

Increasing Your Success in Collections

BackOnTrack®
The Delinquency Mitigation Platform

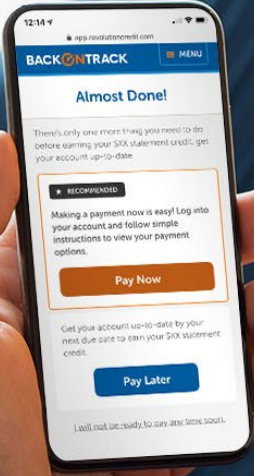


Table of Contents

- Executive Summary..... 3
- Overview..... 4
- BackOnTrack Behavioral Framework..... 6
 - Empathy 6
 - Priming & Nudging 7
 - Reciprocity 8
 - Attention..... 10
- Roll Rate Improvement..... 12
 - Roll Rates 13
 - Persistence of Roll Rate Improvement..... 14
 - Dollar Benefit of Roll Rates Improvement 15
- BackOnTrack Unique Consumer Insights 16
 - Source of Funds for Emergency 17
 - Reason delinquent 17
 - Could have prevented being late 18
- Payment Aid Nudges..... 19
 - Autopay 20
 - Payment Reminders..... 21
 - Payment Aid Enrollment Segmentation 22
 - Impact of Payment Aids on Roll Rates 23
- Segmenting Collections Accounts for Roll Rate Risk 24
 - Individual Data Segmentation 24
 - Roll Rate Prediction Model 25
 - Prioritizing Recidivist Customers for Collections Efforts 26
- Reduce Delinquencies, Increase Profits..... 27
- About Scorenomics..... 28
- About the Author 28

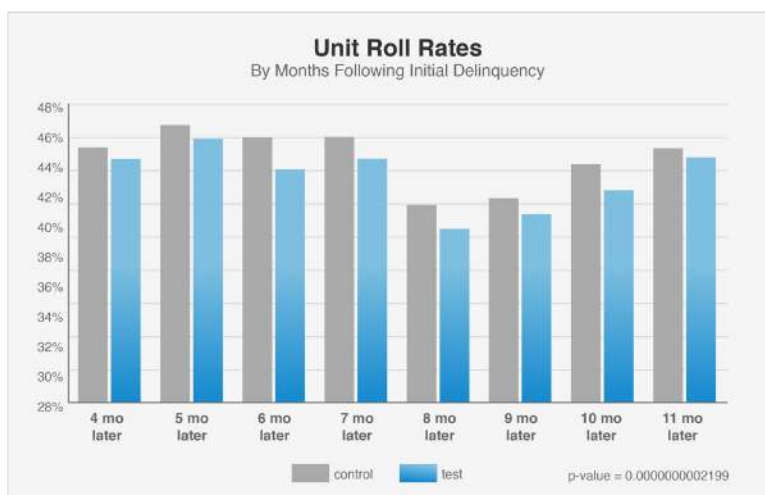
Executive Summary

When customers go delinquent, creditors rightly become concerned about the integrity of their future repayments. Just a single delinquency is an immediate red flag. Because of this, creditors have well established procedures to get the customer either current, or to pay off the balance. These collections tools - late fees, phone calls, payment plans, etc. - have been in place for decades, providing a reliable level of repayment. However, there is room for innovation and improvement.

Scorenomics has developed an effective, innovative approach to collecting on delinquent customers. BackOnTrack® (BOT) is a B2B2C behavioral platform for next generation collections. BOT applies behavioral science principles that emphasize empathy, personal agency and financial health.

BackOnTrack is complementary to existing collections processes used by creditors. The result is an improvement in recidivism and roll rates, generating significant gains to creditors' bottom lines.

Analyzing results for 473,000 credit card customers who were in collections, we find that BackOnTrack delivers a consistent, long term improvement in customer roll rates. Because of this impact, creditors can see a dollar benefit of more than 1.00% of their delinquent balances. That is significant money that increases the profits of creditors.



In addition to driving improvements in recidivism and roll rates, BOT captures valuable data that can help creditors get their customers enrolled for autopay and payment reminders. Creditors learn valuable information about a customer's financial fragility, what situation drove a customer to be delinquent, how much control the person feels they have over their financial situation and what benefit the customer sees getting their account current. Use of this data allows for tailored pitches to customers regarding on-time payments, and enrollment in autopay and email reminders.

Finally, BOT data powers a risk model which can be used to predict future roll rates for customers who enter collections. The model allows for differentiated treatment based on the level of risk the customer poses for rolling. Use of this model helps with customer retention and cash collection.

The paper that follows provides details about how BackOnTrack helps creditors generate higher profits.

Overview

When customers fall behind on payments, it's generally a sign that they're experiencing a cash crunch. From that perspective, delinquency is a financial situation, with defined requirements for addressing the missed payments. However, there is another aspect of delinquency: the emotional experience. For many consumers, being delinquent is more than a financial situation. It takes an emotional toll on the individual consumer, and their family. Take a look at the actual comments of people who were in the collections process of Scorenomics' clients:

*I hate the fact I am behind on my payments. It physically **makes me ill. I feel small** as a person.*

*I would probably see the most benefit in my **emotional/mental life**, because missing a payment causes **anxiety and worry** that are avoidable.*

*It is financially wise to not missed any payments at all because it can take a toll on your body **mentally and emotionally**.*

*This **weighs on me everyday** and I've been too **embarrassed** to call and try to get help.*

***Stress** takes a big toll both **physically and mentally**.*

*Right now I go through **emotional trauma** each time I miss a payment on any bill.*

*I think **humiliation** is a strong reaction when someone gets behind.*

*Overall the program takes the **shame** out of the financial **stress** I already feel with falling behind on my payments.*

Shame. Ill. Embarrassed. Stress. Trauma. Anxiety. Humiliation. These are powerful words, revealing the deeper effect of delinquency on households. Research shows that negative emotions can interfere with rational decision-making. As noted in a Psychology Today article regarding the effect of anxiety on decisions¹:

During times of distress, the latest research shows that people are likely to make poor decisions which can exacerbate anxiety, lead to more bad decisions and snowball into a downward spiral.

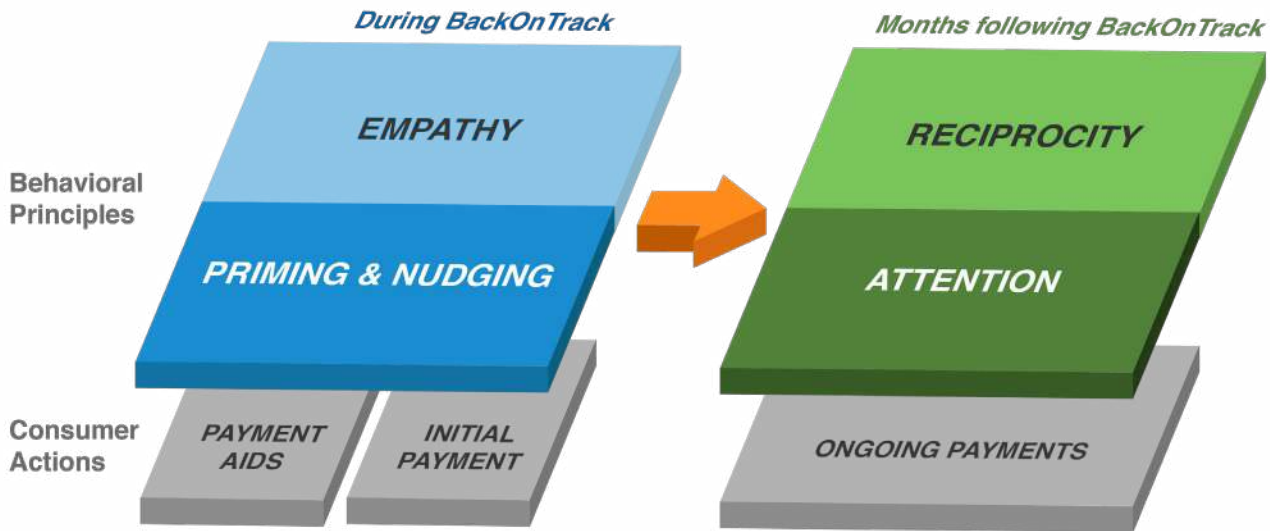
Scorenomics' delinquency mitigation platform, BackOnTrack (BOT), incorporates a behavioral approach that steadies consumers during what for many is challenging time emotionally. In combination with other behavioral factors, the effect is a significant improvement in delinquent customers' payment performance.

¹ Bergland, Christopher. "How Does Anxiety Short Circuit the Decision-Making Process?" Psychology Today, 17 Mar. 2016, www.psychologytoday.com/us/blog/the-athletes-way/201603/how-does-anxiety-short-circuit-the-decision-making-process. Accessed 28 Feb. 2019.

BackOnTrack® Behavioral Framework

Scorenomics' BackOnTrack, the platform for customers in collections, was designed using principles of behavioral science. BackOnTrack is additive to existing collections processes, infusing a fresh approach that drives improvements in subsequent payment performance.

The behavioral drivers of BackOnTrack are shown below.

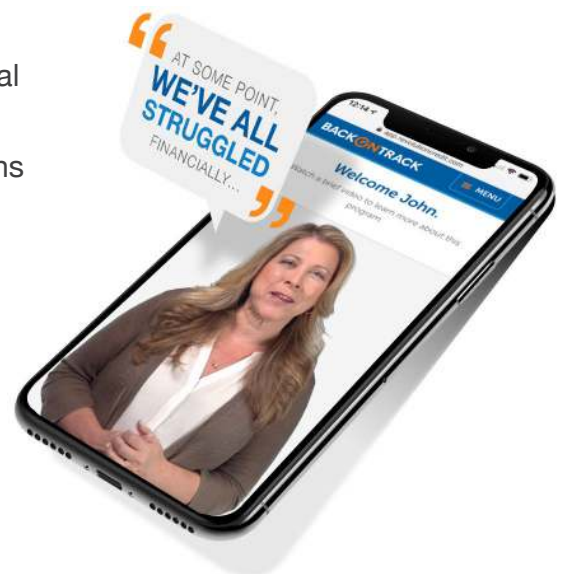


The consumer's experience occurs in two phases. During engagement with BOT, the behavioral principles of empathy, priming and nudging are used. After completing BOT, the principles of reciprocity and attention are in play. The entire experience brings a behavioral approach to engaging delinquent customers, leading to better payment performance.

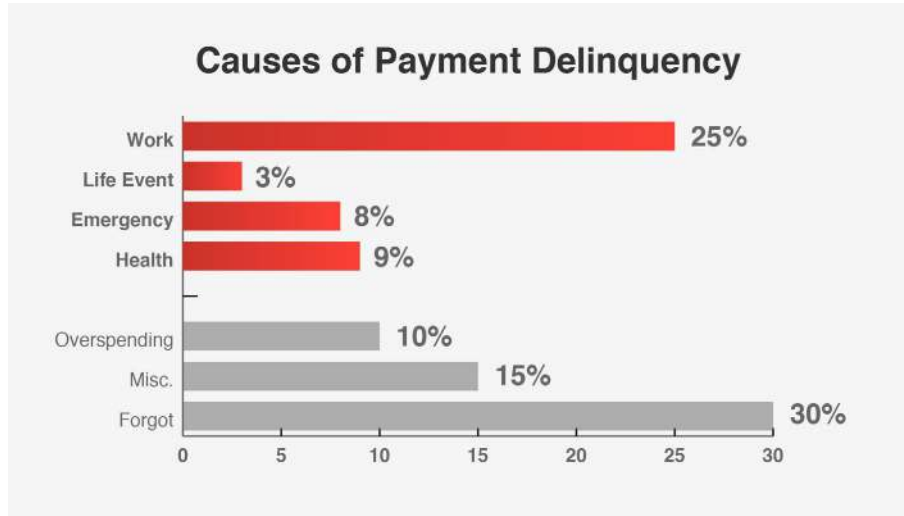
Empathy

The BackOnTrack experience is designed to reduce the emotional stress that impacts a customer's relationship with the creditor. Emotions can cloud one's judgment, causing short-term decisions that are not financially healthy in the long term.

BackOnTrack's messaging focuses on distinguishing the person from the fact that they're delinquent. That financial rough patches are not uncommon, and that the person can handle it.



BackOnTrack’s empathetic design reflects that many consumers in collections are experiencing financial difficulties. We see this in their descriptions of why they are behind on their payments. In BackOnTrack, consumers describe why they were behind on their payments. Applying text mining to these answers, we see that nearly half of respondents are experiencing some type of difficulty leading to cash problems:



With such a meaningful percentage of customers suffering financial distress, empathetic messaging is valuable for deescalating stressful situations. The result is that the customer is receptive for the messaging that follows.

Priming & Nudging

Priming is a behavioral principle in which a person’s mind is temporarily prepped to accept and recall information around a specific topic. Priming occurs in reaction to some sort of stimulus. One interesting example of priming:

Researchers from the University of Leicester tested the effect of in-store music on wine decisions. They alternated days of French and German music. They then studied purchases of French and German wine. The surprise finding? On days of French music, French wine significantly outsold German wine. On days of German music, German wine was the top seller.²

In this case, the music has a priming effect on wine shoppers, putting them more in a “French” mood or a “German” mood. There was no other influence - e.g. special signage for one country, promotional pricing, removal of one country’s wine from the shelves - beyond this music.

² North, A. C., Hargreaves, D. J., & McKendrick, J. (1999). “The influence of in-store music on wine selections.” *Journal of Applied Psychology*, 84(2), 271-276.

Similarly, as the consumer engages with BackOnTrack, a priming effect occurs. The delinquency mitigation platform emphasizes a number of proactive steps the customer can take to get back to good financial health. There are also discussions about the impact of missed payments and how they affect financial health. BackOnTrack's educational content has the effect of making financial health salient for the consumer, priming them for subsequent actions.

Nudging is the integrated complement to priming. Once a person is primed, there is an opportunity to affect the choices they make. As described by Richard Thaler and Cass Sunstein in their book *Nudge*:

A nudge is any aspect of the choice architecture that alters people's behavior in a predictable way without forbidding any options or significantly changing their economic incentives. To count as a mere nudge, the intervention must be easy and cheap to avoid. Putting fruit at eye level counts as a nudge. Banning junk food does not.³

BackOnTrack reflects Thaler and Sunstein's nudge framework. People are not forced to take actions, but do so on their own volition as a response to being primed. This is the result of designing the experience to make a positive impact on each consumer's financial health. Their response is predictable and beneficial to creditors.

Reciprocity

Reciprocity is one of the oldest and most effective behavioral nudges. Professor Robert Cialdini established the tenets of reciprocity in his breakthrough book *Influence: The Psychology of Persuasion*. Here is his description of reciprocity:

The rule says that we should try to repay, in kind, what another person has provided us. By virtue of the reciprocity rule, then, we are obligated to the future repayment of favors, gifts, invitations, and the like. It is so widespread that after intensive study, sociologists such as Alvin Gouldner can report there is no human society that does not subscribe to the rule.⁴

Wow totally blown away [CLIENT NAME] is offering this tutorial i guess you can say i wish other creditors would do such a thing this is amazing and really helps financially!

-BackOnTrack completer

³ Thaler, Richard H., and Cass R. Sunstein, *Nudge: Improving Decisions about Health, Wealth, and Happiness*. New Haven : Yale University Press, 2008.

⁴ Cialdini, Robert B., *Influence: the psychology of persuasion*. New York : Collins Business, 2007.

I enjoyed the program and really believe it can help first time I have ever seen a company reach out in this manner. Thank You.

-BackOnTrack completer

Reciprocity is at play throughout our lives. A study of tipping in restaurants demonstrates the point.⁵ In the study, the effect of providing chocolate candy to diners was tested for its effect on the tips given to the waiters. Variations on the amount of chocolate as well as the way in which the chocolate was provided to the diners were studied. The results showed that both (i) the candy, and (ii) the way in which it was offered increased tips for the wait staff. For an inexpensive gift of chocolate, the wait staff received significantly more dollars in tips. Reciprocity had a powerful impact on the diners' behavior.

In a similar fashion, creditors who offer BackOnTrack to delinquent customers are providing an unexpected service. The key elements of the offer are:

- Complete BackOnTrack financial health module
- Make a payment to get account current
- Earn a financial incentive

For creditors, this offer provides customers with two separate forms of value. The financial benefit is abundantly clear. This alone would generate a positive feeling of reciprocity toward the creditor.

I am impressed that a creditor is willing to educate the borrower instead of making money off the fees that will roll. Thank you for this program it makes me view [CLIENT NAME] differently.

-BackOnTrack completer

It's the offer of BackOnTrack that intensifies the sense of reciprocity. BackOnTrack combines an empathetic approach with sound advice on returning to good financial health. For consumers, this is a welcome surprise, one that differs from most approaches to collections. The positive effect on the customer's relationship with the creditor redounds to their subsequent payment performance.

5 Strohmetz, D. B., Rind, B., Fisher, R., & Lynn, M. (2002). "Sweetening the till: The use of candy to increase restaurant tipping." Retrieved 15 April 2019, from Cornell University, School of Hospitality Administration site: <http://scholarship.sha.cornell.edu/articles/130>

Attention

Attention is a scarce resource. Gaining it provides an advantage to creditors in terms of repayment. A number of field studies have shown the importance of reminders on consumers' financial behaviors. The results of three of those studies are shown below.

Payment reminders lower the probability of being charged a late payment fee by 2.6 percentage points from a basis of 29.1%.⁶

After twelve months, savings account balances of youth assigned to receive monthly reminders to save increased by 28%, relative to control.⁷

For credit card holders with FICO scores up to 672, text reminders regarding financial health led to a positive effect on payment patterns.⁸

While attention is a commonly understood concept, there are two deeper principles that drive its effect on consumers' payment performance.: engaging system 2, and salience.

Engaging System 2

In his book *Thinking Fast and Slow*⁹, Nobel Prize winner Daniel Kahneman characterizes people's cognitive processes as System 1 and System 2. System 1 is for the rote, habitual tasks we face every day. System 2 requires deeper engagement to unlock analytical thinking and/or stringing together a series of tasks. The payment of a bill does require System 2: check the amount, confirm you have the balanced to cover it, determine the date the payment is due, select the method of payment. It's analytical and requires stringing together a series of tasks.

Email reminders activate the consumer's System 2 cognitive process. Without reminders, there is an increased tendency to rely only on System 1 and let payment due dates slip.

Salience

Salience is defined as the quality of being particularly noticeable or important. On top of the increased awareness a reminder can bring, salience attaches relevant information specifically to the reminder. Thus, salience is an enhancer to attention, increasing the chance that a person engages System 2 in response to a stimulus.

6 Medina, Paolina. "Selective Attention in Consumer Finance: Evidence from a Randomized Intervention in the Credit Card Market." AEA RCT Registry. June 2018.

7 Rodriguez, Catherine and Juan Saavedra. "Nudging Youth to Develop Savings Habits: Experimental Evidence Using SMS Messages." CESR-Schaeffer Working Paper No. 2015-018. August 2015.

8 Bracha, Anat and Stephan Meier. "Nudging credit scores in the field: The effect of text reminders on creditworthiness in the United States." Working Papers, Federal Reserve Bank of Boston, No. 15-2. 2015.

9 Kahneman, Daniel. *Thinking, Fast and Slow*. New York :Farrar, Straus and Giroux, 2011. Print.

Here are two examples of salience.

Earthquakes: *In California, earthquakes are an ever-present danger. However, relatively a low number of residents purchase earthquake insurance, typically 7,000 new buyers annually. In 2017, there were a multiple natural disasters in the news: fires and mudslides in California, flooding in Houston from Hurricane Harvey, devastation in Puerto Rico from Hurricane Maria, and earthquakes in Mexico. These events elevated the sense of danger related to natural disasters, increasing their salience.*

While there was no appreciable increase in earthquake risk during 2017, people's perception of the risk heightened. This resulted in a dramatic increase in purchasing of earthquake insurance. A record number of 90,000 new policies were sold.¹⁰

Savings reminders: *Researchers conducted a study on the effectiveness of reminders on people's savings¹¹. As part of the study, participants were asked to state their savings goals. Some reminders were generic messages to save, while others included a message about the consumer's specific goal.*

The generic reminders to consumers had a modest increase on savings amounts, while the reminders including information about the consumer's savings goal and year-end financial incentive drove 11% higher amounts. The combination of the savings goal plus the financial incentive outperformed the messages with only the financial incentive. The researchers conclude that the inclusion of the savings goal increased the salience of the reminder.

The behavioral effects described in this section drive improvements in roll rates for collections customers. The next section describes these benefits in detail.

10 Fuller, Thomas and Matt Stevens. "California Today: Earthquake Insurance Sales Spiked in 2017." New York Times 9 Feb. 2018. Web 23 Apr. 2019.

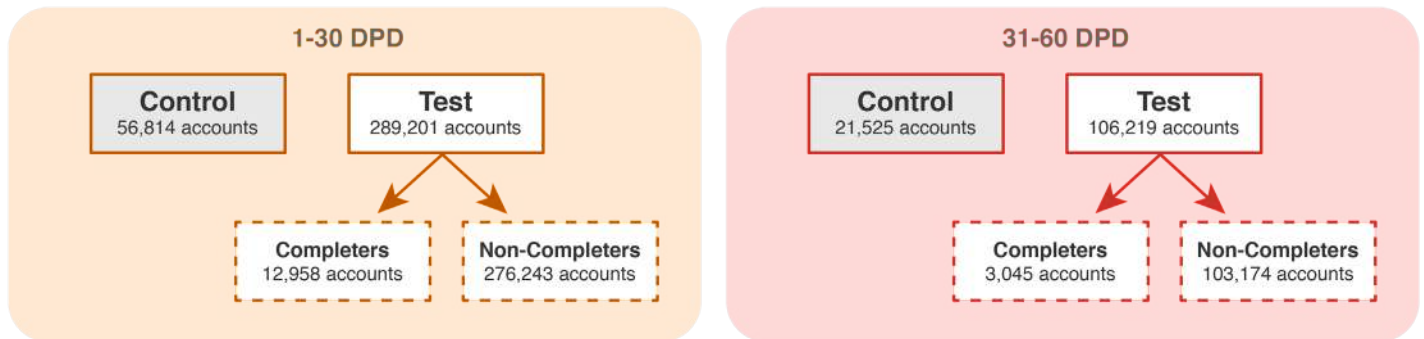
11 Karlan, Dean, McConnell, Margaret, Mullainathan, Sendhil and Zinman, Jonathan. "Getting to the Top of Mind: How Reminders Increase Saving." Management Science 62(12):3393-3411. 2016.

Roll Rate Improvement

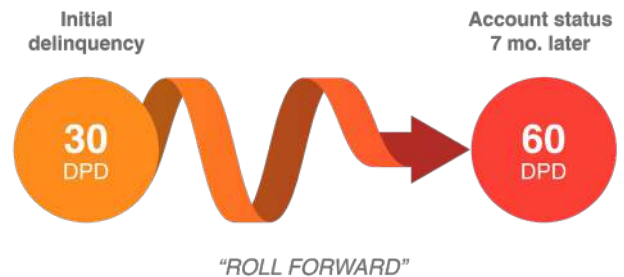
One of our credit card clients, a U.S. Top Ten Card Issuer, provided payment records on over 473,000 collections customers, divided into control vs. test populations. Test represents all accounts that were offered Scorenomics. Control represents collections accounts treated in the business as usual fashion of the creditor. The test group is further segmented between BackOnTrack completers and non-completers.

The large sample sizes are valuable for drawing statistically significant conclusions about the efficacy of BackOnTrack on roll rates. These customers were segmented between 1-30 days past due (73%) and 31-60 days past due (27%). The later stage delinquencies represent more difficult credit situations.

The sample sizes for the two groups are shown below.



Our credit card client provided the payment statuses for these customers 4-11 months after they entered collections. The data allowed us to measure the customers' roll rates. Customers are considered to have "rolled forward" if they are delinquent for more months than when they entered collections. For instance, a customer who entered collections 30 days delinquent, who later ends up 60 days delinquent, is considered to have rolled forward. Roll rates are a critical measure of collections efficacy.



Roll Rates

The sections below show the unit roll rate differences between control and test populations. Test represents all delinquent customers offered the chance to do BackOnTrack, both those that completed BackOnTrack and those that did not. Lower roll rates are better, meaning fewer customers worsened their initial delinquency position 4-11 months later.

Overall Roll Rates

1-30 DPD			31-60 DPD		
Control	Test	delta	Control	Test	delta
32.94%	32.00%	94 bps	74.36%	73.28%	109 bps
	<i>p-value</i>	<i>0.000013</i>		<i>p-value</i>	<i>0.0009721</i>

Over the course of up to 11 months, across tens of thousands of customers, the Scorenomics test group - both BackOnTrack completers and non-completers - outperformed the client's business as usual approach to collections. The results reflect the behavioral principles outlined at the start of this paper.

Note however, there is one exception to the behavioral principles: *Attention*. For this period, the client did not use the follow-up emails to BackOnTrack completers. The improvements seen are strong, and would be even better with the follow-up emails. Putting those in place is the client's next step.

BackOnTrack Completers

The improvement in the test group is driven by the performance of those who completed BackOnTrack when it was offered. The tables below show the roll rates for completers vs. non-completers.

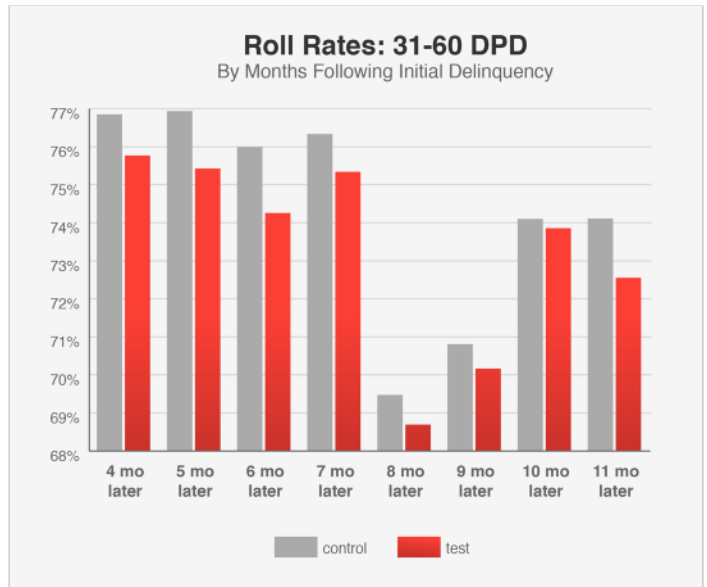
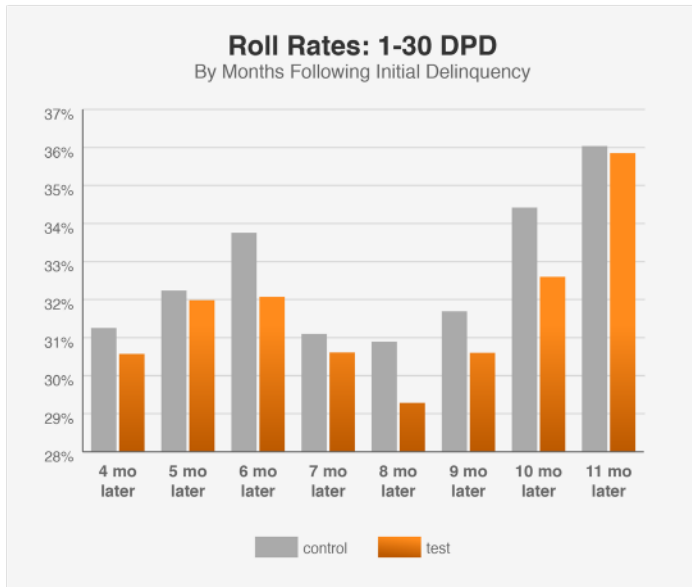
1-30 DPD		31-60 DPD	
Non-Completers	Completers	Non-Completers	Completers
32.58%	19.79%	74.20%	41.90%

Those that completed BackOnTrack exhibited significantly better payment patterns afterwards. Those that declined to complete BackOnTrack performed similar to the overall control group.

Persistence of Roll Rate Improvement

One facet of the BackOnTrack roll rate improvement is its durability. In the charts below, the roll rates by monthly cohort are shown. The period covers BackOnTrack monthly campaigns run over the course of eight different months. All of the payment statuses for the different campaigns' accounts were then checked at the same specific date several months later.

The result is a look at how a given month's cohort performed anywhere from four to eleven months afterwards. Each pair of bars compares control to test, for a given number of months following the initial delinquency.



For both the 1-30 DPD and 31-60 DPD customers, the BackOnTrack test group has better roll rates every single month. The advantage persists with the passage of time.

Dollar Benefit of Roll Rates Improvement

The improvements in roll rates can be translated into dollar benefits. This is done by looking at the reduced bad debt reserve required for collections accounts in the months that follow. This translates into reduced expense, enhancing the bottom line.

As most financial institutions do, our client reserves for bad debt on an increasing basis as delinquency worsens. By looking at the distributions by delinquency bucket for test vs. control, the dollar benefit can be calculated. The dollar benefit is based on applying the reserve rates to the difference between test and control for each delinquency bucket.

Based on our client's results 4-11 months after the initial delinquency, the following are the rates of bad debt reserve improvement for initial dollar delinquent:

Delinquency	Benefit rate per dollar of delinquent balance
1-30 DPD	1.05%
31-60 DPD	1.29%
Overall	1.11%

Here's an example for how those rates work. If a creditor started with \$100 million in delinquent balances (1-60 DPD), the benefit delivered by BackOnTrack would be approximately \$1.1 million in pure bottom line impact. Relative to the net interest rates earned on credit balances, that is a meaningful addition to financial institutions' bottom line.

BackOnTrack Unique Consumer Insights

From the credit card client, we had over 16,000 collections customers who completed BackOnTrack, providing a substantial population for analysis. These customers were divided between 1-30 days past due (81%) and 31-60 days past due (19%).

During their engagement with BackOnTrack, consumers are asked a number of questions to understand their situation and mindset. These questions are valuable for segmenting consumers on recidivism, likelihood to sign up for payment aids, and powers the salience of post-BackOnTrack emails.

Examples of Insights

Here are some example insights that are captured about each customer during their engagement with BackOnTrack:

- **How they would source funds for an emergency:** This question is a measure of the customer's financial resilience.
- **Cause of delinquency:** The reason for the delinquency is one of the most telling signs of subsequent recidivism.
- **Mindset about their delinquency:** This question surfaces the person's understanding of their ability to handle the delinquency.
- **Numeracy:** Numeracy is the math equivalent to literacy. Being numerate is linked to better payment performance.¹²
- **What to do when delinquent:** Customers identify what they would do to address a case of being delinquent.
- **Benefit of no more missed payments:** Customers describe how staying on time in their payments will benefit them.

Three of these are examined in more detail in the following sections.

¹² Gerald, Kristopher, Goette, Lorenz and Meier, Stephan. "Numerical ability predicts mortgage default," PNAS. <https://www.pnas.org/content/110/28/11267.long#>, 9 Jul. 2013. Accessed 28 May, 2019.

Source of Funds for Emergency

You may have seen a similar version of this question in the news, during the Federal government shutdown of January 2019. As NBC News reported at the time, only 40% of U.S. adults say they can pay an unexpected expense of \$1,000 or more.¹³

This question measures a family's resilience to financial shocks. For our credit card client, below are the distributions of answers. The sources are listed in order of how well they represent financial health.

Source	1-30 DPD	31-60 DPD
source A	19%	8%
source B	7%	5%
source C	27%	28%
source D	12%	13%
unable	35%	47%

As one would expect, those in worse financial situations - 31-60 DPD - are less likely to have sufficient sources and to answer "unable".

Reason delinquent

There are two questions related to the customer's reason for being delinquent. One question is a standardized set of four choices, and the other is a free form text entry question. Understanding the cause of customers' delinquencies provides insight into their situation.

The distributions for the four standardized answers are below.

Reason	1-30 DPD	31-60 DPD
forgot	38%	8%
too busy	6%	3%
making payment too complicated	4%	4%
short on cash	52%	86%

As the delinquency worsens from 1-30 to 31-60 DPD, the percentage of people who indicate they're short on cash increases dramatically.

13 Weisbaum, Herb. "The government shutdown was a reminder of how little Americans are saving." 28 Jan. 2019. NBC News, <https://www.nbcnews.com/better/lifestyle/government-shutdown-reminder-how-little-americans-are-saving-ncna963446>. Accessed 24 Apr. 2019.

Could have prevented being late

This question is one part personal situation, one part mindset. The customer is asked: “Which describes how you feel about your past due balance?” The choices are:

- I could have prevented it
- I could not have prevented it

As you may expect, the percentage of people saying they could have prevented being delinquent varies by how delinquent they are. 62% of customers who are 1-30 DPD say they could have prevented being late on their payments, while only 33% of those who are 31-60 DPD say the same.

Of interest is to map the percentage of customers saying they could have prevented their delinquency to the reason they missed payments:

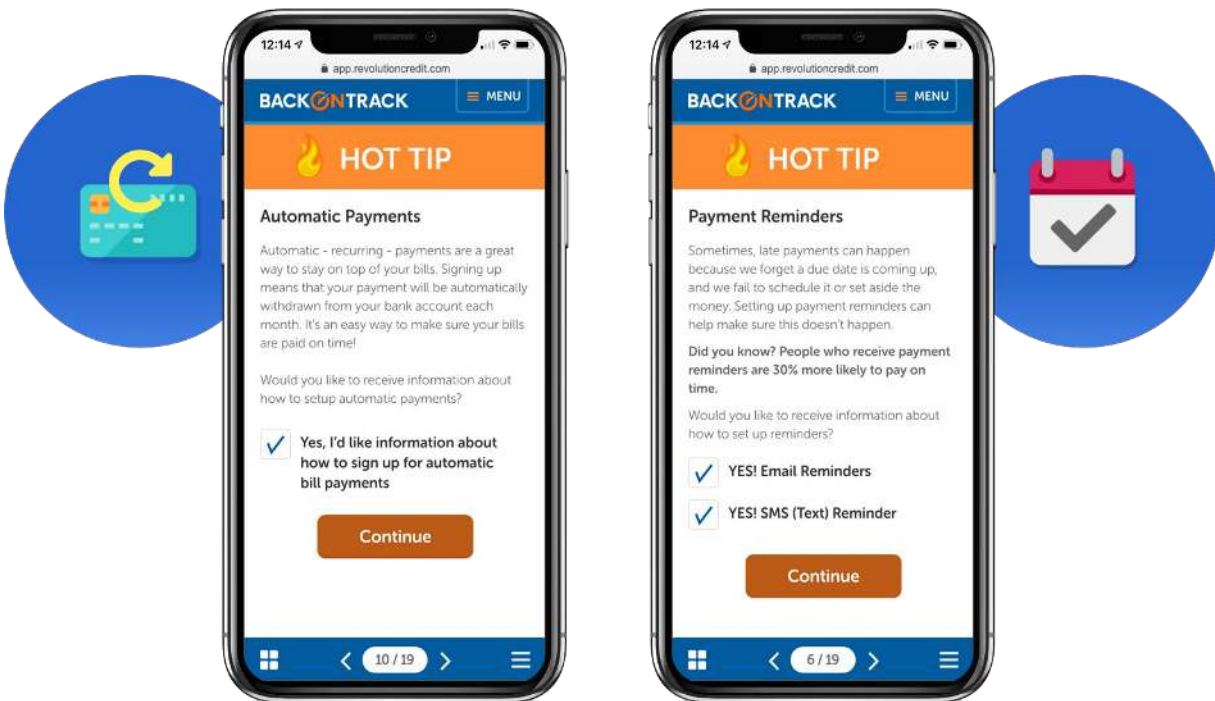
Reason	Percent who could have prevented missing payments
forgot	92%
too busy	86%
making payment too complicated	54%
short on cash	34%

The declining rate of people who say they could have prevented corresponds with the underlying causes of the delinquency. There is a significant difference between those who forgot and missed payments, and those who are in a cash crunch. Forgetting is something that can be more easily remedied. Being short on cash is a more difficult situation to remedy.

Payment Aid Nudges

Two actions can help consumers make on-time payments for their bills: enrollment in autopay and/or for payment reminders. Both are forms of payment aids. They make it easier to pay the required minimum by the date due. A third payment aid nudge is under study, and we will report on its effectiveness soon.

BackOnTrack includes nudges to consumers to enroll in both of these payment aids. The screens below are examples of the nudges in BackOnTrack:



Autopay

Autopay is incredibly helpful for both consumers and creditors. It keeps the consumer on track with their payments, and the creditor's debt portfolio is stronger. However, autopay enrollment is relatively low for most creditors. Generally, two issues reduce the rates of autopay signup:

- Burden of ACH sign up: Requires the consumer to get their checking account information, not a simple click to enroll.
- Loss of control: Concern that cash payment may conflict with other cash flows in their checking account, causing them to be short or charged an NSF fee.

In our client's implementation, there was an opportunity to indicate interest in autopay (as seen in the previous Automatic Payments screenshot). However, there was no optimization in real-time to fulfill that interest. The table below shows autopay enrollment following completion of BackOnTrack.

		enrolled in autopay		
		no	yes	enrollment rate
interested in autopay	no	9,131	79	0.9%
	yes	7,403	181	2.4%

p-value = 0.000000000000000231

As the table shows, when customers indicated their interest in autopay after being nudged, they subsequently enrolled for autopay at a statistically significant higher level (2.4% vs. 0.9%). This is a difference that drives greater benefits for creditors.

One customer's responses show the challenge in getting people enrolled for autopay. The customer checked Yes on learning more about automatic payments. The customer then added this comment:

"I am going to do auto payments so if I don't get an email or forget, the bill is paid."

However, that customer, displaying strong interest and motivation from being nudged, never signed up afterwards. One outcome from this finding was that the client determined to find ways to make it easier to sign up for autopay.

Payment Reminders

Reminders are valuable prompts to pay. Recall from the earlier discussion about Attention: reminders when designed properly will activate System 2, which governs our ability to string together non-routine tasks to accomplish a goal.

In the table below, you can see how interest in reminders compared to enrollment. The numbers reflect only consumers who had not yet enrolled in autopay prior to completing BackOnTrack.

		enrolled in reminders		enrollment rate
		no	yes	
interested in reminders	no	719	2	0.3%
	yes	14,671	311	2.1%

p-value = 0.000739

Customers indicating their interest in reminders were nudged to sign up at a much higher, statistically significant rate. This is an expected result from the Priming & Nudging that occurs during BackOnTrack.

As was seen with autopay, a customer had indicated an interest in reminders. The customer also provided this comment:

“These brief tutorials have been so helpful. Such as receiving reminder texts.”

However, that customer, displaying strong interest and motivation from being nudged, never signed up afterwards. One outcome from this finding was that the client determined to find ways to make it easier to sign up for reminders.

Payment Aid Enrollment Segmentation

Messaging for enrollment in autopay and/or reminders can be optimized based on consumers' responses to other BackOnTrack questions. Two examples of demonstrate the degree of segmentation.

Reason delinquent

Recall previously that consumers are asked to provide the Reason delinquent they were delinquent. Mapping consumers' *why delinquent* answers to payment aid enrollment provides insight into which aid is more attractive.

Reason	Autopay enrollment	Reminder enrollment	Autopay/Reminder ratio
forgot	1.6%	2.2%	0.74
too busy	2.0%	1.8%	1.07
making payment too complicated	2.1%	2.0%	1.09
short on cash	1.4%	1.9%	0.75

For each reason delinquent, the ratio of autopay-to-reminder enrollment is calculated. This ratio measures the relative interest in autopay versus payment reminders. Autopay is deeper commitment, in that the money is withdrawn without regard to cash flow cycles. It requires a level of confidence in one's cash position.

Two of the delinquency reasons show relatively higher interest in autopay.

- **Too busy:** The logic here is that the customer's busy life prevents making payments manually. In this case, having the payments automatically made fits their lifestyle because it doesn't add a new task they have to do.
- **Making a payment is too complicated:** The interest in autopay makes sense in this case. If making a payment is somehow too complicated, then reminders aren't going to help. Automatic payments happen without needing additional processing by the customer.

When a customer's reason is either 'too busy' or 'making a payment too complicated', there is an opportunity to tailor messaging to target the value of autopay.

Could have prevented being late

As described in a previous section, BackOnTrack completers are asked whether they Could have prevented being late. Those responses are mapped to payment aid enrollment in the table below. The Payment Aid enrollment is the combined rate for autopay and/or reminders.

Could have prevented	Autopay enrollment	Reminder enrollment	Payment Aid enrollment
yes	1.7%	2.1%	3.6%
no	1.3%	1.9%	3.0%

p-value = 0.0166

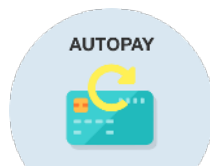
People who indicate they could have prevented their delinquency enrolled in payments aids at a statistically significant 20% higher rate. This finding is consistent with consumers' sense of their ability to manage their payment of bills. Those who feel they could do better show higher enrollment for payment aids.

When a customer indicates they could have prevented their delinquency, that signals an opportunity to leverage that mindset to pursuit enrollment in a payment aid.

Impact of Payment Aids on Roll Rates

There is a clear connection between the nudges and payment aid signup, providing a significant opportunity to boost enrollment.

The tables below show the roll rates for BackOnTrack completers, based on whether they subsequently enrolled for a payment aid or not. The figures exclude the minority of customers who had reminders prior to entering collections.



Enrolled for autopay after BackOnTrack	Roll Rate
no	24.1%
yes	17.3%

p-value = 0.013



Enrolled for reminders after BackOnTrack	Roll Rate
no	23.8%
yes	12.0%

p-value = 0.00000185

Those who enrolled for either autopay or payment reminders were significantly better performers 4-11 months later.

Segmenting Collections Accounts for Roll Rate Risk

Earlier in this paper, some of the BackOnTrack Unique Consumer Insights captured about each consumer were described. These insights are more than descriptors of a customer's situation and mindset. They are useful for predicting subsequent chances the consumer will roll forward in the next 4-11 months.

Individual Data Segmentation

Many of the different data fields effectively segment collections customers on subsequent roll rates. Below are two examples of this segmentation.

Measure of Financial Fragility: Source for Emergency Fund

As described earlier, this question is a check on each customer's financial fragility. There is a clear pecking order in what each source says about a customer's financial health 4-11 months later.

The table below combines the roll rates for 1-30 DPD and 31-60 DPD collections customers.

Source for \$2,000	Roll Rate
source A	12.6%
source B	18.3%
source C	24.6%
source D	25.5%
unable	30.2%

p-value = 0.00000000000000022

Those who have would use sources A or B for the fund were the strongest financially in the months after the initial delinquency. Those in more fragile positions financially - sources C, D or unable - had worse payment performance.

Reason Delinquent: Insight into What Customer Does Next

Recall that during BackOnTrack, customers are asked the reason they were delinquent. By mapping these responses to subsequent roll rates 4-11 months later, a creditor gains insight into what the customer will do next.

The table below combines the roll rates for 1-30 DPD and 31-60 DPD collections customers.

Reason Delinquent	Roll Rate
forgot	10.8%
too busy	14.1%
making payment too complicated	23.5%
short on cash	32.7%

p-value = 0.00000000000000022

Focus on the two ends of the spectrum: forgot vs. short on cash. Those are two very different reasons for the delinquency. Forgetting is a short-term issue, which may happen again later. But it's not an issue that reflects financial fragility. Being short on cash, however, is more of a long-term issue. People in this situation will be more likely to experience subsequent payment difficulties.

Roll Rate Prediction Model

To test the predictive abilities of BackOnTrack's unique insights, separate statistical models were built for the 1-30 DPD and 31-60 DPD completers. These models are focused on segmenting customer roll rates 4-11 months after completing BackOnTrack.

The modeling followed the convention of training a model on one part of the population, and testing it on the remaining part of the population. This is done to measure how well a given model works for a population it hasn't seen yet, providing a measure of its predictive efficacy.

In the table below, the models' scores for the test population are split at the median, resulting in better and worse segments. Each score half represents a distinct level of risk for rolling forward.

1-30 DPD			31-60 DPD		
Score	Roll Rate	Pct Total	Risk Rating	Roll Rate	Pct Total
Better	10.6%	50%	Better	36.2%	49%
Worse	26.7%	50%	Worse	47.4%	51%

p-value = 0.00000000000000022

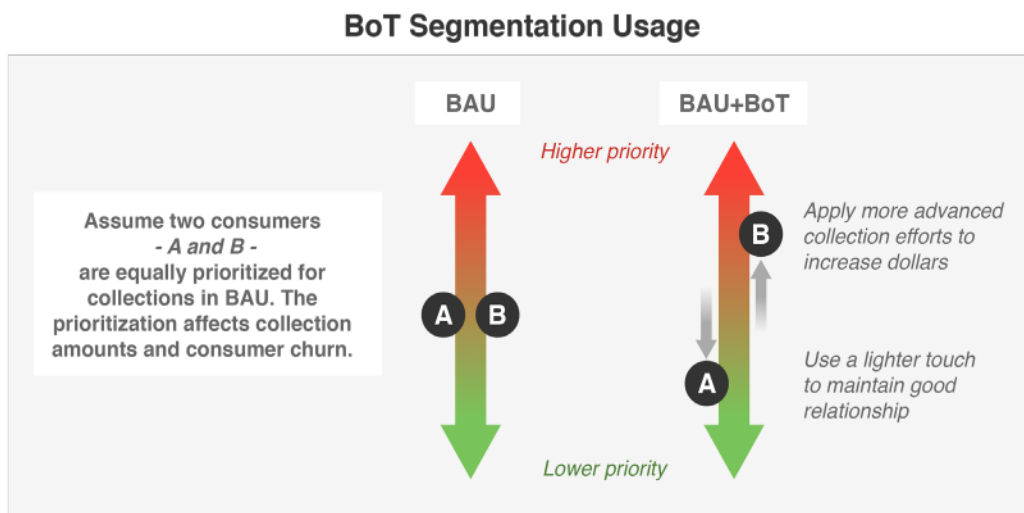
p-value = 0.00000004409

The data collected at the time of completing BackOnTrack is predictive of subsequent roll rates.

Prioritizing Recidivist Customers for Collections Efforts

Many collections groups apply models that prioritize which customers to target first. These prioritizations govern the date of first contact, the nature of the contact and the frequency of subsequent contacts.

The BackOnTrack data provides new, additive information that helps collection group in their prioritization efforts. By using this new data, collections can improve on cash collection efficacy, customer retention and cost reduction. The diagram below illustrates this approach.



The better and worse risk scores provided previously were for all collections customers. Of interest is how well those ratings work for customer that lapse, and are delinquent again 4-11 months later. The table below looks at the roll rates of only those customers that were delinquent again. In other words, the population of collections customers who are recidivists, not just those that rolled to worse delinquency buckets.

1-30 DPD		
Score	Roll Rate	Pct Total
Better	47.5%	35%
Worse	64.7%	65%

p-value = 0.00000000000000022

31-60 DPD		
Risk Rating	Roll Rate	Pct Total
Better	64.8%	44%
Worse	69.4%	56%

p-value = 0.06773

As the results show, the 1-30 DPD recidivist customers with better risk scores were less likely to roll than those with worse scores. Use of this data in conjunction with existing prioritization models improves the business outcomes for creditors. The later delinquency 31-60 DPD recidivist customers were less effectively segmented on roll rates.

Reduce Delinquencies, Increase Profits

BackOnTrack represents a fresh, original approach to engaging customers in collections. BackOnTrack addresses an underappreciated aspect of delinquencies: the emotional impact. With that foundation, advanced behavioral principles are applied to working with delinquent customers to get them back to good status:

- Empathy
- Priming and nudging
- Reciprocity
- Attention

BackOnTrack does work in both the near term and the longer term. During BackOnTrack, customers are nudged toward enrolling in payment aids (autopay and payment reminders). Afterwards, customers who completed BackOnTrack exhibit superior payment behavior in the months that follow.

BackOnTrack's unique insight can also be used in collections prioritization efforts. The data provided by the delinquent consumer is predictive of subsequent roll rate probabilities. Combined with a creditor's existing data, BackOnTrack data helps improve collections efficacy and customer retention.

Implementation of BackOnTrack is lightweight and easy to get up and running quickly. If you're looking to improve your collections program, BackOnTrack is a valuable addition to your efforts.

About Scorenomics

Scorenomics is the leading behavioral data & analytics firm in consumer credit. Our products deliver real time behavioral scores to creditors at the point of transaction. These scores improve lenders' ability to risk-segment consumers and nudge consumers toward measurable improvements in their financial behaviors.

Scorenomics' behavioral data offers a superior approach to risk assessment versus other types of predictive data. Its predictive ability is more substantial and proven than that of alternative data providers. It applies to all consumers who complete Scorenomics, offering greater ubiquity than other forms of data. Scorenomics is a scalable solution, with minimal footprint and easy deployment. Our data and its usage comply with applicable regulations covering use of data for consumer risk assessment. Finally, aside from data, Scorenomics' platform successfully nudges consumers toward better financial health, a feature not available with other data providers.

To find how Scorenomics can help your consumers, email: sales@scorenomics.com

About the Author



Hutch Carpenter

As Chief Scientist, Hutch Carpenter oversees data analytics, the development of behavioral measures and the application of Scorenomics data to achieve significantly better outcomes for clients.

Hutch brings over 20 years of experience in banking, financial technology and innovation. He has worked in credit markets with Bank of America, and built credit algorithms for scoring small businesses and sole proprietors. He also has advised clients on establishing programs that foster innovation.

Hutch holds a Bachelor degree from the University of Virginia, and an MBA from the University of Virginia Darden School.

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