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Pilgrim Bank (A): Customer Profitability

It was February 2, 2001 and Alan Green was finishing his first month as an analyst in Pilgrim Bank's online banking group. The words of his boss, Ravi Raman, who had just left his office, lingered in his head.

> Alan, we have a meeting at the end of next week with the senior management team to discuss our Internet strategy. There is substantial disagreement in our group on whether we should start charging fees for use of the online banking channel or if we should begin offering customer incentives such as rebates and lower service charges to encourage greater use of the channel. The debate really hinges on whether online customers are indeed better customers, and if adoption of the online channel actually produces better customers. Since year-end 2000 data won't be available until next week, why don't you spend the weekend looking over the relevant data from year-end 1999? Let's meet Monday morning to discuss your findings.

Although bolstered by Raman's implicit confidence in him, Green was unsure how much he would be able to contribute. Green, who had just completed his MBA, enthusiastically studied the retail banking industry, but he still did not quite understand it. An hour ago, he looked at a chart on customer profitability that, among other things, demonstrated that more than half of Pilgrim's five million customers were unprofitable. Green knew that before he could analyze the data he needed to understand more about the economics of retail banking. He decided to head over to Jane Raines' office. Raines was an experienced analyst in the group and was sure to be of help.

Later That Morning

As Green sat in Raines' office, he explained his assigned project.

> I need to do some analysis to figure out whether online customers are better customers for the bank and what the implications are for our online banking product. As a first step, I was thinking about comparing balance levels between online and offline customers.

Raines responded,

Balances are only part of the story. If you are interested in how profitable customers are, then look at profit directly. You don't need to use balances as a proxy for profit, as balances are a subset of our customer profitability measure, which we have been assessing at the customer level for the past two years. Roughly, we calculate customer profitability at Pilgrim with a pretty straightforward formula:

(Balance in Deposit Accounts)*(Net Interest Spread) + (Fees) + (Interest from Loans) - (Cost to serve)

Raines continued,

As you'll notice, balance levels really only capture one piece of overall customer value to the bank. If you focus on balances only, you are missing important components of revenue such as fees and ignoring the cost of serving individual customers.

Raines explained each of the components of customer profitability to Green in detail. Green entered his notes into a Word document (**Exhibit 1**) so he would not lose any of the information. Raines also provided Green with a graph from an analysis she had done the previous year on the relationship between balances and customer profitability (**Exhibit 2**). The graph demonstrated that the relationship between balances and customer profitability was not as straightforward as Green had originally thought. In particular, it showed many customers with lower balances had high profitability, and many customers with high balances had low profitability. Green made a mental note to understand what might be causing these results.

If Green grasped his conversation with Raines, understanding profitability at the customer level was particularly important in retail banking because customer transactions generated incremental costs but typically did not generate incremental revenue. In addition, customer behavior seemed to be a key component of customer profitability. For example, given two customers with the same checking accounts and balances, one who routinely called the bank to see if checks had cleared or visited a branch to get help with checkbook balancing would be far less profitable than one who rarely interacted with the bank apart from writing checks.

Although instinct dictated that to ensure profitability for each customer, banks should charge for each transaction, Green believed Raines' assertion that banking history was littered with failed attempts to do so. He recalled her story about how First Chicago's decision to charge for teller visits in 1995 contributed to the loss of one-fifth of its customer base.

Something else that Raines had mentioned stuck in Green's mind. She had indicated that banks had a history of channel innovation, beginning with ATM machines more than thirty years ago, followed by 24-hour call centers, automated voice response units (VRU), and, most recently, online banking. Each additional channel had provided an opportunity to reduce cost per transaction over the previous channel. The irony was that with the introduction of these lower cost channels came a higher overall cost structure, which Raines attributed to customers increasing the number of transactions with the addition of each new channel rather than replacing one channel (the branch, for example) with transactions at another channel (the call center, for example). Green thought that encouraging transaction migration to lower cost channels was one way banks could improve customer profitability.

Let the Data Do the Talking

Energized by his conversation with Raines, Green visited Erica Dorstamp, head of IT services, in the building next door. "Erica," he announced while stepping into her office, "I need to analyze customer profitability over the weekend and I was hoping that you could help me access some data."

Dorstamp was used to such requests. "No problem. We've just pulled and cleaned data on a random sample of 30,000 customers for a separate IT project. I can give you that dataset right away, depending on what other variables you want included. For the remainder of our customers, I won't be able to get them to you until next week. Are you alright starting with the random sample of 30,000? What sort of information do you need besides customer profitability?"

Green realized that he had not given this much thought, but it being Friday afternoon this was his only chance to get started on the data before Monday morning. "I'd like as many customers as possible. Given the situation, let's start with the 30,000," he replied. "If you can give me their profitability for year-end 1999 as well as whether they use the online channel that would be great."

"Alright, I'll get this set up for you," Dorstamp agreed. "I'll also put demographic information in there for you. Whenever anyone analyzes profitability they always control for demographics."

Uncertain exactly what he would do with the demographic data, Green nevertheless readily accepted it.

The First Glimpse Into the Data

Returning to his office, Green shut the door and opened the dataset on his computer. He knew he better get started if he was going to have anything interesting to say to Raman Monday morning. He tried to replicate from the sample data a customer profitability curve he had seen in Raines' office that demonstrated the profitability skew amongst customers. By sorting customers from most to least profitable and charting percent cumulative profitability versus percent cumulative customers, Green recreated the profitability skew (**Exhibit 3**). If his analysis was correct, just over half the customers in the sample were profitable in 1999 and the vast majority of profit was derived from a relatively small number of customers. This seemed to match what he recollected from the chart he had seen earlier, which boosted his confidence that his sample was not biased.

Formatting the data and calculating summary statistics (**Exhibit 4**), Green found that average customer profitability for 1999 was $111.50. He wondered what he could conclude about the average profitability of the entire population of customers based on this relatively small sample.

Green subsequently found that the average profitability of customers who used online banking was $116.67, which compared to $110.79 for those who did not. Although not surprised to find online customers to be more profitable than offline customers, Green knew that he would have to determine if the difference was meaningful.

Even if the difference between online and offline customer profitability did prove to be meaningful, Green was unclear what conclusions he might draw in terms of cause and effect. Did the online channel make customers more profitable? And what did this imply for the management team's decision regarding fees or rebates for use of the channel?

Green glanced at the columns of data on customer demographics such as age, income, and geographic region and wondered if there might be more to the story.

Exhibit 1   Notes from Discussion with Jane Raines on Customer Profitability in Retail Banking

Revenue

Customer accounts generated three types of revenue:

- **Investment income from deposit balances**. Every customer deposit generated investment income. This revenue component was represented by net–interest margin, the difference between the rate a bank paid on a deposit account and the rate at which it was able to invest that deposit through, for example, commercial and mortgage lending.

- **Fee income**. Increasingly important sources of revenue in light of recent declines in net–interest margins, fees were variously assessed for checking accounts, late payments, and overdrafts.

- **Loan interest and base lending rates**. Loans were the dominant asset in banks' portfolios and loan interest a primary revenue source.

Cost-to-serve

Whereas measuring customer revenue was relatively straightforward, estimating costs at the customer level was notoriously difficult. Relevant costs included the following:

- **Transaction related costs.** The costs of customer interactions with banks varied. A teller transaction, for example, was generally more costly than a transaction that utilized an electronic distribution channel such as an ATM network.

- **Allocated "fixed" costs.** The cost of indirect support resources (e.g., the cost of electricity and physical infrastructure and salaries of network administrators) although not transaction specific, nevertheless represented resources that were consumed by customers. Allocating these "fixed" costs ensured that the revenue generated by customers compensated for the resource costs required to serve them. Moreover, these general operating costs were only fixed in the short term. Increases in customer transactions or demand for services could trigger a bank to consider, for example, opening a new call-center or increasing the capacity of an existing call center by adding telephones, computers, and personnel.

Exhibit 1   Notes from Discussion with Jane Raines on Customer Profitability in Retail Banking (cont'd)

The Profitability Problem

Analysis of profitability at the customer level yielded some surprising profitability skews. For example, at Pilgrim, 10% of the customers generated 70% of the profits. Obtaining accurate, reliable measures of customer profitability was a major challenge for retail banks. Variations in the size of the profitability skew notwithstanding, the problem was clear: *the contribution of individual customers to bank earnings varied widely with a small percentage of customers cross-subsidizing the profitability of the bulk of the customer base.*

Such profitability suggested that better management of customer relationships might greatly improve retail banks' profitability.

Managing Customer Profitability

Retail banks reacted to the extraordinary variation in customer profitability with a variety of approaches that although somewhat different in method, all shared the common goal of maintaining the most profitable relationships and migrating customers from lower to the higher profit tiers.

Tiered Service

Banks developed profitability tiers to reallocate customer service resources away from customers in lower profit tiers to customers in higher profit tiers. Some banks, for example, offered their most profitable customers discounts on mortgage rates or higher interest rates on certificates of deposit and route their telephone calls to specially trained personnel in the call center. Tiering service in this way is aimed at increasing retention of a bank's best customers.

Pricing Initiatives, Fees, and Cross-sell Programs

Retail banks commonly used pricing initiatives, fees, and cross-sell programs to convert unprofitable customers into profitable customers. Instituting fees for certain services, for example, was in attempt to encourage customers to migrate their transactions from high cost channels such as branches to lower cost channels such as the Internet and ATMs. Re-pricing products and services was intended to motivate customers to use lower cost channels. Many banks, for example, offered customers who transacted exclusively via ATM, Internet, and voice response units lower monthly fees on basic checking accounts. Banks also pursued retention by selectively offering their highest profit customers fee-waivers and rate-breaks.

Exhibit 1   Notes from Discussion with Jane Raines on Customer Profitability in Retail Banking (cont'd)

Branch Consolidation

Throughout the 1990s retail banks focused on migrating customer transactions from their high-cost branch networks to lower-cost electronic channels such as ATMs, PC-banking, and the Internet. Many encouraged customers to alter their transaction behavior by attempting to educate them about the availability and convenience of alternative lower cost channels and changing physical infrastructure to de-emphasize the branch network. But, as many banks discovered, customers did not necessarily view alternative electronic channels as substitutes for the branch network. In fact, the number of U.S. bank branches continued to rise throughout the 1990's despite the widespread availability of ATMs and call centers. Convenience, moreover, often encouraged customers to increase transaction volumes to a level that offsets the cost-savings of interacting through a lower marginal cost channel.

Anticipating Customer Behavior

A final challenge to banks attempting to improve the management of customer profitability was that the available approaches employed *static* measures. Many banks created profit tiers based on some measure of *lifetime profitability* that required a model linking current customer characteristics to the probability of retention as well as to future revenues and costs, a daunting task given the large and diverse customer bases of most retail banks.
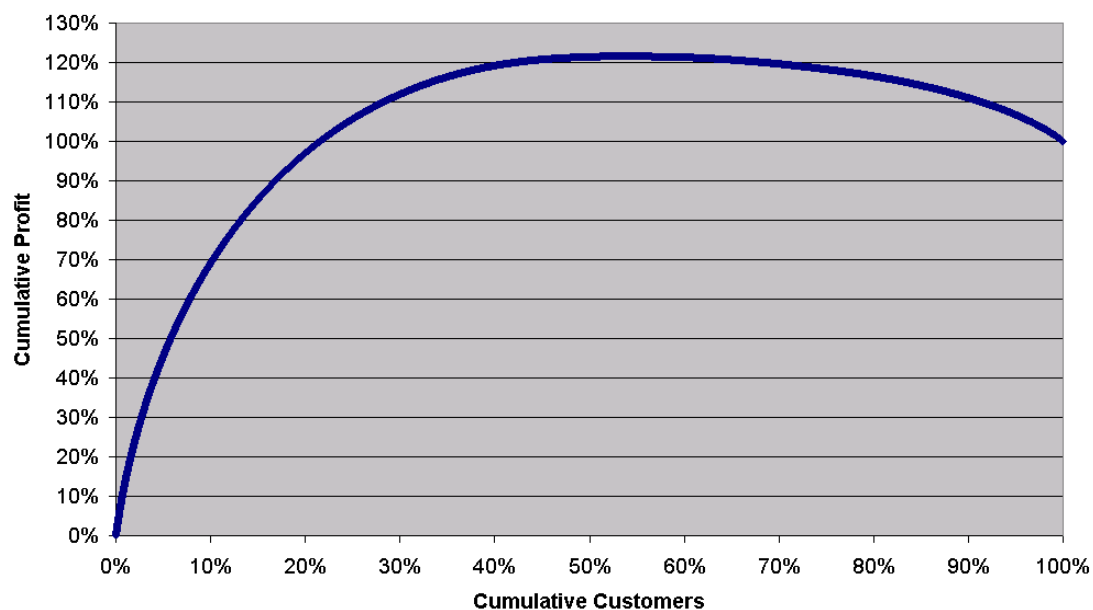
Source: Created by case authors.

Exhibit 2   Monthly Customer Profitability versus Balance Levels
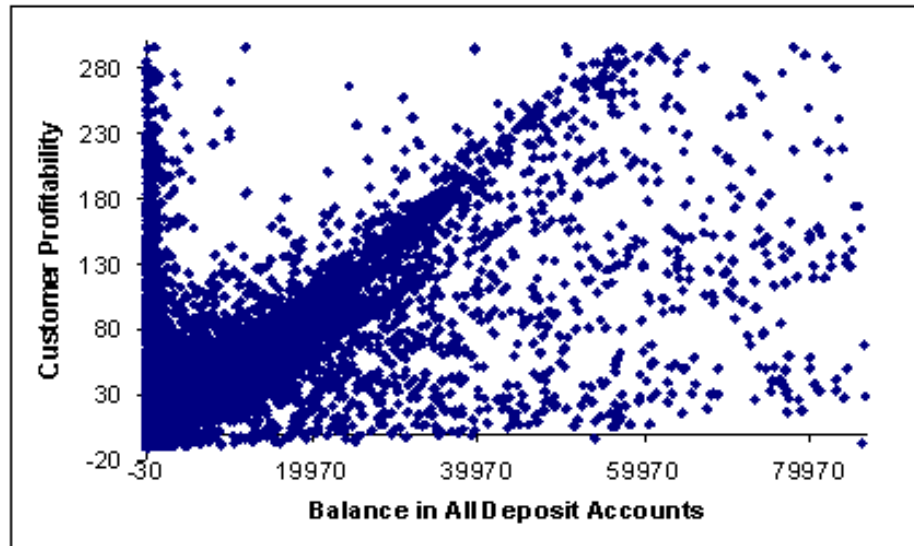
Source: Created by case authors.

Exhibit 3   Profitability Skew

Source: Created by case authors.

Exhibit 4 Summary Statistics from Sample Customers

Customer ID	1999 Annual profit	1999 Online usage [a]	1999 Age bucket (1-7)[b]	1999 Income bucket (1-9)[c]	1999 Tenure (years)	1999 Geographic region (1100, 1200, or 1300)[d]
	9Profit	*9Online*	*9Age*	*9Inc*	*9Tenure*	*9District*
1	21	0	not available	not available	6.33	1200
2	-6	0	6	3	29.50	1200
3	-49	1	5	5	26.41	1100
4	-4	0	not available	not available	2.25	1300
…	…	…	…	…	…	…
31,633	92	1	1	6	5.41	1200
31,634	124	0	3	6	17.50	1300
Mean	111.50	0.12	4.05	5.46	10.16	n/a
Standard deviation	272.84	0.33	1.64	2.35	8.45	n/a

Source: Created by case authors.

[a]Online use: 1 = uses online banking; 0 = does not use online banking.

[b]Age buckets are as follows: 1 = less than 15 years; 2 = 15-24 years; 3 = 25-34 years; 4 = 35-44 years; 5 = 45-54 years; 6 = 55-64 years; 7 = 65 years and older.

[c]Income buckets are as follows: 1 = less than $15,000; 2 = $15,000-$19,999; 3 = $20,000-$29,999; 4 = $30,000-$39,999; 5 = $40,000-$49,999; 6 = $50,000-$74,999; 7 = $75,000-$99,999; 8 = $100,000-$124,999; 9 = $125,000 and more.

[d]The three geographic regions are designated 1100, 1200, and 1300.