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Financial e-commerce under capital regulation and deposit insurance

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Abstract

We use a two-stage contingent claim analysis model to study how capital regulation, deposit insurance, involvement in financial electronic commerce (e-commerce), and the optimal bank interest margin relate to one another under an uncertain loan loss source. Under strategic substitutes, both capital regulation and deposit insurance provide incentives for developing financial e-commerce, which helps the bank's growth. Our findings provide alternative explanations for the bank interest margin, which integrates the risk considerations of pricing equity with the bank's involvement in financial e-commerce, and for the asset–liability management rate-setting behavioral modes under capital regulation and deposit insurance.

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1. Introduction

Many banks make increasing use of the Internet as a supplementary channel for delivering traditional products to consumers and businesses. The way in which banks present this delivery mimics that of their branch networks or telephone centers. Instead of cars or phones, customers use personal computers and web sites to communicate with their banks.

Some banks are also exploring how they can expand their current services to include some products designed exclusively for electronic commerce (e-commerce). This development could include establish-

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ing Internet portals, verifying identities, assisting small businesses to enter e-commerce, billing electronically, issuing electronic money and checks, and integrating the automatic teller machine and Internet network (Wenninger, 2000). Banks' changing responses to e-commerce will inevitably alter their cost structure and asset–liability management. Clearly, the optimal determination of the Internet network in banks' lending–borrowing businesses deserves closer scrutiny.

For an efficient asset–liability management system, the potential demand for e-commerce could emerge from two incentives. One of the incentives for something new comes from the loan and deposit markets, called a “demand-pull” incentive. Demand-pull” can be used to position a bank to market traditional banking products more efficiently. The second incentive motivates the bank to develop and sell the new products its e-commerce customers are looking for. This incentive can be classified as a “technology-push” incentive. Banks expect that both the demand-pull” and technology-push incentives of electronic delivery and development will improve their efficiency in loan and deposit service offerings.

The consensus among bankers is that success in e-commerce requires a dual presence in both the virtual and real world. However, in recent years, a problem that has plagued banks is whether on-line banking will supplement the existing branch networks or substantially replace them (Wenninger, 2000). Some bankers argue that meeting customers' preferences by giving them easy access channels is too costly and that branches should be sharply reduced as the electronic networks gain acceptance. Wenninger (2000) suggests that banks' response to e-commerce can be measured by the electronic delivery of traditional banking products and the development of new e-commerce products.

Rather than using the product viewpoint of Wenninger (2000), we analyze the bank's response from the bank-to-customer perspective. In this paper, we limit our study of a bank's involvement in e-commerce to the Internet application and its related technologies to conduct bank-to-individual customer business. Our model for the banks' response is therefore characterized by asset–liability services, involvement in loan e-commerce and deposit e-commerce. Characterizing the electronic involvement of asset–liability management allows us to study the functions of a bank's lending and borrowing services in the electronic marketplace.

Banks and regulatory authorities must always deal with asset quality problems. Zarruk and Madura (1992) explored the relations among capital regulation, deposit insurance, and optimal bank interest margin when loan losses were the source of uncertainty. Financial e-commerce technology accelerates financial liberalization; financial liberalization increases threats from competition; and competition erodes bank margins (and thus bank profits). The technologies now available give banks a much freer hand in the acquisition of inputs than in the completion of outputs. Therefore, if a bank can treat the branch/electronic network technology structure decision as an asset–liability management strategy, in the long run, the bank could benefit from the profit-shifting effect. The bank can implement this strategy by adjusting between optimal interest margin setting and optimal network structure decisions. Because financial e-commerce technology will play an important role in retail banking markets, in this paper, we focus on how asset–liability management optimally determines the branch/electronic network structure and how managers can adjust to changes in the competitive environment and regulation.

Changes in regulation parameters can affect the network structure in asset–liability management and bank profits. Therefore, our study addresses two key issues:

- (i) What are the most likely effects that capital regulation will have on a bank's asset management of its branch/electronic network structure and thus its profit?

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