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Strategic Context for Internet Banking: How Traditional Banks Manage e-Commerce to Build IT Capabilities and Improve Performance

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Abstract

Many studies have undertaken to show the impact of e-commerce on firm performance, but with mixed results. Therefore this study examines e-banking strategy and implementation, by developing a comprehensive model showing the particular strategic context (strategic role) of the e-commerce unit, the strategic control systems employed,

and the nature of IT capabilities developed, in order to explain firm performance for banks. This study found that a more aggressive strategic context is associated with greater usage of strategic control systems, which comprise input controls, informal controls, formal targets and formal processes. Further, strategic controls is partly associated with IT capabilities, IT capabilities is partly associated with intermediate performance metrics (revenue enhancement, but not cost reduction), and intermediate performance metrics are associated with final firm profitability. A discussion and managerial implications for banks are given.

Keywords: **Strategic context; strategic control systems; e-commerce**

INTRODUCTION

The resource-based view of the firm (RBV) argues that resources are the source of firm competitive advantage (Barney, 1991; Wernerfelt, 1984). Therefore, firm performance depends upon how the firm manages and directs its resources. The issue of managing resource flows of new ventures is particularly important in the case of traditional banks pursuing e-commerce. The strategic role of the e-commerce venture is termed its strategic context. The strategic context of the e-commerce unit indicates the extent of resource flows to and from the banking unit (Callaway, 2006).

The concept of strategic context may be used to identify and assess critical information about the strategic management of the unit, and directly relates to the control of resource flows. Therefore, organizational control systems are critical for how firms manage resources such as IT. Specific archetypes of strategic control systems include input-based (focused on recruiting and training), clan control (informal norms and values), output-based (focused on incentives for achieving certain outcomes), or behavior-based (focused on following particular policies and procedures) (Kirsch, 1996; Ouchi, 1979, 1980; Snell, 1992).

The case of high internal and external resource flows, indicating the venture demonstrates greater strategic importance, means the unit is important and influential to the bank, yet also connected to and influenced by external constituents (Pfeffer & Salancik, 1978). Therefore the greater strategic context is associated with a greater use of all the aforementioned strategic control systems. Furthermore, the e-commerce unit may use existing corporate IT resources to help launch the e-commerce unit, and the e-commerce unit can then be used to help develop further IT resources that can be used throughout the corporation, leading to the development of IT capabilities. IT capabilities are an outcome of how a firm leverages its website and e-commerce operations. In short, a well-developed and successful website constitutes an IT capability.

Organizations must excel at two extremes simultaneously; they must generate both structure and improvisation, exploit the current source of competitive advantage while continually adapting and creating new ones, and generate both scale and flexibility (Beinhocker, 1997; Brown & Eisenhardt, 1998). Some IT resources and control systems may be extremely codified and explicit, establishing formal rules and targets, where

explicit tasks are prescribed, emphasizing efficiency. Other systems may be rather more flexible, allowing substantial authority and empowerment at the local level (Hedlund, 1994). In short, these strategic controls are essential for banks to balance these competing demands, and therefore lead to the development of IT capabilities.

Moreover, the strategic context also relates to how the bank balances efficiency and innovation. That is, the context may relate to key goals like efficiency or innovation. A more aggressive strategic context clearly demonstrates a higher strategic priority, reflecting maximum flow of internal and external resources. This approach maximizes the balance between efficiency and innovation. Because the e-commerce creates substantial opportunities both for cost reduction and presenting new sources of revenue, banks with a well-developed e-commerce unit will likely demonstrate superior performance; measured by revenue enhancement and cost efficiency (intermediate performance metrics). As a result, banks that develop a strong website, meaning they have developed IT capabilities, may expand their business and generate new sources of income, while utilizing a lower cost delivery medium (Callaway, 2011). Of course, these intermediate performance dimensions, revenue enhancement and cost reduction, are associated with final performance, measured by profitability and returns. Finally, e-commerce offers a low cost way for banks to expand market reach and product breadth (Pyun et al., 2002), meaning IT capabilities (i.e., a successful website) leads to improved final performance.

Therefore, the central research questions for this paper are: How does the strategic context of a bank's e-commerce unit influence the strategic control systems utilized, and therefore the development of IT capabilities associated with that website? How do those IT capabilities influence firm performance? First, current research on strategic context, strategic controls, and IT capabilities is described, and hypotheses are created. The methodology and results sections are described next. Finally, a discussion concludes the paper, including research and managerial implications.

THEORY AND HYPOTHESES

Strategic Context and Control System

The resource-based view of the firm (RBV) argues that resources are the source of firm competitive advantage (Barney, 1991; Wernerfelt, 1984). Therefore, firm performance depends upon the firm managing its resources effectively. In particular, firms must be able to manage its resource flows between subsidiaries or units, which have ramifications for the strategic importance of those subsidiaries. As such, Gupta & Govindarajan (1991) posed a typology of subsidiary context by focusing on knowledge flows between units within a corporation. Following, Callaway (2006) presented a matrix depicting a unit's strategic context in relation to how a traditional firm may develop a new technology or business, such as in the case of internal corporate ventures (Burgelman, 1983; Burgelman & Sayles, 1986). The matrix posed the two dimensions of resource flows as the inflow of resources from corporate to the new unit, and the outflow of resources from the unit to corporate (Callaway, 2006).

Brown & Eisenhardt (1998) argued that organizations need to blend the past and the present, that is, to utilize the old (an established, legitimated architecture) and the new (a novel contribution). Even firms developing innovative new technologies may get into

trouble by ignoring the past, such as an accepted standard, thereby demonstrating too much disconnect. Furthermore, firms must strike an ideal balance of internal collaboration within the organization, using a standard technology, sharing a distribution channel, sharing knowledge, etc.; along with seeking out external resources. Overall, strategic context relates to the dependence of the venture on the corporation as well as the contribution of the venture to the corporation, and gets to the heart of strategically balancing "the old and the new" (Brown & Eisenhardt, 1998). The greater the flow of resources both to and from the new venture, the greater its strategic context.

These issues of balancing the old and the new are particularly important in the case of established banks that pursue Internet Banking along with their traditional branch business. Indeed all bank units must continue to develop innovative products in order to keep up with changing technologies and customer demands, as traditional banks have pioneered the development of many innovative delivery channels including telephone banking, drive-through banking, and ATMs (Booz, Allen & Hamilton, 1999; Gopalakrishnan, Wischnevsky & Damanpour, 2003). Moreover, the relationship of Internet Banking units to headquarters has shifted to a more integrated role over the last few years, as many banks view Internet Banking simply as a remote delivery channel (Gopalakrishnan, Wischnevsky & Damanpour, 2003).

According to Callaway (2006), strategic context of the e-commerce unit indicates the extent of resource flows to and from the banking unit. A more independent unit, indicating minimal resource flows, serves to accumulate just enough external resources to survive, but does not disseminate these resources throughout the rest of the organization. The external resources are only those that the unit requires in order to survive and carry out its mission, so the unit relies little on traditional resources from the organization to complement these new resources. A more integrated unit, indicating maximum resource flows, serves to acquire external resources for the purpose of disseminating them across the corporation; however the unit is not self-sufficient in those resources needed to carry out this mission. In this sense, the overall goal of the corporation, through this integrated unit, is to combine the best of the old with the best of the new. The unit acts to combine the traditional knowledge and resources with new knowledge and resources associated with the e-commerce venture (Callaway, 2006).

The concept of strategic context may be used to identify and assess critical information about the strategic management of ventures vs. traditional units. Therefore, organizational control systems are critical for how firms manage resources such as IT. Specific archetypes of strategic control systems are typically utilized for achieving management of resource flows. For example, Kirsch (1996), Ouchi (1979, 1980) and Snell (1992) argued that a firm's strategic controls may be input-based (focused on recruiting and training), clan control (informal ritual and norms), output-based (focused on incentives for achieving certain outcomes), or behavior-based (focused on following particular policies and procedures). Various external factors affect which controls are most appropriate (Kirsch, 1996; Ouchi, 1979, 1980; Snell, 1992).

A venture with a greater strategic importance demonstrates greater IT resource flows, and so these flows must be effectively managed. This situation of high internal and external resource flows means the unit is important and influential to the bank, yet connected to and influenced by external constituents (Pfeffer & Salancik, 1978) as well.

As such, Internet Banking plays a critical role in combining traditional bank IT with creating new technologies from e-commerce. According to Callaway & Jagani (2015), Internet Banking allows for the creation of new technology-driven products and services, and increases a bank's demographic reach to new and unfamiliar markets, requiring new and different banking practices (Furst, Lang, & Nolle, 2000; Gopalakrishnan et al., 2003). Internet banking is changing the global banking industry, blurring the traditional lines between product, market, and customer base (Pyun, Scruggs, & Nam, 2002) (Sullivan, 2000). Indeed Gopalakrishnan et al. (2003) identified the key benefits of internet banking as the reduction of transaction costs, the expansion of market reach, the extension of product tailoring, and enhancing customer convenience. The relative importance of these benefits depends upon the unit's strategic context.

First, one key success factor for banking, including internet banking, is efficiency and cost reduction. Using innovative technologies to reach out to customers reduces cost and improves overall efficiency. Efficiency is critical for bank performance, including making more productive loans (Fries & Taci, 2005). Advanced technologies enable communication with customers faster and at lower cost, and provide them the information and services they seek more efficiently (Booz, Allen & Hamilton, 1999; Gopalakrishnan, Wischnevsky & Damanpour, 2003). Banks may use e-commerce for cost reduction purposes, and so focus on efficient implementation of objectives, emphasizing goal specificity and formalization of rules (Scott, 1992). In this context, formal rules are particularly effective. That is, behavioral controls (formal rules, policies, procedures) are useful for standardizing efficiency and establishing consistency (Kirsch, 1996; Ouchi, 1979).

Second, banks face pressures for achieving growth objectives. Major US banks face a critical challenge: given reduced opportunities for growth through acquisitions, it is essential to find ways to grow organically, that is, to expand its existing business by attracting more customers, and fulfilling a greater share of their banking needs (offering more products and services to them) (Thomke, 2003). This necessary aggressive growth strategy likely will likely require a substantial increase in sales requirements for unit managers, with the corresponding needed rewards and incentive programs. That is, individual units may face competition to achieve sales goals, requiring incentives for meeting formal targets. However, this emphasis on sales quotas does not replace the traditional emphasis on efficiency and rules, rather it complements it (Callaway & Jagani, 2015; Thomke, 2003.)

Third, a greater strategic importance is associated with greater utilization of both input strategic controls (recruiting and training) and informal rules. This argument is premised upon the importance of the management of the lateral interdependence of the banking units. Greater resource flows, both internal and external, lead to more give and take, and mutual reliance, leading to more emphasis on recruiting and training programs (Callaway, 2006). The more extensive resource flows also create greater uncertainty. The emphasis on recruiting and training managers reflects a greater emphasis on the empowerment of local managers, important for encouraging innovation and entrepreneurship. Informal rules are also important for strategic context. The adoption of informal rules, norms and values, and the dissemination of external institutionalized norms, may be particularly important for banking ventures facing this substantial uncertainty (DiMaggio & Powell, 1983; Meyer & Rowan, 1977). The informal rules and

norms provide an effective way to encourage teamwork, coordination and sharing.

According to Thomke (2003), a major global bank illustrates each of these approaches to strategic control. The bank created an *innovation market* within the bank's existing network of branches. These units provided "a test bed for creative ideas" designed to increase customer satisfaction and increase revenue. In this sense, unit managers became individual entrepreneurs, while the key to success for the bank relied upon substantial knowledge sharing among all the bank managers and the corporate level. A key point, though, is that the bank's innovation and experimentation had to be conducted efficiently, at a reasonable cost, and its results had to be accurately measured. Even with the local innovation, managers at the branches still earned a substantial portion of their total pay from performance bonuses related to metrics such as meeting various targets: sales quotas, the number of different products sold, the branch's customer satisfaction levels, market demographics, and incentives based upon team performance (Callaway & Jagani, 2015; Thomke, 2003). Standardizing processes for cost efficiency, offering rewards for meeting targets, investing in managers and associates with recruiting and training, and creating a culture of teamwork and sharing through informal rules, all were critical for this bank. So, a more important strategic context, demonstrating greater flows of internal and external resources, is associated with a greater use of all the aforementioned strategic control systems. Thus,

H1: A greater strategic context is positively associated with greater utilization of strategic control systems.

IT Capabilities

IT resource flows are critical for a firm to develop IT capabilities. It is important to note the difference between IT resources and IT capabilities. IT resources itself will not necessarily lead to sustained competitive advantage (Bharadwaj, 2000; Santhnam & Hartono, 2003). According to Mata et al. (1995), value resides more in the firm's ability to utilize IT than in the technology resource itself. Rather firms innovatively and creatively integrate the resources and accordingly develop unique capabilities from these core IT resources. Therefore, IT resources are the input, which eventually leads to the development of IT capabilities (the output), which is the source of superior firm performance (Muhanna et al., 2010). However, how the firm manages the flow of IT resources to and from the e-commerce venture is the first step toward developing IT capabilities.

As such, the e-commerce unit may use existing critical corporate IT resources to help launch the e-commerce unit, while the e-commerce unit can then be used to help develop further IT resources that can be used throughout the corporation. If these resource flows are managed correctly, the firm should be able to develop IT capabilities associated with the e-commerce unit. A firm's IT capability, the outcome of IT resources, specifically refers to "the firm's capacity to leverage the potential of information technology by effectively deploying IT resources in combination or co-present with other resources in the organization" (Bharadwaj, 2000; Santhnam & Hartono, 2003). As firms innovatively and creatively integrate various resources, they are more likely to develop unique capabilities from these core IT resources (Zhang, et al., 2005).

Indeed, the website of a company engaged in e-commerce is critical, since it comprises

the critical interface between buyer and seller (Bitner, Stephen and Meuter, 2000). That is, a well-developed website is a key part of delivering customer value (Bitner, Stephen and Meuter 2000; Saeed, Grover and Yujong 2005). A company with a good e-commerce strategy can leverage website technologies in order to enhance customer value as it is then able to provide superior customer service (Saeed, Grover and Yujong 2005), by innovatively integrating its various firm resources. That is, IT capabilities are an outcome of how a firm leverages its website and e-commerce operations. In short, a well-developed and successful website constitutes a capability. Because the strategic context is critical to this process, a greater strategic context is associated with the development of greater IT capabilities. Thus,

H2: A greater strategic context is positively associated with IT capabilities.

According to Callaway, et al. (2009), a major investment in information technology may be associated with a lock-in to a particular technology (Reddy 2006; Shapiro and Varian 1999). These past information technology systems, or legacy systems, while very efficient, potentially may reduce a firm's strategic flexibility if not controlled properly (Reddy 2006). Strategic control systems are essential for balancing this efficiency and flexibility. The information technology lock-in has special implications for intra-firm and inter-firm relationships, particularly in an increasingly dynamic external environment where creativity and innovation is so essential, as well as cost efficiency (Hitt et al.1998). Therefore, the strategic control systems, critical for driving efficiency, growth, and / or innovation, are essential for these relationships to develop into actual IT capabilities. That is, strategic control systems are essential for firms to innovatively and creatively integrate various resources, which in turn is what leads to the development of IT capabilities.

IT resources are associated with streamlined procedures and improving communication. At the same time, however, according to Batra (2006), IT systems offer organizations the opportunity for functional integration, multi-skilled staff, rapid and flexible decision making structures, greater autonomy of operating units, and a more flexible and organic approach. That is, while IT processes and resources are associated with monitoring and governance systems, they can also be a part of participative management, rationalize personnel strength, and reduce the number of hierarchical levels. This approach emphasizes the importance of employees, whereby managers delegate tasks and push decision making to lower levels (Batra, 2006). Recruiting and training (critical for individual empowerment), as well as informal norms and rules (critical for teamwork and cooperation), are an essential part of the potential for IT to achieve these benefits.

Overall, some IT resources and control systems may be extremely codified and explicit, establishing formal rules and targets, where explicit tasks are prescribed, emphasizing efficiency. Other control systems may be rather more flexible, allowing substantial authority and empowerment at the local level (Hedlund, 1994). The interaction between organization training and the use of technology is considered an integral part of the structuring and control of organizations (Child, 1972; Foo, 1995). Formal processes along with investments in people to promote employee empowerment work together. Firms establish both formal structure and flexibility in incorporating technologies, while instituting training, standardized processes, electronic communication, and leadership (Curlee, 2008). That is, organizations must excel at two extremes simultaneously; they

must pursue focused and robust strategies, generate both structure and improvisation, exploit the current source of competitive advantage while continually adapting and creating new ones, and generate both scale and flexibility (Beinhocker, 1997; Brown & Eisenhardt, 1998). In short, all of these strategic control systems are essential for organizations to balance these competing demands, thereby leading to the development of IT capabilities (demonstrated in a successful website). In sum,

H3: Greater utilization of strategic control systems is positively associated with IT capabilities.

Performance implications

Greater utilization of control systems reflects a greater strategic context. A greater utilization of control systems is also necessary for firm performance. That is, the strategic context requires control systems to make sure that goals and objectives are met. Greater control systems means greater standardizing processes for cost efficiency, offering more rewards for meeting targets, investing more in managers and associates with recruiting and training, and creating a culture of teamwork and sharing through informal rules, all are a critical part of ensuring the successful execution of strategy. Strategic control systems are what enable the aforementioned functional integration, rapid and flexible decision making structures, and a more flexible and organic approach, along with efficiency and standardization. Strategic controls emphasize the importance of employees, whereby managers delegate tasks and push decision making to lower levels, all the while establishing rigid governance systems (Batra, 2006). The success of both standardization and creativity are necessary for firm performance.

That is, an aggressive utilization of strategic control systems, including both standardizing processes for efficiency, and encouraging innovation and teamwork, clearly demonstrates the greatest commitment to immediate cost control and future growth. This approach maximizes balancing and maximizing both efficiency and innovation, that is, balancing the old and the new. This approach reflects maximum coordination between the unit and the traditional bank to drive efficiency, as well as maximum flexibility and innovation. In this sense, the strategic control systems are essential for the e-commerce unit to create new technology-driven products and services, and increase the bank's demographic reach to new and unfamiliar markets, requiring different banking practices, but still in a cost efficient manner (Furst, Lang, & Nolle, 2000; Gopalakrishnan et al., 2003).

Because the e-commerce unit creates substantial opportunities both for cost reduction and presenting new sources of revenue, banks with strong strategic control systems have the potential to demonstrate superior performance. To understand why, it is important to examine performance outcomes comprehensively, addressing not only typical measures of performance for banking – net income and return on assets (e.g., Hernando and Nieto 2007; Reynolds, Ratanakomut and Gander 2000), but also noninterest income (revenue enhancement) and noninterest expenses (cost reduction) (Callaway, 2011). As such, intermediate performance metrics constitute the two critical dimensions of revenue enhancement and cost efficiency. In short, final performance as measured by profitability or returns, indicates what the bank is achieving on the bottom line. Key intermediate performance metrics indicate at a deeper level of understanding why the bank is achieving those numbers. In sum,

H4: Greater utilization of strategic control systems is positively associated with intermediate performance (revenue enhancement and cost efficiency).

Tallon and Kraemer (2003) argued that many firms make considerable investments in IT resources in order to build static capabilities, such as reducing operating costs, perhaps related to a particular product or supplier (Prahalad and Krishnan 2002). IT capabilities should also lower external coordination and internal organization costs by reducing search costs and enabling firms along the value chain to collaborate more closely, helping to make the firm more flexible (Gurbaxani and Whang 1991). That is, according to Reddy (2006), the impact of IT on performance relates to two perspectives: Coordination theory, which focuses on reducing transaction costs for current relationships; and resource-based theory, which focuses on how IT is a dynamic capability (see also Malone and Smith 1988;Malone et al. 1987; as well as Bharadwaj 2000; Byrd 2001; Hitt et al. 1998). As such, IT capabilities achieve two benefits: Superior coordination of current transactions; and building dynamic capabilities to better manage complex and changing business relationships for future innovation and growth (see, also Callaway, Celuch & Murphy, 2009). Indeed, Xue et al. (2012) addressed the impact of IT on the two critical dimensions of organizational performance; innovation (new products and exploring revenue growth opportunities) and efficiency (cost reduction).

A successful website indeed can be a critical part of a firm's efficiency and flexibility, leading to both revenue enhancement and cost reduction. E-commerce has the potential to improve both noninterest income (revenue enhancement) and noninterest expenses (cost reduction). According to the FDIC, noninterest income indicates the ability of the bank to generate additional sources of income beyond traditional interest-bearing assets (such as loans), and includes items such as brokerage and underwriting fees, securitization income, service fees, insurance commissions, fees, and income. Noninterest expenses may include items such as salaries, benefits, premises and equipment expenses (http://www2.fdic.gov). That is, a bank which has successfully integrated its website operations into other business processes may be able to reduce costs by using staff and physical branches more efficiently, and reduce costs for postage, printing, or paper supplies. As a result, banks that develop a popular website with a strong reputation have the potential to expand their business and generate new sources of income, while utilizing a lower cost delivery medium (Callaway, 2011). Thus,

H5: IT capabilities are positively associated with intermediate performance (revenue enhancement and cost reduction).

For a firm to achieve long term competitive advantage, it is essential to demonstrate superior profits and returns. There are fundamentally two critical ways a firm may achieve greater profitability. One is to find new ways to better meet customer needs (create customer value now and in the future), the other is to do so efficiently. This necessity relates to effectiveness (doing the right things for customers) vs. efficiency (driving down costs) (Xue et al., 2012). One dimension constitutes growth objectives (revenue enhancement); the other dimension constitutes cost objectives (cost reduction). Similarly, a comprehensive way to measure organizational performance, the balanced scorecard, addresses the customer and innovation perspectives (i.e., customer satisfaction and innovation), as well as the internal business processes perspective (i.e., efficiency in managing organizational assets), which then drive financial performance

(i.e., profitability) (Kaplan & Norton 1992). Furthermore, a study by Batem & Begum (2014) addressed the impact of cost efficiency on final profit efficiency for banks. Indeed, key banking studies already view bank performance as the result of both revenue enhancement and cost reduction (see, for example, Cornett, et al., 2006). Thus,

H6: Intermediate performance (revenue enhancement and cost reduction) is positively associated with final performance.

Information technology (IT) has long been recognized for its potential role in contributing to sustained competitive advantage for firms (Barney, 1991; Feeny & Ives, 1990; Swierczek & Shrestha, 2003; Vargas, Hernandez, & Bruque, 2003). According to Batra (2006), IT has created an information society where a substantial amount of information is available, bringing increased power and greater choices. Research has shown that IT investments are related to the development of important capabilities that in turn have been shown to improve firm performance (Bharadwaj, 2000; Powell & Dent-Metcalf, 1997; Santhanam & Hartono, 2003). These skills involve management's ability to develop and leverage IT applications to support and contribute to other business functions. Integrating and coordinating the core IT resources (i.e., developing IT capabilities) serves as a source of sustainable competitive advantage owing to their nature and development (achieving more complex coordination across the IT function, other business functions, customers, etc., over time) (Mata et al., 1995).

A well-developed and well-coordinated e-commerce unit, of course, reflects these capabilities. Internet business facilitates external knowledge acquisition and intra-firm knowledge dissemination needs, improving the firm's absorptive capacity (Liao et al., 2003). Specifically, a company's e-commerce website is also essential for delivering customer value (Bitner et al., 2000). Moreover, e-commerce offers a low cost way for banks to expand market reach and product breadth, and bank websites offer portals connecting customers to a host of financial products, increasing cross-selling opportunities (Pyun et al., 2002). For example, Kaur (2012) found that better utilization of IT improved branch productivity for banks. As such, IT capabilities, demonstrated in a successful website, should lead to improved bottom line performance (measured by profitability / returns).

H7: IT capabilities are positively associated with final performance.

METHODOLOGY

Sample

We used three different sources of data for this research: Primary data collected from a survey, secondary data as performance collected from the FDIC website, and secondary data from Alexa.com for IT capabilities. A database was first created by downloading data of 8304 FDIC-registered banks as of 2009. From this database, 731 banks were contacted by telephone, and information regarding their willingness to participate in the survey was obtained. Of these contacts, 375 banks showed their willingness to participate in the survey. Emails were sent to these participants that contained a link to the online survey and the explanation of the survey. We obtained 101 completed

responses from these participants. This reflected a 27% response rate of those agreeing to participate in the survey, having actually completed it; which is 13.8% of the total banks contacted (McFadden, Henagan, & Gowen III, 2009). In the current era of survey-based research, this response rate we obtained is adequate. Revealing the identity of respondent was optional. Those who revealed it were kept in sample, so we could match to secondary data, leaving 71 responses.

Using this methodological approach, the secondary data included in this study constituted objective measures of the corresponding important constructs like IT-capabilities, intermediate performance and final performance. As stated earlier, data were collected from three different sources; as the IT-capabilities (ITRank and ITReach) variables came from Alexa.com while the performance variables came from the FDIC. Utilization of multiple sources of data eliminates mono-method bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

Measures

Callaway (2006) depicted strategic context of bank units to explain the management of internal corporate venture as compared to traditional units. *Strategic Context* in our study is measured with two items. First, SC1– the respondent banks were asked to rate the importance of their IT-resources for developing e-commerce site. The scale anchor of 1 indicated that their existing IT-resources were not very relevant for developing e-commerce site and scale anchor of 7 indicated that well established IT-resources of their financial firm were instrumental in developing their e-commerce site. Then, SC2 – the respondents were asked whether the development of their e-commerce site has created any IT-resources. Scale anchor of 1 indicated that the development of their e-commerce site has not created any IT-resources which are relevant to the rest of their financial business and scale anchor of 7 indicated that development of their e-commerce site has created a significant IT-resource important to the rest of their financial services business.

We use Formal Rules, Formal Targets, Informal rules and Input Control System as a measure of strategic control systems of a firm. Three items were used to measure *Formal Rules* (these items had been tested in Daft & Macintosh, 1981; Kirsch, 1996). The measurement items were: FR1 – there is an understandable, written sequence of steps to be followed, FR2 – established materials (manuals, standards, directives, technical and professional books, etc.) exist, and FR3 – we are required to know a lot of existing, written procedures and standard practices. The scale anchors of 1 indicated the statement is not true at all and 7 indicated that it is very strongly true.

Three items were used to measure *Formal Targets* (Snell, 1992). The measurement items were: FT1 – performance evaluations place primary weight on results, FT2 – pay consists of performance based rewards, and FT3 – rewards are linked to concrete results. The scale anchors of 1 indicated the statement is not true at all and 7 indicated that it is very strongly true.

Three items were used to measure *Informal Rules* (concepts and items tested in prior studies from Fleishman, 1953; Shakeela, 2004). The measurement items were: IR1 – we push the staff for greater effort, IR2 – we emphasize meeting deadlines, and IR3 – we ensure that the staff is working up to capacity. The scale anchors of 1 indicated the statement is not true at all and 7 indicated that it is very strongly true.

Four items from Snell (1992), which were tested in prior studies, were used to measure *Input Control Systems* which. The measurement items were: IC1 – we have gone to great lengths to establish the best staffing procedures possible, IC2 – we take pride in the fact that we hire the very best people for a job, IC3 – we have a strong commitment to training and developing skilled managers, and IC4 – managers receive substantial training before they assume responsibility. The scale anchors of 1 indicated the statement is not true at all and 7 indicated that it is very strongly true.

IT-capabilities was measured in terms of the logarithm of IT Rank and the logarithm of IT Reach. Website rank and reach for each of these banks' websites were obtained from Alexa.com. The *global traffic rank* is a measure of the website's popularity. www.alexa.com calculates rank using data over the past 3 months of daily visitors to the site and page views on the site. We call this variable ITRank. Finally, the percent of global Internet users who visit the bank's website is termed *website reach*. We call this variable ITRank.

Finally, definitions of Return on assets (ROA), Return on Equity (ROE), Noninterest income to earning assets (NONIIY) and noninterest expense to earning assets (NONIXY) are adopted from FDIC website. ROA is defined as "Bank net income (including gains or losses on securities and extraordinary items) as a percentage of average total assets. The basic yardstick of bank profitability." ROE is defined as "Bank net income (including gains or losses on securities and extraordinary items) as a percentage of average total equity capital." (http://www2.fdic.gov/qbp/Glossary.asp). Section 5.1 of Risk Management Manual of Examination Policies (RMMEP) of FDIC defines Noninterest income to earning assets (NIIEA) as "annualized income from bank services and sources other than interest-bearing assets, divided by average assets". Noninterest income is largely of service charges on deposits, trust department income, mortgage servicing fees, and certain types of loan and commitment fees. Noninterest expense to earning assets (NIEEA) also termed as overhead ratio at FDIC website is defined as "annualizing expenses related to salaries and employees benefits, expenses of premises and fixed assets, and other noninterest expenses, divided by average assets". Some of the expenses that are included in NIEEA are excessive salaries and bonuses, sizable management fees paid to the bank holding company, and high net occupancy expenses caused by the purchase or construction of a new bank building. (FDIC, 2005)

RESULTS AND ANALYSIS

Using SPSS, factor analysis with varimax rotation was carried out producing five variables as shown in Table 1. As predicted, SC1 and SC2 produced Strategic Context. Formal Rules consisted of FR1, FR2 and FR3, Formal Targets consisted of FT1, FT2 and FT, Informal Rules consisted of IR1, IR2 and IR3 and, Input Control Systems consisted of IC1, IC2, IC3 and IC4. Each factor had an eigenvalue over 1.0. For Strategic Context, Input Control System, Informal Rules, Formal Rules and Formal Targets, Average Variance Extracted (AVE) was 0.800, 0.778, 0.761, 0.781 and 0.751 respectively. Cronbachs Alpha was 0.751, 0.906, 0.847, 0.861 and 0.834 respectively. Next, correlations were run on these variables plus ITRank, ITReach, NIIEA, NIEEA, ROA and ROE. Table 2 shows the correlation results.

Next, the hypotheses were tested using linear and multiple regression using SPSS. The results are shown in Tables 3-8. The first hypothesis indicated that Strategic Context is positively associated with Strategic Control Systems. Linear regression was carried out with the Strategic Control Systems variables Formal Rules (FR), Formal Targets (FT), Informal Rules (IR) and Input control system (IC) regressed one by one, with the independent variable Strategic Context. All the Strategic Controls variables generated strong regression coefficients with FR and IC significant at 0.01 level, and FT and IR significant at 0.05 level. F-values also showed significant results. The results strongly supported Hypothesis 1.

ITRank and ITReach, measures of IT Capabilities, were similarly regressed with Strategic Context, one by one. However, non-significant regression coefficients and F-values were obtained. Hypothesis 2, which indicated that Strategic Context is associated with IT Capabilities, is not supported. Table 3 shows tests results for Hypotheses 1 and 2.

Hypothesis 3 indicated that Strategic Controls are associated with IT Capabilities. Two sets of multiple regression analyses were done to test this hypothesis. FR, FT, IR and IC were the independent variables and regressed with both ITRank and ITReach, one by one. A check for multicollinearily was done. Variance Inflation Factor (VIF) in all the cases tested is under 2. If VIF is above 10 then multicollinearily is an issue (Aiken & West, 1991). For ITRank, a strong regression coefficient was generated significant at .05 level. Similarly, all the variables of Strategic Controls were regressed with ITReach. Again, VIF was in an acceptable range to eliminate multicollinearily concerns. However the regression coefficient was not significant. Strategic Controls cannot predict ITReach. Thus, Hypothesis 3 was partially supported. Table 4a and 4b shows test results for Hypothesis 3.

Intermediate Performance consisted of two observed variables, noninterest income to earning assets (NIIEA) and noninterest expense to earning assets (NIEEA). Multiple regression was carried out with Strategic Controls variables as the independent variables and NIIEA as first dependent variable and then NIEEA as the second dependent variable. Since VIF was around 2.0, multicollinearily was not an issue. However, the regression coefficients were not significant, so we cannot conclude that Strategic Controls predicts Intermediate Performance. Therefore, Hypothesis 4 is not supported. Table 5a and 5b shows test results for Hypothesis 4.

Hypothesis 5 argued that IT Capabilities is associated with Intermediate Performance (revenue enhancement and cost reduction). Linear regressions were individually carried out with ITRank and ITReach as independent variables turn by turn, and NIIEA and NIEEA as the dependent variables. The results indicated that ITRank significantly predicted NIIEA while failing to predict NIEEA. However, ITReach did not significantly predict NIIEA or NIEEA. Thus, Hypothesis 5 was partially supported. Table 6a and 6b shows test results for Hypothesis 5

Hypothesis 6 argued that Intermediate Performance predicts Final Performance. Multiple linear regression was performed with NIIEA and NIEEA as the independent variables and ROA and ROA as the dependent variables, one by one. Results generated high regression coefficients indicating Intermediate Performance is associated with Final

Performance. Thus, we find strong support for Hypothesis 6. Table 7a and 7b shows test results for Hypothesis 6.

Finally, Hypothesis 7 argued that IT Capabilities is associated with Final Performance. Therefore, to test this, ITRank and ITReach were regressed turn by turn with ROE and ROA as dependent variables. However the regression coefficients were not strong enough to conclude that IT Capabilities significantly predicts Final Performance. Thus, Hypothesis 7 was not supported. Table 8a and 8b shows test results for Hypothesis 7.

DISCUSSION AND CONCLUSION

This study examines the relationship of strategic context and strategic controls on the development of IT capabilities in banking institutions, and the corresponding impact on performance. Many studies have undertaken to show the impact of e-commerce on firm performance, but with mixed results. Therefore this study has developed a comprehensive model showing the particular strategic role of the e-commerce unit, the strategic control systems employed, and the nature of IT capabilities developed, in order to explain firm performance. Given that firm performance depends upon both revenue growth and efficiency in operations, and that e-commerce is well-established to be able to achieve both, this study is important. Further, given that control systems have the important function of encouraging creativity and innovation (important for future growth) as well as controlling costs, and that IT systems have the function of improving efficiency and offering greater information to encourage local innovation (Batra & Reddy), this study is important. As such, this study has found that a more aggressive strategic context is associated with greater usage of strategic control systems, which comprise input controls, informal controls, formal targets and formal processes. Further strategic controls is partly associated with IT capabilities, IT capabilities is partly associated with intermediate performance metrics (revenue enhancement, but not cost reduction), and intermediate performance metrics are associated with final firm profitability. This study shows that effectively managing resource flows is critical for firms to achieve competitive advantage.

Scholarly implications

This paper makes both theoretical and empirical contributions. A key theoretical contribution is explaining firm performance for banks pursuing e-commerce. Many studies have undertaken to show the impact of internet banking on performance, but with mixed results. Simply assessing the extent of internet commerce and the impact on performance fails to explain firm performance adequately. Many other variables are essential for understanding e-commerce. Therefore this study developed a comprehensive model showing the particular strategic role (termed the strategic context) of the e-commerce unit, the relation of strategic context to strategic control systems utilized, and the nature of IT capabilities developed, in order to explain firm performance.

This paper also makes an important empirical contribution. Data were collected from three different sources, comprising both primary and secondary data. Regarding secondary data, the IT-capabilities variable came from Alexa.com and the performance variables came from the FDIC. The strategic controls and strategic context constructs came from questionnaire data, including new items as well as items that had been verified in prior research. It is particularly important that the outcome variables came from secondary sources and different sources than the antecedent variables. Overall,

this utilization of multiple sources of data eliminates mono-method bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). For this reason, the performance implications are quite robust.

The results of this study shed light on how firms pursuing new ventures, particularly e-commerce ventures, can improve performance. First, the strategic context of the venture is critical. This strategic context (role) comprises two dimensions, inflow of external resources and outflow of internal resources. Interestingly, these two dimensions were highly correlated. That is, the strategic role seemed to indicate how independent or integrated the venture was, meaning both high inflow and outflow, or both low inflow and outflow. A unit pursuing pure cost reduction, such as utilizing internal resources as a platform just to implement the banking strategy via the internet; or a venture focusing purely on innovation, attempting to transform the bank by bringing in substantial external knowledge, but with few corporate ties initially; were rather atypical. It seemed that strategic context simply measured how aggressive the internet banking unit was.

A second interesting insight gained from this study, was that all four strategic control archetypes, input controls, informal rules, formal targets, and formal rules, typically complement one another rather than some replacing others. This observation likely is related to the first. A more aggressive strategic context did not lead to more controls focusing on innovation (such as informal rules and input controls) and less on standardization and cost reduction controls (such as formal rules), but instead the more aggressive context was associated with a greater utilization of all the controls. Control simply became more important. A case illustration from Thomke (2003) indicated that a major bank's aggressive venturing had to be conducted efficiently and at a reasonable cost. That is, even while local managers were empowered to pursue innovation at their local branches, they still earned substantial pay from performance bonuses tied to sales quotas, the number of different products sold, as well as incentives based upon team performance (Thomke, 2003). That is, standardizing rules for cost reduction, offering incentives for meeting targets, investing in local managers through recruiting and training, and creating a culture of teamwork and sharing, all are important to improve banking performance.

Third, and related to performance implications, it is interesting that IT capabilities were associated with greater revenue, but was not associated with reduced cost. This finding may be a key problem facing traditional firms that are pursuing e-commerce. That is, according to Callaway (2011), positive findings regarding noninterest income suggests that greater e-commerce is associated with a greater ability to find new and different sources of revenue beyond traditional loans. That is, banks apparently have used e-commerce to cross-sell other products successfully, by bundling banking, investments, and insurance products at one convenient place. However, the fact that e-commerce was not associated with reduced noninterest expenses indicate that the promise of reduced costs and greater efficiency has yet to materialize. There are fixed costs associated with establishing online banking and technical support, before being able to reduce transaction costs. However, many banks utilize Internet banking to complement rather than reduce or replace traditional branch activities (Hernando and Nieto 2007; Holloway 2009). That is, if these institutions continue to build and staff branches, the cost-reduction potential of online banking may never show up in final performance (Holloway 2009). Spending more on e-commerce may not necessarily mean reduced

overhead with traditional branches, so greater efficiencies and cost reduction has yet to materialize (Callaway, 2011).

Managerial implications

This study also provides important insights for managers. First, more banks are creating new products, designing new services, entering into new customer segments, and expanding globally (Gopalakrishnan, Wischnevsky & Damanpour, 2003). As such, top level managers and local branch managers must be able to manage the abundance of increasingly diverse information (Grandori, 2001). The more aggressive context creates substantial opportunities for creativity and innovation, as financial institutions have had to be very creative and innovative in developing IT capabilities (Gopalakrishnan, Wischnevsky & Damanpour, 2003). Therefore, it is essential for these institutions to standardize processes for designing financial products and interacting with customers, yet maintain the level of innovation necessary for improved firm performance (Reddy, 2006). For example, the current findings may emphasize the importance of investing in people who deal with important industry regulations, so that they are equipped to handle local accountability and decision making. Again, standardization and innovation go hand in hand.

The fact that the promise of reduced costs and greater efficiency has yet to occur also has important implications for banking managers. The fixed costs from establishing online banking and providing technical support must be recouped, by being able to reduce transaction costs in the longer term. Bank executives must reconsider whether they want to utilize Internet banking to complement rather than reduce traditional branch activities, as was detailed by Hernando and Nieto (2007) and Holloway (2009). That is, more banking institutions, in order to improve firm performance, may need to find a way to reduce traditional branch activities while developing their e-commerce sites, drawing a new focus on cost reduction. Managers have already found a way to enhance revenue, now they must focus on reducing costs.

LIMITATIONS AND FUTURE RESEARCH

There are some limitations to this study. First, there is a need to establish more complete measures of IT capabilities. This study only examined the reach and rank of the website. While that may be a good measure of the popularity of the website, IT capabilities are a much more comprehensive construct. Therefore multi-item measures spanning all facets of IT should be incorporated in future studies. For example, future research could follow the approach of Roche (2014) and Paschaloudis & Tsourela (2014) in examining Internet Service Quality as a particular form of IT capabilities for Internet Banking.

Second, future research could further develop the model and extend the methodology utilized in this study. There is a need to use simultaneous equations in assessing the model posed here. Structural equations modeling would enhance the model greatly, as a way to ascertain how these relationships are mediated. For this reason, a much larger sample size is required, perhaps 200-300 observations. Furthermore, this study used cross sectional data. Future research could test causality, perhaps utilizing time series data. Doing so would go beyond simply testing associations, and would actually shed some light on the direction of the relationships in the model.

Finally, this study intentionally looked only at banking institutions. As a result of this

limited sample, however, interpretations regarding the generalizability of the study should be made cautiously. Future studies should examine other financial services industries beyond banking, and other industries beyond financial services. Hopefully this study will be the start of many addressing the strategic control of new ventures that help firms develop the capabilities necessary to improve performance. Much more research is still warranted to understand the role of strategic context, strategic controls systems, and the development of IT capabilities, in this process.

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Table 1: Factor Analysis

	Strategic Context	Input Control System	Informal Rules	Formal Rules	Formal Targets
SC1	0.879	0.297	0.267	0.291	0.226
SC2	0.910	0.252	0.255	0.404	0.309
IC1	0.309	0.872	0.584	0.298	0.315
IC2	0.268	0.879	0.608	0.388	0.310
IC3	0.226	0.908	0.547	0.343	0.361
IC4	0.258	0.869	0.599	0.473	0.543
IR1	0.264	0.641	0.867	0.345	0.422
IR2	0.293	0.515	0.899	0.469	0.415
IR3	0.175	0.609	0.851	0.508	0.467
FR1	0.363	0.400	0.450	0.911	0.410
FR2	0.273	0.264	0.389	0.881	0.561
FR3	0.383	0.427	0.460	0.859	0.418
FT1	0.278	0.553	0.542	0.458	0.824
FT2	0.217	0.281	0.342	0.452	0.867
FT3	0.279	0.263	0.372	0.426	0.907
Cronbachs Alpha	0.751	0.906	0.847	0.861	0.834
Eigen Values	4.116	4.712	5.011	4.858	4.082
AVE	0.800	0.778	0.761	0.781	0.751
N	73	73	73	73	73