THE ROLE OF SWIFT IN THE GLOBAL BANKING SYSTEM AND ITS IMPACT ON INTERNATIONAL TRADE

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Executive Summary

Banks play an essential role in international trade. The system that allows for functionality of cross border transfers, and in lieu support international cash transfers in SWIFT. With the evolution of cross-border transfers, and a significant increase in the overall efficiency of Fintech, the banking industry's bedrock innovation—SWIFT, is coming under significant evaluation. The key questions include how it is relevant in facilitating international trade, its effect and impact, as well as the other factors that affect SWIFT's efficiency. This research paper is done as a response to the Russia's sanction on the onset of its war of aggression in Ukraine, and the consequent light shone on SWIFT as a tool for international trade. The study as such attempts to reveal what constitutes SWIFT performance with relation to international trade, as well as offers insights to the factors that affect cross-border transfers as noted in SWIFT's data.

DEDICATION

This dissertation is dedicated to the bank of….

ACKNOWLEDGEMENT

I thank…for the blessings and good health. It is my pleasure to express sincere gratitude and appreciation to my supervisor….

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Chapter One: Introduction

1.1 Background of the Study

SWIFT is a messaging system that is used to ensure smooth communication between banks that are on the SWIFT system (Scott et al., 2017, p. 982). In this regard, it is a system of communication that transfers between banks have been made. The SWIFT system is used in over 200 countries and connects over 11,000 financial institutions (France 24, 2022; Hotten, 2022). Thus, it can be described as the backbone of financial systems. The essence of the SWIFT system is that it helps to keep the flow of information on the goods that have been paid for, and the sums of money that have been dispatched, and as such necessitates transactions across the globe (Scott et al., 2017, p. 982). It is thus preeminent in the finance system as it helps to promote security for monetary transfer information.

The relevance of SWIFT in the control of international financial communication is the power it yields in regulating the financial world. While the case of Russia is the most recent on how the SWIFT system can be used to regulate international transactions, and control the international banking system, it has been applied in sanctioned countries such as Iraq (France 24, 2022). When a country is removed from the SWIFT system, it is likely that it shall have shrinkage in the overall business transactions that it transacts as it is likely to trade or communicate locally (Scott and Zachariadis, 2014, p. 192). The international partners or banks fail to authenticate the transactions made as they are not verified through the SWIFT system. In effect, the country is isolated from the global economy. This shows the potency of this decentralized communication system in the control of information on banking just by the simple functionality of being a medium of communication between banks.

1.2 Application of the SWIFT System

The SWIFT system, in global banking, serves in promoting a sense of awareness of communication, especially decentralized communication in the banking world. For the financial security experts, the SWIFT system can be considered as a way of protecting financial communication from cyber terrorism or financial terrorism that arises when financial transactions are interfered with. In essence, the SWIFT system is the backbone of virtually all financial communications (Camillo, 2017, p. 198).

Bank managers benefit from the SWIFT system as they are able to confidently verify, and to promote the swift flow of transactions. This helps to promote ease of transactions without having to keep on confirming the legitimacy of the transactions made (De Goede, 2020, p. 357). The SWIFT system also helps to remove the burden of verification or authentication of transactions if they were to take place through other systems such as email communication or peer-to-peer communication that is supported by common or general emails. Given the level of sensitivity that is related to financial transactions and transfers, SWIFT ensures there is protection or encryption of the financial messages or communications. It thus saves the businesses and financial managers from being liable to losses that may arise from failure in initiating transfers or broken communication systems.

1.3 The Rationale of the Study

In February 2022, SWIFT's crucial role in global banking became pronounced and came to the limelight (Hotten, 2022). More profound is its impact on international trade as Russian banks being removed from the SWIFT system portended the ramifications of distancing Russia's economy from international trade (Hotten, 2022; France 24, 2022). It is therefore critical to study the role played by SWIFT in the banking system and how such a robust global banking

telecommunications network influences international trade. The relevance of SWIFT as a communication system, as well as a unique system that is accepted to be used by financial institutions globally is pronounced in modern times. The relevance of the SWIFT system since its inception in 1973 has been under-discussed in a manner of censorship or as a tool of control (Scott and Zachariadis, 2014, p. 192). The existing literature and mainstream knowledge are that SWIFT is a key functional system for all global financial systems, as such removal from the SWIFT system is an isolation from global finance and ultimately being locked out of international trade.

1.4 Objectives of the Study

Among the key objectives that the study seeks to accomplish is:

(i) To study the effectiveness of SWIFT in regulating fraudulent activities.

(ii) To study how banks on SWIFT perform with regard to international transactions.

(iii) To explore the significance of SWIFT as a mode of regulating international trade based on the Russian experience.

1.5 Scope of the Study

1.5.1 Research Questions

From this, it occurs that there are a set of questions that infer to SWIFT as an important study topic, and as such the research shall aim to answer the following questions:

(i) How does SWIFT promote transparency in the global financial system?

(ii) How does SWFT enable international trade and foreign exchange vis a vis the global banking system?

(iii) In what ways has SWIFT safeguarded the overall global financial system as a facilitator of international trade?

1.6 Structure

The structure and flow of the paper shall be as follows: Chapter two shall offer a comprehensive literature review on the SWIFT system in banking, and the roles of financial institutions in international trade. This shall be useful in creating a background on the application of SWIFT at a global scale, its relevance and its relationship to international trade. An attempt shall be made to show the intersectionality between SWIFT, global financial institutions, and international trade. Further, efforts shall be made to show the role that SWIFT plays as a medium between global financial institutions and how this impacts global trade. The third chapter shall use the quantitative approach as the core of the research methodology. There shall be a comparative analysis of the performance of banks during the SWIFT system and before the SWIFT system. The performance of the countries and the banks that have been removed from the SWIFT system shall be used as the control experiment to compare with those which are on SWIFT. This shall help in defining a hypothesis and the significance level of banks being reliant on SWIFT and situations where SWIFT is not used. Chapter 4 shall deal with an analysis of the findings on the relevance of SWIFT on global financial institutions and the consequent implications on international trade. The country-specific indices will be used in the analysis as well as economic reports and financial reports from SWIFT and other international financial institutions.

1.7 Limitations of the Study

The delimitations of the study are that there is no sufficient data on the day-to-day operations of SWIFT. As it is one of the functionalities in the global banking system, whose significance has been unexplored in the field of study, there may not be sufficient comparative literature to substantiate some of the findings. Thus, there may be some gaps, which may be

quite oblivious to the researcher but upon a future date may be recognizable when looking in retrospect.

Chapter 2: Literature Review

Khadjimamedov and Kizi (2021, p. 2) write descriptively of the significance of the SWIFT system and notes that its fundamental infrastructure based on codes and networks is essential to the international financial institutions. The Society for Worldwide Interbank Financial Telecommunication follows the Bank Identifier Code (BIC), although SWIFT is the ultimate standard BIC. The SWIFT code carries details of the bank, and the bank's address. Khadjimamedov and Kizi (2021, p. 11) further assert that these details are useful in the general identification of transfers, and aid in the interbank transfer system. As the code is unique for each transaction, and carries the elements of the individual bank address and the bank details, it is easy to locate individual transactions through the global web of money transfer. This serves key purposes of international bank transfer—which is the transfer of money safely and securely, and communication of financial flows. On the same note, Scott and Zachariadis (2010, p. 27) argue that these core functionalities are useful in the international trade as it is easy to identify transactions.

The operationalization of SWIFT as the international messaging system has not been without incidence as many developed countries are concerned about privacy, and data protection regulations. Funta (2011, p. 24) takes note of the environment of the European Union and the US relations on financial security in the age of cybercrime. Funta (2011, p. 27) further notes that the use of data encryption and high levels of security is a necessary issue in the framework of international cooperation, especially on matters of international money transfers. In this regard, the SWIFT application or system plays an essential role in removing the doubts of financial

insecurity that may arise from the fraudulent involvement of those who seek to compromise the international money transfer system. In lieu of this, Funta (2011, p. 25) states that there has been a raft of measures that have been taken to strengthen the SWIFT operations through regulatory and policy interventions.

According to Ghazaryan et al. (2021, p. 293), the IMF makes use of the SWIFT data in the analysis of the performance of international trade. SWIFT data is useful in analyzing the real-time flow of transactions in international trade. It is used in making an analysis of the most active economies in international trade. While there are other sources of data on international trade such as the one derived from the World Trade Organization, the SWIFT data provides a raw sense of financial flows across the globe via trade. The volumes of money flow act as a useful indicator of the overall volume of transactions taking place, the regularity, and the variability across time periods. This is the significance of the SWIFT data in the analysis of financial transactions as indicators of international trade. In the absence of such data, it is easy to create generalizations of the overall performance of the economies.

In 2021, the IMF data in the analysis of the overall trade performance across the globe used various models and tools, with SWIFT making up only about 1% of the data in world financing statistics (Ghazaryan et al., 2021, p. 293). Although its data is limited, it is an important indicator of the quantitative performance of the markets, and real-time trade transactions. According to The Bank for International Settlements (2022, p. 2), the key concern about SWIFT is how it is able to solve the concerns of speed and convenience in banking. The rise of the BIS innovation, which is the gpi is to increase the overall processing speed of payments with new policy administration being used lessening the overall operational hours. The BIS policy shows that SWIFT has undertaken an innovative approach through SWIFT gpi which

is the overall standard of global payment processing time of less than two hours. The Bank for International Settlements (2022, p. 3) asserts that in the case of the fastest routes, the processing time is expected to be not more than five minutes. The Euro area forms the fastest routes while Asian and African routes are among the longest routes which the new regime notes the processing should not take more than 2 days (The Bank for International Settlements, 2022, p. 3).

Notwithstanding, the technical efficiency of SWIFT in the banking industry has been an evolving conversation with various scholars putting attention on the new innovations by SWIFT. Raymaekers (2018, p. 34) argues that the international money transfer systems are undergoing changes that are driven by the need to have real time payments, and increased efficiency. It is based on this technicality that the SWIFT gpi was developed. The SWIFT gpi allows faster cross-border transactions, and ensures that transactions take place in real time without the limitations of the local time operations.

Raymaekers (2018, p. 35) further notes that the rise of the SWIFT gpi is a consolidation of measures taken by the FSB, CPMI, World Bank, International Monetary Fund (IMF) and Financial Action Task Force (FATF). The consolidated efforts have as such defined the SWIFT policy, as per the SWIFT gpi, to be as follows: promoting transparency by making note of the transactional function or purpose, setting clear fee expectations along the payment processes, ensuring that payments are complete within the same business day, and monitoring of payments (Raymaekers, 2018, p. 36; The Bank for International Settlements, 2022, p. 3). The influence of these measures has seen a significant impact in the level of banking institutional change via adoption as over 4,2000 banks have adopted the SWIFT gpi which has influenced at least 60 market payment modes including FinTech.

The Bank for International Settlements (2022, p. 4) states that the significance of lowering the processing time is to ensure that more businesses take place at a shorter period of time. This is aimed at eliminating the deadlock of time freeze which occurs when the beneficiary bank fails in processing the payment or crediting the end customer account. By increasing the overall time, there is a sense of disappointment in international banking or trade. In retrospect, the SWIFT gpi solves this issue by increasing the speed of cross border transfers, which in essence leads to a faster flow of transactions (The Bank for International Settlements, 2022, p. 3). As such, the SWIFT gpi eliminates the delays that come up from dependency on local banking hours as this leads to delays, and confines the international trade to local inconveniences and banking bureaucracies (The Bank for International Settlements, 2022, p. 6). Therefore, the use of the SWIFT gpi as a standard transfer innovation fosters speeds by eliminating intermediaries in the overall payment process as any increase in intermediaries in the payment process increases the overall lead time.

The SWIFT gpi is effective as it is based on the Unique End to End Transaction Reference (UETR), a code that is used to track the transactional path or financial flow of money (The Bank for International Settlements, 2022, p. 3). The creation of the UETR in SWIFT's gpi is aimed at solving the challenge of transparency which is a key concern among corporate customers and corporates. The Bank for International Settlements (2022, p. 4) notes that to ensure a system of transparency, SWIFT has pursued collaboration between stakeholder finance institutions such as banks, corporates and FinTech.

Fuster et al. (2008, p.194) state that there has been concerns about the data protection issues in SWIFT. This has been a major concern as SWIFT is the main transfer system for transatlantic transactions, and also popular in both Europe and the US. This concern is a

longtime investigation for data security experts and literature. For it occurs that SWIFT became a significant player in promoting the overall interbank transfer security in the world as manifested by earlier research publications such as that of Zhu (2001, p. 54) in which he delved on security controls in interbank transfers. This is a shared narrative, which has been developing especially in the age of cybercrimes. This has led to a consequent development or hike in the overall updates of data security in all issues regarding SWIFT operations. Therefore, as this was an issue of concern in 2008, it has since been resolved, and SWIFT has become a reliable source of money transfers in the transatlantic region.

The necessity for financial security in international transfers is also corroborated by parallel research by Scott and Zachariadis (2014, p. 985) who note that there has been a significant rise in the cases of mail fraud. The impact of mail fraud as provided by this report is a significant decline in user confidence of the systems in international systems. This reduces the overall level of transactions and may cause an unnecessary backlog in the overall transactional communications as there is a higher or lengthy process in verifying communications. In this regard, Scott and Zachariadis (2014, p. 986) argue that the best methodology to remove these bottlenecks is to adopt the SWIFT system. These authorities as such demonstrate the necessity for which SWIFT is founded in the international league of interbank transfers and operations. It is a tremendous step in the right direction as there are various banks and systems in place which may conflict, and these may be replicated by third-party hackers who may defraud the system. Hence the beauty or the competitive advantage that the SWIF system provides is decentralization which brings homogeneity in the transactions and communications. Besides, Scott and Zachariadis (2010, p. 91) state that the SWIFT system uses autogenerated codes which can be backed in the system and as such form the basis of the evaluation of transaction history of any

given operations. This has as such proven to be a great way of backdating transactions, and a useful process in auditing international trade transactions.

SWIFT provides an enabling medium for international trade to take place. Observing the intersectionality between security and the role of banks in international trade, SWIFT serves the role of both medium and the security that banks need in international trade according to a scholarly argument by Khadjimamedov and Kizi (2021, p. 52) in which they show that SWIFT provides better security for international transactions. This makes SWIFT the most important component in the banking industry in so far as the international transactions are concerned as it is the go between the banks and the clients. Niepmann and Schmidt-Eisenlohr (2017, p. 121) argue that the SWIFT messages of cash transfer or payment for a transaction replace the risky letters of credit which are issued by banks. Thus, as SWIFT allows direct transfers of money, the risk of liability or delayed payments that may arise from alternative methods such as the use of the letters of credit as a way of proving payment or scheduled payment is eliminated. Instead, banks through the SWIFT connectivity can ascertain payment of certain goods and as such lower the degree of risk incurred by the exporter, and reduces the lengthy follow ups on whether the bills have been settled. This makes it easy to transact with many people as the payments occur based on a cash received or transaction method as would occur in one's local country or jurisdiction.

According to Boz et al. (2020, p. 7) SWIFT plays the all-important role of eliminating invoicing challenges as the medium of interbank transfers automatically converts the given currency through the foreign exchange and international currencies at the given time. The parties' preferences in the invoicing process are sought, and is useful in selecting the type of invoicing currency. Boz et al. (2020, p. 9) argue that as the Euro and the US dollar have been the most dominant invoicing currencies in international trade, SWIFT ensures that these vehicle

currencies are applicable in the interbank transfers. Further, the banks are expected to operate within the approved rates of foreign exchange rates in facilitation of the payments as per their initial transactions. This methodology ensures that there is no price fluctuation or losses incurred in any given way due to price variability or the currency fluctuation in the international scene at a given time. Instead, it provides for global stability in the international invoicing system which is a guarantee of smooth or continuous transactions.

Boz et al., (2020, 17) states that the US dollar acts as the base currency for SWIFT international trade and exchanges. Else, it avoids the conflicts that may arise in international invoicing where interbank relations or the exchanges based on foreign bureaus come to play. Therefore, it occurs that the international trade is insulated from domestic shocks of individual countries such as the shortage of the foreign exchange currency in a given country as the SWIFT system by itself is capable of bridging the foreign exchange gaps by auto conversion systems.

On the relevance of SWIFT in controlling international trade, scholarly reviews point to the use of SWIFT as a tool of control in terms of trade in the international scene. Farrell and Newman (2019, P. 61) equivocally state that tools of international trade control are used in creating “weaponized coercion” in the international trade on targeted states. While this critique points to the use of SWIFT as a panopticon in international trade, it largely points to the element of interconnectedness of the global system in terms of trade and international policies. Thus, as Farrell and Newman (2019, p. 64) argue, SWIFT helps to keep an oversight on how states operate in the international scene, which can be used as a coercive tool to operate based on terms set by organs such as world trade organization or impose trade sanctions when there is violation of UN treaties or other binding international agreements. It is arguably this dynamic of control that have led to speculative literature discourses on the alternatives to SWIFT in the post-Russian

sanctions. Nölke (2022, p. 5) argues that the main reason why China and Russia are seeking to establish alternative messaging infrastructure is to eliminate the hegemony by the West. However, Nölke (2022, p. 5) notes that even in the Russian preferred and proposed infrastructure concerns to do with security, transparency within the BRICs region is of essence.

Eichengreen (2022, p. 2) notes the overarching influence of the interconnectedness of the banking system and its implication on the independence of states in choosing their international trade or foreign policy. The author notes the relevance of SWIFT in the global banking system and how it yields significant power in the control of international trade (Eichengreen, 2022, p. 3). This corroborates the findings by Farrell and Newman (2019, p. 68) that SWIFT is a power of good or evil in the development of international trade policy standards, and terms of engagement. In lieu, the evaluation does not support SWIFT or condemn it, but offers insights on its relevance or functionality as a tool of international trade control. According to Eichengreen (2022, p. 4). this dominance of SWIFT creates concerns from China and Russia on the development of alternative systems based on the Renminbi, the Chinese currency and the Russian rubble.

While this can be seen through the lens of alternatives to SWIFT, it is interesting to note that the SWIFT gpi has led to market liberation in the money transfer platforms across the globe. This in effect has liberated international trade, either in the perspective of singular FinTech or through the entire banking infrastructure (Milkau, 2019, p. 209). The SWIFT gpi as such adopts to the market changes and helps attain cross border transfers outside the shrinking banking network. The essence of new innovations in SWIFT gpi is to make sure that international banking or money transfer is safe in the age of financial technological shifts. Milkau (2019, p. 211) further asserts that there has been entry of new models of transfer which have altered the entire scope of transactional histories. These include new taxonomies such as settlement-based

versus messages between local pools, proprietary/closed-loop versus interoperable, and tokens versus accounts (Milkau, 2019, p. 214). This is majorly driven by the rise of blockchain technologies, and the use of international transfer systems outside the normative banking field such as PayPal, Alipay, and Ariba pay (Milkau, 2019, p. 216).

In converse, the SWIFT technology as established is not diversionary or static but rather dynamic as the indications in the Fintech space point to the use of integrated ledgers. Shabsigh et al. (2020, p. 6) observe that similar patterns in the blockchain technology create a parallel pattern in how SWIFT gpi has been established as a means to consolidate banking patterns. This promotes the elements of interconnectivity in international trade to mitigate the slow progress that comes from separatism or single-ledger systems restricted to a given bank (Shabsigh et al., 2020, p. 7). The element of interoperability in the international Fintech space as such shows that the SWIFT gpi is an essential element in international trade. Imperatively, Eichengreen (2022, p. 4) and Nölke (2022, p. 4) note that even as Russia and China react to the regulatory aspects attributed to SWIFT, it is certain that if they are to develop any system, there will be a replication of the SWIFT gpi, or shall find themselves dependent on SWIFT one way or the other.

Chapter 3. Methodology

3.1 Introduction

This study shall analyze the role of SWIFT in international trade. The study involves an overview of the procedure that shall be applied in data collection, measurement and analysis. This section, therefore, shall comprehensively cover the methods including approaches, techniques and procedures used to achieve the aforementioned ends.

The study shall be based on the following questions as a way of defining the various parameters;

i. The effectiveness of SWIFT in regulating fraudulent activities.

ii. How banks on SWIFT perform with regard to international transactions

iii. The significance of SWIFT as a mode of regulating international trade based on the Russian experience.

3.2 Research Design

This research adopts a quantitative approach to study how banks enlisted in SWIFT perform in international trade with regard to overall number of transactions/ transaction volumes, curbing fraudulent activities, and promoting the speed of interstate money transfers. The choice of quantitative research design is based on the need to examine the degree of influence or impact in a measured way. This is useful in measuring the performance banks on the SWIFT system in international trade, against those which are not on SWIFT.

3.3 Study Area

The study area in quantitative data is the given population specific to a given group or area. As SWIFT is a global interbank system, the study area shall be global, and to this extent shall cover all the continents on the SWIFT system, and compare their performances based on the degree to which they are on SWIFT. Thus, there shall be two groups, the SWIFT relying banks and the low SWIFT relying banks.

Notably, the highly concentrated SWIFT connected banks are in Euro-area, including Europe and the US.

3.4. Target Population

The target population is the various high SWIFT dependent regions of the world, and the low SWIFT dependent regions of the world. The high SWIFT dependent regions are those which have a majority if not all of the banks connected to SWIFT, while the low SWIFT regions are those which have few banks on the SWIFT system.

3.5. Sampling Design and Procedure

The sampling design used for this research is the systematic sampling design. The samples included are selected to be an indication of the whole, the use of systemic sampling is useful in this study as there is a choice to be made in selecting the data sets and comparing them against each other. The essence of the systemic sampling method in the case of SWIFT is to establish the variation in the two by measures of standard deviation, and other statistical components. Further, the systemic sampling method is useful in comparing data sets.

3.6. Sample Size

The sample size shall include the computation of the overall study population to get a representative sample. The sample size shall be approximately 20 banks in the high SWIFT regions and 20 banks in the low SWIFT regions with the overall sample size being 40. The overall population of study is estimated to be 200 countries, and as such the choice of 40 countries to be observed in this study is useful in increasing the overall validity of the data or its precision in defining the phenomenon under study.

Where;

n represents sample size,

N represents study population

C represents coefficient of variation and

e represents error margin.

3.7 Data Collection Methods and Instruments

The study relies on secondary data which is the key source of data. This approach is necessary as the institutions, such as banks, IMF and World Bank are the custodians of primary data from the institutions under study. Also, given the scope of the study, the secondary data is

essential in the meta-analysis of the vast variables and their correlations. As the data is collected from the existing secondary sources, a cross-sectional approach in data collection across the different years is useful in having varied data on the performance of banks and international trade as pegged under the SWIFT model.

3.7.1 Reliability of the Research Instrument

The research makes use of data drawn from the publications of peer-reviewed journals, and institutional publications of organizations with high reputations in the field of finance, international trade, finance and banking. Thus, the data is a useful tool, while the use of the quantitative method is applicable in the analysis of big data, especially when comparing performances and how they are affected by base variables. Thus, it is possible to establish the significance level of SWIFT as an independent variable for the performance of international trade in the areas of volumes, degree of coping with fraudulent activities, speed of transaction among other measurable dependent variables. Further, the use of secondary sources in the collection of data is useful as it is cheap, and reliable. Also, it presents large volumes of data that could be unattainable if a primary approach was to be used. Besides, it offers a scholarly and expert approach-based reference for comparison which makes it more accurate as a tool of study.

3.7.2 Validity of the Instrument

Validity refers to the degree to which the instrument yields the same results on the replicated trials. It is therefore the degree of constancy or whether it can be relied upon to produce the same results when used in two or more attempts to measure the concepts. Besides, STATA and SPSS as the key software analysis tools are used in establishing correlations, and in big data analysis. A regression model is used to evaluate the outcomes, and draw the nexus between SWIFT's role and other functionalities of banks in international trade. Regression

analysis is a useful and valid tool in quantitative analysis especially when a model is to be established.

3.8 Data Collection Procedure

This study will utilize published data. The data shall be entered into excel sheets or the relevant software. The data source shall be cited as a way of tracking the source, and verifying its originality and consistency in representation without any changes that may arise from error or any alterations to fit a certain biased expectation. Thus, any other researcher can trace the data, and simulate similar results.

3.9 Data Analysis and Presentation

The data is analyzed by use of summary statistics, including percentages, means and standard deviation to measure interrelationships between the variables. Graphs are also used to display the information to improve presentation of the analyzed results for ease of interpretation. Data from various sources is coded to facilitate statistical analysis. Both descriptive and inferential statistics was used to analyze the data, including mean deviation and frequency distribution. The SPSS version 20 and MS excel are also used to analyze the collected data. To establish the link between institutional bases, and SWIFT utility, the data analysis used the regression model below:

$Y= \beta 0+ \beta 1X1+\beta 2X2+ \beta 3X3+ \beta 4X4+\varepsilon$

Where:

Y is the dependent variable (International trade)

$\beta 0$ is the regression constant

$\beta 1$, $\beta 2$, $\beta 3$, $\beta 4$, and $\beta 5$ are the coefficients of independent variables,

X1 is geographic factor i.e., high or low SWIFT zone

X2 is speed of SWIFT

X3 is ease of use

ε is the Error Term.

The study also checked the model significances (f and t-significances) for statistical reporting.

Chapter 4: Data Analysis/ Findings

4.1 SWIFT Time Leads

The SWIFT time leads have been an effective functionality in the overall processing speed of the interbank transfers. This is useful in the global transfer speeds. From the findings, the SWIFT time leads have reduced the overall time spend on processing of payments, making processing time to be up to 4 times faster than the original transfer period. In lieu, it occurs that the time speed acts as a variable or functionality of increasing the overall international trade volumes transacted in a day. As such, it occurs that in the equation of representing the impact of SWIFT on international trade has a bx2 where b is the coefficient of the difference between the actual load of transfers processed in a day in traditional bank to bank system in this case 4, and X2 the exact volume processed in a day in the normal periods.

From the SWIFT gpi, it is indicative of the areas which experience high SWIFT and low SWIFT concentration or processing speeds. The low SWIFT gpi processing zones include Africa and Central Asia which range between 8 hours to 36 hours, while the fast SWIFT processing areas include the US, and Western Europe which range from 5 minutes to 1 hour 30 minutes. Eastern Europe comparatively constitutes of median or average SWIFT gpi processing speeds of approximately 2 to 6 hours.

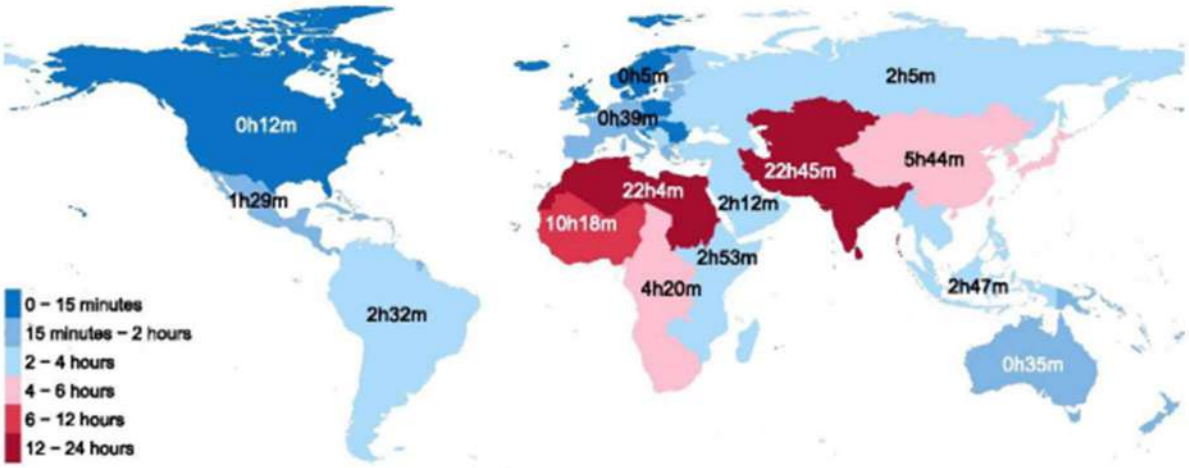

Figure 1*: Analysis Based on Routes Rather Than Corridors (Source: SWIFT Observer Analytics)*

In order to generate information on the payment speeds, and its impact on the international trade, it occurs that there are several variables to be considered:

(i) The commercial flows, and;

(ii) The financial flows

Commercial flows are the payments made by banks on behalf of a client to another bank, or to a given account to necessitate obtaining and processing of goods; and as such relate to the flow of goods and services across the globe through given corridors. While the financial flows are the singular or individual payments that are to complete transactions between two clients, and as such refer to trade relationships between the partners involved. The impact of the two is in their effect on the beneficiary processing time, where a higher beneficiary processing time is the sum of the elapsed time and the processing time per region.

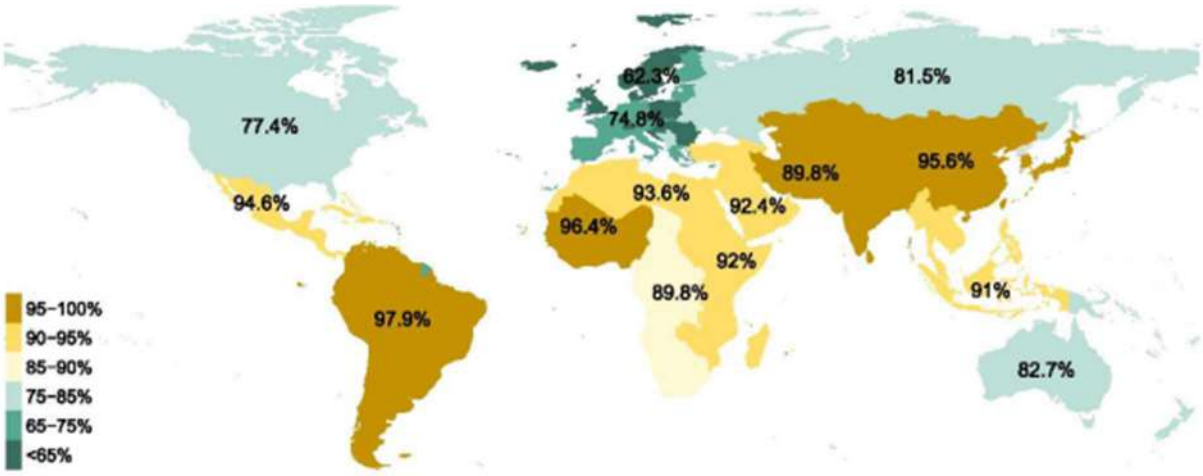

Figure 2: SWIFT's Beneficiary Processing Time (Source: SWIFT Observer Analytics)

Figure 2 shows the beneficiary processing time, and as such shows that North Africa, Central and South Asia and South America have the highest processing time which is indicative of the low speed in processing of the payments from end-to-end user. The high processing times are the high SWIFT zones of US, and Western Europe. This explains the higher level of international trade occurring per day in the trade routes between US, and Europe while there is a relatively lower trade that takes place per day between the low SWIFT beneficiary processing time.

To get the variance between the SWIFT gpi high speed areas and the SWIFT gpi low speed areas, it is essential to calculate the standard deviation of each area, and as such come up with an average time which accounts for the deviation between the high and low speed areas. To do this, the SWIFT gpi beneficiary processing time, which is the percentage of time out of all the required or tolerable processing time by SWIFT standards is used. All the areas in blue are considered to be high SWIFT gpi zones while all the areas in gold are low SWIFT gpi zones.

Table 1: *The choice of the high zones starts from the lowest processing to the highest lowest processing time*

Continent/Region	Percentage of processing time (%)	Deviation from the mean (m =100)
High 1	62	
High 2	74.8	
High 3	77.4	
High 4	81.5	
High 5	82.7	
Total	**378.5**	**121.5**
Average	**75.7**	**24.5**

***Table 2**: The choice of the low zones starts from the highest processing to the lowest highest processing time*

Region	Percentage of processing time (%)	Deviation from the mean (m=100)
Low 1	97.9	
Low 2	96.4	
Low 3	95.6	
Low 4	94.6	
Low 5	93.6	
Total	**478.1**	**21.9**
Average	**95.62**	**4.38**

Therefore, it occurs that the variation between the high SWIFT gpi zones and the low SWIFT gpi zones is as follows;

24.5-4.38 = 20.12

Thus, there is a 20.12% in the processing time that occurs between the high and low gpi zones. Taking this as a function in the overall variation, it occurs that to a significant degree, the number of orders processed per day in the low gpi zones are 20% lesser than the high gpi regions all factors held constant.

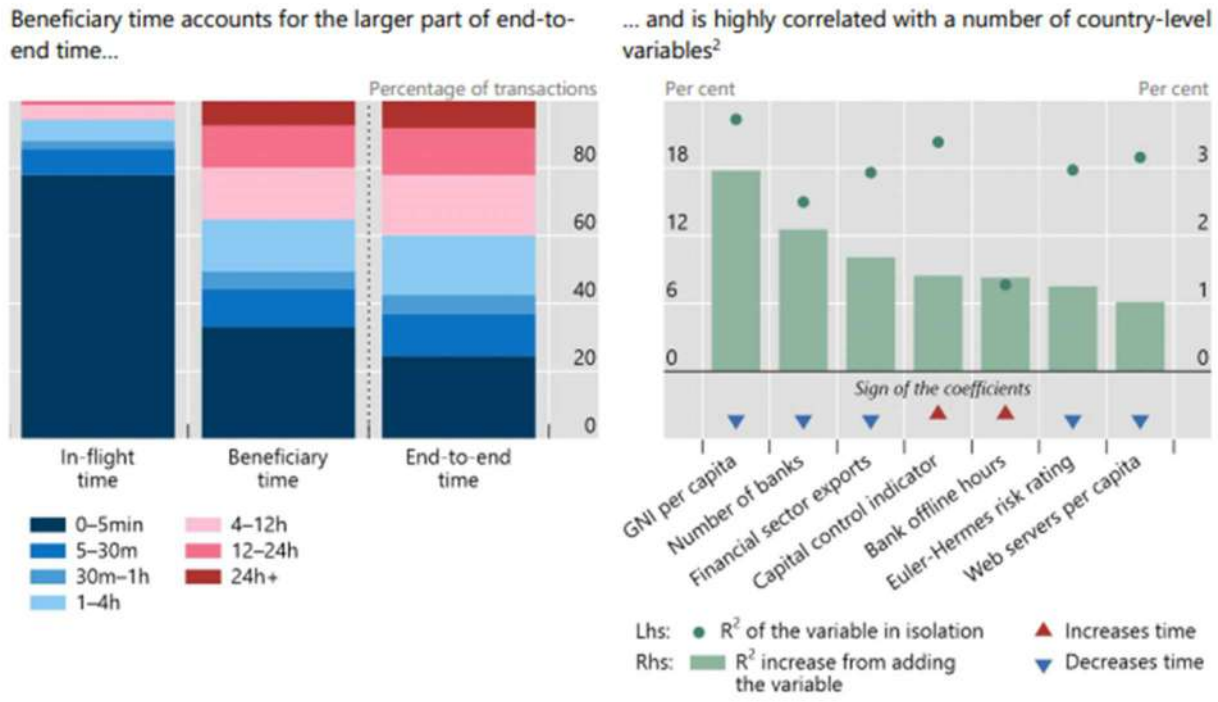

Figure 3: Factors that Affect the Global Volume or the SWIFT gpi Results (Source: SWIFT Observer Analytics)

Notwithstanding, there are other variables that affect the overall SWIFT processing speeds and hence the overall volumes of global trade that takes place within a given day. These include the GNI per capita, which contributes up to 18%, the number of banks in a given region which accounts for 12%, financial sector exports which accounts for 9%, the capital control indicator which accounts for -8%, bank offline hours which accounts for -8%, the Euler Hermes risk rating which accounts for 7%, and the web servers per capita which accounts for 6%. These matrices show that the overall impact of the SWIFT gpi is a result of several factors rather than a singularity of SWIFT system as a medium of exchange. Therefore, for any bank or region to lay claims on its SWIFT performance, it is essential to understand how its country and region-specific factors play a role in bringing the performance.

The significance of these factors is that they make it easy to observe how there is an intersectionality between the international trade being a factor of both SWIFT and its performance being affected by independent variables. As such, the countries which have higher GNI per capita, have a higher number of banks, high capital control indicators, high financial sector exports, higher Euler-Hermes risk rating and their web servers per capita are likely to have a faster lead time, and as such experience a higher level of international trade processing per day.

Therefore, the SWIFT performance is a product of the external environment rather than barely a product of the existence of the SWIFT system. These factors play a significant role in determining the countries that are considered high SWIFT or low SWIFT as indicated by the previous processing times. The processing times are useful indicators of the time that trade at given times takes, and consequently influences the investors in knowing the most preferred investment zones.

4.2 Global Factors that Affect SWIFT Results on International Trade

The SWIFT flows rate or impact on the international trade is affected by global market factors, and as such any variations in the data can be accounted by an exploration of the market dynamics. For it occurs that the global return on tangible equity has experienced a decrease in its overall growth rate, with the period between 2013 and 2018 experiencing an increase arising from digital disruption and market volatility. With an increase in the market volatility, banks have experienced a decline in the overall investment portfolios or matching investments made due to the prolonged economic slowdown. In effect, these have impacted the SWIFT global transaction rates experiencing a significant decline compared to the projected expectations. The graph below is an illustration of the trends in the global lending system, as an indicator of the overall global economic performance vis a vis international trade performance matrix.

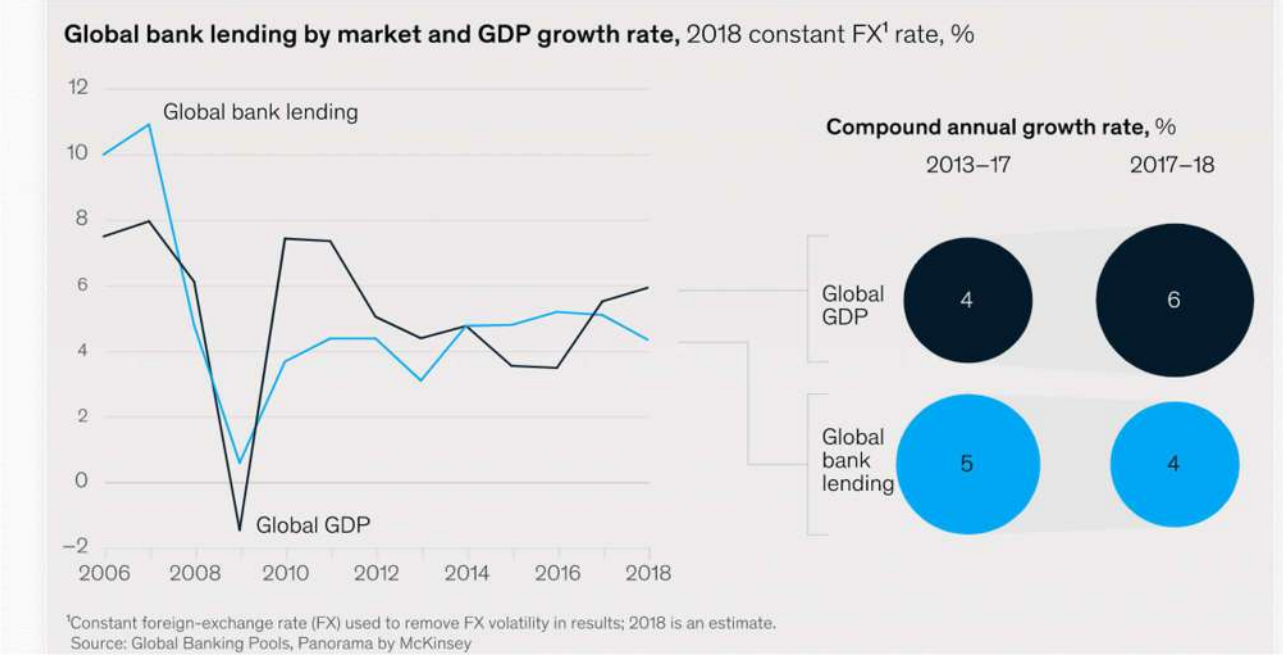

Figure 4: Global Economic Factors That Affect SWIFT Performance and International Trade in General

The key issues that SWIFT might have to address is how to compete with new era platforms that rely on blockchain. There are existing fintech such as Ripple and Interbank Information Network (IIN) by JPMorgan Chase which has over 130 banks. With key concerns on the blockchain reliability, SWIFT has a chance to increase its overall transfers given that the overall money transferred per day over SWIFT is approximately $200 billion per day. As such, the concept of distributed ledger which blockchain is based on is SWIFT's biggest challenge. In combating this, SWIFT has introduced peer to peer application programming interface (API) which allows country to country direct payments. This is useful in the international trade as customers from various regions can trade directly without relying on a whole network.

With regard to the future of payments, SWIFT proves to be a formidable player in the fintech industry and eclipses the use of blockchain or other new payment systems for cross

border transfers. The Society for Worldwide Interbank Financial Telecommunication is based on the core factors, which gives it a comparative advantage when compared to other cross-border transfer systems such as blockchain. According to a survey by Business Insider, it was established that blockchain systems face a tough competition based on lack of trust on the system, lack of regulatory certainty and a greater lack of interconnection between the customers (Tesfaye, 2022).

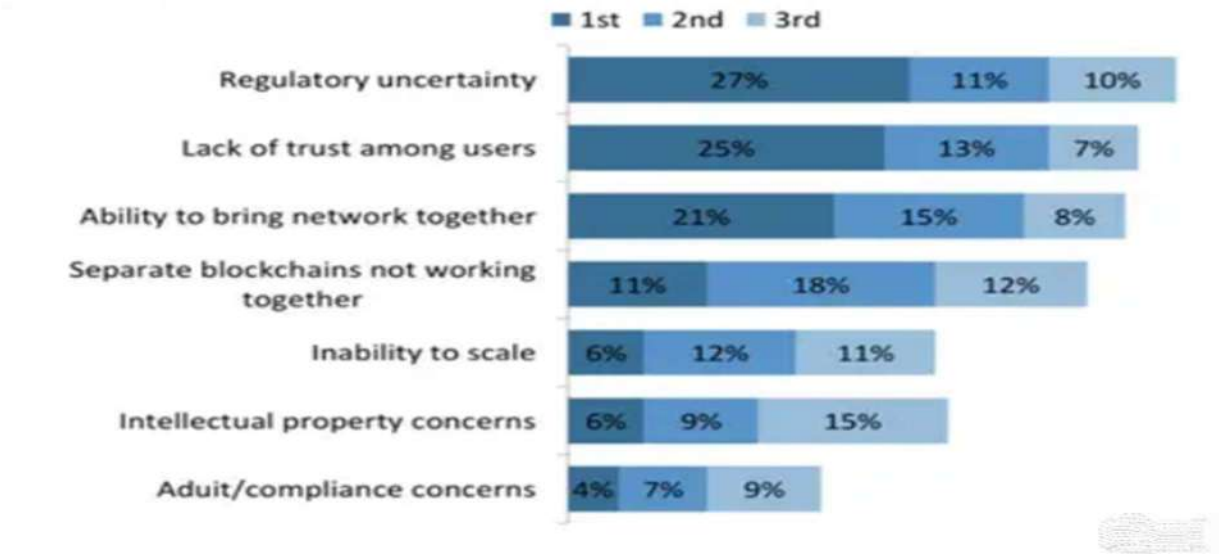

Figure 5: Factors that affect the SWIFT and Blockchain User Preference (Source: Tesfaye, 2022)

The significance of SWIFT as a global transfer system is demonstrable in the case of Euro eclipsing the US dollar in the overall significance. The element of diversified market is indicative of the trading patterns where the European region has a wider access to the world markets, as a whole, and as necessitated through the banking industry (Buchholz, 2022). In comparison, this has introduced a competitive space for the global markets with the US actively being also interconnected with the world at the banking phase. It is arguable that the notable changes in the currency of payment stems from SWIFT providing an avenue of automatic

currency exchange at the Forex level at the interbank level. Thus, rather than relying on the dollar as the currency of carriage or exchange, the Euro can directly be exchanged with the local currencies (Buchholz, 2022).

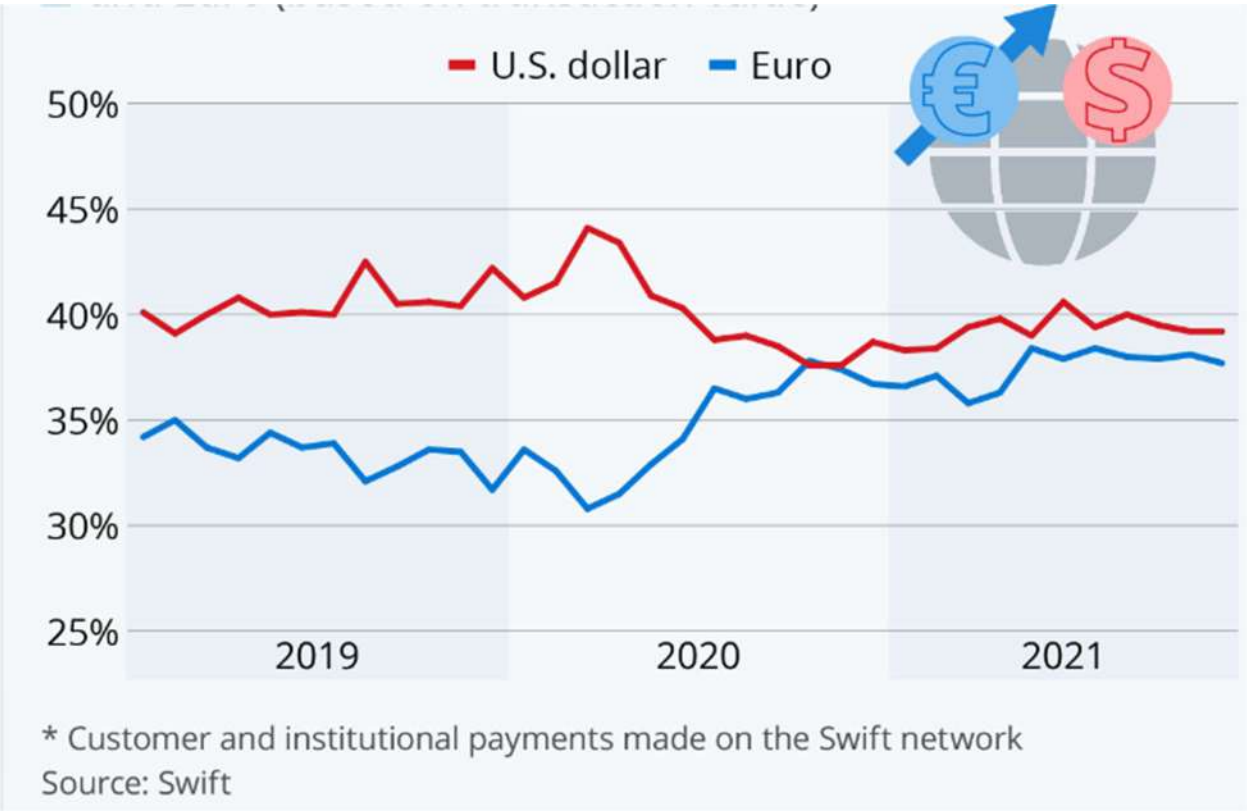

Figure 6: SWIFT payments and Performance of Euro and US Dollar (Source: Buchholz, 2022)

SWIFT's major challenge is to develop a lower tariff or transfer costs compared to the existing money transfer systems. For example, in the UK, there is a significant shift in the Fintech space with TransferWise experiencing a significant rise in the overall transfers. This can be attributed to the low carriage cost which is at 1% and is significantly affordable to the customers as the average cross-border costs according to World Bank report is around 7% (Tesfaye, 2022). This is an indicator of variance in the cost levels, with the SWIFT system having the challenge of being lowered to increase the ease of operations in the global sphere.

Chapter 5: Discussion of Findings

From the study, it occurs that SWIFT is an important system in international trade as it significantly connects both clients and individuals across borders. The SWIFT system is definitely a pivotal medium both in alerting the banks of the completion of a transaction, as well as protecting the ethical standards of international trade. To this extend, it is a facilitation tool, a compliance overseer and an assurer of banks that a payment has been made, and that the money shall be debited to their account. This as such makes it easy to move with speed in processing transactions without having to wait for money to be transferred or many reviews to be made per transaction. This is because the SWIFT system is based on compliance standards, and a SWIFT gpi which requires that transactions be cleared within a period of 48 hours.

International trade is driven by the major components of the global money transfer system which makes SWIFT operations pivotal to this topic. The necessity of a robust integration of the global inter-banking system is to allow for quick processing of bank transfers. On many occasions, banks act as the agents between the two actors, and as such are tasked with the role of creating a seamless environment for the thriving of bank operations. Therefore, it is necessary for banks to create the necessary infrastructure for the success of interbank transfers. This should be accompanied by adequate systems such as anti-money-laundering systems, and advanced levels of security configuration. This is to ensure that there is trust that the money being committed to banks is not going to fund or facilitate illegal trade, or in any case the systems become victims of cybercrime.

De Goede (2020, p. 361) notes that the significance of the SWIFT network plays a significant role in the international financial transaction system. This shows why Russia's role in the SWIFT system is useful as a counter-measure in inhibiting counter-terrorism financing; or in

any participation in war. Started off as an experiential tool for control of global peace, and security, the SWIFT system morphed to become a powerful tool in determining a country's economic performance in the global stage. The first experiment was in the aftermath of 9/11 when the SWIFT sanctions were used on Iran, which upon being removed from SWIFT system experienced a shrinkage in its overall international trade. Therefore, the sanctioning of Russia plays a great role in reducing the overall play in international trade as well as stopping the advancement of financing of war against Ukraine. As noted in the case of Iran which has experienced sanctioning through being removed from SWIFT and gave ground for counterterrorism efforts, it is expected that the economic sanctions imposed on Russia among them being the removal from SWIFT system by the international community shall yield remarkable impact toward global peace. It occurs that SWIFT is not a political tool that is to be used to intimidate or in any biased way to compel some countries to act according to the whims and wishes of the West but rather as a system of control against excesses that threaten global economic well-being. Noteworthy is that peace is a significant factor in international trade.

Avdjiev et al. (2015, p. 24) argue that the biggest challenges in the global banking system is in how operations in one country can affect the operations in another country. For example, the overall performance of banks in a given country that is on the SWIFT system is determined by the overall enrolment of banks in the region in the SWIFT system. In the same way, the overall performance of businesses with regard to the SWIFT system is a compound of factors where a banks domestic business is affected by international factors such as shocks in other countries. This is useful in determining the overall rate of inflows and outflows in the global financial system where the transfer of economic expectations changes. This shows why aspects such as

lending and funding are useful in determining the global inflows, and in return impact on the overall flows of finances across the globe.

Chapter 6: Conclusion and Recommendations

6.1 Conclusion

The area of deep data analysis in the international trade as driven by bank factors is an important facet towards the study of international trade. The relevance of big data analysis in the international trade is to improve the efficacy of understanding the variables that affect trade at the international level. This calls for the use of big data in the financial systems which would help in day-to-day analysis of impacts of certain variables such as time, economic performance, net flows, and the general impact of security infrastructure, time leads, investment flows vis a vis the global inflationary issues etc. The need to have this diverse and rich approach is to ensure that there is a good understanding of the measurable factors in ascertaining bank roles in international trade. This comes at a time when there is a significant shift in the overall global operations, with major performances of global networks depending on a multiplicity of factors. It is therefore necessary to ascertain the extent to which each individual factor contributes to the effectiveness of operations in global banking.

The nature of trends in international trade as noted at the intersectionality with the international banking system reveal that intangible factors such as trust, and dependability play a role in determining SWIFT performance. This cuts across other financial systems including the interborder transfer innovations which have been created in replacement of SWIFT such as blockchain and interbank gpi integration. This demonstrates that the competitive edge of SWIFT in playing its all-important role as the purveyor of overall international trade via banking system.

The banking industry is undergoing constant innovation as the cross-border money transfer issues featured significantly in the research. It is therefore necessary for banks to embrace internal innovations that make them reliable to customers, and promote ease in banking. The need for innovation is to continually define the customer problems, and identify how and when to solve them. For example, on the case of having a faster processing process or model, the banks can seek to integrate the communication between them and their clients through mobile banking which makes it easy to initiate transactions with ease while the banks can play the more institutional role of follow ups. To create efficiencies in such systems, there is also need to incorporate higher levels of security such as authentication systems to ensure that there are no losses incurred due to cyber insecurity incidences.

6.2 Reflections

The key lessons learned from the research is that international trade is dependent on a multiplicity of financial factors such as overall trade investments and Forex performance. The role of SWIFT in international trade is significant as it is the main messaging medium for interbank operations, and as such makes it easy for banks to trade without having to conduct lengthy and procedural checks. The use of lengthy processes plays a role in delaying the overall speed of conducting transactions. Therefore, for the banks to play at optimal level of helping their clients have ease in international transactions. This can be attained by removing unnecessary bureaucratic procedures which may hinder the speed of operation. Besides, given that the SWIFT model has already provided the ease, the banking policies should be adaptive to the new terms and as such act as facilitators by reducing backlog of requirements on their end. That way, the clients will optimize on the benefits offered by the SWIFT system.

It is notable that the main data on banking is limited, and thus there is need for more publications on international inter-banking systems and processes. This shall increase the scope of study to the international banking system, and particularly help to relate the data to international trade. This shall not only provide higher efficiency in banking but also increase the benefits that citizens can derive from such ventures.

Further, banks ought to invest in investment banking knowledge and expertise in order to play a bigger role in international trade as investment banking variables featured as some of the control factors in speed of SWIFT gpi in international trade. The speed of banking is partly determined by the infrastructure. Thus, investing in better infrastructure such as processors and servers can be useful in attaining the desired outcomes of faster speeds of processing. There is also need for developing local and regional compliance standards and policies that are against anti-money laundering and efficiency measures in order to improve in the overall risk ranking.

The speed of operations depends on the number of SWIFT gpi in international trade. When the banking industry continually adopts the SWIFT standards, there is a high likelihood of a significant realization of results as occasioned by higher profit margins, and higher interbank functionality. The interbank functionality shall be noted in the level of business between small and large banks. Further, there shall be a noticeable realization of results in the network effectiveness of the SWIFT system in the global banking as occasioned by faster processing of international transactions.

Thus, banks should continue with the efforts of interconnecting markets through the financial services. The use of performance matrices as anticipated through the risk, compliance and assurance techniques, it is essential in improving the unique positions of nations and global economies in improving and sustaining their international trade (Scott et al., 2017, p.996). The

necessity of compliance systems is to make the low processing zones in SWIFT gpi to become better acquainted in the SWIFT gpi model and therefore attain competitive standards in the global sphere.

From this study, it occurs that bank managers have to take an active role in implementing the rules and compliance systems of SWIFT gpi. The need to be compliant is to increase the overall rate of performance, as well as to increase the overall speed of processing as the existence of credibility increases the overall ease of processing. This shall open up the level of banking and trade in the given region, and consequently increase the overall volumes of trade through the SWIFT system. This shall increase the rankings of the companies and businesses in the SWIFT gpi.

Also, it is the role of individual banks to invest in human resource index that help to understand the increasing role of innovation in global trade. The significance of having high level of efficiency is to increase the overall reliability as well as the overall rate of return. The overall rate of return in international trade is notable in increasing profitability levels for both banks and the clients. This improves the level of enrolment by more clients to the banking system to act as agents of coordinating international transactions.

Besides, as banks seek to have higher returns in profit levels, they have the role of informing the would-be investors of the opportunities available in the international markets. This shows that there is an increasing role of banks in market analysis and in advancing the knowledgeability of investors on options to consider in international markets. This includes an understanding of the action steps that new investors can engage in to penetrate the international markets. Among this is carrying out initiatives of international attaches and investment banking options that advance a nation’s role in participating in international trade. Banks ought to take

these actions as a way of placing themselves as potential partners with SWIFT. The other international trade and banking partners such as international monetary fund (IMF), and the World Bank are useful partners in increasing the overall standings of a region with SWIFT. Thus, there is need for both private and government institutions such as the central banks or the federal reserves and related finance departments to develop policies that advance the international finance systems. Among them is a higher rate of compliance, transparency and innovation.

Finally, there is need for scholars to increase their overall study on finance and banking as research areas. This shall help to advance the overall data and findings on the ever-evolving financial fields. At the same time, scholars in banking, finance and international trade have to diversify their overall areas and approach of study. This includes conducting meta-analysis to ensure that there is a broad understanding of the intersectionality of one factor to the other in the global economy. Further, in unravelling the performance of banks, there is need to consider the economic performance specific to the given nation, their impacts as well as the monetary policies and standards. The level of standards that can be developed are dependent on integration of policy in research models. As demonstrated by this research, it is useful to use quantitative data and secondary studies to establish meaning of other or unknown variables rather than making generalized statements in justifying a given hypothesis.

6.3 Recommendations

As the pricing model is significant in cross-border transfers, it is imperative for SWIFT to consider lowering the overall cost of the transfers. Needful to note, international trade is dependent on convenience which is often the ease of transfer, with lesser carriage costs in the case of operations. The need to review the pricing methodologies is to ensure that there is a

higher rate of transfers through the banking systems. The use of the banking system is likely to increase if there is a significant increase in the overall transfers in a country. To induce more people to use the SWIFT system as offered as the default international trading system, there is a need to review the costs of transfer, especially as many clients consider the costs of doing business. This is majorly aimed to have a competitive basis such as TransferWise which has relatively lower carriage costs in doing cross-border transfers.

It is imperative for nations that want to experience higher levels of international trade to work on their core independent factors such as the GNI, capital flows, Euler-Hermes risk rating, the number of banks, and overall operating hours of the banking industry. The essence of the Gross National Income is crucial in the overall performance of the trade. This makes it necessary for the nations that seek to increase their overall performance of the country in international trade. Thus proceeds the common economic assumption and truism that richer nations are likely to succeed because of the general supply of income in the country, and its economic implication in general demand and supply. The case of money inflows which proves that liquidity is important in determining the overall state of economic performance. The essence of liquidity in international trade is that it offers a baseline for smooth operations in money markets, and similarly in investments across the globe. The liquidity levels are as significant in a country's international trade as they are in general trade. Therefore, the monetary instruments play a role in the positioning of a country in international trade with regards to improving its speeds in the SWIFT gpi. Thus, banks ought to take the measure of relaxing the monetary policies to increase the overall trade levels that the given country engages in.

On the issue of capital flows, the performance of the money and stock markets is useful in determining the level of foreign direct investments that have a role in international trade.

Thus, when the overall levels of investments as may occur during recessionary and inflationary cycles change, it is likely that the overall performance in the levels of transfers and participation in international trade would fluctuate. At such moments, the SWIFT gpi levels are likely to change – with inflationary moments leading to fast SWIFT operations and performance while recessionary moments resulting in a decline in SWIFT performance vis a vis international trade index.

Darouich et al. (2021, p. 2) state that the Euler Hermes risk index is an important factor in the evaluation of international trade attraction factors. The EH risk index is a determinant of the level of trust that the investors have toward a given country, and hence their consequent level of investment. The key aspects of the Euler Hermes index that the governments of the world or given economic zones seek to improve their SWIFT gpi is their risk trustworthiness. As the government and banks act as the institutional partners between the international investors or traders and the companies, it is imperative of them to establish a confidence level (Darouich et al., 2021, p. 3). With the government and bank as institutions that guarantee public confidence and act as legal overseers, it is useful for such entities to do due diligence as may regard to the timely payment of the projects, and averting of potential payment incidences such as corruption, insolvency, and or defaulting payment or completion of a project.

The SWIFT gpi as indicated by the time leads impacts the overall global volume, hence banks ought to improve on their enrolment and reduce the route time to have a lower processing time. The need to have faster speeds of operation is to ensure that there is a higher level of processing speeds. The higher the level of SWIFT enrollment in a given region, the higher the level of SWIFT gpi performance and consequently the level of international trade efficiency with regards to payment and volume levels. The banking industry in a given nation has to be

improved to increase the overall rate of SWIFT gpi functionality. With the rate of SWIFT gpi speeds being pegged on the overall volumes of transfers in a given area, there is need to have deliberate onboarding transfers in the banking system.

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