

Navigating selected perceived risk elements on investor trust and intention to invest in online trading platforms



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Orientation: In the contemporary global business environment, online trading is a new distribution channel and trading platforms are products of investment and financial services companies.

Research purpose: This study determined the influence of perceived risk elements on investor trust and the intention to invest in online trading platforms among students at a selected university in South Africa.

Motivation for the study: The significance of how perceived risk elements may influence an investor's trust and the intention to invest in online trading has largely been overlooked in previous research. Therefore, the principal objective of this study was to address this research gap.

Research approach, design and method: A structural equation modelling (SEM) procedure was applied to perform the hypotheses testing using the AMOS (version 25.0) package.

Main findings: All the perceived risk elements had a positive and a significant impact on investor trust as well as the intention to invest in online trading platforms.

Practical/managerial implications: This study provides fruitful implications to practitioners. The collective knowledge on dimensions of perceived risk will be advantageous to managers in understanding consumer risk perception and how students attempt to reduce these risks. Hence, this will also help managers to implement risk-reduction strategies in order to increase the prospect of students investing in their online trading platforms.

Contribution/value-add: This study stands to add new knowledge to the present body of investment management and financial management literature in Africa – a context that has not received much research attention in developing countries.

Keywords: perceived security risk; perceived privacy risk; perceived financial risk; perceived fraud risk; investor trust; intention to invest; online trading platforms.

Introduction

In today's contemporary business environment, most individuals are captivated by the idea of investing their money in online trading platforms (Barber & Odean 2013). These participants are fascinated by the idea that the forex market works by its own rules and has least transaction costs (Vasile, Teodorescu & Bucur 2015). In addition, online trading has a lot of compensations, such as faster trading speed, improved data transparency and lower operating cost (Huang, Hung & Yen 2005; Khan et al. 2018; Lee 2009a), and naturally it is expected that a stock investor will choose to adopt online trading if they perceive that doing so will provide greater benefits than existing methods. Because perceived benefit has been empirically shown to significantly impact Internet adoption (Mehrtens, Cragg & Mills 2001), affect e-business adoption (Zheng et al. 2006) and influence the corporate website adoption (Beatty, Shim & Jones 2001), using it in the technology-driven context of online trading is a rational undertaking.

Despite the above, the risk theory of consumer behaviour, as advanced by Bauer (1960), indicates that benefits are often accompanied with risks. The spatial and temporal separation between customers and stock brokerage firms and the unpredictability of the Internet infrastructure generate an implicit uncertainty around online transactions. Firstly, there is the risk of monetary loss because of transaction error or stock account misuse. Secondly, there is the risk of loss of privacy because of Internet fraud or hacker intrusion. The open nature of the Internet as a

transaction infrastructure and its global nature create uncertainty around online transactions, and this makes trust and risk crucial elements of e-commerce (Bojang 2017; Hoffman, Novak & Peralta 1999; Pavlou 2003). In addition, Yousafzai, Pallister and Foxall (2003) as well as Yousefi and Nasiripour (2015) argue that the notion of trust is perhaps the most important component of electronic banking transactions. Therefore, perceptions of trust and risk are likely to be important factors in predicting the investor's intention to invest in online trading platforms.

Notwithstanding this noted research interest of online trading – the extant empirical literature related to perceived risk, investor trust and online trading platforms show some gaps, hence the need for further academic introspection. Notably, most international studies have been conducted in countries such as, inter alia, Taiwan, Romania, Austria, Chile, Vietnam and the United States. For example, Vasile et al. (2015) examined perceived risk, investor trust and online trading platforms in Romania (Vasile et al. 2015). Lee (2009) predicted and explained the adoption of online trading in Taiwan, while Trattner et al. (2014) predicted buyer–seller interactions in online trading platforms through social networks. Wang, Wang and Tai (2002) conducted a study on online auction sites in Taiwan, while Chen, Fan and Li (2016) investigated an advertising versus brokerage model for online trading platforms and Wang and Lee (2005) focused on customer satisfaction towards online shopping at electronics shopping malls in Vietnam.

Despite the growing body of research on online trading platforms, there is still lack of understanding about the impact of perceived security risk, perceived privacy risk, perceived financial risk and perceived fraud risk on investor trust as well as the intention to invest in online trading platforms in Africa. Precisely, within the South African context previous studies have conducted their studies in various contexts by focusing on the relationship between foreign direct investment and economic growth in South Africa (Masipa 2018); a few South African cents' worth on Bitcoin (Nieman 2015); the relationship between the exchange rate and the trade balance in South Africa (Chiloane, Pretorius & Botha 2014); responsible investing in South Africa (Viviers & Els 2017); familiarity bias among individual investors (De Vries, Erasmus & Gerber 2017) and a South African perspective on the investment performance of ethical funds compared to conventional funds and investor behaviour as regards ethical funds (Patel 2016). This shows that there is scant evidence of studies focusing on how perceived security risk, perceived privacy risk, perceived financial risk and perceived fraud risk impact investor trust and the intention to invest in online trading platforms in South Africa. Hence, this warrants the need for the present study.

This article is structured as follows: firstly, a research context is provided and thereafter the empirical literature is presented, followed by a conceptual model and a hypothesis development. The research design and methodology are then

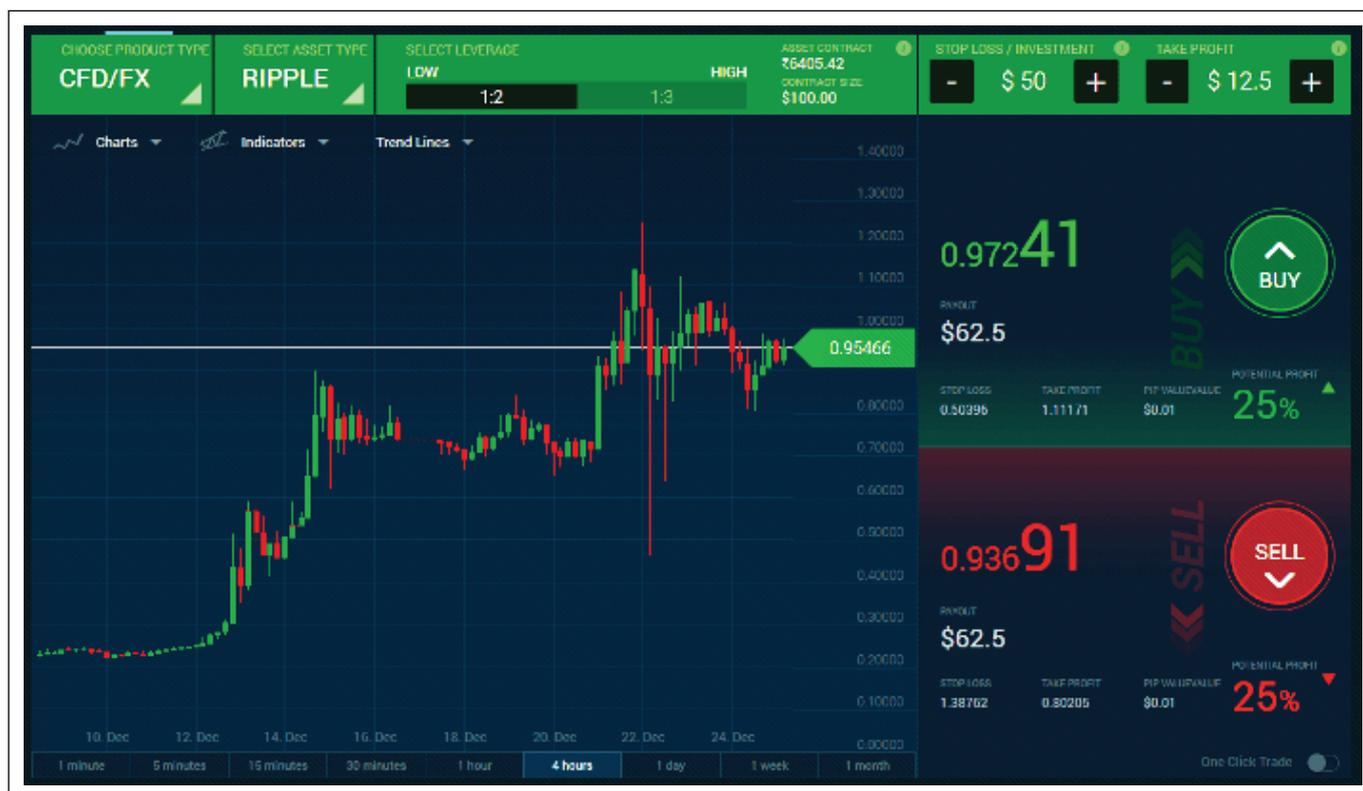
presented, followed by a presentation of the results and the discussions. The final sections of the article discuss the implications, limitations and future research directions.

Research context

An online trading platform

As indicated by Baralis et al. (2017), online trading is the procedure by which private investors or traders purchase and offer money-related items or securities through online trading platforms. The example of a trading platform is shown in Figure 1. Ackert et al. (2016) discuss that a great many individuals go on the web each day to express thoughts and gather data on the subjects that worry web-based exchanging and venture tips as opposed to depending entirely on corporate budgetary reports and administration revelations. Consequently, Renault (2016) supplements that in fact messages distributed by online financial specialists on the web are generally shorter and less formal than substance distributed on conventional media. The major standards of online trading are value investing and development contributing. Talledo (2011) states that value investing is a venture methodology which endeavours to purchase stocks whose offer cost is thought little of and development, putting stresses on putting resources into organisations that display indications of better than expected development. Most online traders are clueless about the dangers related to online trading. Accordingly, online trading between two outsiders falls in the domain of a detainee's difficulty (Yamamoto, Ishida & Jackson 2003).

Consequently, Choi (2016) recommends that if online financial investors just pursued investment advice of nearby merchants, speculators inside a similar neighbourhood would be adequately connected. Be that as it may, Du, Huang and Li (2012) contend that the crucial component of online trading is that traders are typically mysterious and topographically scattered and this builds the trouble of legitimate implementation of assertions in online markets. Also, Evans (2017) includes that from 2013, administrative specialists and law requirements have been inspecting the forex exchanging exercises of the world's biggest banks, particularly around the time that benchmark forex costs are resolved. Besides, Evans (2017) improves that examinations by regulatory authorities have created penalties and fines on the banks adding up to enormous aggregates of cash that have prompted the rejection or suspension of various bank workers associated with online trading. The number of inhabitants in online trading is colossal that a trader may never need to manage a similar purchaser again as expressed by Zhong et al. (2012). Consequently, Choi and Choi (2018) evaluate that singular individual investors or online traders commonly have constrained access to inside or fundamental data regarding security guarantors. As per Choi and Choi (2018), it ought to be noticed that there is significant proof that people are uninformed traders. Hence, they frequently tend to trade single stocks dependent on mistaken commotion or put resources into shared assets at high expenses instead of building or holding a market portfolio



Source: <https://wall-street.com/the-benefits-of-online-trading-platforms/> (viewed 01 April 2018)

FIGURE 1: An online trading platform.

(Lease, Lewellen & Schlarbaum 1974). By and by because of the high level of effective traders, online markets always endeavour to enhance their notoriety frameworks to expand market effectiveness (Du et al. 2012).

Online trading activity of university students

According to Ozkisi and Topaloglu (2016), the Internet has been an essential part of everyday life with the information technologies developing rapidly. Choudhury and Dey (2014) mention that more than 75% of Internet usage is still driven by youngsters that include young men and school- and college-going students. Several students use the Internet to trade online (Bosch 2009). Hence, students are a rewarding market for financial institutions (Warwick & Mansfield 2000). Nevertheless, it is also imperative to note that within the existing body of knowledge there are deficiencies in the literature which is focused on the applicability of online trading platforms among university students, hence the need of the current study. A closely related study is the one conducted by Liivamägi (2016), which aimed at determining how investors' educational characteristics affect trading activity on the stock market. The traders, in their sample, were relatively young students and most of the investors belonged to the Y-generation cohort. Applying an ordered logit regression model and controlling for gender, age, wealth, portfolio diversification and average stock holding period, Liivamägi's study provided empirical evidence that the investors with top results in national examinations or the investors holding an academic degree trade stocks more actively. The opposite was true for the investors with no academic degree as they trade

stocks less actively (Liivamägi 2016). Another study, which describes the online trading activity of students, is the one conducted by Huang (2015:1) entitled 'China's college students embrace stock trading, thanks to money from mom and dad'. Huang (2015) reported that college students were inundating the online trading markets. The state-run Xinhua news agency stated that there are 31% of college students who have invested in stocks and of them 26% put more than 50 000 yuan (\$8058) into the activity and lastly 76% got the money from their parents (Huang 2015). Concluding from the previously mentioned illustrations, it is imperative to note that this examination will be among the investigations that have an exceptional reference to online trading platforms among students.

Empirical literature

This section of the literature review discusses the different research variables undertaken as part of this study.

Perceived security risk

Security is the capacity to ensure data against potential dangers or guarantee that a framework can counteract assaults which can imperil information and administrations (Damghanian, Zarei & Kojuri 2016). Perceived security risk issues have expected more prominent centrality as of late with the approach of web-based business exchanges (Mann & Sahni 2013). In the online environment, success of e-commerce is subordinate upon the development of ensured security (Kolsaker & Payne 2002). Perceived security risk is,

therefore, characterised by Kim, Ferrin and Rao (2008:546) as 'shopper's conviction about the potential dubious negative results from the online transaction'. Furthermore, Dowling and Staelin (1994:119) expound the idea of perceived security risk as 'the shopper's view of the vulnerability and unfavourable results of purchasing a product or a service'.

Perceived privacy risk

Perceived privacy risk relates to data privacy and is described as Internet users' concerns about their ability to control the collection of their personal information and control the future usage of the collected information or the information that was generated based on their online activities, as stated by Mekovec and Hutinski (2012). In addition, Culnan and Armstrong (1999) argue that concerns regarding the privacy of personal information have been declared a major obstacle of consumer participation in various online activities, including online trading platforms. Furthermore, Sharma and Kurien (2017) argue that by sharing this information, customers perceive potential loss of control over personal information. However, Ginosar and Ariel (2017) point out that a website's privacy policy should be considered as a managerial concept or as an integral part of the website's business model.

Perceived financial risk

According to Hanafizadeh and Khedmatgozar (2015), perceived financial risk refers to customers' concerns about the potential of financial loss. In a similar vein, Maziriri (2016:31) elucidates that 'perceived financial risk involves monetary loss and unexpected costs'. In addition, making appropriate financial decisions is one of the most important choices an individual may face during their lifetime (Brooks et al. 2018). Hence, Bucciol and Miniaci (2018) state that financial risk propensity is the willingness to bear risk, in a time interval that includes recessions as well as expansion periods. Malmendier and Nagel (2011) suggest that the recent shocks to financial market returns might have a long-lasting impact on investors' behaviour and persistently reduce future stock market participation. Kannadhasan (2015) elucidates that financial risk tolerance has explored demographics to play a major role in identifying the financial risk tolerance of the individual.

Perceived fraud risk

According to Banerjee and Chua (2016), perceived fraud risk occurs online, raising questions about the role of online communities in managing fraud. The Association of Certified Fraud Examiners (ACFE) defines 'fraud' as the use of one's occupation for personal enrichment through the deliberate misuse or misapplication of the using of an organisation's resources or assets (ACFE 2009). Moreover, perceived fraud risk measures a consumer's concerns about a seller's reliability in online shopping (Naiyi 2004). Therefore, for this study perceived fraud risk will be described as any fraud committed through web-based communications such as emails and web-links and profile creation.

Investor trust

Trust is the core of any relationship (Damghanian, Zarei & Siahsarani Kojuri 2016). It is a mind-boggling marvel that has impacted human connections and is pivotal for the accomplishment of electronic business. Once there is no entrance to many tools (Connolly and Banister 2007), trust is a psychological certification, and guarantees the customer that the normal favourable circumstances from a dealing is accomplished and furthermore the seller would not act astutely (Wang, Ngamsiriudom & Hsieh 2015). Also, Hanafizadeh and Khedmatgozar (2012) state that trust makes shoppers happy with sharing individual information, making purchases and taking a shot at a web merchant proposal, the majority of which are practices basic to far reaching appropriation of Internet business. Besides, Oliveira et al. (2017) add that the overall trust that a consumer has in an Internet vendor rests upon the trustworthiness of the merchants; in the event that they are dependable, customers can confide in them, and this can extensively impact their goal to get online. Along these lines, trust might be a crucial part in diminishing perceptions of risk and influences customers to uncover non-open information once offered the suggestion by an e-seller. Nevertheless, for this study investor trust will be described as the customers' apparent belief that the online trading platform is genuine and is equipped for helping them to trade online and eventually create monetary benefit.

Intention to invest in online trading platforms

Intention is a function of its three direct determinants of attitude towards behaviour, subjective norm and perceived behavioural control (PBC) (Holst & Iversen 2011; Mhlophe 2015). This construct represents an individual's motivation to conduct a specific behaviour (Armitage & Conner 2001). It can likewise be viewed as the immediate determinant of behaviour and the precursor for upcoming purchasing decisions (Ajzen 1991). Furthermore, a person will usually act consistent with his or her intention, except in cases where there are unforeseen challenges, for instance lack of skills or resources and opportunities (Mhlophe 2015). Stated in a different way, Holst and Iversen (2011) posit that intention may be used as a proximal measure of behaviour. Shanmugam, Savarimuthu and Wen (2014:239) elucidate that 'intention to use is defined as a measure of the likelihood that a person will adopt an application'. In addition, the 'perceived behavioural control' conceptualised as an antecedent to 'intention' within the theory of planned behaviour is defined as an individual's perception of the easiness of performing a particular behaviour (Ali 2011). In the context of this study, investors may be interested in investing in a particular online trading platform only when they have time and skill to evaluate the company and have money to invest. Therefore, when forming an intention to invest, individual investors normally begin with evaluations of companies' financial positions based on some objective measures such as return on equity, dividend payout ratio and beta (Ali 2011). Next, their enthusiastic impression of

such assessments may happen as they are endeavouring to legitimise their investing decisions in the companies' stocks (Ali 2011).

Conceptual model and hypotheses development

A conceptual model describes the relationship between variables investigated in the study (Maziriri, Mapuranga & Madinga 2018). In addition, Maziriri et al. (2018) add that a schematic diagram of the conceptual model helps the reader to visualise the theorised relationships between the variables in the model, and thus to obtain a quick idea about how you think that the management problem can be solved. In this study, the conceptual model suggests that perceived security risk, perceived privacy risk, perceived financial risk and perceived fraud risk are the predictor variables. In addition, the conceptual model also suggests that investor trust is the mediator variable. Moreover, the dependent or outcome variable for the current study model is intention to invest in online trading platforms. Based on a synthesis of the converging literature related to the research variables, a conceptual model was proposed to guide the empirical study, as shown in Figure 2.

Hypotheses development

Perceived security risk and investor trust

Zhang and Gupta (2016) stress that online security and trustworthiness issues have become increasingly serious and need to be addressed urgently. In their study entitled 'Trust, Risk, Privacy, and Security in e-Commerce', Pennanen, Kaapu and Paakki (2006) found that security has a direct influence on trust. In addition, Thompson, McGill and Wang (2017) added that online consumers are vulnerable to information security threats, as they must independently make decisions about how to protect themselves, often with little understanding of technology or its implications. Unfortunately, there is a lack of investigating on effective and efficient evaluations and measurements for security and

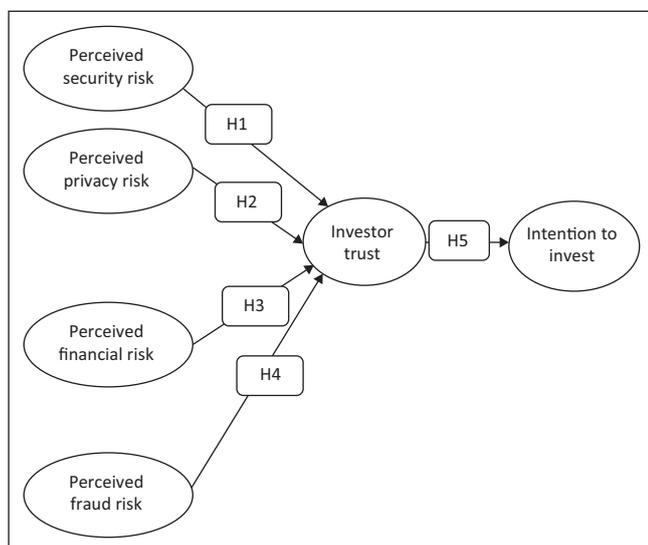


FIGURE 2: Conceptual framework.

trustworthiness of various platforms and applications, which has an effect on their further improvement and evolution. Therefore, concluding from the above-mentioned statements, it can be hypothesised that:

H1: Perceived security risk has a positive impact on investor trust among students at a selected university in South Africa.

Perceived privacy risk and investor trust

Privacy risk and investor trust have received much attention in the literature for their relationships with online transactions (Liao, Liu & Chen 2017). Hence, Bansal, Zahedi and Gefen (2015) argue that many online business exchanges require the disclosure of sensitive personal information on a regular basis and several factors could influence the extent of customers' trust and their willingness to disclose their private information on online platforms. Therefore, Alemany et al. (2017) claim that users are not often aware of privacy risks and disclose information in online social networks and online platforms and they do not consider the audience that will have access to it. In addition, Bansal, Zahedi and Gefen (2015) further explain that consumer trust is a central determinant of behaviour across situations because it determines the extent to which people are willing to depend on others. Consumers are terrified to disclose confidential information in case the information continues to spread and may reach an unexpected audience. Therefore, drawing from the aforementioned elucidations, it can be hypothesised that:

H2: Perceived privacy risk has a positive impact on investor trust among students at a selected university in South Africa.

Perceived financial risk and investor trust

It is essential to discuss the nexus between perceived financial risk and investor trust. Nevertheless, the existing literature is limited on this specific subject centred on the relationship between financial risk and investor trust. Hence, that is why Bashir et al. (2018) stated that there seems to be no direct research on the mediating role of consumer trust in the relationship between perceived financial risk and online purchase intention. In addition, Brooks et al. (2018) jointly advise that sometimes the risk tolerance and risk capacity of the consumer are established, even though online consumer trust is affected. Deducing from the aforementioned elucidations, it can be noted that investors may have lower levels of financial risk tolerance and become resistant to engage in online transactions with higher levels of perceived financial risk especially when it emanates from online trading systems, but we are also unable to cover that evidence. Therefore, deducing from the above-mentioned elucidations, it can be hypothesised that:

H3: The financial risk has a positive impact on investor trust among students at a selected university in South Africa.

Perceived fraud risk and investor trust

It should be noted that there are paucities in studies regarding the relationship between perceived fraud risk and investor trust. However, there are closely related studies that have

tried to elaborate about this relationship. For instance, Chae et al. (2007) elucidate that online transactions are vulnerable to many types of fraudulent conduct because online marketplace easily attracts fraud as it originates from a unique characteristic of Internet transactions. Therefore, Chae et al. (2007) equally support that the anonymity of the Internet may be preferred by honest traders for the protection of their privacy, while the opportunistic may take advantage of it and commit fraud. Therefore, Chang and Chang (2012) suggest that online consumers need a more proactive approach to protect their profits, such as an early fraud detection system. Therefore, Chen et al. (2015) jointly argue that Alibaba has built a fraud risk monitoring and management system based on real-time big data processing and intelligent risk models that captures fraud signals directly from a huge amount data about user behaviours and networking, analyses them in real-time using machine learning and accurately predicts the bad users and transactions. In addition, Aleem and Antwi-Boasiako (2011) enhance that other Internet auctions sites, including OXL Ricardo, ePier, Amazon and OnSale, have certain mechanisms to prevent fraudulent behaviour and build consumer trust. Therefore, drawing from the aforementioned elucidations, it can be hypothesised that:

H4: Perceived fraud risk has a positive impact on investor trust among students at a selected university in South Africa.

Investor trust and the intention to invest in online trading platforms

It is imperative to analyse the relation between investor trust and intention to invest in online trading platforms. Chaudhry et al. (2017) proclaim that consumers develop trust and invest more if their neighbour, friends or relatives have invested in the market. Hence, it can be noted that investor trust plays a merger role in online trading platforms. In addition, Wohlgemuth, Berger and Wenzel (2016) jointly assert that consumer trust within online trading communities is a nascent and largely untapped area of research. Hence, Bashir et al. (2018) add that a consumer's intention to invest is influenced by their trust in the online platform. Thus, it can be hypothesised that:

H5: Investor trust has a positive impact on the intention to invest in online trading platforms among students at a selected university in South Africa.

Research methodology

The research philosophy for this study was positivism. Quantitative research is to be based on a positivist paradigm of measuring variables (Rahman 2016). Hence, for this study a quantitative research approach was utilised. The design was suitable to solicit the required information relating to perceived security risk, perceived privacy risk, perceived financial risk, perceived fraud risk, investor trust and the intention to invest in online trading platforms. In addition, the approach enables one to examine the causal relationships with the constructs used in the study. Being quantitative in nature, the measurement instrument was compiled from

several existing scales that were adapted to suit the purpose of the study. Once scale reliability and validity were established, structural equation modelling (SEM) was used to test the model fit, followed by the hypotheses testing and path modelling. Structural equation modelling was performed using AMOS 25 software, and the descriptive statistics were obtained through SPSS 25 software.

Sample and data collection

The data for this research were collected from students studying at a university within the Johannesburg metropolitan area. These students were conceived as potential investors because they were exposed to finance and investment management education which is aimed to develop the student's knowledge on the discipline of financial markets and trading. Students from the faculty of Commerce, Law and Management at the university in South Africa constituted the sampling frame. With the end goal of this examination, the researchers chose university students as their sample claiming they have not been researched that much in the current literature and in terms of online trading as well as investment management, rather households are the typical group researchers focus their attention on or individuals in a more general sense.

The students had completed a preliminary subject in financial markets and investment management and therefore were considered to have a range of career options. These were individuals on the precarious edge of settling on basic vocation decisions on whether to pursue formal employment or concentrate in being investors in online trading platforms. The researchers chose university students as the target population claiming the objective of the examination was not to establish the actual investment behaviour of respondents, rather investment intentions. Thus, established business owners were inappropriate subjects.

Because the study was based on self-reports of students, the researchers cannot guarantee the durability of the investment intentions of these respondents. In terms of the sampling frame, a list of registered students within the database of the university was used as a sampling frame. Thus, a simple random sampling technique was used in this study because each element of the population had an equal and known chance of being selected as part of the sample (Weideman 2014), for instance every name within the list of students registered within the database of the university had an equal chance of selection. The questionnaires clearly stated that the anonymity of the respondents would be guaranteed and that the study was purely for academic purposes. The Raosoft calculator for sample size was used to calculate the size of the sample (Raosoft Incorporated 2004). The calculation considered the total enrolment of the student population which was of approximately 33 346, a 5% margin of error, 90% confidence interval and the recommended 50% distribution and returned a minimum sample size of 377 respondents. Of the

377 questionnaires distributed, 261 returned questionnaires were usable, yielding a response rate of 69%.

Data analysis

Initially, preliminary analysis of the data was conducted using the statistical software SPSS, version 25.0. Thereafter, an SEM procedure was applied to perform the hypotheses testing using the AMOS (version 25.0) package.

The questionnaire design

Research scales were operationalised based on prior work. Proper modifications were made to fit the current research context and purpose. Perceived security risk had nine items adapted from Hanafizadeh and Khedmatgozar (2012). Perceived privacy risk had nine items adapted from Featherman and Pavlou (2003) as well as Veloutsou and Bian (2008). In addition, perceived financial risk was assessed using six items adapted from Hanafizadeh and Khedmatgozar (2012). Perceived fraud risk was measured using six items adapted from Litter and Melanthiou (2006) and from Hansen, Saridakis and Benson (2018). Furthermore, investor trust was measured with eight items adapted from Ali (2011). Finally, intention to invest in online trading platforms was assessed using nine items adapted from Ali (2011) as well as Pavlou (2003). All were measured on a five-point Likert-type scale, 1 (strongly disagree) to 5 (strongly agree), to express the degree of agreement.

Respondent profile

Table 1 displays the depiction of the participants. The respondents were requested to report their demographic data, including age, gender, year of study and allowance. Most of the respondents were between the ages of 18–24 years, representing 73.9%. This was followed by those who were between the ages of 25–29 years, representing 13% of the total sample. This was then followed by those who were between the ages of 30–35 years, representing 8.4% of the total sample. The smallest group was those who were above 36 years, representing 4.6% of the total sample. Table 1 also shows the gender of respondents. The majority of the respondents were male, representing 48.3% of the total number of the study, followed by female respondents, representing 44.1%. The minority of the respondents who preferred not to state their gender represented 7.7% of the total number of the study. Table 1 illustrates the year of study of respondents, as well. Most of the respondents were first-year students, representing 33.7% of the total number of the study, followed by second-year students, representing 29.9%, then followed by third-year students, representing 22.2% and, lastly, followed by postgraduate students, representing 14.2% of the total number of the study. Moreover, Table 1 shows the allowance of respondents. The majority of the respondent's allowance was between 100 and 1000, representing 47.1% of the total sample, followed by the allowance between 1000 and 2000, representing 30.7%,

TABLE 1: Sample demographic characteristics.

Characteristics	Frequency	Percentage
Age		
18–24 years	193	73.9
25–29 years	34	13.0
30–35 years	22	8.4
Above 36 years	12	4.6
Total	261	100
Gender		
Male	126	48.3
Female	115	44.1
Prefer not to say	20	7.7
Total	261	100.0
Year of study		
1 year	88	33.7
2 years	78	29.9
3 years	58	22.2
Postgraduate	37	14.2
Total	261	100.0
Allowance		
100–1000	123	47.1
1000–2000	80	30.7
2000–3000	25	9.6
3000–4000	13	5.0
4000–5000	9	3.4
Above 5000	11	4.2
Total	261	100.0

followed by the allowance between 2000 and 3000, representing 9.6%, then followed by the allowance between 3000 and 4000, representing 5.0%, then followed by the allowance between 4000 and 5000, representing 3.4% and, lastly, followed by the allowance above 5000, representing 4.2% of the total sample.

Scale accuracy analysis

The scale accuracy analysis is presented in Table 2 followed by a discussion of the measurement scale reliability and validity.

Reliability

According to Nunnally (1978), the reliability of a measure is supported if Cronbach's alpha is 0.7 or higher. The results provided in Table 2 range from the lowest Cronbach's alpha (0.837) to the highest (0.956). Cronbach's alpha scores indicated that each construct exhibited strong internal reliability (Lee 2009). Therefore, Cronbach's alpha values of the constructs exceeded the recommended 0.70, thus meeting the required threshold and demonstrating that the constructs used to measure variables are very reliable for all the variables.

Table 2 shows the loading of each item on their particular construct. The lowest value for each respective item loading for the research constructs is 0.503. Therefore, all the individual item loadings exceeded the recommended value of 0.5 (Anderson & Gerbing 1988). This indicates that all the measurement instruments are acceptable and reliable because all the individual items converged well and with

TABLE 2: Scale accuracy analysis.

Research constructs	Descriptive statistics				Cronbach's test		CR	AVE	Factor loadings
	Mean value	Scale mean	SD	Scale SD	Item total	α			
Perceived security risk (PSR)									
PSR1	3.480		1.302		0.644				0.638
PSR2	3.690		1.257		0.690				0.683
PSR3	3.670		1.220		0.780				0.794
PSR4	3.730		1.267		0.788				0.818
PSR5	3.740	3.660	1.236	1.245	0.753	0.919	0.916	0.550	0.810
PSR6	3.550		1.153		0.640				0.686
PSR7	3.630		1.215		0.687				0.743
PSR8	3.750		1.275		0.726				0.759
PSR9	3.700		1.287		0.706				0.722
Perceived privacy risk (PPR)									
PPR1	3.420		1.263		0.512				0.571
PPR2	3.570		1.201		0.737				0.758
PPR3	3.570		1.198		0.708				0.722
PPR4	3.630		1.196		0.718				0.729
PPR5	3.640	3.652	1.156	1.198	0.755	0.905	0.900	0.502	0.766
PPR6	3.520		1.235		0.621				0.623
PPR7	3.620		1.197		0.640				0.668
PPR8	3.750		1.199		0.694				0.750
PPR9	3.830		1.138		0.713				0.764
Perceived financial risk (PFIR)									
PFIR1	3.570		1.233		0.611				0.675
PFIR2	3.590		1.213		0.595				0.620
PFIR3	3.570	3.638	1.135	1.202	0.565	0.848	0.850	0.487	0.612
PFIR4	3.600		1.227		0.680				0.771
PFIR5	3.700		1.222		0.638				0.731
PFIR6	3.800		1.205		0.697				0.762
Perceived fraud risk (PFR)									
PFR1	3.700		1.242		0.697				0.749
PFR2	3.730		1.212		0.734				0.801
PFR3	3.790	3.734	1.127	1.160	0.773	0.905	0.904	0.613	0.830
PFR4	3.740		1.154		0.756				0.817
PFR5	3.700		1.082		0.768				0.785
PFR6	3.750		1.145		0.703				0.708
Investor trust (IT)									
IT2	3.760		1.263		0.577				0.539
IT3	3.720		1.166		0.611				0.546
IT4	3.700		1.156		0.591				0.509
IT5	3.170	3.471	1.226	1.244	0.565	0.837	0.830	0.420	0.592
IT6	3.110		1.339		0.561				0.703
IT7	3.270		1.317		0.601				0.800
IT8	3.330		1.243		0.521				0.774
Intention to invest in online trading platforms (ITIOTP)									
ITIOTP1	3.110		1.358		0.727				0.827
ITIOTP2	3.140		1.280		0.845				0.876
ITIOTP3	3.120		1.288		0.869				0.864
ITIOTP4	3.110		1.314		0.787				0.871
ITIOTP5	3.110	3.149	1.340	1.328	0.838	0.956	0.959	0.712	0.850
ITIOTP6	3.130		1.340		0.830				0.795
ITIOTP7	3.180		1.343		0.830				0.897
ITIOTP8	3.300		1.317		0.852				0.865
ITIOTP9	3.130		1.375		0.807				0.736

SD, standard deviation; CR, composite reliability; AVE, average variance extracted.

more than 50% of each item's variance shared with its respective construct (Fraering & Minor 2006).

Composite reliabilities (CR) and average variance extracted (AVE) for each construct were also computed using the formulae proposed by Fornell and Lacker (1981:22), that is,

$$CR_{\eta} = (\sum \lambda_i)^2 / [(\sum \lambda_i)^2 + (\sum \epsilon_i)]$$

where CR_{η} is the composite reliability, $(\sum \lambda_i)^2$ is the square of the summation of the factor loadings and $(\sum \epsilon_i)$ is the summation of error variances.

$$V_{\eta} = \sum \lambda_i^2 / (\sum \lambda_i^2 + \sum \epsilon_i)$$

where $V\eta$ is the AVE, $\sum\lambda_i^2$ is the summation of the squared of factor loadings and $\sum\epsilon_i$ is the summation of error variances.

As shown from the results in Table 2, the least CR value of 0.83 is well above the recommended 0.6 (Hulland 1999), while the lowest obtained AVE value of 0.42 is also above the recommended 0.4 (Fraering & Minor 2006). This indicates that convergent validity was achieved, and this further confirms an excellent internal consistency and reliability of the measurement instruments used. 'As such, all pairs of constructs revealed an adequate level of discriminant validity (see Table 2). By and large, these results provided evidence for acceptable levels of research scale reliability' (Chinomona & Chinomona 2013:20; Chinomona & Mofokeng 2016).

Discriminant validity

The inter-construct correlation matrix is used to assess the validity of measurement instruments, specifically discriminant validity. Correlations among constructs were evaluated to see if they were lower than 1. The higher the correlation between variables is, the lower the validity of those variables. The inter-construct values are required to be below 0.6 and in some cases below 0.85 to indicate discriminant validity. According to Table 3, the highest correlation value was 0.668 and the lowest correlation value was 0.030. These correlation values are below 0.85 and, therefore, it can be concluded that there is discriminant validity between all the constructs (Morar et al. 2015).

Ethical considerations

Permission was granted through the research protocol graduate committee of one particular university within the Johannesburg metropolitan area. The researchers acquired the Ethics Clearance certificate from the designated Ethics Committee at the university before questionnaires were given out to respondents. The protocol number was H17/06/26. Ethical consideration was approved unconditionally and this research study acted in accordance with the ethical standards of academic research, which among other things is protecting the identities and interest of respondents and assuring confidentiality of information provided by the participants. Respondents gave their informed consent to this research and were informed beforehand about the reason and the nature of the investigation to ensure that participants were not misled. Despite all the above-mentioned precautions, it was made clear to the participants

TABLE 3: Correlation matrix.

Variable	PSR	PPR	PFIR	PFR	IT	ITIOTP
PSR	1	-	-	-	-	-
PPR	0.587*	1	-	-	-	-
PFIR	0.517*	0.669*	1	-	-	-
PFR	0.499*	0.576*	0.668*	1	-	-
IT	0.300*	0.412*	0.451*	0.490*	1	-
ITIOTP	0.030	0.122	0.119	0.097	0.593*	1

PSR, perceived security risk; PPR, perceived privacy risk; PFIR, perceived financial risk; PFR, perceived fraud risk; IT, investor trust; ITIOTP, intention to invest in online trading platforms.
*, Correlation is significant at the 0.01 level (two-tailed).

that the research was only for academic research purpose and their participation in it was absolutely voluntary. No one was forced to participate.

Structural equation modelling

Measurement model evaluation

A confirmatory model development strategy was followed to confirm the dimensional structure of the constructs used in this research as well as the level of internal consistency among the respective indicators. Precisely, a measurement model was specified using maximum likelihood extrapolation (MLE) technique. Initial model estimation was extrapolated at $CMIN/DF = 2.464 (< 3.0)$; $p < 0.01$. It is imperative to note that the significant χ^2 value is disregarded by researchers because of sensitivity of the index to large sample sizes and many indicators (Malhotra 2010). To overcome this limitation, Byrne (2010:77) proffers that a more 'pragmatic approach is to report on multiple indices that are not based on the central distribution'. Therefore, the following indices demonstrated adequate model fit as follows: $CMIN/DF$ 1.711, CFI 0.919, GFI 0.798, NFI 0.827, TLI 0.912 and RMSEA 0.052. Figure 2 depicts the CFA model.

Structural model assessment and hypothesis testing

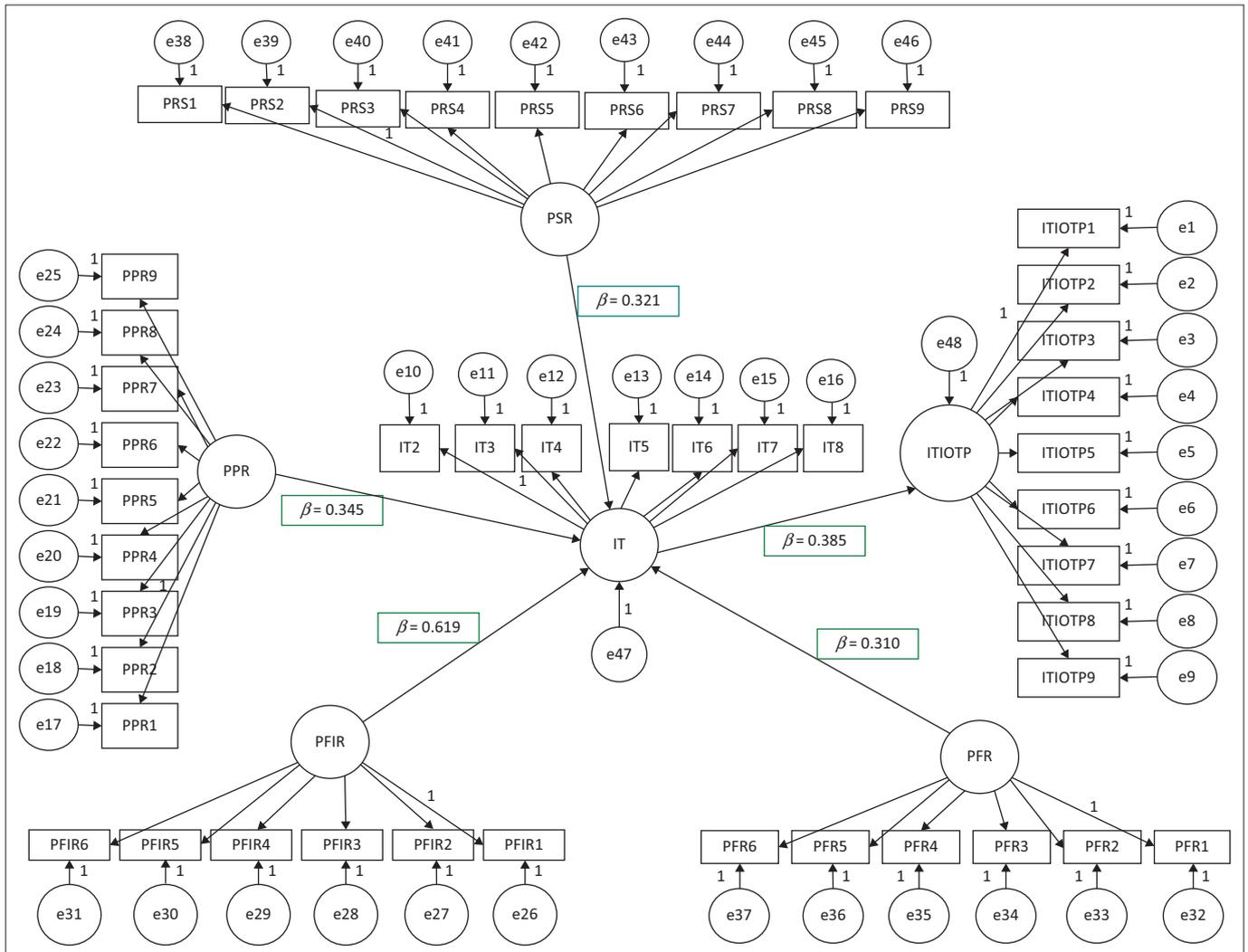
Results of the structural model analysis indicated that all the structural model fit statistics were within the tolerable ranges: $\chi^2/df = 1.711$; CFI = 0.919, IFI = 0.920; TLI = 0.912; RMSEA = 0.052. A good fit is normally deemed to exist when NFI, GFI and CFI are all greater than 0.9 (Chang and Chen 2009). Moreover, Figure 3 depicts a structure model. A structural model examination aims to evaluate strength and direction of relationships among constructs in a model (Lee 2009). Table 4 provide results from the structural equation modelling (SEM) analysis.

Outcome of hypotheses testing

In this study, testing of the hypotheses was determined by path coefficient values as well as the p -values for the structural model. In the model, relationships of constructs proposed in this study generate the coefficients of paths. Based on these coefficients, hypotheses are examined.

Outcome of testing hypothesis 1

Hypothesis 1 states that 'perceived security risk has a positive impact on investor trust'. Based on the results of the final model testing, the relationship between perceived security risk and investor trust shows a $\beta = 0.321$ at $p < 0.01$. This evidence demonstrates that hypothesis 1 is supported. Hence, it can be noted that students perceive security risk in investing in online trading platforms. It is also worth mentioning that these findings reinforce the results obtained in the study of Salimon and Yusoff (2015), who established that perceived security has an influence on e-banking trust.



PSR, perceived security risk; PPR, perceived privacy risk; PFIR, perceived financial risk; PFR, perceived fraud risk; IT, investor trust; ITIOTP, intention to invest in online trading platforms.

FIGURE 3: Final structural model of the study.

TABLE 4: Summary of the hypotheses testing.

Relationships	Hypothesis	Path coefficient	<i>p</i>	Remarks
IT ← PSR	H1	0.321	***	Supported
IT ← PPR	H2	0.345	***	Supported
IT ← PFIR	H3	0.619	***	Supported
IT ← PFR	H4	0.310	***	Supported
ITIOTP ← IT	H5	0.385	***	Supported

PSR, perceived security risk; PFIR, perceived financial risk; PFR, perceived fraud risk; IT, investor trust; ITIOTP, intention to invest in online trading platforms.

***, significance level $p < 0.01$.

Outcome of testing hypothesis 2

Hypothesis 2 asserts that 'perceived privacy risk has a positive impact on investor trust'. The final structural model presents the relationship between perceived privacy risk and *investor trust* results in a coefficient $\beta = 0.345$ at $p < 0.01$. Thus, hypothesis 2 is supported. These results mean that students perceive some privacy risk in investing in online trading platforms. It is also essential to mention that these findings corroborate the results obtained in the works of Gurung, Luo and Raja (2008), who elucidated that consumer's concerns about privacy influence how the consumer will trust an online company or perceive risk in purchasing from the company.

Outcome of testing hypothesis 3

Hypothesis 3 states that 'perceived financial risk has a positive impact on investor trust'. Based on the results of the final model testing, the relationship between perceived financial risk and investor trust shows a $\beta = 0.619$ at $p < 0.01$. This evidence demonstrates that hypothesis 3 is supported. In addition, these results imply that students perceive some finance risk in investing in online trading. The results obtained in this study are also in accord with Durmus, Ulusu and Akgun (2017), who examined the effect of perceived risks on online purchase intention through word of mouth and trust issues. Their study revealed that financial risk has an effect on trust.

Outcome of testing hypothesis 4

Hypothesis 4 asserts that 'perceived fraud risk has a positive impact on investor trust'. The final structural model presents the relationship between perceived fraud risk and investor trust results in a coefficient $\beta = 0.310$ at $p < 0.01$. Thus, hypothesis 4 is supported. This means that students perceive some fraud risk by investing in online trading. The result

obtained from testing this hypothesis is also in agreement with the literature. For instance, Rofiq (2012) emphasised that customers are reluctant to undertake e-commerce transactions if they perceive that cyber-fraud will threaten their decisions. Perceptions can be generated from incidents they have experienced or information they receive via friends and the press (Rofiq 2012).

Outcome of testing hypothesis 5

Hypothesis 5 states that 'investor trust has a positive impact on the intention to invest in online trading platforms'. Based on the results of the final model testing, the relationship between investor trust and the intention to invest in online trading platforms shows a $\beta = 0.385$ at $p < 0.01$. This evidence demonstrates that hypothesis 5 is supported. Hence, it can be stated that students perceive some trust risk when they want to invest in online trading. The results obtained in the current study are also not without empirical support. Empirical research has shown that trust increases customer intention to purchase a product from a company (Jarvenpaa, Tractinsky & Vitale 2000) as well as behavioural intention to return to that company (Doney & Cannon 1997). In addition, the findings obtained in this study have ample support from previous empirical research studies, such as the one conducted by Durmus et al. (2017), who found that trust has an effect on online purchase intention.

Recommendations and contributions of the study

According to Maziriri (2016:129), in-depth information, as a result of high involvement, functions to reduce risk and uncertainty. Known brands, knowledgeable sales staff and guarantees of satisfaction can help reduce perceived risks (Maziriri 2016:130). Consequently, it very well may be noticed that if students are exceptionally included with different online trading products and online trading financial companies, they will have more prominent learning of online trading. Truth be told, their trust in the choice of online trading platforms and their intention to invest in online trading platforms will be expanded, which prompts fewer students encountering perceived risk. The study will also be beneficial to online marketing managers, academicians and government. With regard to online marketing managers, the collective knowledge on the dimensions of perceived risks to invest on online trading systems will be advantageous to them in understanding consumer risk perception and how students attempt to reduce these risks. Therefore, this will help managers to implant risk-reduction strategies within the web-based systems to increase the prospect of students investing in their online trading platforms. Further studies have supported the notion, stated by Wallace and Sheetz (2014), that technology acceptance model purports that if a technology or innovation improves a person's performance and does not greatly increase the effort required to perform a function, it is considered useful and easy to use and the person will be more likely to adopt the technology, service or behaviour. To academicians, the study can be used as a

foundation for further evaluation and expansion on literature to determine strategies for risk reduction to attract online trading customers such as university students. To the government, the study can be used during the enforcement of contracts to financial institutions as well as during policy implementation.

Limitations and future research directions

The discoveries from this examination probably cannot be generalisable to students at other South African institutions of higher learning given the comparatively small student sample utilised and the investigation's core interest in a solitary university. Hence, future examinations ought to coordinate students from other institutions to expand the representativeness of the sample. Furthermore, focusing on university students just confines the generalisability of the discoveries as they do not speak to the entire populace of potential investors on online trading platforms, and, subsequently, different students at different secondary schools and other training academies ought to be incorporated into future investigations. In conclusion, the examination's quantitative character may have prompted the disregard of more illuminating and more extravagant information, which a qualitative methodology could have created had it been converged in the investigation. If need be, future examinations can investigate indistinguishable point from the present examination utilising a mixed method technique to upgrade the expansiveness of the examination results.

Conclusion

The primary purpose of this study was to provide direction for future research by developing a theory-based model for the intention to invest in online trading platforms among university students at a particular university in Johannesburg, South Africa. Online marketing managers can consider some insights from this study to improve consumer trust by developing a more positive attitude and enhancing loyalty towards the consumer's intention to invest in the online trading systems. Managers should also stay abreast of the recommendations that are shared online on social networks and online trading community websites. These recommendations, feedback and commentaries have a great impact on the attitude of students towards online trading. Therefore, managers should highly get involved by facilitating recommendations posted online by communities and other users to foster a more positive consumer attitude towards (behaviour) the intention to invest in online trading platforms.

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Competing interests

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Authors' contributions

E.T.M. was the project leader, formulated the concept, devised the structure of the paper, wrote the article and analysed the collected data. M.M. and N.W.M. were responsible for the review of empirical literature as well as writing the research design and methodology of this article. All the authors conducted the interviews with the respondents.

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Data availability statement

Data sharing is not applicable to this article as no new data were created or analysed in this study.

Disclaimer

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