

Chapter 7

THE DEVELOPMENT OF E-PAYMENT AND CHALLENGES IN PAPUA NEW GUINEA

by

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1. Introduction

The payment system relates to the instruments, organisations, operating procedures, and information and communications systems used to initiate and transmit information from payer to payee and to settle (transfer) payments (T.J.T. Balino and others). That is, everything associated with the financial transaction part in exchange for the rendering of goods and services. The payment system in any country therefore provides an important role in the functioning of the financial system and the economy as a whole. It also fulfills one of the functions of money, that is, as a “medium of exchange”.

The payment system facilitates a number of functional objectives. It is purposed to:

- i. expedite the processing of payments;
- ii. reduce risks and uncertainties when dealing with non-cash payments;
- iii. enable the use of indirect monetary policy (MP) instruments; and
- iv. encourage financial market development.

Over the years, the payment system in Papua New Guinea (PNG) has evolved, incorporating new instruments and methods of payment (non-cash and electronic), with increased volume and value of payment transactions, and including new technological developments. However, much of the population, especially those in the rural areas still rely heavily on cash payment (coins and banknotes). The Bank of Papua New Guinea (BPNG) has also undertaken various reviews concerning the payment system in line with developments in the financial market and abroad. These reviews included retail banking and a survey of small-denomination currency (copper coins). There are several on-going projects and pending proposals, including the clearing and cheque matching process projects

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by the Banking Department, Real Time Gross Settlement (RTGS) by the Finance and Accounting Department, and quality of banknotes and re-opening of cash distribution centres by the Currency Department of BPNG.

2. The Payment System in Papua New Guinea

The financial system in PNG consists of four commercial banks of which three are foreign-owned, 10 finance companies, 20 savings and loan societies (credit unions), 10 superannuation (pension) funds and five life insurance companies. The total assets of the banking system (excluding the superannuation funds and life insurance companies), as at the end of March 2005, was K4.8 billion (US\$1.5 billion) of which 88 percent was held by the commercial banks. Total deposits in the banking system at the end of March 2005 totaled K3.8 billion (US\$1.2 billion), of which 91 percent belong to the commercial banks.

The payment system in PNG is mostly dominated by paper-based payment instruments, while recently introduced card and network-based payment instruments have been slow in capturing market share. Paper-based payment instruments include, cash, cheques and Postal Office transfers, while card-based payment instruments include credit and debit cards. Network-based payment instruments would include Internet, land phone, mobile phone, e-money, Bill Pay and SWIFT payment system.

Development of a centralised payment system to cater for RTGS system in PNG electronically linking all the commercial banks by setting up infrastructures that would cater for the entire country is the aim of a working committee at the BPNG. The current payment system lacks the capacity to regulate electronic and access product payments, consequently exposing bank customers to risks. The current consumer protection act, the “Bills of Exchange Act” (1976) is obsolete, providing no protection to access product consumers.

2.1 Paper-based Payment Instruments

2.1.1 Cash

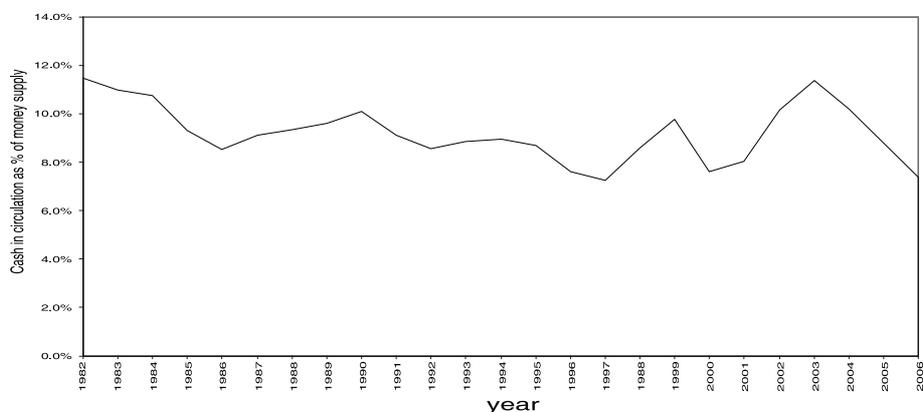
The Bank of Papua New Guinea (BPNG) has a monopoly on production, issuance and destruction of cash (notes and coins) circulated in the country. More than 85 percent of the country’s rural population is dependent on subsistence farming. Banking services are concentrated in the urban areas with none to minimal penetration in the rural areas. This is due to lack of fundamental

infrastructure, such as telecommunication, electricity, road networks and other associated risks, that impede banks from offering retail banking products in the rural areas. Consequently, the rural economy entirely depends on cash as a payment instrument.

Of the 15 percent urban dwellers, anecdotal evidence shows that less than three quarters are able to access other payment services, such as postal transfers, cheques, Bill Pay, debit and credit card, Internet and Phone Banking, etc. Opening new accounts with commercial banks in PNG is practically impossible for wage earners and low income earners in the informal sector due to stringent conditions set by the banks. Cash therefore remains the dominant payment instrument for the rural population and a proportion of the urban populace in PNG.

It is unlikely for electronic payment instruments to replace cash in the near future. Cash still remains the major payment instrument for majority of the populace, while the smaller privileged segment is able to access new products, such as electronic banking.

Figure 1
Cash in Circulation as a Percentage of Total Money Supply



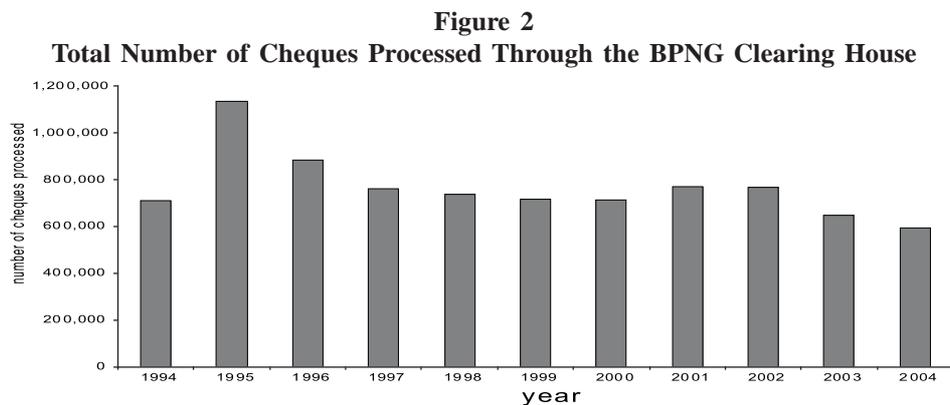
Source: Bank of PNG Quarterly Economic Bulletin, various issues and authors calculations

Figure 1 shows that cash as a percentage of money supply (M3) remains stable over the period. Electronic access products have been introduced during the late 1990's and early 2000 in PNG, but have minimal impact on the usage of cash as a mode of payment.

2.1.2 Cheques

Cheques are paid to the supplier (customer) for payment of goods and services and are drawn on the drawers account and deposited into the payees account. Cheques deposited into customers account are presented at the clearing house and delivered to the paying bank. Same-day clearance can be arranged between customer's bank and the paying bank at a higher fee.

The volume of cheque transactions is on the declining trend as a result of employers (both private and public enterprises) paying their employees through direct debit. As much as possible, many banks in the country purpose to reduce paper work and rely more on technology. Small-value transactions are settled through electronic payments while large-value transactions are settled by cheques. Figure 2 shows that the total volume of cheques cleared through the clearing house in Port Moresby has declined over the years. It is likely the usage of cheques for small-value payments would be phased out with the introduction of electronic products.



Source: Bank of PNG and Operations Reports, Various Years

Commercial banks have recently taken a step further by encoding all individual and corporate cheques for ease of intra-bank cheque clearance. Without RTGS, centralise cheque clearing for all commercial banks on real time is impossible.

2.1.2 (a) The Cheque Clearing House

The cheque clearing house is centrally located in Port Moresby, facilitated by the Central Bank of PNG and controlled by the Port Moresby Clearing House Committee, comprising senior officers from each member bank, appointed by the respective banks. The principles relating to the basic banking procedures between banks, including clearing and settlement, are governed by the “Record of Arrangement Between Banks” (RABB). The BPNG provides computer support to the clearing system for the cheque clearing operations. The cheques are cleared manually, with physical cheques cleared over the table between banks. It takes seven days to clear inter-bank cheques, while one to two days for in-house cheque clearing.

The clearing house conducts three cheque exchanges daily on Mondays to Thursdays and settlement with other banks takes place at 4:45PM daily. On Fridays, there are four exchanges with the settlement conducted at 4:30PM. At the end of each day, the central bank being the “lender of last resort” provides facilities for the commercial banks to settle their net positions. Government cheques awaiting clearance from other centers in PNG are mailed to Port Moresby for clearance by respective banks. Between banks, bank warrants can be used for special clearance.

Commercial banks in the country are already working on improving payment systems to minimise fraud, allowing ease of settlement and improving efficiency. These changes include cheque micro-encoding, cheque image clearing and the use of satellite systems in various centers, due to unreliable telecommunications links, and the introduction of generic Automated Telling Machines (ATM).

The introduction of new products and ICT-driven banking products has challenged the existing payment system that lacks the capacity to regulate these new products. Discussions are underway in the BPNG to develop a new payment system that is able to link all payment types, be it Internet banking, phone banking, cheque clearing, etc. A working committee at the BPNG is currently working on developing a RTGS system, whereby all transactions would be settled on real time. Such a massive exercise would cost the Bank millions of dollars, and as it is, commercial banks in the country are hesitant to commit any finance to espouse the project. Consequently, the project is progressing at snail’s pace.

2.1.3 Postal Transfers

Postal services are available in all major towns and cities of the country, providing a convenient means for people to transact payments. The diverse network of postal services in the country provides an appropriate avenue for payment transfers within the country, mostly between one or both parties who are unable to access banking services. The advantage with this mode of payment is that, it is fast, efficient and a secure way of settling payments or fund transfers. Fund transfers takes only less than an hour and people have found that convenient to transfer funds rather than sending it via the bank.

The rural population depends mostly on this payment mode for fund transfers, as banking services are non-existent. Where banking services are hard to access, postal services serve as a complementary system for fund transfers, while in towns and cities, postal services compete with and complement the banking system.

2.2 Electronic Banking in Papua New Guinea

Electronic payment instruments have mostly been centred on access products. Access products by definition are electronic products that draw or overdraw on their own savings account with the commercial banks, using existing domestic settlement systems. Access products in the market include credit and debit cards, Internet banking, bill pay and phone banking. Debit and credit cards have been in existence since the 1990's, while products such as bill pay, Internet and phone banking were introduced recently.

As is the case with new products, the spread of access products in the country has been very slow during its inaugural years. Nonetheless, it has slowly propagated in the past few years. Debit cards being the early e-payment product in existence has more customers than Internet, bill pay and phone banking. Banks are currently marketing the products rigorously to penetrate the market to establish a steady customer base. From its inception, formidable years of trial, advertisement and its usage have convinced consumers of its convenience. However, more are reluctant to try the new products, mindful of the associated risks.

Positive externalities have been attained by both the commercial banks and their customers with the introduction of electronic banking in the country. From the standpoint of banks, electronic banking relegates paper work, while banking becomes more convenient and easily accessible to the banking customer. Access

product customers are now able to access and settle payments from the security of their own homes or offices. The convenience and efficiency e-payment products bring to the settlement process is substantial. Businesses and individuals have embraced the new development with zeal. Access to accounts for settlement or inquiry by account holders is brought to the comfort of their homes and offices. Time and cost-saving measures brought about to businesses and individuals alike are enormous to the few that have access to these products. Access products have been used for small-value transactions at point of sale, effectively reducing cash handling by merchants and customers alike.

Anecdotal² evidence shows that the recently introduced access products, such as debit cards, phone and Internet banking, have slowly gained momentum. Their transaction volumes are increasing steadily as more people become aware of the product. These products enhance the existing settlement system, making it more convenient and accessible by consumers and do not in any way impede the payment system.

2.2.1 Card-based Payment Instruments

Card-based payment instruments, such as debit and credit cards were introduced in the late 1990's. The cards are issued primarily by the commercial banks, with no non-bank participation. Since three out of the four commercial banks in the country are foreign owned, *Master* and *Visa* cards can be used to settle both domestic and foreign obligations. On the other hand, debit cards are used only for domestic fund transfers and settlement. As non-bank e-money schemes have not been initiated in the country, the issuance of e-money and other e-money scheme related cards are nonexistent.

2.2.1 (a) Debit Cards

Since its introduction, debits cards have replaced cheque payments for wages and salaries for staff. As shown in Figure 2, cheque payment volumes have declined in the recent past, as private companies and government agencies utilise direct debit to pay their employees. Debit cards are efficient in service delivery and are cost-effective. Costs for private business, government agencies and even the banks have gone down substantially. Figure 3 shows the average fee charged by commercial banks in PNG. Service fees for paper-based payment instruments on average totalled K24.53 (US\$8.34), while fees for card- based e-payment instruments totalled K8.53 (US\$2.90). Commercial banks' push for paperless

2. Consolidated data from the commercial banks in Papua New Guinea is not available.

banking to cut costs could come to fruition, as evidenced by a slow surge in number of electronic banking clients.

Figure 3
Average Bank Fee Charges by Bank South Pacific as at 28/08/2007

	Paper Based	Electronic
Monthly Service Charges	2.67	2.25
Collection Fee	0.20	1.15
Deposits	1.00	1.00
Withdrawals	20.67	4.13
Average Total charges	24.53	8.53

Source: Bank South Pacific Website - fees

Note: Paper based include, personal cheque account, passbook and Achiever Accounts Electronic, includes kundu card and smart savers

Commercial banks extended their electronic banking networks by installing ATM's nationwide in their own bank branches. Commercial banks have invested large sums of money to purchase and install machines all throughout the country. ATM machines have been installed in most major centers in PNG, making banking more accessible in the urban areas. Customers are able to withdraw, transfer and make bill payments through the ATM's, with the exception of deposit taking. Phenomenal development and promotion of electronic banking in the country has resulted in increased usage of the product.

In conjunction with merchants, EFTPOS machines have also been installed in major outlets, allowing customers to purchase goods at point of sale and draw cash from their accounts, reducing the need to carry cash to make small-value payments. The use of EFTPOS confers a significant advantage to both merchants and banks from a reduction in the handling of cash and paper, which is risky and prone to theft.

A major glitch in the ATM and EFTPOS network of the commercial banks is that, there is no switching system. Consequently, inter-operability between different commercial banks is not possible, making it impossible for customers from one bank to draw money from another bank's ATM machine. Recently, a commercial bank in the country installed an ATM machine that can be used to

draw multiple currencies. Inception of a switching system is likely to transform and enhance the card-based payment system in the country.

2.2.1 (b) Credit Cards

Most foreign-owned banks in the country issue internationally accepted *Master* and *Visa* cards. These cards can be used for both domestic and foreign currency transactions. For domestic transactions, ATM and EFTPOS networks can be used to transact, while foreign currency transactions are acceptable worldwide. There are no non-bank credit card issuers in the country.

2.3 Network-based Payment System

Network-based products use ICT portals to transfer or make payments, using existing bank account. There are no e-money schemes in the country, as a result all network-based payment products are linked to bank accounts operated by individuals or corporations. In PNG, network-based payment products include, Internet and phone banking, mostly landlines, and the Society for Worldwide Inter-bank Financial Telecommunications (SWIFT) to settle wholesale foreign currency transactions between PNG banks and their foreign counterpart banks.

2.3.1 Society for Worldwide Inter-bank Financial Telecommunications (SWIFT)

The SWIFT system which is used for inter-bank payments between BPNG and other international banks, and is owned by member banks world-wide and provides trusted network infrastructure for payment transactions between banks. The SWIFT system has grown from an X.25 protocol system to the current Internet Portal (IP) based network. All commercial banks in the country are members and users of the SWIFT system. The system is encrypted and a secure means of settling wholesale international payments between banks.

Information flow between counterpart banks is encrypted and therefore safe for wholesale foreign currency transactions. BPNG uses the SWIFT system to settle its international obligations and manage its foreign reserves. The operation of this system has been smooth and free of glitches.

2.3.2 Internet Banking

Internet banking uses Internet portals to enquire, transfer and settle payments, drawing from customer's own bank accounts. A few private firms are already using the Internet to pay their employees by direct debiting their accounts.

Internet banking is a new product that has been introduced in the country recently. It has not as yet been successful in penetrating the market and establishing itself as a banking product. This is due to several reasons. The main reasons are Internet inaccessibility and illiteracy.

The network coverage of most ICT companies is centered in major cities and towns of the country, so connectivity is a major hindrance. Anecdotal evidence shows that less than one percent of the population is able to access the Internet. As such, the customer base for Internet banking is small.

2.3.3 Phone Banking

Phone banking is another payment instrument that has entered the banking product market. Using landlines, customers can make enquiries on their account balances, transfer or make payments from their own accounts with the banks. Instead of physically being present at the bank counter to make transactions from their accounts, customers are able to carry out normal banking transactions through phone (landlines). The inception of mobile phone banking is likely to be the next move by commercial banks in the country.

3. E-payment Developments in Papua New Guinea

There are two definitions of electronic money. E-money products are defined here as "stored-value" or "prepaid" products in which a record of the funds or "value" available to a consumer is stored on an electronic device in the consumer's possession. The second type is access products, which are products that allow consumers to use electronic means of communication to access otherwise conventional payment services, for example, use of a standard personal computer and computer network such as the Internet to make a credit card payment or to transmit instructions to make fund transfers between bank accounts (BIS, 1996).

Section 1 focuses primarily on access e-payment products. This section examines e-payment schemes, i.e. e-money that deals with multi-purpose prepaid

cards described as “electronic purse” and prepaid software products that use computer networks as “digital cash”.

E-purse is multi-purpose cards issued by banks or non-bank ICT companies. E-purse serves the purpose like that of telephone company prepaid cards. However, the difference lies in the usage of the cards. Telephone prepaid cards are used for single purpose transactions, while e-purse is multi-purpose in nature. E-purse can be used to purchase anything a card holder wants. These cards are pre-paid cards, where the value of that card can be used to purchase any products on the market. Digital cash, on the other hand, uses computer network systems. Values are stored on electronic data base, from which a client can use the stored value to purchase items via the Internet.

Commercial banks in the country have taken the lead in promoting and marketing access products, while e-payment schemes have not yet been introduced in PNG. Recent ICT developments in the country have been phenomenal and it is inevitable for e-payment schemes to enter the market in the future.

3.1 The Reasons E-payment Schemes Have Not Been Initiated in Papua New Guinea and the Constraints for Future E-payment Development

World-wide developments in the ICT industry have paved the way for the development of various payment systems apart from the traditional paper-based cheque and banknote payment system. E-payment schemes have been prompted by rapid developments in the ICT industry and they have pervaded the world, with the exception of developing countries like PNG. E-payment mechanisms that have direct links with bank accounts have been introduced in PNG, but not e-payment schemes. The following section looks at the reasons why e-payment schemes have not been introduced in PNG.

3.1.1 Current Status of ICT Development in PNG

Reliable information communication technology is a primary ingredient in the development of e-payment schemes in any country. Networks and service delivery functions of e-payment schemes are facilitated by an effective telecommunication network. The current surge in e-payment schemes world-wide is basically facilitated by new developments in the ICT industry. At the root of the ICT industry is telecommunications, which plays a pivotal role in inter-connectivity between different networks, making it the buttress of all ICT developments. Any country that wants to initiate e-payment schemes has to

develop standard telecommunication facilities as a pre-requisite to bolster developments in the ICT industry.

Furthermore, e-payment schemes need reliable telecommunication systems to facilitate service delivery. The current state of telecommunication infrastructure in the country is ill-equipped to support e-payment schemes on a large scale. Service availability to rural areas is non-existent, while cities and towns experience occasional connectivity problems. Consequently, the development of e-payment schemes in the near future is impossible, as e-payments depend entirely on relatively reliable telecommunication services.

Developments in the ICT industry have been phenomenal in the country with the introduction of Internet, as recent as the latter years of the 1990's. However, computer illiteracy is a major impediment in the development of e-payment schemes. Anecdotal evidence shows that less than one percent of the country's population is computer literate, making marketability of e-payment schemes non-profitable. Substantial amount of fixed cost required for setting up networks for e-payment schemes would outweigh the returns on investment.

The cost of telecommunication in the country is also very expensive, effectively contracting margins of telecommunication-dependent organisations. Since the telecommunication sector has been monopolised by a state entity, its inefficiencies are passed onto final consumers at higher prices. E-payment schemes that are more dependent on telecommunications network will have their margins stretched to remain competitive. Recent competition in the industry has resulted in rigorous court battles which are ongoing.

Another reason why e-payments have not yet been initiated in Papua New Guinea is because of PNG's information and telecommunications (IT) network. The IT network penetration in the country is very poor, with exorbitant prices, making access and usage of IT products available to only a privileged few. The cost structure in the IT industry is very high making it impossible to set up IT networks throughout the country.

3.1.2 Consumers

Market capacity in the country is another impediment that has stopped the entry of e-payment schemes. Anecdotal evidence shows that less than one percent of the population is computer literate and can access e-payment schemes. ICT illiteracy becomes a major impediment because e-payment schemes are primarily

facilitated by ICT. Without ICT knowledge and access, customers are unable to access e-cash or network-based payment instruments.

Closely related electronic products such as access products have not reached their maximum marketable capacity, due to lack of product knowledge by the consumers. This is compounded by a small customer base, which is basically a small segment of the country's population, impeding the penetration of access products throughout the country. Based on the experience of the inception, adoption and acceptance of access products, e-payment schemes are unlikely to enter the market in the near future.

3.1.3 ICT Policy

A country has to have a clear ICT policy to encourage competition in the ICT industry. Legal frameworks become buttresses for investors to invest in ICT businesses in the country. Without legal protection, no business would want to invest. This has been the major constraint in PNG for the ICT companies to invest. The telecommunication services provided by an inefficient state-owned monopoly failed to meet the contemporary ICT needs of the country.

Recently, a controversial private bill was to be tabled by the minister responsible for ICT. This was seen as a knee-jerk reaction to curtail the entry of a foreign ICT firm which was given the approval to compete against the inefficient state-owned ICT corporation. The bill was not passed. However, certain individual politicians used the proposed bill to effectively revoke the licence of the new entrant in the market. This subsequently resulted in a legal suit, which is currently on-going.

If an ICT policy has to be formulated, it has to be free of political interference which has been a major hindrance in allowing for competition in the industry.

4. The Future of Electronic Banking in Papua New Guinea

Significant development in ICT has stimulated the introduction of e-payment instruments by the commercial banks in the country. Development and penetration of new banking products world-wide has contributed to the inception of new e-payment instruments in the country.

In PNG, recent developments in the ICT industry have been promising for the development of e-payment schemes in the country. The telecommunications

industry in the country has been de-regulated, allowing competitors to enter the market. The incumbent in the industry is an inefficient state-owned company which has failed to provide efficient services.

The de-regulated industry has seen some improvement in efficiency and service penetration with lesser cost to customers. The competition has brought a refreshing change to an industry suffocated by a state-run monopoly and marked by high-priced inefficient services.

Though competition in the ICT industry is in the infancy stage, the intense competition between the ICT companies in the country has resulted in substantial reduction in telecommunication cost, which has filtered through to the entire country. It is therefore likely, electronic banking products would be accessible by the majority of the population in the near future.

Considering the current trend in ICT developments, the development of electronic money schemes cannot be written off. It is highly likely that competition and affordable ICT pricing would result in the development of electronic money schemes in the near future.

4.1 Issues in Electronic Banking

The negative externalities of e-payments schemes can be minimised when e-payment schemes become part and partial of the existing payment system. This means that any issuance of e-money by any other organisation or ICT companies should, by law, be allocated a quota by the BPNG to complement currency in circulation. Daily reports on e-cash and anticipated weekly transactions have to be submitted to the BPNG for monitoring liquidity in the economy. Monitoring and regulating of e-payment schemes by the BPNG is necessary for two reasons.

Firstly, consumers are risk averse, in search of assets or investments with less risk. Given such consumer behavior, ICT companies would very much want to be regulated by BPNG. Regulating and monitoring of ICT companies by BPNG becomes a buttress for the ICT's and banks that are involved in the e-payment system to access the market. E-payment scheme customers would feel secure, confident in the knowledge that the industry is regulated and the risk of loosing their money is minimised. The second reason encapsulates the essence of this paper, that is, monitoring the liquidity in the system to ensure inflationary pressure is contained at reasonable levels. The latter being the fundamental reason for monitoring and regulating e-payment schemes.

The current payment system lacks the capacity to monitor and regulate access products, let alone e-payment schemes. The BPNG has to set the pace on ICT-based banking products in order to monitor and regulate financial institutions and ICT's. Currently, commercial banks are setting the pace, introducing new ICT-based products, tugging BPNG along. It is apparent the current payment system and legislation lack the capacity to incorporate both access-based products and e-payment schemes.

When the much-anticipated RTGS becomes a reality, the regulation and monitoring of e-payment schemes will be the next step down the road. The RTGS evolves around a computerised clearing house linked to all financial institutions and ICT companies via IP, capable of clearing all payment modes on real time throughout the country. The establishment of such a network would be very costly, but, the realised benefit to the payment system and its positive externality on economic policy warrant the setting up of the RTGS.

4.1.1 Risks Associated with Electronic Banking

Electronic banking has the capacity to enhance payment systems, reduce cost and provide efficient services. However, the risks are part and parcel of the new e-payment instruments, since these payment instruments are not legal tender. The risks can be classified into two categories.

a. Transaction Risk

Since electronic payment instruments do not possess legal-tender status, there is an element of credit risk. Clients have the right to refuse accepting payments by debit or credit cards, or what is even more problematic is where ATM or EFTPOS machines are not available nearby for card holders to draw on their account or make payments. This brings into question the credibility of the electronic products that are issued by commercial banks. If these products are not legal tender, then payees have every right to refuse accepting the payment, hence bringing the payment instrument into disrepute.

Countries operating electronic payment instruments have encountered cases of fraud involving the payment instruments. Fraudulent withdrawals have been reported on several occasions where an unauthorised person uses the customer's card to access money from the account. In other cases, history or cookies from public Internet machines were used to access someone's personal information to defraud the customer. For instance, skimmers in Australia installed minute electronic devices in EFTPOS machines to copy all personal information

contained in the magnetic strips on the cards and defraud cardholders of their savings. Several cases have ensued in PNG also, where someone unknowingly discloses their PIN number, and subsequently ends up with their savings withdrawn.

b. Systemic Risk

Any failure of the payment system would cause major disruptions in the level of economic activity. Since electronic payment instruments depend upon ICT, failures such as disconnection and discontinuation of ICT services would result in disruptions to normal business transactions. It would affect liquidity if the magnitude is large enough.

System hackers pose threats to electronic payment systems. Hackers can draw on customers account without their knowledge or the bank, if the computer systems do not have firewalls to preclude hackers. This has been a major threat but, most software packages have firewalls that are proficient to ward-off any hacker threats. As software gets more complicated, banks need to be vigilant and proactive in protecting their system.

4.1.2 Legal Issues

The Bills of Exchange Act (1976), as amended, does not cover the development of new banking products. There is no provision in the Act that caters for new access products that are marketed by the commercial banks. Global developments in both ICT and banking services have driven commercial banks to develop cost effective and efficient ways in augmenting their services. The current working committee is studying the legality of the various modes of payment, incorporating an amended bill that is likely to cover all aspects of banking in the country. The current challenge is for the BPNG to develop a payment system, supported with a legal framework that will cover all aspects of payments in the country. With the influx of new technology and proliferation of enhanced products offered by the commercial banks in the country, the development of a payment system is capable of meeting the needs of current market, is of utmost priority. This responsibility is vested on the BPNG as a catalyst to initiate efficient and effective payment systems for the entire financial system of a country.

In line with these developments, the existing Bills of Exchange Act (1976) has to be amended to incorporate other payments aspects keeping in view the future of other electronic products, such as electronic payment schemes.

Electronic payment schemes, driven primarily by technology cannot be ignored in PNG. The future entrance of electronic payment schemes is unavoidable as the trend of development of ICT continues to grow at substantial pace in the country.

4.1.3 Monetary Policy Implications

Since e-money serves the two distinct purposes of money, notably, as a “store of value” and a “means of payment”, central banks no longer have monopoly on the printing, issuance and destruction of money. Consequently, the ability to influence reserve money (cash in circulation plus savings) as a monetary policy instrument becomes distorted.

If e-payment schemes exist concurrently with the existing payment scheme, it brings competition in the issuing of legal currency. Consequently, the money supply in the economy would consist of e-money, currency in circulation and demand deposits. The central bank has control of the latter, while the ICT companies or issuers are in control of former. Monetary policy would be affected dramatically, if the payment systems operate concurrently and in competition. However, the other step would be for the central bank to set guidelines for e-payment scheme operators to co-exist and cooperate within the existing payment system, so as to set quotas for the ICT companies or e-payment scheme operators to issue e-purse or digital cash, and report to the central bank on a daily basis. By doing so, the central bank will still have control over the money supply and effectively implement monetary policy through its signaling rate.

If, however, the e-payment scheme operators are allowed to operate liberally, the central bank will be able to set interest rates based not on total reserve money, but, reserve money, excluding e-money, which is a major component of reserve money. Announcing of the Central Banks monetary policy stance, by setting its signaling rate, and effectively affecting market interest rates through open market operations (OMO) would have ambiguous effect. This is a major threat faced by most countries with liberal operation of e-money schemes.

4.2 Central Bank’s Views on E-payments

An efficient payment system contributes to the maintenance of financial system stability and provides a mechanism for monetary policy transmission. One of the major responsibilities of central banks is to oversee the payment system, and become a catalyst for payment system innovations to accommodate all forms of payments, both international and domestic. It is also the responsibility

of the central bank to properly institute payment system policies and guidelines and regularly monitor the payment system of a country.

The BPNG's monetary policy operates on a reserve money principle. Notes and coins (cash) in circulation is a major component of reserve money. Any liquid product that impedes or establishes itself as a substitute for notes and coins is a threat to the formulation of monetary policy. Like any other central banks in the world, the BPNG is required to put in place policies and guidelines to regulate such products in order to preserve its monetary policy obligations.

The BPNG has not paid serious attention to e-payment schemes since the current payment system is still at its primitive stage, dependent more on cash and cheques. Furthermore, the existing payment system is regulated by an outdated Act which does not cover all other new payment instruments. Electronic products (access products) have been offered by commercial banks lately, driven by international market trends. For the time being, the BPNG has set up a working committee to look into the existing payment system and endorse changes to the payment system. The committee is taking a broad perspective of the payment and settlement system, with the focus towards the setting up of a RTGS system, which will be centrally located at the BPNG connecting all financial institutions to settle on real time.

E-payment schemes and access products are not within the scope of discussion of the working committee as these are not viewed as pressing agendas. Consequently, discussions on electronic banking have not yet been initiated at the BPNG, and there appears to be no clear direction on the move forward in electronic banking in PNG.

As commercial banks in PNG surge ahead keeping abreast of market trends by introducing electronic banking products, the central bank has not kept pace in terms of regulation and supervision and being a catalyst for the development e-banking products. The barrier behind the slow progress in moving forward with the current banking trends has been the lack of legal protection for customers of electronic banking products and best-practice guidelines for banking, particularly with regards to electronic banking.

There is an urgent need on the part of the BPNG to appraise the e-banking market and facilitate the development of electronic banking in the country, rather than allowing commercial banks to dictate the pace of e-banking development. Central banks have to be proactive in performing their role as catalyst in the development of the payment system - regulating, supervising, and controlling

the payment system, which will enhance the financial market and buttress monetary policy management in the country. If the PNG does not keep up with the changing financial landscape, this can lead to the erosion of the central bank's functions in the payment system.

5. Conclusion and Recommendations

The current payment and settlement system in PNG is still at its primitive stage where paper-based payment instruments override the other recent payment instruments, such as network and card-based payment instruments.

Although network and card-based payment instruments have been introduced in the country, they are mostly driven by the commercial banks. Consequently, BPNG has been pulled along by the developments in electronic banking in the country. BPNG's responsibility as the overseer and a catalyst of the payment system has been overtaken by the banking market trends, both domestically and internationally. Domestically, commercial banks have been in the forefront, introducing new network and card-based banking products in the country. Internationally, the surge in electronic banking worldwide and the push for paperless banking phenomenon make their way to most countries of the world.

The trends in electronic banking both domestically and internationally challenge the BPNG to be more proactive in functioning as a catalyst for the development of new banking product and as a supervisor to oversee and make the payment system in the country more efficient. The advancement by the commercial banks in electronic banking and the lackluster performance of the central bank in this regard can lead to ambiguous situations when the functions of the central bank and the commercial banks in the payment system are not demarcated.

E-payment schemes are yet to be introduced in the country, while e-payment instruments are already available in the country. The likelihood of e-payment schemes being incepted in the near future is almost impossible due to constraints in ICT development and accessibility in the country. Access e-payment products, on the other hand, are gradually making in-roads into the banking industry. However, without a switching system interconnecting ATM and EFTPOS machines of all commercial banks, inter-operability is not possible. When this major shortcoming is rectified, the payment and settlement systems would become more efficient as customers of one bank can draw from another bank's ATM or EFTPOS machine.

The Bills of Exchange Act (1976) is outdated. The legislation does not cover electronic banking. In consequence, the interests of customers using the existing electronic banking products are exposed. This may result in substantial loss of savings by access product customers because there is no clear definition as to who should be liable.

5.1 Recommendations

To facilitate the development of an efficient payment system, the BPNG has to accelerate the development of the RTGS system. Commercial banks have taken the lead in digitally encoding cheques and in setting up satellite systems to upgrade their branch networks outside the major towns and cities. With commercial banks setting the pace, the BPNG can actively facilitate as a catalyst in the development of the RTGS system in order to enhance the efficiency of the payment system. It is better to source knowledge from fellow SEACEN member countries that have developed RTGS systems rather than seeking assistance elsewhere.

There is an urgent need to revise the outdated Bills and Exchanges Act (1977) to provide for the development of electronic banking products. The BPNG has to incorporate another act, “Electronic Financial Transactions Act (EFTA)”. This legislation should cover all electronic transactions, either it be e-scheme related transactions or access products. The existing act does not provide particular cover for access product (electronic banking) customers. Furthermore, enacting of the EFTA would be in one sense proactive, as e-payment schemes have yet to make their appearance in the country. Future developers of e-payment schemes would automatically be covered under this act.

As a supplementary to the EFTA, another act should be enacted to protect electronic banking customers’ personal information, i.e. “Personal Information Protection Act” (PIPA). The experiences of other countries that have incepted electronic banking products have shown that numerous cases of fraud emanate from the disclosure of personal information by individuals or corporations involved in the electronic banking products market. People have used the personal information of someone to defraud them of large sums of money without their knowledge. With cyber banking, it is difficult to establish the identity of the perpetrators as a result such transactions are prone to fraud by knowledge of personal information. Such a law if enacted should protect the individual banking clients.

To extend the availability of, and the market for, electronic banking products, a switching system is needed. Without a switching system, commercial banks will operate electronic banking products in isolation and at a high cost. With a switching system, all banks can improve their capacity in serving their clients through different banks ATM's or EFTPOS machines.

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