Journal of Management Matters

Journal homepage: www.rjt.ac.lk/mgt

Impact of electronic banking practices and ownership on operational efficiency: Evidence from commercial banks in Rathnapura district of Sri Lanka

W.D.N.S.M. Tennakoon

Department of Business Management, Faculty of Business Studies & Finance,
Wayamba University of Sri Lanka, Sri Lanka.
tennakoon@wyb.ac.lk

Abstract

Based on the theory of constraints, the present study tests the impact of electronic banking practices and ownership on the operational efficiency of Sri Lankan commercial banks. Views of operational level managers were collected from state-owned and public-owned banks based on the Rathnapura district of Sri Lanka. A pre-tested structured instrument was used in deriving 255 valid responses. Multiple regression analysis evidenced the strong positive impact of electronic banking practices on the operational efficiency of both categories of banks. Further, ownership found to be moderating the said relationship where the public-owned banks reap greater operational gains from the investment in electronic banking practices compared to state-owned banks. Use of Automated Teller Machines is the top most electronic banking practice while internet and mobile banking also found significant in affecting operational efficiency. Moderating effect of ownership serves the theoretical implication while practical implication calls for enhancing flexibility in electronic banking practices of state-owned commercial banks. A closer look on other possible intervening variables on to the tested association is suggested for future studies.

Keywords: Electronic banking, electronic business, operational efficiency, ownership, Sri Lanka.

1. Introduction

Electronic Business (EB) is defined as "the use of electronic networks and associated technologies to enable, improve, enhance, transform or invent a business process or business system to create superior value for current or operational customers" (Sawhney & Zabin, 2001). Simply, it implies use of technology for offering greater value to the customers. Additionally, Tian and Stewart (2008) have viewed EB as performing transactions of goods

and services through communication networks. Likewise, different authors have defined EB as a merge between business operations and technology, in particular, the network technology. Thus, EB can be basically viewed as the application of internet technology for streamlining business processes of any nature. Theoretically, EB composed of three main components namely, e-marketing, e-commerce and e-operations. E-marketing is known as new attitude and modern realistic involvement with marketing of goods, services, information and even ideas via internet and other electronic means (EI-Gohary, 2010) while e-operations encompasses digital processes to fulfil the customer requirements through products and services (Columbus, 2000; Dehkordi, Rezvani, Rahman, Fouladivanda, Nahid, & Jourya, 2012; Barnes, Hinton, & Mieczkowska, 2003; Boyer, 2001). Electronic commerce is defined as the use of electronic communications and digital information processing technology in business transactions to create, transform and redefine relationships for value creation between or among organizations, and between organizations and individuals (Nisha & Sangeeta, 2012). E-commerce is considered a subset of EB as it is limited by its scope; to business transactions of the organizations (Dehkordi, et al., 2012). Yet, it is often use interchangeably with EB (Dehkordi, et al., 2012; Wu, Mahajan & Balasubramanina, 2003). Hence, scholars and practitioners use both terms to denote use of technological applications in the business processes. Accordingly, the present study too uses these two terms to refer the usage of Information and Communication Technologies (ICTs) for variety of operational and strategic objectives such as, sharing information, maintaining business relationships and carrying out business transactions with customers, business partners and also with merchants. Electronic business alters the business models of many industries (Columbus, 2000). In particular, the banking industry today is revolutionizing and experiencing a major transformation as a result of technological applications in the traditional banking activities (Simon, EI-maude, Jibreel, & Abam, 2013; Tennakoon, 2014). Consequently, a branch of EB has emerged as electronic banking which encompasses the technology-associated banking operations such as Internet Banking (IB), Mobile Banking (MB), telephone banking, and Automated Teller Machines (ATM) (Akhisar, Tunay, & Tunay, 2015). EB delivers a faster yet secure transaction platform for bankers leading to greater customer sophistication (Kimani, 2015; Too, Ayuma, & Ambrose, 2016). Traditional modes of banking inhabit numerous inefficiencies leading to uprising overhead. For instance, longer cycle time, delayed communication, incompatible systems, and excessive documentation are among the drivers of poor service delivery leading to customer dissatisfaction (Yushuf & Bala, 2015). Traditional banking requires meeting physically and to maintain significant number of staff to provide services. Usually, these transactions are time consuming which leads in rising the operational cost (Chaffey, Chadwick, Johnston, & Mayer, 2009). The banking industry has revolutionized due to emergence of EB. The featured EB tools are ATM, IB, MB, online credit cards, online bill presentment and Electronic Fund Transfer (EFT) systems. Application of these modest EB tools resulted in reducing the physical bank branches, operation costs, staff, transaction processing time, paper work and telephone usage (Akhisar et al., 2015; Simon et al., 2013).

ATM is a major digital banking tool which minimize operational cost to a greater extent. It is significant in terms of financial measures too. Use of ATM reduces the traffic of the bank counters thus improve the customer service (Kimani, 2015). In 1967, the very-first ATM was installed on a street in London. Ever since the ATM technology revolutionizing the banking

industry (Irani, 2018; Batiz-Lazo & Barrie, 2005). While the basic function of an ATM continues to be dispensing money, hardware and software used at them have undergone a drastic change. Today, number of variations of ATM such as CDMs (Cash Deposit Machines), and CRM (Cash Recycling Machines) are used by different bankers for enabling wider range of banking operations (Irani, 2018). Here, in this study, researcher disregarded the different features of these teller machines and commonly referred all the off-the bank teller machines as ATM. Generally, they offer services such as balance inquiry, card-free access, video-teller capabilities, biometric identification, deposits, withdrawals & transfer funds from/ among accounts, cheque deposits, cheque book requisitions, pay utility bills/premiums, change of Personal Identification Numbers (PIN) etc. (Kong, Zhang, & Kamel, 2006). In Sri Lankan context, this is the most popular technology-enable banking solution adopted by many customers. At the end of 2018, there were 4655 ATM outlets throughout the Sri Lankan licensed commercial bank network (Central Bank of Sri Lanka, 2019).

IB allows customers to execute their financial transactions via the internet with bank's website. It permits almost all transactions except some specialized services such as pawning (Kagan, Acharya, Lingam, & Kodepaka, 2005). In 2018, 2933 billion LKR payments were made through the IB as to the records of Central bank of Sri Lanka.

MB is the next major EB practice by digital bankers. There, Mobile Apps are used as the principal gateway to the banking services over the mobile devices mainly the smart phones and tablets (Aboelmaged & Gebba, 2013). The rapid growth of mobile technology and the ever-growing ubiquity of mobile devices over the years, have resulted in MB to evolve from a simple information delivery channel to a comprehensive banking transaction platform (Dandeniya, 2014). Through MB, users are able to access financial and non-financial services such as account management, balance enquiry, transfers, bill payment, Personal Identification Number (PIN) change and cheque book request (Shaikh & Karjaluoto, 2015). Over 24.5 million mobile bank subscribers in Sri Lanka accounts for 32 billion LKR transactions in 2016 (Seneviratne, 2016). A steady growth of MB transactions has resulted in 143 billion LKR increase in total value of transaction volume in 2018 (Central Bank of Sri Lanka, 2019).

Based on functional effectiveness and empirical evidences (Simon et al., 2013; Dandeniya, 2014; Akhisar et al., 2015; Aluthge & Tennakoon, 2017; Perera, 2018) it can be observed that the EB practices leading a greater transformation in banking operations. Yet, the application of EB practices vary from bank to bank even with the identical EB tools. For instance, the services offered ATM service of one bank may not the identical to the services offered by ATM of other banks. Many reasons could be ascertained for the heterogeneity of EB practices among the banks while ownership of the bank appear to be a prime factor (Weerasinghe, Ekanayake, Wijekoon, Katthuriarachchi, Wanniarachchi, & Wijayaratna, 2019). State-owned commercial banks typically experience greater level of financial and operational obligations towards the government. Public-owned commercial banks' EB strategies are usually crafted and lead by independent team of managers. They enjoy greater flexibility in blending the technology with traditional banking practices whereas state-owned bankers encounter hardships in balancing legal and administrative obligations and customer sophistication. Resultantly, state-owned commercial banks may encounter difficulties in reaping the benefits

associated with EB while public-owned commercial banks may find it easy to transform their operations in to customer friendly banking solutions (Weerasinghe, et al., 2019).

Sri Lanka's first state-owned commercial bank; Bank of Ceylon was incorporated in 1939. Later in 1961 the next state-owned bank namely, the People's Bank was incorporated. Two of these Sri Lankan state commercial banks were incorporated before 1970s where all the public-owned banks were incorporated 1970 afterwards. In 1970, the Hatton National Bank was incorporated as the first public-owned commercial bank of Sri Lanka. Progressively number of private sector banks were established after 1980s & championing the technological advancements in banking industry today (Yapa & Hasara, 2013). At the beginning, banking services were limited to the plantation sector & after 1977 it was opened to all the business sectors (Nadarajah, 2010). At present, Sri Lanka has 33 banks for 21 million peoples. As at December 2018, there were 11 public-owned banks and nine state-owned banks in Sri Lanka (Central Bank of Sri Lanka, 2019). Today, there are 26 licensed commercial banks operating in Sri Lanka including the two state-owned commercial banks (Central Bank of Sri Lanka, 2019). Resultantly, the rivalry within the industry rises demanding superior customer service. Both state-owned and public banks found EB practices as the ultimate solution to gain competitive advantage. Not only EB practices raise customer satisfaction they also maximize operational efficiency of banks (Fernando & Nimal, 2014; Tennakoon & Manodara, 2017). Yet, in Sri Lankan context, two commercial bank categories; the public-owned banks and state-owned banks showed significant differences with respect to their EB performances. For instance, in a comparative study on EB of private and public sector banks of Sri Lanka, Weerasinghe et al. (2019) highlighted a significant difference between private and public banks in terms of adoption of EB practices. Another study by Selvarajan and Ranasinghe (2012), showed that there a disparity in between public and state banks with respect to enablers and inhibitors of e-transformations. Among the inhibitors specific to public sector banks was the governmental regulations which act as a road block for e-transformation of public banks as opposed to private banks (Selvarajan & Ranasinghe, 2012). This finding is supported by the contributions by Weerasinghe et al. (2019), Selvarajan (2010) and Selvarajan (2011). Similar findings were found in other contexts too (Agrawal, Chauhan, & Kukreti, 2017). Nevertheless, no study as per the researcher's best knowledge, has established the cause/s for the variation in EB performance of two commercial bank categories. Hence, there is a gap in connection with the influencing variables which might cause swinging the gains of EB practices.

Goldratt's (1984) Theory of Constraints (TOC) suggested to identify, exploit, subordinate, evaluate and repeat the process to manage the constraints in order to improve organizational performance (Goldratt, 1990). The constraints are classified as market, material, capacity, logistical, managerial, and behavioral (Narasimhan, McLeaavey, & Billington, 1995). Market constraints refer to demographic and socioeconomic factors. For instance, younger generation shows a greater EB temptation in adopting EB practices (Aluthge & Tennakoon, 2017). Material as a constraint associates with the problem of ensuring the smooth flow of materials of expected quality for operations. This is not so significant in the service sector compared to manufacturing sector. Capacity constraints is about inadequacy in key resources whereas logistical constraints referred to issues connected with movement of material. Managerial constraints are the strategies and policies that adversely affect system performance while

Behavioural constraints involves behaviours of key stakeholders (Bramorski, Madan, & Motwani, 1997). TOC has been practically applied, and empirically tested by practitioners for solving performance problems of industrial setup (Bauer, Vargas, Sellitto, Souza, & Vaccaro, 2019). TOC concept posited that the constraints always limit the achievement of higher performance by the organizations. TOC stresses on identification of leading limiting factor/s of a process or a system and systematically improving that limiting factor which is known as "constraint" until no longer it limits the desired performance target (Bauer et al., 2019). In an attempt to apply TOC to banking industry, Bramorski et al. (1997) concluded that most of the constraints in banks are often associate with policies procedures rather than the capacity or equipment. They have identified operational expense as one of the key measures of the application of TOC for banks. In general, state-owned banks are often abided by the government regulations which is already detected to be constraint towards greater EB performances (Selvarajan & Ranasinghe, 2012; Selvarajan, 2010). Based on the premises of TOC, the present study argues that the banks' technological throughputs would not reap the expected organizational performances due to the constraint of ownership, which is explicitly a Management constraint. As such, the present study investigated how EB practices affect operation efficiency of banks under two basic ownership categories namely; state-owned banks and public-owned banks. Within the state banks category, there exists number of sub ownership structures such as government, semi government and private ownership. Each operates in different environments those differentiated by management objectives, rules & regulations and strategies. Government banks are subject to excessive government involvement in decision making and managers/ employees have restricted span of operations compared to the public-owned banks. Additionally, undue political influences are also prevalent in state sector compressing the legitimate control by the management over the operational measures. This is hardly visible in public banks where the operations are essentially guided by nothing other than the organizational strategic direction. Hence, the main objective of this study was to assess the impact of EB practices, and Ownership on the Operational efficiency of commercial banks in Rathnapura District of Sri Lanka.

2. Review of literature
2.1 Electronic banking

Electronic banking is provision of banking products and services through electronic delivery channels (Nitsure, 2003). Numerous definitions on EB elaborate the use of ICT in conjunction with banking operations (Tian & Stewart, 2008). With the advances in technologies, in particular the networking and communication technologies, bankers have given the opportunity to transform their routine banking operations in to technologically-driven processes. Resultantly, banking industry today, experiencing a tremendous transformation (Simon et al., 2013; Tennakoon, 2014). Assessment of EB successes evidenced improved efficiency, customer satisfaction, lower operational cost etc. (Akhisar et al., 2015; Simon et al., 2013). EB's ability to deliver faster yet secure transactions have improved the customer satisfaction on top of branch banking (Kimani, 2015). EB overcomes most of the limitations associated with branch banking. For instance, longer cycle time, delayed communication, incompatible systems, and excessive documentation are often cited for causing inefficiencies

in traditional branch banking (Yushuf & Bala, 2015). Unlike traditional banking which demands face-face meeting of customers, EB enables delivery of the services via online thus no can cut off the operational expenditure associated with branch banking to a greater extent (Chaffey et al., 2009; Yushuf & Bala, 2015; Akhisar et al., 2015; Simon et al., 2013).

2.2 Operational efficiency

Efficiency simply means how firms used its inputs or cost to gain the maximum outputs or gaining maximum output using minimum inputs. It is the ratio of inputs to outputs (Fernando & Nimal, 2014). In particular, the banking industry today is revolutionizing and experiencing a major transformation as a result of technological applications. Further, it can be described as the ability to deliver product and services without sacrificing quality of product & services (Allen & Rai, 1996). Shawk (2008) defined operational efficiency as what will be occur when right combination of people, technology and process enhance the value and productivity of business operations while declining the cost of daily operations to a sufficient amount. Efficiency is core of the economies. Operational efficiency leads the economic growth and stability of the financial systems of a country. However, profitability doesn't indicate the resources efficiency. In traditional approach, profit better dictates the performance but not efficiency. Efficiency is beyond the concept of profitability (Fernando & Nimal, 2014). Muthama (2014) indicated that operational efficiency can be measured through operating cost, customer base, general quality of service, customer loyalty, transaction processing time, paper work cost, phone call cost and employee's productivity. Abdullai and Micheni (2018) followed a three-dimensional model of operational efficiency namely; cost of operations, reliability of service and speed of service. Agboola (2006) considered cost, quality, reliability, flexibility, delivery and speed as the basic dimensions of operation efficiency. Hence, the present study measured operational efficiency using five dimensions, i.e. transaction processing time, operating cost, productivity of employees, customer loyalty, and reliability of service.

Transaction processing time - Transaction processing time defines the speed of the transactions through the EB. Speed is the key success factor of the EB service (Ndubisi, 2006). Prior researches have revealed that speed have a considerable impact on operational efficiency in banking sector (Abdullai & Micheni, 2018; Tennakoon & Manodara, 2017).

Operating cost - Web is more efficient way to banks for operating at lower operating cost. Online technology can deliver services to customers more economically than traditional methods. Low cost technological infrastructures reduce the operating cost. So, bank branches can deliver low cost & accurate electronic transactions for customers (Muthama, 2014; Adewoye & Omoregie, 1970). E-business has significantly affected employee productivity of banks in ways of recruitment of new employees, training employees, sharing information among employees and video conferencing (Tennakoon & Manodara, 2017).

Customer loyalty - Customer can access their accounts, accounts related details and download the account data with EB in any time weekends or late night. And also, EB maximizes their convenience to allowing transaction facilities in their door step for all the time. Then increase the customer loyalty about their bank (Muthama, 2014).

Reliability of service - There are many different ways of measuring operational efficiency. Among them reliability is a basic measurement of the operational efficiency (Agboola, 2006). It can be defined as the level of transaction security and promptness as well as it may contribute customers to trust. According to Yushuf and Bala (2015) success of EB services is depend on reliability and it is a key factor that customers must consider when using the EB services.

2.3 Electronic banking practices of banks

Electronic banking practices of banks denote all the banking transactions offered via the Internet. They are treated as critical success factors of modern banks (Akhisar et al., 2015; Weerasinghe et al., 2019). The variety of EB practices used by bankers depend on their strategic priorities. Among them ATM, IB and MB are the top most popular applications. They found to be the leading factors enhancing operational efficiency of almost all the banks regardless of their size and type (Muthama, 2014). They deliver lower operational expenses, lesser time for formal banking operations, speedier banking processes, lesser/no paper work, lower head count in service delivery, lesser/no agency cost in involving third party, etc. Eventually the relationship with customers is enhanced at an optimum operational cost (Kaptan, 2003; Too et al., 2016). For customers, digital banking allows fast transactions, greater availability (24 x 7) and extensive flexibility in banking over the physical branch banking. At the very end EB practices of banks are considered eco-friendly where their no or minimum use of natural resources (Mohapatra, 2012). EB has greatly enabled accessibility of services with automation. Thereby, customers can transact at any time with greater privacy and security services to customers which protected & security (Abdullai & Micheni, 2018).

Automated teller machines and operation efficiency - ATM is a primitive EB tool. It contributes significantly to the operations & financial results of banks (Too et al., 2016; Abdullai & Nyaoga, 2017). ATM enable customers to withdraw/ deposit money/ cheques, transfer funds pay utility bills and balance inquires etc. at any time (Kong et al., 2006). ATM have been adopted & still being adopted by banks across the globe. They offer considerable benefits to both banks and to the customers. Customer can enjoy banking services all the time in the day (Olatokun & Igbinedion, 2009). Cost of single transaction of ATM potentially less than the cost of transaction done by banker and also ATM can handle volumes of transactions per unit of time than an employee (Laderman, 1990).

Holden and Bannany (2004), Haynes and Thompson (2000), Abdullai and Nyaoga (2017) and Laderman (1990) have found similar results in relation to ATM and operation efficiency. Holden and Bannany (2004) reported that the number of ATM installed by bank has a positive relationship with performance of the bank. They emphasized the significant role played by ATM in increasing the Return on Assets (ROA) of the banks. According to Haynes and Thompson (2000), ATM can process daily routine transactions. It aids in reducing the banker's workload resulting in lower demand for labour at the banks. Laderman in 1990 also concluded that ATM could reduce human resource cost of bankers and branch establishment cost of banks. Moreover, Ou, Hung, Yen, and Liu (2009) found that investments on ATM are associated with positive cost efficiency. In contrast, ATM were found to be not having any

impact on the ROA in the context Japanese banks (Kondo, 2010). However, Batiz-Lazo and Barrie (2005) argued that, to achieve operating efficiency, number of ATM transactions must be increased.

Internet banking and operation efficiency - IB offers a wide range of banking services electronically through the bank's website. Originally, IB was mostly used by banks as an information delivery channel to promote their products and services. Along with the technological advancements, banks at present use IB as a service delivery platform of almost all the banking services. Customers primarily engage in balance inquires, payment of bills, transferring funds between accounts, printing statements, transactions relate to credit card and managing their investments and loan facilities (Kagan et al., 2005). Additionally, IB helps banks in enhancing their earning potentialities by means of improved Return on Equity (ROE) and asset quality (Okiro & Ndungu, 2013; Too et al., 2016).

Abdullai and Micheni (2018) found that IB has a positive significant effect on operational performance of commercial banks in Kenya. They concluded that managements of commercial banks should invest in IB as it positively influences operation performance in banks. Okiro and Ndunga (2013) found that adoption of IB has increased efficiency, effectiveness & productivity of banks.

All the commercial banks in Sri Lanka offer IB services to their customers. Yet, the capabilities and performance of each system vary depending on the several reasons mainly the strategic focus of the bank and adopted technology. On average, more than fifty percent of Sri Lankan commercial banks' customer base enjoy IB facilities (Fernando & Nimal, 2014). Thus, the knowledge on IB's impact on operation efficiency of banks in Sri Lankan context is primitive for any further development of digital banking sector.

Mobile banking and operation efficiency - MB can be described as the process of banking with the aid of mobile telecommunication devices; usually the smart phones and tablets (Anyasi & Otuba, 2009). MB is a branch of mobile commerce which is a subset of EB. Users are provided with instant access to usual banking services via their mobile devices. These services may include both financial and non-financial services such as account management, balance enquiry, electronic fund transfer, bill payment, PIN change and cheque book request, etc. (Shaikh & Karjaluoto, 2015). And also, MB raises the proficiency and assist in developing the business networks.

Bagudu, Khan, and Roslan (2017) and Too et al. (2016) found that MB has significantly and positively affect the financial performance of commercial banks in Nigeria. Furthermore, they concluded that MB ensures easy track of lenders, easy monitoring, quick transfer of funds, less processing time, e-wallet, easy payment of bills and much more. Kimani (2015) found that MB positively enhances operational efficiency of commercial banks in Kenya (Kato, et. al., 2014). However, Anyasi and Otuba (2009) argued that there are hundreds of millions of telephone owners who lives away from urban areas don't know the MB. Most of new mobile users live in cash economics without accessing MB. Although MB offers various kind of features, mobile owners failed to gain advantages of them.

At present, Sri Lankan banking sector is moving ahead with MB facility. Number of state and Public-owned banks have developed their self-care Apps over which the MB is practiced. The

number of Sri Lankan mobile users gets doubled annually (Dandeniya, 2014). As such accounting the MB impact on operation efficiency is felt essential better understanding of the context.

2.4 Ownership of banks

Ownership of Sri Lankan commercial banks is primarily of two kinds, namely the government/ state ownership and public ownership (owned by shareholders). State-owned banks are usually under the direct control of central bank of Si Lanka and the cabinet of the parliament. Public-owned banks are incorporated as public limited companies which are generally the listed companies of the stock exchange. Based on the ownership, the management, governance and operational structure with their procedures of the two types largely vary from one another.

State-owned banks - Lower level of per-capita income, underdeveloped financial systems, poor protection of property rights as well as interventionist and inefficiency of government hinder the financial development of any country. State-owned banks suffer a lot when the country's economy fails in generating adequate national income. Consequently, State-owned banks happen to compensate for macro level financial crises led by inefficient economic policies of the country. Xu and Hu (2013) mentioned that decreased government ownership can improve banks performance. Fernando and Nimal (2014) and Micco, Panizza, and Yanez (2007) found that public banks are less efficient than private banks in developing countries. Some claimed that the political influencers led State-owned banks in utter risk of failure. Brown and Dinc (2005) suggested that governmental institutes face trouble situation before the election of government. State banks eventually become the arms of ineffective monetary policies beside the industry-based performance standards (Cecchetti & Krause, 2001).

Public-owned banks - Public-owned banks are treated as private businesses and typically managed by a board of directors thus are relatively free from external influences. Yet, they have to comply with the operational guidelines set by the central bank based on the monetary policy. However, these banks enjoy greater freedom in crafting their own strategic outfits and subsequent managerial and operational procedures for their banks. Shleifer (1998) argued that private ownership is often more preferable over public ownership. Here, Shleifer (1998) operationally defined public banks as government-owned banks where in the present study the same is denoted by state-owned banks. Moreover, Cecchetti and Krause (2001), Micco et al. (2007), Xu and Hu (2013), Fernando and Nimal (2014), and Porta, Lopez-de-Silanes, and Shleifer (2000) have criticized state banks for their inefficiencies mainly due to excessive influence of the government. Accordingly, public-owned banks deemed to be a preferred business model over state-owned banks due to its operational flexibility. Public ownership always motivated to earn profits so as to entertain the shareholders' interests. Operational efficiency is fundamental in optimizing profits. Hence, public banks are geared naturally towards operational excellence. State banks on the other hand still have to accommodate the financial and developmental policies of the government besides the best interests of operational efficiencies. They serve as one of the main arms of the government in

implementing its monetary policies. Nevertheless, state banks have to maintain adequate profits to ensure survival and growth.

Technological advances drive many EB practices are of greater potential in reaping cost efficiencies. The managerial and administrative structure of the bank filters the real effect of technological driven EB practices on the operational efficiency. Ownership appears to impact the performance of banks which is not sufficiently addressed in the existing literature especially in the Sri Lankan banking context.

3. Methodology

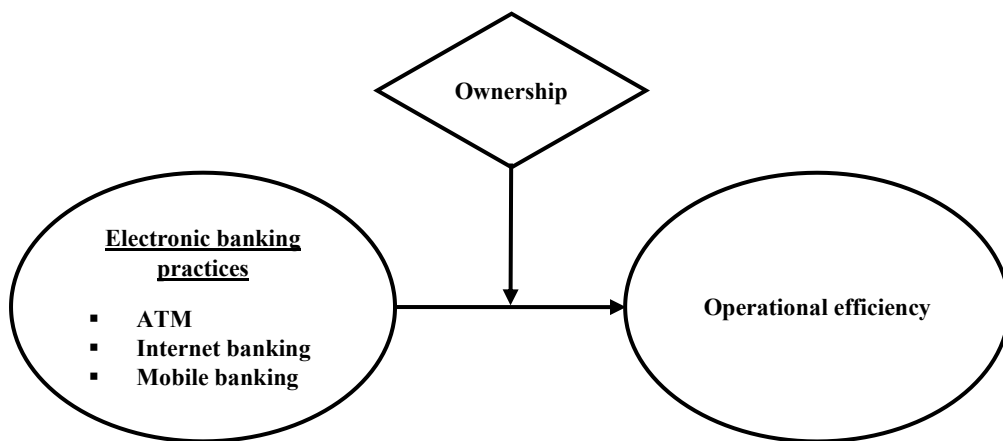Based on the reviewed literature, following conceptual model is developed (Figure 1).

Figure 1 Conceptual model

Accordingly, the hypotheses of the study were;

H_1: Electronic banking practices significantly impact operation efficiency of commercial banks

H_2: Automated Teller Machines significantly impact operation efficiency of commercial banks

H_3: Internet banking significantly impacts operation efficiency of commercial banks

H_4: Mobile banking significantly impact operation efficiency of commercial banks

H_5: Ownership moderates the relationship between electronic banking practices and operating efficiency of commercial banks

The study followed the positivistic research tradition. The study characterized by deductive reasoning in which quantitative research approach was employed to test the hypotheses. Authors performed a field survey of banks in Rathnapura District of Sri Lanka as the research strategy. In Rathnapura district, there were around 85 bank branches. This includes both government banks and public banks. The unit of analysis was a bank whereas the branch manager/ an assistant branch manager/ a senior executive of the branch represents the bank

branch while answering the questionnaire. Operational efficiency is best known to people who are really in the operation. As they are the ones who plan and control for the operational targets of the organizations. Additionally, they are well aware of the merits and demerits of the operation of the organization. Thus, the authors believed that the analysis fed with apt data to support the hypotheses. Resultantly, 255 respondents answered the questionnaire by assessing the variables under the measure in terms of institutional standpoint rather than an individual stand point. The questionnaires were hand delivered and collected by the research assistants within a week. As a result, authors succeed in securing 100 percent response rate, where for few cases, representatives of the branch managers and assistant branch managers were assigned to answer the questionnaire.

3.1 Electronic banking

The predictor variables are EB practices and Ownership while Operational efficiency is the observed variable. The operationalization of theses variables is shown in Table 1.

Table 1
Measures of key variables

Variable	Dimensions	Indicators
Electronic banking practices	Automated Teller Machines	Q6 - Most of our customers deposit their money on ATM
		Q8 - Sufficient number of customers using ATM for withdrawing their money
		Q7 - Most of customers never ask account balance or updated passbooks and always using ATM for it
	Internet banking	Q10 - Most of customers never ask account balance or updated passbooks and always using IB for it
		Q9 - Most of our customers paying bills through the IB
		Q11 - Sufficient number of customers use IB for fund transfer
	Mobile banking	Q13 - Interbank transfers mostly done through MB
		Q14 - Sufficient number of customers using MB for withdrawing their money
		Q12 - Most of customers never ask account balance or updated passbooks and always using MB for it
		Q15 - Significant number of customers use MB because it accommodates bill payment information inquiries

Ownership	State-owned	Q1 - Type of your organization
	Public-owned	
Operation efficiency	Transaction Processing time	Q17 - EB practices obviously decrease transaction processing time
	Operating cost	Q16 - EB practices (ATM, IB & MB) minimize the operation cost of the branch
	Reliability of service	Q19 - EB practices obviously enhance and assure the reliability of services
	Productivity of employees	Q18 - EB practices obviously enhance the productivity of employees
	Customer loyalty	Q20 - EB practices significantly aid in increasing the customer loyalty

Likert scale of 5 points measures the responses of EB practices and operational efficiency items. The scale ranges from one to 5 where "one" denoted the strongly disagree and "5" denotes the strongly agree. Item one questioned the type of the bank ownership; state-owned or public owned. The internal consistency of the instrument was assessed. All the indicators under each dimension showed accepted level of Cronbach Alpha values (> 0.8) accepted for social science studies (Nunally, 1978). Namely, ATM (0.881), IB (0.933), MB (0.890), and Operational efficiency (0.815).

Table 2 summaries selected demographic attributes of the respondents.

Table 2
Sample profile

Attribute	Level	N	Percent
Respondent's Position	Manager	82	32
	Senior executives	173	68
	Total	**255**	**100**
Respondent's Experience	1-10 years	102	40
	11-20 years	102	40
	21-30 years	43	17
	31-40 years	8	03
	Total	**255**	**100**
Respondent's Age	18-25 years	23	09
	26-35 years	82	32
	36-45 years	107	42
	46-55 years	43	17
	Total	**255**	**100**

The sample mainly consists of managers and operational level senior executives of the banks. Majority represented by the operational level senior executives. This can be considered a strength of the sample selection as the greater involvement in operational process enables respondents to better understand and interpret the variables under the investigation. Nearly 80 percent of the respondents hold a fair level of experience resulting reliable and accurate responses about the EB practices and operational efficiency of the banks. Additionally, wider share of the sample (42 percent) is in the age range of 36-45 years. It is an indirect indication of their present career stage; the mid-career. This is another property of sample that ensures the fitness of assembled data to test the hypotheses. The moderating variable; ownership of the bank is a categorical variable and consists of two levels namely; public-owned banks (1) and state-owned banks (0). 50.5 percent (n = 129) of the respondents in the sample belongs to state-owned banks while 49.5 percent (126) of respondents represents public-owned banks, to be specific the private banks as per its operational definition of the present study. Approximately, a balanced representation of both categories was evident in the sample enhancing the generalizability of the findings.

Data analysis employed both univariate and multivariate techniques. Descriptive statistics, Pearson product movement correlation analysis and multiple regression analysis performed the data analysis with the aid of SPSS version 20. Hypotheses testing were based on the results of the multiple regression analysis.

4. Results and discussion

Association between EB, and operational efficiency - Pearson product-movement correlation analysis was performed to evaluate the association between EB practices and operational efficiency.

Table 3
Results of correlation analysis

		ATM	IB	MB
Operational Efficiency	Pearson Correlation	0.245*	0.378*	0.305*
	Sig. (2-tailed)	0.002	0.036	0.007
	N	255	253	255

*. Correlation is significant at the 0.05 level (2-tailed).

Use of ATM, IB, and MB significantly and positively associate with the improvement of operational efficiency of the banks. Technological advancements are best known for efficiency enhancement as a result of improved speed and non-repetitive nature of work flows. Although the strength of the associations reported here are weak, they still comply with the existing findings of the similar associations. Many, collectively and in isolation found that these three EB practices significantly relate with the operational efficiency of banks (Muthama, 2014). Specifically, Laderman (1990), Haynes and Thompson (2000), Holden and Bannany (2014), as well as Abdullai and Nyaoga (2017) have found similar results in relation to ATM and operation efficiency. IB was tested against the operational efficiency and found

to be significantly uplifting the operational efficiency by Okiro and Ndunga (2013) and Abdullai and Micheni (2018). MB as the extended version of IB was reported to improve the overall performance of the banks in general and operational efficiency in particular (Too et al., 2016; Bagudu et al., 2017).

However, Ownership; the moderator in the present study was a novel introduction to the relationship between EB practices and operational efficiency of banks, thus was not pre-tested for its moderator effect. Nevertheless, ownership was found to be manipulating the performance of the banks where state-owned banks suffer much of the disadvantages over private ownership (Weerasinghe, et al., 2019; Shelifer, 1998; Cecchetti & Krouse, 2001; Brown & Dinc, 2005; Micco et al., 2007; Xu & Hu, 2013; Fernando & Nimal, 2014). The multiple regression analysis derived the statistics for predicting the operational efficiency based on the associated variables, are discussed next.

The model fitting indices indicate a sound regression model. Test for multicollinearity indicates (Table 5) that a very low level of multicollinearity was present (VIF = 1.419 for ATM, 2.001 for IB, 1.601 for MB and 1.533 for Interaction term). Durbin Watson statistic (Table 4) evidenced the absence of auto correlation (1.956 ≈ 2). Normality of dependent variable, Operational efficiency is assured using both graphical and numeric measures. Measures of symmetry and shape; skewness (Skew = 0.37 > 0.5) and Kurtosis (Kurt = 2. 78 ≈ 3) respectively evinced the normality of data. The interaction effect of independent variable (EB practices) and moderating variable (Ownership) represented the moderator's effect in the multiple regression analysis. Table 4 shows the results of the multiple regression analysis.

Table 4
Results of multiple regression analysis - goodness of fit of the model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin – Watson
1	0.395[a]	0.287	0.264	0.262	1.956

Table 4 shows the aggregate impact of all influencing variables on the operational efficiency. Coefficient of determination (R^2) tells us the explanative power of predictor variables to explain the variability of latent variable. In the fitted model, 28.7 percent of variance in operation efficiency is explained by EB practices (i.e. ATM, IB & MB) and the ownership. This model is significant at 95 percent confidence level (p = 0. 012 < 0.05, F = 3.813, df = 251). Beta coefficients of individual predictors establish their specific influence on the dependent variable.

Table 5 exhibits the coefficients of predictor variables. All the predictors are significant in describing the variation of operational efficiency. In particular, ATM (β = 0.258, p = 0.015), IB (β = 0.445, p = 0.013) and MB (β = 0.356, p = 0.022) capable of affecting the operational efficiency of banks. Importantly, ownership of banks proven to be moderating the relationship between EB practices and operational efficiency of the banks (β = 0.227, p = 0.038).

Table 5
Results of multiple regression analysis – coefficients

Model	Unstandardized Coefficients		Standardized Coefficient	T	Sig	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	3.926	0.175		22.466	0.000		
ATM	0.127	0.051	0.258	2.480	0.015	0.705	1.419
IB	0.324	0.064	0.445	2.369	0.013	0.500	2.001
MB	0.264	0.062	0.356	2.321	0.022	0.625	1.601
EB*Ownership	-0.107	0.055	0.227	1.891	0.038	0.598	1.533

Formula one summaries the finding by means of regression equation.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots\ldots + \beta_n X_n + e \rightarrow \text{Formula 1}$$

Hence,

$$OE = 3.926 + 0.258 ATM + 0.445 IB + 0.356 MB + 0.227 (EB * Ownership) + e$$

The nominal value assigned for state-owned banks was zero while it was one for public-owned banks. The relationship between EB practices and operational efficiency is positive. The nominal value for the ownership variable of state-owned banks was zero. Thus, when produced as a moderating variable contributes nothing to the existing positive relationship. Yet, the operational efficiency of public-owned banks gets enhanced after adding the moderating effect. Accordingly, ownership can be recognised as moderating the relationship between EB practices and operational efficiency of commercial banks.

5. Conclusion

The objective of the study was to determine the impact of EB practices (ATM, IB, MB) and Ownership on the Operation efficiency of commercial banks. Based on the premises of TOC, it is assumed that the technological advances (i.e. EB practices) eliminate the constraints towards optimum performance while on the other hand ownership holds back the organizational potentialities thus acts as a constraint. As such, the research model of the study hypothesized that the impact of EB practices on operational efficiency is moderated by the nature of bank ownership. Findings supported to conclude that the EB practices positively and significantly impact the operation efficiency of banks. These findings are highly consistent with the findings of the previous studies too. The theoretical novelty of the study; the moderating effect of ownership on the main association found significant. Thus, the study accepted the ownership as a moderator which can manipulate the association between EB practices and operational efficiency.

Drawing on the TOC principles, ownership in the Sri Lankan commercial banking sector is confirmed as a restraining factor towards operational excellence supported by technological advances. The study carries two main theoretical implications. One is empirically establishing the association between EB practices and operational efficiency. The second identifies ownership of banks moderating the confirmed relationship. The practical implications of the study emphasized the negativity of the excessive influence of the government on the state-owned banks. Sample restricted to one administrative area (i.e. Rathnapura District) is considered the principle limitation of the study, which might cause limiting the generalizability of the outcomes. Further, the EB practices of the present study were limited to ATM, IB and MB where future studies are expected to address wider range of EB practices used by commercial banks.

References

Abdullai, H.M., & Micheni, E.M. (2018). Effect of internet banking on operational performance of commercial banks in Nakuru country Kenya. *International Journal of Economics, Finance & Management Sciences*, 6 (2), 60-65.

Abdullai, H.M., & Nyaoga, R.B. (2017). Effect of automated teller machines usage on operational performance of Commercial Banks in Nakuru County, Kenya. *International Journal of Economics, Finance and Management Sciences*, 5 (3), 162-167.

Aboelmaged, M. G., & Gebba, T. R. (2013). Mobile banking adoption: An examination of technology acceptance model and Theory of Planned Behavior. *International Journal of Business Research and Development,* 2 (1), 35-50.

Adewoye, J. O., & Omoregie, N. V. (1970). The impact of automatic teller machines on the cost efficiency of Nigeria. *The Journal of Internet Banking and Commerce*, 18 (3), 1-21.

Agboola, A. (2006). *Information and communication technology (ICT) in banking operations: An evaluation of recent experiences in Nigeria*. LAP LAMBERT Academic Publishing.

Agrawal, D.C., Chauhan, S., & Kukreti, A. (2017). A comparative study of E-Banking in public and private sectors banks (with special reference to SBI and HDFC Bank in Haridwar). *Asian Journal of Research in Business, Economics & Management*, 7 (8), 370-384.

Akhisar, I., Tunay, K.B., & Tunay, N. (2015). The effects of innovations on bank performance: The case of electronic banking services. *Procedia–Social and Behavioural Sciences*, 195, 369-375.

Allen, L., & Rai, A. (1996). Operational efficiency in banking: An international comparison. *Journal of Banking and Finance,* 20 (4), 655-672.

Aluthge, D. N., & Tennakoon, W.D.N.S.M. (2017). Determinants of mobile banking adoption in Sri Lanka: Evidences from undergraduates of Sri Lankan local universities. June 16, 2017: *Proceedings of the first annual research symposium in Management*, 217-219.

Anyasi, F. I., & Otubu, P.A. (2009). Mobile phone technology in banking system: It's economic effect, empirical lessons from selected Sub-Saharan Africa countries. *International Journal of Development Societies*, 1 (2), 70-81.

Bagudu, H.D., Khan, S.J.M., & Roslan, A.H. (2017). The effect of mobile banking on the performance of commercial banks in Nigeria. *International Research Journal of Management*, 4(2), 71-76.

Barnes, D., Hinton, M., & Mieczkowska, S. (2003). Competitive advantage through e-operations. Total quality Management and Business Excellence, 14 (6), 659-675.

Batiz -Lazo, B., & Barrie, A. (2005). The business and technological history of automated teller machines in the UK, 1967-2005. June 16, 2005. *A Primer: University of London*, 567-570.

Bauer, J.M., Vargas, A., Sellitto, M.A., Souza, M.C., & Vaccaro, G.L. (2019). The thinking process of the theory of constraints applied to public healthcare. *Business Process Management Journal*, *25* (7), 1543-1563.

Boyer, K. K. (2001). E-operations: A Guide to streamlining with the Internet. *Business Horizons*, 44 (1), 47-51.

Bramorski, T., Madan, M.S., & Motwani, J. (1997). Application of theory of constraints in bank. *The Bankers Magazine*, Jan-Feb, 1997, 53-59.

Brown, C., & Dinc, S. (2005). The politics of bank failures: Evidence from emerging markets. *Quart Journal of Economics,* 120 (4), 1413-1444.

Cecchetti, S., & Krause, S. (2001). Structure, macroeconomic stability, and monetary policy. NBER Working Paper. *National Bureau of Economic Research,* Cambridge, United States.

Central Bank of Sri Lanka, *Annual Report (2017)*. Central Bank of Sri Lanka, Sri Lanka. Retrieved from https://www.cbsl.gov.lk/en/publications/economic-and-financial-reports/annual-reports/annual-report-2017

Central Bank of Sri Lanka, *Annual Report (2018)*. Central Bank of Sri Lanka, Sri Lanka. Retrieved. Retrieved from https://www.cbsl.gov.lk/en/publications/economic-and-financial-reports/annual-reports/annual-report-2018

Central Bank of Sri Lanka, *Annual Report (2019)*. Central Bank of Sri Lanka, Sri Lanka. Retrieved. Retrieved from https://www.cbsl.gov.lk/en/publications/economic-and-financial-reports/annual-reports/annual-report-2019

Chaffey, D., Chadwick, F.E., Johnston, K., & Mayer, R. (2009). Internet marketing: strategy, implementation and practice. Pearson Education: Prentice Hal.

Columbus, L. (2000). What is E-operations? Inform IT, Pearson Education. Retrieved from https://www.informit.com/articles/article.aspx?p=19620

Dandeniya, S. (2014). Expanding financial services frontier and mobile banking in Sri Lanka. 26th Anniversary Convention, Colombo, 297-308.

Dehkordi, G.J., Rezvani, S., Rahman, M.S., Fouladivanda, F., Nahid, N., & Jourya, S.F. (2012). A conceptual study on E-marketing and its operation on firm's promotion and understanding customer's response. *International al Journal of Business and Management*, 7 (19), 114 - 124.

El-Gohary, H. (2010). E-marketing: A literature review from a small businesses perspective. *International Journal of Business and Social Science,* 1 (1), 214 - 244.

Fernando, J.M.R., & Nimal, P.D. (2014). Does ownership and size influence bank efficiency? Evidence from Sri Lankan banking sector. *Ruhuna Journal of Management and Finance*, 1(1), 83-90.

Goldratt, E.M. (1984). *The Goal*. Croton-on-Hudson, N.Y.: North River Press.

Goldratt, E.M. (1990). *Theory of Constraints*. Croton-on-Hudson, N.Y.: North River Press.

Haynes, M., & Thompson, S. (2000). The productivity impact of IT deployment: An empirical evaluation of ATM introduction. *Oxford Bulletin of Economics and Statistics*, 62 (5), 607-619.

Hidaya, K.Z., & Perera, H.S.C. (2008). Critical success factors for BPR in the Sri Lankan public sector: A case study. 5th International Conference on Business Management; 2008; Nugegoda, Sri Lanka. Nugegoda: University of Sri Jayawardhanepura.

Holden, K., & El-Bannany, M. (2004). Investment in information technology systems and other determinants of banks profitability in UK. *Applied Financial Economics*, 14 (5), 361-375.

Irani, R. (2018). Bank at smart ATMS soon: All you need to know about cash recycling machines. *Financial Express*, *The Indian Express (Pvt) Ltd.* Retrieved from https://www.financialexpress.com.

Kagan, A., Acharya, R. N., Lingam, R. S., & Kodepaka, V. (2005). *Does internet banking affect the performance of community banks?* 2005 Annual meeting, July 24-27, *American* Agricultural Economics Association.

Kaptan, S. (2003). *Indian Banking in Electronic Era*. Sarup & Sons.

Kato, G.K., Otuya, W.I., Owunza, J.D., & Nato, J.A. (2014). Mobile banking & performance of commercial banks in Kenya. *International Journal of Current Research*, 6(12), 10670-10674.

Kimani, N. (2015). The effect of adoption of mobile banking systems on operational efficiency of commercial banks in Kenya. Unpublished dissertation.

Kondo, K. (2010). Do ATMs Influence bank profitability in Japan? *Applied Economics Letters*, 17 (3), 297-303.

Kong, A., Zhang, D., & Kamel, M. (2006). Palmprint identification using feature-level fusion. *Pattern Recognition*, 39 (3), 478-487.

Laderman, E. S. (1990). The public policy implications of state laws pertaining to automated teller machines. *Economic Review (Federal Reserve Bank of San Francisco),* 1 (2), 43-58.

Micco, A., Panizza, Yanez, M. (2007). Bank ownership and performance. Does politics matter? *Journal of Banking Finance*, 31 (1), 219-241.

Mohapatra, S. (2012). *E-Commerce Strategy: Text and Cases*. Springer.

Muthama, M.G. (2014). E-business and operating efficiency of commercial banks in Kenya, Unpublished dissertation.

Nadarajah, V.S. (2010). *Banking and business in Sri Lanka: From a plantation to a diversified economy*. Kandy Book Shop, Kandy.

Narasimhan, S., McLeavey, D.W., & Billington, P. (1995). *Production Planning and Inventory Control*, (2nd). Englewood Cliffs, N.J.: Prentice Hall.

Ndubisi, N. O. (2006). A structural equation modelling of the antecedents of relationship quality in the Malaysia banking sector. *Journal of Financial Services Marketing*, 11 (2), 131-141.

Nisha, C., & Sangeeta, G. (2012). Future of e-commerce in India. *International Journal of Computing & Business Research*, ISSN (Online): 2229-6166.

Nitsure, R.R. (2003). E-banking: Challenges and opportunities. *Economic and Political Weekly*, 38 (51/52), 5377-5381.

Nunnally, J.C. (1978). *Psychometric theory (2nd).* McGraw-Hill, New York.

Okiro, K., & Ndungu, J. (2013). The impact of mobile and internet banking on performance of financial institutions in Kenya. *European Scientific Journal*, 9 (13), 146–161.

Olatokun, W. M., & Igbinedion, L. J. (2009). The adoption of automatic teller machines in Nigeria: An application of the theory of diffusion of innovation. *Issues in Information Science and Information Technology*, (6), 373-393.

Ou, C., Hung, S., Yen, D., & Liu, F. (2009). Impact of ATM intensity on cost efficiency: An empirical evaluation in Taiwan. *Information & Management*, 46 (8), 442-447.

Perera, A.S.A. (2018). The factors influencing on the customer adoption of internet banking system special refence to the Sampath Bank in Colombo District. *International Journal of Scientific Research Publication*, 8 (2), 83-107.

Porta, R.L., Lopez-de-Silanes, F., & Shleifer, A. (2000). Government ownership of banks. *Journal of Finance, American Finance Association*, 57 (1), 265-301.

Sawhney, M., & Zabin, J. (2001). *The Seven Steps to Nirvana*. New York: McGraw-Hill.

Selvarajan, P. (2010). The need for ICT induced organizational transformation among the public sector banks in Sri Lanka. *Annual International Conference on Data Analysis, Data Quality and Meta Data Management*, 12-13 July. Singapore. 94-100.

Selvarajan, P., & Ranasinghe, B. (2012). Critical success factors for e-transformation: a comparative study between the public and private sector banks in Sri Lanka. *International Journal of Scientific Knowledge,* 2 (2), 1-9.

Selvarajan, P. (2011). The ICT induced business reconfiguration from evolution to revolution (A case study of public sector banks in Sri Lanka). *International Journal on Computing*, 1 (2), 134-139.

Seneviratne, D. (2016). Mobile banking as a channel of financial inclusion an urban case study. *28th Anniversary Convention*. Colombo. Retrieved from www.apbsrilanka.org.

Shaikh, A., & Karjaluoto, H. (2015). Mobile banking adoption: A literature review. *Telematics and Informatics*, 32 (1), 129-142.

Shawk, (2008). Operational efficiency a brand point management perspective. Retrieved from http:// www.schawk.com.

Shleifer, A. (1998). State versus private ownership. *Journal of Economic Perspectives*, 12 (4), 133-150.

Simon, O.O., EI-maude, A.M., Jibreel, G., & Abam, A.I. (2013). E-banking and bank performance: Evidences from Nigeria. *International Journal of Scientific Engineering and Technology*, 2 (8), 766-771.

Tennakoon, W.D.N.S.M. (2014). Potentialities and limitations of electronic commerce: An industrial perspective. *1st Wayamba International Conference*, Wayamba University of Sri Lanka, Kuliyapitiya, Sri Lanka.

Tennakoon, W.D.N.S.M., & Manodara, D.K. (2017). ICT usage and employee effeteness: A case of state commercial Banks in Sri Lanka. *Global Academy of Training & Research (GATR)*. Kuala Lumpur, Malaysia.

Tian, Y., & Stewart, C. (2008). *History of E-Commerce.* In Becker, A. (Eds*.), Electronic Commerce: Concepts, Methodologies, Tools, and Applications*. IGI Global.

Too, V.K., Ayuma, C., & Ambrose, K. (2016). Effects of mobile banking on the financial performance of commercial banks in Kapsabet (Kenya): A case of selected banks in Kapsabet town. *Journal of Business & Management,* 18 (10), 37-48.

Turban, E., Outland, J., King., D., Lee, J. K., Liang, T. P., & Turban, D. C. (2018*). Electronic Commerce: A Managerial and Social Networks Perspective*. Springer Texts in Business and Economics. German.

Weerasinghe, W.P.H.N., Ekanayake, E.M.N.K., Wijekoon, W.W.M.N.S.B., Katthuriarachchi, R.P.S., Wanniarachchi, W.A.A.M., & Wijayaratna, W.M.S.R.B. (2019). A comparative study of private and public sector E-banking in Sri Lanka: Analysis of critical success factors (September 12, 2019). *International Research Conference*, General Sir John Kotelawala Defense University, Sri Lanka. Retrieved from http://dx.doi.org/10.2139/ssrn.3522632.

Wu, F., Mahajan, V., & Balasubramanian, S. (2003). An analysis of E-business adoption and its impact on business performance. *Journal of the Academy of Marketing Science*, 31 (4), 425-447.

Xu, B., & Hu, H. (2013). Impact of government ownership on performance: Evidence from major Chinese banks. Unpublished dissertation.

Yapa, S.T.W.S., & Hasara, K.M. (2013). Bank service quality in Sri Lanka: A comparative study between public and private sectors. *3rd Asia-Pacific Business Research Conference*, February, Kuala Lumpur, Malaysia.

Yusuf, E. E. & Bala, A. (2015). Empirical analysis of service quality, reliability and end-user satisfaction on electronic banking in Nigeria. *IOSR Journal of Business and Management,* 17 (10), 28-34.