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Impact of innovation resistance, trust, and risk propensity on investment apps use

Abdou Illia, *Eastern Illinois University, aillia@eiu.edu*
Assion Lawson-Body, *University of North Dakota, assion.lawsonbody@und.edu*
Gurkan Akalin, *Eastern Illinois University, giakalin@eiu.edu*
Larry White, *Eastern Illinois University, lrwhite2@eiu.edu*

Abstract

The recent controversy surrounding the Robinhood investment app's freezing of transactions for GameStop and other stocks had drawn attention on the phenomenon of younger adults using investment apps to trade securities with low fees. The present study examined the use of investment apps for stocks trading through the lens of innovation resistance, trust, and risk propensity. We developed and tested a structural model grounded on the theory of innovation resistance and the literature about trust and risk. The study findings suggest that functional innovation resistance, trust, and risk propensity have a significant impact on the use of investment apps. However, the impact of psychological innovation resistance was not significant. The study discussed different practical and theoretical implications of the research.

Keywords: investment apps, Fintech, innovation resistance, risk propensity, trust

Introduction

According to a recent survey by the investing advice firm The Motley Fool, the vast majority of Gen Z and millennials use investment apps like Robinhood, Webull, and Acorns for stocks trading whereas most middle-age and older American investors use wealth management services and traditional investing websites, such as Fidelity and Schwab (Caporal, 2021). The 2021 controversy surrounding the Robinhood investment app's freezing of transactions for GameStop and other stocks drew attention on the phenomenon of millennials using investment apps to trade securities free of charge or with low fees (Gonzalez & Priest, 2021). This led scholars in the Finance field to conduct research in order to shed the light on the phenomenon from a Finance perspective (e.g., Pasztor, 2021; Gordon, 2021; Welch, 2022). But, beside the economics and convenience reasons, what other factors may participate in explaining why Gen Z and millennials use investments apps more than older investors. For decades, surveys have shown that, compared to older Americans, young adults are more technology savvy and more open to innovations than older adults (Fox, 2013; Pew Research Center, 2017). Based on those surveys, we can expect technology readiness and lack of innovation resistance to play a role in explaining the phenomenon of Gen Z and millennials using investment apps to engage in stock trading. According to the theory of innovation resistance (Ram & Sheth, 1989), innovation resistance has multiple dimensions including usage barriers, value barriers, risk barriers, tradition barriers, and image barriers. Does innovation resistance act an inhibitor for using investment apps for stocks trading? If so, what dimensions of innovation resistance are more likely to participate in explaining the use of investment apps for stocks trading? Our first research questions is:

RQ1: What forms (or dimensions) of innovation resistance play a role in explaining the use of investment apps for stocks trading, and to what extent innovation resistance has an impact on the use of investment apps for stock trading?

Research has also shown that trust (including trust in the security of the technology used by ebusiness merchants, and trust in the company offering the product or service) play a role in people's decision to engage in internet-based transactions (Gabner-Krauter & Bitter, 2015; Shen et al., 2010). We can, therefore, expect that some forms of trust will have a positive impact in people's decision to use investment apps for stocks trading. So, our second research question is:

RQ2: What forms of trust play a role in explaining the use of investment apps for stocks trading?

Previous studies have also shown that perceived risk acts as an inhibitor to purchase or usage behavior (e.g., Alleyne & Broome, 2011) but people differ in terms of risk propensity with younger people more willing to take risk (e.g., Marafon et al., 2018). So, our third research question is:

RQ3: If perecieved risk acts as an inhibitor to purchase or usage behavior, what role risk propensity plays in people's decision to use investment apps for stock trading?

In our attempt to provide answers to the research questions, we will, first, take a systematic approach to revisit the theory of innovation resistance and review the literature about trust and risk in order to identify related factors that may help explain the use of investment apps for stock trading. Then, based on the literature review, we will present our research model along with the hypotheses implied. Finally, the paper will discuss the result of the empirical testing of the research model.

Theoretical background

Innovation resistance

The theory of innovation resistance (TIR) states that people may resist using technology innovations because of barriers that may either be functional or psychological in nature. Functional innovation resistance occurs when the innovation requires some kind of change in the users' daily routines. According to Rammile and Nel (2012), functional innovation resistance is caused by usage barriers, value barriers, and/or risk barriers. Usage barriers arise when a technology innovation (e.g., investments apps) does not fit with potential users' practices, workflow, or habits (e.g., preferring the service of investment management firms versus using investments apps). Value barriers arise when a technology innovation does not offer a strong performance-to-price value compared with competing alternatives (e.g., spending time learning how to effectively trade using investments apps versus using the service of investments management firms). Risk barriers are due to the fear of making mistakes and feeling insecure while conducting business using technology. Rammile and Nel (2012) also defined psychological innovation resistance as resisting technology innovations because they conflict with potential users' belief structure. This kind of resistance is due to tradition barriers and image barriers (Yu and Chantatub, 2016). Tradition barriers occur when a technology innovation has the potential of altering customers' traditions (e.g., a bank customer with well-established habits of interacting with bank tellers may resist using ATM machines). Image barriers, on the other hand, occur when people resist using a product or a technology because of stereotyped thinking concerning the product (e.g., country of origin, brand name) or the technology (e.g., negative "hard-to-use" image of a technology (Rammile & Nel, 2012).

Trust

Trust can be defined as the willingness of one party to engage in a business relationship with a another party (Carlos Roca et al., 2009). This kind of trust, known as transaction-specific trust, is the trusting party's perceived *credibility*, *benevolence*, and *integrity* of the other party (Kooli, Mansour & Utama, 2014). Perceived *credibility* is the belief that the business has the required expertise to offer the good or service needed by the trusting party. Perceived *benevolence* is the extent to which the trusting party believes that the business intends to do good beyond its own profit motives. Perceived *integrity*, on the other hand, is the perception that the business will adhere to a set of principles or rules of exchange during and after a transaction. The reason why, transaction-specific trust is an issue in internet-based transactions is because the elements of personal interactions (e.g., facial expression, gestures, body language) are missing. Trust can also be a system-specific trust. According to Illia et al. (2018) and Grabner-Kräuter & Bitter (2015), this type of trust is intrinsic to the technology used to provide online services and or how it is perceived. It is due to the fear of cybersecurity threats and the uncertainty with the perceived security of the technology used to provide online services. In this study, we argued that both transaction-specific trust and system-specific trust will have an impact on people's intention to use cryptocurrency exchange platforms.

Risk propensity

With regard to online sevices and internet-based transactions, perceived risk can be defined as the degree to which users feel uneasy and uncertain about possible adverse consequences. It acts as an inhibitor of using online services. According to Marafon, Basso, Espartel, Barcellos, & Rech (2018), perceived risk has multiple dimensions including performance risk, financial risk, opportunity/time risk, social risk, and psychological loss. Karwatzki, Trenz, & Veit (2022) defined privacy risk as an additional risk dimension related to the potential loss of control over personal information. Several studies have shown that perceived risk has a negative impact on the intention to invest in general (Alleyne & Broome, 2011) and to adopt technology (Walton & Johnson, 2018; Wang et al., 2014; Lawson-Body et al., 2014). But, people differ in terms of risk propensity with some more willing than others to take risk and engage in online activities. Prior studies (e.g., Marafon et al., 2018) have shown that risk propensity can have a positive influence on the intention to use technology in the context of internet banking.

Research model and hypotheses

The proposed research model (Figure 1) is grounded on the theory of innovation resistance and the literature on the role of trust and perceived risk in ebusiness. Prior studies (e.g., Rammile & Nel, 2012; Yu & Chantatub, 2016, Leong, Hew & Wei, 2020) have shown that innovation resistance-related factors (including usage barriers, value barriers, risk barriers, and image barriers) have an impact on performing internet-based transactions and adopting technologies such as mobile wallet and internet banking.

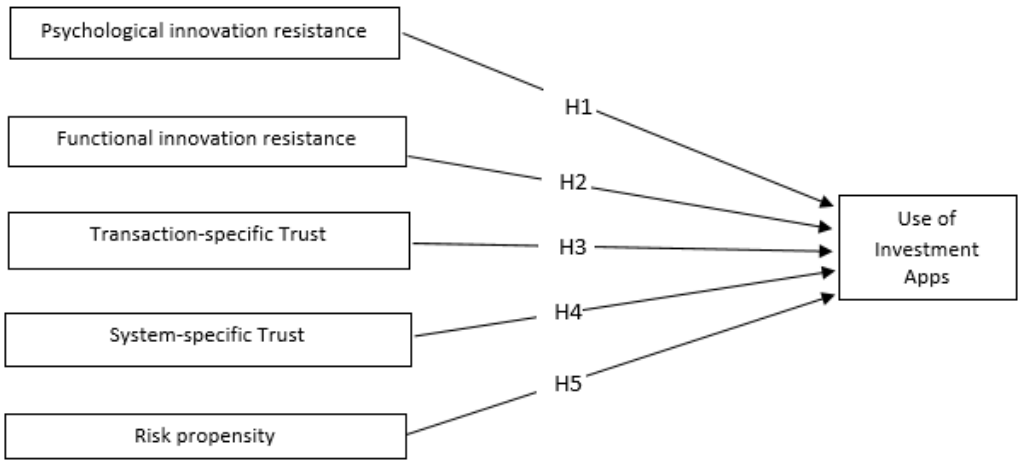

Figure 1: Research model

These barriers encompass both functional and psychological innovation resistance. Therefore, the research model suggests that both types of innovation resistance will have an impact on using investment apps for stock trading. Thus, we propose the following hypotheses:

H1: *Psychological innovation resistance* has a negative impact on the *use of investment apps* for trading stocks.
H2: *Functional innovation resistance* has a negative impact on the *use of investment apps* for trading stocks.

Trust, in its multiple forms, was also proven to be an antecedent of adopting financial technologies (Fintech) and engaging in virtual transactions in general (Beidad & Hegner, 2018; Han, Wu & Windsor, 2014; Luo, Li, Zhang &Shim, 2010). Combining the various dimensions of trust into a single variable (as done in other studies) can be a parsimonious approach of studying its impact. However, in this study, we argue that doing so can make it difficult to determine specific practical implication and identify the managerial actions needed to handle trust. Therefore, we will distinguish transaction-specific trust (i.e., trust in the company behind the investment apps) from system-specific trust (i.e., trust in the security of the technology involved in the investment apps). We argue that both forms of trust will have a significant impact on the use investment apps. We, therefore, propose the following:

H3: *Transaction-specific trust* has a positive impact on the *use of investment apps* for trading stocks.
H4: *System-specific trust* has a positive impact on the *use of investment apps* for trading stocks.

Unlike trust, perceived risk can act as an inhibitor to using online sevices and performing internet-based transactions. Wang et al. (2014) and Chiou & Shen (2012) found that perceived risk has a negative impact on engaging in online banking. Walton & Johnson (2018) found that perceived risk has a negative impact on the intention to buy Bitcoins, and Leong et al. (2020) found that perceived risk has a negative impact on using m-wallet. Whereas perceived risk can negatively affect the intention to use technology, people differ in terms of risk propensity. It can be expected people with high-risk propensity will be more willing to use investment apps for stocks trading (Marafon et al., 2018). Therefore, risk propensity can have a direct positive impact on the use investment apps for stocks trading. We, therefore, propose the following:
H5: *Risk propensity* has a direct positive impact on the *use of investment apps* for trading stocks.

Methodology

Measures

As recommended in business research methods (Schindler, 2021), initial-scale items from previously validated measures were collected and adapted, in cases where it is needed. All constructs were operationalized using a 7-point Likert scale. Psychological innovation resistance and Functional innovation resistance were operationalized by adapting the measures developed by Yu & Chantatub (2016). Transaction-specific trust and system-specific trust were operationalized by adapting the measures developed by Carlos Roca et al. (2015). Perceived risk and risk propensity were operationalized by adapting the measures developed by Meertens & Lion (2008). Frequency of use, longevity, and amount of time spent using a target technology are typical usage metrics used in IS literature. The respondents were asked to report their use of investment apps using five 7-point interval scale questions similar to the ones used in Davis et al. (1989), Sledgianowski & Kulviwat (2009) and Illia et al. (2015).

Sample and procedure

A survey was used, as the overall strategy, for empirically testing the research model. With the help of a student's investment association, data were collected by sending a link to a questionnaire to a sample of 189 students enrolled in senior-level courses in a Midwest university in the U.S. over two semesters. Some of the courses were also open to graduate students. Out of the 126 completed questionnaires, 7 were excluded from data analysis because of missing data. That led to a sample of 119 valid questionnaires (a 63% usable response rate). From the sample used, 68 were male (57.14%) and 51 were female (42.86%). The average age was 22.55 years, and the respondents have been using investment apps for 4.6 years in average. Robinhood (62.83%), Acorns (21.24%), and Webull (11.25%) were the most used investment apps, whereas Twitter, Reddit, and Tik Tok were the most common source of information regarding stocks trading used by the respondents. Finally, the collected data also show that the respondents were using the investment apps 3.2 times a week, buying or selling for $103.50 worth of stocks weekly in average.

Results

Measurement model

In areas with strong a priori theory and where pre-validated measures are being used, confirmatory factor analysis (CFA) is recommended over exploratory factor analysis (Schindler, 2021). We used SmartPLS 3.0 to perform CFA with the collected data in order to evaluate the measurement model. We modeled all measured scale items as reflective indicators of their corresponding latent constructs, which allows assessing convergent reliability, discriminant reliability, and internal consistency reliability (ICR) also known as composite reliability. Convergent validity is assured when (a) items load more highly on their respective constructs than on others, (b) all standardized item loadings are .70 or higher, and (c) the average variance extracted (AVE) by each construct from its indicators is at least .50, meaning the square root of AVE should exceed .70 (Usakli & Kucukergin, 2018). The results of the CFA (after eliminating two items that did not load adequately - one from the *transaction-specific trust* construct and the other from the *system-specific trust* construct) are shown in Table 1. The results show that all item loadings are above .70 and the AVEs are above .50. The table also shows that the internal consistency reliability indexes that measure composite reliability range from .90 to over .93, which is higher than the recommended .70.

Table 1: Instrument validation

Construct	Loading	Composite reliability	AVE
Psychological Innovation Resistance (PIR)		0.926	0.638
PIR1	0.821		
PIR2	0.772		
PIR3	0.789		
PIR4	0.814		
Functional Innovation resistance (FIR)		0.931	0.617
FIR1	0.806		
FIR2	0.759		
FIR3	0.798		
FIR4	0.778		
Transaction-specific Trust (TST)		0.917	0.729
TSTR1	0.831		
TSTR2	0.830		
TSTR3	0.900		
System-specific Trust (SST)		0.908	0.654
SSTR1	0.790		
SSTR2	0.811		
SSTR3	0.824		
Risk propensity (RISKP)		0.925	0.615
RP1	0.817		
RP2	0.731		
RP3	0.798		
RP4	0.791		
Use of investment apps (USE)		0.939	0.614
USE1	0.782		
USE2	0.821		
USE3	0.813		
USE4	0.708		
USE5	0.795		

Discriminant validity determines whether individual indicators adequately distinguish between different constructs. It is assured if the square root of AVE for each construct exceeds that construct's correlation with other constructs (Hair, Risher, Sarstedt, & Ringle, 2019). The summary results in Table 2 indicate that discriminant validity is assured.

Table 2: Inter-construct correlations and average variance extracted (AVE)

Construct	Mean	SD	Inter-construct correlations					
			1	2	3	4	5	6
1. PIR	5.27	1.02	**0.80**					
2. FIR	5.71	1.31	0.31	**0.79**				
3. TST	6.69	1.23	0.32	0.30	**0.85**			
4. SST	6.41	1.09	0.40	0.35	0.27	**0.81**		
5. RISKP	6.02	1.11	0.38	0.40	0.52	0.48	**0.78**	
6. USE	6.14	1.22	0.48	0.33	0.41	0.52	0.44	**0.78**

- Legend: PIR = Psychological Innovation Resistance, FIR = Functional Innovation Resistance, TST = Transaction-specific Trust, SST = System-specific Trust, RISKP = Risk Propensity, USE = Use of investment apps.
- Diagonal elements are the square roots of the average variance extracted (AVE).

Structural model testing

Figure 2 shows the causal model generated by SmartPLS with the β coefficients for each of the hypothesized path and the R^2 for the dependent variable. The structural model explained over 59% variance in the use of investment apps for stocks trading. The significance of the β coefficients determines whether the hypothesized paths are supported by the data.

All, but one, of the paths in the research model were found to be significant. Table 3 provides a summary showing the extent to which the hypothesized paths are supported by the data.

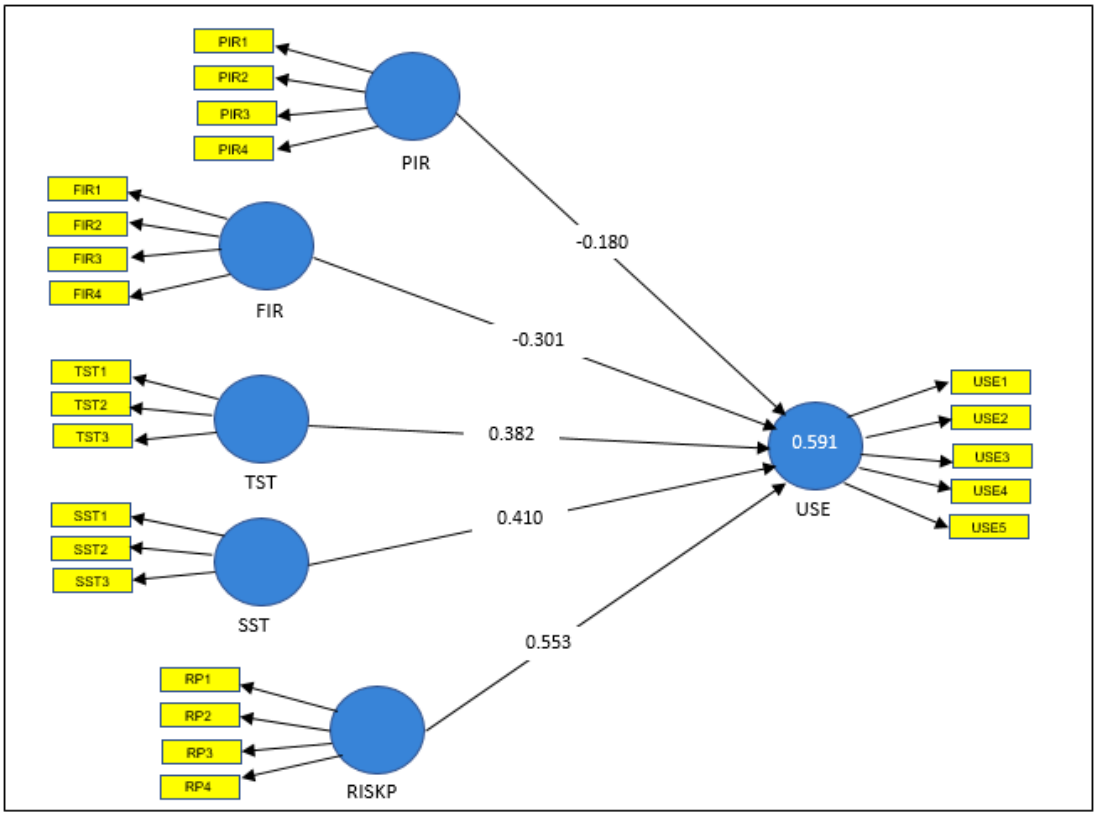

Figure 2: Causal model

As predicted in H2, functional innovation resistance (FIR) has a significant negative impact on USE ($\beta = -0.301$, $p < 0.05$). Also, as predicted, both Transaction-specific trust (TST) and system-specific trust (SST) have a significant positive impact on USE (H3: $\beta = 0.382$, $p < 0.01$ and H4: $\beta = 0.410$, $p < 0.01$ respectively). The impact of risk propensity (RISKP) on USE turned out to be even more significant (H5: $\beta = 0.553$, $p < 0.01$). However, contrary to what was predicted in H1, psychological innovation resistance (PIR) did not have a significant impact on USE, which will be addressed next.

Table 3: Summary of results

Hypothesis	Coefficient β	t-value	Result
H1: PIR → USE	0.180	1.0124	Not supported
H2: FIR → USE	0.301	1.5122*	Supported
H3: TST → USE	0.382	3.7611**	Supported
H4: SST → USE	0.410	3.8224**	Supported
H5: RISKP → USE	0.553	4.1173**	Supported

- Legend: PIR = Psychological Innovation Resistance, FIR = Functional Innovation Resistance, TST = Transaction-specific Trust, SST = System-specific Trust, RISKP = Risk Propensity, USE = Use of investment apps.
- Significance: ** = p<0.01; * = p<0.05

Discussion

This study examined the extent to which innovation resistance, trust, and risk propensity have an impact on the use of investment apps for stocks trading. The findings suggest that functional innovation resistance, trust, and risk propensity do have an impact. But, the impact of psychological innovation resistance was not significant. The testing of the impact of the innovation resistance-related factors (H1 and H2) helped shed the light on which type of barriers play a role. The results suggest that functional innovation resistance (that includes usage barriers and value barriers) plays a significant role whereas psychological innovation resistance (that includes tradition barriers and image barriers) does not have a significant role in explaining the use of investment apps for stocks trading. The finding related to the significant impact of usage barriers and value barriers is consistent with the findings of previous research that study their impact on the adoption of other forms of Fintech like mobile banking and mobile payment solutions (e.g., Rammile & Nel, 2012; Yu & Chantatub, 2016; Laukkanen, 2016). Although inconsistent with the findings of Rammile & Nel (2012, Yu & Chantatub (2016) and Laukkanen (2016), the result of testing H1 (i.e., the non-significant role of psychological innovation resistance, which includes tradition and image barriers) is consistent with the findings of Kaur et al. (2020). In their study, Kaur et al. (2020) found that neither tradition barriers nor image barriers has a significant impact on the intention to use or the intention to recommend mobile payment solutions. This may be explained by two things. First, in this case, the respondents have been using investment apps for 4.6 years in average, which suggests that they have a certain level of familiarity with using the apps. Common sense suggests that when a technology is mature or very familiar to the users, psychological innovation resistance may not have a negative impact on its use. Thus, the non-support for H1. A second explanation could be that our respondents are young adults who tend to be technology savvy (Pew Research Center, 2017). As Kaur et al (2020) showed, people who are technology savvy tend to have a positive image of technology. Therefore, psychological innovation resistance (which includes image barriers) didn't have a negative impact on the use of investment apps in this case.

By testing H3 and H4, this study also found that both transaction-specific trust and system-specific trust have a positive impact on the use of investment apps for stocks trading. That means, trust in the range of tools and security measures put in place to help alleviate fear of cybersecurity threats (i.e., system-specific threats) plays a significant role in people's decision to use investment apps for stocks trading. It also means that trust in the credibility, benevolence, and integrity of the company behind the investment apps (i.e., transaction-specific trust) plays a significant role. This finding is consistent with the findings of previous research that found security-related trust to play a significant role in technology adoption (e.g., Han, Wu & Windsor, 2014; Michalski, Yurov & Botella, 2014). Our findings suggest that trust in the company behind the investment apps plays an equally significant role.

Finally, the testing of H5 suggests that risk propensity has a significant positive impact on the use of investment apps. This result is consistent with Marafon et al. (2018) who found that risk propensity (which they called acceptance of risk) plays a significant role in users' adoption of internet banking. Combined with the findings of numerous studies that found perceived risk to have a negative impact on technology use (e.g., Karwatzki, Trenz & Veit, 2022; Lee, & Kim, 2020; Seetharaman, et al., 2017), this finding suggests that risk propensity can, potentially, moderate the negative impact of perceived risk. Thus, for users with high risk propensity, perceived risk may have a lesser negative impact.

Conclusion and implications

This study investigated the impact of innovation resistance-related factors, trust, and risk propensity on the use of investment apps for stock trading. We developed and tested a structural model grounded on the theory of innovation resistance and the literature about trust and risk. The primary objective was to address

three research questions. The first question (RQ1) was what forms (or dimensions) of innovation resistance play a role in explaining the use of investment apps for stocks trading, and to what extent innovation resistance has an impact on the use of investment apps for stock trading? The second research question (RQ2) was what forms of trust play a role in explaining the use of investment apps for stocks trading? The third question (RQ3) was: if perecieved risk acts as an inhibitor to purchase or usage behavior, what role risk propensity plays in people's decision to the use of investment apps for stock trading?

The relative magnitude of the path coefficients of the structural model tested in this study suggests that risk propensity, system-specific trust, transaction-specific trust, and functional-innovation resistance (in that order) are the key factors that directly impact the use of investment apps for stocks trading. The study also found that the impact of psychological innovation resistance to be insignificant. The discussion section attempted to explain these results.

Theoretical implications

From the theoretical standpoint, this study contributed to the existing literature in a number of ways. First, it contributes to the literature on the role of innovation resistance in financial technology adoption. Multiple studies have been devoted to identifying the factors that explain financial technologies' adoption. Mobile wallets, mobile banking, and cryptocurrency were the most common technologies addressed in those studies. To our knowledge, this is one of the first studies in the IS field to target investment apps. The findings will add to this field of research by expanding the range of financial technologies to investment apps and testing to determine the forms of innovation resistance-related factors that have significant impact. Second, along with recent studies like Kaur et al. (2020)'s, this study helped shed the light on the fact that tradition barriers do not automatically act as inhibitors of using internet-based services. When it comes to mature technologies (i.e., technologies that the users have experience using for a certain time), the potential negative impact of tradition barriers may not be significant.

Practical implications

This study has, also, several practical implications. The significant positive impact of risk propensity and system-specific trust suggests that businesses need to have an effective strategy of helping users overcome their fear of cybersecurity threats. This may be educating them and making them aware of the security of the tools and technologies implemented. Furthermore, the significant positive impact of transaction-specific trust suggests that having an effective strategy of making current and potential users aware of the credibility, benevolence, and integrity of the companies behind the investment apps can help boost the apps' use.

References

Alleyne, P., & Broome, T. (2011). Using the theory of planned behaviour and risk propensity to measure investment intentions among future investors. *Journal of Eastern Caribbean Studies*, *36*(1), 1-20.

Beldad, A. D., & Hegner, S. M. (2018). Expanding the Technology Acceptance Model with the Inclusion of Trust, Social Influence, and Health Valuation to Determine the Predictors of German Users' Willingness to Continue using a Fitness App: A Structural Equation Modeling Approach. *International Journal of Human–Computer Interaction*, *34*(9), 882-893. https://doi.org/10.1080/10447318.2017.1403220

Caporal, J. (2021). Gen Z and Millennial Investors: Ranking the Most Used, Trusted Investing Tools. Retrieved on May 14 from https://www.fool.com/research/gen-z-millennial-investors-tools/

Carlos Roca, J., José García, J., & José de la Vega, J. (2009). The importance of perceived trust, security and privacy in online trading systems. *Information Management & Computer Security*, *17*(2), 96-113. https://doi.org/10.1108/09685220910963983

Chiou, J.-S., & Shen, C.-C. (2012). The antecedents of online financial service adoption: The impact of physical banking services on Internet banking acceptance. *Behaviour & Information Technology*, *31*(9), 859-871. https://doi.org/10.1080/0144929X.2010.549509

Cho, H. (2011). Theoretical Intersections Among Social Influences, Beliefs, and Intentions in the Context of 3G Mobile Services in Singapore: Decomposing Perceived Critical Mass and Subjective Norms. *Journal of Communication*, *61*(2), 283-306. https://doi.org/10.1111/j.1460-2466.2010.01532.x

Coppola, D. (2021). *U.S. digital buyer distribution 2020, by age group*. Retrieved 2/5/2022 from https://www.statista.com/statistics/469184/us-digital-buyer-share-age-group/

Cox, D. F. (Ed.). (1967). *Risk taking and information handling in consumer behavior*. Harvard University Press.

Cunningham, S. M. (1967). The Major Dimensions of Perceived Risk. In D. F. Cox (Ed.), *Risk Taking and Information Handling in Consumer Behavior*. Harvard University Press.

Das, S. R., & Joshi, M. P. (2007). Process innovativeness in technology services organizations: Roles of differentiation strategy, operational autonomy and risk taking propensity. *Journal of Operations Management*, *25*(3), 643-660. https://doi.org/10.1016/j.jom.2006.05.011

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User Acceptance of Computer Technology: A Comparison of Two Theoretical Models. *Management Science*, *35*(8), 903-1028. https://doi.org/10.1287/mnsc.35.8.982

Featherman, M. S., & Pavlou, P. A. (2002). Predicting E-services adoption: A perceived risk facets perspective. Proceedings of the 8th Americas Conference on Information Systems, Dallas, Texas.

Fox, S. (2013, August 7). 51% of U.S. Adults Bank Online. Retrieved from Pew Research Center: http://www.pewinternet.org/2013/08/07/51-of-u-s-adults-bank-online/

Gonzalez, O & Priest, D. (2021). Robinhood backlash: What you should know about the GameStop stock controversy. Retrieved on May 14, 2022 from https://www.cnet.com/personal-finance/investing/robinhood-backlash-what-you-should-know-about-the-gamestop-stock-controversy/

Gordon, K., S., T. (2021). Democratizing finance with Robinhood: Financial infrastructure, interface design and platform capitalism, Environment and Planning, 53(8), 1862-1878 https://doi.org/10.1177/0308518X211042378

Grabner-Kräuter, S. (2002). The Role of Consumers' Trust in Online-Shopping. *Journal of Business Ethics*, *39*(1), 43-50. https://doi.org/10.1023/A:1016323815802

Han, B., Wu, Y., and Windsor, J. (2014). User's adoption of free third-party security apps. Journal of Computer Information Systems, 54(3), 77-86.

Illia, A., Lawson-Body, A., Lee, S., & Akalin, G. I. (2018). The Moderating Effect of Motivation to Comply and Perceived Critical Mass in Smartphones' Adoption. *International Journal of Technology and Human Interaction (IJTHI)*, *14*(3), 21-38. https://doi.org/10.4018/IJTHI.2018070102

Illia, A., Ngniatedema, T., & Huang, Z. (2015). A Conceptual Model for Mobile Banking Adoption. *Journal of Management Information and Decision Sciences*, *18*, 93-103.

Kaur, P., Dhir, A., Singh, N., Sahu, G., & Almotairi, M. (2020). An innovation resistance theory perspective on mobile payment solutions. *Journal of Retailing and Consumer Services*, *55*, 1-11. https://doi.org/10.1016/j.jretconser.2020.102059

Karwatzki, S., Trenz, M., & Veit, D. (2022). The multidimensional nature of privacy risks: Conceptualization, measurement and implications for digital services. Information Systems Journal, 1-32. https://doi.org/10.1111/isj.12386

Kooli, K., Mansou, K.B. & Utama, R. (2014). Determinants of online trust and their impact on online purchase intention. International Journal of Technology Marketing, 9(3), 305-319.

Laukkanen, T. (2016). Consumer adoption versus rejection decisions in seemingly similar service innovations: the case of the Internet and mobile banking, Journal of Business Research 69(7), 2432-2439

Lawson-Body, A, Willoughby, L., Illia, A. & Lee, S. (2014). Innovation Characteristics Influencing Veterants' Adoption of eGovernment Services, Journal of Computer Information Systems, 54(3), 34-44.

Lee, J.-M., & Kim, H.-J. (2020). Determinants of adoption and continuance intentions toward Internet-only banks. *International Journal of Bank Marketing*, *38*(4), 843-865. https://doi.org/10.1108/IJBM-07-2019-0269

Leong, L.-Y, Hew, T.S., & Wei, J. (2020). Predicting mobile wallet resistance: A two-staged structural equation modeling-artificial neural network approach. International Journal of Information Management, Volume 51, 102047. https://doi.org/10.1016/j.ijinfomgt.2019.102047

Luo, X., Li, H., Zhang, J. and Shim, J.P. (2010). Examining multi-dimensional trust and multi-faceted risk in initial acceptance of emerging technologies: an empirical study of mobile banking services, Decision Support Systems, 49, 222-234.

Marafon, D. L., Basso, K., Espartel, L. B., de Barcellos, M. D., & Rech, E. (2018). Perceived risk and intention to use internet banking. *International Journal of Bank Marketing*, *36*(2), 277-289. https://doi.org/10.1108/ijbm-11-2016-0166

Meertens, R. M. & Lion, R. (2008). Measuring an Individual's Tendency to Take Risks: The Risk Propensity Scale, Journal of Applied Social Psychology, 38(6), 1506-1520

Michalski, M., Yurov K. M., & Botella, J. M. (2014). Trust and IT innovation in asymmetric environments of the supply chain management process, Journal of Computer Information Systems, 54(3), 10-24.

Pasztor, J. (2021). Robinhood - Hero or Villain? Journal of Financial Service Professionals, 75(5), 18-22.

Pew Research Center. (2017). *The Fate of online trust in the next decade*. Retrieved 2/5/2022 from https://www.pewresearch.org/internet/2017/08/10/the-fate-of-online-trust-in-the-next-decade/

Ram, S., & Sheth, J. N. (1989). Consumer Resistance to Innovations: The Marketing Problem and its solutions. *Journal of Consumer Marketing*, *6*(2), 5-14. https://doi.org/10.1108/EUM0000000002542

Rammile, N., & Nel, J. (2012). Understanding resistance to cell phone banking adoption through the application of the technology acceptance model (TAM). *Afrian Journal of Business Management*, *6*(1), 86-97. https://doi.org/10.5897/ajbm11.635

Seetharaman, A., Kumar, K. N., Palaniappan, S., & Weber, G. (2017). Factors Influencing Behavioural Intention to Use the Mobile Wallet in Singapore. *Journal of Applied Economics and Business Research*, *7*(2), 116-136.

Shen, Y.-C., Huang, C.-Y., Chu, C.-H., & Hsu, C.-T. (2010). A benefit–cost perspective of the consumer adoption of the mobile banking system. *Behaviour & Information Technology*, *29*(5), 497-511. https://doi.org/10.1080/01449290903490658

Schindler, P. S. (2021). Business Research Methods. McGraw-Hill, New York

Walton, A., & Johnston, K. (2018). Exploring Perceptions of Bitcoin Adoption: The South African Virtual Community Perspective. *Interdisciplinary Journal of Information, Knowledge, and Management*, *13*, 165-182. https://doi.org/10.28945/4080

Wang, S., Hsu, M., Pelton, L., & Xi, D. (2014). Virtually Compatible or Risky Business? Investigating Consumers' Proclivity Toward Online Banking Services. *Journal of Marketing Channels*, *21*(1), 43-58. https://doi.org/10.1080/1046669X.2013.832466

Welch, I, (2022). The Wisdom of the Robinhood Crowd. Journal of Finance, 77(2), 1-40

Yu, C.-S., & Chantatub, W. (2016). Consumers' resistance to using mobile banking: Evidence from Thailand and Taiwan. *International Journal of Electronic Commerce Studies*, *7*(1), 21-38. https://doi.org/10.7903/ijecs.1375