

# Financial Development and Electronic Banking in Vietnam

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**Abstract:** This paper undertakes an in-depth account of the growth and development of the financial sectors with a specific focus on the growth and development of its electronic banking sub-sector. The electronic banking in Vietnam has been making first steps toward modernization. While Vietnam is still a cash economy, Automated Teller Machine transactions have become a daily experience for most Vietnamese. According to the Vietnam Card Association, the spending turnover of cards of different kinds reached 5.6 billion USD with over 28 million transactions in 2013, showing an increase of 20 percent and 34 percent respectively in comparison with the turnover in 2012. The government announced a comprehensive reform program designed to address the problems faced by the financial and corporate sectors. The reform program was officially documented in the Socio-Economic Development Plan for the period 2011–2015. Several factors affect customers' trust in using e-banking services, including perceived ease of use, perceived usefulness, disposition to trust, familiarity, institution-based trust and perceived website quality. This paper conducts a comprehensive primary survey to collect data and evaluate these critical factors affecting customers trust in e-banking. The sample consists of 464 Vietnamese participants who have used and are using e-banking services. The survey encompasses selected provinces in the northern, central, and southern Vietnam. The results show that the perceived usefulness, perceived ease of use, disposition to trust, familiarity, institution-based trust, and perceived website quality have a positive effect on trust in e-banking. Trust, in turn, has a positive effect on the behavioural intention to use e-banking. The findings of the paper are expected to provide Vietnamese bank managers and policy makers with knowledge of the factors affecting customers' trust and help them devise appropriate strategies for developing their e-banking services to attract more new customers and retain the existing ones.

**Keywords:** financial development, banking sectors, electronic banking, banking industry.

**JEL Classification:** A11, G00, G21, N25, P20.

# Financial Development and Electronic Banking in Vietnam

Long Nguyen<sup>1</sup> and Tarlok Singh<sup>2</sup>

## 1. Introduction.

Financial and banking sectors around the world have changed substantially over recent decades through a series of developments, including deregulation, mergers and acquisitions, financial liberalization and other reforms and restructuring programs (Vu and Turnell, 2010). There have been significant evolutions that took place in the banking system in Vietnam, commencing with its transformation from a mono-tier to a two-tier banking system, followed by banking restructuring programs undertaken for the domestic banks, financial deregulation and, most recently, integration into the global financial system (Vu and Turnell, 2010). The banks occupy a crucial position in the financial sector, and face several challenges in the ongoing phase of financial innovations. There have recently been significant developments in terms of the use of e-banking in Vietnam. This paper undertakes an in-depth account of the growth and development of the financial sectors with a specific focus on the growth and development of its electronic banking sub-sector. This paper differs from the previous researches in that it conducts a comprehensive primary survey to collect data and evaluate the critical factors affecting customers trust in e-banking. The sample consists of 464 Vietnamese participants who have used and are using e-banking services. The survey encompasses selected provinces in northern, central, and southern Vietnam.

This paper is organised as followed. Section 2 provides an overview of the development process of the Vietnamese banking system since the liberation in 1975. It will also set out the current categories of banks in Vietnam. An overview of financial sectors is also provided in this section in order to present a holistic picture of Vietnam's economy in general. Section 3 sets out the growth and development of e-banking services. Section 4 introduces a field survey design and data collection about customers' trust in using e-banking, and Section 5 is conclusion.

## 2. Financial Sector in Vietnam-An Overview

Vietnam, officially the Socialist Republic of Vietnam, is the eastern most country on the Indochina Peninsula in Southeast Asia. The population estimated 90.0 million inhabitants as of 2013, it is the

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world's 13th-most-populous country, and the eighth-most-populous Asian country. It has an area of approximately 331,201 square kilometres. The country is bordered by China to the north, Laos to the northwest, Cambodia to the southwest, and the South China Sea to the east.

Vietnam has achieved remarkable progress since the start of its transition from a centrally planned economy in the mid-1980s. The Economic Renovation Policy (Đổi Mới) announced in December 1986 marked the transition from a centrally planned economy to a mixed economy with greater reliance on markets and increased participation of private financial and non-financial institutions. These reforms contributed to an impressive performance in the last two decades, since 1990 the annual GDP growth has exceeded 7 percent and per capita income has increased three-fold. From the mid-1990s onwards, Vietnam opted for economic opening and became a member of the Association of South-East Asian Nations (ASEAN) and, after years of complex negotiation, a member of the World Trade Organization (WTO) in 2007.

Over the past 25 years, Vietnam achieved success in economic development and poverty reduction. Vietnam has been transformed from a centrally planned to a more market-oriented economy. The transformation into a middle-income country was supported by a long period of stable and high growth rates (on average 7.3% during 1990-2010) reaching a per capita income of USD 1,130 by 2010. The strong economic development was due to rapid export growth and increased investment in the private sector (20.7% of GDP in 2011). In 2011, agriculture/forestry, industry and services accounted for 22%, 41% and 37% of GDP respectively. The country's accession to the WTO was a key milestone in Vietnam's economic development path and, as a consequence, significant improvements to the legal framework together with increased international competition boosted the economic performance of the export sector. Vietnam is facing a persistent trade deficit generated by high demand for imports of capital goods and the export sector's focus on semi-manufactured products. Due to a strengthened investment climate, Vietnam remains relatively attractive for Foreign Direct Investment (FDI), with the major part of FDI originating in other Asian countries. The latest data on poverty headcount depicts a reduction of poverty in Vietnam from 58% in the early 1990s to 14.5% in 2008 and 12% in 2011. However, poverty remains high among ethnic minorities, the elderly and female-headed households.

Vietnam has been known as a poor agricultural country with a high population but, under the "Doi Moi" (innovation) period, its economy started growing at a relatively high rate. According to Leung (2009), this was achieved essentially through two phases of economic reforms: Doi Moi 1 (1986–1996), and Doi Moi 2 (2001–2007). Presently, Vietnam is a rapidly developing country with a GDP

growth of 5.5% for the year 2014 (World Bank). The International Monetary Fund (IMF 1/2015) forecasts Vietnam's GDP is likely to reach 6.2 percent in 2015 and 7.5 percent in 2017 (cpv.org.vn).

Vietnam joined the WTO in January, 2007 following more than a decade-long negotiation process. This integration into the WTO has also helped Vietnam to develop domestic markets, lure large inflows of foreign investment, perfect human resources and build institution in an attempt to deeply integrate into the global economy. Vietnam became an official negotiating partner in the development of the Trans-Pacific Partnership trade agreement in 2010. Agriculture's share of economic output in Vietnam has continued to shrink from about 25% in 2000 to about 20% in 2010, while industry's share increased from 36% to 41% in the same period. Deep poverty has declined significantly and the Vietnam government is working to create jobs to meet the challenge of a labour force that is growing by more than one million people every year. The global recession has hurt Vietnam's export-oriented economy, with GDP in 2009-10 growing less than the 7% per annum average achieved during the last decade. In 2011, exports increased by more than 33% (US \$96.3 billion) compared to 2010, but the trade deficit remained high, prompting the government to consider administrative measures to limit the trade deficit. Vietnam's managed currency, the Dong, continues to face downward pressure due to a persistent trade imbalance and since 2008, the government devalued it by 20% through a series of small devaluations. Foreign donors pledged nearly US \$8 billion in new development assistance for 2011. However, the government's strong growth-oriented economic policies have caused it to struggle to control one of the region's highest inflation rates, which reached 18.58% in 2011 and decreased 6.6% in 2013 (World Bank, 2014). Vietnam's economy also faces challenges from falling foreign exchange reserves, an undercapitalized banking sector and high borrowing costs.

In recent years, the Vietnamese economy has shown signs of corporate and financial distress, and weaker growth. Several segments of the corporate sector exhibit poor performance and financial distress, and have affected the health of the banking system. Large state owned enterprises (SOEs) have defaulted on their obligations and several others appear to be overleveraged. The banking system has accumulated a significant amount of non-performing loans (NPLs), estimated conservatively at 12 percent of total loans at the end of 2012, and many small banks have experienced more serious liquidity and solvency problems in the same period, leading to interventions by the State Bank of Vietnam (SBV).

The weak performance of the financial sector is due to a complex array of institutional and regulatory factors (SBV, 2014). These factors have included episodes of interference by central and local authorities on the investment and credit decisions of state owned enterprises (SOEs) and state owned

commercial banks (SCOBs); inadequate governance structures and risk management capacity in these institutions; connected lending in several joint-stock banks (JSBs); weaknesses in financial infrastructure, including poor financial reporting standards; and deficiencies in financial regulation and supervision. In this context, credit growth has often been excessive and credit allocation poor. Increased macroeconomic volatility in the last five years has compounded these problems and led to further deterioration in the quality of loan portfolios.

### **Financial sector reforms**

The government has announced a comprehensive reform program designed to address the problems faced by the financial and corporate sectors. The reform program was officially documented in the Socio-Economic Development Plan (SEDP) for the period 2011–2015, approved by the National Assembly in November 2011. It includes three basic components: banking restructuring, SOE restructuring, and public investment reform. Since then, the government and the SBV have been making efforts to elaborate further the design of these three programs, and in March 2012 issued a decision approving the banking restructuring component. More recently, the Government and the SBV introduced a new asset management company (the VAMC) to handle NPLs. The banking reform program is comprehensive, but important reform issues must be further developed and the program must be consistently implemented to ensure the full recovery of the financial sector.

Vietnam's current banking system can be traced back to 1988 when four state-owned banks – the Bank for Foreign Trade of Vietnam (Vietcombank), the Vietnam Bank for Industry and Trade (Vietinbank), the Bank for Investment and Development of Vietnam (BIDV) and the Bank for Agriculture and Rural Development of Vietnam (Agribank) – were separated from the State Bank of Vietnam (SBV) with a mandate for commercial banking activities. The State Bank of Vietnam is a ministry-level body under the administration of the government; the bank governor is a member of the cabinet (equivalent to a minister in the cabinet). The governor is nominated by the prime minister subject to the approval of the National Assembly (Parliament). The State Bank of Vietnam defines its principal roles as: promote monetary stability and formulate monetary policies; promote institutions' stability and supervise financial institutions; provide banking facilities and recommend economic policies to the government; provide banking facilities for the financial institutions; manage the country's international reserves; print and issue banknotes; supervise all commercial banks' activities in Vietnam; lend the state money to the commercial banks; issue government bonds, organize bond auctions; be in charge of other roles in monetary management and foreign exchange rates.

The public banking sector, composed currently of state-owned commercial banks (SOCBs), still dominates the market. Since Vietnam's accession to the World Trade Organization (WTO) effective 1 January 2007, the government has been pursuing a policy of partial privatisation (known in Vietnam as 'equitisation') of some of the state-owned banks with a view to opening up and attracting funds to the banking sector. To date, four out of five SOCBs have been equitized (Vietcombank in 2007, Vietinbank in 2008, BIDV in 2011 and Mekong Housing Bank in 2011) with the state retaining up to 90 per cent of shares in each bank following the initial public offering. Sales of significant shareholdings to strategic foreign investors occurred in 2011 and 2012. Agribank, the largest of the five SOCBs by assets, given its broader social mission, was transformed into a one member limited liability company with the state being the sole member. In 2009, following a change in legislation, the SBV granted five licences permitting HSBC, Standard Chartered, ANZ Bank, Korea's Shinhan Bank and Malaysia's Hong Leong Bank to establish entirely foreign-owned subsidiary banks incorporated in Vietnam. Foreign banks have also, sometimes in parallel with other forms of local presence, acquired minority 'strategic stakes' in most of the important Vietnamese banks. The Vietnamese banking sector is highly administered. Although it initially seemed to have weathered the global financial crisis relatively well, the impact began to be felt in 2011. The downturn was exacerbated in 2012 with a large spike in NPLs caused, in large part by excessive credit growth focused in the real estate sector to 2009.

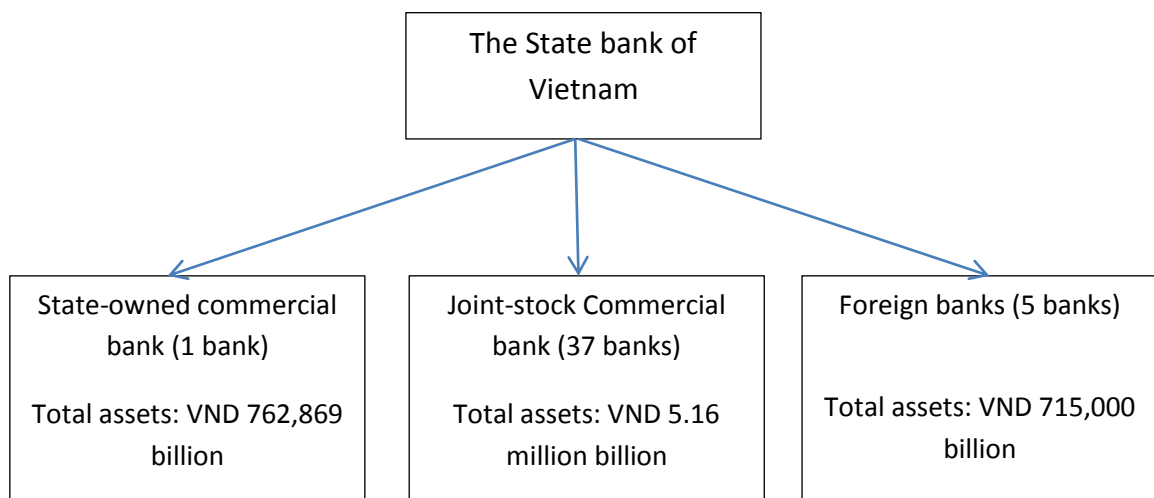
Since that time, the SBV has introduced a flurry of new regulations following the Law on Credit Institutions to support the objective of macroeconomic stability and sustainable growth. This saw, in 2012, inflation return from a high of 23 per cent in August 2011 to single figures and remain under control throughout 2013 at 6.04 per cent. The Vietnamese dong stabilised against the US dollar following a second consecutive year of trade surplus as Vietnam's exports outperformed other South-East Asian countries and grew 15.3 per cent in 2013. These effective anti-inflation and stabilisation measures have, however, resulted in relatively low growth rates for Vietnam of 5.25 per cent in 2012 and 5.42 per cent in 2013. The very high level of NPLs, the weak capital base of most of the Vietnamese commercial banks and serious liquidity issues in the banking system prompted the government to focus on restructuring the country's banking system. An ambitious banking sector restructuring scheme for 2011–2015 was approved by the Prime Minister in early 2012 focusing initially on the restructuring of nine banks identified as 'weak', mainly through their mergers with stronger banks. The restructuring has taken longer than anticipated, but by early 2014 the SBV had managed to complete the restructuring process for eight of the nine banks.

The government also created a dedicated bank NPLs resolution structure, the Vietnam Asset Management Company (VAMC), to take the NPLs off the banks' balance sheets for five years during which the loans are either restructured or recovered. The initial results of these activities by VAMC are still modest. Currently, Vietnamese banks are principally lenders to large corporations, including a high proportion of state-owned enterprises (SOEs). Consumer banking is still in its early stages and remains relatively undeveloped. Low market penetration is viewed as providing potential for expansion into lending to smaller enterprises and consumer banking as income levels rise, with Vietnamese and foreign banks vying for market share. Although the Vietnamese banking and finance sector is growing rapidly, there is still a significant lack of know-how, management experience and enforceable governance controls.

### Structure of the banking system

Vietnam's banking industry essentially started in May 1990 with the announcement of two important Ordinances: one was the Ordinance on the SBV; and the other was the Ordinance on Banks, Credit Cooperatives and Financial Companies.

Figure 1: Structure of the banking system in Vietnam

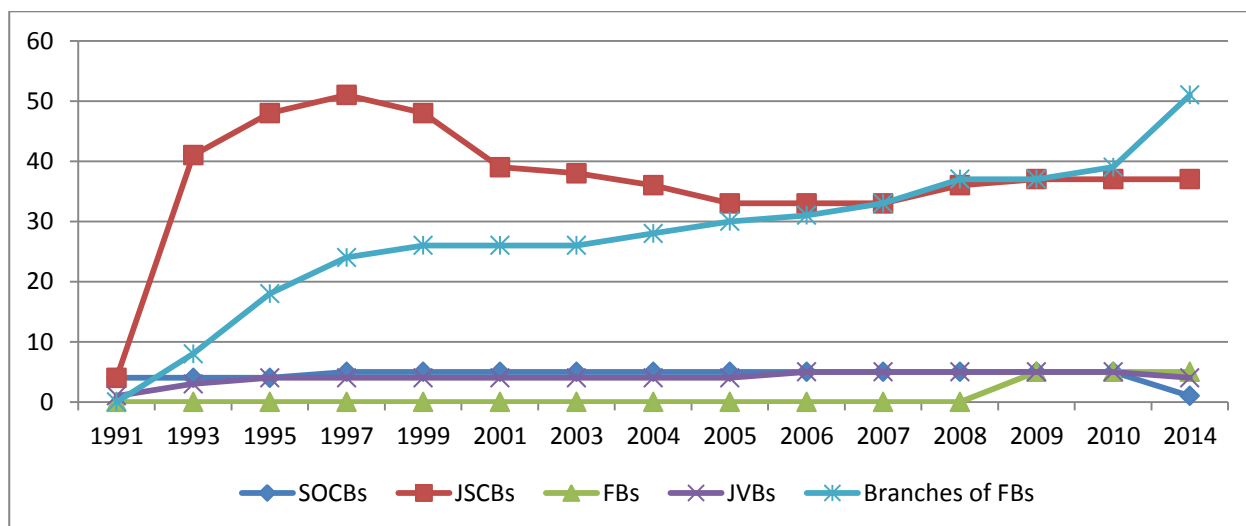


*(Source: the State Bank of Vietnam, 2014)*

In the reform of Vietnamese financial sector in the late 1980s, the creation of the SBV was essential and acted as the first milestone to the development of Vietnamese banking sector. The SBV is operated with the support from the government and its responsibility is to manage monetary policies and regulate the banking system in Vietnam (Tran, 2008). In the second reform (1988-1990), the SOCBs were department of SBV, with each department focusing on one particular section of the Vietnamese economy. After forming independent financial institutions, the SOCBs are still the dominating forces of the banking sector and are heavily related to the SBV.

In just 25 years, from a mono-banking system, SBV has grown tremendously to become a crowded network of banks and financial institutions (two-tier banking system), whereby the central bank’s functions are restricted to overseeing monetary policy, issuing currency, regulating the credit system, overseeing commercial banks, managing exchange reserves, with primary goals of currency stability and controlling inflation; while financial intermediation function (funds mobilization and allocation) were shifted to commercial banks. For over two decades (1990-2014) since its initial reforms, the banking sector has grown aggressively, at least in terms of the number of banks. Currently, there is one state-owned commercial bank (SOCB), thirty-seven joint-stock commercial banks (JSCBs), four joint-venture banks (JVBs), five 100% foreign owned banks (FBs), 51 foreign bank branches, 18 finance companies, 12 financial lease companies, and almost 1,100 cooperative credit funds (State Bank of Vietnam, January 2014). The growth focused on two stages and two groups of banks. The 1990s was the JSCBs’ era, and the early 2000s marked the entrance of foreign banks.

Figure 2: Number of banks by groups in Vietnam



Source: The State Bank of Vietnam, 2014

While the number of SOCBs remains stable until 2012, from four SOCBs initially established, only one new bank (Housing Bank of Mekong Delta) was found in 1997, and then in 2013 four of five banks turned into JSCBs so there is one SOCB (Agribank) in 2014. The number of JSCBs has increased significantly since 1990. The number rose to a peak of 51 in 1997, and then has dropped to 33 due to regulations regarding minimum capital and minimum capital adequacy ratio requirement, which caused small and inefficient banks to be merged or consolidated. The largest bank in terms of total assets (VND 762.869 billion) and network (2.300 branches) is the Vietnam Bank for Agriculture and Rural Development (Agribank), in terms of capital (VND 37.234 billion) it is Vietnam Joint Stock Commercial Bank for Industry and Trade (Vietinbank). More than half of JSCBs are small with assets



less than VND 50 trillion and chartered capital less than VND 5 trillion. Compared with regional peers, Vietnamese banks are still quite modest.

The Vietnam banking industry has been facing severe challenges in 2013. However, under the conclusive and flexible administration of the Management Board of the SBV, the banking industry has overcome many difficulties to reach its target such as: The interest rate has been decreased from over 20% to 10%, the exchange rate as well as the gold market has been stabilised, the foreign reserves have reached the record level at USD 30 billion and especially, the inflation has been controlled at 6.04%, the lowest level during the last 10 years. Another positive point was that the banking industry has conclusively implemented the Blueprint No 254 in restructuring the banking system. Until now, the restructuring process has completed half of its journey and obtained successive results.

### **3. Growth and Development of Electronic banking in Vietnam**

#### **3.1. E-banking services: A general overview**

This section will provide a general overview of the e-banking services. E-banking is not only the use of Internet banking but also other range of e-banking services. E-banking is a high-order construct, which consists of several distribution channels (Jun and Cai, 2001; Pham et al., 2013). It should be noted that e-banking is a bigger platform than just banking via the Internet. However, the most general type of e-banking in our times is banking via the Internet, or in other words Internet banking. The term e-banking can be described in many ways. In a simple form, e-banking is considered as the provision of information or services by a bank to its customers, via a computer, television, telephone or mobile phone (Daniel, 1999). Keivani et al. (2012), for example, describes it as an electronic connection between bank and customer in order to prepare, manage and control financial transactions. E-banking allows customers to access their bank and accounts to undertake banking transactions. At an advanced level, e-banking is called transactional online banking, because it involves the provision of facilities such as accessing accounts, transfer of funds, and buying financial products or services online (Sathye, 1999). The term e-banking and online banking are often used in the literature to refer the same things. Nowadays, the Internet is the main channel for e-banking. The following sections are selected e-banking services and provide their definitions as well as their benefits.

##### **3.1.1. Information technology in banking sector**

Information technology plays a very important role in banking system, especially in e-banking services. The usage of information technology, broadly referring to computers and peripheral equipment, has been tremendous growth in banking industry in recent past. The success of

implementing and improving e-banking services relies heavily on the level of information technology infrastructure. In order to meet the needs of customers, banks rely heavily on gathering, processing, analysing, and providing information. Technology has already enables banks to introduce innovative products to their customers in the form of ATM facility, telebanking, home-banking, ‘anytime’ and ‘anywhere’ banking, etc (Batra & Bhatia, 2014). Technological advances have allowed banks to provide innovative, new services or improvements in quality and convenience that attract new customers and increase demand. Technological innovations have enabled the banking industry to open up efficient delivery channels (Batra & Bhatia, 2014).

### **3.1.2. Electronic Fund Transfer at Point Of Sale**

Electronic Fund Transfer at Point Of Sale (EFTPOS) is an electronic payment system involving electronic funds transfers based on the use of payment cards, such as debit or credit cards, at payment terminals located at points of sale. EFTPOS allows funds to be directly transferred from a cardholder's bank account to the retailer. In order to conduct an EFTPOS transaction the cardholder's magnetic stripe card swiped in an EFTPOS terminal. Cardholder authentication occurs by signature or Personal Identification Number (PIN). At point of sales, such as supermarket or petrol station, customers make their purchases with the use of payment cards, namely debit cards or credit cards. Every time a purchase is made, payment card would have to go through a card reader. A card reader is able to process the coded information on the back of every payment card and then send the information of card owner to a Processing Centre. During the whole process, the card information is coded to ensure safety of transaction. Afterward the information is sent to the corresponding bank of the card owner in order to check the following information:

- Card number
- Card expiry date
- Total amount of money to be paid
- Balance in the account of card owner
- ID of merchant
- Card reader identification number

After the process is completed and the payment card is deemed to be valid, a coded certificate is sent from the card owner's bank to the merchant through the Processing Centre, thus allowing the transaction to go through (Sethi and Bhatia, 2012). As additional benefits, retailers will be able to reduce the amount of money currently held in stores because customers will pay by direct transfer to the retailers' account, and their operating costs will be reduced by accelerating check out procedures (Lipis et al., 1985).

### **3.1.3. Automated Teller Machine**

One of the most visible and dominant e-banking services is the Automated Teller Machine (ATM). ATMs are unmanned, automated teller devices, located either on or off bank premises, which are capable of dispensing cash and handling routine financial transactions (Lipis et al., 1985). ATM allows clients to withdraw money from their accounts without help of any bank employee. An ATM is able to recognize a client through his PIN. In order to avoid risk in case payment card is lost or owner's PIN is exposed, card owner and his bank are able to set and adjust the limit of the amount of money withdrawn each day, depending on the remaining balance of the account. ATMs can provide 24-hour access to routine banking transactions such as deposits, cash withdrawals, transfer between accounts, and loan payments (Lipis et al., 1985). In Vietnam, each bank provides its own ATMs. Clients benefit from using ATMs provided by their banks, having to pay no fee when withdrawing while a small fee has to be paid in case ATM of other banks is used. Withdrawing money straight from ATM is not its only function; additional functions of ATM includes checking remaining balance, checking 30 transactions made in recent months, print out small bank statement straight from the ATM (Sethi and Bhatia, 2012). The use of ATMs for such routine transactions frees the teller for more specialized services and should, over the long run, reduce the costs of delivering financial services to the consumer (Lipis et al., 1985). ATMs are the fastest-growing e-banking services.

### **3.1.4. Phone banking**

Phone banking is a service provided by banks or other financial institutions which allows clients to make financial transactions either through landline or mobile phones. Users are able to check their balances, transfer money from account to account only with the use of their phones. As most banks offer phone banking on a 24 hour basis, clients are now becoming less and less dependent on bank branches. Thus, phone banking has helped increase banking effectiveness and reduce the amount of time spent visiting bank branches and ATM (Sethi and Bhatia, 2012).

Services offered by phone banking:

- Check information concerning bank accounts of clients, such as remaining balance and recent transactions.
- Transfer money from account to account.
- Paying monthly bills.
- Request Standing Orders and Direct Debits. By using this function of phone banking, clients are ensured to pay their recurring bills in due time without having to remember all the dates.
- Request to reissue PIN.
- Request personal loan.
- Order foreign currencies or traveller cheques.

- Transfer money abroad.
- Order bank drafts.
- Changing contact information, address

### **3.1.5. Internet banking**

Internet banking allows clients to handle financial transactions through a secured website operated by their corresponding banks. Clients are offered access to banks' online facility on a 24 hour basis regardless of where they are as long as they have access to the Internet. The implementation of Internet banking has significantly boosted the efficiency of banking services in general, reduced the dependency of clients on bank branches and ATM.

Clients are obliged to complete registration process with their financial institutions before using Internet banking service. Clients must set their own passwords for the purpose of customer verification and safety reasons. Every client is provided with an unique customer reference number in the process. Accessing online banking service requires a client to go to the bank's website and log in using the given customer reference number and password. Additional security processes have been set up by some financial institutions to guarantee safety for clients. However, these processes differ from bank to bank without any standard set (Sethi and Bhatia, 2012).

Services offered by Internet banking

- Checking current balance, available balance, interest rate.
- Checking recent transactions.
- Transferring money from account to account.
- Paying bills
- Downloading information and data straight from website
- Downloading monthly bank statement straight from website.
- Editing contact information and address.

### **3.1.6. Credit cards**

In a simplest form, a bank credit card is a plastic card for charging purchases to an individual or corporate account that is paid at some later date (Lipis et al., 1985). Bank credit card services are widely used to extend credit outside the bank premises based on pre-established credit line. The banks have been established as a party to the exchange of value at the point of sale. A credit card accommodates user with a line of credit, allowing card owners to pay for goods and services based on the issuing bank's guarantee to pay for them. At the time of applying for a credit card, clients are obliged to deposit a certain amount of money. On a monthly basis, a credit card owner receives a statement indicating the transactions made by that particular card, and the total amount to be paid. A

cardholder is compelled to pay a minimum pre-defined portion of the amount owed before a certain due date. It is also possible for cardholders to pay the total amount owed if they wish to. In case the billed amount is not paid in full, the unpaid balance will be charged with interest. Additionally, if the cardholder fails to pay the minimum payment by the due date set, an extra fee or penalty is charged. With the purpose of avoiding this situation, some financial institutions can schedule automatic payment to be deducted from client's account as long as the available balance is sufficient (Manzoor, 2010). Credit card has benefits as following:

- Credit card users are able to make purchase without visiting stores or point of sale.
- Credit card users become less dependent on cash, thus, avoiding the risk of money being lost or stolen. If credit card is lost, clients can inform the issuing bank and request to lock the card and disable further transactions.
- Merchants can expect a boost in sale figure as credit card holders are able to purchase goods and services in advance without any immediate charge.
- With the use of credit card, the amount of cash kept in merchants' stores is lessened. As a result, possible risk of money being stolen or robbed is minimized.
- Merchants are compelled to pay a portion of every units of goods sold to issuing financial institutions. However, these costs are added to the selling price of goods and services. Thus, merchants benefits from the increased selling figure without paying any actual fee.
- List of lost or stolen credit cards are updated regularly into a computer system, merchants are able to access this system to check the validity of the credit card used.

### **3.1.7. Debit cards**

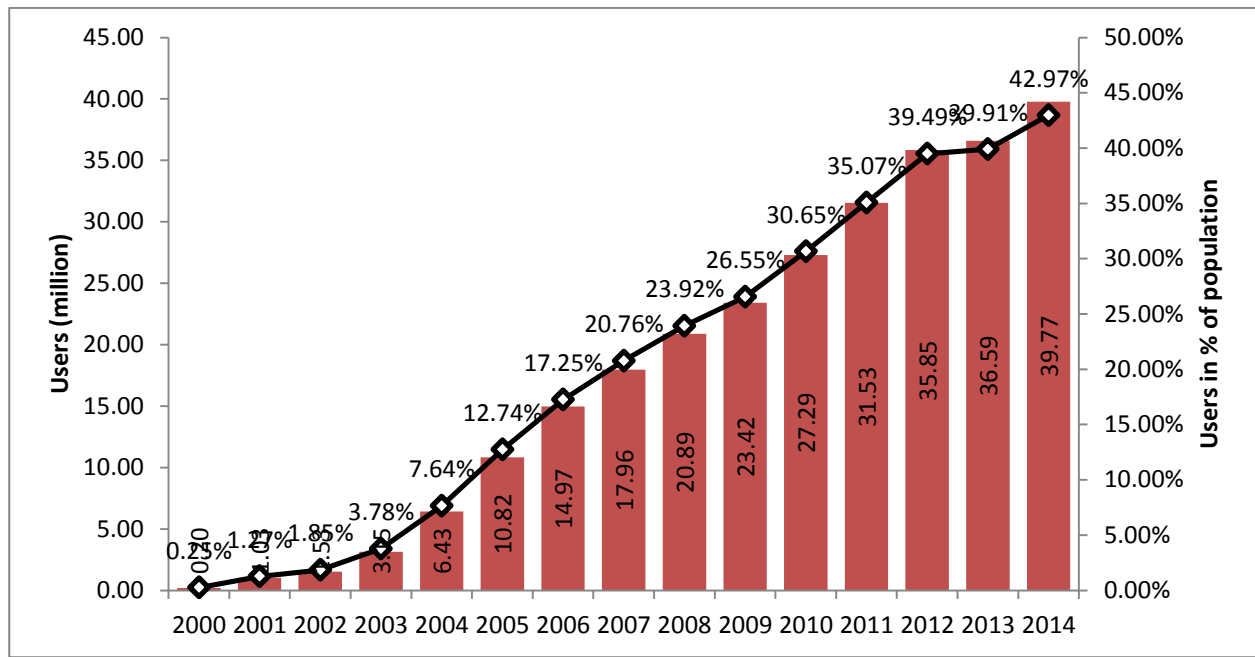
According to Lipis et al. (1985), debit card are similar in appearance to a credit card, the debit card function is very dissimilar. Debit cards represent a potential e-banking alternative for cash, checks, and credit cards at point of sale. However, they have most commonly been used to activate point of sale terminals and cash dispensers. A debit card, in theory, functions much like a credit card in that it provides rapid availability of funds to merchants. Unlike credit cards, there is simultaneous debit (for withdrawal) in the customer's account. Debit cards are increasingly being used by financial institutions to offer card-based services to all customer account regardless of their credit worthiness. Based on these advantages, many financial institutions are issuing debit cards.

### **3.2. E-banking services in Vietnam**

The Internet was first introduced in Vietnam in 1997, which was considerably late compared to other countries in the region (Ketels et al., 2010). However, internet use has expanded rapidly. As of 2014, the total number of Internet users in Vietnam has reached 39.77 million and a penetration rate of

42.97% was achieved (Figure 3). During this period, the figures keep rising year over year without any fluctuation.

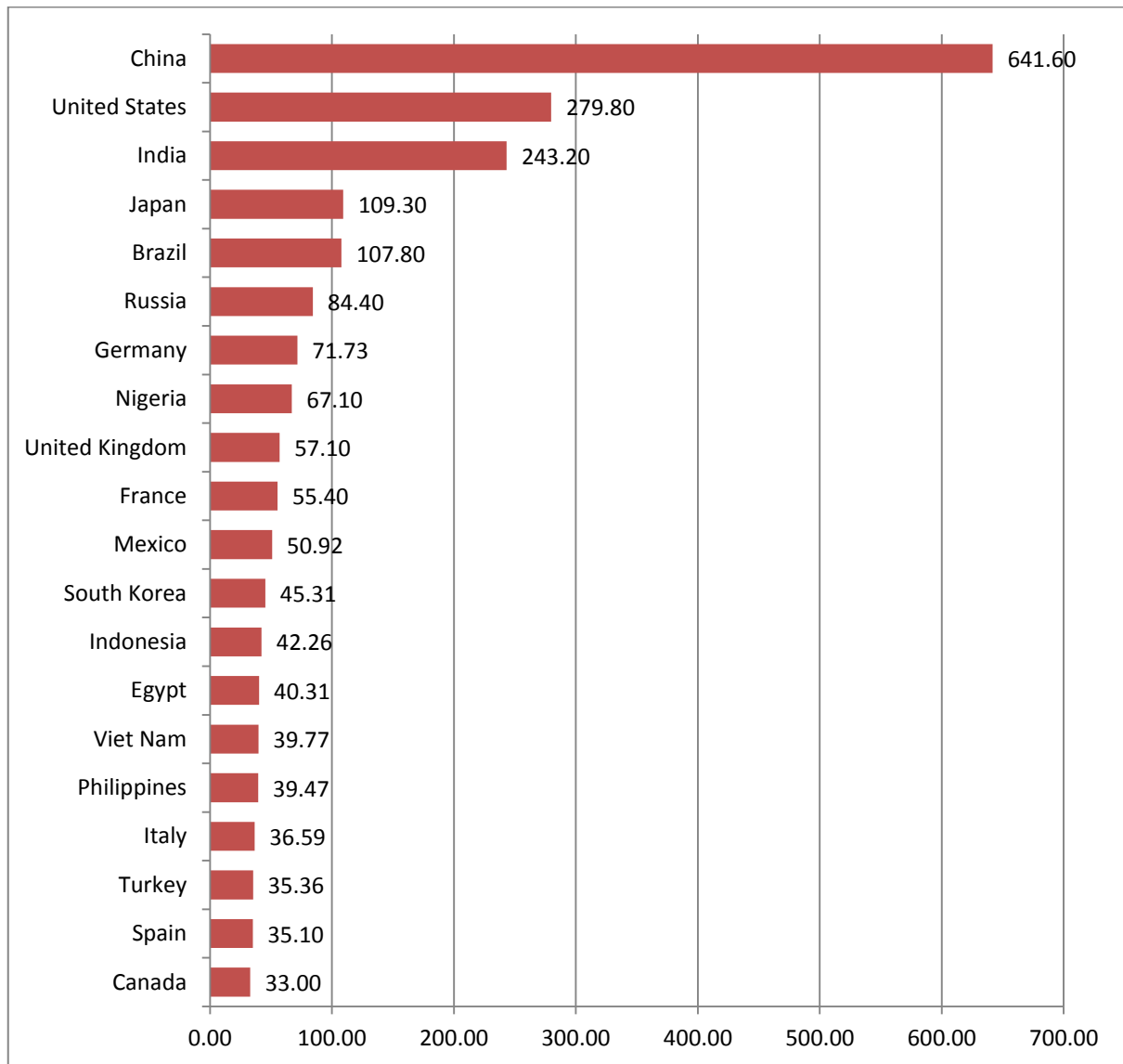
Figure 3: Internet users in Vietnam (2000 – 2014)



(Source: [www.internetlivestats.com](http://www.internetlivestats.com), 2015)

The number of Internet users highly increase is a golden opportunity for internet-based services to penetrate the Vietnamese market. Banks and financial institutions can expect to benefit from the growth of Internet penetration and should take this chance to further improve the quality of e-banking services and expand their market. With the development of information technology, the number of people who use internet has increased rapidly throughout the world. In Vietnam, the number of people who use internet has increased dramatically from 35.85 million people in 2012 to 39.77 million people by the end of 2014 and became one of the top 20 countries with highest number of internet users (Figures 4).

Figures 4: Top 20 countries with highest number of internet users



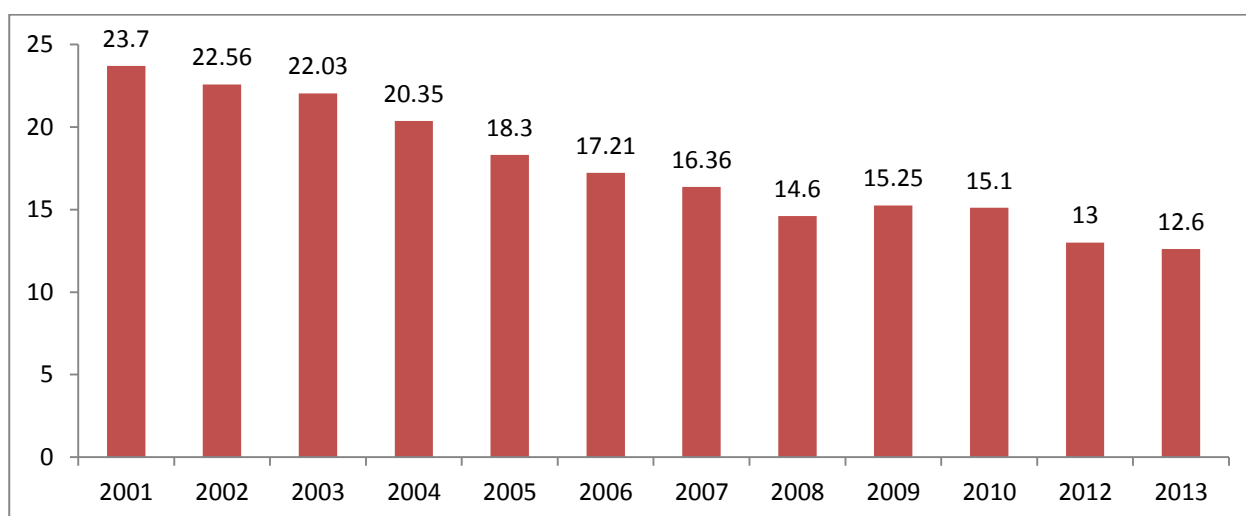
(Source: <http://www.internetlivestats.com/internet-users-by-country>)

Like the Vietnam's banking sector, electronic banking in Vietnam is also making first steps toward modernization. The concept of e-banking in Vietnam to date involves computerization of all traditional banking activities. Recent years witnessed significant improvements in these areas. While Vietnam is still a cash economy, ATM transactions have become a daily experience for most Vietnamese. According to the Vietnam Card Association, the spending turnover of cards of different kinds reached 5.6 billion USD with over 28 million transactions in 2013, increased 20 percent and 34 percent respectively in comparison with 2012, increased 56 percent and 77 percent respectively in comparison with 2011 (State Bank of Vietnam, 2014). However, the report of the association also pointed out that the transactions of withdrawing cash accounted for 50 percent of the transactions. Co-op Mart, Big C, Citimart and Maximark, the big supermarket chains in Vietnam, have reported that non-cash payment just accounts for one percent, and no more than five percent of the total turnover of the retailers. Total

mean of payment is the money supply in the economy, which is used in circulation. The use of cash in payment is an important measurement of the information technology application in commercial bank services.

The purpose of Decree 2543/QĐ-TTg is at the end of 2015, cash in the total mean of payment is under 11 percent, increase the rate of citizen has bank account from 30 to 40 percent of population. As it can be seen from Figure 5, the rate of cash in total means of payment in around 13 past years in Vietnam decreased significantly from 23.7% in 2001 to 14.6% in 2008 (nearly 50%) and keep this trend to 12.6% in 2013.

Figures 5: The rate of cash in total means of payment in Vietnam, 2001 - 2013 (%)



(Source: sbv.gov.vn)

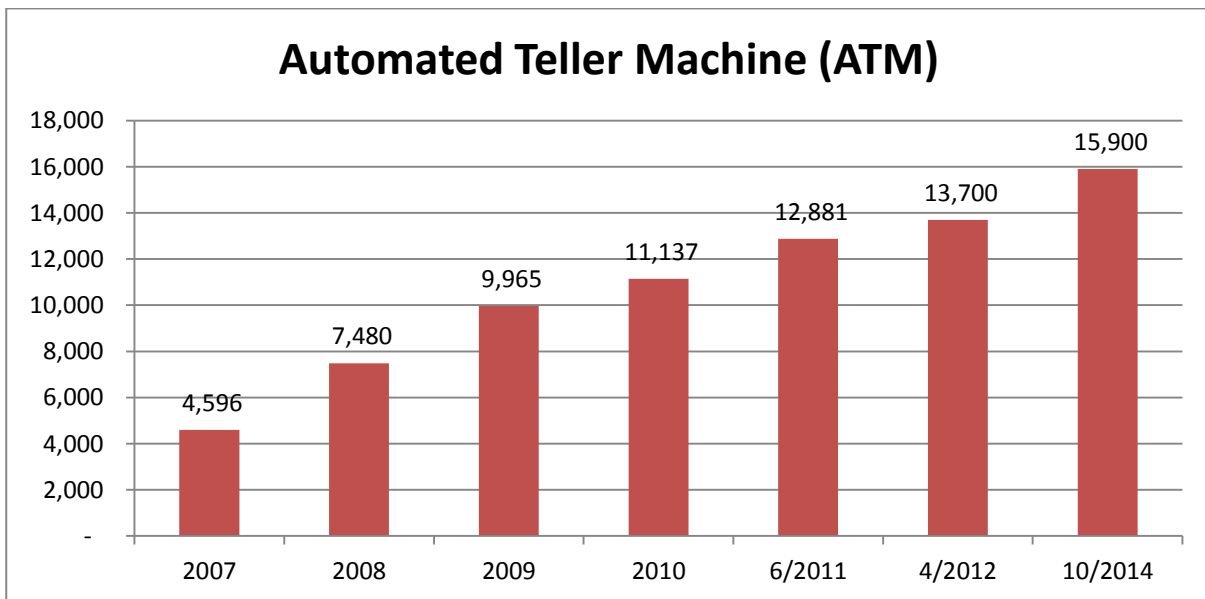
Although the rate of cash in total means of payment in Vietnam has reduced annually, it still remains at a high level in comparison with statistics of other countries – for instance, it is 0.7% in Sweden, 1% in Norway, and 10% in China. However, the speed to reduce the rate of non-cash payment in Vietnam appears to be slower than countries such as Sweden. In 1999, Sweden was considered as a cash economy when the rate of total mean of payment of the country increased over 17%, however, after performing the non-cash revolution payment, this rate reduced to 0.7%.

Bank card has become a popular means of payment in Vietnam, which is emphasis to develop by banks, with rapid growth rate. Compared with some previous years, payment via the electronic system and communication channels in Vietnam is rapidly increasing. The country also had a big banking project, the Vietnam Payment System and Banking System Modernization Project, which was approved by World Bank in 2003. The deployment of Decision 291/2006/QĐ-TTg of Prime Minister approving the scheme on non-cash payment in Vietnam in the 2006 – 2010 period and orientation to

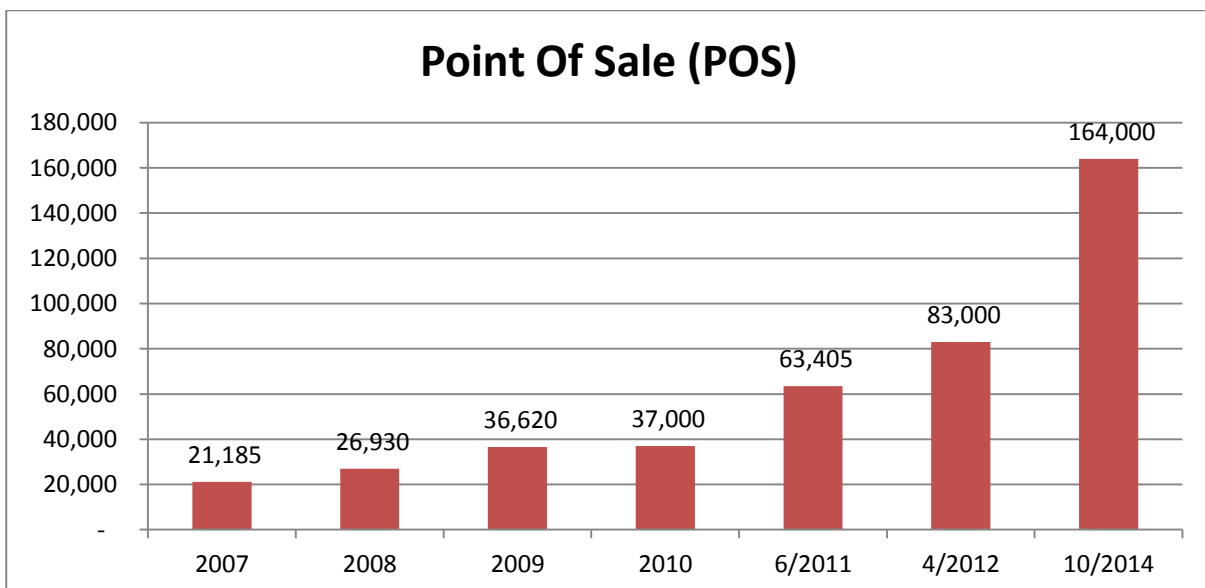


2020, especially the Instruction 20/2007/CT-TTg date 24/8/2007 of Government and Instruction 05/2007/CT-NHNN date 11/10/2007 of the State Bank of Vietnam mandating that salaries must be paid to state employees directly through their bank accounts. In 2006, Vietnam market had nearly 3.1 million bank cards with 70 card brands in total, and by 4/2012, these numbers reached to 44.6 million cards with 300 card brands of 52 card issuers, 12 times height compare to 2006, a rapid growth including 89% domestic debit card (equal to 32.4 million card). Moreover, there are 13,700 ATMs, 83,000 POSs were installed and over 33,000 POS were connected together and increased to 15,900 ATMs and over 164,000 POSs in October 2014 (State Bank of Vietnam).

Figures 6: Number of ATM in Vietnam, 2007 – 2014 (unit)



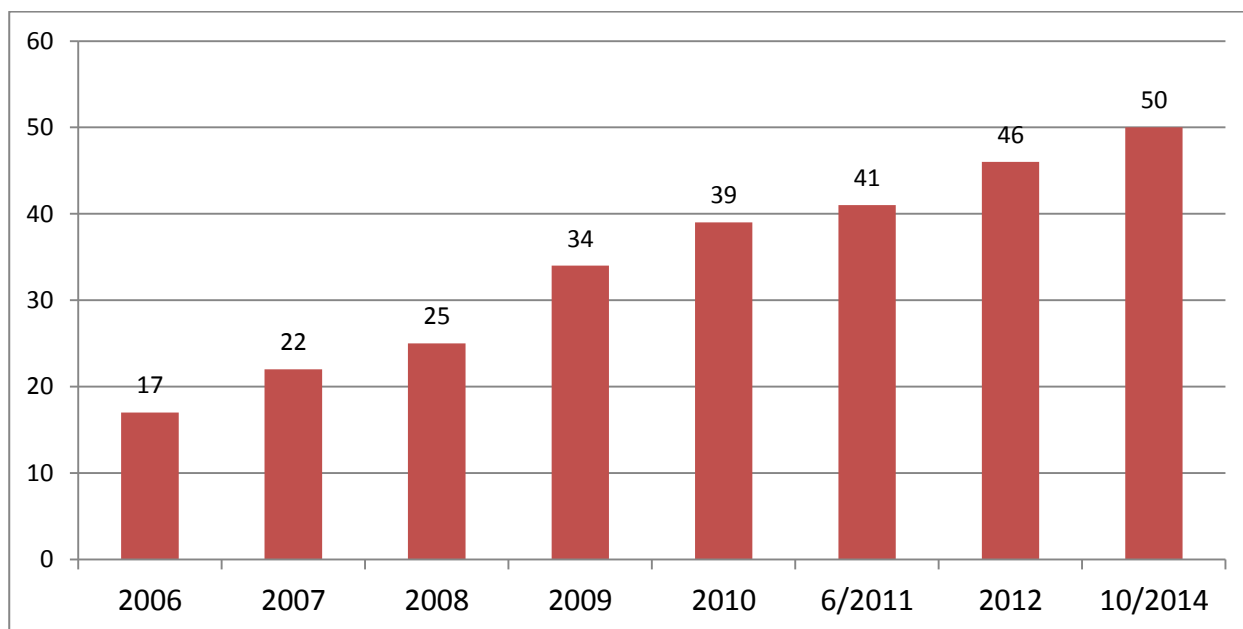
Figures 7: Number of POS in Vietnam, 2007 – 2014 (unit)



(Source: Annual report of Vietnam Card Association, 2014)

As it can be clearly seen from Figures 6 and Figure 7, the number of ATMs and POS increased gradually through the years. In 2007, the number of ATMs and POS cards were 4,596 and 21,185 units respectively, these numbers increased rapidly to 15,900 and 164,000 units in October 2014.

Figures 8: Number of banks issuing cards in Vietnam, 2006 – 10/2014



(Source: Annual report of Vietnam Card Association)

The development of card services has increased more channels for banks raising capital and developing additional services, which provide to customers through their accounts at bank and offer the added value of card products with different utilities. As indicated in Figures 8, the number of banks issuing cards increased gradually from 17 banks in 2006 to 39 banks in 2010 and 50 banks in October 2014. Along with the release of multi-functional cards and invest more POS at the POS unit, commercial banks began to pay more money for safety concerns and security of payment cards. Some commercial banks issued chip cards with high security, safety and ability to integrate multi-functional networks, which are safer for customers.

The transition from magnetic stripe to chip cards is consistent with the general trend which has important implications, such as opening up of new opportunities for development and expansion of card payment services. By October 2014, Vietnam market had over 77.3 million bank cards, which is a significant increase of around 38 times, from 2 million bank cards in 2005; the number of ATM machine grew 15 times from 1,200 ATMs in 2005 to 15,900 ATMs; the number of POS increased 164 times from 10,000 POS in 2005 to 164,000 POS. In 2010, there were 28 million transactions by cards, whereas in 2005 there were only 20.2 million transactions, which increased to over 8 million

transactions. However, if making a comparison with other developed countries, these are still small numbers (Table 1).

Table 1: The number of ATM, POS and card per person in some countries, 2010

(Unit)

Country	ATM	POS	Number of card per person
The USA	406,100	5,175,000	3.34
China	301,000	3,330,000	n/a
Japan	139,200	1,706,100	2.57
Singapore	2,000	83,900	2.35
England	63,900	1,095,000	1.49
Canada	60,200	630,500	1.41
Indonesia	31,743	281,942	n/a
Belgium	11,500	124,900	1.26
Germany	79,500	593,000	0.91
India	96,942	667,963	n/a
France	53,300	1,376,600	0.88
Italia	54,700	1,334,500	0.57
<b>Vietnam</b>	<b>11,137</b>	<b>37,000</b>	<b>0.28</b>

(Source: Bank for International Settlements)

If the financial access level is measured by the number of bank branches and ATMs per 100,000 persons, in Vietnam in 2010, the system of credit institutions included 5 state commercial banks with 1,405 first level branches, 37 joint-stock commercial banks with 1,830 head offices, branches and trading offices. Thus, the average rate of branches, trading offices per 100,000 persons is about 3.72. This rate is equal to that of Philippines (nearly 4), but lower than those of Thailand and Indonesia. Vietnam falls far behind when compared with developed countries in OECD, whose rates stand around 27. Besides, the distribution of bank branches and trading offices are not even throughout the country, as they tend to congregate on main economic areas like Hanoi and Hochiminh city, thus, there is difficulty in making opportunities for electronic transactions available for remote or mountainous area. In Vietnam, the number of people using bank cards is lower than in any other Asian country. In other word, Vietnamese prefers cash to electronic payment. Though the speed of bank card issuance in 2006

– 2010 reached 150% - 200%, the rate of payment remained under 5%. The usage of ATMs card to withdraw through ATM systems covers about 70% - 80% transactions (The State Bank of Vietnam, 2011).

While almost banks in Vietnam now have their own websites to communicate with their customers and to publicise their information, commercial banks are still reluctant to adopt e-banking as the major instrument for growth. The standard format of bank identifier code, SWIFT was introduced in Vietnam in March, 2005. However, in 2007, only a few banks such as Vietcombank, Vietinbank (formerly, the Vietinbank), ACB, Eximbank, ANZ and CitiBank provided home banking. Vietcombank, Techcombank, HSBC, ANZ and Citibank offered telephone banking. Vietinbank, ACB and Techcombank started the first step to mobile banking (Bank in Vietnam, 2007). Only a few banks as Citibank, HSBC, Deutsch Bank, ANZ bank provided real e-banking for business customers. In addition to basic utilities such as query account information, view exchange rates, interest rates, account statements and transaction information, the e-banking service also allows customers use bill payment services such as payment for electricity, water, telecommunications, insurance, toll road, securities transaction costs, save online.

A report released by the US Research & Markets in late 2011 showed that Vietnam is one of the most dynamic markets in the world with its high growth rate of 18.5 percent per annum to be expected until 2014. Until July, 2012 there are 43 banks are running e-banking services while 19 banks provide customers with mobile banking at different levels (Banking Vietnam 2013). Visa card is the most recognized payment cards method. As reported by Vietnam Bank Card Association, the number of ATMs rocketed from 1,800 in 2005 to 11,137 in 2010 and 15,900 in 10/2014, while the number of credit and debit cards issued till October 2014 doubled to 77.3 million cards, increased 10 million cards in comparison with the same periods in 2013 (baomoi.com). This could be due to an increase in household income and rising demands for retail banking. The story of e-payment systems seemed less intriguing compared to ATM banking. The reasons for this comparison were probably lack of secured means of on-line payment. E-banking is hampered due to high rate of fraud. The bank suffered from a loss of USD 37 million from banking fraud in the first six month of 2008. To overcome the high fraudulence rate of internet banking, as early as 2009 the State Bank of Vietnam introduced a new online payment system with advanced security protection of technology. This new centralized e-payment system covered 1500 branches and 63 banks. The system performs 2 million transactions worth of USD 1.9 billion per day.

The issue of e-banking security has become a much contested topic in many recent conferences on technologies and banking. A research conducted by BKIS Security Vietnam in 2010 with 20 biggest banks of Vietnam - who have adopted e-banking - on their web security level, revealed that security remained the biggest issue that prevent e-banking from thriving. At the conference on “Web security problems of e-banking in Vietnam” in 2010, Mr. Nguyen Minh Duc, the Director of BKIS Security indicated that all 20 banks examined have problems with their network security. These problems included issued related to: personnel, process, ICT network, transmission, the central management platform and environment, and e-banking technology applications (Davis, 1989). These problems could pose great obstacles in smooth implementation of e-banking in Vietnam.

Mobile banking appeared in Vietnam in 2003, but so far, most commercial banks only use the SMS channels to query general information and bank account information. Although the function of payment/transfer on the mobile banking channel was developed in 2006 but until December 2014 there are 32 banks provide these services (baomoi.com). In general, mobile banking is not a common payment channel in Vietnam. Mobile banking did not show very exciting signals either. As e-banking moves slowly and cautiously forward, mobile banking in Vietnam has only made a few baby steps. Main operators such as VNPT, Mobifone and Viettel have been making attempts to form alliances with banks to build up mobile payment systems that would leverage extending their pool of mobile customers. However, due to limited technological aptitude, these mobile payment systems remained only moderately functional. Basically current mobile banking are SMS-based, a rather primitive way to access bank resources and information. On top of that, the question of network security is still looming, making it hard to inject a big push in this segment of e-banking in Vietnam. With a sizable pool of online and mobile-banking population, Vietnam market holds great potential for e-banking.

The high growth economy also needs speedy circulation of capital to meet up with its capacity. E-banking has only emerged as a phenomenon in Vietnam in over last ten years, which explains its modest achievements and the country’s caution in adopting it. Despite the zeal and exuberance of customers when first exposed to this high-end way of banking, the question of network security still hover over most e-banking plans and strategies.

Most of the banks have been implementing e-banking services besides traditional ones, for example:

- The bank for Foreign Trade of Vietnam (Vietcombank) started introducing e-banking services in December, 2001. Vietcombank’s e-banking services allow customers to transfer money electronically; to get access to information on bank accounts such as the account balances; learn exchange rates; credit card and debit card information; to make a payment for services such as buying e-tickets,

electricity, water, telecommunications, insurance, and ... Moreover, Vietcombank's Connect 24 Card allows customers to withdraw money from their private accounts, check their account balance, make statement enquiry and transfer funds. By the end of 2014, Vietcombank has installed more than 2,100 ATMs and nearly 49,500 POS (28% market share) in big cities and provinces of Vietnam. Vietcombank had also issued over two million cards of various types to their customers (Vietcombank Annual Report 2013).

- The Industrial and Commercial Bank of Vietnam (Vietinbank) started introducing electronic banking services in October, 2000. These services so far allow customers only to get access to information such as their balance, their recorded transactions, interest rates, exchange rates, etc through the bank website. By the end of 2013, Vietinbank has issued 7.1 million domestic debit cards (21% market share), over 211,000 credit cards (30% market share), and over 49,600 POS (20.7% market share) (Vietinbank Annual Report, 2013).

Vietinbank has also launched telephone banking, mobile banking and internet banking. These projects receive supports from world leading computing companies and local telecommunication service companies. For instance, a telephone banking project carried out in co-operation with Fujitsu Co. Ltd was launched in November 2002; a mobile banking initiative with Intel and HP was launched in the first quarter of 2003; and an internet banking project with Intel, HP and Vietnam Data and Communication Corporation (VDC) was launched in the second quarter of 2003 (Vietinbank Annual Report, 2011).

- The Bank for Investment and Development of Vietnam (BIDV) has provided home-banking service since 1998. Customers can check their account balance, transfer money and pay bills from their home or office. The BIDV also launched ATM services in 2002. By the end of 2013, BIDV has issued 3.2 domestic debit cards (9% market share), 30,547 international credit cards (3% market share), and over 1,441 ATMs and 10,600 POSs (BIDV Annual Report, 2013). BIDV officially launched internet banking services in the second quarter of 2003 (BIDV Annual Report, 2011). In addition, the BIDV phone banking service was launched in 2004. Because BIDV's branches are limited to main cities and town, BIDV internet banking and phone banking (SMS style) predominantly target the high income and corporate customers.

- Vietnam bank for Agriculture and Rural Development (Agribank) started launching its e-banking services in 2003. By the end of 2010, Agribank has issued 6,388,126 cards of various types and set up 1,704 ATMs and over 4,000 POS in branches and some supermarkets in main cities and towns

(Agribank annual report, 2010). The bank's customers can both withdraw and obtain limited overdraft facilities from Agribank's ATMs. With a network of 2,300 branches and 1,393 transaction offices nationwide, Agribank has co-operated with the Western Union in providing remittance services to Vietnamese overseas customers and migrant labours in 2,800 spots throughout Vietnam (Agribank Annual Report, 2011).

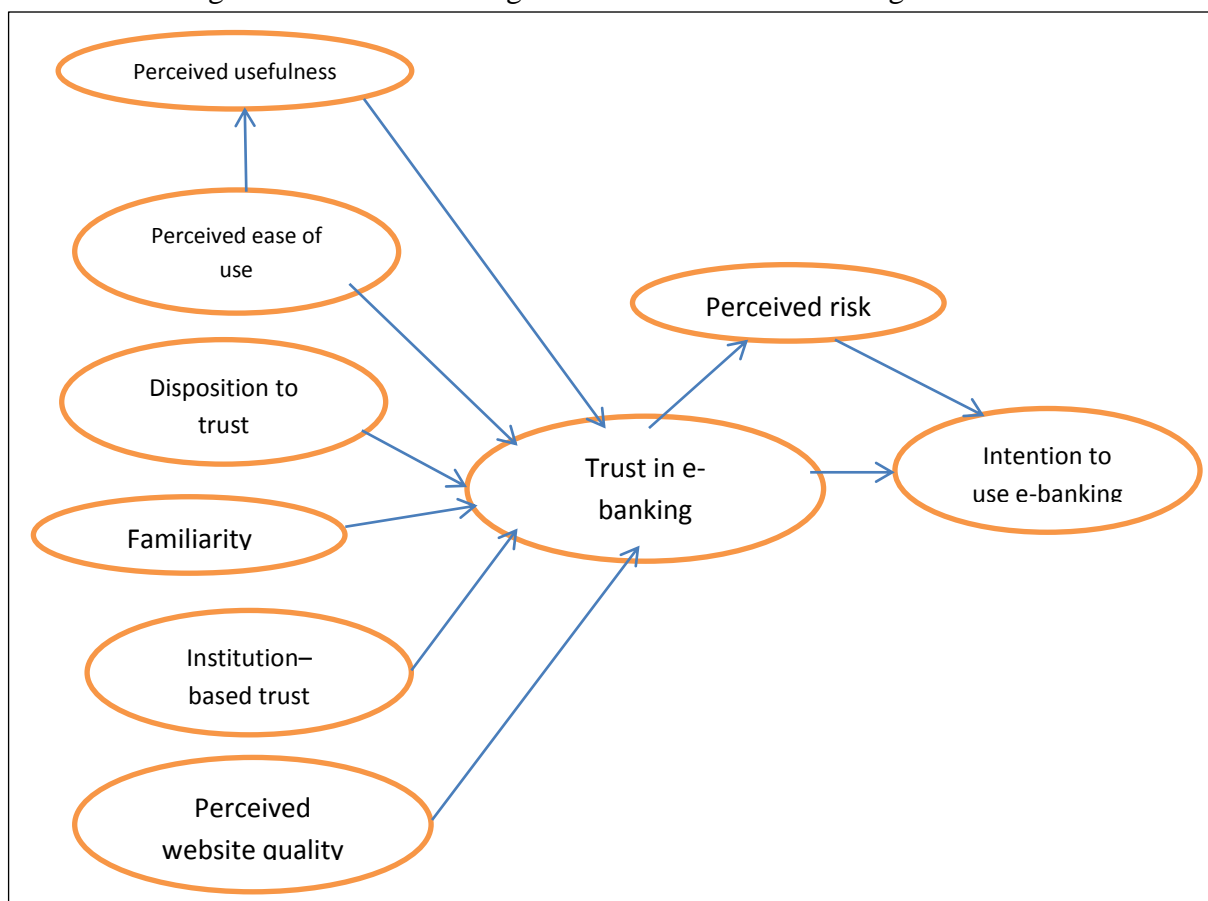
Most of the other local banks and all the foreign banks operating in Vietnam have been offering e-banking services. For instance, ANZ's electronic banking offers customers secure and immediate electronic banking services which include account balance inquiries, transaction history, funds transfer between accounts, account statement ordering, check book ordering and information on exchange rates.

#### **4. Factors affecting customers' trust in e-banking: A field survey**

##### **4.1. Factors affecting customers' trust in e-banking: a theoretical analysis**

The flow chart, adopted from McKnight et al. (2002) and Yousafzai et al. (2003), investigates the factors affecting customers' trust in using electronic banking in Vietnam. When compared to traditional banking methods, e-banking has many advantages that provide benefits to banks, customers and economies. However, e-banking also has disadvantages that bring many challenges for banks, such as security and privacy, cost and risk. Previous research on e-banking, both in an international context and in the Vietnamese context, has provided considerable knowledge regarding factors and variables that impact the adoption of e-banking. Trust has been constantly examined as critical among the many factors identified from the literature review as affecting the adoption of e-banking. However, factors that influence this trust have not been identified. Therefore, this flow chart aims to identify factors that affect customers' trust in using e-banking in Vietnam. The intention to use e-banking depends on perceived risk and customers' trust which, in turn, depends on several selected factors: perceived usefulness, perceived ease of use, disposition to trust, familiarity, institution-based trust, and perceived website quality (see Figure 9).

Figure 9: Factors affecting customers' trust in e-banking: A flow chart



#### (1) Perceived ease of use and Perceived usefulness

Perceived ease of use and perceived usefulness, the components of the Technology Acceptance Model (TAM) (Davis, 1989), explore why users accept or reject information technology. Perceived usefulness is the degree to which a user believes that using a particular system enhances his or her job performance; perceived ease of use is the degree to which a user believes that using a particular system is easy and free of effort (Davis, 1989). In this research, the perceived usefulness construct is defined as the degree to which customers believe that using e-banking is more effective than using traditional banking methods or that it will help them perform their job better. The perceived ease of use construct is defined as the degree to which customers believe that using e-banking is easy and free of difficulty.

#### (2) Disposition to trust

In this research, “disposition to trust” is defined as the general propensity to trust others in an e-commerce context (McKnight et al., 2002) and in a management context (Mayer et al., 1995; Kramer, 1999). It represents the inclination to trust other people (Ferres et al., 2004). McKnight et al. (2002) define disposition to trust as meaning “the extent to which one displays a consistent tendency to be willing to depend on general others across a broad spectrum of situations and persons”. It is also defined as personality traits that are formed through an individual’s lifetime (Tan and Sutherland,



2004). These traits are dependent on cultural background, personality type and developmental experience (Lee and Turban, 2001). Moreover, they can be defined as one's general propensity to trust another (Bélanger and Carter, 2008). McKnight et al. (2002) suggest that disposition to trust is composed of two concepts: (i) faith in humanity, which includes benevolence, integrity, competence, and (ii) trust stance. Faith in humanity assumes others are good-natured and dependable. Trust stance assumes that better outcomes result from dealing with people as if they are well-meaning and reliable.

### (3) Familiarity

“Familiarity” here means past interactions with online banking vendors (Pavlou, 2002). Familiarity is the antecedent of knowledge-based trust (Gefen et al., 2003). Yamigishi and Yamigishi (1994) stated that knowledge-based trust depends on history, information and experience. Familiarity lessens confusion about website procedures and reduces the possibility that the customer may feel he/she is being taken unfair advantage of (Gefen et al., 2003). Trust is developed over time with accumulation of trust-relevant knowledge, resulting from experience with the other party (Gefen et al., 2003). In general, familiarity with what is going on, and why it is happening with the parties involved, creates trust in business relationships. This accumulated trust-relevant knowledge and successful previous interactions lead to higher levels of trust (Gefen et al., 2003).

### (4) Institution-based trust

“Institution-based trust” is the belief that required structural conditions are present (e.g., in the Internet) to enhance the probability of achieving a successful outcome in an endeavour such as e-commerce (McKnight et al., 2002). Institution-based trust refers to a person's sense of security from guarantees, safety nets or other impersonal structures inherent to a specific context (Gefen et al., 2003a). Institution-based trust means one believes that favourable conditions are in places that are conducive to situational success in an endeavour or aspect of one's life (McKnight and Chervany, 2002). In the internet context, “favourable conditions” refers to the legal, regulatory, business, and technical environment perceived to support success. Institution-based trust will lead to higher levels of trust in e-vendors in the context of online shopping (Chang et al., 2005). Institution-based trust is subdivided into structural assurance and situational normality. In the former, one believes that structures like guarantees, regulations, promises, legal recourse, or other procedures are in place to promote success; in the latter, one believes that the environment is in proper order and success is likely because the situation is normal or favourable (McKnight et al., 1998; McKnight et al., 2002; McKnight and Chervany, 2001; Gefen et al., 2003; Ratnasingam, 2005).

#### (5) Perceived website quality

“Perceived website quality” means the impression of how well a website is built and operationalized. Perceived website quality was the users’ evaluation of a website’s feature, as to whether it meets their needs, and also their reflection on the overall excellence of the website (Hwang and Kim, 2007). Previous studies have shown that if a person perceives a website to have a high level of quality, they will be willing to explore the website without considering risks; and will be more likely to have trusting intentions in the website which involve risks (McKnight et al., 2003; Kim and Tadisina, 2005; Wakefield et al., 2004). Other studies defined perceived website quality as relating to the quality of the website’s graphics, structure and content (Wang and Emurian, 2005; Yang et al., 2005). The perceived website quality is identified by two dimensions: navigation and presentation (Corbitta et al., 2003; Stephen, 2004; Kim and Tadisina, 2005, Flavian et al., 2006). Navigation relates to the structure and the ability to search the content of websites; presentation deals with the customer’s perception of the textual, graphical, and layout presentation of websites. In the current study, perceived website quality is defined as a customer’s perception of the quality of an e-banking website.

#### (6) Trust in e-banking

“Trust” is defined as an individual’s belief or expectation that another party will perform an important action on the truster (Mayer et al., 1995). Trusting beliefs are perceptions of the trustworthiness of the object of trust (Mc Knight and Chervany, 2001). Trusting beliefs can include three main dimensions: benevolence, integrity, and competence. Benevolence is trustee caring and motivation to act in the truster’s interests; integrity is trustee honesty and promise keeping; and competence is ability of trustee to do what the truster needs (Mayer et al., 1995; Mc Knight and Chervany, 2001; Pavlou, 2002; McKnight et al., 2002; Suh and Han, 2002).

#### (7) Perceived risk

“Perceived risk” in an economics context refers to the nature and amount of risk perceived by a consumer in contemplating a particular purchase decision (Cox and Rich, 1964). Perceived web risk means the extent to which a user believes that it is unsafe to use the web or that negative consequences are possible (Harrison McKnight et al., 2002). The meaning of perceived risk is closely related to trust and has been identified as a significant factor for online shopping (Lim, 2003). Theoretically, consumers perceive risks because they face uncertainty and are concerned about the potentially undesirable consequences of purchases they make. Thus, the more risk they perceive, the less likely they are to purchase. Perceived risk has a powerful effect on consumers’ behaviour because “consumers are more often motivated to avoid mistakes than to maximise utility in purchasing” (Lim,

2003). Perceived risk in this study is defined as the customers' perception of the risk of using e-banking, including security and privacy risk, performance risk, and time risk.

#### (8) Trusting intention: Intention to engage in e-banking

The "Intention to engage in e-banking" means that a customer feels secure in depending, or intends to depend on e-banking services; the willingness to depend (volitional preparedness to make oneself vulnerable to e-banking services) and the subjective probability of depending (the perceived likelihood that one will depend on the other) form two distinct sub-constructs of trusting intentions (McKnight et al., 2002). The study assumes that the consumer subjective probability of depending involves the projected intention of the willingness to engage in three specific risky behaviours: to provide personal information, to pay for e-banking services and to rely on e-banking website information.

### **4.2. Field survey design and data collection**

This sub-section analyses the customers' attention to use e-banking and assesses the factors underlying the customers trust in using e-banking services. A comprehensive field survey is conducted in several provinces of Vietnam to collect primary data for the analysis. The questionnaire survey was conducted from 1st July to 30th November, 2013 in the North (Phu Tho, Ha Noi and Thai Binh), in the Centre (Thanh Hoa, Nghe An and Ha Tinh), and in the South of Vietnam (Ho Chi Minh city, Binh Duong, and Lam Dong). The questionnaire was presented to participants in two ways: either as hard-copy questions directly in bank customer meetings or as a link to the Web survey site (<https://prodsurvey.rcs.griffith.edu.au/prodls190/index.php?sid=63492&lang=en>) sent by email to bank customers. In total, there were 557 responses; 93 of these samples were not used because there were missing values. The rest, 464 samples, were gathered and eligible for data analysis (178 samples supported via the Web survey; 286 samples collected via bank customer meetings). Direct delivery of the survey questionnaire and sending via email addresses to participants were preferred rather than using postal surveys because the postal service in Vietnam is not reliable and the use of online surveys would exclude non-adopters of e-banking services. There are no missing data in the sample because online participants could not submit their online responses with missing values via the Web survey and all hard copies of the questionnaire survey with missing values were not used.

### **4.3. Field survey results and analysis**

Measurement items used in this study are either adapted from previously validated measures or developed based on the literature review. A seven-point likert scale ranging from (1) "strongly disagree" to (7) "strongly agree" is used to assess responses. Items from previous studies were modified for adaptation to the e-banking context. Table 2 summarizes the demographic characteristics

of the respondents. More than half of all participants were female (56.47%). Participants range in ages from 21 to above 60 years, with the largest age group from 31 to 40 (43.32%), followed by ages 21-30 (38.15%) (Table 2). Most of the participants graduated bachelor (57.54%), master (18.97%), and the lowest percentage (0.43%) having a postgraduate education. Government employees comprised 29.53% of the sample, private employees were 31.47%, and the largest group was made of people with other career (37.93%). Most participants were daily user of the Internet (90.95%). More importantly, most of the participants used e-banking website within the last 6 months is 45.26% and the following group used e-banking websites over 3 years counts for 30.17% (Table 2).

The responses of the participants on various factors affecting the customers' trust in the use of e-banking are presented in Appendix-Table-1 to Appendix-Table-9. The results show that trust has a positive effect on the behavioural intention to use e-banking (Suh and Han, 2002; Nguyen et al., 2014). The expectation is that the perceived usefulness, perceived ease of use, disposition to trust, familiarity, institution-based trust, and perceived website quality will have a positive effect on trust in e-banking. Trust in e-banking will have a positive effect on intention to use e-banking and perceived risk.

Table 2: Descriptive statistics of respondent's characteristics

Respondents characteristics	Value	Number of respondents (n=464)	Percentage (%)
Gender	Male	202	43.53
	Female	262	56.47
Age	Under 20	0	0
	21-30	177	38.15
	31-40	201	43.32
	41-50	56	12.07
	51-60	28	6.03
	Above 60	2	0.43
Education	High school	9	1.94
	College Diploma	69	14.87
	Bachelor	267	57.54
	Master	88	18.97
	Doctorate	2	0.43
	Other	29	6.25
Occupation	Government employee	137	29.53
	Private employee	146	31.47
	Student	5	1.08
	Other	176	37.93
Income (in million VND)	Less than 5	144	31.03
	6-10	202	43.53
	11-20	73	15.73
	21-30	25	5.39
	31-50	10	2.16
	More than 50	10	2.16
Frequency use the Internet	Once a month	4	0.86
	Once a week	10	2.16
	Between 2 and 5 times a week	27	5.82
	Daily	422	90.95
	Other	1	0.22
First visit e-banking website	Recently (within the last 6 months)	210	45.26
	More than six month but less than a year	34	7.33
	More than one year but less than three years	76	16.38
	More than three years ago	140	30.17
	Other	4	0.86

## **5. Conclusion**

This paper undertakes an in-depth account of the growth and development of the financial sectors with a specific focus on the growth and development of its electronic banking sub-sector. Within a short period of time, Vietnam's banking sector has transitioned from one dominated by state-owned commercial banks and no foreign participation to one with a more diversified set of market participants, including state-owned banks, partially privatized banks, joint ventures and foreign institutions. Together with Vietnam's entry into the WTO in 2007, its banking sector is increasingly being deregulated in accordance with the requirements set up by the WTO. These policy changes seem to indicate that fierce competition among local banks and foreign banks in Vietnam have been occurring. Vietnamese banks have to adopt the internet as primary service delivery channel in order to survive the competition. One of the significant developments in the banking sector has been the use of e-banking services. While Vietnam is still a cash economy, ATM transactions have become a daily experience for most Vietnamese. According to the Vietnam Card Association, the spending turnover of cards of different kinds reached 5.6 billion USD with over 28 million transactions in 2013, showing an increase of 20 percent and 34 percent respectively in comparison with the turnover in 2012. The government announced a comprehensive reform program designed to address the problems faced by the financial and corporate sectors. The reform program was officially documented in the Socio-Economic Development Plan for the period 2011–2015. The study undertook a comprehensive filed survey and evaluated the factors that affect customers' trust in e-banking in the Vietnamese setting. The sample consists of 464 Vietnamese participants who have used and are using e-banking services. The survey encompasses selected provinces in the northern, central, and southern Vietnam. The results show that the perceived usefulness, perceived ease of use, disposition to trust, familiarity, institution-based trust, and perceived website quality have a positive effect on trust in e-banking. Trust, in turn, has a positive effect on the behavioural intention to use e-banking. The findings of the paper are expected to provide Vietnamese bank managers and policy makers with knowledge of the factors affecting customers' trust and help them devise appropriate strategies for developing their e-banking services to attract more new customers and retain the existing ones.

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Appendix-Table-1: Participants' responses on the perceived ease of use (Total participants: 464)

No	Questions	Code	Strongly disagree	Disagree	Disagree somewhat	Undecided	Agree somewhat	Agree	Strongly agree
1	It is easy for me to become skilful at using the e-banking	PEOU1	1.08%	2.59%	3.45%	4.09%	17.67%	56.25%	14.87%
2	I find e-banking easy to what I want to do	PEOU2	1.08%	1.08%	3.66%	3.02%	16.16%	61.42%	13.58%
3	It is easy for me to learn how to use the e-banking	PEOU3	0.86%	1.94%	2.16%	4.96%	17.67%	58.62%	13.79%
4	I find e-banking to be flexible to interact with	PEOU4	0.86%	2.16%	1.08%	3.66%	16.16%	60.99%	15.09%
5	My interaction with e-banking is clear and understandable	PEOU5	0.86%	1.08%	0.43%	2.59%	19.83%	61.85%	13.36%
6	Overall, I find e-banking easy to use	PEOU6	1.08%	1.08%	0.65%	3.66%	16.38%	64.01%	13.15%

Appendix-Table-2: Participants' responses on the perceived usefulness (Total participants: 464)

No	Questions	Code	Strongly disagree	Disagree	Disagree somewhat	Undecided	Agree somewhat	Agree	Strongly agree
1	Using e-banking improve my performance of utilizing banking service.	PU1	1.08%	0.86%	0.22%	4.74%	10.56%	67.03%	15.52%
2	Electronic banking can enhance the effectiveness of customers' transactions with bank	PU2	0.65%	0.22%	0.86%	2.37%	10.99%	67.03%	17.89%
3	Using e-banking services enables me to utilize banking service more quickly.	PU3	0.86%	0.43%	0.86%	1.72%	8.19%	65.73%	22.20%
4	Using e-banking for my banking service increase my productivity.	PU4	0.86%	0.00%	0.86%	4.31%	11.21%	64.66%	18.10%
5	I find e-banking useful for my banking activities	PU5	0.86%	0.22%	0.86%	2.37%	7.54%	67.03%	21.12%
6	Using e-banking makes it easier to do my banking activities	PU6	0.86%	0.22%	1.08%	3.02%	12.93%	65.52%	16.38%
7	Using electronic banking can reduce queuing time	PU7	0.86%	0.22%	0.43%	1.51%	8.62%	58.19%	30.17%
8	Using electronic banking can cut travelling expense	PU8	0.86%	0.22%	0.43%	0.65%	5.17%	57.97%	34.70%



Appendix-Table-3: Participants' responses on the disposition to trust (Total participants: 464)

No	Questions	Code	Strongly disagree	Disagree	Disagree somewhat	Undecided	Agree somewhat	Agree	Strongly agree
1	In general, people really do care about well-being of others	DT1	1.29%	2.80%	3.45%	17.46%	29.09%	42.24%	3.66%
2	The typical person is sincerely concerned about the problems of others	DT2	0.22%	0.86%	1.94%	7.97%	22.63%	55.39%	10.99%
3	Most of the time, people care enough to try to be helpful, rather than just looking out for themselves.	DT3	0.86%	6.90%	6.25%	17.89%	32.33%	33.62%	2.16%
4	In general, most folks keep their promises	DT4	1.72%	5.82%	7.97%	14.87%	35.99%	31.68%	1.94%
5	I think people generally try to back up their word with their action.	DT5	0.86%	4.53%	4.53%	11.64%	28.23%	46.77%	3.45%
6	Most people are honest in their dealings with others	DT6	1.72%	8.62%	7.76%	15.95%	33.62%	30.39%	1.94%
7	I believe that most professional people do a very good job at their work.	DT7	0.65%	3.02%	5.82%	6.68%	26.29%	53.66%	3.88%
8	Most professionals are very knowledgeable in their chosen field	DT8	0.86%	1.08%	3.02%	7.11%	23.49%	58.62%	5.82%
9	A large majority of professional people are competent in their area of expertise	DT9	0.86%	3.02%	3.45%	11.85%	29.74%	47.63%	3.45%
10	I usually trust people until they give me a reason not to trust them	DT10	0.65%	5.39%	6.25%	15.09%	26.94%	42.03%	3.66%
11	I generally give people the benefit of the doubt when I first meet them	DT11	1.08%	3.66%	6.47%	17.67%	27.37%	40.09%	3.66%

Appendix-Table-4: Participants' responses on the familiarity (Total participants: 464)

No	Questions	Code	Strongly disagree	Disagree	Disagree somewhat	Undecided	Agree somewhat	Agree	Strongly agree
1	I am familiar with looking for bank services on the internet	FM1	0.86%	4.96%	2.16%	9.27%	27.37%	49.57%	5.82%
2	I am familiar with conducting online transactions with bank on the internet	FM2	1.08%	5.39%	3.02%	9.48%	26.08%	46.98%	7.97%
3	I am familiar with electronic banking websites	FM3	0.43%	5.17%	3.23%	9.05%	32.33%	43.10%	6.68%
4	I am familiar with communicating with bank agencies through their official websites	FM4	0.43%	6.03%	3.45%	11.42%	30.60%	42.03%	6.03%

Appendix-Table-5: Participants' responses on the institution-based trust (Total participants: 464)

No	Questions	Code	Strongly disagree	Disagree	Disagree somewhat	Undecided	Agree somewhat	Agree	Strongly agree
1	I feel good about how things go when I do request bank services via electronic banking websites	IBT1	0.43%	1.94%	2.37%	6.03%	27.80%	55.60%	5.82%
2	I feel that the steps required to search for and to request bank services via bank's websites are normal and reasonable	IBT2	0.43%	0.65%	2.59%	6.68%	20.47%	64.44%	4.74%
3	The information requested of me at electronic banking website is normal and make sense	IBT3	0.43%	1.08%	2.16%	5.39%	19.40%	65.30%	6.25%
4	The internet has enough safeguards to make me feel comfortable using it to transact personal business	IBT4	1.08%	5.82%	7.11%	8.41%	28.23%	45.69%	3.66%
5	I feel assured that legal and technological structures adequately protect me from problems on the internet	IBT5	1.08%	6.68%	7.11%	10.13%	27.37%	45.04%	2.59%
6	I feel confident that encryption and other technological advances on the internet make it safe for me to do business there	IBT6	1.08%	4.09%	6.47%	8.41%	27.16%	48.92%	3.88%
7	In general, the Internet is now a robust and safe environment in which to transact business	IBT7	0.86%	4.09%	7.54%	9.05%	27.37%	46.55%	4.53%

Appendix-Table-6: Participants' responses on the perceived website quality (Total participants: 464)

No	Questions	Code	Strongly disagree	Disagree	Disagree somewhat	Undecided	Agree somewhat	Agree	Strongly agree
1	Most of the electronic banking websites I have visited are easy to navigate	PWQ1	0.00%	2.59%	2.59%	8.84%	31.68%	50.22%	4.09%
2	The content of most of the electronic banking websites I have visited is easily accessible	PWQ2	0.00%	2.59%	2.59%	6.90%	27.59%	56.25%	4.09%
3	Most of electronic banking websites I have visited are intuitive	PWQ3	0.22%	1.94%	2.37%	11.85%	24.78%	53.88%	4.96%
4	Most of electronic banking websites I have visited provide sufficient information to search for the relevant bank services	PWQ4	0.00%	1.72%	3.66%	9.05%	22.63%	59.05%	3.88%
5	Most of electronic banking websites I have visited provide useful information to fulfil the online transaction.	PWQ5	0.22%	1.72%	2.80%	6.47%	23.06%	61.42%	4.31%
6	Most of the electronic banking websites I have visited are easy to read	PWQ6	0.22%	1.08%	3.02%	6.03%	24.14%	60.34%	5.17%
7	Most of the electronic banking websites I have visited are visually pleasing	PWQ7	0.22%	1.72%	3.88%	10.13%	28.66%	51.08%	4.31%
8	Most of the electronic banking websites I have visited are consistent throughout the site	PWQ8	0.22%	1.51%	4.09%	7.76%	24.57%	57.33%	4.53%

9	Most of the electronic banking websites I have visited are professionally designed	PWQ9	0.22%	1.72%	5.17%	8.62%	27.37%	52.59%	4.31%
10	Most of the electronic banking websites I have visited are show how users can contact and communicate with them.	PWQ10	0.00%	1.72%	4.74%	7.54%	26.72%	53.23%	6.03%

Appendix-Table-7: Participants' responses on the trust in e-banking (Total participants: 464)

No	Questions	Code	Strongly disagree	Disagree	Disagree somewhat	Undecided	Agree somewhat	Agree	Strongly agree
1	I believe that most electronic banking websites would act in the customers' best interest	TEB1	0.43%	0.86%	4.74%	8.19%	21.34%	54.31%	10.13%
2	If the customers require help, electronic banking websites would do their best to help them	TEB2	0.86%	1.51%	4.74%	11.85%	28.02%	45.47%	7.54%
3	I believe that most electronic banking websites are interested in the customers well-being, not just their own	TEB3	0.43%	0.86%	3.23%	10.34%	19.83%	55.39%	9.91%
4	I believe that most electronic banking websites will perform to the outmost of the customers' benefit	TEB4	0.43%	1.94%	3.88%	11.21%	23.28%	53.23%	6.03%
5	I believe that most electronic banking websites are trustful in their dealings with the customers	TEB5	0.65%	1.51%	4.53%	7.97%	21.98%	56.68%	6.68%
6	I would characterize electronic banking as honest	TEB6	0.00%	0.86%	3.02%	11.64%	17.03%	58.41%	9.05%
7	I believe that most electronic banking websites would keep their commitments	TEB7	0.43%	1.08%	2.80%	11.64%	17.89%	60.78%	5.39%
8	I believe that electronic banking websites are sincere and genuine	TEB8	0.00%	0.65%	2.80%	11.85%	19.83%	57.97%	6.90%
9	Electronic banking websites are competent and effective in providing bank services	TEB9	0.00%	1.08%	2.80%	9.48%	18.97%	61.21%	6.47%
10	The chance of having a technical failure in an electronic banking online transaction is quite small.	TEB10	1.29%	3.66%	7.54%	9.05%	28.45%	45.69%	4.31%
11	Customers can always predict performance of most electronic banking websites from their past experience with the websites	TEB11	0.43%	3.45%	3.02%	12.50%	28.66%	47.63%	4.31%
12	Electronic banking websites perform their role of providing bank information and procedures	TEB12	0.65%	0.22%	3.02%	7.11%	19.40%	63.15%	6.47%
13	Overall, electronic banking websites are capable of providing quality bank services	TEB13	0.43%	0.43%	2.37%	7.54%	18.10%	64.44%	6.68%

Appendix-Table-8: Participants' responses on the perceived risk (Total participants: 464)

No	Questions	Code	Strongly disagree	Disagree	Disagree somewhat	Undecided	Agree somewhat	Agree	Strongly agree
1	Using electronic banking website to transact with banks or other customers, I perceive that it is not secure to send sensitive information.	PR1	1.29%	10.56%	9.05%	12.93%	25.65%	36.42%	4.09%
2	I would feel insecure sending sensitive information via electronic banking websites	PR2	0.86%	9.70%	11.21%	13.79%	23.92%	36.42%	4.09%
3	When using credit card to pay for services through electronic banking websites I feel that credit card details are likely to be stolen or misused	PR3	1.72%	7.76%	8.84%	11.64%	29.09%	35.34%	5.60%
4	I would be concerned about the privacy of my personal information as it would be misused by the electronic banking websites	PR4	2.16%	11.42%	9.70%	12.07%	20.47%	37.07%	7.11%
5	Using electronic banking websites to pay for supplier services is risky	PR5	2.80%	26.08%	12.50%	12.72%	21.98%	22.20%	1.72%
6	Overall, it is not safe to transmit sensitive information over electronic banking websites	PR6	1.94%	12.50%	12.50%	13.79%	22.41%	32.33%	4.53%
7	As I consider transacting with bank agencies via electronic banking websites, I worry about whether they will perform as they are supposed to	PR7	1.51%	18.75%	7.97%	15.73%	23.92%	29.09%	3.02%
8	If I were to transact with bank agencies via electronic banking websites, I would be concerned that they would not provide the level of benefits that I would be expecting	PR8	2.16%	17.24%	11.21%	11.64%	27.59%	27.80%	2.37%
9	I am not confident about the ability of electronic banking websites to perform as expected	PR9	2.59%	22.41%	10.78%	12.72%	23.28%	26.08%	2.16%
10	Considering the possible problems associated with electronic banking websites performance, a lot of risk would be involved with bank services via electronic banking websites	PR10	1.51%	15.52%	12.07%	15.95%	25.22%	27.37%	2.37%
11	It would be risky to rely on the information provided in electronic banking websites	PR11	2.16%	25.65%	10.78%	14.87%	21.77%	23.06%	1.72%
12	Using electronic banking websites to search and request bank services could lead to an inefficient use of my time	PR12	2.80%	28.66%	12.72%	11.85%	18.32%	24.14%	1.51%
13	Using electronic banking websites to search and request bank services will take too much time or be a waste of time	PR13	4.53%	32.54%	12.50%	10.78%	15.73%	21.77%	2.16%

Appendix-Table-9: Participants' responses on the intention to use e-banking (Total participants: 464)

No	Questions	Code	Strongly disagree	Disagree	Disagree somewhat	Undecided	Agree somewhat	Agree	Strongly agree
1	I would be willing to provide credit card information to pay for services via electronic banking websites	IUB1	1.51%	6.03%	6.25%	9.70%	28.45%	45.47%	2.59%
2	I would be willing to pay to access information on electronic banking websites	IUB2	2.37%	9.05%	8.19%	10.34%	25.00%	42.46%	2.59%
3	I can always rely on information provided in electronic banking websites	IUB3	0.43%	0.86%	4.31%	9.27%	28.88%	53.23%	3.02%
4	I will follow the procedures and advices provided in electronic banking websites	IUB4	0.43%	1.08%	3.88%	9.05%	21.55%	58.62%	5.39%
5	I would be willing to provide my identification information to electronic banking websites	IUB5	1.51%	5.39%	5.82%	10.78%	26.08%	47.20%	3.23%
6	I would be willing to provide information like my name, address and phone number to electronic banking websites	IUB6	1.51%	5.60%	4.09%	8.19%	24.78%	51.08%	4.74%