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ELECTRONIC COMMERCE IMPLICATIONS FOR THE FINANCIAL SYSTEM

BY

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' **Bank of Namibia, Research Department, 2003**

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ACRONYMS

ABM	Automated Banking Machine
ACB	Automatic Clearing Bureau
ATM	Automated Teller Machine
BIS	Bank for International Settlements
B2B	business-to-business electronic transactions
B2C	business-to-consumer electronic transactions
CAMS	Corporate Access Management System
CATS	Corporate Account Terminal Service
CHIPS	Clearing House Inter-bank Payment System
CMA	Common Monetary Area
CPSS	the Committee on Payment and Settlement
C2B	consumer-to-business electronic transactions
DNS	Deferred Net-Settlement System
E-money/E-cash	a monetary value stored in an electronic device for multiple payment purposes
E-commerce	the conduct of trading with the help of an electronic device - commonly over the internet, through a buyer visiting the seller s website and making a transaction there, or through an online auction.
EDI	Electronic Data Interchange
FSA	Financial Service Authority
GDP	Gross Domestic Product
ECTA	Electronic Communications and Transactions Act
EU	European Union
ICT	Information and Communication Technology
IMF	International Monetary Fund
IP	Internet Provider
ISP	Internet Service Provider
NEPRU	Namibian Economic Policy Research Unit
OEDC	Organisation for Economic Co-operation and Development
PACS	Payment and Collection Services
POS	Point-of-Sale
RTGS	Real-Time Gross Settlement System

ACRONYMS (CONT)

SADC	Southern African Development Community
SARB	South African Reserve Bank
SMEs	Small and Medium Enterprises
UNCITRAL	United Nations Commission for International Trade
UNCTAD	United Nations Conference on Trade and Development
UUNet	Unix to Unix Network
VPN	Virtual Private Networks
SWIFTNET	Society for World-wide Inter-bank Financial Telecommunication Network

EXECUTIVE SUMMARY

(1) This study was undertaken as an attempt to understand the developments of e-commerce in Namibia. It was specifically aimed at assessing the impact of e-commerce on central banking functions as a regulator of commercial banks, the potential risks that e-commerce might pose to the national payment system, its role for financial sector development and to articulate the new challenges e-commerce poses to monetary policy management. A review was made on the impact of e-commerce in other countries. These findings were used to help drawing some lessons for Namibia to deal with the challenges of e-commerce activities.

(2) The empirical evidence indicates that the use of e-commerce in Namibia is off the ground and on the increase. It further confirmed that the basic supporting infrastructures are also available, at least in the urban areas. This evidence was gathered from the survey collectively conducted by the Bank of Namibia and the Namibian Economic Policy Research Unit (NEPRU) on the extent of e-commerce in Namibia.

(3) The survey shows that a number of local companies are exploiting the opportunities that Internet offers and are now using it in one way or another. It revealed that about 89 percent of the respondent local companies surveyed used opportunities that are offered by Internet. A number of them use Internet for online products and services such as shopping, communication with clients, branches or headquarter, obtaining after sales reports, marketing, research, bookings and reservation confirmations on their daily operations. Notwithstanding these positive developments, there are several obstacles.

(4) **Legal and regulatory issues:** The absence of appropriate legal and regulatory framework is one of the most pressing constraints for e-commerce development in Namibia. The constraints identified in the study include the lack of proper legal issues related to privacy, fair trade, access by law enforcement agencies to information and cross border business in the Internet trade. A proper legal and regulatory framework is crucial to address the aforementioned impediments. The finalization and the implementation of the ICT policy, currently being prepared by the government would go a long way in addressing some of these constraints. The objective of the ICT is to serve as a reference point for legislative intervention that may be required in order to regulate e-commerce activities. To this effect, critical success factors and priority actions that are needed to successfully implement the policy and put Namibia on track to fully participate in the information age are outlined in the ICT policy. Furthermore, the draft policy recommends the liberalization of the telecommunications regulation in order to foster e-commerce. It also identified some legislative and regulatory issues such as barriers to e-commerce, lack of uniformity in laws and standards in different areas.

(5) **Payment system:** Generally, all electronic payment systems make transactions efficient and cost effective. However, the unfolding globalization phenomenon, particularly financial liberalization makes e-commerce a challenge to the payment system. Most of the challenges are posed by non-conventional electronic payment systems (such as e-money), which cause security problems, money laundering and fraud. Empirical evidence shows that e-money risks could be minimized when the relevant authorities are vigilant in monitoring the systems and operations of e-commerce activities. It further shows that a real-time payment mechanism, value limit per transaction on the inter-bank clearing system and sound legal and regulatory framework on electronic payment systems mechanisms would further minimize the risks associated with electronic payment system.

Although e-money is not adopted in Namibia, it has been revealed that many businesses and consumers are currently utilizing a variety of electronic payment instruments such as credit cards, debit cards, in making payment for e-commerce transactions. It has also been revealed that a sizable number of Namibian enterprises made purchases via the Internet, while a reasonable number of local enterprises receive on-line payments for

Internet sales. This makes proper regulatory framework in Namibia an urgent case so as to reduce potential risks associated with e-commerce transactions. In this regard, the Bank of Namibia, in its capacity as a provider of settlement services and overseer of payment system has recently drafted the National Payment System Act. This would complement the draft ICT policy by the government. The draft National Payment System Act would regulate both paper-based payment instruments as well as electronic-based payment systems that are being utilized within the Namibian payment instruments as a whole. At the time of doing this study, the drafting of the Namibian Payment System Bill has already been forwarded to the parliament.

(6) **Financial sector development:** The global picture shows that this is one of the main area where the impact of the Internet has been felt greatly. The brokerage services account for the largest share, followed by the online banking. It is argued that e-finance would lower the costs of providing financial services and allow for greater access to financial services.

In Namibia the online banking services account for the largest share of Internet services. All commercial banks offer online banking services. However, there are a number of deficiencies that have been identified in the system. The most often talked about deficiency is that the financial system is urban-based with limited presence of financial service providers in the semi-urban and rural areas. The main reason cited is the lack of economic activities that makes establishment of banks in those areas infeasible.

(7) The extension of the electronic banking service to the remote/rural areas would mean that consumers in these areas do not need to travel long distances for all banking services any longer. They could now access cash and conduct some banking activities right in their villages. This suggests that e-commerce/e-finance could be the answer to a number of deficiencies identified in the Namibian financial sector development strategy. However, it is cautioned that these should not, in any way, be interpreted to mean the replacement of the current government interventions, but rather as a complementary mechanism. The lack of infrastructure, the high levels of illiteracy are among the factors that could limit the expansion of financial services through e-commerce.

(8) On **monetary-policy** front, the study observed that e-money is the main element of e-commerce with potential-monetary policy implications. Therefore, non-bank and unregulated issuance of e-money creates a greater threat that the central bank will be unable to track the money supply and will, as a result, lose the ability to set monetary policy. The largest impact would be on the narrowly defined stock of money (M1). Therefore, for countries that rely on the monetary aggregates as targets or indicators require a redefinition of the monetary aggregates to include this type of money. As the proliferation of e-money/digital money products would also reduce the use of notes and coins, this will, in turn, reduce revenue for central banks. There are some measures, which central banks can take to minimize the adverse implications of the adoption of e-money on the monetary policy. Notwithstanding, Namibia, like many developing countries, has not yet adopted e-money payment instruments. Therefore, the implication of e-commerce, particularly e-money on the local monetary policy is still minimal.

(9) **Recommendations:** The paper recommends the need to introduce the legal and regulatory framework, which is lacking currently; a need to encourage the government to ensure that the provision of e-commerce infrastructure in the rural area is made a priority; to promote awareness among consumers and retailers of the latest developments in e-commerce/e-finance, especially e-banking; a need for the Bank of Namibia and CMA central banks to increase their monitoring activities in line with the increase in both the number and sophistication of the electronic payment instruments; a need for a policy stance on who should issue e-money and to formulate and pronounce its position on e-commerce and/or electronic money.

CHAPTER 1

1. Introduction

1.1 Background

The advent of e-commerce in general and electronic payments as well as Internet banking in particular bring with it profound changes in the system of banking services and financial inter-mediation. It has brought about a new frontier of opportunities and challenges.

In fact, e-commerce is not a new concept. Most individuals have all conducted business activities electronically, whether with a credit card, debit card, fax machine, automated teller machine (ATM) or over the telephone. Further, large corporations with private communications networks have always done business with key suppliers and other industry members using electronic means. For instance, the auto, retail and transportation sectors have been using electronic data interchange (EDI) networks for more than two decades for ordering, invoicing, payment and tracking of sales. Further, banks and other financial institutions rely heavily on private networks to transfer funds electronically. All that is happening now is that there is now a new generation of electronic commerce by using the Internet as another way of conducting business (Canadian Bankers Association, 2000).

E-commerce is developing exponentially and offers various applications ranging from electronic money to electronic banking. Individuals and businesses are increasingly carrying out their transactions via the Internet. Hence, e-commerce is widely expected to improve efficiency due to reduced transaction costs and increased competition. Therefore, financial service providers and other businesses that lags behind in this process risk being losing competitive edge to those using new technologies.

As a regulator of the banking industry in Namibia, the Bank of Namibia places great emphasis on the stability of the financial system, ensuring its safety and soundness. Of great necessity is the need to understand the challenges and potential risks that the Internet based transactions and electronic payment instruments might pose for the national payment system and monetary policy management. It is against this background that this paper will discuss and assess the implications of e-commerce on a number of issues that are in its jurisdiction.

1.2 Research Objectives

The primary research objectives are, inter-alia:

- to understand the trends of e-commerce in Namibia,
- to assess the impact of e-commerce on central banking functions as a regulator,
- to assess the potential risks that e-commerce might pose for the national payment system,
- to assess its potential role for financial sector development in Namibia, and
- to articulate the new challenges it poses to monetary policy management.

1.3 Methodological Approach

Two approaches have been employed. First, it has been realized that a number of countries would offer vital lessons of experience in their approach to e-commerce, both in terms of their policy and regulatory frameworks as well as their efforts to exploit opportunities offered by applications of information and communications technologies to the provision of financial services. It was, therefore, deemed appropriate to review available literature on the subject, which would set the scene for further analysis. Second, a survey was undertaken to collect e-commerce data from and experiences of stakeholders, mostly commercial banks. This was considered necessary to understand the status of e-commerce in Namibia, but with a special interest in the banking industry.

The survey was carried out through a questionnaire, which was sent to 270 selected companies. The selection of companies did not follow random sampling and the sample was biased towards larger urban companies. The questionnaire used is a modified questionnaire used by the OECD for its member states. Considering the nature of the information required from the banking industry, it was deemed imperative to also carry out interviews with staff responsible for online banking and related activities at respective commercial banks. The questionnaire dealt with e-commerce and related issues, as reflected in chapter 3.

1.4 Paper Organisation and Structure

The rest of the study is arranged as follows. Chapter 2 introduces the subject of e-commerce from a global perspective, with special focus on the trend, challenges and opportunities e-commerce offers. Chapter 3 provides an overview of the state of e-commerce in Namibia. The chapter is, largely, guided by the information obtained from the survey. Chapter 4 deals with legal and regulatory issues in Namibia, based on the outcome of chapter 3. Chapter 5 deals with issues on payment system. Chapter 6 is aimed at highlighting the role of e-commerce in financial sector development. Chapter 7 deals with monetary policy issues and e-commerce from a general perspective and, in turn, feed a local perspective; while the final chapter (i.e. chapter 8) covers the overall conclusion and policy recommendations.

CHAPTER 2

2. E-Commerce: Global Perspective

2.1 Introduction

Globalisation and advancement of Information Technology has made the world smaller through the digital and virtual reality of cyberspace. Businesses and individuals across the globe are now using these technologies to effect their commercial transactions and conduct other activities. This chapter is therefore aimed at highlighting the global trends of e-commerce, the factors that drive it and the challenges and opportunities it generates.

2.2 Global trends

The Internet, originally developed in the late 1960s and early 1970s for academic and military research purposes, was initially limited to text and did not have today's multi-functional capabilities. It was also plagued by such problems as slow speed and poorly organised information. That began to change when the graphically oriented and user-friendly World Wide Web was introduced in the early 1990s, followed by browsers and search tools which allowed Internet users to move quickly from one site to another and search for information using key words or phrases (Canadian Bankers Association, 2000).

In its October 1999 edition, the Business Week reported that business-to-business transactions over the Internet amounted to \$43 billion in 1998 world wide, while it projected the 2003 figure at \$1.3 trillion. This shows that e-commerce has had considerable economic impact on enterprises. The value of global e-commerce was expected to reach as high as 10 per cent of the value of total world trade by the year 2003 (UNCTAD, 2000).

Available information shows a considerable increase in Internet connectivity among individuals and enterprises around the world. More than 100 million people were online in 1998, and experts project 1 billion as early as 2004 (World Bank, 2001). Table 2.1 shows that a growing share of new Internet users are in developing countries. Overall, however, developing countries accounted for almost one third of new Internet users worldwide in 2001.

Since the gap in telecommunications services between industrial and developing countries is large, the digital divide is likely to remain wide for some time. It is important to note that this gap is also wide among developing countries themselves, with the poorest countries being particularly disadvantaged (World Bank, 2001).

Table 2.1 Internet Users (thousands), 2000-2001, by Region

Region	2001	2000	Increase	% change
Africa	6 738	4 601	2 137	46.4
Asia	157 779	108 231	49 547	45.8
Europe	144 410	108 339	36 071	33.3
Latin America & Caribbean	26 320	19 331	6 989	36.2
North America	156 323	136 700	19 623	14.4
Oceania	8 505	7 635	870	11.4
World	500 074	384837	115237	29.9

Source: United Nations (UNCTD), 2002

Access to the Internet in Africa is very low, though Internet usage is increasing at a higher rate. This is attributed mainly to low income and poor telecommunications infrastructure, resulting from under-investment in the area of telecommunications and other e-commerce supporting infrastructures. Table 2.2 shows a breakdown for the Southern African Development Community (SADC) countries in terms of the number of Internet subscribers per country, the Internet Service Providers (ISPs), number of domains and websites. While Namibia fares relatively well and above Botswana, Mauritius in terms of Internet website, her number of Internet subscribers are less than their counterparts in these countries.

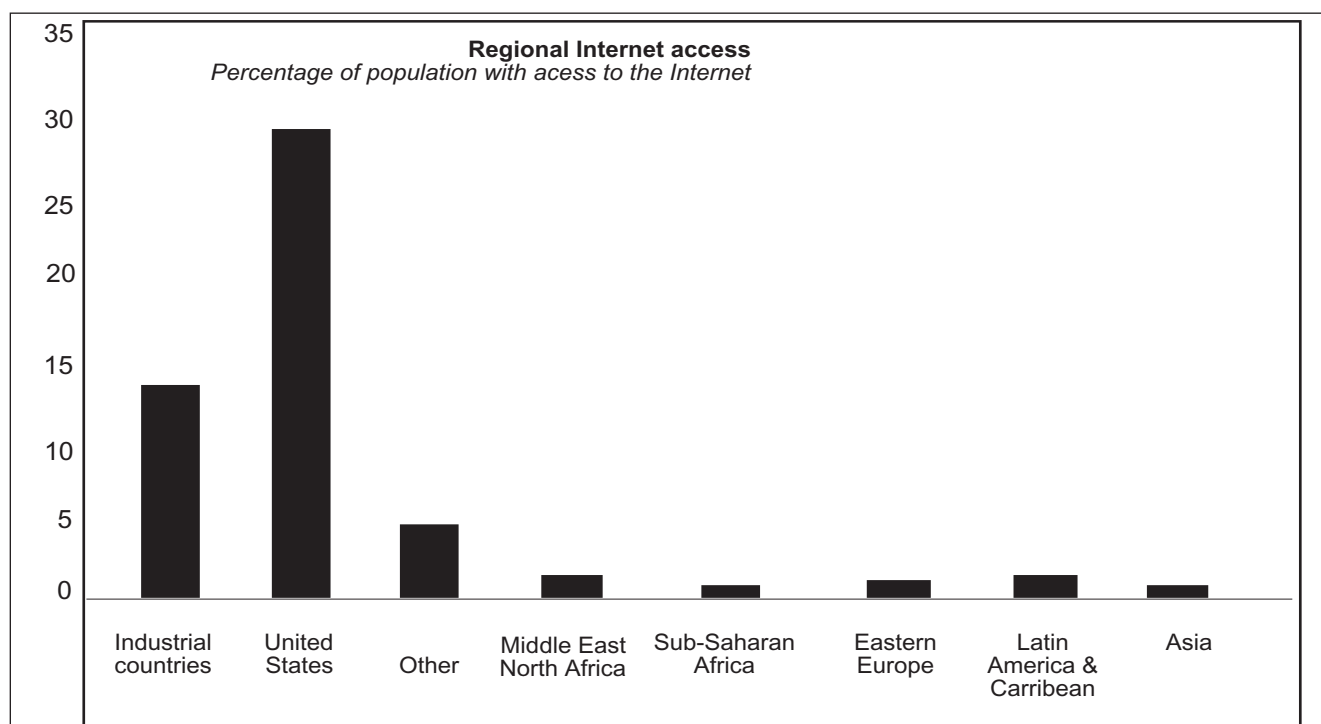
Table 2.2 Internet Usages in SADC Countries (2001)

Country	Domains	Number of ISPs	Websites	Internet subscribers
Angola	8	4	136	4,000
Botswana	2,356	6	176	25,000
DRC	83	5	91	4,500
Lesotho	102	-	91	-
Malawi	13	2	100	2,400
Mauritius	3,275	1	160	35,000
Mozambique	112	5	129	6,000
Namibia	3,251	6	567	15,000
Seychelles	9	2	71	3,000
South Africa	187,649	75	3002	750,000
Swaziland	981	2	62	1,200
Tanzania	816	14	326	20,000
Zambia	892	3	121	6,500
Zimbabwe	2,918	8	1,313	20,000

Source: Information Policy Handbook, 2001

Chart 2.1 could be interpreted to mean that the adoption of e-commerce flows from developed countries to developing countries. It is worth noting that the distribution of Internet access and consequently e-commerce among countries is severely unequal. Industrial countries still account for the majority of Internet subscribers and e-commerce activities.

² These figures are estimates and should therefore be used with caution.

Chart 2.1 Regional Internet Access, 1990-2000

Source: World Bank, 2001

More than 30 percent of US residents had access to the Internet in 1999, compared with only 0.5 percent in Sub-Saharan Africa (World Bank, 2001). E-commerce in most other developing countries is also relatively small. In Latin America, for example, e-commerce was estimated at \$459 million in 1999 compared with a GDP of about \$2 trillion.

2.3 Factors that Drive E-Commerce

Globalisation is the key factor that has driven the growth of e-commerce. Largely, due to globalisation, many enterprises in developing countries have become integral part of global supply chains. This is due to the reality that global networks make it easy to do business with any company anywhere in the world as with one on the next street.

According to Canning (1999), the quantity and quality of telecommunications services provided in a country is a significant determinant of the existence of Internet connections and the level of Internet use. Many developing countries, however, are experiencing much more rapid diffusion of the Internet for the given availability of telephone lines than in the United States, for example. Given the enormous investments required for telephone lines, hopes for narrowing the digital divide rest largely on the spread of alternative means of accessing the Internet. The availability of cable, cellular phone and satellite systems, telephone lines and computers is likely to enhance access to and use of the Internet.

An important factor with regards to the insufficient telecommunication services and their high cost is that, until recently, these services were dominated by the state monopolies. In practice, monopolies have all but ended in most countries, largely due to the licensing of mobile operators, which have rapidly become competitors to the fixed network as alternate primary providers of voice telecom services. As cellular/mobile tariffs are usually much higher than in the fixed networks, they cannot yet provide low-cost communication for the general public. Nevertheless, the lack of telephone lines and poor public ICT infrastructure as well as falling prices for mobile connections following their liberalisation have led to a strong growth of cellular telephony (World Bank, 2001).

2.4 Challenges and Opportunities

Like any other technology, e-commerce has brought both benefits and challenges. These will be highlighted below.

. Challenges

The greatest driver of e-commerce growth is the realization by major international businesses that e-commerce could potentially revolutionize the way in which they conduct normal daily business. Modern businesses are characterized by ever-increasing supply capabilities, ever-increasing global competition, and ever-increasing customer expectations. In response, businesses throughout the world are changing both their organisations and their operations. They are flattening old hierarchical structures and eradicating the barriers between company divisions. Further, businesses are lowering the barriers between the company and its customers and suppliers, while business processes are being re-designed so to suit the new operational environment. These are examples of processes that span the entire company and even processes that are jointly owned and operated by the company and its customers or suppliers.

Important to note is the fact that when it comes to e-commerce, those who have the power to control information technology (mostly the developed world) are those who are winning the race. But as e-commerce continues to increase its share of total world trade, its impact on development must continue to attract the attention of developing countries, who are virtually lagging behind. Developing countries are facing various challenges associated with e-commerce. One such challenge is the fact that the global playing field for companies is not levelled. This is because of the digital divide that exists between the developed and developing world in terms of availability and accessing the infrastructure needed for electronic commerce. Particularly, the current relatively low level of participation in e-commerce has more to do with the constraints that developing countries are facing in this area. These include lack of awareness, the high cost of connectivity, lack of infrastructure, legal issues, security problems, etc. To date, almost all Internet users have depended on telephone lines for connection (Canning, 1999).

. Opportunities

Despite the above challenges, e-commerce brings real opportunities to those that are able and ready to face the challenges of exploiting its potential. For consumers these are (a) opportunities to browse, compare prices and make purchases on their own terms; (b) convenience, in terms of the store always being open on the Net; (c) an expanded marketplace because their shopping mall has gone global, and hence a wider product selection; (d) the ability to make informed decisions by gaining access to plenty of information and relevant links to other sites; (e) the potential for lower prices resulting from reduced supplier overhead costs and greater competition; and (f) easier access to suppliers.

For businesses, the benefits derived from e-commerce include, amongst others: (a) an inexpensive way of increasing sales; (b) new market opportunities by expanding the customer base; (c) offer existing customers an added channel of customer service, by quickly responding to requests, orders and offer more responsive after-sales service; (d) allow a business to effectively advertise its products and services all at the convenience of the customer's time; (e) allows businesses to speak directly to their chosen market, i.e. sites can be segmented for different demographic groups, demonstrating that you know your clients and their needs; (f) potentially reduces the operating costs (marketing, inventory, distribution and production) which can mean higher revenues.

From the above, it is clear that the development of e-commerce is a key question for all strategic managers in companies of all sizes worldwide. Large organizations are creating interactive websites with the capacity for e-business, and this is acting as a major stimulus for a widespread growth in e-commerce. Companies that may wish to continue to protect old channels of doing business and reluctant to compete with their e-commerce-adapted counterparts will face a challenge of acquiring and retain customers in the long term.

CHAPTER 3

3. OVERVIEW OF E-COMMERCE IN NAMIBIA

3.1 Introduction

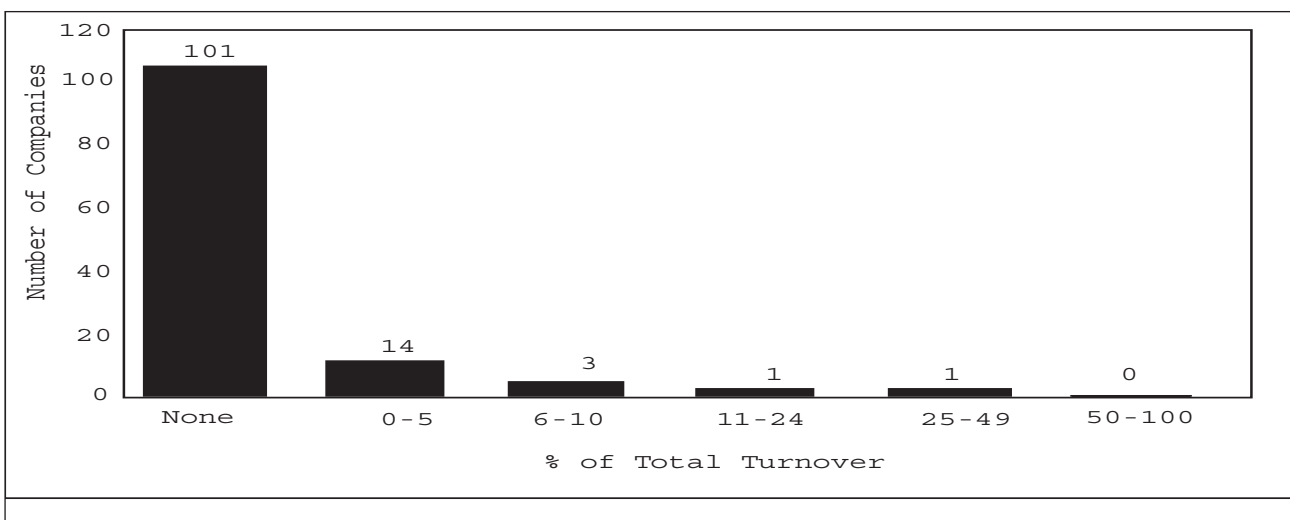
It emerged from the previous chapter that Internet and its application to e-commerce is changing many world industries drastically. Namibia is no exception. Thus, Namibia has reached the stage where the previous market structures are beginning to change as the Internet spreads. This reality became a challenge to relevant authorities, policy makers and all stakeholders. This chapter is, therefore, aimed at capturing the state of e-commerce in Namibia, particularly the Internet-driven trading. This assessment is, largely, based on a survey that has been conducted, collectively, by the Bank of Namibia (BoN) and the Namibian Policy Research Unit (NEPRU) in the third quarter of 2002. The survey gave some indications on the e-commerce activity(ies) an individual company uses the Internet for, benefits derived and constraints encountered, the Internet-banking services currently provided, etc.

3.2 The State of e-Commerce in Namibia

There has not been any appreciable study on e-commerce in Namibia. The discussion in this section is therefore based primarily on the above-mentioned survey, comprising of two parts. 270 companies received an e-commerce questionnaire of which 126 responded. Most of the responding companies fall into the medium to large sized company category. About 70 percent of the responding companies have a turnover of above N\$ 1 million; and above 47 percent of the respondents had more than 50 employees.

It emerged that the majority of the responding companies use the Internet in one way or another (see Chart 3 (b)). Most respondents have their own websites, an indication that a presence on the Internet is becoming a necessity for many companies as they realize the potential and opportunities the Internet can offer. In some companies, the employees use computers and Internet as part of their daily work, (while others do not allow the employees to use computers and Internet). None of the companies surveyed had an online share of total turnover of above 50 percent and only 20 out of 121 that conduct business online had an online turnover at all³ (see Chart 3.1).

Chart 3.1 Turnover by Internet trading (as % of total turnover)



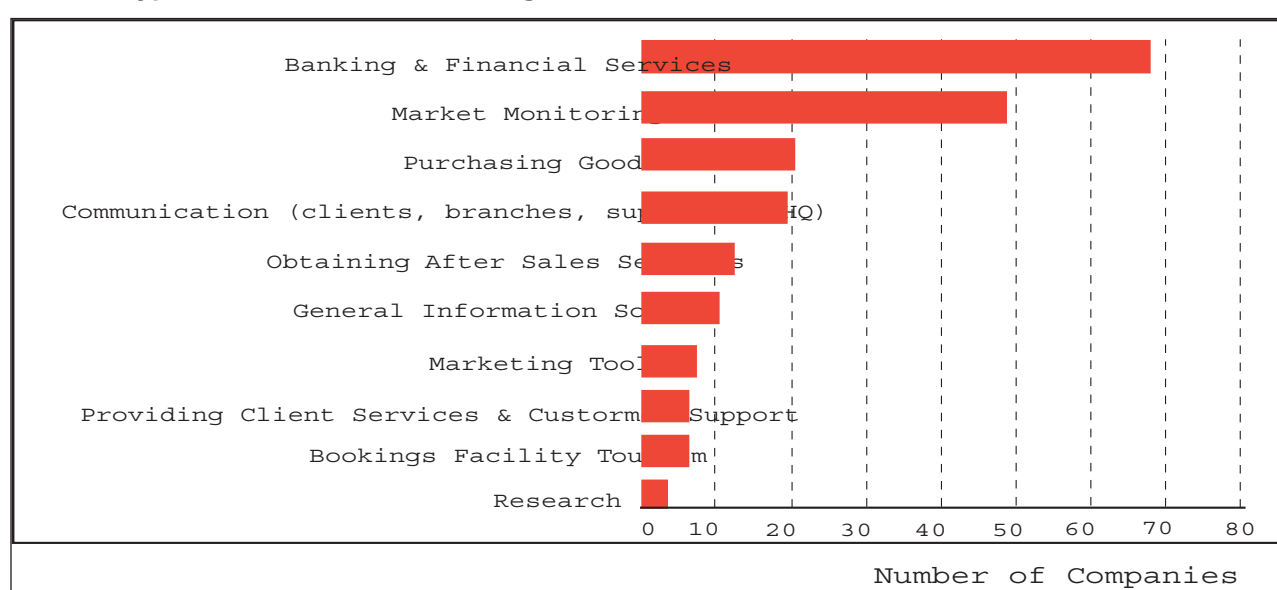
Source: Bank of Namibia and NEPRU, 2002.

³ This does not include banks.

The important activities that are carried out online include shopping, communication with clients, branches or headquarter, obtaining after sales reports, marketing, etc. (see Chart 3.2). The Internet is further used as a general source of information and research. It is also used by the tourism sector for online bookings and reservation confirmations.

Namibian commercial banks offer a wide range of online banking services, as highlighted in Table 3.1. The services are offered through various technologies such as CATS, PACS, CAMS, Bankit, NedInform, Nedexec, inContact, Videobank, etc.⁴. These technologies have the following distinct functions. They enable corporate clients to do account management, to pay creditors, to do intra-account transfers and to do bulk payments of salaries and premiums. They also provide controlled access to clients accounts via personal computers linked to the mainframe of respective banks, as well as allowing the carrying out of virtually all financial transactions electronically by using the smart card technology to guarantee security.

Chart 3.2 Types of services offered through Internet



Source: Bank of Namibia and NEPRU, 2002

All banks in Namibia revealed that they provide protection against hacking, and will cover any damage through fraud or hacking. All banks offering online banking facilities also have a mechanism whereby they deal with mistakes made by users. Whenever a user makes a money transfer by mistake, such a user would need to contact the relevant division of the bank for the necessary rectification.

⁴ These are technologies without which a given service to a client cannot be provided. Thus, the package of services a client desires determines the technologies product to be applied. Some of these technologies are to be installed in the client's personal computer, whereas others are made to operate from the banks premises.

Table 3.1 Online Banking Services offered by Commercial Banks

Account Monitoring	<ul style="list-style-type: none"> . Real time available balance . View 65 days transaction information . Up to date statement information . Interest distribution . Statement download on all accounts
Account Management	<ul style="list-style-type: none"> . Creditor Payments . Stop cheque payments . Electronic Funds transfer . Cash Management
Other Features	<ul style="list-style-type: none"> . Salary Payments . Bulk Payments . Premium payments or collections . Import and export functionality . Pension and Medical fund payments

Source: Bank of Namibia and NEPRU, 2002

No bank or financial institution in Namibia provides a multipurpose prepaid-electronic payment instruments other than the debit card. This is mainly due to the risk associated with these payment instruments; but will be adopted some time in the future once a reasonable amount of security measures are put in place. A debit card system (a point-of-sale transfers service) was introduced recently by most local banks. It allows consumers to pay for purchases with this card, which is linked to their accounts with their respective banks. Businesses and individuals do also conduct activities through non-Internet based products such as credit cards, fax machine or over the telephone.

3.3 Enabling Infrastructures and e-commerce Technologies in Namibia

As was mentioned in chapter 2, e-commerce largely depends on the availability of the enabling infrastructure. The survey found that basic supporting infrastructures are available in Namibia, at least in the urban areas. Telecom Namibia applied the advanced and widely recognized Internet Protocol, on its fibre network backbone since 2000. It also established Internet protocol (IP) Company, Infinitem, to offer Namibian businesses a reliable and efficient customised network solutions.

In parallel with this provision, the company ventured into the marketplace by establishing its own Internet Service Provider (ISP), known as i-Way, to bring connectivity to Namibians at competitive rates. Infinitem provides customers with a wholly owned, very efficient, high capacity fibre IP backbone network that covers the entire Namibia, and is one of the most advanced networks in Africa. For international Internet connectivity, Infinitem is connected via satellite to WORLDCOM and via a leased line to UUNet in Johannesburg, South Africa, creating a fully redundant connection to the Internet. Infinitem also offers corporate clients services such as the Virtual Private Networks (VPN), which behaves as a private network. Alongside the VPN service, Infinitem offers customers the highest speed access available in Namibia to the Internet through its Internet access-service provider.

Moreover, there is also a rapidly growing interest in Internet kiosks, cybercafes and other forms of public Internet access usually called tele-centres, whereby computers with Internet access are installed in community phone-shops and schools. The tele-centre approach may be one of the most important means of providing access to

Internet and related services in rural areas, but further research and awareness raising are needed to determine the most appropriate models in this regard.

3.4 Barriers to E-commerce in Namibia

Several barriers to e-commerce were revealed in the survey result; and vary from company to company. Some respondents indicated that the majority of their customers are not yet ready to buy via the Internet. Other companies indicated that their in-house accounting and sales systems are not suited for e-commerce.

The overall lack of a legal framework in Namibia to protect customers and vendors was mentioned as one of the common problems preventing some companies from adopting e-commerce. Its absence makes e-commerce highly insecure. Security concerns ranging from the fear for viruses and hackers to privacy matters were also mentioned as some of the major concerns. Meanwhile, some companies cited fear of paying with no product or service being delivered. In addition, the banking industry cited exchange controls within the CMA as prohibiting online transfers to accounts outside the CMA area.

It was also revealed that the absence of a Namibian Automatic Clearing Bureau (ACB) renders the system inefficient, as it lengthens the clearance period of transfers between different bank accounts. This is also seen as a serious limitation to other services that commercial banks would like to offer. Other limiting factors include computer access, computer illiteracy etc. It is expected that the recent draft Information and Communication Technology (ICT) Policy for Namibia by the Government would address some of these concerns.

3.5 Conclusion

The use of e-commerce in Namibia is real. The survey on the extent of e-commerce in Namibia established that a number of local companies having realised the potential and opportunities offered by the Internet, are now using it in one way or another. Companies have started to offer online products and services such as shopping, communication with clients, branches or headquarter, obtaining after sales reports, marketing, research, bookings and reservation confirmations.

However, like other developing countries, the Internet usage in Namibia is still very low compared to industrial countries where the rate of Internet connectivity is high. This is evidenced by the fact that none of the companies surveyed had an online share of total turnover of above 50 percent and only 20 out of 121 that conduct business online had an online turnover at all. This could not be blamed on the enabling infrastructure, as the survey found that the basic supporting infrastructures are available in Namibia, at least in the urban areas. The banking industry offers a wide range of online banking services through various technological advanced products such as CATS, PACS, CAMS, Bankit, NedInform and Nedexec. It also accounts for the largest share of e-commerce activities in Namibia.

While various benefits are derived from the use of electronic commerce in Namibia, there are several barriers to this promising venture. Some of these barriers are lack of a legal framework in Namibia to protect customers and vendors, prohibitive exchange controls within the CMA for online transfers to accounts outside the CMA area and computer illiteracy.

Cognisant of the above concerns, the Government has drafted an ICT policy whose objective is to further develop Namibia's information and communication infrastructure and human resources capacity to meet the needs of the information age. The draft policy also set a momentum for the legislative intervention that may be needed in order to regulate e-commerce activities.

CHAPTER 4

4. LEGAL AND REGULATORY ISSUES

4.1 Introduction

This chapter deals with legal and regulatory issues, which are related to electronic transactions and payment systems/products. Thus, the development of these products raises numerous legal and regulatory issues that must be addressed. These includes, among others, security, privacy, legal risks, consumer protection and cross border issues. Other critical issues include finding accepted methods for authentication and protection of information, accommodating the special needs of law enforcement and creating the regulated means of settling disputes.

4.2 Security

All the evidence suggest that security is very much at the forefront of customers minds in deciding whether to opt for this or that e-commerce product and/or medium of payment (Bridge, 2000). Security breaches could occur at the level of the consumer, the businessperson or the issuer of the instrument, and could involve attempts to steal consumer or business devices, create fraudulent devices or messages that are accepted as genuine, alter data stored on or contained in messages transmitted between devices, or to alter software functions of a product (Law Bridge, 2000). Security attacks would most likely be for financial gain, but could also aim to disrupt the system (i.e. payment system). They essentially fall into three categories, viz, breaches with serious criminal intent (e.g. fraud, theft of commercial sensitive or financial information), breaches by hackers (e.g. mutilation of web sites or denial of service — causing web sites to crash), and flaws in systems design or set up, leading to security breaches. All these threats have potentially serious financial, legal and reputational implications (Law Bridge, 2000)⁵.

McAndrew (1999) and Boweni (1999) hold that the risks to which e-commerce, particularly e-money⁶ payment system is most subject are operational, fraud, and legal risk; and all these pose new challenges to payment system risk control. Mboweni (1999) went a step further, highlighting some of these risks. In his own words, he maintained that: The issue of e-money could be a risky business, because the monetary amount stored on a card or on a network is only as good as the bank or other organisation which has the ultimate ability to pay on that obligation. This may not be a serious concern in the case of low-value balances. However, it becomes much more serious with higher-value balances. Such problems do, of course, not arise in the issuing of banknotes and coins. These currency liabilities form part of the reserve bank's overall liabilities and a guarantee is provided to the bearer that they will be replaced with currency of an equal value .

He holds that the issue of e-money will increase the risk of counterfeiting, depending on the technical characteristics of each system. Counterfeiting could take place by physical reproduction of cards, by manufacture of a "re-loading mechanism" which could be fraudulently used to add new balances to authentic cards, or by "hacking" into the payment systems themselves. With some technologies, it might be difficult or impossible for the recipient of an electronic payment, or even for an issuer, to detect an electronic counterfeit. Mboweni (1999) cited the example of telephone card fraud alone (in South Africa), which cost Telkom South Africa more than R13 million in the three financial years ending August 1999. By contrast, counterfeit currency

⁵ It is, however, acknowledged, as Law Bridge (2000) put it that there is no absolute security that exists in either the electronic or physical world of banking. However, the level of security should be fit for purpose .

⁶ E-money is generally referred to a monetary value stored in an electronic device for multiple payment purposes. However, this definition is subject to modification to suit a given context.

can usually be detected by a recipient and the Reserve Bank as issuer scrutinises banknotes and coins carefully to prevent counterfeiting. Sophisticated security features would reduce the risk of electronic counterfeiting, but with the lucrative possible returns it will be difficult to rule them out (Mboweni, 1999).

To minimize these risks, Mboweni (1999) proposed the following:

- Issuers should have to take great care to ensure that the dangers of counterfeiting is minimised, and they should be vigilant in monitoring their systems and operations so that counterfeiting is quickly detected.
- The public should be advised that to get involved in payment arrangements which are effectively domiciled outside the country, they need to understand who it is that they are dealing with, where the counterparts are legally located, whether they have an appropriate standing, and what potential risks they may face - either by holding balances within a system, or by using those balances in a transaction. He, however, acknowledges that this information may not always be readily available or may be difficult to evaluate.

According to Law Bridge (2000), security arrangements of e-money products should try to achieve the following fundamental objectives:

- restrict access to the system to authorized users;
- authenticate the identity and authority of the parties concerned to ensure the enforceability of transactions conducted through the internet;
- maintain the secrecy of information while it is in passage over the communications network;
- ensure that the data has not been modified either accidentally or fraudulently while in passage over the network; and
- prevent unauthorized access to the bank's central computer system and database.

The effectiveness of these and other kinds of security measures that may provide security that is comparable to that offered in physical transactions largely depend on their proper implementation and the establishment of a set of comprehensive policies and procedures that are rigorously enforced (Law Bridge, 2000).

Moreover, continuing developments in security technology are required to maintain the effectiveness of security measures on an ongoing basis as new threats to existing systems arise over time. According to Law Bridge (2000), banks should accordingly be responsible for ensuring that they keep up with such developments on a continuous basis. Unless they do this, their existing security measures may, overtime, become obsolete.

Box 4.1 represents an extraction from a report by the Financial Service Authority of the Government (FSA) of the United Kingdom (2002). It is intended to give a general perspective on the regulatory framework regarding e-money product in the United Kingdom.

Box 4.1 The FSA's Consultation Paper on the Regulatory Regime for e-Money Issuers⁷

Purse size

FSA believe that the risks associated with the use of e-money warrant a limit on purse size. They have increased the limit of \$250 per purse initially proposed to \$1000. A higher purse limit may be permitted where certain safeguards are met.

Issuing e-money at a discount

E-money issuers will be allowed to issue e-money at a discount for marketing purposes in certain tightly controlled circumstances.

What consumers need to know

This is a benefit to consumers. Thus, e-money can offer consumers a flexible, secure and convenient way of making low value transactions.

Consumers should be aware that, like physical cash, if they lose their e-money card, they may lose their money. The new regime does provide basic protections for consumers, consistent with the FSA's objective of appropriate protection for consumers, whilst allowing firms to introduce innovative new products.

The protections for consumers include the limit on purse size and the requirement to fully disclose all the risks associated with the product.

HM⁸ government has decided that the Financial Services Compensation Scheme will not apply to e-money issuers. Consequently, customers will have no access to compensation should an e-money issuer become insolvent. E-money issuers will, however, be included within the scope of the Financial Ombudsman Service and must also have their own procedures for dealing with customer complaints.

The FSA is also adding an e-money section to its Consumer Website to help consumers understand e-money and the regulatory framework.

The regime for Firms

The key characteristics of the proposed framework for e-money issuers relate to their financial soundness: Issuers must ring fence their e-money activities from other areas of business risk.

Funds held in exchange for the issue of e-money must be invested in high quality liquid assets.

There will be a minimum capital requirement for issuers — at least 2 percent of outstanding e-money liabilities or Euro 1 million, whichever is the higher.

E-money issuers must have sound and prudent systems and adequate internal control mechanisms and must comply with the FSA money laundering requirements.

Source: Financial Service Authority, Government-United Kingdom, 26 April 2002

4.3 Privacy

Privacy can be generally defined as "the right to be left alone, free from intrusion or interruption. Privacy or the lack thereof, is a major concern for individuals in the use of electronic medium in commerce" (Government-South Africa, 2000). The Internet on which the e-commerce is strongly based has generally raised many data protection issues in recent years. For example, a variety of personal information may be sought for these purposes, such as, name, address, email address, credit and debit card numbers, information about financial standing, hobbies and interest, and so on.

⁷ The FSA regulates the financial services industry and has four objectives under the Financial Services and Markets Act 2000. These include maintaining market confidence, promoting public understanding of the financial system, securing the appropriate degree of protection of consumers, and fighting financial crime. More over, FSA aims to maintain efficient, orderly and clean financial markets and help retail consumers achieve a fair deal (FSA, Government-United Kingdom, 2002)

⁸ HM stands for Her Majesty

Sound practice requires the ability to track and verify that the proper exchanges occur, which ensure that only authenticated parties and payment mechanisms are involved in exchange, and that they exchange only those items for which they are authorized. However, consumers may fear that their financial, credit and spending information derived from e-money transaction or products could be used without their knowledge or permission (Bridge, 2000).

With the growth of e-money, the spread of crime is likely to accompany the vastly increased storage and transmission of customer financial information. Therefore, many parties tend to go for the option of anonymous financial transactions. However, this issue appears difficult to be widely accepted by the authorities, primarily due to security concerns and money laundering.

4.4 Legal Risks

Legal risk arises from violations of, or non-conformance with laws, rules, regulations, or prescribed practices, or when the legal rights and obligations of parties to a transaction are not well established (BIS, 1997). Electronic money schemes may be attractive to money launderers if the systems offer liberal balance and transaction limits, and provide for limited auditability of transactions. Because e-banking can be conducted remotely, banks may face increased difficulties in applying traditional methods to prevent and detect criminal activity. Commercial banks engaging in electronic banking and electronic money activities can therefore face legal risk with respect to customer disclosures and privacy protection. Customers who have not been adequately informed about their rights and obligations may bring suit against a bank (BIS, 1997).

Failure to provide adequate privacy protection may also subject a bank to regulatory sanctions in some countries. Further, banks choosing to enhance customer service by linking their Internet sites to other sites also can face legal risks. This increases the risk in the sense that a hacker may use the linked site to defraud a bank customer, and the bank could face litigation from the customer.

Given the relatively new nature of many retail e-banking and e-money activities, rights and obligations of parties to such transactions, in some cases, may be uncertain. Thus, application of some consumer protection rules to electronic banking and electronic money activities in some countries may not be clear. Moreover, legal risk may arise from uncertainty about the validity of agreements formed via electronic media.

4.5 Consumer Protection

In order to provide a certain and stable environment for conducting business, consumer protection becomes critical. This is so because while the new environment provides new opportunities for businesses, it also brings new types of threats in the form of electronic fraud, cybercrime and new forms of cyber terrorism. It is, therefore, important that consumers display some kind of trust and confidence in good and services offered online. They must be confident that these fairly represent what they had in mind and that the merchants with whom they are dealing will be able to deliver their goods timely and are not engaged in any illegal activity such as fraud or deception. In addition, it is important that consumers are protected against harmful goods, services and content, insufficient information about goods or the supplier (BIS, 1997).

According to the (Bridge, 2000), the magnitude of risks, as well as benefits to consumers in using e-money products is uncertain given the lack of large-scale operation of any electronic money schemes. Risks may also vary across products. BIS (1997) and (Bridge, 2000) unveiled some of these risks, viz. the risk of financial loss, the risk that consumers may not be able to complete payments in the amount, at the time and location they desire, despite having adequate financial resources to do so; the risk that information generated through

consumer use of electronic money product may be disclosed without their consent, used for fraudulent purposes or in a manner adverse to their interests. These risks are not presented by existing payment mechanisms.

4.6 Cross Border / Jurisdictional Issues

Bank supervision in today's global environment can only ever be effective if it has an international dimension. Hence, the opinion of the Basel Committee on e-Banking Group (2000) that "the committee should provide the international supervisory community with a broad set of advisory guidance with respect to e-banking, thereby providing a basis for domestic regulation and supporting consumer and industry education. Globally, such guidance would assist international co-operation and act as a foundation for a coherent approach to supervising e-banking and e-money. It could facilitate international e-banking and e-money by creating consumer confidence in sound banks based in different, possibly less satisfactory, regimes and might deter host supervisors from imposing additional regulation on such banks".

The opinion expressed in the above quote is based on the fact that electronic banking and electronic money activities are based on technology that by its nature is designed to extend the geographic reach of banks and customers. Therefore, when transactions involve these products (i.e. e-banking and e-money) are across borders, it may be difficult to establish the extent to which electronic money schemes fall within the scope of particular jurisdiction (Law Bridge, 2000). There may also be jurisdictional ambiguities with respect to the responsibilities of different national authorities. Such considerations may expose the agents/institutions involved in e-banking or e-money activities to legal risk associated with non-compliance with different national laws and regulations, including consumer protection laws, record-keeping and reporting requirements, privacy rules and money laundering laws (Law Bridge, 2000).

4.7 Namibian Perspective

A review of the current legal and regulatory regime revealed that it cannot adequately regulate e-commerce activities. This may therefore pose risks to entities involved in e-commerce activities. There is, therefore, a need to formulate a new legal framework that adequately covers transactions that are concluded electronically. The need to address the situation is not only to minimize the vulnerability of the individuals and institutions already involved, but also to develop and safeguard the e-commerce arena.

According to the survey result that was referred to earlier, the security of e-commerce was of great concern to 80 percent of the respondents (Chart 4.1). Notwithstanding this concern, it was indicated that most local banks have already launched e-banking activities and it appears that the technology they are using is enhanced with security mechanisms that prevent fraud and meet international Internet security standards. However, this security is not sufficient considering the absence of an appropriate legal and regulatory framework in place.

Moreover, the Internet dictates that the legal framework should also take into account the concerns of cross border business transactions. Therefore, to ease trading across borders in the electronic environment requires negotiations of international agreements, especially when this type of trade increases.

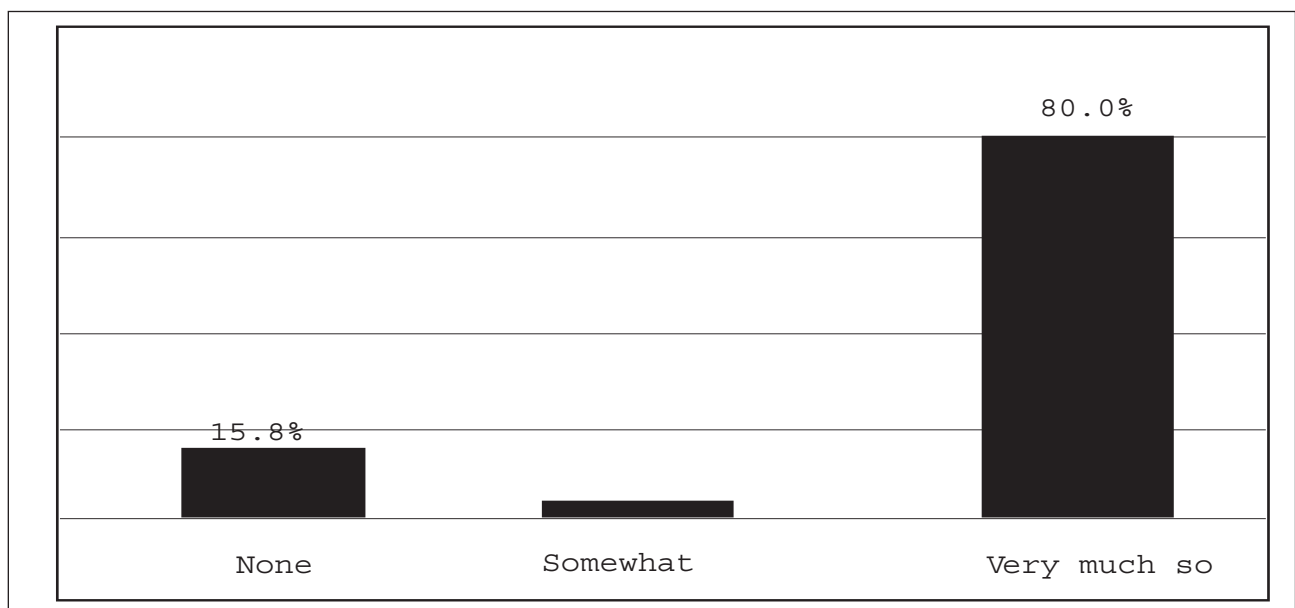
The Bank of Namibia realised that the changing global economic environment requires a fast, efficient and relatively risk-free payment system. As a result, in 2001, the Bank, in its capacity as provider of settlement services and overseer of payment system endeavoured to put in place legal and regulatory tools in order to provide for security and efficiency in payment systems in accordance with international standards, especially the

10 BIS Core Principles for systemically important payment systems. These regulatory and legal tools are designed to reduce payment system risks that may affect the National Payment System. To this effect, Payment System Management Bill has been crafted.

The objective of the bill is to provide for the management, administration, operation, regulation, oversight and supervision of payment, clearing and settlement systems in the Republic of Namibia; and to provide for matters incidental thereto.

The draft Namibian Payment System Bill has already been forwarded to parliament. This is the first and most important regulatory tool the Bank of Namibia is putting in place in order to achieve security and trust in payment system (including electronic payment systems). The technical policies, conditions and standards that guide the electronic payment systems and related practices will be spelled out in the constitution of the Management Body, pending the promulgation of the Bill into law. Meanwhile, banking institutions were requested to adopt the Risk Management Principles for Electronic Banking. These principles were issued by the Basel Committee on Banking Supervision in July 2003. The Bank of Namibia expects the banking institutions to comply with these principles by the beginning of 2004. This, and a regular survey on electronic banking would ensure a relatively high standard of e-banking risk management in Namibia.

Chart 4.1 Extent to which Security and Confidentiality over the Internet is a Concern



Source: Bank of Namibia and NEPRU, 2002

4.7.1 Draft ICT Policy for Namibia

As indicated earlier, Namibia has drafted a comprehensive ICT Policy aimed at addressing the various concerns raised above. The specific objective is that the policy will serve as a reference point for legislative intervention that may be required in order to regulate e-commerce activities. This is in view of the fact that e-commerce is occurring in a legal vacuum. A general objective is to set the ball rolling for the further development of the supporting information and communication technology infrastructure in Namibia as well as human resources capacity to meet the needs of the information age. To this effect, critical success factors and priority actions that are needed to successfully implement the policy and put Namibia on track to fully participate in the information age are outlined.

With respect to the legal and regulatory regime, the focus of the ICT policy is on the need to facilitate e-commerce development and for Namibia to participate meaningfully in the information age. Accordingly, the draft policy recommended the liberalisation of the telecommunication sector in order to foster e-commerce. A specific recommendation is that the monopoly provisions contained in the Telecommunications Act should be removed because of the potential to inhibit the development of infrastructure over which electronic commerce is carried and also to allow for increased competition. Other legislative and regulatory issues identified as barriers to e-commerce include concepts such as writing or document, which pose difficulties when applied to the information environment. The lack of uniformity in laws and standards in different countries, and consumer protection are also cited as potential barriers to e-commerce.

Other specific issues addressed in the area of regulatory and legislation are the law of contracting, domain naming, privacy and data protection. The draft policy noted that although current laws have provisions related to the above-mentioned issues, it will be difficult to apply these laws in an electronic-commerce environment, hence the recommendation that all relevant laws should be amended. This recommendation was advanced further, by suggesting that an expert on both Namibian law and cyberlaw (should) prepare a thorough legal analysis and due diligence report. The purpose of the due diligence report will be to identify all laws and legal principles that pose barriers to e-commerce and to suggest amendments thereto.

In addition to the above issues, the draft policy deals extensively with the key issues related to human resources and development of the ICT sector in Namibia. These include ICT education policy that will be developed and implemented as well as strategies to strengthen the existing infrastructures and enhancement of rural access to information and communications technologies. Finally, the draft policy recommended the creation of a Universal Services Agency or National Directorate for E-commerce whose functions would be to stimulate e-commerce awareness, champion legislation to facilitate e-commerce and coordinate and manage e-commerce related regulatory bodies.

A close scrutiny of the draft ICT policy seem to suggest that it has been influenced by the Model Law developed by the United Nations Commission for International Trade (UNCITRAL) and to a large extent the South African Electronic Communications and Transactions Act, 2002, (ECTA)⁹. The ECTA influence is evident in the sections dealing with the issues related to human resources development, rural access to information technology and investment in education and the supporting infrastructure. It is expected that the draft policy once adopted would play an important role in terms of serving as a key reference document in the development of any e-commerce legislation.

To conclude this section, it should be reiterated that Namibia's draft policy deals broadly with several aspects of information and communications technology, e-commerce being a small component. It is expected that the adoption of the draft policy by the Namibian authorities would set momentum for the further development of Namibia's information and communications infrastructure and bolsters human resources capacity to meet the needs of the information age. The adoption of the draft policy will also set the ball rolling for the alignment of existing legal and regulatory regime in order to meet the demands of the information age in general and e-commerce in particular.

⁹ The purpose of the Model Law is to offer national legislators a set of internationally acceptable rules to serve as a basis for individual countries' own laws.

4.8 Concluding Remarks and Recommendations

Like many areas of operations, e-commerce needs a legal and regulatory framework. Such a framework should address key areas including privacy, consumer protection and cross border/jurisdictional.

Security breaches could occur at the level of the consumer, the businessperson or the issuer of e-payment systems, and could involve attempts to steal consumer or business devices, create fraudulent devices or messages that are accepted as genuine; alter data stored on or contained in messages transmitted between devices, or to alter software functions of a product (Bridge, 2000). Security attacks would most likely be for financial gain, but could also aim to disrupt the system. All these threats have potentially serious financial, legal and reputational implications; hence need to be seriously regulated. With regard to privacy, one of the main concerns is the fact that criminals may fraudulently access the vastly increasing storage and transmission of customer financial information and perform all possible crimes against them. Therefore many parties tend to go for the option of anonymous financial transactions for the sake of privacy and prevention of crime against them through the financial information they provide.

Consumer protection could be seen in the light of potential threats posed by electronic fraud, cybercrime and new forms of cyber terrorism. These entails the risk of financial loss when using any payment method; the risk of being unable to complete payments in the amount or at the time and location they desire, despite having adequate financial resources to do so; and the risk that information generated through the use of electronic money product may be disclosed without the owner s consent, used for fraudulent purposes or otherwise used in a manner adverse to owner s interest:

Moreover, jurisdictional ambiguities with respect to the responsibilities of different national authorities could render e-commerce legally cumbersome. Thus, legal risk associated with non-compliance with different national laws and regulations could increase security and impede economic and related progress. This, among other things, makes the case for the need for legal and regulatory measures pressing and crucial for development and smooth operation of e-commerce in Namibia.

In light of the above discussion, the following are recommended

- . The relevant Namibian authority should put in place a legal and regulatory framework for all e-commerce activities. As already mentioned above, this will safeguard security, privacy, consumer protection, etc. The rights and obligations on the part of the respective participants (e.g. customers, merchants, issuers, and operators) in all e-payment schemes must be clearly defined and disclosed. Such rights and obligations must be enforceable under the laws of Namibia.
- . Given the risks inherent in the issuance of electronic money/electronic cash and the regulatory concerns described above, it is important that the issuers of electronic money are subject to prudential supervision too. This prudential supervision should require that the issuer: (i) complies with a number of specific initial requirements intended to ensure an adequate level of financial soundness, (ii) pursues a sound management of all risks involved in the electronic money activities on an ongoing basis, and (iii) is subject to ongoing supervision by a competent authority.
- . Sophisticated security features should be acquired to reduce the risk posed by some e-payment schemes (e.g. counterfeiting, etc).
- . Issuers should have to take great care to ensure that the dangers of counterfeiting is minimized, and they

should be vigilant in monitoring their systems and operations so that counterfeiting is quickly detected.

. The public should be advised that to get involved in payment arrangements which are effectively from outside the country, they need to understand who it is that they are dealing with, where the counterparts are legally located, whether they have an appropriate standing, and what potential risks they may face - either by holding balances within a system, or by using those balances in a transaction.

. Moreover, all e-payment schemes (including e-money schemes) should maintain adequate technical, organizational and procedural safeguards to prevent, contain and detect threats to the security of the scheme, particularly the threat of counterfeits.

CHAPTER 5

5. IMPLICATION OF E-COMMERCE ON PAYMENT SYSTEM

5.1 Introduction

In recent years, countries all over the globe have given considerable attention to improving and minimizing payment system risks in the national payment systems. The increasing globalization of world economies, and efforts towards the formation of regional trading blocks around the globe, have put tremendous pressure on national governments and monetary authorities to improve efficiency and reduce risks in payment systems.

There is no one universally accepted definition of a payment system. Some define it as a combination of payment instruments, processes and procedures that ensure that there is an interaction between payers and beneficiaries within a financial system. Others (including Federal Reserve Bank of New York, 2002) define it as a formal arrangement that allows a transfer of monetary value. It consists of the mechanisms — including the institutions, people, rules, and technologies — that make the exchange of payment possible.

A successful electronic payment system mechanism (e.g. credit card, e-money, etc.) must address a number of needs to ensure that the right amount is transferred, from the right source, to the right destination, at the right time with legal certainty¹⁰. This calls upon, among other things, a proper and sound regulatory and policy framework and a reasonable amount of investments in electronic infrastructures.

It is important to mention at this stage that integrating payments into an e-marketplace is difficult, because more than 70 percent of business-to-business (B2B) payments are still made using paper checks (Varon, 2002). This means successful online and off-line electronic payment systems will need to provide some of the features of current payment mechanisms as well features of new and emerging payment mechanisms. Other current payment options, such as purchasing cards, direct debits and credits cards, although suitable for most retail consumer-to-business (C2B) payments, all have limitations that make them impractical for most B2B e-commerce (Varon, 2002).

The rest of this section will deal with the implications of e-commerce on the payment system. It focuses more on the non-conventional payment system, with a bias towards e-money and related issues. The section also sheds some lights on the recent development in retail and wholesale payment. A number of issues, especially the negative implications and related issues have already been highlighted in the previous section.

5.2 Main Features of Electronic Payment Systems

"Electronic payment systems exist in a variety of forms, which can be divided into two groups: wholesale payment system and retail payment systems. Wholesale payment systems exist for non-consumer transactions, high-value wholesale payments flow through the interbank funds transfer system, such as CHIPS, and Fedwire¹¹ Retail electronic payment systems encompass those transactions involving consumers. The transactions involve the use of such payment mechanisms as credit cards, automated teller machines (ATMs), debit cards, point-of-sale (POS) terminals, home banking, and telephone bill-paying services" (Bridge, 2000).

Several models of electronic payment systems exist while new ones are being developed. These include credit-card-based, check-type, and e-money (e-purse and "digital cash").

¹⁰ Levy (1994) maintains that the use of credit cards and ATM cards is becoming increasingly popular, but those systems lack adequate privacy or security against fraud.

¹¹ CHIPS and Fed wire are British and USA's real time gross settlement (RTGS) systems, respectively.

(i) Credit-card-based systems

In this system, a user registers in advance with a Credit Card company a password and a credit card number. In purchasing goods or services at the shop on the Internet, the user sends only the password to the shop instead of a credit card number in order to avoid risk of tapping. After purchasing, the user receives confirmation e-mail (from the bank) asking whether the purchase is valid. When the user replies yes to this mail, the bill is deducted from the credit card account.

These credit-card-based systems solve only the security problem to a limited extent (Box 4.1). These systems handle only the communication between the user and the shop in cyberspace. The transaction of money remains to be done by the conventional credit card transaction system. Thus, a fee is also necessary, and an individual-to-individual transaction is impossible. Further, information on transactions is traceable.

Box 5.1. Potential problems encountered when paying a bill by sending a credit card number through the Internet

. **Security problem:** Credit card numbers may be tapped by others because the Internet is an open system. In the real world, we can avoid fraud by using cards only at trustworthy or familiar stores. In cyberspace, however, we cannot avoid the possibility of falling victim to the tapping when we send card numbers through the Internet.

. **Fees:** Credit card payments usually charge a small fee. Although this cost is low, it can be a heavy overhead cost when the payment itself is very small, say 50 cents. As a result, credit cards cannot be used for very small payments, while cash payments can be used for even 1 cent.

. **Peer-to-peer payments:** Credit cards can be used only at authorized stores. Unauthorized small businesses or individuals cannot receive money via the credit card. In other words, credit cards cannot be used for peer-to-peer payment, while cash can be used for it, of course.

. **Untraceability:** Receipts from credit card payments leave records of user's expenditures to credit card companies, so credit card companies know what goods and service users bought and where and when they were bought. In other words, a user's expenditures by credit card can be traced, while cash payments are untraceable.

Source: Tanaka, 1996

(ii) Cheque-type systems

The conventional cheque system is closer to cash than a credit card payment because with cheque, the fees are almost zero except for the cost of a stamp, and peer-to-peer transactions are possible. As a result, several proposals have emerged to invent checks on the Internet that would be transferable between individuals. In that system, a user opens an account in the bank on the Internet and issues an electronic check for the bill. The receiver of this cheque sends it to the bank to confirm and cash it. Security is guaranteed by both the encryption technology and the bank's confirmation process with the issuer of the cheque. But untraceability is still not realized because the bank can learn what the user buys and where.

(ii) "Digital cash" system or Cash-type systems

Chaum (1989, 1992) and Okamoto and Ohta (1991) in Tanaka (1996) proposed an untraceable digital cash payment system using advanced encryption technology. The mechanism in this system is similar to the electronic cheque, but it prevents banks from knowing who bought what. First, a user opens an account at the bank on the Internet. Then the user asks the bank to issue a certain amount of digital cash. The bank issues that amount of digital cash using encryption technology and deducts that amount of money from the user's account. Thus,

untraceability is a prominent characteristic of cash. As, already mentioned above, untraceability keeps the transaction anonymous. To achieve untraceability on the Internet, encryption technology has to be fully employed because the untraceable money could be easily copied and spent twice (double spending).

To pay a bill with digital cash, the user sends this data to a receiver. The receiver sends this data to the bank to confirm it. If the bank confirms it, the bank credits the receiver's bank account by that amount, or issues the receiver another digital cash in the same amount. Since the bank can confirm only that this data (digital cash) is surely issued by the bank and that this data is not double spent, anonymity of the transaction is ensured.

The above operational framework is aimed at setting a stage for highlighting the implications of electronic payment system in the following sub-section, particularly e-money¹² on the national payment system. This is due to untraceability feature of e-money or related products, of which implications on payment system and monetary policy attract enormous interests. Box 5.2 presents some of the existing prepaid-electronic payment system abroad.

Box 5.2 A sample of emerging Payment Technologies abroad

First Virtual: The account is set up by phone using a traditional credit card number and a First Virtual account number is issued. Clients provide their credit card numbers to First Virtual over the phone or other non-Internet method, and are issued a personal account number to make purchases over the Internet. This payment mechanism allows the user to order goods online and then First Virtual charges the user's credit card company on behalf of the online merchant. The merchant reports the transaction amount to First Virtual, which, in turn, confirms the purchase with the customer via email. No special software is required for either purchaser or merchant.

DigiCash: DigiCash was founded by David Chaum, a mathematician and privacy expert. This provider creates e-cash, proprietary electronic cash tokens, which are marketed as being the equivalent of cash. An account is established at a DigiCash-licensed bank with real money. Once established, the customer can withdraw e-cash that is stored on the user computer's hard drive. Using proprietary software, e-cash can be spent with an Internet merchant or with anyone else whose computer is set up to deal in e-cash. Using public-key cryptography, the digital tokens are said to be secure and can be registered and verified by the issuer without revealing to whom it was originally issued. In effect, these digital cash transactions are capable of being as anonymous as cash. No transaction confirmations are necessary, meaning the merchant can immediately ship the product.

CyberCash: This payment mechanism consists of a downloadable software package using public-key encryption that is designed to assure the security of credit card transactions over the Internet. The system protects the customer's authentication data and provides nonrepudiability. An account is set up and acts as an Internet front end to an existing credit card that is designated. When a purchase is made, proprietary software is used that sends the purchase and account information in encrypted form to the account provider. The provider in turn sends the information to the appropriate financial organisation for processing.

NetCash: This concept is similar to cyber-cash, except that it does not require any special software to use. NetCash is transmitted across the Internet using an encryption scheme known as PGP (pretty good privacy). To get NetCash, a party must send a check or money order to the company's headquarters. The company returns electronic coupons via e-mail.

Mondex: Mondex is owned by Master Card and National Westminster Bank of United Kingdom and was tested in several countries. Mondex uses a smart card to store electronic cash which can be used to pay for goods and services in the same way as cash but with some key benefits over traditional cash. This provides the portability and network independence of physical coins. Future intentions include using modified telephones, ATMs, and other devices to transfer value from a bank account to a smart card.

Source: Sifers, W. R, (Published by the Indiana University School of Law, 1997)

¹² As already referred to in chapter 4, footnote no. 6, the term electronic money is subject to modification to suit a given context. E-money, in this paper is defined as stored value or prepaid products in which a record of the funds or value available to a consumer is stored in an electronic device in the consumers possession. The electronic value is purchased by the consumer (for example, in the way that other prepaid instruments such as travellers cheques might be purchased) and is reduced whenever the consumer uses the device to make purchases (Bank for International Settlements (1996). In contrast to the many existing single purpose prepaid card schemes (e.g. flexi-cards offered by telephone companies), e-money products are intended to be used as a general, multipurpose means of payment. The definition covers both prepaid cards (often called electronic-purses) and prepaid software products that uses computer networks such as Internet (also referred to as "digital cash").

5.3 Impact of "Digital Cash" on Payment System

Digital cash constitutes both benefits and problems. The main benefit or positive implications of digital cash is that it makes transactions more efficient¹³. First, digital cash will make transactions less expensive, because the cost of transferring digital cash through the Internet is cheaper than through the conventional banking system. To transfer money, the conventional banking system maintains many branches, clerks, automatic teller machines, and electronic transaction systems of its own. These overhead costs increase the fees of money transfers or credit card payments through banks. But because digital cash uses the existing Internet network and user's computers, the cost of digital cash transfer will be much lower.

Second, because the Internet has no national borders, digital cash also does not have national borders. Thus, the cost of transfer within a state is equal to the cost of transfer across states. The cost of international money transfer, which is much higher than the transfer within national borders, will therefore be reduced dramatically.

Third, digital cash payments can be used by everybody. Unlike credit card payments which are limited to authorised stores, digital cash payments are possible for person-to-person payments. Thus, even very small businesses or individuals can use these payments.

Notwithstanding the above-mentioned benefits, digital cash also pose a number of challenges on the payment system ranging from money laundering to security problems and fraud. Because digital cash enables continuous transactions across national borders, money laundering becomes a potential problem.

The financial crisis may also be widespread by the transnationality of digital cash, because this transnationality (coupled to the untraceability of cash which would ease the usage of this method of payment with criminal intent) makes it difficult (if not impossible) for conventional central banks to deal with chained bankruptcy in cyberspace. This would render the provision of the so-called safety net by the central bank or other institutional devices such as deposit insurance scheme is inappropriate. This is because in cyberspace, there is no central authority to offer the safety net. Therefore a bankruptcy of one bank can cause a chain effect. In such or similar events many customers may rush to the banks to ask for a conversion of their digital cash to real cash, which is impossible. The possibility of financial crisis is therefore expected to be higher in cyberspace than in the real world owing to the absence of a central bank.

The significance of transnationality could be demonstrated by assuming that digital cash is completely domestic, not transnational. That is, only a home country's banks can issue digital cash in that home country's currency, and only a home country's people can use it only at sites located in the home country. Then, the benefit of digital cash will be reduced to the level of just a new payment system, something like a credit card or prepaid card. In this scenario, disturbance of the money supply will be minimized because the central bank can control not only real cash, but also digital cash by the conventional means, such as through the bank rate or open market operations. Chained bankruptcy may also be controlled by the conventional techniques of the central bank. Therefore, both the benefits and the problems disappear or are reduced much if the digital cash is completely domestic (Tanaka, 1996).

In other words, if digital cash had no transnationality, it would be considered as nothing more than an efficient payment system like a credit card system, and would have no significant economic and financial implications.

However, digital cash, unlike e-purse, is generally transnational by nature. Thus, e-purse, such as Mondex and other smart card models do not have sufficient transnationality (Tanaka, 1996). This is the reason this paper uses

¹³ This will, in turn, enlarge business opportunities and eventually passes more benefits on to the users.

the term "digital cash" or Chaum's Digicash, which has an unprecedented transnationality that may cause significant benefits and problems (as presented above).

In the final analysis, it transpires that the risks posed by e-money and some electronic payment systems could give rise to the general payment system risks as highlighted in Box 5.3.

Box 5.3 General Payment Systems Risks

- (i) Credit risk: The risk that a party within the system will be unable fully to meet its financial obligations within the system currently or at any time in the future;
- (ii) Liquidity risk: The risk that a party within the system will have insufficient funds to meet financial obligations within the system as and when expected, although it may be able to do so at some time in the future.
- (iii) Legal risk: the risk that poor legal framework or legal uncertainties will cause or exacerbate credit or liquidity risks.
- (iv) Operational risk: the risk that operational factors such as technical malfunctions or operational mistakes will cause exacerbate credit or liquidity risks; and
- (v) Systemic risk: the risk that the inability of one of the participants to meet its obligations, or a disruption in the system itself, could result in the inability of other participants or of financial institutions in other parts of the financial system to meet their obligations as they become due; and in turn could threaten the stability of the financial system.

Source: Bank for International Settlement (BIS), 2000

5.4 Payment Systems and Risk Management

According to Varon (2002), payment systems should provide mechanisms for guaranteeing that sellers will be paid, if they fulfil the terms of electronic transactions. This can be done through a line of credit or insurance to ensure that e-sellers will always get their funds and minimize the risk of payment failures. Likewise, there should be a way to verify that a supplier (e-sellers) has fulfilled the terms of the contract and a mechanism for buyers to dispute bills and receive reimbursement in cases of supplier fraud or failure to perform. At present, most e-market places have no way of satisfying this need; buyers are "on their own" if a trading partner does not fulfil its obligations. Understandably, this makes companies reluctant to do business with unknown entities. Thus, until some sort of guarantee for availability of financing, businesses will be reluctant to move beyond their existing trading relationships. In essence, payments need to become an integral part of the e-commerce transactions at the time of trading and should not be considered as a separate service after the trading (Varon, 2002).

The following measures (as provided by Varon, 2002) offer some safety in the electronic payments systems

- Encouraging the usage of the real-time payment mechanism for all payment systems e.g. inter-bank settlement and clearing systems, retail debit cards systems, and corporate online fund transfer systems;
- Imposing value limit per transaction on the inter-bank clearing systems and on various payment instruments;
- Imposing a sound legal and regulatory framework on electronic payment systems mechanisms;
- Encouraging anonymity in e-money schemes to ensure privacy;

These measures combined with measures to minimize e-commerce security risks, as suggested by Bridge (2000) and Mboweni (1999) in chapter 4 would make the entire payments systems relatively more secure and efficient.

5.5 Recent Developments in Retail and Wholesale Payment

The increasing popularity of e-commerce is forcing considerable innovation in retail payment, particularly over the Internet (including internet banking). By adapting existing networks (such as credit card, ATM, etc.), banks and companies are developing creative new ways for customers to pay for purchases over the Internet. The implications of these new retail payments methods are broad and varied.

First, the use of paper-based payments such as checks and cash could decline. Since the paper-based payments are more costly, this reduction would benefit both business and consumers. E-billing, which entails both bill presentment (i.e. the ability to receive bills online) and bill payment (i.e. the ability to pay bills online), is an overwhelming achievement. It is so in the sense that sending and processing thousands of paper statements each month is costly. Bill presentment enables firms to send out bills electronically; a process that can be automated and saves on the expenses of paper and postage. Similarly bill payment allows for consumers to pay by electronic means, which can speed the process and may cut down on processing costs (Federal Reserve Bank of New York, 2002).

Second, e-commerce transformed the way individual consumers and businesses think about and manage their payments (Federal Reserve Bank of New York, 2002). E-commerce and e-payments help businesses procure their input and distribute their outputs more cheaply, more quickly, and with less risk. This also may result in considerable savings. All these new practices represent efficiency gains emanating from e-payment methods.

Changes in wholesale payments and in wholesale market have also been positive. For example, in Britain, the Clearing House Interbank Payment System (CHIPS, which currently operates on a multiple net basis (i.e. where payments are netted multilaterally and the net positions are settled at the end of the day), is to move to a hybrid settlement system, a system that combines the benefits of RTGS (intraday finality) and the DNS systems (low liquidity demand). In this case, payments will still be netted multilaterally, but settlement will occur periodically throughout the day, instead of once at the end of the day (Federal Reserve Bank of New York, 2002).

It is important to note that e-commerce (which include the e-banking, online purchasing and selling of goods and services, and e-billing) is a major catalyst of these changes within payment systems¹⁴. Moreover, there are a number of international initiatives under way to maintain financial stability by strengthening financial infrastructure. The Committee on Payment and Settlement Systems (CPSS) of the central banks of the Group of Ten countries has contributed to this process through its work on developing 10 Core Principles for Systemically Important Payment Systems. These 10 Core Principles (as highlighted in Box 5.4, underneath) are expected to enable the development of secure electronic payment systems that contribute to growth of e-commerce worldwide.

It is these Core Principles that central banks are required to address through assessing existing payment systems (against these Core Principles) and initiating action to satisfy the requirements. Hence, central banks

¹⁴ To demonstrate this: in December 2000 SWIFT (which has co-opted with European Central Banks to support the real time gross settlements, and serving as a common messaging services for the majority of high value system payments in the European Zone, as well as being a core element of the global payment infrastructure and leading large-value cross-border network) decided to migrate to a new IP-based network, SWIFTNET. SWIFTNet is one of several Internet-based initiatives that was launched recently (Global Electronic Finance, 2002).

throughout the world are reforming their payment systems in which they are formulating regulatory, legal and policy frameworks, and developing electronic infrastructures that should address these Core Principles. The overall objective of these reforms is to address safety and efficiency in payment systems.

Box 5.4 Core Principles for Payment Systems

- (i) The system should have a well-founded legal basis under all relevant jurisdictions.
- (ii) The system's rules and procedures should enable participants to have a clear understanding of the system's impact on each of the financial risks they incur through participation in it.
- (iii) The system should have clearly defined procedures for the management of credit risks and liquidity risks, which specify the respective responsibilities of the system operator and the participants and which provide incentive to manage and contain those risks.
- (iv) The system should provide prompt final settlement on the day of value, preferable during the day and at a minimum at the end of the day.
- (v) A system in which multilateral netting takes place should, at a minimum, be capable of ensuring the timely completion of daily settlements in the event of an inability to settle by the participant with the largest single settlement obligation.
- (vi) Assets used for settlement should preferably be a claim on the central bank; where other assets are used, they should carry little or no credit risk.
- (vii) The system should ensure a high degree of security and operation reliability and should have contingency arrangements for timely completion of daily processing.
- (viii) The system should provide a means of making payments which is practical for its users and efficient for the economy.
- (ix) The system should have objective and publicly disclosed criteria for participation, which permit fair and open access.
- (x) The system's governance arrangements should be effective, accountable and transparent.

Source: Bank for International Settlement (BIS), 2000

5.6 Namibian Perspective

Although the number of banks in Namibia is relatively small, the complexity of the banking operations is relatively high and increasing. In this regard, most of the banks have already launched Internet banking services and some are doing general inquiries on the feasibility of developing multi-purpose smart cards using microchip technology that enable electronic "purse" facilities.

As already highlighted in chapter 3, up to 20.7 percent of Namibian enterprises made purchases via the Internet and 6.8 percent of enterprise received on-line payments for Internet sales during 2002. If this trend continues, it would necessitate the development of proper regulatory environment in Namibia that would enable e-commerce and e-payment to develop with reduced potential risks.

It has also been established that many businesses and consumers in Namibia are currently utilizing a variety of electronic payment systems such as credit cards, debit cards, smart/purchasing cards, in order to make payment for e-commerce transactions. These systems are being utilized under a very unpredictable legal and regulatory environment. The banking institutions are offering on-line banking, which is currently not covered by any legal

framework. It appears that the banking institutions consider it worth the risks to operate in such environment, given the benefits of reduced operational cost offered by e-payment technology and service excellence.

The situation could not be regarded as bad. The draft Namibian Payment System Bill, which has already been forwarded to the parliament and the realization that additional legal framework that includes transactions that are concluded electronically is needed, mark a good beginning towards achieving a desired payment system framework, characterised by security and operational efficiency.

5.7 Concluding Remarks and Recommendations

E-payment methods make transactions more efficient. These e-payment systems may gradually replace the use of paper-based payments such as checks and cash. Since the paper-based payments are more costly, the cost reduction resulting from e-payments would benefit both business and consumers. It has also been cited that e-commerce and e-payments helps businesses procure their input and distribute their outputs more cheaply, more quickly, and with less risk.

On the other hand, e-payment products do also have problems and/or limitations. For instance the use of credit card on the Internet has problem with regard to security and untraceability. Credit card numbers may be tapped by others because the Internet is an open system. Another critical issue of concern is that e-money is prone to money laundering. Because e-money enables continuous and untraceable transactions across national borders, money laundering become potential problems. It will also increase the risk of counterfeiting, depending on the technical characteristics of each system. This could take place by physical reproduction of cards, by manufacture of a "re-loading mechanism" which could be fraudulently used to add new balances to authentic cards, or by "hacking" into the payments systems themselves.

In addition, the issue of e-money could be a risky business with higher-value balances. This particular problem does not arise in the issuing of banknotes and coins. These currency liabilities form part of the reserve bank's overall liabilities and a guarantee is provided to the bearer that they will be replaced with currency of an equal value.

Moreover, both untraceability and transnationality characteristic of digital cash would also render the provision of the so-called safety net by the central bank or other institutional devices such as the deposit Insurance schemes inappropriate. This is because in cyberspace there is no central authority to offer the safety net. Financial crisis in cyberspace would therefore be higher than in the real world owing to the absence of a central bank. Although not any kind of e-cash (e.g. smart card, etc) has been adopted in Namibia, these features are worth to note for future reference.

The above discussion implicitly suggests a wide range of measures to reduce risks of e-payment methods (including e-money/digital cash) on payment system. For example, (1) payment systems should provide mechanisms for guaranteeing that sellers will be paid, if they fulfil the terms of electronic transactions. This can be done through a line of credit or insurance to ensure that e-sellers will always get their funds and minimize the risk of payment failures. (2) Likewise, there should be a way to verify that a supplier (e-sellers) has fulfilled the terms of the contract and a mechanism for buyers to dispute bills and receive reimbursement in cases of supplier fraud or failure to perform.

The following measures are believed to guarantee the safety and efficiency of electronic payment systems. They are appropriate for both retail payment systems and wholesale payment systems.

. Encouraging the usage of the real-time payment mechanism for all payment systems, such as inter-bank settlement and clearing systems, retail debit cards systems, and corporate online fund transfer systems. The ongoing payment systems reform project, which resulted in the implementation of the Real-time Gross Settlement System (RTGS) at the Bank of Namibia and drafting Payment System Act would go a long way in addressing some of the above concerns.

. Imposing value limit per transaction on the inter-bank clearing systems and on various payment instruments;

. Imposing a sound legal and regulatory framework on electronic payment systems mechanisms;

. Encouraging anonymity in e-money schemes to ensure privacy;

It is encouraging to note that some of these are already implemented in Namibia, but should be reviewed from time to time in order to cope with the continuous dynamics of the payment systems. However, since there is still ample room for improvement, it is advisable for Namibia to go further steps ahead and adopt the rest of the measures

. The Bank of Namibia should regard electronic payment system oversight as one of its core functions with a view to minimizing the threat that payment systems risks may pose to the country's financial stability. In this regard, the Bank should also strive to ensure that all risks particularly, operational risks are properly gauged and understood and that appropriate measures are put in place to ensure that only minimum impact can be felt in Namibian National Payment System. This is crucial in ensuring that electronic payment systems in Namibia are safe, secure and reliable to allow for the processing of millions of dollars worth of transactions.

. Finally, it is important that the Bank should study and monitor the development of payment systems in particular and e-commerce in general so as to understand their impact on central bank operations, and their implications on the economy as a whole.

CHAPTER 6

6. THE ROLE OF E-COMMERCE IN FINANCIAL SECTOR DEVELOPMENT

6.1 Introduction

This chapter attempts to discuss and assess the role of e-commerce on financial sector development in Namibia with specific reference to the issue of access to financial services especially in the semi-urban and rural areas. Some related literature work has been carried out; and this would provide some guidelines on specific issues.

6.2 Access to Financial Services in Namibia

A number of studies including those carried out by the Research Department of the Bank of Namibia have concluded that the financial system in Namibia is relatively well developed both in terms of institutions and instruments. However, there are a number of deficiencies that have been identified in the system. The most often talked about deficiency is that the financial system is urban-based with limited presence of financial service providers in the semi-urban and rural areas. For example, a recent study by the Research Department (2000) indicated that commercial bank branches networks do not extend much beyond big towns due to the perceived high transaction costs and low returns associated with the extension of branch networks. As a result, only approximately 13 percent of the 137 commercial bank branches were located in non-urban areas at the end of 2002. The reason cited is that small branches do not originate worthwhile loans because there are only few clients, who are credit worthy.

The direct result of the above-mentioned situation is that access to financial services and capital by the formerly disadvantaged Namibians living in non-urban areas is severely limited. Access to finance and capital has also been identified as one of the main problems facing SMEs in Namibia. In recognition of the critical role finance can play in terms of empowerment and growth, the Government has taken a number of initiatives aimed at addressing this problem. These include the creation of the Credit Guarantee Scheme and other initiatives.

It is important to note that semi governmental and private institutions are also addressing the problem of access to financial services and capital. For example, Nampost Savings Bank has begun operating a mobile banking and post office services that cover a large part of the rural areas, thus providing an essential service to the community. Some commercial banks have also started operating limited mobile services in rural areas.

6.3 E-commerce and the Financial Sector Development

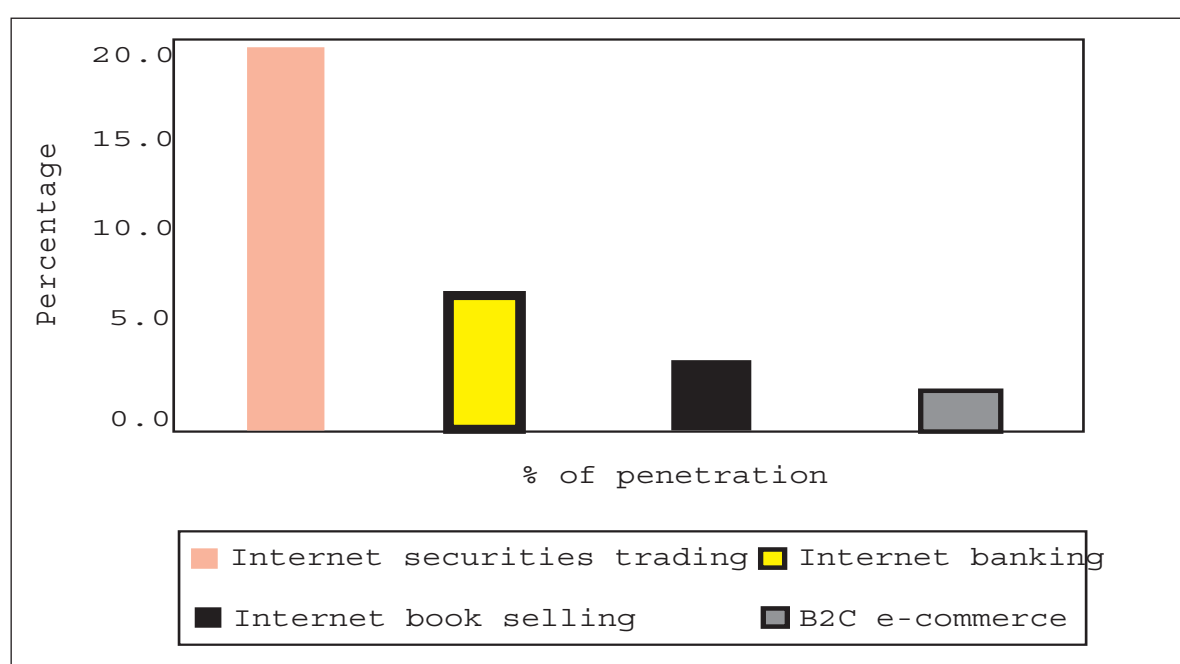
Having provided a brief picture on the provision and access to financial services in Namibia, this section attempts to assess the role of e-commerce and more specifically e-finance in the development of the financial sector. The key question is whether e-finance would complement efforts by government to enhance and improve access to financial services and capital especially by SMEs and formerly disadvantaged Namibians particularly those living in rural Namibia.

E-commerce is a fast moving area in terms of opportunities and technologies. It is predominantly led by industry and user sector with Government playing a catalytic role in terms of facilitating and creating a supportive environment for e-commerce growth. Recent evidence shows that e-commerce in general and e-finance in particular have been growing rapidly. The extent of e-commerce both at the international level and in Namibia was provided for in earlier chapters of this paper. Of interest to note is that the financial service sector is the main

area where the impact of the Internet has been the strongest worldwide. The brokerage services account for the largest share (Chart 6.1). This is followed by the online banking, which alone is expected to rise from 8.5 per cent at the present to 50 per cent as a percentage of total banking by 2005 at the global level (Stijn et al, 2001). For other services such as brokerage, it is estimated that 80 per cent of the transactions will be conducted online by 2005 compared to 28 per cent in industrialized countries in 2001. For developing and emerging markets, it is estimated that brokerage transactions will increase from 1.5 per cent in 2001 to about 15 per cent in 2005.

E-finance offers many opportunities in terms of improved quality and scope of financial services especially in developing countries, where access to financial services is limited. Stijn (2001) argued that e-finance would lower the costs of providing financial services and allow for greater access to financial services. The Internet will, for example, allow credit to be extended to a wider range of customers including small and medium sized businesses at minimal cost.

Chart 6.1 E-commerce Market Share, 2002



Source: Godfinger, 2002.

Furthermore, e-finance allows much easier access to global capital and financial service providers. It presents opportunities in terms of wide access to and improved quality of financial services for consumers. This is important for a country like Namibia, where a financial market needs further development and where access to financial services remains limited. Indeed, it is argued that e-finance would enable countries to leapfrog (Stijn, 2001). In other words, e-finance would allow developing countries to skip stages in the development of their financial sector. This is only possible if a developing country is able to mobilise and built technical skills in the financial, telecommunication and information technology, which many developing countries, including Namibia, are still lacking and are unlikely to develop without external support.

E-finance involves a number of innovations in the financial sector. For example the use of modern Internet-based data technologies make it possible and cost effective to build large credit information databases and apply modern credit analysis and appraisal, and thus making it possible to appraise enterprises and individual credit risks and rapid processing of applications.

The extent of e-commerce/e-finance is difficult to quantify in the case of Namibia due to scattered data. However, the findings of this study (through the survey) indicated that e-commerce activities are gradually increasing and are likely to impact positively on the financial sector in terms of access to services¹⁵. The biggest impact is likely to be on the banking sector. Virtually all commercial banks in Namibia offer electronic banking services. For consumers, electronic banking means 24-hour access to cash through automated teller machine (ATM) or Direct Deposit of pay cheques into checking or savings accounts. As referred to in chapter 3, electronic banking currently offers services such as electronic fund transfers between accounts, viewing account balances and paying of bills electronically via personal computers. All commercial banks in Namibia offer these services.

Apart from the above-mentioned services, the Point-of-Sale Transfers (POST) is likely to have a significant impact on consumers and revolutionize the current banking system. Briefly, the point of sale transfers allows consumers to pay for purchases with a debit card. The process is similar to using a credit card, with some important exceptions. Unlike credit cards, a debit card purchase transfers money - fairly quickly - from bank accounts to the store's account. An advanced version of the POST is the Automated Electronic Dispenser (AED) known as a mini ATM, which is to be introduced by one major commercial bank. The key feature of the AED is that it offers all services provided through POST. In addition, consumers can withdraw cash and or deposit cash at retail outlets throughout the whole country.

The implication of the above-mentioned services is that consumers in rural Namibia, where there are no commercial bank branches, do not need to travel long distances for banking services any longer. They can access cash and conduct other banking activities right in their villages. On the other hand, commercial banks do not have to open bank branches in rural areas, especially where there are no significant number of clients and where costs of operating branches are high. Clearly, this is a twin benefit of e-commerce/e-finance.

According to UNCTAD (2001) the finance for SMEs sector is another area where e-finance is likely to impact significantly. This study argued that e-finance (defined as internet-mediated financial services) provides cheaper, faster and more widely available finances for SMEs. This argument is supported by Stijn et al (2001), who observed that large financial conglomerates have started to target SMEs because of the lower transaction costs made possible by e-finance make this market attractive. An example given is that of Citigroup, which has about 5000 SMEs among its clients in India, made possible by e-finance. This was only possible because the Internet slashed transaction and processing costs. As a result, financial service providers are able to provide their services to low-income borrowers because even smaller transactions still provide adequate profit.

While e-finance would facilitate wide consumer choice and access to competitive financial services such as banking, insurance and brokerage both domestically and internationally, one would not expect e-commerce/ e-finance to be the answer to all the deficiencies identified in the Namibian financial sector. More specifically, e-finance would not enable SMEs and potential entrepreneurs to obtain credit unless they have the necessary collaterals. This means that ongoing interventions by the government such as the provision of credit guarantees remain important.

There are also concerns that the cross border nature of the Internet and e-finance can undermine the development of the domestic financial markets in developing countries (Stijn, 2000). The main argument here is that given the wide access to competitive global financial markets, it would be more difficult to develop domestic money and capital markets. This can be equated to the constraints being experienced in the development of the domestic financial markets in Namibia due to the CMA arrangement.

¹⁵ Refer to chapter 3 for more information.

6.4 Creating an Enabling Environment

The impact of e-commerce on the financial landscape largely depends on having in place a well-trained and skilled human resources as well as supporting infrastructures and equipments. As highlighted in chapter 3 of this study, Namibia has all basic supporting infrastructures that are necessary for the flourishing of e-commerce and e-finance at least in the urban areas. In the semi-urban and rural areas, where access to finance is limited, such infrastructures are still limited. While there are few telephone lines and a number of ATMs, more of these infrastructures are needed in order to facilitate e-commerce/e-finance with a view to enable the further development of the financial sector in terms of access to financial services. Furthermore, Internet banking is almost non-existent in rural areas due to the fact that rural people do not have access to computers. An associated problem is the high level of illiteracy rates of the rural population, the majority of which do not know how to use modern telecommunication equipment including ATM machines (Bank of Namibia, 2002). Until these problems are addressed and necessary infrastructures are put in place in rural Namibia, Internet banking and e-finance activities will be confined to urban areas.

6.5 Conclusion and Recommendations

This chapter attempted to assess the role of e-commerce / e-finance on financial sector development in Namibia with specific reference to the issue of access to financial services especially by the formerly disadvantaged. This study maintains that e-commerce would impact positively on the financial sector development. More specifically, e-finance is expected to widen consumer choices and access to financial products domestically and internationally at competitive prices. Furthermore, e-finance especially the provision of Internet banking would ease the access problem especially for the population of rural Namibia. Through e-finance / e-commerce, the financial sector as a whole can re-engineer their operations aimed at gaining competitive edge domestically, regionally, and internationally, thus leapfrogging the traditional stages of development and provision of services. In other words, through internet-mediated services, all financial service providers regardless of their size can reach consumers throughout the country and beyond, thus realizing the economies of scale and incurring minimum cost.

However, maximum real benefits of e-finance/e-Commerce can only be realized if there are necessary infrastructures in place. These infrastructures include roads, telecommunication systems, electricity and police services. The provision of these services proved effective in the private sector development.

Moreover, it will be a failure not to point out that e-finance is not going to be an answer to all the problems being experienced in terms of access to financial services in Namibia and elsewhere. For instance, one should not expect SMEs and potential entrepreneurs to obtain credit unless they have the necessary collaterals. This means that ongoing interventions by the government remain as important as before.

It is therefore imperative to recommend the following:

- Necessary infrastructures (e.g. roads, telecommunication systems, electricity and police services) should be put in place, especially in the rural area where they are still lacking. In this regard, the Government is encouraged to ensure that the provision of such infrastructures is made a priority.
- Collaborative programmes need to be developed to help SMEs benefit from electronic commerce through increased training and education.
- There is also a need for the promotion of awareness among consumers and retailers of the latest development in e-commerce / e-finance especially e-banking.
- Ongoing interventions by the government (e.g. the provision of credit guarantees, etc.) remain important and should therefore be encouraged.

CHAPTER 7

7. IMPLICATIONS OF E-COMMERCE ON MONETARY POLICY

7.1 Introduction

Economies everywhere are in the midst of an e-commerce revolution that promises to introduce new monies (i.e. electronic money or e-money) that may ultimately displace existing money (currency and bank deposits). Not only does the e-money revolution poses challenges to the form of money, but it also stands to change the workings of the banking system, and in doing so may undermine the monetary authority's ability to set interest rates and stabilize financial markets. The fundamental of this challenge is the possibility that e-money may eliminate the financial system's demand for liabilities of the central bank so that the central bank is unable to conduct meaningful open market operations.

This chapter is, therefore, mainly intended to explain the implications of e-commerce on monetary policy. A vast amount of these implications stem from currency substitution by e-money as an emerging electronic payment instrument. Hence, the discussion will be devoted, predominantly, to the demonstration of how e-money alters sources of demand for currency, (which eventually result in currency substitution). Effort is also made to derive a Namibian perspective.

7.2 Issuance of E-money

The issuer of e-money has three main functions, namely: to make the card available to the customer, to load the card for the client or card-holder, to pay the merchants for goods or services purchased by the card-holder, and to reimburse the unused funds to the cardholder. According to the European Union (1994), in economic terms, the money received by the issuer of electronic money is a bank deposit. Hence, the European Union argues that the reasons which led the authorities to reserve the deposit taking to specific category of institutions should also apply to the issuer of electronic money. These reasons relate to both the protection of the consumer and to the protection of the transmission system¹⁶ (European Union, 1994).

The debate is still on regarding, among other things, the issuance of e-money; and particularly the choice of the institution(s) that should issue e-money. Countries where the use of e-money has been adopted treat this issue differently. For example, the European Monetary Institute of Working Group on EU Payment Systems, as referred to in Muller (1997) recommended that only credit card institutions or companies supervised by the regulatory body should be permitted to issue e-money. This view is based on the following concerns:

- . First, being less closely supervised, less familiar with developing secure payment system, and arguably having less stake in protecting a valuable existing reputation, non-banks may be more likely to develop an e-money product that can be counterfeited or used more than once.
- . Second, non-banks may have an unfair competitive advantage over banks because they are not subject to costs of extensive government regulation and supervision.
- . Third, since non-banks do not report to the central bank, non-bank issuance of e-money creates a greater threat that the central bank will be unable to track the money supply and will lose the ability to set monetary policy.

¹⁶ Refer to the impact of digital cash on payment system in sub-section 5.3.

The group (i.e. The Working Group on EU Payment system (1994)), however, suggested that in some circumstances, the local central bank may agree that e-money issuers do not necessarily have to be banks only provided that:

- . they provide only domestic payment services;
- . they are subject to appropriate regulations, in particular, with respect to liquidity requirements and;
- . they are supervised by the institution which supervises credit card institutions.

In contrast, the Federal Reserve view is that the non-bank issuance of e-money should be permitted. This is based on the following arguments (Muller, 1997):

- . The cost of developing and marketing e-money products provides incentive for non-banks to develop secure products.
- . Although non-banks may have some competitive advantages, banks have corresponding advantages in their existing payment systems and merchant relationships¹⁶. This and the next arguments, particularly challenge the above opinion that non-banks may have an unfair competitive advantage over banks because they are not subject to costs of extensive government regulation and supervision.
- . Banks well-established reputations makes consumers more likely to trust e-money issued by a major local banks than by a newly formed non-bank.

The South African Reserve Bank is the only CMA monetary authority, which has a stand on the issuance of e-money; and their position is that only banks should issue e-money¹⁷. They also specified a number of requirements that should be met before the adoption of e-money. The Bank of Namibia is yet to pronounce its position on this issue.

7.3 Implications for Monetary Policy Management

It has been mentioned in chapter 5 that one of the important attributes of e-money, particularly digital cash is its transnationality, that is the ability to flow freely across national borders. However, for the sake of practicality, the analysis in this section would be based on the assumption that the digital cash or e-money is completely domestic. That is, only home country's banks can issue digital cash in that home country's currency, and only home country's people can use it at sites located in the home country. Under this assumption, e-money will be reduced to the level of just a new payment system, something like a credit card or prepaid card. In this scenario, disturbance on money supply and financial instability will be minimized because the central bank can control not only real cash, but also e-money by the conventional means, such as the bank rate, open market operations, etc. (Tanaka, 1996).

A point of departure would be the concern that e-money might substitute coins and notes. A substitution of central bank currency would affect all monetary aggregates¹⁸. This implies that the introduction of e-money could potentially have an effect on the formulation of monetary policy, especially for countries that rely on the monetary

¹⁶ Many merchants are unlikely to accept e-money unless they can deposit it into their bank account, and banks can control which issuers e-money they will accept. In addition, in 1995, the American Bankers Association Payments System Task Force stipulated that non-bank issuers of e-money would have to use banks to settle transactions through the existing payment system.

¹⁷ For details, see Address by the Governor of the SARB on E-Commerce and the Central Bank at www.resbank.co.za/address/1999/ad1111099.html.

¹⁸ The largest impact would be on the narrowly defined stock of money or M1 (BIS, 1996).

aggregates as targets or indicators (Bank for International Settlements, 1996). This suggests that the development of e-money will require a redefinition of the monetary aggregates to include this type of money. Latter (2000) does not regard this as a concern because nowadays there are scarcely any central banks that rely single mindedly and exclusively upon measures of money supply to guide their monetary policy decisions.

According to Berentsen (1996), countries with a sizeable amount of the stock of central bank currency in circulation and high central bank currency-to-deposit ratio will be more affected. This is the case in countries such as Canada, Japan, USA, German and India, suggesting that M1 in these countries could be highly impacted in the event of a substantial e-money substitution for central bank currency (see Table 7.1). Namibia fares among the countries with the least-impact potential of e-money substitution.

Table 7.1 Banknotes and Coin in Circulation (1994)

Countries	As % of GDP	As % of central bank liabilities	As % of deposits
Belgium	5.2	42.0	37.1
Brazil	2.5	8.9	69.9
Canada	3.5	86.7	78.9
China	16.6	41.4	58.8
Croatia	3.2	34.7	67.1
Estonia	10.4	45.6	96.4
France	3.4	37.7	17.8
Germany	6.8	63.4	42.0
India	10.0	52.3	133.4
Korea	4.3	19.7	67.0
Japan	8.8	84.5	37.0
Namibia	2.0	15.1	14.8
South Africa	2.8	3.6	15.0
United Kingdom	2.8	69.8	4.8
United States	5.2	84.1	44.7

Source: For G-10 and EU countries, data are obtained from the "Red Book" and "Blue Book" published by the BIS (1994) and EMI (1994) respectively. For other countries, data are obtained from national sources and IMF International Statistics, as referred by the bank for International Settlements (1994).

Traditionally, the demand for liabilities of the central bank arose from the following sources: (i) reserve requirement on banks, (ii) the non-bank public's demand for currency, and (iii) banks' demand for settlement balances (Palley, 2001). Following below is the explanation on how e-commerce, particularly e-money, alters these sources of demand for the central bank liabilities.

(i) Reserve Requirements

This has traditionally been viewed as the main source of demand for liabilities of the central bank. This legally constructed demand obliges banks to hold the central bank's liabilities in order to do business, and in turn gives central banks a window through which to affect bank operations.

Demand for reserves would be reduced if digital money were to become a substitute for reservable deposits. In this regard, software-based digital money could reduce demand for transaction deposits. The Bank of International Settlements (1996) in Berentsen (1998) suggests, however, that substitution of reservable deposits would be small. It maintains that a very extensive substitution of reservable deposits could complicate the operating procedures used by central banks to set money market interest rates. However, since e-money is expected to substitute mostly cash rather than deposits, it is highly unlikely that operating techniques will need

to be adjusted significantly. Moreover, the decline in reserve requirements does not necessarily render monetary policy ineffective. This has been demonstrated by the fact that a number of countries such as Canada, the United Kingdom, and New Zealand have effectively done away with the required reserves by setting the requirement ratio equal to zero, yet these countries have still been able to continue effective monetary policy (Sellin and Weiner, 1897 in Palley, 2001). The reason is that although the overall demand for reserves has been reduced, remaining transactions and settlement sources of demand for reserves have been sufficiently large and connected to economic activity that central banks have still been able to control short-term interest rates through open market operations.

(ii) Non-bank Currency Demand

This represents the second important source of demand for reserves. In most economies it even represents the largest sources of demand. For example, according to Woodford (2000) in Palley (2001) it constitutes 84 percent of central bank liabilities in countries such as the U.S, Canada, and Japan. The demand for currency per dollar transacted within the legal economy has been steadily declining for many years, with currency being displaced by other methods of payments¹⁷. The e-money revolution, threatens to further erode this currency demand in the legal economy. However, Goodhart (2000) in Reserve Bank of India, (2002) tend to disagree, citing that there will probably be some demand for currency because of its unique properties, which include anonymity.

(iii) Bank Settlement Balances

The liquidity management approach suggests that digital money would not reduce demand for settlement balances significantly. This implies that even when digital money extensively substitutes reservable deposits, the settlement function of central banks would continue to guarantee an ongoing demand for reserves. Reserves may not be used as a medium in which to store value overnight and longer, but it still would be required as a vehicle for transferring value during a day (Jordan-Stevens (1996) in Berentsen (1998)). Havrilesky (1987) in Berentsen (1998) suggests that this demand would be sufficient for the monetary base to remain a viable policy instrument and that open-market operations would work as they do today.

The above views held by prominent authors such as Goodhart, Cama, Palley, and others on the subject under review. However, Fama (1980) in Palley (2001) hold that securitization combined with IT-technology revolution means that banks and financial intermediaries may be approaching the point where the bulk of bank assets can be valued in real time, thereby making it possible to settle debts between banks by transfer of title to these assets (Palley, 2001). This contrasts with the current system where commercial banks transfer claims against the central bank reserves. Thus, the key to the emergence of such a system is the ability of banks to value assets to market in real time²⁰. Different forms of e-money in that scenario may advance to the point that commercial banks would not only provide payment services, but also settlement services in an economy thereby play off the need for the central bank money for settlement (Friedman, 1999). Similarly, King (1999) in Cama (2002), maintains that in the future world, all settlements could be done on real-time basis through transfers of appropriate value of private wealth from one electronic account to another in an electronic barter environment, thereby obviating the need for central

¹⁷ This has, however, been set off by an expansion of demand coming from increased activity in the underground and illegal economy (Palley, 2001). The underground economy refers to unrecorded (for tax purposes), but remain legal economic activity. The illegal economy refers to the illegal economic activity (Palley, 2001).

¹⁸ Thus securitization combined with IT-technology revolution means that banks and financial intermediaries may be approaching the point where the bulk of bank assets can be valued in real time, thereby making it possible to settle debts between banks by transferring titles to these assets (Palley, 2001).

¹⁹ In other words, there would be unclear distinctions amongst financial intermediaries, with all coming to provide transactions services traditionally been provide by banks (Palley, (2001), Friedman, (1999), and King, (1999) in Cama, (2002)).

bank money in the economy (Cama, 2002). In this scenario, not only could banks settle transactions between themselves by transferring bank assets valued in real time, but other agents may also reduce their reliance on banking firms. Thus, non-bank agents could settle their debts by transfer of title to equities valued in real time²⁰.

However, the above views did not go unchallenged. To this effect, Goodhart (2000) argues that e-money systems will not completely eliminate the existing money based systems of settlement, but will rather reduce it. Thus, some individuals and corporations may still insist on payment in bank money, which will still possess a special place as a legal tender for purposes of debt settlement Goodhart (2000). Similarly, Palley (2001) maintains that debtors may also wish to settle their debts with bank money rather than transferring assets, which they may believe to be under-valued owing to temporary market conditions, while Goodhart (2000) in Cama (2002) argues that the central bank's ability to influence nominal rate of interest is eventually an issue of political economy because it is so required. In this setting, the government can always place a set of legal restrictions on the financial market so that they would be forced to settle only in central bank money. Moreover, Freeman (2000) and Woodford (2000/2001) hold that incentives, particularly the unlimited standby facilities offered by the central bank to commercial banks to settle on its books is key for the latter to influence nominal interest rate. They further argue that even in the presence of multiple currency, market participants may like to settle at least some of their payment obligations on the books of the central bank (in the central bank money) primarily due to its unparalleled creditworthiness.

In addition, the Federal Reserve Bank does not expect e-money, whether issued by banks or non banks to have a substantial impact on its ability to track the level of the money supply or to conduct monetary policy, at least in the short to medium term (Muller, 1997)²⁰. It, however, maintains that if non-banks becomes significant issuer of e-money, the Federal Reserve Bank will seek to establish a voluntary reporting system, similar to the system already in place under which non-bank issuers of travellers checks report on the amount of travellers' checks in circulation (which is a component of the M1 monetary aggregate).

7.4 Effect on Seigniorage²¹

A substitution of e-money for cash would lead to a corresponding decline in the central bank seigniorage revenue. Since these revenues relative to central bank assets are generally large for most central banks, the decline would affect the capacity of the central banks to cover the cost of their operations accordingly (Bank for International Settlements, 1996). Therefore, a loss of seigniorage would become a concern to many central banks (as it would make them become dependent on other sources of revenue). Even a moderate loss of seigniorage could be of concern to some governments, particularly in countries with large budget deficits (Bank for International Settlements, 1996).

²⁰ This is largely because "Americans still use cash for about three-quarter of all transactions. The total U.S. supply of coin and currency (in 1999) stood at about USD\$ 550 billion of which one-third is circulating in the country and the remainder is held abroad" (Gramlich, 1999) and (Muller, 1997).

²¹ Seigniorage, in this context is the margin between the face value of currency issued and the costs of issuing that currency (Bernkopf, 1996).

Table 7.2 Comparisons of Seigniorage and Bank Expenses (1994)²²

Country	Seigniorage ²³ (as a % of GDP)	Seigniorage reduction (as % of GDP)		
		If prepaid cards Eliminate all Banknote Denominations up to US\$ 25	If every Individual carries a prepaid card With US\$ 100 of e-money	If prepaid cards eliminate all cash payments up to US\$ 25
Belgium	0.44	0.05	0.03	0.05
Botswana	0.30	-	-	-
Canada	0.31	0.15	0.05	0.13
France	0.28	0.08	0.03	0.07
Germany	0.52	0.06	0.03	0.06
Italy	0.65	0.05	0.06	0.09
Japan	0.42	0.06	0.01	0.04
Namibia	0.22	-	-	-
Netherlands	0.46	0.06	0.03	0.05
Swaziland	0.16	-	-	-
Sweden	0.48	0.1	0.04	0.16
Switzerland	0.45	0.05	0.01	0.05
United Kingdom	0.28	0.14	0.05	0.1
United States	0.43	0.14	0.03	0.09

Source: Bank for International Settlement (1996), Central Bank of Botswana Annual Report (1994), Central Bank of Namibia (1994), Central Bank of Swaziland Annual Report (1994), Central Bank of Swaziland Quarterly Review (1994)

For example, even the USA, which make heavy use of checks (so that banknotes and coins comprise only a minor share of M1), in 1994, the central bank (i.e. the Federal Reserve Bank) transferred about \$20 billion in seigniorage over to the Treasury (Bernkopf, 1996), which is still a significant amount²⁴. Table 7.2, allows some relevant comparisons, which suggest that bigger economies tend to have a relatively larger amount of seigniorage. Moreover, as these influences (i.e. electronic-payment products) gradually develop over time, it would be proper for central banks to monitor them so as to adjust their banknote printing and handling activities accordingly (Working Group on EU Payment Systems, 1994).

Following below are some of the other suggested measures that central banks can take to minimize the loss of seigniorage income and to avoid the adverse effects on monetary control resulting from the emergence of e-money.

- (i) They can limit the proliferation of digital money products to prevent the replacement of central bank currency.
- (ii) They can issue e-money products and treat e-money balance in the same way as they do with central bank currency.
- (iii) They can apply high reserve requirements on e-money balance.
- (iv) They can absorb the excess liquidity created by adopting appropriate monetary operations.

²² The original source of these calculations (with the exception of Namibia, Botswana and Swaziland) is Netherlandsche Bank Staff Report (May1996).

²³ Seigniorage is roughly estimated by multiplying notes and coin outstanding by the long-term rate of interest on government. However, due to the absence of similar statistics, Government Treasury Bills Rate and the Rate for Bank of Botswana Certificate have been used for Swaziland and Botswana, respectively.

²⁴ Notwithstanding, the broader the monetary aggregates, the smaller the share of banknotes and coins (Bernkopf, 1996).

Evaluation of the aforementioned measures

- The last four measures or scenarios are compatible with fundamental central bank responsibilities for maintaining the integrity, stability of the country's payment system and for the conduct of monetary policy.
- With regard to scenario (i), it is argued that legal restrictions to prevent the proliferation of digital money products will be difficult to justify, especially in light of efforts to deregulate and improve the efficiency of the financial sector. It has been evidently established that central bank currency is an expensive medium of exchange. For instance, the estimated annual cost of U.S. retailers and banks to handle money is USA\$ 60 billion. This includes costs associated with processing and counting of money, storage, transport, and security (Hayes et al. 1996, in Berentsen, 2002). E-money products also offer substantial cost savings compared with paper checks. The cost of an electronic payment ranges between one-third to one half of check payment. In addition, e-money can easily cross international borders and it will be difficult to control foreign digital money that could eventually emerge as a medium of exchange in the home country (Berentsen, 2002).
- Scenario (ii) would be in contradiction with the long term trends which has led to central banks to withdraw from competition with the banking sector and to concentrate on the oversight of the payment system, and on the provision of inter bank services. It could also be argued that central banks would have an unfair advantage over other issuers because of zero credit risk nature of an electronic purse issued by it .
- The first three measures reduce the private sector's incentive to invest in the development of digital money products. This is not a positive factor, as measures that prevent development of digital money product will result in a competitive disadvantage. Thus, nations that will develop these products will thereby take a lead in a crucial technological sector (Berentsen, 2002).

7.5 Namibian Perspective

From the Namibian perspective, it would appear that e-money would, at least for now, not affect Namibia's monetary policy because the use of e-money payment option is not yet adopted in this country. None of CMA member country adopted e-money payment method. However, some countries within this monetary arrangement have started to familiarize themselves with this innovation . This is a good beginning and there should be no "rush" towards its adoption.

It is important to note that the increase in the use of the current e-payment options, such as purchasing cards, direct debits and credits cards would also lead to currency substitution, and the corresponding decline in the seigniorage. However, e-money is believed to have more potential of affecting this change (i.e. reducing or substituting central bank currency).

7.6 Conclusions and Recommendations

It emerged that e-commerce could lead to the substitution of central bank currency by electronic payment product, and this in turn would affect all monetary aggregates, especially M1. E-money shows to have more potential of affecting this change. Although the ability of the central bank to set monetary policy will be affected by this substitution, it will not be eroded because the demand for settlement balances will still be significant. It also transpired that seigniorage revenue will definitely be affected. The extent of this reduction will depend on the level of the use of e-payments products.

Moreover, since Namibia has not yet adopted the use of e-money payment, the implication of e-commerce (and particularly of e-money) on its monetary policy is very minimal. Meanwhile, the issues that surfaced in this and preceding chapters implies that the Bank should make an aggressive commitment to monitor developments in the e-commerce, with a special focus on its impact on Namibian financial market; and acquaint itself with a variety of existing and emerging measures to address these issues.

CHAPTER 8

8. CONCLUSION AND RECOMMENDATIONS

This paper established that the use of e-commerce in Namibia is increasing. A number of local companies having realized the potential and opportunities the Internet can offer are now using it in one way or another. Products and services available online include shopping, communication with clients, branches or headquarter, obtaining after sales reports, marketing, research, bookings and reservation confirmations. However, like other developing countries, the Internet usage and consequently e-commerce in this country is still very low compared to industrial countries where the rate of Internet connectivity is high.

This paper also established that the basic supporting infrastructures are available in Namibia, at least in the urban areas. Despite the various benefits, derived from the use of electronic commerce, there are several barriers. Some of these barriers can be removed through a proper policy while others need individual company s efforts and initiatives. For example, while the enabling-basic infrastructure is provided, the legal and regulatory framework is absent. The absence of the legal and regulatory framework is regarded by most stakeholders as highly suffocating in the sense that it tends to inhibits the further development of e-commerce activities as operators are operating in a legal vacuum. More specifically, the current legal and regulatory regime cannot adequately regulate e-commerce activities due to the fact that it was intended for a paper-based system. Therefore, the need to effect amendments to the existing legal and regulatory instruments as well as introducing new ones cannot be overemphasised. This would bring about legal certainty and ensure security of transactions, preserve privacy and consumer protection amongst others. Another concern raised relates to exchange controls as it limits non-CMA cross border transactions. Although there is less scope for manoeuvring in this regard, it warrants a close examination.

In the area of payments systems, it should be noted that the implementation of the RTGS and the amendment to the Bill of Exchange represent important steps in ensuring that payments are efficient and properly regulated.

On monetary policy front, Namibia (like many developing countries) has not yet adopted e-money payment systems. Therefore the implication of e-commerce (and particularly of e-money) on its monetary policy is minimal. However, as e-money products develop, they have a potential to complicate the conduct of monetary policy, but more importantly they could significantly reduce the Bank of Namibia s seigniorage revenue.

Recommendations

- The need to introduce a legal and regulatory framework, which is lacking currently, is vital. This should provide guidelines on (among others) security, privacy, legal and border issues. In this regard, Namibia could benefit from learning from countries with advanced regulatory framework. It needs to be appreciated that the Government has drafted an ICT policy for Namibia, which once approved would set the ball rolling for the necessary legislative intervention. The draft policy also proposed that an audit of the relevant legislations should be carried out as a point of reference.
- It appears that it is difficult to extend e-commerce, particularly e-finance to rural areas. This is being inhibited by the general lack of the necessary infrastructures, awareness and costs of the ICT equipments. In this regard, the Government is encouraged to ensure that the provision of such infrastructures is made a priority.
- There is a need to promote awareness among consumers and retailers of the latest development in e-commerce/e-finance, especially e-banking.
- The Bank continues to monitor the development of e-commerce and may pronounce its position on the issuing of electronic money.

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