



E-ISSN: 3108-852X

APSSHS

Academic Publications of Social Sciences and Humanities Studies
2022, Volume 2, Issue 1, Page No: 1-10

Available online at: <https://apsshs.com/>

Journal of Applied Organizational Systems and Behavior

Strategies to Minimize Cash Withdrawal Among Debit Card Users in Support of a Cashless Society

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Abstract

In recent times, the pursuit of a cashless society has emerged as a shared objective among nations worldwide. This research addresses a pivotal yet often overlooked issue—what influences debit card users' intent to engage in cash withdrawal. By employing the framework of transaction cost economics theory, the study conceptualizes cash withdrawal as a behavioral shift from utilizing debit card services for electronic money transfers to relying on physical currency for payment activities.

The research methodology combined qualitative techniques, including in-depth interviews, to construct measurement indicators and formulate hypotheses, followed by a structured quantitative survey involving 379 Vietnamese debit card users. The analytical findings reveal that minimizing the perceived challenges of adapting to debit card technology and boosting the perceived usefulness of such cards significantly lowers the likelihood of cash withdrawal.

These insights offer meaningful implications for financial institutions and regulatory authorities in economies where cash remains dominant. Furthermore, the research contributes to the broader application of transaction cost economics by introducing a novel dimension that considers consumer switching behaviors between various governance structures.

Keywords: Perceived usefulness, Debit card, Cash withdrawal, Cashless society, Transaction cost

How to cite this article: Moreau L, Bernard C, Robert J. Strategies to minimize cash withdrawal among debit card users in support of a cashless society. *J Appl Organ Syst Behav.* 2022;2(1):1-10. <https://doi.org/10.51847/vxmWg4VYsY>

Received: 04 November 2021; **Revised:** 28 January 2022; **Accepted:** 03 February 2022

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Introduction

Known as plastic money, the debit card represents a significant advancement by banks in modernizing payment systems and promoting cashless society initiatives. While credit cards also fall under plastic money, debit cards enjoy broader usage globally, particularly in developing countries [1–4]. Often termed “pay now” cards, debit cards require users to have funds deposited in their accounts prior to conducting transactions [5]. Governments have long supported the widespread adoption of debit cards as alternatives to cash because they simplify payment processes, thereby stimulating economic activity and job creation [6]. Additionally, the growing acceptance of debit cards helps reduce government expenses and time spent managing physical currency while assisting banks in attracting short-term deposits [7].

Despite ongoing efforts by banks and governments to promote financial inclusion and increase debit card usage, many nations remain heavily reliant on cash. This persistence partly stems from cardholders' ability to freely withdraw cash from their debit card accounts. This habitual cash withdrawal behavior poses a barrier to achieving a cashless society and limits the full benefits debit cards could provide. Consequently, an important question arises: How can cash withdrawal be minimized once customers have activated their debit cards?

Previous research on plastic money usage, including debit cards, has explored factors influencing customers' willingness to adopt these payment methods [4, 8–12]. Studies have also examined customer loyalty and switching behavior towards service



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providers [13–17]. However, cash withdrawal is a distinct phenomenon because customers can simultaneously withdraw cash and use debit cards for payments. Moreover, even loyal customers may still engage in cash withdrawal, whether or not they switch between banks. To date, few studies have investigated what drives customers' intentions to withdraw cash, highlighting a knowledge gap this study aims to fill.

This research adopts the transaction cost economics (TC) framework introduced by Williamson (1981) to analyze customer decisions between using debit cards or withdrawing cash for payments. Although TC economics traditionally explains organizational choices between “make” (internal production) and “buy” (market purchase) [18, 19], its application in consumer behavior is well supported in prior studies [20–24]. Consumers, like firms, face the decision of whether to “make” (do it themselves) or “buy” (purchase from suppliers) to maximize utility while minimizing costs [25]. Accordingly, consumers tend to minimize transaction cost when choosing between these governance modes [20]. In this context, a customer with a debit card decides either to use bank-provided card services (akin to “buy” or market governance) or withdraw cash and manage payments personally (similar to “make” or hierarchical governance). Therefore, cash withdrawal can be viewed as switching from market to hierarchical governance, or a shift from “buy” to “make.”

Since TC economics mainly addresses the initial “make” or “buy” decision rather than the switching process itself, this study first conducted in-depth interviews with thirty Vietnamese debit card users to identify costs involved in switching from card usage to cash withdrawal. Insights from these interviews informed the development of the conceptual framework, hypotheses, and measurement instruments used in this research. Subsequently, the proposed model was empirically tested through a quantitative survey with 312 Vietnamese debit card holders.

In Vietnam, recent governmental and commercial banking initiatives, particularly partnerships with private and state organizations to enable employees to receive salaries via debit card accounts, have significantly boosted the number of active debit cards in circulation. However, these cards are predominantly used for cash withdrawal [26]. Consequently, 46% of urban residents continue to rely exclusively on cash for transactions [27], despite a 90% debit card penetration rate in urban areas since 2017 [3].

While debit cards may not represent the latest payment technology, their widespread use alongside strong cash preferences in developing economies like Vietnam raises the important question of how to reduce cash withdrawal effectively. This paper contributes both theoretically and practically: it fills a research gap on cash withdrawal behavior; extends TC economics by exploring factors influencing customers' switch from “buy” to “make” governance in individual debit card usage, potentially inspiring future research; and provides actionable insights for governments and banks to devise strategies that curtail cash withdrawal and accelerate the transition towards a cashless society.

Literature review

Conceptual framework

At the heart of marketing lies the concept of human exchange [28]. Transactions enable labor division and specialization, which are foundational to economic prosperity. Traditional economic theory assumes that with symmetric information, markets operate flawlessly and transactions occur without additional costs. Yet, in reality, information asymmetry is a pervasive market failure, necessitating that participants invest effort and resources to acquire relevant information, thereby incurring search costs. Additionally, a transaction entails an agreement between the “buyer” and “seller” concerning the exchanged item and their respective contractual rights and duties. Because of uncertainties and challenges in monitoring contract performance, such agreements are often incomplete [29]. Addressing the complications from these uncertainties requires cooperation and mutual adaptation, which leads to additional costs [18].

Though these transaction costs (TCs) are not embedded in product prices, their significance led to the development of TC economics theory, which explains how these costs influence decisions at both organizational and individual levels, attracting considerable academic and practical attention [30]. The theory's fundamental unit of analysis is the “transaction,” based on two key assumptions: actors exhibit “bounded rationality” and the “possibility of opportunism.” Despite aiming to optimize economic gains, actors have cognitive limitations that prevent full understanding or anticipation of all transaction implications [18]. Furthermore, actors may not always behave honestly, potentially exploiting unforeseen disruptions for personal advantage at the expense of counterparts [18]. Central to TC economics is the idea that participants seek to maximize profits by minimizing TCs, which sometimes makes internalizing transactions preferable (“make”), while at other times, using the open market (“buy”) reduces costs. Hence, the “make” versus “buy” choice hinges on perceived TC levels.

Emerging from disciplines such as law, economics, and organization theory, the TC economics perspective has been extensively applied to explain organizational behaviors and decision-making processes [31, 32], relationship marketing [33, 34], and supplier-buyer collaborations [35]. Similarly, individual consumers also strive to maximize economic utility by efficiently allocating limited resources [25]. Prior research has applied TC economics to understand consumer decision-making in recurring “make-or-buy” scenarios, where choices involve handling transactions internally or via external markets [22, 36–38]. When considering whether to use a debit card or withdraw cash for payments, “using debit card” parallels market

governance, whereas “holding and spending cash independently” aligns with hierarchical governance. Therefore, withdrawing cash can be interpreted as switching from a market governance mode to a hierarchical governance mode.

Since TC economics primarily addresses the choice between “make” or “buy” without fully explaining the factors driving a user of market governance to switch to hierarchical governance, we conducted in-depth interviews with thirty Vietnamese debit cardholders to investigate the determinants of such switching intentions. The insights gathered were integrated with TC economics theory and switching behavior literature to develop hypotheses and design measurement scales for the variables in the conceptual model. The identified attributes represent the key factors directly influencing cardholders’ intention to withdraw cash.

Hypothesis development

Perceived TCs and intention to withdraw cash

From the conducted in-depth interviews, when participants were asked whether they would prefer to rely solely on debit cards for all payments, a majority hesitated and admitted to regularly withdrawing cash instead. Their reasons centered on the time and effort required to ensure transaction security when using debit cards, as well as concerns about transaction accuracy after completion. In contrast, cash payments gave them a sense of direct control throughout the process. Moreover, users reported practical challenges like debit cards becoming temporarily unusable, getting lost, rejection at payment terminals, or errors in transaction records caused by either banks or themselves. These issues contribute to increased adaptation costs, which motivate users to prefer cash as a more straightforward alternative.

Viewing this choice as a switch between governance modes, the higher the perceived transaction costs linked with debit card use, the stronger the inclination to withdraw cash. Transaction Cost economics suggests that consumers tend to select governance mechanisms that help them reduce perceived TCs [39, 40]. Therefore, opting for a governance mode that minimizes transaction costs can be seen as a strategy to conserve limited resources and maximize overall benefit. Based on this logic, the hypotheses below are proposed:

H1: The perception of monitoring costs related to debit card usage positively influences the intention to withdraw cash.

H2: The perception of adaptation costs related to debit card usage positively influences the intention to withdraw cash.

Perceived usefulness of debit card usage and intention to withdraw cash

Prior research highlights that switching costs often encompass benefit-loss costs—the value consumers forfeit when changing providers—which significantly deter switching behaviors. Dyer (1997) also noted that different governance forms offer varying transaction values [41].

During interviews, when asked if they intended to withdraw all funds from their debit card accounts, some respondents expressed reluctance because they valued the benefits associated with debit card use. For example, debit cards were seen as especially useful for making large payments or when the payee is located remotely, which helped save time and effort. This perceived utility contributes to their resistance to fully abandoning debit card usage in favor of cash. Hence, the following hypothesis is put forward:

H3: Perceived usefulness of debit card usage has a negative effect on the intention to withdraw cash.

Transaction cost associated with cash withdrawal and intention to withdraw cash

Switching actions involve inherent costs. Duijmelinck *et al.* (2015) emphasize that the time and effort spent switching providers are important components of switching costs that reduce the likelihood of switching [42]. When asked if they withdrew cash only when necessary rather than withdrawing all funds at once, some respondents mentioned the inconvenience involved in traveling to ATMs, locating them, and waiting in lines. Additionally, transaction fees charged by banks for each cash withdrawal also discourage frequent cash withdrawals. Based on these observations, the hypothesis below is formulated:

H4: Transaction costs linked to cash withdrawals negatively impact cardholders’ intention to withdraw cash.

The proposed conceptual framework is presented in **Figure 1**.

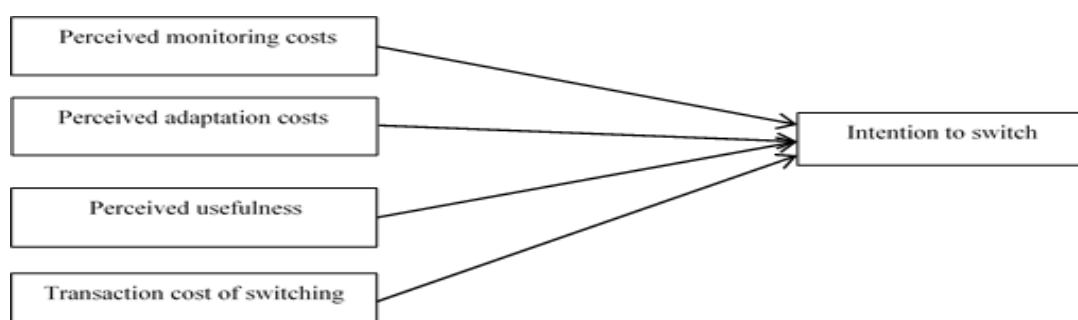


Figure 1. Proposed research model (Model 1)

Materials and Methods

To thoroughly address the research questions, this study integrated both qualitative and quantitative methodologies. The initial step involved conducting in-depth interviews with Vietnamese debit card users to identify factors influencing their cash withdrawal intentions and to detail construct dimensions, which subsequently informed the design of measurement scales and hypothesis formulation. Following this qualitative exploration, a quantitative survey was employed to empirically test the conceptual model. The overall study was thus executed in two stages:

Stage one: qualitative inquiry

In April 2019, thirty Vietnamese debit cardholders participated in comprehensive interviews aimed at revealing the key drivers behind their decisions to withdraw cash, as well as generating potential items for the measurement scales associated with each variable. Each interview lasted about 30 minutes, and notes were meticulously recorded with the participants' permission. The findings from this phase were instrumental in shaping the research hypotheses, refining the conceptual framework, and developing the measurement tools utilized in the subsequent quantitative analysis.

Stage two: quantitative survey

Building on the qualitative insights, a structured survey was constructed to validate the proposed model. The construct measuring perceived usefulness of debit card usage comprised four items adapted from Ozturk (2016) [43]. Transaction costs related to switching or cash withdrawal were evaluated using three items derived from Jones *et al.* (2000) [44]. Since cash withdrawal is conceptualized here as a switching action, the intention to withdraw cash was measured by adapting the switching intention scale from Bansal and Taylor (2002). Additional measurement scales were primarily created by the researchers, guided by the interview data and following the scale development principles described by Robert (1991) [45]. To capture adaptation and monitoring costs, participants were asked, "Do you experience any difficulties, frustrations, or issues while using your debit card? Please elaborate," enabling the extraction of detailed measurement items. Responses for all variables were recorded on a 5-point Likert scale.

The survey, crafted in Vietnamese, underwent a pilot test involving twenty debit cardholders to assess clarity, respondent ease, language simplicity, and survey length appropriateness, consistent with guidelines from Hague *et al.* (2004) [46]. Data collection took place face-to-face in May 2019 across Hanoi, where most Vietnamese commercial banks operate. Respondents were approached at 36 ATM locations, randomly selected from official ATM listings.

A total of 379 valid questionnaires were collected, with women accounting for 63.9% of the sample. As indicated in **Table 2**, 78.6% of participants were aged between 23 and 40 years. Regarding educational attainment, 73.6% had completed either a Bachelor's or Master's degree. The majority (65.7%) reported monthly incomes exceeding VND 10 million.

To analyze the hypothesized model, structural equation modeling (SEM) was employed. Prior to this, the validity and reliability of the measurement scales were assessed using the method proposed by Anderson and Gerbing (1988). SEM analysis, including estimation of path coefficients and hypothesis testing, was conducted with AMOS 22.

Table 1. Variable measurement

Construct	Variable Codes and Items	Sources
Perceived monitoring costs (PMC)	PMC1: I expend significant effort to ensure security during debit card banking transactions.	Self-designed
	PMC2: I invest considerable effort and time verifying that my banking transactions are accurately recorded.	
	PMC3: I dedicate much effort and time to confirm that my banking transactions are properly processed.	
Perceived adaption costs (PAC)	PAC1: I spend a great deal of effort and time addressing issues that occur when my debit card is lost.	Self-designed
	PAC2: I allocate significant effort and time handling problems caused by errors in banking transactions.	
	PAC3: I devote substantial effort and time resolving problems when transactions cannot be processed as needed.	
	PAC4: I invest much effort and time correcting incorrectly recorded banking transactions.	

	PAC5: I spend considerable effort and time dealing with issues related to stolen debit card information.	
Perceived usefulness (PU)	PU1: I believe managing payments and finances would be difficult without using debit cards.	Ozturk (2016) [43]
	PU2: I believe that using debit cards saves me time.	
	PU3: I believe debit card usage improves the efficiency of payment and financial management.	
	PU4: Overall, I find the debit card to be useful.	
Transaction cost of switching (TCS)	TCS1: Generally, withdrawing money from a debit card account is inconvenient.	Jones <i>et al.</i> (2000) [44]
	TCS2: It requires significant effort and time to withdraw money from my debit card account.	
	TCS3: The time, money, and effort costs involved in withdrawing money from my debit card account are high.	
Switching intention (SWI)	SWI1: I am likely to withdraw money from my debit card account.	Bansal and Taylor (2002)
	SWI2: The probability that I will withdraw money from my debit card account is high.	
	SWI3: I will definitely withdraw money from my debit card account.	

The summary of the sample size characteristics is provided in **Table 2** below:

Table 2. Sample Descriptions

Indicators	Segment	f	%
Gender	Male	137	36.1
	Female	242	63.9
Age range	18 - 22	17	4.5
	23 - 30	127	33.5
	31 - 40	171	45.1
	41 - 50	51	13.5
	>50	13	3.4
Education	Primary & Secondary	7	2.9
	Tertiary	48	12.7
	Bachelor	166	43.8
	Master	135	35.6
	Doctoral	23	6.1

Results and Discussion

Insights from the in-depth interviews

Thirty Vietnamese debit card users participated in detailed interviews where they discussed their cash withdrawal habits and the motivations behind these actions. Several participants highlighted the role of perceived adaptation costs and perceived monitoring costs associated with debit card use, which influenced their preference for cash in daily transactions, aligning with the principles of TC economics.

When asked about their readiness to withdraw their entire debit card balance and rely solely on cash for transactions, many expressed reluctance. This hesitation stemmed from the perceived usefulness of debit cards and the transaction costs (TCs) involved in switching from card payments to cash.

From the interview data, the key factors shaping cardholders' cash withdrawal intentions were identified as perceived monitoring costs, perceived adaptation costs related to debit card use, perceived usefulness of debit cards, and the transaction costs linked to switching from card usage to cash.

Additional probing revealed specific dimensions within perceived adaptation and monitoring costs, which facilitated the creation of more precise measurement items for these constructs. When asked, "Do you experience any difficulties, frustrations, or challenges during debit card usage? Please elaborate," participants shared numerous experiences related to the

time and effort required to monitor the bank's debit card services. This included verifying transaction security and ensuring accurate processing and recording, as well as addressing issues that arose during card usage. These insights formed the basis for a pool of measurement items, which underwent expert evaluation in bank marketing and a pretest with Vietnamese debit cardholders, following Robert's (1991) scale development methodology.

Survey results

Evaluation of measurement scales

Prior to testing the conceptual framework, the measurement scales were assessed for convergent and discriminant reliability and validity, along with the overall model fit, based on guidelines from Churchill (1979) and Anderson and Gerbing (1988) [47, 48]. Confirmatory factor analysis (CFA) was conducted to verify convergent validity of the measurement items corresponding to each latent variable (**Table 3**). All factor loadings were statistically significant, justifying retention of all items. These were further examined using exploratory factor analysis with principal factor extraction and varimax rotation. The analysis revealed five distinct factors consistent with the initial constructs, confirming the unidimensionality and construct validity of the scales across the five latent variables [49].

Additionally, the model demonstrated an acceptable and logical fit with the collected data.

Table 3. Confirmatory Factor Analysis Results

Codes	Mean	Standard deviation	Factor loading	t-value
PMC				
PMC 1	3.60	0.70	0.672	9.519
PMC 2	3.27	0.71	0.610	9.009
PMC 3	3.69	0.72	0.687	-
PAC				
PAC 1	3.30	0.78	0.727	15.209
PAC 2	3.31	0.79	0.788	16.871
PAC3	3.16	0.83	0.780	16.647
PAC4	3.24	0.82	0.877	19.335
PAC5	3.26	0.80	0.807	-
PU				
PU1	3.23	0.80	0.646	11.995
PU2	3.13	0.84	0.612	11.361
PU3	3.43	0.79	0.738	-
PU4	3.28	0.79	0.908	15.318
TCS				
TCS1	3.78	0.75	0.537	8.646
TCS2	3.30	0.83	0.822	9.884
TCS3	3.16	0.84	0.685	-
SWI				
SWI1	3.60	0.70	0.496	_____
SWI2	3.27	0.71	0.893	7.230
SWI3	3.69	0.72	0.609	7.984
Model fit indicators: CMIN/df = 2.435; p=.000; RMR=0.031; GFI=0.922; CFI = 0.932; AGFI= 0.893; RMSEA=0.062; PCLOSE=0.015; “-” denotes loading fixed to 1.				

Source: Estimated by authors.

Table 4. Mean variance extracted, interconstruct correlation, and reliability

	PMC	PAC	PU	TCS	SWI	Reliability
PMC	AVE=0.526					0.693
PAC	0.168	AVE=0.693				0.896
PU	0.291	0.068	AVE=0.590			0.807
TCS	0.244	0.065	0.141	AVE=0.587		0.708
SWI	0.039	0.104	0.00016	0.013	AVE=0.598	0.693

Source: Estimated by authors.

Table 4 shows that the Cronbach's alpha values for all constructs hovered just above or slightly below 0.7, indicating acceptable reliability levels. Additionally, **Table 5** reveals that each construct's Average Variance Extracted (AVE) exceeded 0.5, and every AVE value surpassed the squared correlations between pairs of constructs, thereby confirming both discriminant and convergent validity, consistent with the criteria outlined by Fornell and Larcker (1981) and Anderson and Gerbing (1988) [48, 50]. All measurement items for each construct were retained for hypothesis testing (**Table 1**).

Hypothesis testing

Path analysis based on Oh (1999) was conducted using AMOS 22 to evaluate the relationships among latent variables in the proposed model (**Figure 1**) [51], and the results indicated an overall acceptable model fit. **Table 4** presents the path coefficients for the hypothesized links; notably, perceived adaptation costs related to debit card use showed a significant positive influence on the intention to withdraw cash, while perceived usefulness of the debit card had a significant negative effect on this withdrawal intention, supporting hypotheses H2 and H3. However, perceived monitoring costs and transaction costs (TCs) associated with cash withdrawal did not demonstrate significant effects on the intention to withdraw cash, thus hypotheses H1 and H4 were not supported.

Table 5. Path coefficients

Construct path	Path coefficients
PMC to SWI	0.106
PAC to SWI	0.155**
PU to SWI	-0.097*
TCS to SWI	-0.015
Fit indices	
CMIN/df	2.435
CFI	0.932
GFI	0.922
AGFI	0.893
RMR	0.031
RMSEA	0.062
PCLOSE	0.015

Note: *p < 0.05; **p < 0.001

Source: Estimated by authors.

This study sheds light on cash withdrawal as a form of switching behavior, where a cardholder shifts their financial management approach from relying on a debit card and its related banking services to independently handling money and payment transactions through cash withdrawal. Debit card usage represents a transaction between the user (buyer) and the issuing bank (seller). Even though cardholders possess this form of plastic money, they continually face the decision to either use the debit card or withdraw cash, which can be conceptualized as a "make" versus "buy" decision. However, from a transaction cost (TC) economics standpoint, the decision-making process between "make" or "buy" is explained solely through the perception of TCs when the choice has not yet been finalized.

The results indicate that among the various TCs linked to debit card use, only perceived adaptation costs significantly increase the likelihood of switching from debit card use to cash withdrawal. These perceived adaptation costs encompass the time and effort required by cardholders to address issues such as lost debit cards, erroneous or failed banking transactions, or theft of debit card information. Furthermore, perceived usefulness exerts a negative influence on the intention to withdraw cash; those who appreciate the benefits of debit cards are more inclined to continue using them rather than opting for cash.

Although qualitative interviews suggested potential impacts of perceived monitoring costs and TCs related to cash withdrawal on withdrawal intentions, the quantitative survey data did not support these effects as statistically significant.

Conclusion

This research recommends that to reduce cash withdrawal behavior, efforts should focus on lowering perceived adaptation costs tied to debit card usage and enhancing the perceived usefulness of debit cards. Perceived adaptation costs can be minimized by both reducing the likelihood of disruptions and improving the efficiency of resolving problems that arise. Simplifying banking procedures related to debit card issues would promote quicker, more effective collaboration between banks and cardholders when unexpected problems occur. Additionally, financial institutions should leverage advanced technologies to improve the accuracy and security of debit card transactions conducted online or at ATMs. Modern payment

solutions such as QR codes and contactless payment via smartphones and other mobile devices also help mitigate risks associated with payment insecurity and lost debit cards.

This study makes a significant theoretical contribution to the literature on switching behavior and transaction cost economics by examining debit card versus cash use as a choice between “make” and “buy” governance modes. Beyond traditional TCs, this research introduces new factors such as benefit-loss costs and switching TCs to better explain switching intentions.

Some limitations should be noted. Despite employing a robust sampling method and adequate representation, a larger and more demographically diverse sample with varied debit card experience could yield deeper insights. Future studies may validate this model in different contexts, particularly where banking industry development and cashless economy adoption vary. The roles of moderators and mediators in the relationship between determinants and cash withdrawal intentions also warrant further exploration. Moreover, this research opens avenues for investigating switching decisions between governance modes in various individual and organizational behavior settings.

Acknowledgments: We express our gratitude to staff members from major commercial banks in Hanoi, including Vietcombank, VietinBank, Tienphong Bank, BIDV, Agribank, SHB Bank, and MB Bank, for their invaluable help with data collection. Special thanks are extended to the experts and scientists at the Institute for Sustainable Development, National Economics University of Vietnam, for their professional guidance and insightful recommendations that greatly supported this study’s completion.

Conflict of interest: None

Financial support: This research received funding from the Banking Academy of Vietnam.

Ethics statement: We affirm that this manuscript reflects an independent study free from plagiarism. We grant the publisher permission to edit, adapt, publish, and distribute the article in any form and format, through any medium or channel, without limitation.

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