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Adoption of Web-Based Transactional Banking: Efficiency-Choice and Neo-Institutional Perspectives

Sharon Tan
Carnegie Mellon University

Mark Fichman
Carnegie Mellon University

ADOPTION OF WEB-BASED TRANSACTIONAL BANKING: EFFICIENCY-CHOICE AND NEO-INSTITUTIONAL PERSPECTIVES

Sharon S. L. Tan
Carnegie Mellon University
Pittsburgh, PA USA
sharont@andrew.cmu.edu

Mark Fichman
Carnegie Mellon University
Pittsburgh, PA USA
mf4f@andrew.cmu.edu

Abstract

This study is about the adoption of Web-based transactional banking (WBTB). A theoretical model integrating the efficiency-choice and neo-institutional perspectives was developed and tested using data from the population of all banks and thrifts in the United States. Does the Internet level the competitive landscape for small firms? Our results show that larger banking and thrift institutions have a greater propensity to adopt WBTB. In addition, adoption is also influenced by prior adopters who are incorporated within the same state, are of the same firm size, but not those of the same institution type. This study has important implications for theory and practice. It empirically validates the importance of including both a neo-institutional and efficiency-choice perspective in any theory of IT innovation adoption. It also provides empirical evidence on the diffusion and adoption of Internet-based innovation that will be helpful to the practice of Internet managers and policy makers.

1 INTRODUCTION

Web-based transactional banking (WBTB) is defined as the provision of banking service in which customers can conduct financial transactions such as accessing an account, obtaining an account balance, transferring funds, processing bill payments, opening an account, applying for or obtaining a loan, or purchasing other authorized products and services through the institution's Website (OTS Memorandum, June 10, 1999). As a new delivery channel for retail banking services, WBTB represents an innovation for the banking industry. Despite the potential to transcend geographical borders and expand their customer base with WBTB, all types of financial institutions have not adopted the innovation at the same rate. Our research question is: What accounts for the varying patterns of adoption of WBTB? More specifically, what factors drive individual firms to adopt WBTB?

Studies on IT innovation adoption have used various theoretical streams to explain what determines the propensity of an organization to adopt an innovation. For example, studies have looked at factors such as innovation characteristics, organizational characteristics, the context in which diffusion or adoption decisions occur, increasing returns , and learning effects (for a recent literature review, see Fichman 2000). However, more work needs to be done to integrate multiple theoretical streams, and more sophisticated techniques are necessary for developing more realistic models that allow the different effects on adoption to be analyzed (Fichman 2000).

In this study, we review and integrate two theoretical perspectives—efficiency-choice and neo-institutional—on organizational innovation adoption. We develop a set of hypotheses for the adoption of WBTB and test it within the population of U.S. banks and thrifts from 1995-1999. The Strang and Tuma (1993) heterogeneous diffusion model is used to incorporate both individual-firm effects and social contagion effects. Our study differs from prior studies in that we investigate and model the effects of prior adoption on the focal firm's adoption behavior, in addition to the focal firm's individual self-calculated concern for efficiency and benefits.

2 THEORETICAL BACKGROUND AND HYPOTHESES

Two different paradigms have evolved in innovation adoption research. The first is based on the efficiency-choice perspective, which views firms' adoption decisions as based on self-interested perceptions about the economic incentives for and technical efficiency (Rosner 1968) of the innovation. Firms differ in adoption timing because they interpret and react to information about the innovation differently (Mansfield 1961; Rogers 1995). The second paradigm is the neo-institutional perspective, which suggests that adoption behavior is in part a social process driven by institutional or macro-social factors (DiMaggio and Powell 1983).[1] Variations in adoption behavior occur due to differences in normative pressures or interorganizational influences in different social environments (Coleman et al. 1966).

Innovation diffusion occurs through communicating information about an innovation to potential adopters through some communication channels (Rogers 1995). For adoption to occur, information about the innovation must be available to the potential adopter and the innovation's value must surpass its threshold for adoption (Rogers 1995). Although firms can differentially select utility-maximization positions, they often have to conform to socially-accepted practices due to institutional pressures (Deephouse 1999). Hence, integrating both the efficiency-choice perspective and institutional perspective may provide a more comprehensive understanding of WBTB adoption. While the efficiency-choice perspective explains how firm-specific factors influence a firm's propensity to adopt an innovation, the institutional perspective explains how adoption may occur through social contagion between firms and the influence of prior adopters.

2.1 Efficiency-Choice Perspective and the Propensity to Adopt

The propensity to adopt is a firm's tendency to adopt an innovation due to factors that are local to the firm (Greve 1995, 1998). From the efficiency-choice perspective, firms value an innovation based on ability to appropriate and efficiency concerns that are independent of the concerns of other actors in the social system. A firm's decision to adopt an innovation is driven by its *individual* beliefs about the potential of the focal innovation to be an idiosyncratic, scarce, and inimitable resource to the firm (Amit and Schoemaker 1993; Barney 1991). The higher the rents and perceived benefits a firm can appropriate from the innovation, the greater its propensity to adopt an innovation (Saloner and Shepard 1995).

Firm size is an important explanatory factor for research and development investment (Mansfield 1961) and innovation adoption (Rogers 1995). Large firm size confers an advantage in innovation. First, due to capital market imperfections, large firms have an advantage in securing financing for risky projects because size is correlated with the availability and stability of internally generated funds. Second, large firms can appropriate higher rents from their investment in the innovation due to the benefits of fixed cost spreading (Cohen and Klepper 1996). Large firms tend to have a larger sales volume over which to spread the fixed costs of innovation, hence providing for economies of scale. Large firms also tend be diversified and hence subjected to lower risks associated with prospective returns of innovation (Cohen 1995). Given these arguments, we hypothesize:

H1: Firm size is positively related with a firm's propensity of adoption of WBTB.

2.2 Neo-Institutional Perspective and Social Contagion

Social contagion is the process by which adoption takes place through meaningful communication or influence grounded in social relations ranging from face-to-face interaction to highly constructed forms of perceived similarity between potential and prior adopters (Burt 1987; Strang and Meyer 1993). Institutional theorists argue that firms cannot freely and independently choose to adopt an innovation as posited in efficiency-choice theories (March 1978). Firms are subjected to institutional pressures from different sources (Meyer and Rowan 1977; Zucker 1987). When an innovation becomes socially accepted within its organizational field (Aldrich and Fiol 1994), organizations that do not adopt the innovation could appear illegitimate to their stockholders, customers, and regulators (Deephouse 1999; Meyer and Rowan 1977), and risk being screened out of consideration as incomparable to others (Urban et al. 1996). Hence, firms may adopt industry-accepted practices because failure to conform could lead to legitimacy challenges that hinder resource acquisition (DiMaggio and Powell 1983).

[1]Note that institutional here is a sociological term suggesting a tendency to respond to social pressures such as conformity. We do not mean the regulatory environment in our use of this term.

Social contagion does not imply blind mimicry. Firms rely on social information to make judgments about the innovation to economize on search costs (Cyert and March 1963). Given the ambiguity and uncertainty of success associated with most innovations, firms cannot accurately assess the efficiency of adoption and may depend on the experience of others for information (March 1978). Research on homophily suggests that firms are more likely to learn from those similar to them since such information would have greater diagnostic value (Kiesler and Sproull 1982). Actions of similar others tend to be more salient to potential adopters. For this study, we examine three dimensions that appear to be important in determining social similarity for banking institutions.

2.2.1 Contagion Through Firm Size

Large firms typically differ from smaller institutions in terms of financial activities and operational strategy. Institutions of different sizes often have different product- and customer-focus, reflecting different strategies. For example, while a large institution might offer diverse products and advance technological capabilities to a broad customer base, a small institution may be more narrow or niche focused, aiming to create strong, personal relationships within a smaller customer base. Hence, when searching their environment, a bank would look at those who are similar in size.

H2: Firms are more likely to adopt WBTB when firms of similar size have adopted.

2.2.2 Contagion Through Institution Type

Commercial banks and thrifts differ in their operational strategy and financial activities. Commercial banks offer more wholesale banking services whereas thrifts specialize in savings and mortgage services. Banks and thrifts also are regulated by different federal agencies. Hence, we would expect banks and thrifts to mimic the behavior of their own type of institution.

H3: Firms are more likely to adopt WBTB when firms of similar type have adopted.

2.2.3 Contagion Through Geographical Proximity

Geographic proximity facilitates market contagion. Collocation eases communication, but more importantly, collocation is an indication of market competition when firms, such as banks, compete in geographical markets. Competitive pressures that accrue from the fear of loss of competitive advantage when others in the market have adopted (Abrahamson and Rosenkopf 1997) will influence a firm to adopt the innovation. Hence, we hypothesize:

H4: Firms are more likely to adopt WBTB when other firms that are geographically proximate have adopted.

2.2.4 Corporate Contagion

Innovation could also diffuse through corporate networks (Cool et al. 1997; Greve 1995). Multiunit organizations, such as corporations that own firms in several markets or have subsidiaries spread over different geographical locations, often disseminate information from a corporate center (or decision-making center) to their several units. Intra-organizational learning (about developing, marketing, and customer support for the Website, for example) may also promote the adoption of the innovation when corporate counterparts have adopted. Furthermore, with a common corporate ownership, a decision to adopt an innovation could be imposed on the firms governed by the corporate decision-making center for reasons such as fixed-costs spreading (Cool et al. 1997). Hence, we hypothesize:

H5: Firms are more likely to adopt WBTB when their corporate counterparts have also adopted.

3 METHOD

3.1 Data

The study population was all federally insured financial institutions belonging to the bank and thrifts industry in the United States. This consists of commercial banks and thrifts. Foreign banks are excluded since their analysis would involve adoption data from

all banks in their respective countries. The period of study is from January 1995 to December 1999. This start date is chosen because the first adoption of transactional Web-based banking (by the World's first Internet bank, Security First Network Bank) was in 1995. Table 1 presents the number of institutions that existed during the study period. This data is right-censored since non-adopters have the potential of adopting after 1999.

Table 1. Descriptive Statistics of Study Population

Year	Total	Thrifts	Banks
1995	11,970	2,030	9,940
1996	11,444	1,924	9,520
1997	10,888	1,776	9,112
1998	10,307	1,672	8,635
1999	9,692	1,587	8,105

Before data collection, interviews were conducted to help us form our hypotheses as well as to identify important variables that are needed in the model. To collect the demographic and adoption data of the institutions, multiple archival data sources were used. First, complete demographic data on all FDIC-insured banks and thrifts was obtained from the FDIC (Federal Deposit Insurance Corporation). A list of banks that have adopted WBTB as of December 1999 was also obtained from the FDIC to differentiate the adopters from non-adopters. Adoption dates were then obtained from Online Banking Report (www.onlinebankingreport.com), an online journal set up in 1995 to track Internet banking activities. Although this provided the majority of adoption dates, it was incomplete, and remaining adoption data were collected through e-mails and telephone calls.

3.2 Model Estimation

The Strang and Tuma (1993) heterogeneous diffusion model was used to represent the hazard rate of WBTB adoption. It is appropriate because it incorporates both non-contagion (or propensity) effects as well as contagion effects due to social proximity. The hazard rate model has the following form:

$$r_n(t) = \exp(\alpha' x_n) + \exp(\beta' v_n) \sum_{s \in S(t)} \exp[\delta' z_{ns}], \quad \forall n \in N(t)$$

N(t) is the set of firms that have not adopted before time *t* while *S(t)* refers to the set of firms that have adopted before time *t*. $r_n(t)$ represents the hazard rate of an individual firm, *n*, which belongs to *N(t)*. x_n defines a vector of variables describing *n*'s propensity of adoption; v_n defines a vector of variables describing *n*'s susceptibility to contagious influence; and z_{ns} defines a vector of variables describing the social proximity (or similarity) of each s-n (spreader-potential adopter, where *s* belongs to *S(t)*) pair. α', β', and δ' are coefficients of the propensity, susceptibility, and proximity vectors respectively.

For a clearer understanding of the differences between the propensity, susceptibility, and propensity vectors in the model, take the analogy of a person getting influenza with a firm adopting an innovation. Usually, people get influenza either because they contract the virus from someone already infected with the disease or simply because they are older or have a weak immune system. Propensity variables refer to the latter, which are the intrinsic properties of the person that make him/her get influenza even without any contagious contact. Proximity and susceptibility variables refer to the former. Proximity variables say from whom (such as someone living in the same house) did the person contact the virus. Susceptibility variables describe the factors (such as weak body resistance) that make a person more vulnerable to contagious transfer of the disease.

The variables in the proximity vector are based on hypotheses 2 through 5. The firm-size variable assigned to the propensity vector is based on hypotheses 1. The variables in the susceptibility vector control for differences in vulnerability to contagion

influences while the variables in the proximity vector control for other factors that may influence propensity for adoption.[2] In this model, it is possible for a single variable (such as firm size) to have multiple effects (such as propensity and susceptibility) on adoption behavior. The technique for allocating variables to the different vectors is further discussed in Greve et al. (1995).

We estimated the diffusion model (Strang and Tuma 1993) using maximum likelihood because it properly accounts for right censoring. While uncensored cases contribute their entire histories, censored cases contribute exactly what is known of them, namely that the firm did not adopt the innovation during the observation period.

3.3 Measures

3.3.1 Dependent Variable

The hazard rate of a firm adopting WBTB for each time period *t* is the dependent variable for this model. We use a binary code of 1 and 0 to indicate whether the focal firm has adopted the innovation during each of the five annual[3] periods from 1995 through 1999. To be consistent with the definition adopted by the regulatory agencies, adoption of WBTB is defined as whether these institutions provide banking services in which customers could as access an account, obtain an account balance, transfer funds, process bill payments, open an account, apply for or obtain a loan, or purchase other authorized products and services through the institution's Website.

There are multiple ways in which banks could adopt WBTB. First, within the study population, two institutions spun-off a pure Internet bank division in addition to their transactional Website offered for customers with accounts at their traditional brick-and-mortar bank. For these two institutions, the earlier adoption date is used. Second, in the case of mergers involving an adopter and a non-adopter institution, the adoption date of the merged institution is that of the adopter. Third, when a non-adopter bank acquires a bank that has adopted prior to acquisition, the non-adopter acquiring bank is interpreted as acquiring the WBTB technology on the date of acquisition. Finally, institutions that started WBTB by outsourcing their services to banking vendors are considered to have adopted when they started using the services of these vendors.

3.3.2 Independent Variables

Firm size is measured by taking the natural logarithm of firm assets in constant 1999 dollars.

Size proximity is measured as the absolute linear difference between the sizes of two firms. A greater difference indicates smaller size proximity. Hence, a negative sign is expected if contagion is present.

Institution-type proximity measures whether two banks belong to the same institution type (thrifts versus commercial banks). This measure is coded as 0 if both institutions are banks or thrifts and 1 if they are different. Again, a negative sign is expected if contagion is present.

Geographic proximity is measured by whether the institutions operated in the same states.[4] A 0 is coded if institutions operated in similar states and 1 if they do not. We expect a negative sign if contagion is present.

Corporate contagion is measured by whether institutions have the same holding company. A 0 is coded if institutions belong to the same regulatory holding company and 1 if they do not. Again, we expect a negative sign if contagion is present.

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[2]Due to lack of space, we did not include hypotheses on the effects of differences in susceptibility to contagions influence but include these variables in the model to act as controls. This is important in terms of getting a good estimate for the contagion coefficients. Our choice of control variables is based on techniques recommended in Greve et al. (1995). We included some variables that have been found to have an impact in prior literature, as well as using the "parallel search" technique to decide which variables should stay or be dropped from the propensity and susceptibility vectors.

[3]We use annual periods since the adoption data obtained from our main data source is available as the year of adoption.

[4]This is a conservative measure of geographic proximity in that it may not capture all proximity effects (such as those indicated by distance rather than being in the same state).

3.3.3 Control Variables

In order to control for market factors and other firm-level variables that are likely to affect adoption behavior, we include the following control variables in the diffusion model.

3.3.3.1 Market Factors

Market density is measured by the number of institutions per individual in the population for the state in which the institution is chartered. This is a market competition indicator. High market density indicates a high level of competition. In a competitive market, firms might be more susceptible to social influences as the need to compete with other firms by appearing legitimate increases their need to mimic the actions of others (Abrahamson and Rosenkopf 1997). However, they have a lower individual propensity to adopt since a denser market might imply fewer appropriation opportunities.

Market growth is measured by taking the 1-year growth rate in deposits for the state in which the bank is chartered. This affects the ability to appropriate higher returns on investments. Thus, with high market growth, firms are likely to have greater propensity and susceptibility to adopt.

3.3.3.2 Firm-Level Factors

Relative bank growth is measured by the 1-year percentage change in deposits for the institution relative to the 1-year percentage change in deposit within the market. Banks that have a greater number of deposit accounts and are experiencing greater growth are more likely to adopt since they expect to be able to appropriate higher returns on their investments (Hannan and McDowell 1984; Saloner and Shepard 1995). With greater expected returns from the innovation, they might also be more susceptible to influences of prior adopters.

Bank wage is measured by taking the total salary and compensation expenses for the bank and dividing by total number of full-time employees. This acts as a proxy for number of depositors since a bank with higher bank wage might have fewer relatively low-wage tellers and more relatively high-wage commercial account managers or investment advisors (Saloner and Shepard 1995). The lower the bank wage, the greater the propensity for adoption because of greater appropriation opportunities.

Business orientation is measured as the percentage of total loan income due to consumer loan income. A higher percentage indicates greater consumer orientation while a lower percentage indicates greater corporate orientation. Whether an institution is oriented toward consumer or corporate customers might influence its decision for adoption. Online retailing has focused primarily on retail consumers, thus banks that serve corporate customers might have been slower in adopting WBTB.

Finally, we also control for the **age** of the institution; whether the bank is a new bank (**DENOVO** is coded as 1 for new bank in the focal year and 0 otherwise); its **productivity** in the focal year *(*Interest Revenue divided by noninterest expense [systems, equipment and wages]); **ROA** (return on assets) and the **institution type** (coded 0 for a commercial bank and 1 for a thrift).

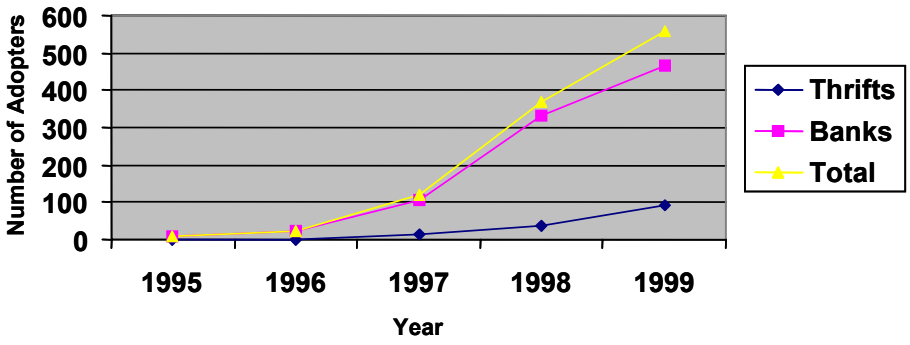

Figure 1. Diffusion Rate

Table 2. Results of Diffusion Model

Variables	Model 0	Model 1	Model 2
Propensity			
Constant	-10.79***	-26.38**	-26.77**
	(0.593)	(9.883)	(9.83)
FIRM_SIZE	0.560***	2.188**	2.216**
	(0.0444)	(0.801)	(0.787)
MARKET_DENSITY (× 10^4)	0.625***	-18.05	-17.89
	(0.146)	(14.42)	(13.79)
MARKET_GROWTH	-1.25**	-3.162	-3.435
	(0.412)	(2.901)	(3.174)
RELATIVE_BANK_GROWTH	-0.00000719	0.00137	0.00137
	(0.000157	(0.00173)	(0.00173)
BANK_WAGE	0.000372	-0.102*	-0.101*
	(0.00337)	(0.0547)	(0.0545)
BUSINESS_ORIENTATION	-0.809	-32.85	-35.08
	(0.500)	(24.68)	(24.95)
AGE	-0.000759	-0.06	-0.0592
	(0.00170)	(0.0441)	(0.0435)
DENOVO	-4.716	-12.85	-13.99
	(36.23)	(309000)	(59370)
ROA	-0.095	-0.247	-0.163
	(0.0680)	(1.067)	(1.076)
PRODUCTIVITY	-0.436***	-0.647	-0.640
	(0.0973)	(1.042)	(1.165)
INSTITUTION_TYPE	0.065**	2.025	1.607
	(0.250)	(2.981)	(3.325)
Susceptibility			
Constant		-16.95***	-26.94***
		(0.572)	(405)
FIRM_SIZE		0.579***	0.720***
		(0.0427)	(0.00572)
MARKET_DENSITY (× 10^4)		0.548***	0.762***
		(0.141)	(0.163)
MARKET_GROWTH		-0.299	-0.119
		(0.478)	(0.480)
RELATIVE_BANK_GROWTH		-0.0000156	-0.0000131
		(0.000086)	(0.0000852)
Proximity			
FIRM_SIZE			-1.031***
			(0.282)
GEOGRAPICAL			-1.459**
			(0.633)
CORPORATE			10.61
			(405)
INSTITUTION-TYPE			0.593**
			(0.263
Log likelihood	-1270.99	-1066.47	-1044.44
χ^2 from Baseline model	176.86***	585.91***	629.87***
χ^2 from Model 0		409.05 (5 df)***	453.1 (9 df)***
χ^2 from Model 1			44.06 (4 df)***

Numbers in parentheses () refer to standard deviations

4 RESULTS

Figure 1 presents a graph of the diffusion rate of WBTB. This approximates the familiar S-curve observed in prior innovation diffusion studies. The adoption rate is also faster for commercial banks than for thrifts.

Table 2 presents the results of the diffusion model. Before testing the diffusion model, we computed correlation tables for all study variables across all years and ensured no strong correlation between any of the variables.[5] We tested three models; each model gradually refined from a prior model through the addition of a group of variables. Model 0 is a constant rate (exponential) non-diffusion model with only propensity variables. Results from this model would represent the pure efficiency-choice perspective. Model 1 adds the susceptibility variables, which controls for differences in firms' susceptibility to influences of prior adopters. Finally, model 2 is the complete model that includes the proximity variables.

To test the significance of the effects of a refined model, χ^2-statistic is computed by taking twice the difference in log likelihood between the two models. Between model 1 and model 0, the chi-squared ($\chi^2 = 409.05$, $p < 0.001$) hence suggesting that there is a significant difference in hazard rate of adoption going from a model that assumes no contagion (or diffusion) effects to one that assumes homogeneous diffusion effects. In fact, considering only individual propensity influences on adoption behavior (Model 0) could result in an incorrect conclusion. The significant effects of market density, market growth, productivity, and institution type disappear when social contagion is included in models 1 and 2. The significant difference between models 2 and 1 ($\chi^2 = 44.06$, $p < 0.001$) suggests that proximity affects the likelihood of adoption. All coefficients in the proximity vector are significant except corporate proximity. Thus *H5* is not supported. We found support for both firm-size proximity (*H2*) and geographical proximity (*H4*). The coefficient for institution type proximity is significant but opposite from that hypothesized, hence not supporting *H3*. Finally, we have strong support for *H1*. The coefficient for firm size on propensity for adoption is significant across all three models.

5 DISCUSSION

In this study, an integrative model of efficiency-choice and institutional perspectives is formulated and empirically tested within the context of WBTB adoption. Our results suggest that both individual propensity and social contagion are important for understanding firms' innovation adoption decisions. Larger firms have a greater propensity to adopt an innovation for efficiency reasons independent of prior adopters. In addition, firms are susceptible to influences from prior adopters and hence adopt when others similar in size and geographic location but of a different institution type have also adopted. Finally, influences from firms within the corporation do not have an impact on adoption decision. These findings have important implications for researchers and practitioners.

5.1 Larger Firms Are Adopting

The Internet has often been touted as a means to level the playing field for smaller firms. In this study, we found that larger banks and thrifts have a greater propensity to adopt WBTB. Despite the potential to increase efficiency and profitability for these institutions, the adoption of Web-based transactional services requires substantial upfront investments and continuous maintenance costs. Thus, smaller banks and thrifts may be more cautious in adopting the innovation. In addition, they do not have the scale economies to justify their investment as do larger firms. In fact, smaller institutions benefit less from offering Internet banking than larger institutions because they have a greater difficulty in generating profits and cost savings (Marenzi et al. 2000). Hence, smaller firms may be more cautious in adopting. Therefore, even with the availability of the Internet, larger firms may still have an advantage in terms of being able to adopt and benefit from the innovation.

5.2 Social Contagion Can Occur Across Dissimilar Institution Types

In deciding whether to adopt Web-based transactional services, financial institutions mimic the actions of those similar in size and geographical position, but not those of a similar institution type. Instead, they appear to mimic those who are of a different

[5]Correlations tables and means tables have been left out due to space constraints but are available upon request from the authors.

institution type. This suggests that adoption through social contagion can occur through heterophily in addition to homophily (Rogers 1995). Although homophily increases the ease of social learning and contagion due to similarities between the firms, heterophily can sometimes be beneficial because of the ability to learn unique and new knowledge from those who are socially dissimilar (Granovetter 1973).

Interviews with several Internet banking managers shed some light on this finding. First, although banks and thrifts are subjected to different regulatory constraints and have traditionally focused on different financial products, the distinctions between these two types of institutions are becoming less apparent in recent years due to deregulation of the banking industry. Banks have traditionally offered a wide range of financial services whereas thrifts have specialized in savings and mortgage products, but increasing competition and deregulation have made it pertinent for them to look "out-of-the-box" and learn from different institutions in coming up with new and innovative product offerings. Since WBTB is a relatively new offering, they may also look at other institution types as a cue for adoption.

Second, despite the ability to extend their geographical reach through Internet banking, most firms consider that their secondary objective. Their primary objective is to retain existing customers and improve their position in domestic markets. Even with fewer restrictions on interstate branching, institutions tend to congregate their presence within a geographical region. This not only increases their market visibility but is also more efficient from an infrastructure and regulatory perspective. To the extent institutions compete within geographical locations, actions of those in similar geographical location are more relevant and salient. Furthermore, since firm size determines resource availability and the ability to justify investment in innovation, actions of those of similar size would be mimicked.

5.3 No Significant Corporate Contagion

We found no evidence that adoption decisions are influenced by other units within the same corporation, despite the possibility of learning from other corporate units that have adopted WBTB and lowering adoption costs through sharing a corporate Website. Our interviews with some Internet banking managers suggest that adoption decisions about Internet banking are often constrained by corporate politics and the desire to present a distinct image. Even if two banks have similar corporate parents, they might have separate development teams and technological infrastructure and a separate Website. Hence, when a bank within the corporation has adopted Web-based transactional banking, others do not necessarily follow suit.

6 CONCLUSION

In this study, we integrate the efficiency-choice perspective and institutional perspective to examine firms' decision to adopt WBTB. While prior studies on IT innovation adoptions have focused on perceptions and beliefs about technological characteristics and benefits as explanatory variables, this study shows the importance of also considering the institutional environment when evaluating a firm's innovation adoption decision. While larger bank or thrift institutions have a greater propensity to adopt WBTB, the decision to adopt is also influenced by prior adopters who are incorporated within the same state and are of the same firm size. This study also suggests that as opposed to conventional beliefs about the Internet being a leveling tool for small businesses, larger firms appear to be more able and likely to adopt.

Given that this study is based on the U.S. banking and thrift industry, caution should be taken in any attempts to generalize our results. Future work could explore the adoption of the Internet in other retail industries or look at different degrees of adoption. Nonetheless, this study has provided an important theoretical lens in exploring IT innovation adoption, as well as an empirical evaluation of the practice of Internet-based technology adoption.

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