Sri Lanka Journal of Marketing
University of Kelaniya- Sri Lanka

SLJM Vol 10 No 2: July - December 2024
ISSN 2719 – 2598 (Online)

Impact of Digital Payment Systems on Credit Access for Business Clans in SME Sector in Sri Lanka

S. C. Prematthilaka
University of Kelaniya, Sri Lanka
chanukasajith@gmail.com

DOI: https://doi.org/10.4038/sljmuok.v10i2.191

ABSTRACT

The main research question which the document intends to address is "Does the Usage of digital payment systems lead to better financial traceability; will it impact SME business clans credit access in Sri Lanka?" This study examines the transformative impact of Usage of Digital Payment Systems (UDPS) on Small and Medium Enterprises' (SMEs) credit access, mediated by the traceability of financial data (TFD) and Moderated by Government Intervention (GI) in the evolving financial landscape of Sri Lanka. Using Partial Least Squares Structural Equation Modeling (PLS-SEM) as an analytical framework, derived from a comprehensive literature review, the research rigorously tests hypotheses through meticulous examination of measurement and structural models, enhanced by SEM-PLS Bootstrapping for reliable estimation of standard errors and confidence intervals.

Findings reveal a significant positive correlation between UPDS and Credit Access to SMEs (CA2SME), establishing Usage of Digital Payment Systems as pivotal in shaping SME credit access in Sri Lanka. Through mediation analysis, the study elucidates the role of Traceability of Financial Data (TFD) in bridging the relationship between UPDS and CA2SME. Empirical evidence suggests UPDS influence on SME credit access is not solely direct but intricately mediated by perceived transactional benefits. The research introduces a mediating hypothesis, emphasizing the paramount role of TFD in shaping the connection between UPDS and Credit Access to SMEs. Evaluation of model criteria robustly supports the proposed mediation model. Additionally, a systematic moderating analysis examines Government Intervention (GI), highlighting it as a significant moderator partially explaining the relationship. Effect size analysis emphasizes the substantial yet relatively smaller effect size of Government Intervention on CA2SME. The study concludes by exploring the impact of Traceability of

Financial Data on Credit Access to SMEs, with SmartPLS Bootstrapping output solidifying TFD's significant positive influence on SME credit access in Sri Lanka.

Keywords: *Government Intervention (GI), Small and Medium Enterprises (SME), Traceability of Financial Data (TFD), Usage of Digital Payment System (UDPS)*

1. INTRODUCTION

The credit gap facing Small and Medium-sized business clans (SMEs) in Sri Lanka, estimated at USD 13.7 billion, is a multifaceted challenge rooted in inadequate financial practices, transparency issues, and a lack of knowledge among SMEs (ADB, 2017). This research delves into the reasons behind this credit gap and proposes that the adoption of digital payment systems can serve as a transformative solution by mitigating information asymmetry.

Traditional transaction systems often lack transparency and traceability, making it challenging for lenders to validate the financial history and reliability of SMEs business clans. SMEs in Sri Lanka face a knowledge gap when it comes to understanding and adopting financial best practices. This lack of financial literacy inhibits their ability to navigate the credit landscape and secure funding for investments and expansion of business activities. On the other hand, lack of proper bookkeeping practices among SMEs in Sri Lanka. Inadequate cost or management accounting practices hinders lenders' ability to assess the financial health and creditworthiness of these enterprises (IFC,2018). The credit gap is exacerbated by the opacity surrounding SME transactions.

Digital payment systems offer a solution to the improper bookkeeping challenge. Through automated transaction tracking and electronic record-keeping, these systems enable SMEs to maintain accurate and organized financial records, thereby enhancing their credibility in the eyes of lenders. The adoption of digital payments introduces a new level of transparency and traceability to SME transactions. Blockchain technology, for instance, provides an immutable ledger that ensures the integrity and

security of financial records, reducing the risk of fraudulent activities and enhancing the trustworthiness of SMEs in the eyes of lenders. Digital payment systems are inherently user-friendly, providing an accessible platform for SME business clans with limited financial literacy. Service providers often offer educational resources and support to guide SME through the process, empowering them with the knowledge needed to make informed financial decisions.

The World Bank (2020) identifies digital payments as one of the most disruptive technologies with the potential to solve many financial problems. Yet, there is a conspicuous gap in the Sri Lankan market concerning the usage of digital payments to address the financial traceability gap in the SME credit sector. Existing literature extensively covers digital loans, fixed deposits, insurance, and digital marketing as research variables, but little to no research delves into the specific impact of digital payments on financial traceability in the SME credit market in Sri Lanka.

1.1. Empirical Gap

Despite substantial investments from international funding organizations and the Sri Lankan government aimed at understanding credit market gaps, a crucial empirical gap remains. There is a glaring absence of studies exploring the impact of digital payments on mitigating the financial traceability gap within the SME credit market in Sri Lanka. The World Bank (2020) identifies digital payments as a disruptive technology with the potential to address various financial issues; however, the Sri Lankan context lacks a dedicated exploration of how digital payments can specifically alleviate the SME credit gap.

1.2. Research Objectives

- To analyze the impact of digital payment systems on SME credit access in Sri Lanka.
- To assess the influence of digital payment systems on financial data traceability.

- To explore the potential mediating effect of traceability on the relationship between digital payment systems and SME credit access.

- To evaluate the moderating role of government intervention in the relationship between digital payment systems and SME credit access.

2. THEORETICAL BACKGROUND AND HYPOTHESES DEVELOPMENT

2.1. SME Sector Credit Gap

SME credit access has been a persistent concern, drawing attention from scholars such as Mercy and Wambugu (2018). Their study investigated the impact of credit access on small-scale enterprises, revealing a significant positive correlation between convenient credit access and the economic prosperity and development of SMEs. Similar challenges are observed in the context of Sri Lanka's SME sector, where credit gap of USD 13.7 Billion persist. This is underscored by limitations in financial traceability and bookkeeping practices (World Bank, 2020; IFC, 2022). In Sri Lanka, inadequate financial records of SME merchants impede credit approval processes (CBSL, 2018). This highlights a critical need to address credit disparities in the SME sector.

The literature underscores the importance of understanding the nuances of SME credit access, particularly in the context of developing economies. Past studies have identified various barriers, including limited collateral, high-interest rates, and challenges related to the availability and quality of financial data (Beck et al., 2004; Ayyagari et al., 2007). These challenges contribute to the existing credit gap, preventing SMEs from realizing their full potential in contributing to economic growth.

2.2. Gaps in Financial Traceability

As economies transition towards digitalization, concerns and gaps in digital payment systems become apparent. The Sri Lankan government, recognizing the transformative potential of digital payments, has tightly controlled financial records due to security concerns (CBSL, 2018). The

challenge lies in striking a balance between facilitating digital transactions and ensuring data security. Existing financial traceability theories reveal limitations, necessitating further exploration to align with the unique challenges posed by digital payment systems (World Bank, 2020; IFC, 2022).

The need for robust digital payment systems along with expanding the role of credit information bureau (CRIB) to facilitating the transaction information among financial institutions is evident in addressing the credit gap in the SME sector. In Sri Lanka, limitations in the existing financial traceability laws hamper the potential benefits of digital payment systems in enhancing SME credit access. Scholars argue that effective digital payment systems should not only streamline transactions but also address issues related to financial traceability and data security (Mishra & Shah, 2021). Hence, a comprehensive understanding of the gaps in digital payment systems is crucial for devising solutions that align with the specific needs of SMEs.

2.3. Gaps in Government Interventions in SME Credit

Government interventions play a crucial role in shaping the landscape of SME credit access. In Sri Lanka, the central bank exercises regulatory control over SME access to digital payment systems, aiming to streamline and secure transactions (Jarrar, 2017). However, challenges emerge from stringent approval processes, including in-person Know Your Customer (KYC) requirements, which can be time-consuming and cumbersome for SME merchants (CBSL, 2018). The regulatory restrictions, while well-intentioned, inadvertently hinder seamless SME credit solutions.

The role of the government in the SME credit market extends beyond digital payment system regulations. The central bank's mandate to decide on SME loan security, prioritize sectors, and

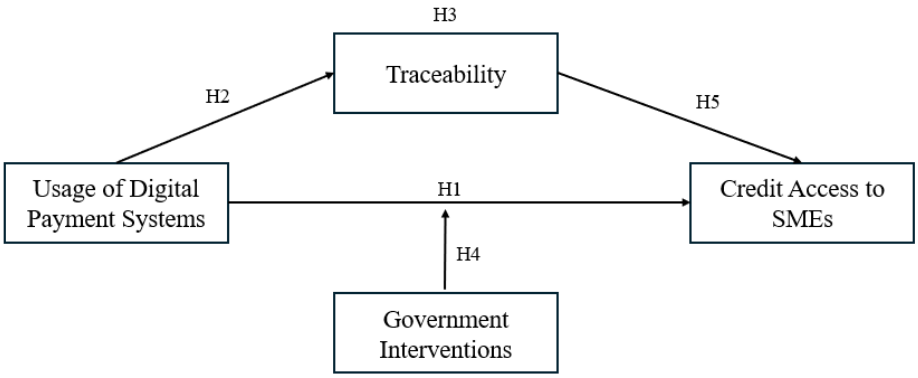
set interest rates adds layers of complexity to SME credit access (Central Bank, 2020). This multifaceted involvement necessitates a nuanced understanding of how government interventions moderate relationships between digital payment systems and SME credit access. As highlighted by Jarrar (2017), collaboration between the government and the private sector is proposed as a means to enhance credit assessments for SMEs, emphasizing the need for a balanced and collaborative approach.

In summary, the literature review elucidates the complex interplay between digital payment systems, government interventions, and SME credit access. While past studies offer valuable insights, a comprehensive understanding necessitates considering the unique challenges faced by the SME sector in Sri Lanka. The next sections provide a theoretical framework and research methodology, building upon the foundational knowledge presented in this literature review

2.4. Conceptual Framework Overview

The study posits SME credit access as the dependent variable, influenced by the independent variable usage of digital payment systems. Financial traceability acts as a mediating variable in this relationship, while government intervention serves as a moderating factor. This conceptualization draws from traceability theory (Christopher, 2011; Ho et al., 2010; Hugo’s).

Figure 1: Conceptual Framework



2.5. Variables and Supporting Authors:

2.5.1.Usage of Digital Payment Systems (UDPS):

The independent variable represents the adoption and utilization of digital payment systems, including point-of-sale systems and internet payment gateways. Digital payment systems have transformed transaction processes (Smith, 2019) and play a crucial role in facilitating financial traceability (Johnson et al., 2021).

2.5.2.Financial Traceability (Traceability):

Traceability is conceptualized based on traceability theory (Christopher, 2011; Ho et al., 2010; Hugo's, 2011; Kuhn & Wegener, 2014; Mena & Stevens, 2005). It involves the transparent recording of financial activities through digital payment systems, offering detailed transaction histories (Anderson, 2020). This enhances credit assessments for SMEs (Brewer et al., 2022).

2.5.3.Government Intervention (GI)

Government intervention, as a moderating variable, acknowledges the regulatory role in the Sri Lankan context. It influences the relationship between UDPS and SME credit access. This aligns with the importance of regulators in shaping financial practices (Ibrahim et al., 2018).

2.5.4.SME credit access (CA2SME)

In Sri Lanka, Small and Medium-sized Enterprises (SMEs) play a vital role in driving economic growth and fostering entrepreneurship. Access to credit is a critical factor influencing the success and sustainability of these businesses. According to a report by the Central Bank of Sri Lanka (CBSL), SMEs constitute a significant portion of the country's business landscape, contributing substantially to employment and income generation (CBSL, 2020).

The information provided and the conceptual framework, the researcher has developed hypotheses to test the relationships between the identified constructs. These hypotheses serve as tentative statements that outline the expected relationships to be discovered through empirical data analysis (Sekaran & Bougi, 2017). The study aims to evaluate the main antecedents of CA2SME (Credit Access to Small and Medium Enterprises) and their impact in Sri Lanka. The specific hypotheses

developed in this study, based on the hypothetical associations depicted in the conceptual framework (Figure 3.1), are as follows:

- *H1: The usage of digital payment systems has an impact on SME access to credit in Sri Lanka*
- *H2: The usage of digital payment systems has a significant impact on traceability of financial data in Sri Lanka*
- *H3: The relationship between usage of digital payment systems and SME access to credit is mediated by traceability of financial data for SME*
- *H4: The relationship between usage of digital payment system and SME access to credit is moderated by Government intervention*
- *H5: Traceability of financial data for SME has a significant impact on the credit access for SME*

3. RESEARCH METHODOLOGY

This section outlines the research methodology employed to investigate the relationships among key variables in the study: SME credit access (CA2SME), Digital payment systems usage (UDPS), Financial Traceability (TFD), and Government Intervention (GI). The conceptual framework, based on the identified variables and their theoretical underpinnings, guides the research design.

3.1. Sampling & Data collection methods

Sampling design, as delineated by Sekaran and Bougie (2017), bifurcates into two primary categories: probability sampling and non-probability sampling. A robust sampling plan encompasses considerations such as the target population, sampling unit, sample size, and sampling methods. The population, as defined by Sekaran and Bougie (2017), represents the entire group of respondents, events, or entities of interest that the researcher aims to investigate. Based on empirical data analysis of similar studies, judgment sampling remains the only viable technique for obtaining the desired type of learned output from specific segments. In this study, judgement sampling was adopted to obtain informed outputs from SME owners.

3.2. Target Population

The target population consists of currently registered SMEs that utilize POS and IPG payment systems in Sri Lanka as of April 15, 2020.

- Total registered SMEs: 529,280
- Total registered DP merchants (2022): 70,365
- Total sample size (SS): 300
- Total human population: 21,903,000

3.3. Sample Unit

A sample represents a subset of the target population. By analyzing the sample, researchers aim to draw generalizable conclusions about the entire population of

interest (Sekaran & Bougie, 2017). The correct target population was crucial for the determination of the sample design. The sampling unit, defined as the element or set of elements available for selection at some stage of the sampling process (Sekaran & Bougie, 2016), will be **SME owners identified as SMEs** based on the regulator's definition and who have obtained a digital payment system through a regulated payment service provider.

3.4. Sample Size

The sample population calculation for this research project utilized the robust statistical tools. Based on Central Bank data from 2022, the total population of SME merchants to be analyzed is 70,365. It is noteworthy that the researcher has a stake in the largest private sector IGP providers in the country and will utilize their resources to access the required sample. The primary source for identifying the total population is the Central Bank's payment and settlements bulletin, which publishes the number of SME merchants using POS and IPG in Sri Lanka (Central Bank, Payment's bulletin, 2019). In this study, the target population consists of SME merchants who use digital payments, specifically registered POS and IPG users in Sri Lanka. Therefore, the sample population was selected from the demographics approved by the Central Bank (Chu & Hoadley, 2018). To ensure an acceptable margin of error, a margin of error of 3% for continuous data and 5% for categorical data. Hence, a ±5% margin of error was selected for the current study.

Using Cochran's sample size formula, commonly used in marketing research (Bartlett, Kotrlik, & Higgins, 2001), the minimum sample size was calculated as 300. The formula is as follows:

The formula used for determining the minimum sample size is as follows:

$N = t^2 \times p(q) / (d)^2$

Where:

N = Minimum sample size

t = Confidence level (standard value of 1.96 for a 95% confidence level)

p(q) = Estimated prevalence of the variable (50% due to a population of more than 1 million)

d = Estimated margin of error (standard value of 0.05 for ±5%)

By substituting the given values into the formula, the minimum sample size was calculated as 300. This sample size has allowed for an appropriate level of precision in the study, considering the estimated prevalence and margin of error. The total population of 70,365 SME merchants using digital payments was identified from Central Bank data. A sample size of 300, calculated using Cochran's formula and considering a ±5% margin of error, ensures adequate representation and precision for the study's objectives.

3.5. Methods of Data Collection

Data collection techniques are crucial to research design, offering various methods with distinct advantages and disadvantages. Sekaran and Bougie (2016) highlight that employing appropriate methods enhances research rigor by addressing identified problems or issues. This empirical study primarily utilized primary data to analyze relevant areas, supplemented by secondary data as needed. Considering the research context, electronically administered surveys and field interviews were simultaneously conducted. Widely accepted channels such as emails, text messages, social media, and social groups were employed to target respondents across Sri Lanka's administrative districts. Enumerators provided individual attention to respondents with limited education, clarifying questionnaire terminologies. The researcher invested significant time explaining scales, the rationale behind item inclusion, and similarities in Sinhala-translated items. This approach aimed to substantially increase the response rate within a short timeframe, following past studies that used email surveys and field interviews.

3.6. Primary Data Collection

Targeted from responsible SME merchants using digital payment systems, surveys were determined as the most appropriate data collection method (Tull & Hawkins, 1984; Fink, 2013). Following Sekaran & Bougie's (2017) recommendation, structured questionnaires were electronically disseminated to knowledgeable professionals. A structured questionnaire was manually distributed in English to collect fresh primary data, facilitating a systematic approach for data aggregation and comparison. This approach aimed to gather comprehensive information from SME merchants regarding their digital payment systems usage, ensuring the collection of reliable primary data crucial for analysis and findings.

3.7. Secondary Data Collection

Secondary data was gathered from various sources, including books, periodicals, state publications on economic indicators, census data reports, statistical magazines or abstracts, databases, media sources, and annual reports of listed companies. The primary source for secondary data collection was the Central Bank of Sri Lanka, along with the Payments and Settlements Bulletin of Sri Lanka, relevant rules and laws, commercial licensed banks, the statistical department of Sri Lanka, and various government publications. These secondary data sources were instrumental in selecting research variables, determining the survey sample, and obtaining data from official sites. To enhance the research process, an expert panel's findings and comments were included, adding valuable insights. The gathered secondary data played a significant role in determining research variables, establishing the research problem's background, and enriching the overall analysis and problem-solving process.

3.8. Measuring Instruments

It is crucial to ensure that the chosen instrument accurately measures the intended concept, enabling researchers to measure the concept accurately, as emphasized by

Sekaran & Bougi. Similarly, validity, according to Sekaran & Bougi, concerns whether the measurement truly captures the intended concept and demonstrates stability and consistency. Several internationally accepted validity testing mechanisms exist to assess the quality of measurements. However, this study intends to adhere to the guidelines specified by Sekaran & Bougie (2016) to establish the validity of the instrument used. Reliability analysis assess the consistency of items within an instrument and ascertain whether they measure the same underlying construct as intended by the researcher. It examines how effectively the items gauge a single unidimensional latent construct. Among various measures, Cronbach's alpha is widely used as an internal consistency reliability coefficient in research. Typically ranging between 0 and 1, Cronbach's alpha provides insights into the reliability of the instrument. George & Mallery (2013) offer rules of thumb for interpreting Cronbach's alpha, which are presented below.

Table 1: Reliability Measures

Range of Reliability (CA)	**Status**
CA>9	Excellent
9>CA>8	Good
8>CA>7	Acceptable
7>CA>6	Questionable
6>CA>5	Poor
5>CA	Unacceptable

(Source: George & Mallery, 2013)

Further Nunnally & Bernstein (1994) revealed that the minimum Cronbach Alfa value of 0.6 is just reliable enough for the items not to be removed.

3.9. Measurements of Validity

The validity of the measuring instrument is critical for accurately assessing research model outputs, complementing reliability measurements (Sekaran & Bougi, 2017). Sekaran & Bougi identify three types of validity: content validity, criterion-related validity, and construct validity.

Content validity assesses how well the measure aligns with the theoretical definition of the construct (Rungtusanatham, 1998). It was used to ensure the measurement instrument comprehensively represents the intended concept. Researchers first evaluate content validity through face validity, gathering expert panel opinions (Sekaran & Bougi, 2017). In this study, potential misinterpretations or uncertainties in the questionnaire terminology were assessed. Feedback from the expert panel during the measurement scale design process ensured content validity with acceptable accuracy.

Criterion-related validity becomes significant when differentiating individuals based on specific predictions. This can be achieved through concurrent or predictive validity (Sekaran & Bougi, 2017). Malhotra (2004) suggests using demographic factors, behavior-based scales, or psychographic characteristics as criterion variables. In this study, measuring instruments were adopted based on a critical literature review. Associations between different constructs were examined by referencing previous studies in various cultural contexts, ensuring criterion-related validity.

Construct validity is investigated through convergent and divergent validity (Sekaran & Bougi, 2018). Several items were identified to measure constructs in the research model, authenticated by an expert panel, and tested for reliability in a pilot study. During exploratory research, some items were refined based on key informants' opinions to enhance reliability and validity. Items were removed to improve Cronbach's alpha values, contributing to the instrument's overall robustness. Ensuring reliability and validity through expert reviews, pilot studies, and item refinement significantly enhances the research's credibility. These rigorous procedures ensure accurate and meaningful research outcomes. All indicators were subject to reliability analysis and dimension reduction, with results tabulated accordin

3.10. Data Analysis

Given the empirical nature of this study, the structural equation modeling (SEM) approach was employed to evaluate both the measurement model and the structural

model. The data analysis followed a two-stage process as recommended by Hair et al. (2014). Initially, the data was cleaned using IBM SPSS 26 software to address missing values and outliers. Once the data was cleaned, the first stage involved assessing the measurement model. Subsequently, the second stage focused on evaluating the structural model. Due to the model's complexity and issues related to normality, SmartPLS version 3 was utilized for assessing both the measurement and structural models.

4. RESULTS OF THE MAIN STUDY

4.1. Assessment of the Measurement Model

Table 1:Reliability Test Results

Variable	Skewness		Kurtosis		Kolmogorov Smirnov		Shapiro Wilk	
	Stat	Std.Er	Stat	Std.Er	Stat	Sig.	Stat.	Sig
UDPS	1.211	0.141	1.296	0.281	0.064	.042	.968	.000
TFD	1.417	0.141	3.575	0.281	0.173	.000	.857	.000
GI	0.092	0.141	-.178	0.281	.099	.000	.690	.000
CA2SME	0.339	0.141	-.260	0.281	.262	.000	.975	.000

(Source: IBM SPSS25 Output)

According to the findings presented in above Table, 2: the p values for all variables were found to be less than 0.05. This indicates that the null hypothesis is rejected based on the results of both the Kolmogorov-Smirnov and Shapiro-Wilk tests. Consequently, none of the variables can be considered normally distributed. Therefore, it can be reasonably argued that the variables exhibit non-normal or skewed distributions.

Furthermore, in accordance with Byne's (2010) guidance, acceptable ranges for assessing normality include -3 to +3 for skewness values and -7 to +7 for kurtosis values. Upon examination, all the skewness and kurtosis values in the dataset fall well within these acceptable ranges, indicating that the dataset can be assumed to be sufficiently normally distributed.

Table 2: Summary of ANOVA Linearity Tests

Variables	F- Value for Linearity	Sig. value for deviation from the linearity
UDPS □ CA2SME	1.337	0.143
TFD□ CA2SME	1.566	0.028
GI□ CA2SME	1.419	0.137

(Source: Survey Data, 2020)

The findings from Table 3 reveal that in all the examined pairs of relationships, two out of three Sig values for the deviation from linearity are greater than the significance level of 0.05. The reported p values of 0.001 further supports this observation. These results indicate that the assumption of linearity can be considered satisfied based on the utilization of ANOVA Linear tests. The Sig values represent the significance level of the test for linearity. By exceeding the threshold of 0.05, it suggests that the observed relationships between variables can be reasonably assumed to be linear.

Table 3: Summary of the Levene's test with significance (P-value)

Variable	CA2SME	
	Levene Statistics	Sig.
UDPS	1.506	.137
TFD	2.569	.005
GI	2.424	.043

(Source: Survey Data, 2020)

According to the results mentioned above, the significance values of the UDPS variables is greater than the 0.05. Accordingly, the null hypothesis is accepted assuming equality of variance among variables.

Table 4: Indicator Correlations

	UDPS1	UDPS2	UDPS3	UDPS4	UDPS5	
UDPS1	1					
UDPS2	0.752	1				
UDPS3	0.752	0.761	1			
UDPS4	0.517	0.528	0.633	1		
UDPS5	0.68	0.592	0.708	0.595	1	
	TFD1	**TFD2**	**TFD3**	**TFD4**	**TFD5**	**TFD6**
TFD1	1					
TFD2	0.746	1				

TFD3	0.475	0.368	1			
TFD4	0.529	0.502	0.593	1		
TFD5	0.487	0.475	0.551	0.769	1	
TFD6	0.522	0.448	0.671	0.716	0.780	1
	GF1	**GF2**	**GF3**	**GF4**	**GF5**	
GF1	1					
GF2	0.756	1				
GF3	0.643	0.725	1			
GF4	0.593	0.575	0.622	1		
GF5	0.504	0.484	0.617	0.555	1	
	CA2SME 1	**CA2SME 2**	**CA2SME 3**	**CA2SME 4**	**CA2SME 5**	
CA2SME1	1					
CA2SME2	0.841	1				
CA2SME3	0.820	0.891	1			
CA2SME4	0.813	0.897	0.953	1		
CA2SME5	0.820	0.882	0.933	0.951	1	

(Source: Survey Data, 2020)

Based on the results of the non-redundant tetrads are displayed in the original Sample (O) column. The number of tetrads associated with each latent variable or construct increases exponentially with the number of indicators in the measurement model. For instance, the UPDS construct, which uses five indicators, shows five tetrads in the CTA-PLS analysis.

The upper and lower bounds of the 90% bias-corrected and Bonferroni-adjusted confidence intervals (CI Low adj. and CI UP adj.) are reported in the results. Conversely, if zero does not fall within the confidence interval, it is assumed that the non-redundant tetrad significantly differs from zero, suggesting that the constructs are formatively measured models (Hair et al., 2018).

Based on the results in Table 5, all the tetrads for each indicator's confidence interval include zero. Therefore, it is statistically concluded that all the constructs are reflectively measured models.

Table 5: Final Assumptions of CTA Analysis

Construct (No of indicators)	No of Tetrads	CI Low adj<0<CI UP adj	Status
UPDS (5)	5	Yes	Reflective
TFD (6)	9	Yes	Reflective
GI (5)	5	Yes	Reflective
CA2SME (5)	5	Yes	Reflective

(Source: Survey Data, 2020)

According to Hair et al. (2010), In case the observed tetrads (CTA) are different from the theoretical and conceptual assumptions, the original measurement specifications can be retained without applying CTA-PLS results mechanically.

Table 6: Summary of Measurement Model

Construct	AVE	Composite Reliability	Rho_A	Cronbach Alpha
UDPS	0.623	0.892	0.852	0.848
TFD	0.654	0.919	0.905	0.893
GI	0.823	0.933	0.894	0.892
CA2SME	0.905	0.979	0.974	0.973
Reference Value	>0.5	>0.70	>0.70	>0.6

(Source: Survey Data, 2020)

The results presented in Table 7 indicate that the Cronbach's alpha, rho_A, and composite reliability values are all above the threshold of 0.70. This finding confirms that all the constructs in the study exhibit satisfactory internal consistency reliability. The internal consistency reliability reflects the extent to which the items within each construct consistently measure the underlying concept. The AVE represents the amount of variance captured by the construct compared to the measurement error. In addition, the indicator loadings' Cronbach values should exceed 0.60, indicating that each indicator contributes significantly to measuring the underlying construct. Moreover, the composite reliability should exceed 0.70, indicating the reliability of the composite score derived from the indicators. The study demonstrates strong internal consistency reliability and convergent validity across all constructs, as

evidenced by the satisfactory values of Cronbach's alpha, rho_A, composite reliability, AVE, and indicator loadings. These findings enhance confidence in the measurement accuracy and reliability of the constructs in the study.

Table 7:Heterotrait-Monotra

	CA2SME	GI	Mod Effect	TFD	UPDS
CA2SME					
GI	0.123				
Mod Effect	0.039	0.083			
TFD	0.809	0.110	0.028		
UPDS	0.648	0.153	0.089	0.786	

(Source: Survey Data, 2020)

According to Hair et al. (2018), HTMT value should be less than 0.9 for conceptually similar constructs while should be less than 0.85 for conceptually different constructs. The HTMT values shown in the table 9 do not include or all values are less than 0.90 thus no discriminant issues are present Since, the measurement model is successfully assessed satisfying the basic requirements, the next step is to assess the structural model procedure (Hair et al. 2018).

Table 8: Collinearity Statistics (VIF Inner values)

	CA2SME	**GI**	**Mod effect**	**TFD**	**UPDS**
CA2SME					
GI	1.010				
Mod effect	1.008				
TFD	1.922				
UPDS	1.917			1.000	

(Source: Survey Data, 2020)

According to the results shown in the Table 9: no collinearity issues among the independent variables as VIF values are less than 3.5 (Hair et al. 2011). The next step is to assess the structural model path coefficient. Further, these values can also be checked using multiple regression in IBM SPSS 25. The VIF values of each indicator and instrument should be less than 5.

Table 9: Structural Model Summary

Hypothesis	Original Sample	Sample Mean	Std Dev	2.5%	97.5%	T Statistics	P Values

GI -> CA2SME	0.071	0.074	0.069	-0.057	0.212	1.031	0.302
Mod effects	-0.079	0.043	0.052	-0.138	-0.023	2.674	0.008
TFD-> CA2SME	0.677	-0.079	0.029	0.569	0.763	13.105	0.000
UDPS-> CA2SME	0.124	0.127	0.063	0.112	0.263	2.033	0.043
UDPS-> TFD	0.690	0.692	0.035	0.615	0.755	19.638	0.000
Reference				No zero between		>1.96	<0.005

Source: Survey Data, 2020 (Bootstrapped Output)

In order to assess the significance and relevance of the relationships in the path model, it is necessary to examine the results presented in Table 10, one-unit change in the exogenous constructs leads to a change in the endogenous construct by the magnitude indicated by the path coefficient, assuming that all other constructs and their path coefficients remain constant (ceteris paribus; Hair et al., 2010). If the path coefficient is statistically significant, meaning it is significantly different from zero in the population, its value reflects the strength of the association between the exogenous and endogenous constructs. Following the aforementioned guidelines, the researchers have provided an interpretation in Table 11.

Table 10:Relevance and the significance of Structural Model Relationship

Relationship	Coefficient/Standardized beta	Significance Yes/No	Interpretation
GI -> CA2SME	0.071	No	One unit change in the GI, the CA2SME will be insignificantly decreased by -0.071 units at the significance level of 0.05.
Mod effect on CA2SME	-0.079	Yes	One unit change in the mod effect, the CA2SME will be significantly decreased by 0.079 units at the significance level of 0.05.
TFD -> CA2SME	0.671	Yes	One unit change in the TFD, the CA2SME will be

			significantly increased by 0.671 units at the significance level of 0.05.
UPDS -> CA2SME	0.127	Yes	One unit change in the UPDS, the CA2SME will be significantly increased by 0.127 units at the significance level of 0.05.
UPDS -> TFD	0.690	Yes	One unit change in the UDPS, the TFD will be significantly increased by 0.690 units at the significance level of 0.05.

(Source: Survey Data, 2020)

According to Hair et al. (2017), the next step is to assess the R^2 and interpret their impact.

4.2. Assessment of the level of R^2

If the collinearity is within the acceptable limits, as illustrated, according to Hair et al, (2017), the next step is the investigating the R^2 values of the endogenous values and the results are found in the below Table 12.

Table 11: R Values

	R Square	R Square Adjusted
CA2SME	0.589	0.576
TFD	0.476	0.474

(Source: PLS-SEM Algorithm)

Chin et al. (2013) emphasizes that R2, which represents the amount of variance explained, serves as an indicator of model fit and the predictive capability of the endogenous variable. Hair et al. (2013) suggests that for individual constructs, an R2 value greater than the minimum acceptable threshold of 0.10 is necessary. In this study, the R2 values for "TFD" and "CA2SME" were found to be 47.6% and 58.9%, respectively, indicating that they exceed the minimum threshold of 0.10. As a result, it is appropriate to investigate the significance of the paths associated with these variables. R2 values of 0.75, 0.50, and 0.25 are considered substantial, moderate, and

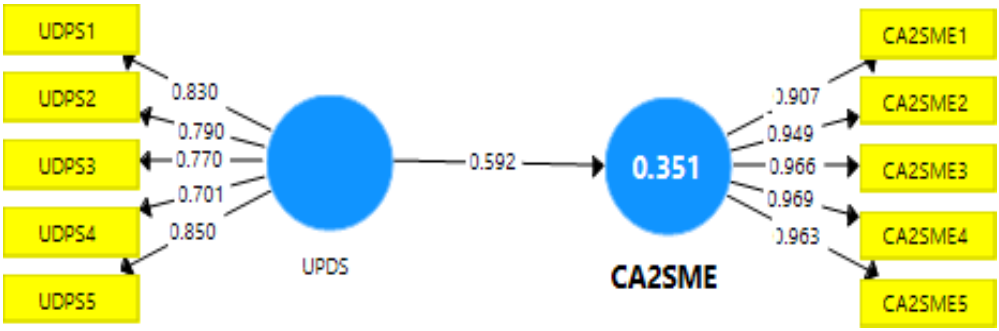
weak, respectively. R2 values of 0.90 or higher are typically indicative of overfitting. Table 12 shows that in this study, the R2 value of 58.9% for "CA2SME" is explained by the mediator "TFD" and the independent variable "UPDS," which is considered a moderate level of explanation according to Hair et al. (2018).

4.3. Hypothesis Testing

H1: UDPS and CA2SME

One of the main objectives of the study is mainly to assess the impact of the UDPS on the CA2SME in Sri Lanka. Accordingly, the UDPS affecting CA2SME were identified and hypothesized in below section. The hedonic UDPS was identified as the most affecting motive on the CA2SME through intensive literature review. Therefore, finally H1 was developed as follows.

Figure 1: Hypothetical relationships between the UPDS -> CA2SME



(Source: Survey Data, 2020)

Figure 2, The hypothesis H1 underwent thorough scrutiny using the advanced methodology of Partial Least Squares Structural Equation Modeling (PLS-SEM). The meticulous validation of the measurement model, involving a rigorous assessment of indicator reliability and validity, laid the groundwork for a robust analytical process. Once the measurement model met the requisite standards, attention shifted towards the structural model, which aimed at unraveling the significance and strength of relationships among the constructs in focus. To dissect these relationships, the SEM-PLS Bootstrapping technique was deployed, a method that involves creating

numerous resamples from the dataset to estimate standard errors and confidence intervals for the path coefficients (Hair et al., 2017).

These findings from the Bootstrapping analysis provide valuable insights into the hypothesis H1, furnishing a foundation for further interpretation and discussion. In essence, they contribute to anuanced understanding of the research problem, potentially either supporting or refuting the hypothesis.

Table 12: Summary of H1

No	Relationships	Original Sample	Sample Mean	Std Dev	2.5%	97.5%	T Statistic	P Values	Results
H1	**UPDS -> CA2SME**	0.592	0.600	0.045	0.479	0.666	13.097	0.000	Accepted
		Reference			**No zero falls between**		>1.96	<0.005	

(Source: Survey Data, 2020)

Table 13 the empirical analysis, delineated in Table 13, yields compelling evidence in support of the primary hypothesis. The observed results align with the existing literature, which emphasizes the direct correlation between Usage of digital payment systems (UDPS) and Credit access to SME (CA2SME), as well as the mediated relationship facilitated by traceability (TFD). The statistical outcomes affirm the substantial impact of UDPS on CA2SME, both through its direct influence and its intermediary role through TFD. The confirmed relationships underscore the pivotal role of UDPS in shaping CA2SME outcomes, either through direct influence or via the intermediary TFD mechanism.

H2: The relationship of UDPS and TFD

Figure 2: Hypothetical Relationships Between the UPDS and Mediator TFD

(Source: Survey Data, 2020)

Table 13: Summary of H2

No		Original	Sample	Std			T	P	
H2	UPDS -> TFD	0.694	0.698	0.033	0.619	0.751	21.121	0.000	Accepted
		Reference			No zero falls Between		>1.96	<0.005	

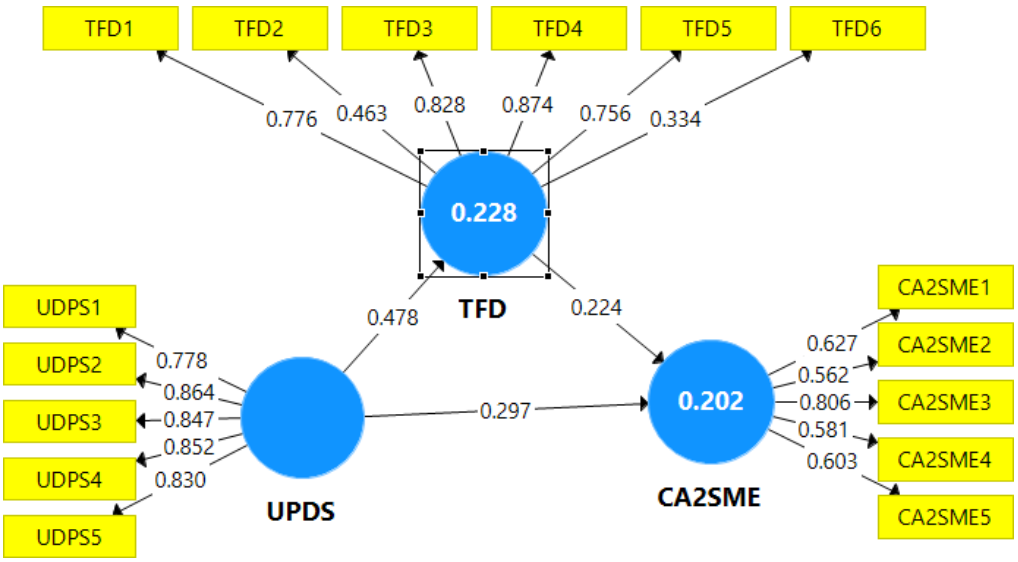
Table 14 usage of digital payment systems (UDPS) as an independent variable and Traceability of financial data (TFD) as a mediating variable. The results indicate a substantial support for H2, as evidenced by the absence of zeros within the biased corrected values and T statistic values exceeding 1.96. The path coefficient of 0.694 signifies a robust relationship, supported by a narrow confidence interval (0.619 to 0.751) and a statistically significant P value of 0.000. These outcomes corroborate the theoretical premise that UDPS significantly influences TFD, establishing an essential link in the mediating process.

In summary, Hypothesis 2 is empirically validated, demonstrating a strong and statistically significant relationship between UDPS and TFD. These results contribute to the understanding of the interplay between user-driven processes and technological factors, emphasizing the influential role of UDPS in shaping technological outcomes. The confirmed mediation underscores the intricate dynamics between these constructs, offering valuable insights.

Mediating Hypothesis

According to the conceptual framework as shown in Fig. 4, the TFD mediates the relationship between UDPS and CA2SME. Accordingly, the mediating effects of the TFD on the relationship between the UDPS and CA2SME are tested in this section. The mediating effects of TFD on the UDPS and CA2SME are shown in the figure 4:

Figure 3: Mediating Effects of TFD



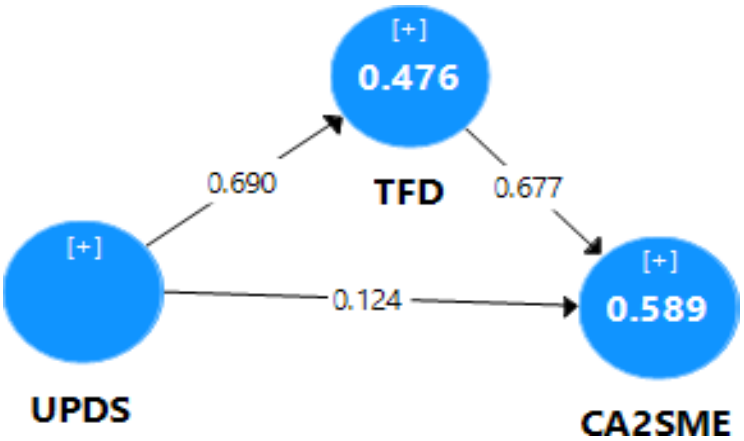
(Source: Survey Data, 2020)

Figure 4 the empirical validation of Hypothesis 2, asserting (UDPS) as an independent variable and (TFD) as a mediating variable, is augmented by a comprehensive mediation analysis.

Following the guidelines set by Hair et al. (2017), the mediation analysis involves a meticulous valuation of both the measurement and structural models, adhering to standard model evaluation criteria. Indicator loadings surpass the threshold of 0.7, reflecting strong construct validity. Internal consistency is established through high values of Cronbach's Alpha, Rho-A, and composite reliability. Convergent validity is confirmed with Average Variance Extracted (AVE) values exceeding 0.5, while discriminant validity is substantiated by adhering to the Fornell-Larcker criterion.

The absence of multicollinearity issues is noted, given the single independent variable in the mediation model. Furthermore, the levels of R2, effect size of f2, predictive relevance Q2, and q2 effect size, as presented, fall within acceptable ranges, aligning with the recommendations of Hair et al. (2017).

Figure 4: Direct and indirect effects of UPDS and CA2SME



(Source: Survey Data, 2020)

Table 14: Significance of Indirect Effects

Relationship	**Original Sample (O)**	**Sample Mean (M)**	**Standard Deviation (STDEV)**	**2.5%**	**97.5%**	**T Statistics (|O/STDEV|)**	**P Values**
UPDS->TFD	0.107	0.111	0.042	0.030	0.185	2.528	0.012

(Source: SmartPLS Bootstrapping Output, 2020)

Table 15 shows the indirect effects of UPDS and CA2SME. As mentioned earlier, the direct effects are the path coefficients of the structural model (). It was empirically supported that the indirect effects are significant at 5% confidence level as the no zeros lie in the biased corrected values and since the T statistic values are greater than 1.96.

Table 15: Significance of path coefficients (Direct effects)

No	Relationship s	Origina l Sample	Sampl e Mean	Std Dev	2.5%	97.5 %	T Statisti c	P Values	Results
H 1	**UPDS -> CA2SME**	0.124	0.125	0.06 2	0.00 2	0.241	2.008	0.045	Accepte d
		Reference			**No zero falls Between**		>1.96	<0.00 5	

(Source: Survey Data, 2020)

Tables 15 and 16 analyze the indirect and direct effects within the structural model to assess the relationship between UPDS and CA2SME. The indirect effects of UPDS on CA2SME are statistically significant, with 97.5% confidence intervals not including zero, a t-value of 12.265, and a p-value of 0.000. Similarly, the direct effects are significant, with a coefficient of 0.124, a t-value of 2.008, and a p-value of 0.045, as shown in Table 10. These findings, supported by bootstrap confidence intervals excluding zero, highlight the significant relationship and impact of UPDS on CA2SME

Table 16: Systematic Mediating Analysis for H3

Direct Effects					Indirect effects				
	Path Coefficient	97.5% confidence interval of The direct effect	T valu e	Significa nce p< 0.05	Path Coeffic ient	97.5% confid ence interval of the indire ct effect	t value	Significa nce p< 0.05	Results
UPDS-> CA2S ME	0.297	+0.158 +0.403	6.79 3	0.00 0	0.107	+0.030 +0.185	2.52 8	0.01 2	Partially Mediating ng

(Source: Author arranged as arranged by Hair et al, 2017)

Table 17 presents the mediation analysis results, providing valuable insights into the dynamics of the relationships within the proposed model. The direct effects show a significant path coefficient from UPDS to CA2SME at 0.297, with a 97.5% confidence interval ranging from 0.158 to 0.403, a t-value of 6.793, and a significance

level of $p < 0.05$. Additionally, the indirect effects reveal a significant mediation pathway through TFD, with a path coefficient of 0.107, a confidence interval of 0.030 to 0.185, a t-value of 2.528, and a significance level of $p < 0.05$.

According to Hair et al. (2017), these outcomes suggest partial mediation, indicating that TFD partially mediates the relationship between UPDS and CA2SME. The significant indirect effect underscores TFD's role in mediating this relationship, consistent with the theoretical framework.

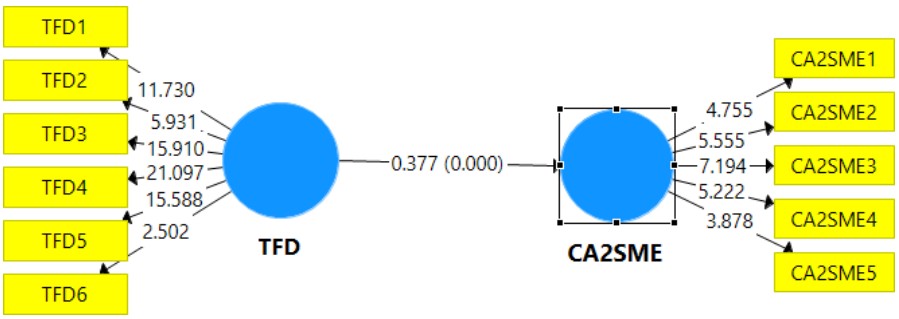
The effect size f2 further elucidates the magnitude of the mediation effects, following Cohen's (1988) guidelines. With an f2 value of 0.049 for TFD on CA2SME, it falls within the range of smaller effect sizes, suggesting that while the mediation effects are relatively small, they are still significant.

Considering both the significant indirect effects and the effect size, the conclusion is that TFD acts as a significant mediator in the relationship between UPDS and CA2SME. The mediation analysis highlights TFD's partial explanatory role in shaping the influence of UPDS on CA2SME, providing empirical evidence that aligns with the theoretical proposition of TFD's pivotal role in this context.

4.4. The TFD towards CA2sME

In order to interpret more meaningfully, this hypothesis was introduced according to PLS-SEM output results (Higueras-Castillo et al, 2019).

Figure 5: The TFD towards CA2sME



(Source: SmartPLS Bootstrapping output view (Path coefficients)

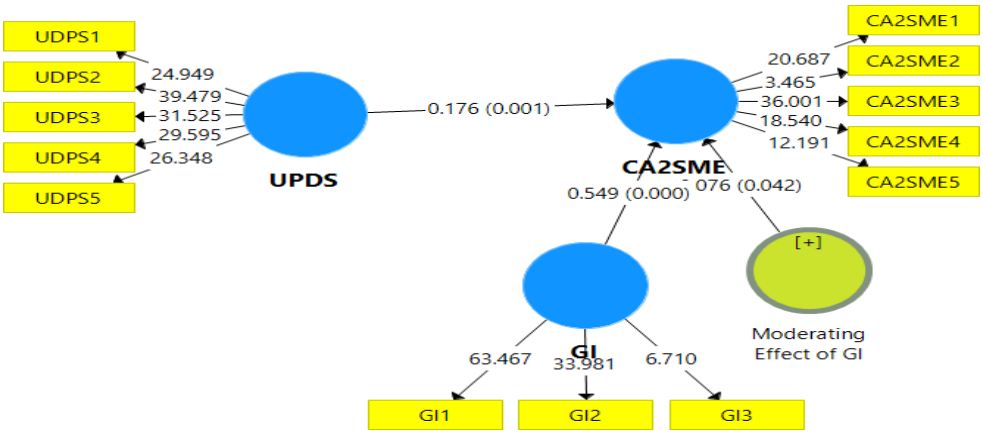
Table 17: Relationship of TFD and CA2SME

Relationship	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	2.5%	97.5%	T Statistics (|O/STDEV|)	P Values
TFD□CA2SME	0.377	0.394	0.059	0.274	0.492	6.424	0.000

(Source: Survey Output, 2020)

According to Table 18, since the bias corrected values don't include a zero and t statistics value is greater than 1.96, it is empirically concluded that TFD has a significant positive impact on the CA2SME. Accordingly, it can be reasonably argued that the findings of this research are on par with two major studies done in this context.

Figure 6: Path coefficients of Moderating effect of GI on relationship of UPDS and CA2SME



(Source: SmartPLS Bootstrapping Path Diagram)

Table 18: Summary of moderating analysis (H5)

Relationship	Original Sample (O)	Sample Mean (M)	Standard Deviation(STDEV)	2.5%	97.5%	T Statistics (|O/STDV|)	P Values
GI□CA2SME	0.549	0.555	0.044	0.452	0.620	12.475	0.000
Mod effect of GI	0.076	0.071	0.037	0.003	0.132	2.036	0.042
UPDS->CA2SME	0.176	0.173	0.053	0.068	0.282	3.339	0.001

(Source: The SmartPLS bootstrapping output)

Table 19 presents the evaluation of the measurement model for the moderator variable, Government Intervention (GI), confirming the reliability and validity of the construct measures. All indicator loadings for GI exceed 0.70, ensuring robust construct validity. Convergent validity is established with an Average Variance Extracted (AVE) of 0.597, and internal consistency reliability is demonstrated through Cronbach's alpha (0.643) and composite reliability (0.806).

Discriminant validity, assessed via Heterotrait-Monotrait (HTMT) analysis, reveals that the bias-corrected 95% confidence intervals for GI's HTMT values do not include 1, indicating no discriminant validity issues (Hair et al., 2019). The interaction term for the moderating effect of User-Driven Process Support (UPDS) is 0.076, significantly affecting Corporate Agility in Small and Medium Enterprises (CA2SME) at a significance level of 0.042. The direct effect of GI on CA2SME is 0.549.

This implies that an increase in GI by one unit results in a combined interaction and direct effect increase of 0.625 (0.549 + 0.076), while a decrease by one unit results in an increase of 0.473 (0.549 - 0.076). This relationship can be further analyzed through simple slope analysis of moderating effects.

Table 19: Summary of Hypotheses Testing

H/No	Relationship	Status	Justification
H1	UPDS□CA2SME	Accepted	R2 = 0.202
H1	UPDS□CA2SME	Accepted	β=0.406, t=6.900, p<0.001 Bias corrected confidence interval level includes no zero (Lower 0.274- Upper 0.513)
H2	UPDS□TFD	Accepted	R^2 = 0.229
H2	UPDS□TFD	Accepted	β=0.479, t=7.385, p<0.001 Bias corrected confidence interval level includes no zero (Lower 0.327- Upper 0.590)
H3	Mediating effects of TFD	Accepted	TFD significantly and partially mediates the relationship UPDS□CA2SME

H3	Direct and indirect TFD effects on UPDS□CA2SME	Accepted	**Direct effect**β=0.297, t=6.793, p<0.001 Bias corrected confidence interval level includes no zero (Lower 0.158-Upper 0.403) **Indirect effect** β=0.107, t=12.177, p<0.05 Bias corrected confidence interval level includes no zero (Lower 0.030-Upper 0.185)
H4	TFD□CA2SME	Accepted	β=0.377, t=6.424, p<0.001 Bias corrected confidence interval level includes no zero (Lower 0.274-Upper 0.492)
H5	Moderating effects of GI	Accepted	The relationship of UPDS'and CS2SME was significantly moderated by Government Intervention (GI)
H5	TFD□CA2SME	Accepted	β=-0.076, t=2.036, p=0.042 Bias corrected confidence interval level includes no zero (Lower 0.003-Upper 0.132)

(Source: Author Arranged Based on the SmartPLS Results)

5. IMPLICATIONS AND CONCLUSIONS

5.1. Theoretical Implications

The theoretical implications of this study are multifaceted, contributing significantly to the understanding of SME credit access in the context of digital payment systems. The research extends existing theories by demonstrating the pivotal role of digital payment systems in enhancing financial traceability and improving SME credit access. Traditional financial theories often emphasize tangible assets and historical financial records as primary determinants of creditworthiness. However, this study introduces a novel perspective by highlighting how digital payments can serve as a reliable indicator of business performance and creditworthiness, especially for SMEs lacking extensive financial histories.

The study's findings underscore the mediating effect of financial data traceability between digital payment adoption and SME credit access. By providing empirical evidence, the research supports the hypothesis that digital payments enhance financial transparency, thereby reducing information asymmetry between SMEs and financial institutions. This contributes to the existing body of knowledge by integrating digital

payment systems into the broader framework of financial intermediation theory, which traditionally focuses on conventional financial records and collateral.

Furthermore, the research elucidates the moderating role of government intervention in the digital payment ecosystem. It suggests that supportive government policies and regulatory frameworks can amplify the positive impact of digital payments on SME credit access. This extends the scope of institutional theory by illustrating how regulatory environments can influence the effectiveness of technological adoption in financial markets.

The study also contributes to the literature on SME financing by providing a nuanced understanding of sectoral variations in credit access. It highlights the differential impact of digital payment systems across various industries, thereby offering a more granular perspective on the applicability of financial theories in diverse business contexts.

In conclusion, this research not only bridges gaps in the existing literature but also lays the groundwork for future studies to explore the dynamic interplay between digital payment systems, financial traceability, and SME credit access. By integrating these elements, the study offers a comprehensive theoretical framework that can guide policymakers and financial institutions in enhancing SME financing strategies.

5.2. Managerial Implications

The study offers several crucial insights for managers of SMEs and financial institutions. Firstly, SME managers should prioritize the adoption of digital payment systems to enhance their financial traceability and improve their creditworthiness. Digital payments provide a transparent and reliable record of transactions, which can be instrumental in building a credible financial history, especially for SMEs that traditionally struggle with access to formal credit.

For financial institutions, the findings suggest a need to update credit evaluation models to incorporate data from digital payment systems. By doing so, banks and

other lenders can reduce information asymmetry and make more informed lending decisions, potentially increasing their SME client base and reducing default risks.

Moreover, the study highlights the importance of government intervention in the digital payment ecosystem. Managers should advocate for supportive policies and engage with policymakers to create a conducive environment for digital financial innovations. This collaboration can lead to the development of robust regulatory frameworks that facilitate the growth of SMEs through improved access to credit.

Lastly, recognizing the sectoral variations in the impact of digital payments on credit access, managers should tailor their strategies accordingly. By understanding the specific needs and challenges of their industry, they can better leverage digital payment systems to enhance financial inclusion and business growth.

5.3. Limitations and Future Research Directions

5.3.1.Limitations of the Study

- **Generalizability**: The findings are based on data from Sri Lanka and may not fully apply to other regions with different economic, regulatory, and cultural contexts.
- **Cross-Sectional Nature**: The study's cross-sectional design limits the ability to establish causality. Longitudinal studies are needed to better infer causal relationships.
- **Self-Reported Data**: Reliance on self-reported data introduces potential response bias. Future research could incorporate objective measures or mixed-methods approaches to validate findings.
- **Limited Scope of Mediation Analysis**: The study focused on financial traceability as a mediator, excluding other potential mediators like technological readiness or organizational capabilities.

- **Moderating Role of Government Intervention**: While the study acknowledges government intervention's role, it does not extensively investigate the specific mechanisms through which policies influence the relationship between digital payment systems and SME credit access.

- **Single Moderating Variable**: The study examined only government intervention as a moderating variable, overlooking the combined effects of multiple contextual factors.

- **Potential Endogeneity Issues**: The study does not explicitly address potential endogeneity issues. Future research should employ advanced econometric techniques to mitigate these concerns.

5.3.2.Future Research Directions

- **Cross-Cultural Analysis**: Future studies could explore the findings' generalizability by conducting cross-cultural analyses, comparing the impact of digital payment systems on SME credit access across different regions.

- **Longitudinal Studies**: Conducting longitudinal studies would provide a deeper understanding of the temporal aspects of digital payment adoption and financial traceability on SME credit access.

- **Sector-Specific Investigations**: Examining specific sectors' impact of digital payment systems on SME credit access could offer more granular insights.

- **Exploration of Alternative Mediators**: Future research could explore other mediating variables like operational efficiency or customer trust.

- **Comparative Analysis of Government Interventions**: Conducting comparative analyses of different government policies would provide valuable insights into how variations in regulatory frameworks impact the relationship.

Qualitative Studies: Complementing quantitative analyses with qualitative studies would offer richer context and unveil nuanced perspectives on SMEs' experiences with digital payment

6. REFERENCES

Alex, R. (2018, October 16). World payments report 2018: Digital payments booming. *Payments Cards and Mobile.* Retrieved March 16, 2019, from https://www.paymentscardsandmobile.com/world-payments-report-2018-digital-payments-booming/

Andrews, E. (2013). Who invented the internet. *History Journal, 12.*

Athukorala, R. (2017, October 18). A SME policy finally in Sri Lanka. *Daily FT.* Retrieved December 25, 2019, from http://www.ft.lk/rohantha-athukorala/A-SME-policy-finally-in-Sri-Lanka/19-641714

Bank, C. (2018). Payments and settlements department central bank of Sri Lanka. Colombo: Central Bank.

Banta, D. (2019). How digital payments help both SMEs & online lenders. *Payments Journal.*

Cavana, R., Delahaye, B., & Sekaran, U. (2001). *Applied business research: Qualitative and quantitative methods* (3rd ed.). Australia: John Wiley & Sons.

Central Bank. (2018, October 12). *Economic & social statistics of SL 2017.* Colombo: Central Bank.

Central Bank. (2019). *Payments bulletin.* Colombo: Central Bank.

Cho, Y. J. (1990). *McKinnon-Shaw versus the neostructuralists.* Washington, DC: The World Bank.

Ceylon Today. (2018, July 1). Access to finance for SMEs in Sri Lanka. Retrieved December 21, 2019, from https://ceylontoday.lk/print-more/36497

Corporation, C. B. (2017). Test validity. Retrieved from https://research.collegeboard.org/services/aces/validity/handbook/test-validity

Davis, F. W., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management Science, 35*(8), 982–1003.

Dalton, P., Pamuk, H., Ramrattan, R., Daan, V. S., & Uras, B. (2018, October 10). Payment technology adoption and finance. Retrieved March 15, 2019, from https://pure.uvt.nl/ws/portalfiles/portal/28111085/2018_042.pdf

Dissanayaka, D. (2013). Research gap and the research problem. Retrieved from http://mpra.ub.uni-muenchen.de/47519

Dornbusch, R., & Fisher, S. (1978). *Macroeconomics* (Chapter 4). New York: McGraw-Hill Book Company.

Dr. Firdu, F., & Professor John, S. (2003, November 5). The McKinnon-Shaw hypothesis: Thirty years on. Retrieved April 16, 2019, from University of Paisley: file:///C:/Users/User/Desktop/DBA/After%20class/McKinnon%20(1973)%20and%20Shaw.pdf

The Economist. (2017). Asian digital payment trends. Retrieved from https://www.economist.com/

EconomyNext. (2019, April 5). Sri Lanka digital banking transactions double in the third quarter of 2018. Retrieved December 24, 2019, from https://economynext.com/sri-lanka-digital-banking-transactions-double-in-third-quarter-of-2018-13605/

ePayments Blogs. (2019, January 31). A brief history of digital payments. Retrieved December 15, 2019, from https://blog.epayments.com/a-brief-history-of-digital-payments/

Jens, B. (2019, March 11). Cashless economy can be a double-edged sword for any nation—Analysts to RT. Retrieved March 14, 2019, from https://www.rt.com/business/453399-cashless-economy-scandinavia-experts/

Joel, M. P., & King, G. F. (2011). Macromolecular NMR spectroscopy for the non-spectroscopist. *The FEBS Journal*, *278*(9), 1–20.

Kline, R. (2011). *Principles and practice of structural equation modeling* (5th ed., pp. 3–427). New York: Guilford Press.

Malhotra, N. K. (2010). *Marketing research: An applied orientation.* Pearson Education.

Pallister, J. G., Foxall, G. R., & Yousafzai, S. Y. (2010). Explaining internet banking behavior: Theory of reasoned action, theory of planned behavior, or technology acceptance model. *Journal of Applied Social Psychology, 40*(7), 1659–1698.

Saunders, M., Lewis, P., & Thornhill, A. (2012). *Research methods for business students* (6th ed.). Financial Times Prentice Hall.

Sekaran, U., & Bougie, R. (2013). *Research methods for business: A skill-building approach* (6th ed.). New York: Wiley.

Sharma, A. (2005). *Textbook for correlation and regression.*

Shen, Y., & Huang, Y. (2016). Introduction to the special issue: Internet finance in China. *China Economic Journal*, *9*(3), 233–235.