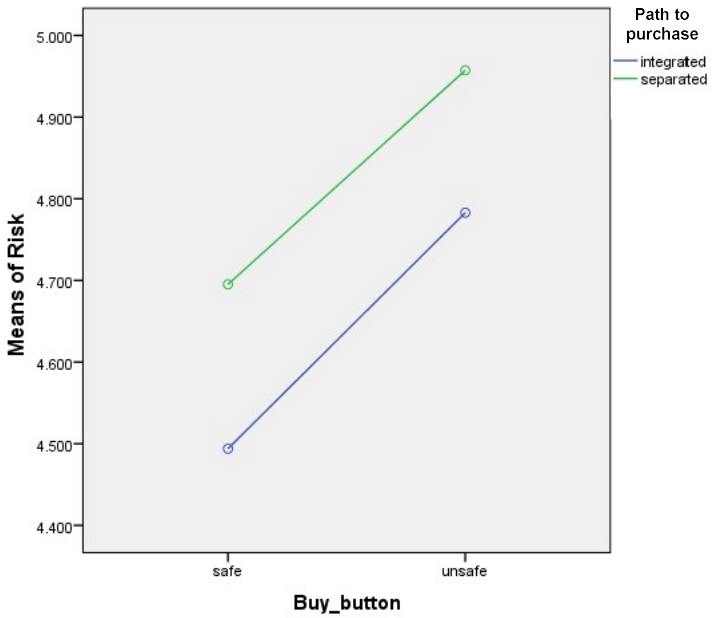

Figure 5. Effects on perceived risk

Willingness to buy. A safe buy button had a significant and positive effect on intention to buy (F = 10.394, p-value < 0.01). In the safe scenario, users were more willing to buy from the seller ($M_{safe} = 3.887 > M_{unsafe} = 3.568$). Therefore, H5 was supported. As for factor path-to-purchase, the integrated path-to-purchase had a significant and positive effect on willingness to buy (F = 7.593, p-value < 0.01). In the integrated path-to-purchase scenario, users were more willing to buy from the seller ($M_{integrated} = 3.863 > M_{separated} = 3.591$). Therefore, H10 was supported. Nevertheless, no interaction effect on willingness to buy was found (F = 0.02, p-value = 0.887). See Figure 6 for a graphic representation of the effects of both factors on willingness to buy.

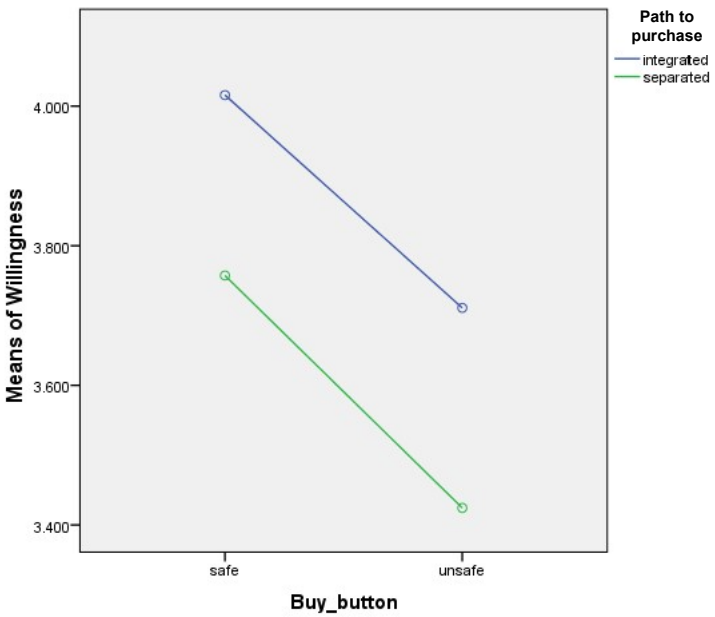

Figure 6. Effects on willingness to buy

In short, all hypothesized main effects but one (H2) were supported, although no interaction effects were found (see Table 1).

Table 1. Hypotheses' testing of the two studies

Hypotheses	Results
H1: Safe Buy Button → Attitude	Supported
H2: Safe Buy Button → Ease of Purchase	Rejected
H3: Safe Buy Button → Impulse Buying Intent	Supported
H4: Safe Buy Button → Perceived Risk	Supported
H5: Safe Buy Button → Willingness to Buy	Supported
H6: Path-to-Purchase → Attitude	Supported
H7: Path-to-Purchase → Ease of Purchase	Supported
H8: Path-to-Purchase → Impulse Buying Intent	Supported
H9: Path-to-Purchase → Perceived Risk	Supported
H10: Path-to-Purchase → Willingness to Buy	Supported
H11: Interaction Effects	Rejected

4.6. Theoretical discussion

We have concluded that a social platform's safeguards and guarantees can arouse positive responses. In the safe buy-button scenario, social platform users showed a more positive attitude towards using the platform for shopping (H1) and had a stronger impulse buying intention (H3). Our results indicate that applying shopping-related security and privacy measures can effectively enhance buy button performance on social platforms by improving shopping attitude and strengthening purchase intentions. Previous studies have stressed the importance of security and privacy measures for social platforms (e.g. Cha, 2009, Sharma et al., 2017; Vladlena et al., 2015; Zarouali et al., 2017; Zhu and Chen, 2015), but few studies have used empirical methods to clearly indicate and empirically verify what actions could improve users' shopping-related responses. Also, as H3, H4 and H5 were supported, the positive strategic effects of introducing a safe buy button that we expected were

confirmed. The safeguards and guarantees that a social platform offers can significantly reduce the risk that users associate with the seller and boost their intention to buy from the seller as well as purchase the product itself. Safe buy buttons in this case are able to develop and foster an institutional trustworthy environment for transactional parties (Karimov and Brengman, 2014; Pavlou and Gefen, 2004). From a cue utilization perspective, we found that cues projected by a safe buy button can help users better evaluate sellers and the social platform, leading to users making more favorable shopping-related responses to the seller and the platform. Although some relevant studies have examined the effect of shopping guarantees or safeguards using cue utilization theory, this article is a contribution to the existing literature. Prior studies employed the cue utilization theory to build a connection between cues projected by privacy/security assurance and consumers' trust or assurance perceptions (Hu et al., 2010; Rifon et al., 2005; Yang et al., 2006). In contrast, this article sheds light on more connections between such cues and shopping attitude, ease-of-purchase, impulse buying intent, seller risk, and purchase intention. Shah et al. (2014) studied cues projected by externally provided guarantees in a traditional e-commerce context, and found that the presence of such cues did not have a significant effect on users' security perceptions. It may be because presenting such guarantees invoked users' counterargument – i.e., users may disagree with such security/privacy claims –, which can undermine the persuasive effect of cues (Lowry et al., 2012). For example, even if a platform offers security and privacy guarantees for all in-platform transactions, users may still feel unsafe because such claims reveal potential risks in social shopping. However, our research has found that the presence of security and privacy guarantees can significantly alleviate users' security concerns or risk perceptions. It is probably because commercial features on social platforms are still far from mature compared to traditional e-commerce websites, so social platform users rely more on cues projected by externally provided guarantees to evaluate in-platform sellers and products. It has recently been found that cues projected by privacy assurance can help users alleviate their privacy concerns (Zhou et al., 2017). But privacy protection is not enough for social platform users, who also demand transaction security (Cha, 2009; Lu et al., 2016; Sharma et al., 2017); we have also concluded that cues projected by privacy and security assurance are related to users' favorable shopping-related responses.

On the other hand, path-to-purchase has also been concluded to influence users' shopping-related variable responses. The integrated path-to-purchase had significant positive effects on facilitating the use of buy buttons. Users showed a more positive attitude (H6) and a stronger intention of impulsively buying the product featured in the commercial content (H8). These two findings indicate that a seamless purchase path is crucial for social shoppers, and social platforms can generate more direct sales and increase conversion rates of commercial content by adopting this strategy. The integrated path-to-purchase is also beneficial for sellers. As H8, H9 and H10 implied, the integrated path-to-purchase reduces seller risk and increases users' intention to buy from the seller and impulsively buy the product. A major aim of neuromarketing is to find what triggers purchase decisions in consumers' minds; for instance, identifying factors that can invoke customers' purchase impulse (Agarwal, 2014; Hubert and Kenning, 2008). Discovering such factors and influential mechanisms are highly beneficial because marketers can remove customers' resistance to commercial content or campaigns (Burgos-Campero and Vargas-Hernández, 2013). Our finding corroborates a popular tenet from neuromarketing, that people are "naturally lazy"

(Ciprian-Marcel et al., 2009). An integrated path-to-purchase can help reverse the social platform users' decision to leave the social platform and complete the purchase on an external site, which increases users' impulse buying intentions.

Buy buttons are a form of hypertext link. As we proposed, the integrated path-to-purchase scenario means that the social platform has partnered with and integrated the sellers' e-commerce site. Although Stewart (2006) conducted an experiment and found that presenting a link as an advertisement or a link to a partner did not arouse significant different responses, our experiment concludes that, when a buy button is presented as a link to a partner and also integrates the partner's content into the focal platform, users will show more positive responses. In this case, it can be inferred that partnering with external e-commerce players may not be enough for social platforms wanting to monetize via buy buttons; users need a seamless purchase path that integrates these two channels. This finding suggests that social platforms need to devise and develop a seamless purchase path across various systems and channels (see also: Shankar et al., 2011; Jones and Runyan, 2016).

However, providing buy buttons with shopping safeguards and guarantees has no influence on users' perception of how easy it is to make purchases (H2). Ease of purchase stresses alleviating the efforts required when using the system to make purchases, and safety-related measures probably do not reduce the efforts required to use the social platform to complete purchases. Regardless, an integrated path-to-purchase scenario has proven to be influential here (H7). Previous studies verified this effect from a different viewpoint. Researchers found that compatibility has a significant positive effect on perceived ease of purchase (Ozturk et al., 2016). Compatibility represents the extent to which an innovative system can be compatible with the previous system (Lai et al., 2010). E-commerce systems are still innovative and external to current social platforms; therefore, users' perceptions of the easiness of social commerce are inevitably affected by how the focal social platform makes itself compatible with or integrates innovative e-commerce systems. Thus, our finding indicates that an integrated path-to-purchase can provide users with an effortless purchase path.

No significant interactions were found between the two experimental factors. This could be because the goals of each of these two factors are very distinct – the integrated path-to-purchase aims to create a seamless shopping experience while the safe buy button is designed to protect shopping security and privacy – although the factors show an additive effect.

In summary, our theoretical contributions are as follows. First and foremost, it is proven that safeguards and guarantees used by traditional e-commerce companies are effective in both facilitating direct purchases through social platforms and optimizing users' attitudinal and behavioral responses. The use of buy buttons can be improved when they are aligned with security and privacy measures. Next, from an integrated view of user experiences and channel integration, we found that social shoppers need the social platform to be integrated with the external purchasing site in their path to purchase in order to drive a seamless and effortless path-to-purchase. Compared to a separated path-to-purchase scenario, user responses to the presence of buy buttons can be significantly improved by the integrated path-to-purchase scenario. Finally, the effects of both factors on users' shopping-related responses were not found to be

interactive but were additive.

4.7. Practical implications

Buy buttons on social platforms are not just hypertext links to purchasing sites; they also foster a new transactional relationship in which users can sell to others by releasing buy button-based posts. However, buy buttons have yet to meet people's high expectations of endowing social platforms with commercial features; major social platforms, such as Facebook and Twitter, are not yet viewed by most people as an ideal shopping destination. Neuromarketing literature has indicated that "buy buttons" in customers' brains play a crucial role in determining users' impulse purchase (Agarwal, 2014; Hubert and Kenning, 2008), so it is necessary for social platforms to roll out real, actionable buy buttons by which users can imagine "buy buttons" in their brains, and are enabled to impulsively buy from shoppable posts.

Social platforms can generate more direct sales and increase conversion rates of commercial content by aligning buy buttons with safeguards and guarantees. In practice, social platforms planning to roll out safe buy buttons or other similar commercial features should find an approach that briefly and clearly demonstrates their guarantees and other security measures. For example, they could incorporate this new feature into an update; when users update the social app, the app will present a few lines or graphics introducing this new feature. As suggested by neuromarketing-related research, using concise texts and visualizing commercial content is a crucial facilitator for users to push that "buy button" in their brains (Ciprian-Marcel et al., 2009). Also, a detailed safe-shopping policy related to the buy button should be presented on the purchasing site. In order to facilitate users' identification of safe shopping cues, social platforms could differentiate between safe buy buttons and regular buy buttons. For example, they could add some words under a buy button (e.g., this purchase is guaranteed by [the platform name]). Meanwhile, brands and retailers should embrace safe buy buttons because they can significantly increase direct, actual and immediate purchases through the social platform. In exchange, they should change their previous stance with regard to social platforms. So far, brands and retailers have been customers of social platforms for advertising-related purposes (Duffett, 2015). Under the safe buy-button scenario, since social platforms offer some guarantees (e.g. free returns) on behalf of sellers, the business behavior of brands and retailers should be supervised by the social platform, otherwise the latter will not be able to ensure that it fulfills all its promises with respect to safe shopping. This approach is more complicated for current social platforms, but manageable in practice. Social platforms can learn from some e-commerce companies. For instance, they could play the middle man in processing payments: a seller would not receive payment from a buyer until the buyer confirms the purchase, or, if the buyer triggered one or more of the safe shopping clauses, the social platform could step in and help resolve any problems. Social platforms may need to alter their previous advertising model, the function of which was mainly just to help distribute commercial content. The use of safe buy buttons opens up the possibility of devising a new advertising model. Social platforms could allow sellers to use this new buy button for free provided that they agree to a safe-shopping protocol with the platform and promise to follow the social platform's safe-shopping policy. In addition, social platforms could find several approaches to make money from this feature. They could ask sellers to pay per click of each safe buy button or pay a percentage of the sales created from safe buy-button use. Social platforms

responsible for processing payments could also keep the interest generated from payments made through safe buy buttons.

A seamless purchasing path is beneficial for social shoppers. A social platform integrated with e-commerce systems can increase in-platform purchases and encourage users to make a favorable evaluation of their commercial features. In practice, most social platforms mainly partner with external e-commerce companies; one such example is the partnership between WeChat and Pinduoduo. Our finding suggests that social platforms need to offer a seamless purchase path for users, which integrates their e-commerce partners. The integration varies in regards to how a shared governance structure is formed between a focal social platform and external e-commerce sites. In an extreme case, the structure leverages the strengths of social platforms to generate social eWoM, communities and interest groups for e-commerce parties. This is the case when brand communities are created, which allow community members to make direct purchases. The structure can also use e-commerce systems to monetize and commercialize social interactions by making user-generated content (UGC) shoppable and buyable; products, inventory, comments and other data can be shared and governed between a focal social platform and e-commerce systems. In a standard case, the partnership is a technical integration connecting a focal social platform to e-commerce sites. This case does not involve much cooperation over the sharing and governing of data and information. It is difficult to say which case is most suitable for social platforms because the extreme case may be able to generate more benefits by leveraging both parties' advantages, but it involves high transaction costs, which may exceed all benefits; the standard case does not allow many interactions between the two parties, although it is applicable in practice.

To embrace integrated path-to-purchase design, social platforms need to understand the potential value of their focal role in integrating various external channels, for example, a brand's website, Amazon and many other commercial websites. The focal role in channel integration can improve a social platform's value position in today's business ecosystem. So far, traditional e-commerce websites have occupied the central position by integrating online vendors worldwide. However, as social platforms take up more of people's online time, social platforms have the potential to take this central role in integrating online vendors and offer seamless shopping experiences for social shoppers. In addition to this, channel integration also creates new monetizing models for social platforms. For example, social platforms are now able to run their e-commerce business with partners. They can ask partners to share the profits generated by this integrated path-to-purchase, or apply a direct-selling model to sell to massive audiences by creating their own e-commerce business.

Marketers might also consider using artificial intelligence to interpret user-generated data (e.g., users' behavioral pattern and product preferences) and learn from such data to achieve higher click-through rates and other goals for buy buttons (Haenlein and Kaplan, 2019). The application of artificial intelligence can offer users personalized shopping experiences, curated products and services (Kumar et al., 2019), so that buy button performance can be improved. Last, social platforms can select which of the above-mentioned measures are appropriate for each of them and then select the best approach for improving their buy buttons. However, as concluded, both actions, safe buy buttons and integrated path-to-purchase, are compatible and would produce better shopping-related responses from users if considered together.

4.8. Limitations and future research

The use of buy buttons on social platforms is still in a nascent stage. Social shopping offers enormous research opportunities. First, buy buttons can be used to sell tangible products as well as intangible, digital products. In our study, we selected a speaker as the experimental product, which may not be representative of all products. Future studies could research intangible, digital products, such as video and music. Second, we selected WeChat as the experimental platform. WeChat is a very popular social platform in China, but there are others worth considering for similar analyses, especially those in the Western world, such as Facebook, YouTube, Pinterest and Twitter. Also, a platform's characteristics may facilitate or make it difficult to enable buy buttons; for instance, WeChat uses a mobile payment system widely adopted in China, which makes using buy buttons more convenient compared to other platforms without it. On the contrary, in certain cases, some unique social platforms may not be suitable at all for the use of buy buttons as a way of monetizing their mass of users. Future studies should explore this issue in greater depth.

There are many other measures that could be taken to improve buy button performance in a social shopping context. For instance, brands and retailers are increasing their use of influencers to spread shoppable and buyable messages to their followers. Moreover, companies can offer a percentage of the sales created by a distributor as a monetary incentive to motivate their merchandising behaviors and leverage the power of social media networks. These are just a few examples of buy button-related actions whose effects could be examined in future studies.

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Appendix 1. Sample scenario

Imagine that you are browsing your Moment in your WeChat, and you see that a retailer, MegaSmartphone, shared a paragraph of text and a photo relevant to a product.

Above the product photo, you find a button named “Buy”. If you pushed this button, you would go to a notice page saying that: “You will visit a third-party website, which has no relation to WeChat. Are you sure you want to visit it? Click to visit…” (see Figure A1). When you confirmed that you wanted to visit, you would go to a more detailed product page, where you could examine the product details, online reviews, select the amount, pay for it and then wait for delivery. Since WeChat has no relation to MegaSmartphone, you have to log in to MegaSmartphone’s e-commerce system and make any eventual purchase there.

Figure A1. The separated path-to-purchase scenario

Even though you find a “Buy” button in WeChat, WeChat does not take any responsibility for any transactions made from any vendor in WeChat. In the event of any problem with or complaint about the purchased good, you would need to deal directly with the vendor.

Appendix 2. Scales

Attitude towards using the platform for shopping (adapted from Vijayasarathy, 2004). (All items are measured from 1: strongly disagree, to 7: strongly agree)
1. Using the platform for shopping is (would be) a good idea.
2. I like (would like) using the platform for shopping.

Perceived risk of buying from the seller (adapted from Verhagen et al., 2006). (All items are measured from 1: strongly disagree, to 7: strongly agree)
1. As I consider making a purchase through this social platform, I become concerned about whether the seller will commit fraud.
2. As I consider making a purchase through this social platform, I become concerned about whether the seller will swindle me.
3. As I consider making a purchase through this social platform, I become concerned about whether the seller is offering products that will not perform as expected.
4. As I consider making a purchase through this social platform, I become concerned about whether the seller will behave opportunistically.

Intention of buying from the seller through the social platform (adapted from Vendemia, 2017). (All items are measured from 1: strongly disagree, to 7: strongly agree)
1. It is very likely that I would make purchases from the seller through the social platform in the future.
2. Based on the information shown on the seller's post, I would consider buying from the seller through the social platform.
3. I would feel comfortable purchasing from the seller through this social platform in the future.
4. I am willing to buy from the seller through this social platform.

Perceived ease of purchasing from the platform (adapted from Pavlou and Fygenson, 2006).
1. Purchasing this product from this platform would be easy: (1: extremely unlikely – 7: likely).
2. Learning how to purchase this product from this platform would be easy: (1: strongly disagree – 7: strongly agree).

Intention to impulsively buy a seller's product through the social platform (adapted from Adelaar et al., 2003).
1. Regarding the social platform shown, how much do you agree or disagree with the statement "I would intend to immediately purchase the speaker through the social platform"? (1: strongly disagree – 7: strongly agree)
2. Regarding the social platform shown, how likely would you be to immediately purchase the seller's product featured on this social platform? (1: very unlikely – 7: very likely)

Perceived security (for manipulation check; adapted from Escobar-Rodríguez and Carvajal-Trujillo, 2014). (All items are measured from 1: strongly disagree, to 7: strongly agree)
1. The social platform implements security measures to protect users.
2. The social platform usually ensures that transactional information is protected from

accidentally being altered or destroyed during a transaction on the Internet.
3. I feel secure about the electronic commerce system used by the social platform.
4. I am willing to use my payment method on the social platform to make a purchase.
5. I feel safe in making transactions on the social platform.

5. General conclusion

5.1. General theoretical implications

5.1.1. The effects of buy button presence on social platform users

In order to examine whether buy buttons should be incorporated into social platforms, a between-subject experiment using two social platforms, Facebook and WeChat, was conducted. The experiment entails two scenarios (have a buy button and not have a buy button). Two dependent variables, willingness to buy through the social platform and attitude towards using the platform for shopping, are included. The purchase willingness was used to observe whether incorporating a buy button into a social platform can lead to a higher purchase willingness than not doing so (in a scenario without buy buttons, buyers need to go to the seller's e-commerce website to complete the purchase). The experiment reveals that the presence of the buy button was related to a higher purchase willingness.

Users' attitude towards using a social platform for shopping can be used for assessing whether buy buttons should be introduced in a social platform or not. Though buy buttons could increase users' purchase willingness, a social platform would have to remove them if users dislike using the "commercialized" social platform with buy buttons. The experiment also reveals that the presence of buy button was related to more positive attitudes. Previous studies have argued that it would be extremely hard for social platforms to seize monetization opportunities through e-commerce (Clemons, 2009; Halzack, 2016), but the present research indicates that users would respond positively towards a social platform with a buy button. These findings imply that incorporating buy buttons into a social platform can generate positive outcomes. There are opportunities for social platforms to reach monetization by introducing buy buttons.

This study can add value to academic research. First, previous social media advertising research deems social platforms as information referrals (Chatterjee, 2011). Introducing buy buttons endows social platforms with e-commerce capabilities. Positive outcomes associated with the presence of the buy button could imply that a social platform can be deemed as an e-marketplace. This is a relatively new insight in comparison to the previous social media advertising research. Second, publications related to social commerce have focused on social features such as social interactivity and product recommendation (Hu et al., 2016; Lin et al., 2017); this thesis unveils that a simple commercial feature, buy buttons, can produce favorable outcomes, leading to users' more positive attitude and higher purchase willingness. Last, most previous studies have focused on consumers' online purchase behaviors on social shopping websites (Hu et al., 2016; Olbrich and Holsing, 2011). This thesis extends the theoretical boundary by studying two socially focused platforms, Facebook and WeChat. In a word, this thesis offers new insights for social commerce, and extends the previous established theoretical boundary.

5.1.2. The influential mechanism of risk and trust on purchasing through social platforms with buy buttons

In order to discern how social platform users' direct purchasing behavior is affected by trust- and risk-related factors, perceived risk of buying through a social platform, trust in using the platform for shopping, perceived risk of buying from the seller, and intention to buy from the seller through the social platform are included in the thesis. I found that: (a) platform risk negatively affected trust; (b) trust negatively affected

seller risk; (c) trust positively affected purchase intention; (d) seller risk negatively affected purchase intention.

Albeit risk and trust are classic factors in e-commerce studies, this thesis does add value to e-commerce research and produce meaningful theoretical implications. First, this thesis extends the theoretical boundary of prior studies drawing from more commercial contexts. Prior studies have focused on more commercial contexts such as e-commerce (Kim, Ferrin and Rao, 2008), online banking (Kim, Prabhakar and Park, 2009), online payment (Yang et al., 2015), e-tailing (Hong, 2015) and C2C e-marketplaces (Meents and Verhagen, 2018; Wei et al., 2019). In more commercial contexts, consumers' mind-set is more commercial-oriented. However, I am interested in more social contexts (e.g., in a social platform like WeChat where most users use the platform for online chatting), often users' mind-set is more social-oriented and most of them use social platforms for social purposes. This nuance could make variable relationships established in previous studies become invalid. This thesis extends to a more social-oriented context by revealing how risk- and trust-related factors influenced WeChat users' direct purchasing behavior. Second, although a handful of social commerce studies have integrated risk- and trust-related factors in their research models, they focused on social shopping websites such as Groupon (Kim and Park, 2013), Coupang (Kim and Park, 2013), Etsy (Farivar, Turel and Yuan, 2017, 2018). Social shopping websites are e-commerce websites adding social media features such as social networking, communities, and comments. In contrast, this thesis studied a social platform (WeChat) endowed with a commercial feature (buy buttons). The difference in platform characteristics could affect the relationships established in the previous social commerce research. It found that risk and trust related to a social platform did influence users' direct purchasing behavior. Last, this thesis adds new knowledge related to relationships established in prior literature. Prior literature has studied how trust towards social commerce site influences perceived risk, and has found the insignificance of trust-risk relationship (Farivar, Turel and Yuan, 2017). This study, however, found a significant negative effect of trust on seller risk. Prior literature has examined how perceived risk influences transaction intention, and found the insignificance of risk-intention relationship (Wei et al., 2019). In contrast, this study found a significant negative effect of seller risk on purchase intention. In a word, this study examines how trust- and risk-related factors influenced users' direct purchasing behavior in a new research context and indicates significant variable relationships which were deemed as insignificant in the previous research.

5.1.3. The effects of safe shopping measures and integrated path-to-purchase on social platform users

In order to examine the effects of safe shopping measures (vs. unsafe shopping) and integrated path-to-purchase (vs. separated path-to-purchase), two relevant experiments was conducted. In the first experiment, the effects of safe shopping measures (i.e., a safe buy button) on trust, seller risk, and purchase willingness were examined. When safe shopping measures were present, social platform users displayed better outcomes. In the second experiment, the effects of safe shopping measures and integrated path-to-purchase on shopping attitude, ease of purchase, impulse buying intention, perceived risk, and purchase willingness were examined. When safe shopping measures and integrated path-to-purchase were present, all dependent variables saw better outcomes except the ease of purchase. Social platform users showed higher ease-of-purchase perceptions when purchasing through an

integrated purchase path. There was no significant effect of safe shopping measures on the ease of purchase. Moreover, though the additive effects between the two variables were found, I did not find significant interaction effects between safe shopping measures and path-to-purchase.

On the one hand, prior studies have used the cue utilization theory to link cues projected by privacy/security assurance and consumers' trust or assurance perceptions (Hu et al., 2010; Rifon et al., 2005; Yang et al., 2006). By contrast, this study indicates more relationships that have not been examined previously. I found significant relationships between safe shopping cues and shopping attitude, ease-of-purchase, impulse purchase intention, seller risk, and general purchase intention. On the other hand, prior research has studied safe shopping cues projected by externally provided guarantees in a traditional e-commerce context, and has indicated an insignificant effect of safe shopping cues on users' perceived security (Shah et al., 2014). Existing literature has offered an explanation for this insignificance: displaying safe shopping cues or guarantees could invoke viewers' counterargument (viewers could disagree with such security or privacy protection claims) which can damage the persuasive effect of such cues (Lowry et al., 2012). For instance, in an e-commerce website with safe shopping guarantees, consumers could still feel risky because such guarantees reveal potential risks in online shopping (e.g., receive fake products or defective products). However, in the present study, safe cues projected by the presence of a safe buy button significantly weakened users' perceived risk. This could be because social commerce is less mature in contrast to e-commerce, so social platform users are reliant on safe shopping cues projected by the presence of the safe buy button to assess in-platform merchants and merchandise. In other words, new insights are found with respect to the effects of safe shopping cues on social platform users.

Buy buttons in essence are a type of hyperlink technologies. As mentioned previously, the integrated purchase path implies that a social platform has partnered with an external e-commerce platform, and creates a seamless shopping experience for users. Albeit a prior study had performed a similar experiment and has demonstrated that displaying a link to a partner cannot engender significant different responses (Stewart, 2006), the present study reveals that social platform users showed better responses when a buy button was displayed as a link to an e-commerce partner. The result demonstrates that, in a social commerce context, users demand a seamless purchase path from a social platform to an e-commerce platform. To summarize, in contrast to the previous research, this thesis offers meaningful and valuable implications for social commerce research.

5.2. General practical implications

5.2.1. Understanding the crucial role of buy buttons in social platforms' monetization strategy and business model

Advertising, subscriptions, donations, and premium social services are current social platforms' major monetization strategies. With buy buttons, e-commerce can also be a monetization strategy for many social platforms. Social platforms can charge a fee per buy button click or take a cut from e-commerce sales achieved by using buy buttons. Here, I do not imply that the e-commerce strategy is definitely superior to other monetization strategies. Social platforms wanting to adopt buy buttons need to take into account their characteristics. For particular social platforms such as online dating platforms, as users would unlikely use such platforms for online shopping, advertising

or premium social services are more suitable for such platforms.

It is very interesting to study social platforms' business model. Social platforms in essence are used for fulfilling social purposes. Major social platforms such as Facebook, Twitter, Instagram, and WeChat allow users to use them for free. Research has indicated that the free-to-access connectivity fueled by social platforms can benefit local economies (Shearlaw, 2014). Content, connections, and communities are three elements on which a social platform is based to create value for users. Apart from describing how value is created, business models are also a descriptive mechanism of value capture. Buy buttons as a key connection between social platforms and e-commerce platforms enable social platforms to capture value through collaboration with e-commerce platforms. In a scenario without buy buttons, buyers discover interesting products from sellers' posts, and then have to contact sellers or go to online or physical stores to place orders. In this case, social platforms created business value, but cannot capture the created value. In a scenario with buy buttons, buyers can discover interesting products and place orders directly through sellers' shoppable posts; social platforms can also take a cut from this deal. In a word, buy buttons endow social platforms with commercial features as well as money-making potential for refining their social business models.

5.2.2. Incorporating buy buttons into social platforms

Social platforms should consider introducing buy buttons for social commerce activities. First, buy buttons can be entailed in paid ads or sponsored posts. Many advertisers use social platforms to promote products or services. Social media advertising has largely bolstered the commercialization of social platforms. This change creates the possibilities for social platform users to do online shopping through social platforms. This thesis shows that the presence of a buy button in two social platforms was related to better outcomes.

Buy buttons allow users to purchase directly through social platforms. It removes frictions from awareness to purchase and increases the ease of shopping (Turban, Strauss and Lai, 2016). Using buy buttons can avoid customers' free-riding behaviors, e.g., customers discover a product in a seller's post, and then go to another seller's store to buy it. When encountering a shoppable post with a buy button, social platform users can directly purchase the product in the post. Users can click the buy button, assess products, make the payment and wait for products to be shipped to their hands. With regard to social ads, embedding buy buttons in social ads could help increase ad conversion rates by allowing users to react directly upon such ads. To summarize, buy buttons are not only a click-to-buy feature, but also a strategic lever for social platforms' move into social commerce. Incorporating buy buttons into social platforms can help resolve current issues in social commerce practices such as low ad conversion rates and free-riding behaviors.

5.2.3. Taking measures to mitigate platform risk and seller risk

As indicated in this thesis, platform risk and seller risk are two major barriers of social commerce. Measures should be taken to mitigate platform risk. Albeit most social platforms have so far kept their distance from the selling and buying of products between social platform users, safe shopping measures are needed to spawn more social commerce activities. Based on my findings, safe shopping measures are a facilitator for social platform users' direct purchasing behavior, and can benefit the

social platforms as well. It found that platform risk negatively influenced users' trust in using the platform for shopping. This trust positively influenced users' direct purchasing behaviors. In social media advertising, if users intended more to purchase through a social ad, advertisers could be willing to spend more money on social ads. With respect to specific measures to reduce platform risk, social platforms can learn from traditional e-commerce platforms. A social platform can consider offering free returns and full refunds for direct purchases made through the platform. The social platform could need to establish collaboration relationships with social sellers. For instance, social sellers need to follow a safe shopping protocol issued by the social platform, so the platform can claim that free returns and full refunds are available for the social sellers. The platform can play a middleman role in social commerce activities. In particular, the platform can be responsible for all payments made by clicking buy buttons and transfer payments to a seller until the buyer has received and confirmed her purchase. The social platform can also require the social sellers to deposit an agreed amount with the platform as a reserve for refunds to prevent the sellers from refusing full refunds for defective or fake products. In addition, it is recommended to develop a transaction system to warrant the transaction security. Privacy protection measures (e.g. data encryption) should be seriously taken by social platforms to prevent the social sellers from misusing buyers' privacy information encompassing their real identity to private photos.

I found that seller risk negatively influenced direct purchasing behavior. Hence, social sellers should mitigate risk associated with them to boost direct sales. A security notice could be entailed in the sellers' social posts to exhibit their business integrity and demonstrate that they have taken security measures for all transactions with them (Vladlena et al., 2015). Research implies that the inclusion of security notice could attract greater user attention and more sales (Vladlena et al., 2015). Social sellers can also leverage the social platform to reduce seller risk. Social platforms are an ideal place for sellers to proactively offer real-time services for buyers in order to weaken seller risk.

By integrating platform risk, trust, and seller risk into a model, it found that direct purchasing behavior through a social platform was affected by platform- and seller-related factors. Hence, it involves a holistic solution from both social platforms and social sellers to effectively reduce social shopping risks. Social platforms should align safe shopping measures with buy button use if they want to reap the benefits (e.g., higher purchase willingness, lower seller risk, etc), and delineate each actor's role in this safe shopping ecosystem.

5.2.4. Improving consumer experiences by offering an integrated purchase path

The initial analysis of social platform users' path-to-purchase has indicated many pain points in the path. In the separated purchase path, users need to leave the social platform and go to the e-commerce platform, users have to login in, enter transaction-related information every time, considering that different social sellers could use different e-commerce platforms. This thesis issued an integrated purchase path for social shopping with buy buttons. The present research demonstrates that the integrated path-to-purchase design was associated with more positive outcomes. In other words, a seamless purchase experience created by the integrated purchase path is needed in social shopping with buy buttons. In practice, social platforms start to collaborate with e-commerce platforms. For example, Douyin, a viral social app,

rolled out shoppable messages which can lead viewers to Alibaba's e-commerce websites.

The integration level varies with respect to how a shared governance structure is built between a social platform and an e-commerce platform. In an extreme case, products, inventory, comments, and other social- and commerce-related data are shared and governed between the social platform and the e-commerce platform. This approach can largely break down the silos between the social platform and the e-commerce platform. In a standard case, this structure is solely a technical integration linking a social platform to an e-commerce platform. This approach does not entail much cooperation related to the sharing and governing of data and information. As a consequence, there remain the silos between the social platform and the e-commerce platform. Nevertheless, I do not imply that the extreme case is superior to the standard case because the former could involve high transaction costs that exceed all benefits. The standard case does not involve much cooperation between the social platform and the e-commerce platform though, it is most applicable in practice.

Before offering integrated path-to-purchase, social platforms should grasp the key role of their platform in integrating various e-commerce channels such as e-stores, e-malls, and e-marketplaces. Social platforms can play a key role in channel integration in today's business ecosystem. Previously, integral e-commerce platforms have occupied the central position by integrating online sellers worldwide. Currently, social platforms have the potential to take the central role in integrating worldwide social sellers and offer integrated purchase paths for social shoppers.

5.3. Future research directions

5.3.1. The strategic use of buy buttons in B2B social commerce

This thesis approaches several key social commerce issues. B2B social commerce is a particular form of social commerce, different from regular social commerce. In practice, LinkedIn, Facebook, and WeChat are used for B2B social commerce activities. For instance, sales managers use LinkedIn to identify, establish, and nurture relationships with business customers.

In theory, buy buttons can be used for B2B social commerce. B2B companies can incorporate buy buttons into their promotional posts related to services and products. Buy buttons can be used to indicate a reference price for a product or service mentioned in such posts. As the order value of B2B commerce is usually bigger than B2C commerce and customers tend to make deliberately purchase decisions, it is unlikely to see many purchases made directly through using buy buttons in B2B social commerce. It is possible that the reference price behind the buy button could positively or negatively affect B2B social commerce performance. Therefore, future research can study whether buy buttons are still preferable in B2B social commerce contexts or not and how companies can improve performance using buy buttons in B2B commerce.

5.3.2. Incorporating buy buttons into videos shared on social platforms

The media format (e.g., pictures, texts, and videos) could influence consumers' buying behaviors (Adelaar et al., 2003). In this thesis, pictorial and textual media formats were used to elicit social platform users' reactions. Videos were not considered in this thesis for two reasons. On the one hand, experiment wise, pictorial

and textual materials were more easily manipulated under laboratory conditions than videos. On the other hand, video-based social commerce was not mature enough at the moment when I devised this thesis and relevant surveys. In reality, videos are becoming a popular media format in social commerce. TikTok, a video-based social app, included "Shop Now" buy buttons in video ads, directing users to a shopping site inside the app (Weissman, 2019). As videos can bring about a more immersive experience compared to audios, pictures or texts, it is very interesting to study the use of buy buttons in videos shared on social platforms.

5.3.3. The use of buy button in selling digital products or services through social platforms

A cheap bluetooth speaker was used in this research, because bluetooth speakers were one of the top selling products on social platforms (Singh, 2018). This low-involvement product was deemed acceptable to consumers from diverse backgrounds with respect to sex, age, and social shopping experiences. In reality, apart from tangible products, some social platforms start to pay attention to digital products or services (e.g., e-articles, e-books, and music). For example, Facebook has launched a subscription feature for monetizing user-generated exclusive content, and will take a percentage up to 30% from users' payments for such digital content (Ha, 2019).

Digital products or services are different from tangible products with physical appearances by which consumers can assess the product quality before purchase. Moreover, digital products are usually not returnable (buyers do not have "the remorse right"), so it is risky to buy directly digital products through social platforms. Therefore, it is plausible that future research examines the role of buy buttons in the selling and buying of digital products through social platforms.

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