

# **Impact of Consumer Multidimensional Online Trust-Risk in Adopting Togolese Mobile Money Transfer Services. Structural Equation Modelling Approach**

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## **Authors' contributions**

*This work was carried out in collaboration between all authors. Author KG designed the study, performed the statistical analysis, wrote the protocol, managed the analyses of the study and wrote the first draft of the manuscript. Authors TC and KKM managed the literature searches. All authors read and approved the final manuscript.*

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## **ABSTRACT**

Mobile money transfer (MMT) services could generate an extra revenue source for both banks and telecom services providers. Hitherto, this expectation is sluggish to emerge in Togo obviously. The determinants of MMT acceptance seem unrevealed because of consumer trust and perceived risk from the online platform. The research broadens this issue by concurrently groping multidimensional trust and multifaceted perceived risk. A sample was collected from the populace of Lomé –Togo which yielded 538 valid questionnaires. Directed by the conceptual framework, twelve hypotheses were proposed and tested employing structural equation modelling (SEM) techniques. Results revealed all trust antecedents (dispositional, technology, and vendor) trust to have a strong positive influence on trust. It is disclosed that perceived privacy risk is not only an utmost dominant factor for

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perceived risk but also the overall result. However, no statistical significance was shown validating perceived time risk on aggregate perceived risk, similar to the cost perception towards trust construct. While Trust negatively influences perceived risk, both factors with their antecedents found to explain the acceptance of MMT among Togolese consumers efficaciously. It enlightens further on the direction of the trust-risk relationship. The findings were discussed along with various implications and future research.

*Keywords: Mobile Money Transfer (MMT) services; user acceptance; trust; perceived risk; Togo; structural equation modeling.*

## 1. INTRODUCTION

Recent improvements in Information Technology, together with the potency of the internet/wireless and mobile device, has shaped and modeled various technological innovations, such as mobile money transfer (MMT). More online services have emerged, and continue promising virtual communities all parts of the world to resource consumers their need and wants. The service of MMT can be noticed as a facet of a broader perception including e-payment and banking industry when referring to mobile money. Although mobile money lack of standard definition among scholars; however, it encompasses all the different edges (micro-payment, long-distance settlement) purposely to convey financial services to the unbanked populace using mobile device technology [1].

Mobile money transfer is getting wide acceptance among lots of populace in developing countries especially when the traditional banking service is entirely unreachable for significant segments of these folks. Moreover, MMT is experiencing rapid growth with regard to banking transaction in many African markets and well pronounced where the population is uneducated predominantly from rural zones [2]. Numerous benefit incorporated in the application of MMT has been stressed in the past work. These advantages can be pictured into nine facets [3] such as financial transactions, easing social capital accumulation, improving money security, mitigating economic menace, creating employment opportunities, increasing savings, promoting financial autonomy, and promoting entrepreneurship. The early MMT service operated in Africa was M-PESA launched by Kenyan Safaricom in late 2007 [2]. A number of MMT services were introduced in many African nations after Kenyan edge as Tanzania, South Africa, Nigeria, Ghana [1]. From the angle of the Kenyan M-PESA, the service was prosperous when considering its wide espousal and satisfaction among its competitors [4]. In Togo,

the two mobile network service providers such as Moov and Togocel are the most MMT companies offering their services called respectively Flooz money being initiated in the year 2013 and Tmoney in 2016.

Despite ample efforts to increase MMT services adoption among Togolese consumers, the population of the virtual platform is still minor. With seven million of the population including four million subscribers to the two existing mobile network communication (2015), Togo is not a stronghold of mobile money. The country remains far from the champions in Africa like Kenya or even to a lesser extent the Ivory Coast [5]. Combined with these facts, there is also a considerable lack of academic research to investigate the reasons of avoidance from this MMT technology in Togo. This scarcity of knowledge and limited past research are emphasizing the necessity for further studies.

Equally, the understanding of the factors affecting the adoption rests a pivotal phase headed for the Diffusion of Innovation (DOI). Innovation refers to practice or object that is seemed novel by an individual or other entity of adoption [6]. Likewise, MMT is reflected as an innovation amongst the Togolese consumers due to the new transition of the financial transaction process from a brick-and-mortar being tradition banking industry to a virtual seller via wireless and mobile devices. Further, Tobbin & Kuwornu [1] have argued that e-money will replace paper money and face-to-face financial transaction. This expectancy dwells not to materialize so far.

The question lingers to understand what might create consumers reluctant of MMT acceptance in Togo. MMT service is part of mobile financial services or information system (IS) which use the internet/ wireless communication for the transaction process. Previous studies have revealed the enormously growing of the Internet-based, wireless and digital attacks thus bestowing multiple situations including identity

theft, breaches of personal privacy [7,8,9,10]. Moreover, a main study on mobile financial services and other e-money technologies has exposed diverse types of risks. Research has shown that the users' trust by providing private and financial information remains one of the decisive factors for the effective M-banking [11], mainly among clients with higher experiences [12]. Mayer et al. [13] went on to stress a close relationship between trust and the concept of perceived risk. One of the benchmarks delineate trust is the risk, thus when there is no risk, the prerequisite for trust would not ascend [14,15].

These causes of trust, risk perceived and other might have an unfavorable influence on Togolese consumers' adoption decision making to use MMT. In line with previous marketing researchers, it is pointing to an important role the multidimensional analysis plays for providing an adequate understanding of consumer risk perception [16,17,18,19] thus consumer trust as well.

Purposively, this research study is to test these potential factors in more convincing ways by emphasizing on the multidimensionality of trust and perceived risk aspect. In this respect, the paper expects to establish a model that could predict the influential factors towards the acceptance of MMT in Togo.

The contribution of our study has both theoretical and practical dimensions. Theoretically, it will support the current body of knowledge by offering new insight into the concomitant role of consumer multidimensional trust and multifaceted perceived risk in the context of an MMT adoption. Practically, the research will patronize e-businesses cultivate strategies to promote the particular antecedent of trust enhancing the overall trust and ultimately increasing MMT sales. To mitigate the exact types of perceived risk found to influence the aggregate perceived risk positively.

## **2. LITERATURE SYNTHESIS**

### **2.1 Theoretical Foundations and Relevant Concepts**

The point of departure for any empirical examination necessitate a passed through exhaustive theoretical basis [20]. Indication towards a worldwide established theoretical basis should be set for preference to unveil validity and theoretic accuracy. Throughout this

study, being an exemplification drives, we intend pursuing to ascertain and probe the factor driving the slow adoption of mobile money transfer service in Togo. Particular interest is placed on the problematic allied with user acceptance of MMT in the multidimensionality of trust-risk perception. Studies on the MMT which are assumed that research on the acceptance of IS artifacts, under which such investigation can be incorporated, belong to the main study directions of IS [21]. From this angle, often being said that it is substantially the concerns of the adoption, and less of eventual sophistication abilities, of an information system artifact that creates the awareness of its interest [22].

Into view, the existing research towards the adoption of IT tends to emphasize on the technology adoption theories [23]. These theories predominantly based on the consumer behavior decision making capture the Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB), Diffusion of Innovation (DOI), and Technology Acceptance Model (TAM). Each of these theories has a different assumption that governs their existence. For instance, TRA model [24] specifies that a particular behavior is directed individual's intention to carrying on that actions which itself joint on the attitude to behavior and subjective norms. In the context of TPB [25], perceived behavioral was added to the attitude to behavior and subjective norms that influence both intentions of people's behavioral and actual behavior. The theory of adoption and DOI [26] is a convenient systemic contextual to reflect either acceptance of new technology or not. This theory assumes that an individual will be more likely to welcome an innovation centered on the innovation facets and appearance of relative advantage, compatibility, intricacy, trialability, and observability [27].

The TAM model [28] viewed as the extension of TRA, and TPB models supported the effect of perceived usefulness and perceived ease-of-use factor to impact actual behavior concerning innovation. TAM considers that an individual's approval of an information system, assess by usage intention, is directed by the two most important variables such as perceived usefulness and perceived ease-of-use. TAM studies have received an extensive application in many online services worldwide [29,30]. This phenomenon leads to the report that TAM represents one of the few theories solely to the IS field that have acquired not only far-reaching espousal in the arena but also noticeably high levels of

development and accuracy [21]. The key supremacy incorporated in TAM is the parsimony and explanatory power of the model [31] and the well-studied and validated measurement inventory with high points of construct reliability and validity and measurement scales [22,32]. Of all models that have been projected to enlighten the adoption/or rejection of IS artifacts, TAM [22] [28] remained to be the most influential one.

Although all the benefit involved in these IS theories, preceding literature review shown a plethora of critic amongst the circle of scholars concerns each application. This is the case when TRA theory requires further explanatory variables [33,34]. For DOI, the relationship between attitude and acceptance of innovation were restricted [35,36], both the innovation-decision process and structures of innovation rest to be ambiguous. Understanding the extensive application of TAM being a useful concept [37]; conversely, it has to undergo the concerns of adjusting and reducing information richness engender through the studies [38].

The prevailing models, albeit revealing online consumer adoption state, many scholars acknowledge that they remain not adequately robust to gauge all facet consumer purport considered inevitably through several phases of the adoption, so necessitate integration [39]. Interestingly, Fichman & Drive [40] argued that most research of IS adoption be delineated to employing a general model that limited to explain the reason for the specific characteristics of the research environment.

From these above views along with the work of George [41] on earlier information acceptance models, trust considerations shown to have significant laudatory and backup for an online vendor. Whenever trust issue arises, the risk is the next perception come out to assess the importance of the situation involved. The concept of trust is absolute a keystone for situation capturing uncertainty revealed to trusted parties [42]. Numerous theories on trust have been recognized and predicted the high power trust has on person day-to-day activities. Amongst the broad concept developed, there is a consideration that trust is not only about one-time relations, but also grows as people interrelate with each other [42,43]. To boost, studies on trust and perceived risk concept in multiple facets shown that these two elements are among the

leading factors driving mobile banking adoption [44], this could be used in MMT.

Understanding that the acceptance of MMT is vital for both an MMT company provider and consumer decision-making for long-term outcome; therefore, the function of trust-risk dwells more likely a crucial stage. Following the limitation from past theories that suggest for a distinctive conceptualization, and defining the trust-risk concept in the multidimensionality, we propose an apriori model of MMT adoption.

## **2.2 Conceptual Model and Hypotheses Development**

Fig. 1 presents the proposed model for the study of MMT acceptance on trust- perceived risk multi-dimension aspect. The next section will provide the theoretical background for each of the hypotheses presented in the model.

### **2.2.1 Antecedent of trust in mobile money transfer**

The conception of trust reveals a complex multidimensional and context-dependent pattern [45]. Calnan & Sanford [46] underline the prominence of individuals in developing trust, rather than broader systems and methods. Trust is acknowledged as a strong persuading factor on behavior intention offline and online. Moreover, trust is not only crucial and much stressed for online [47], but also it embodies the precondition of the digital economy indeed [48]. Trust can be viewed as the willingness of one party to be jeopardized by the actions of another party expecting that the other will achieve the designated task required to the trustor [13]. Following various researchers understanding on the prerequisite to study the most vital aspect of trust [49], the present study expects to incorporate dispositional trust, technology-trust and vendor-trust in the trust construct. Trust is centered continuously on at least one quality or feature of a trustee [50].

Rotter [51] began by elucidating trust as a disposition vis-à-vis to the world and the people in it. This delineation has then developed to be more content and situation-specific. Disposition to trust remains necessary for the formation of initial-trust and subsequently, offer to less meaning in the presence of pre-existed trust belief [52]. The previous studies have shown that disposition to trust has a noticeable and direct impact on the development of trust [53,13,54,55].

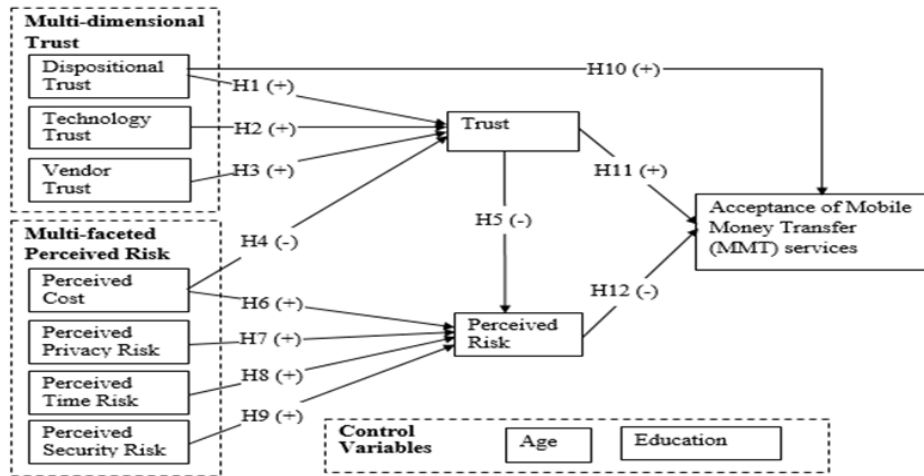


Fig. 1. Proposed research model

The prior study discovered that trust in mobile commerce could also be distinguished between twofold: firstly Trust in mobile technology and secondly Trust in mobile vendors [56]. Technology Trust considered as an antecedent of trust refers to the willingness of someone, or individuals technological reliance to accomplish an essential duty by the optimistic characteristic involved in the technology [57] and the advantage resulted from the actual technology [58]. On this view, Technology Trust refers to the role of technology in building a trusting relationship with the user [59]. It is followed that when MFS user considers the technologies used to be reliable and steady, then the likelihood to evaluate the aggregate service more favorable and trustworthy will increase. Vendor trust reflects the degree to which the purchaser perceives and rely on the seller that, he/she will undertake the designated transactional requirements in a risky situation [60]. Past studies have shown an adverse relationship that involves an online vendor’s opportunism and online consumer’s trust [61].

Based on the prior research carried out [62,63], perceived cost so-called perceived financial cost could denote the degree to which an individual believes that using technology/MMT will cost a certain amount of money. For instance, Yang [64] found mobile banking adoption to either highly be promoted by economic factors including a benefit in transaction fees or discouraged by the issues of basic connection fees. This study considers that higher perception of the cost will reduce consumer trust to accept MMT. Therefore, we can postulate the following

three assumptions to inspect the causal relationships between trust’s antecedents and trust in the acceptance of MFS.

- H1: Dispositional Trust has positive impact on users’ trust of MMT usage
- H2: Technological Trust has positive impact on users’ trust of MMT usage
- H3: Vendor Trust has significant positive impact on users’ trust of MMT usage
- H4: Perception of cost would have negative impact on users’ trust of MMT usage

**2.2.2 Antecedent of perceived risk in mobile money transfer**

Consumers aspire to manage the risk coupled with transactions. Perceived risk is regarded as an essential concept of consumer behavior and is mostly employed to enlighten risk perceptions as well risk reduction methods applied by consumers [65].

The perceived risk remains consumers’ subjective anticipations of loss [66]. It implies that any action of a customer will generate outcomes which he/she unable to forestall with whatever approaching conviction, and some of which at least are probably to be displeasing [67,68]. In marketing orientation, past studies advocated the prominence conception of the consumers’ perceived risk in the multidimensional level purposively to get a complete analysis of their effect [16,17,18,19,69]. This concept of perceived risk was classified under five dimensions in the earlier works [70,71,72] such as perceived (functional, financial, physical,

psychological and social) risk. For some other scholars like Featherman & Pavlou [69] which investigated on the consumer's adoption of e-services, viewed perceived risk dimension as economic risk, social, time risk, functional risk, psychological risk, and privacy risk. To date, perceived risk studies continue to enlightening both offline and online risk purchasing behavior. Case in point, research revealed that consumers exposed some doubtfulness in filling a merely internet buying transactions info [73], generally due to risk concerns [74,30].

In term of financial risk, Zielke et al. [75] explained this risk as the likelihood of a monetary loss once a poor purchasing choice/decision being made. Regarding perceived cost risk, the influence of price-quality relationship that consumers develop plays a dynamic role in perceived financial risk [66,68]. Therefore, the perceived cost risk is demonstrated to impact the adoption of mobile banking negatively [76].

Bellman et al. [77] informed regarding the eminence of time risk and argued that it is a strong predictor of online buying behavior. Bestowing to his outcome, those consumers who were in haste and exhibited less time, are more plausible to buy on the internet. This research put forward that MFS consumers might be time-oriented users, hence, could value the potential time spent to search for info, making a choice and conducting a financial transaction.

Security/privacy risk can be considered as an intrinsic loss undeviatingly to fraud or hacktivist haggling the security of end-user throughout online service [78]. Looking at the different angle of the perceived risk antecedents, previous investigations on trust-risk relationship found that the willingness to take risks is a general feature of all trust circumstances [79,80]. For that reason, consumer trust could be observed and subjected to the level of the intricate risk involved in the situations [81]. Furthermore, previous studies confer that a lessening in risk perception clues to raising the likelihood purchasing power, so mitigating perceived risk remains beneficial to increment customer trust [82].

Granting researchers emphasize on the trust-risk relationship [83], only very sparse theoretical and empirical support has been adapted in mobile money transfer arena. This current study expects to follow previous research on perceived risk dimension particular the work of Featherman et

al. [69] and restructured them according to the literature and the views of various role players of MMT. Intrinsically, these multifaceted risks are the perceived privacy risk, time, security and financial in the form cost perceived. We then can theorize the subsequent assumption.

H5: user's trust would have an adverse influence on the perceived risk in MMT.

H6. Perceived Cost of the MMT services is positively related to consumer aggregate perceived risk

H7. Perceived privacy risk towards MMT services is positively related to consumer aggregate perceived risk

H8. Perceived time risk towards MMT services is positively related to consumer aggregate perceived risk

H9. Perceived security risk towards MMT services is positively related to consumer aggregate perceived risk.

### **2.2.3 Antecedent of mobile money transfer adoption**

Identical to online transactions, MMT also embroils innumerable uncertainty and risk. Fundamentally, trust remains imperative to easing mobile user behavior. Being an essential conception of many Information Technology acceptance theories, the construct dispositional trust is tied to the general predilection in which people display confidence or belief in humankind and espouse a trusting standpoint concerning others [84]. It implies, a disposition to trust can then be regarded as one type of personality trait. Arguably, new customers are enforced to ground their trust mainly on their socialized disposition to trust [53] purposively to adopt MMT.

The concept of overall trust plays a fundamental and incentive role in behavior decision generally [85,86]. A consumer that has a higher disposition to trust or trust would probably use MMT than the one with lower disposition. Similarly to every other business transactions, MMT environments necessitate a component of trust [87].

On the perspective of risk involved in IT, previous findings enlightened on consumers' effort to mitigate risk rather than optimize utility. A consumer's subjective perception of risk can thus toughly govern behavior [19]. Numerous studies sustained the negative influence the perception of risk has on online usage and purchasing behavior [88,89,90].

On the similar view, past scholars established that the more is risk perceived by consumers in buying circumstance, the less probable he/she will be committed to buying [91]. One of the factors that could also directly influence MFS adoption is the cost or fees of the service provided. An individual's perception of cost reflects the extent to which the consumer cogitates price comparative to his or her disposable income that is significant [92]. The more noteworthy the procurement is to the client, the higher the risk anticipated in term of cost or monetary together with its related attribute is perceived.

Since this section of the study focuses on elements that molded and formed MMT adoption, we can then identified them rightly, and the replication should be verified as follows:

- H10: Disposition to trust would positively influence the adoption of MMT.
- H11: consumer Trust would positively affect the acceptance of MMT.
- H12: consumer risk perception would negatively influence the adoption of MMT

### 3. METHODOLOGY

#### 3.1 Survey Technique and Respondents' Rate

To test our research model, we engaged in an empirical study using data from the self-survey questionnaire. The survey respondents were the populace of Lomé (capital of Togo) with particular attention toward localities that could appear abunds in MMT application and who voluntarily contributed to the survey. The survey instruments were either adopted or adapted from a comprehensive literature review [45,55,44,90,69] to confirm content validity, added to the items intended to collect the demographics of participants. The draft of the questionnaire was created in the English language then translated into French (the official language of Togo) for its analysis. The two questionnaires format (English and French) have been retained as to escape any confusing associated with the scope, purpose or content. Moreover, keeping them was vital purposively to compare the versions for discrepancies concerns if there is a need. Following the recommendation of Peace et al. [93], the iterative review process was undertaken by some experts in the field of mobile financial services to maximize content validity and ascertain unclear worded. Ensuring

on the suggestion from these experts, redundant and perplexing items were either modified or deleted.

538 subjects returned entirely completed questionnaire, both ready and yielded usable samples. The sample entails of more males (54.6%) than females (45.4%). The respondents' age ranging from  $18 \leq$  and  $31 \geq$  years old with a maximum frequency of 199 (37%) within the 25-30 age group. Out of 538 respondents, 65.2% respondents have at least experienced MMT services in term of mobile financial service, and 34.8% respondents are not MMT users. Almost half of the participants (50.4%) got Bachelor degree and above whereas the remaining (49.6%) have Baccalaureate or even are uneducated.

#### 3.2 Data Analysis

We employed structural equation modeling (SEM) with regard to analyze the collected data and assess the research model. SEM is a statistical technique that integrates factor analysis (based on measurement model) and path analysis (based on a structural model) [94].

To start, we initially employed an exploratory factor analysis (EFA) to check whether there might have any essential deviation regarding the structure of the adapted constructs. Moreover, a two-step procedure, suggested by Anderson & Gerbing [95] was implemented on the data analysis. The first step focuses on the analysis of the measurement model by using confirmatory factor analysis (CFA) whereas the second one tests the structural relationships among the latent constructs. The former is, nevertheless, a precondition for the latter as it only standing to reason to estimate the structural model when the measurement model indicates evidence of reliability and validity [96]. IBM SPSS Amos-21 was employed mainly.

##### 3.2.1 Measurement model

The internal consistency (reliability) statistics were evaluated by Cronbach's alpha and composite reliability (Dillon Goldstein's Rho) which results are portrayed in Table 1. All Cronbach's Alpha and composite reliability values exceeded the acceptable level of 0.7 [97]. Hence, all of the questionnaire items were considered reliable.

**Table 1. Reliability and validity trough CFA**

		<b>CR</b>	<b>AVE</b>	<b>MSV</b>	<b>MaxR (H)</b>	<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>	<b>(6)</b>	<b>(7)</b>	<b>(8)</b>	<b>(9)</b>	<b>(10)</b>
<b>(1)</b>	DTrust	0.846	0.647	0.227	0.848	<b>0.804</b>									
<b>(2)</b>	PPrivR	0.933	0.779	0.133	0.965	0.108	<b>0.883</b>								
<b>(3)</b>	VTrust	0.904	0.704	0.087	0.975	0.216	0.067	<b>0.839</b>							
<b>(4)</b>	PCost	0.860	0.609	0.057	0.979	0.168	0.157	0.155	<b>0.780</b>						
<b>(5)</b>	AdMFS	0.855	0.664	0.227	0.981	0.476	0.020	0.230	0.144	<b>0.815</b>					
<b>(6)</b>	TTrust	0.843	0.577	0.056	0.984	0.236	0.061	0.114	0.011	0.235	<b>0.760</b>				
<b>(7)</b>	PRisk	0.856	0.600	0.133	0.985	0.041	0.365	0.044	0.238	-0.022	-0.072	<b>0.775</b>			
<b>(8)</b>	PSecurR	0.811	0.594	0.065	0.987	0.127	0.155	0.113	0.232	0.091	0.035	0.255	<b>0.771</b>		
<b>(9)</b>	PTimeR	0.798	0.571	0.013	0.987	0.102	0.098	0.065	-0.004	-0.035	0.086	0.075	0.115	<b>0.756</b>	
<b>(10)</b>	Trust	0.820	0.610	0.087	0.988	0.228	0.051	0.295	0.064	0.198	0.216	-0.042	0.019	0.104	<b>0.781</b>

Note: DTrust-Dispositional Trust; TTrust-Technological Trust; Vtrust-Vendor Trust; PPrivR-Perceived Privacy Risk; PTimeR-Perceived Time Risk; PSecurR-Perceived Security Risk; PCost-Perceived Cost, PRisk-Perceived Risk; AdMFS-Adoption of MFS



The convergent validity of the scales was assessed when computing the average variance extracted (AVE) which measures the percentage of the variance of the measurement items that can be attributed by the constructs regarding the measurement error. Table 1 displays that all of the AVEs range from 0.571 to 0.779, which result was found higher than the cut-off value of 0.5 thus satisfying criteria for convergent validity [98].

Moreover, we tested the discriminant validity by examining the scope of which a latent construct differ indeed from other latent constructs [99]. To confirm this, there was a need to compare the square root of AVE (on the diagonal in Table 1) to all inter-factor correlations. Following the recommendation of Hair et al. [100], the results validated the discriminant validity of our constructs in all cases, as the square root of AVE found to be greater than the off-diagonal components in the corresponding rows and columns. Moreover, the mean shared variance (MSVs) is less than AVEs as shown in Table 1.

**3.2.1.1 Multicollinearity assessment**

In regression or SEM analysis, the prerequisite is to attempt maximizing the correlation among exogenous and endogenous. Conversely, the explanatory variable and measuring items are expected to reflect trifling correlated [101]. For validating this notion in our study, multicollinearity should be tested [102,103]. The study assesses the degree of the multicollinearity issues by probing on Variance Inflation Factor (VIF) for all of the exogenous variables simultaneously. The VIFs were all below 2.0, clarifying that the exogenous variables are all different [102,103]. Therefore, no significant multicollinearity problem exists concerning our data.

Meanwhile, we premeditated Table 2 to depict the goodness of fit of the measurement model (i.e., for CFA) along with structural model (i.e., for SEM). In sum, we can infer for all indexes that, our measurement model were reasonably fitted to a dataset which shows sufficient goodness of fit [104,105,106] (Table 2). Hence, constructs generated by this measurement model could be employed to test the conceptual model and the related hypotheses.

**3.2.2 Structural model analysis**

The unpremeditated relationships that arise between model constructs are specified via the structural model [107]. The evaluation of the structural model includes measurement of the path coefficients and R<sup>2</sup> values. The standardized paths in the structural model are portrayed from the Table 2 with several model fit indices. All the various indices were within the respective threshold.

Reliable and valid outer model enables to compute the inner path model estimate. To do so, we employed the coefficient of determination R<sup>2</sup> (square multiple) of the endogenous latent variables. The result of our three endogenous variables such as trust, perceived risk, and adoption of MMT have R<sup>2</sup> of 15.5%, 24.5%, and 13.1% correspondingly (See Fig. 2). These R<sup>2</sup> values fulfill the threshold value of 0.10 or above suggested by Falk & Miller [108] implying that the variance explained by the endogenous variables has both practical and statistical significance. After assessing model fit and data variation explained, we proceed to test each hypothesis based on the statistics resulting from the magnitude and significance of its standardized path as shown in Table 3.

**Table 2. Goodness of fit (CFA and SEM)**

Indices	CFA value	SEM value	Thresholds
$\chi^2$	1068.904	30.155	Pval>0.05
$\chi^2/DF$	2.104	2.010	1< $\chi^2/df$ < 3
RMS or RMR	0.066	0.015	<0.08
GFI	0.889	0.991	>0.90
AGFI	0.862	0.952	>0.80
NFI	0.900	0.942	>0.90
CFI	0.944	0.967	>0.93
TLI	0.935	0.853	0<TLI<1, TLI > 0.9
RMSEA	0.045	0.043	<0.05 excellent fit ; <0.08 good fit

Table 3. Non-standardized coefficients ( $\beta$ ) of the model

Hypothesis	Construct	Paths	Construct	Estimate: Actual $\beta$ value	S.E.	C.R.	P	Supported?
H1	DTrust	→	Trust	0.206	0.049	4.241	***	Yes
H2	TTrust	→	Trust	0.225	0.044	5.102	***	Yes
H3	VTrust	→	Trust	0.249	0.036	6.915	***	Yes
H4	PCost	→	Trust	0.019	0.036	0.538	0.590	No
H5	Trust	→	PRisk	-0.070	0.036	-1.968	0.049	Yes
H6	PCost	→	PRisk	0.146	0.033	4.473	***	Yes
H7	PPrivR	→	PRisk	0.309	0.034	8.987	***	Yes
H8	PTimeR	→	PRisk	0.032	0.033	0.951	0.342	No
H9	PSecurR	→	PRisk	0.142	0.03	4.805	***	Yes
H10	DTrust	→	AdMFS	0.355	0.05	7.166	***	Yes
H11	Trust	→	AdMFS	0.108	0.041	2.643	0.008	Yes
H12	PRisk	→	AdMFS	-0.097	0.042	-2.294	0.022	Yes

\*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$  level of significant

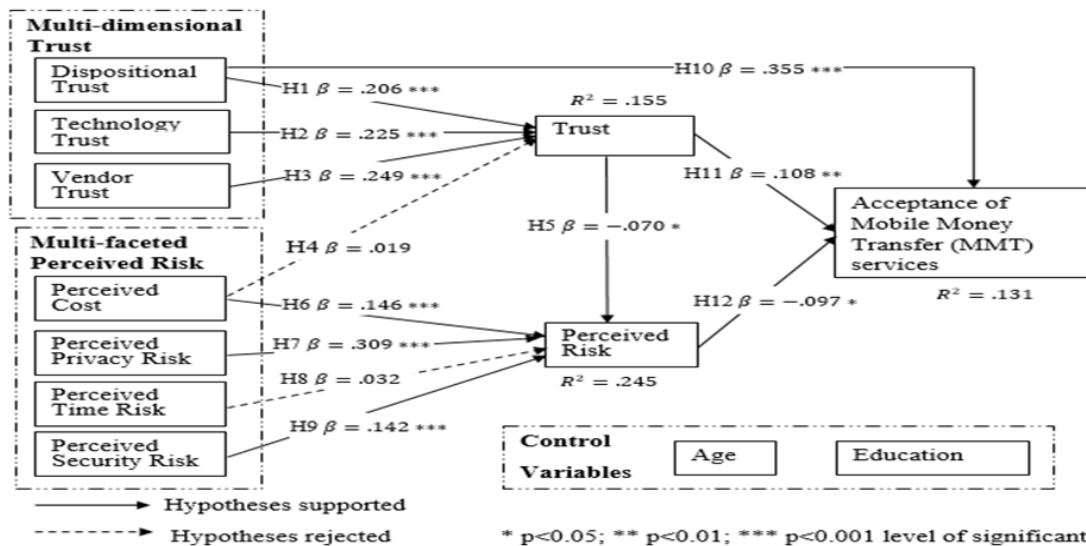


Fig. 2. The analytic model of the study

#### 4. CONCLUDING REMARKS

Prior studies have acknowledged that online purchase decisions are intrinsically risky, and thus trust could be a vital factor in offering consumers the assurance they require to involve in such transactions [109,110,111]. So far, many scholars have not thoroughly explored how multidimensional trust and multifaceted perceived risk may operate in grouping to impact the adoption decision and what kinds of trust and risk antecedents show a notable role in the consumer decision making.

The drive of this research is to investigate the complex relationships between the trust-risk multidimensionality and the acceptance of MMT

systematically. To these end, we developed and tested a research model of MMT (after reviewing previous related works) that identifies that trust and perceived risk with their relevant antecedent have some impact on the acceptance of MMT in Togo. The summary of the output with the various implication is clarified in the next section.

#### 4.1 Recommendation to Managers

It should be pointed out that all hypotheses were tested when controlling for age, and education. The purpose of controlling variables is to patronize reducing the unrelated effect. Besides, its usage helps to refine the robustness and validity of the result. Regarding the relationships amongst the various variables, the research

accounts for the p-value column allied with each variable where the related p-value less than 0.05 imply significant relations attached.

Finding reveals that ten of the twelve hypotheses were supported (see Table 3). The discussion section is arranged to be under two sections. The primary section reveals the hypotheses geared toward trust. The second section combined hypotheses related to the perceived risk along with the direct antecedent of MMT acceptance.

From this perspective referring to the first section, we then consider hypotheses regarding consumer trust such as dispositional trust, technological trust and vendor trust yielding path coefficient of 0.206, 0.225 and 0.249 correspondingly which results were found to impact trust, supporting then H1-H3. However, H4 ( $\beta = 0.019$ ,  $p > 0.05$ ). Empirical evidence is found to back H1 enlightening that consumers' disposition to trust continue to influence the general trust strongly [112]. Though many studies lack to delineate the direction of this relationship clearly, our study acknowledges that disposition to trust affects positively general trust. Accordingly, we can then expect consumer with higher trust disposition to be more likely acting positively toward e-vendor [53] than those who might necessitate more information [113]. Past research on e-commerce support H2 where Pavlou & Ratnasingam [114] have implicitly integrated the notion of trust in technology toward general trust with its significance being emphasized as a facilitator of adoption. The outcome of H3 remains consistent with earlier research finding to ascertain vendor trust as a multidimensional and leading pillar which the salespersons might exploit to build consumer trust [84].

The finding towards the supported hypotheses under this section signposts that consumer behavior in an online business particularly MMT is largely decided by their trust in the well-established, trustworthy environment, not such much by their trust in the single e-venders.

Recall that this study discloses no empirical evidence to accept H4 by which perceived cost affect consumer's trust to use MMT. Thus it is noteworthy to comment that this result differs from other studies such as Benazić & Tanković [115] that stressed perceived cost in an online setting to have an adverse impact on building trust, therefore, affecting future consumer behavior. In the educational arena, research

finding shown a positive influence education cost have on student trust [116]. In our study, the rejection of H4 could be considered as consumers have no much interest on the variance of cost which is expected to affect their trust in MMT.

The second section starts with the various antecedent of perceived risk. The influence of trust (H5), perceived cost (H6), perceived privacy risk (H8) and perceived security risk (H9) on aggregate perceived risk construct were confirmed with the coefficient of -0.070, 0.146, 0.039, and 0.142 respectively. These results are consistent with many online prior studies. Concerning H5, a similar observation was made among a plethora of studies [117,118,119], which found that trust alleviates consumers' perceived risk in online, therefore, [120] influence benefit perception in e-commerce. We can infer from the current result that, trust plays a pivotal role in shaping the perceived risk from the community of MMT companies' providers. Furthermore, its moves a step further to slightly clarify trust as an antecedent of perceived risk which concerns were preserved uncertain partly from earlier works [13,121,83].

The finding from H6 to H9 is predominantly supported by the work of Featherman & Pavlou (2003) where these factors can be considered as multi-faceted of perceived risk. More precisely, perceived privacy risk is revealed being the influential paramount factor impacting the aggregate perceived risk in IS with an emphasis on MMT. Customers' data and transactions should be preserved from hackers and third parties who could interact with clientele for commercial intents.

We can assume that when these single risks are diminished towards the aggregate perceived risk, consumers' decision to use MFS will be increased.

The study led to the hypothesis (H8) being rejected; perceived time risk does not have a negative influence on aggregate perceived risk. This study supports the previous research on assessing both the perceived benefit and sacrifice factors among self-services technology in Togo, in which time risk consideration was found minor compared to the remaining sacrifice factors [122]. However, our results are contradicted by prior online services research [123]. This might be because consumers or potential consumers could have MMT support

system or an experienced person which assist in term of time spent on the service. MMT services providers companies are advised to continue preserving those features facilitating the provided services such as time dedicated to information searching, transaction process, and other related time aspects.

The diverse influence of dispositional trust, trust, and perceived risk to the acceptance of MMT services was confirmed. Then, H10, H11, H12 were accepted as their relationship corroborate with the coefficient of 0.355, 0.108, -0.097 correspondingly. The finding from H10 is in line with the result of previous empirical studies and other e-services [124]. Equally, H11 is consistent with the earlier finding that trust in business remains an inherent and crucial motivation element of behavior in general [85,125,86] and the facilitator factor of MMT service acceptance.

Moreover, the finding of H12 is coherent with Mitchell & Nygaard [19] that consumers' perceived risk is the primary element needed to understand purchasing or adoption behavior since they recurrently focused on preventing error more than to capitalize on utility in purchasing. The consideration of perceived risk is of paramount importance because of its intricacy as a factor to be ascertained by the online consumer.

The overall result confirms that trust becomes imperative because the risk is present [126].

Cultivating trust and decreasing risk in online services would contribute to increasing the level of consumers' engagement in MMT business. To these ends, MMT companies with an in-depth diligent of these risks could adjust their value proposition equally and create a more efficient trust-risk building in the market environment. For these services to foster, success is a must. Companies dealing with MMT services are advocated to understand these divergences towards the virtual payment which are beneficial for the definition of strategies oriented to the users of the designated systems. We are then satisfied with the overall finding which is almost entirely fulfilled and consistent with our common goals for MMT acceptance in a developing economy perspectives.

#### **4.2 Theoretical Implication, Research Limitations, and Future Research**

The aspect of theoretical implication resulted from research can openly stimulate future

research in the area of study as well as research limitations.

Primary, it provides scholarly contributions by yielding new awareness into the theoretical relationships among consumer multidimensional trust, multifaceted perceived risk, and online consumer behavior towards an MMT acceptance. This research determined not only the strength and the direction of the positive influence of some groups of perceived risks but also the negative impact of trust construct on the aggregate perception of risk in mobile money transfer (MMT), especially in Togo. The overall result achieved will open doors for the circle of researchers to explore the further theory of trust and perceived risk antecedents in general and IS artifact like MMT particularly.

Notwithstanding the potential contributions noted previously, this study is subject to a few limitations. For this purpose, the outcomes should be interpreted prudently in the light of these shortcomings. Similar to many survey research in the field of IT, measurement instruments remains not *etched in stone*. Hence, constructing a sound and stable measurement for investigating online business is still an evolving procedure of development, testing, and improvement [127]. Although our data set obtains a sufficient threshold toward the reliability and validity empirical test, future supportive research might require checking on the external validity of our model. We collected data in Togo and therefore precluding the generalization of the outcomes to other nations. To thoroughly investigate the effect of multidimensional online trust and perceived risk towards MFS, we recommend a cross-country comparison studies for future works. Future longitudinal study on our framework might also be of importance to discern of how the variables relay over time.

#### **COMPETING INTERESTS**

Authors have declared that no competing interests exist.

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