

Can predictive analytics help banks, consumers avoid overdraft issues? New study says, yes

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In 2012, consumers paid \$32 billion in overdraft fees, which represented the single largest source of revenue for banks from demand deposit

accounts, while leading to significant levels of consumer dissatisfaction and attracting attention from government regulators.

In a recent study, researchers have found that it may be possible to help correct this problem through the application of sophisticated [data analytics](#).

The study to be published in the December edition of the INFORMS journal *Marketing Science* is titled "Analyzing Bank Overdraft Fees with Big Data," and is authored by Xiao Liu of New York University, Alan Montgomery of Carnegie Mellon University and Kannan Srinivasan of Carnegie Mellon University.

The study focused on the problem of bank overdraft fees, which occur when a consumer spends or withdraws more funds from his or her checking account than is available. U.S. [banks](#) allow [consumers](#) to overdraw their accounts, subject to certain restrictions, but this is on the condition that the consumer incurs an overdraft fee.

While banks generate significant levels of revenue through overdraft fees, there is also a significant amount of consumer attrition as a result. This has attracted the attention of the U.S. Consumer Financial Protection Agency, which has indicated it may consider increased regulation of overdraft fee practices.

Identifying the Key Contributing Factors

Through their research, the study authors found that consumers tend to heavily disregard potential future consequences when they spend or withdraw from their checking accounts due to impulsive spending habits. The authors also found that due to high bank monitoring fees, consumers may not be able to accurately track their balances. As a result, consumers may sometimes overdraw their accounts because of impulsive spending

or withdrawals habits, and lack of accurate and current information.

The researchers' methodology involved the gathering of anonymized data from one large U.S. bank, which included over 500,000 accounts with a history of up to 450 days. This amounted to 200 million relevant observations.

Leveraging Data to Arrive at Solutions

"Substantively, we found that due to the factors that contribute to the overdraft problem, consumers can become dissatisfied and then leave their banks after incurring what they see as unreasonably high overdraft fees," said Srinivasan.

"These findings suggest that we must carefully model consumer demand by taking into [account](#) impulsive consumer behaviors, their inattention to balances and how they tend to respond when dissatisfied with overdraft fees," added Liu. "This drives us to arrive at some possible solutions."

Based on their findings, the researchers make the case for the use of data and predictive analytics to better address the problem. They feature policy simulations as part of their article that show that alternative pricing strategies can help increase bank revenue while improving consumer welfare. This includes fixed bill schedules and overdraft waiver programs that can be applied to individual consumers that exhibit certain overdrafting behaviors.

"A potential solution for both consumers and banks is to leverage financial transaction data to manage overdrafting and offer new services that use the financial transaction data," said Montgomery. "Financial institutions store massive amounts of information about consumers, which is a by-product of the transactions. In this research, we show how this information can be harnessed to predict consumers' overdrafting

behavior."

More information: Xiao Liu et al, Analyzing Bank Overdraft Fees with Big Data, *Marketing Science* (2018). [DOI: 10.1287/mksc.2018.1106](https://doi.org/10.1287/mksc.2018.1106)

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