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Accounting for Product Impact in the Consumer Finance Industry

George Serafeim and Katie Trinh*

Impact-Weighted Accounts Project Research Report

Abstract

We apply the product impact measurement framework of the Impact-Weighted Accounts Initiative (IWAI) in two competitor credit card providers within the consumer finance industry. We design a monetization methodology that allows us to calculate monetary impact estimates on cardholder access to credit, affordability for merchants, financial health, and recyclability, among other factors. Our results indicate substantial differences in the impact that competitors have through their products. These differences demonstrate how impact reflects corporate strategy and informs decision-making on industry-specific areas.

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1. Introduction

Although significant progress has been made in the environmental and social metrics disclosed by companies and prescribed by reporting standards, these mostly pertain to a company's operations and are still not embedded in financial statements. In contrast to employment or environmental impacts from operations, product impacts, which refer to the impacts that occur from usage of a product once a company has transferred control of the good or service, tend to be highly idiosyncratic limiting the ability to generalize and scale such measurements. As such, for companies that do measure product impact, impact evaluation is highly specific, limiting comparability and scalability. Moreover, the number of companies that have managed to measure product impact in monetary terms is even more limited.

We have put forth a framework in which product impacts can be measured and monetized in a systematic and repeatable methodology across industries and have provided a sample application to the automobile manufacturing industry to address these issues.[1] Within any industry, the framework can be applied using a set of standard principles, industry assumptions and public data to estimate product impacts across the following seven dimensions.

FIGURE 1

Product Impact Framework Dimensions

Reach		Dimensions of Customer Usage			Env Use	End of Life
Quantity	Duration	Access	Quality	Optionality	Pollutants & efficiency	Recyclability
The magnitude of individuals reached	Length of time the product can be used, particularly for durables	Accessibility of product through pricing and efforts to provide for the underserved	Quality of product through health, safety, effectiveness, and inherent need or goodness	Ability to choose an alternative product with full information and free will	All pollutants and efficiencies enabled through customer usage	Projected product volume recycled at end of product life

In this paper we apply the framework to two competitor companies in the consumer finance space. We then discuss potential data points and data sources for monetization and detail the decisions behind assumptions made. Finally, we provide examples of insights specific to the

[1] George Serafeim and Katie Trinh. "A Framework for Product Impact-Weighted Accounts". Harvard Business School.

consumer finance space that can be derived from impact-weighted financial accounts and their analysis. The application of the product impact framework to the consumer finance credit card space demonstrates feasibility and actionability, while also providing guidance on the nuances and decision-making of applying the framework to other similar industries. The impacts derived demonstrate the potential for product impact measurement to inform strategic decision-making. We see our results as a first step, rather than a definitive answer, towards more systematic measurement of product impact in monetary terms that can then be reflected in financial statements with the purpose of creating impact-weighed financial accounts.

2. Application of the product impact framework

We apply the product impact framework within the consumer finance industry to ensure the framework is feasible, scalable, and produces estimates that are comparable across companies within the same industry. Through a deep-dive of two competitor companies, we provide a cohesive example that examines the impacts of credit cards across all the seven product impact dimensions of the framework to uncover nuances of the framework application in estimating actual monetary values. The companies will be referred to as Companies A and B given the purpose of this exercise is to examine feasibility, not to assess the performance of individual companies. We do note that the data is from two of the largest consumer finance companies.

2.1 Data collection process

The example below is based on publicly available data from company disclosures and industry-wide assumptions informed by regulatory bodies and established research firms.

Self-disclosed company datapoints reflect information found in the company's disclosures from 2018 such as the Form 10-K or annual sustainability reports which often disclose Sustainability Accounting Standards Board (SASB) and Global Reporting Initiative (GRI) metrics. Because these disclosed metrics are often inputs rather than impacts, this data is supplemented with metrics from industry research firms and regulatory bodies, including the Consumer Financial Protection Bureau (CFPB). This allows us to translate these inputs into estimated impacts.

Industry-wide assumptions on product fees and rates, consumer credit risk profiles, and various measures of financial health and associated costs come from the industry reports by organizations including the Consumer Financial Protection Bureau, Lending Tree, the Federal

Reserve, and J.D. Power. Given the methodology determines monetary impacts, the industry wide assumptions inevitably rely on some market-determined price and valuations.

3. Consumer finance application of the product impact framework

3.1 Overall impacts estimated

TABLE 1

Product Impacts of Company A and B

				Dimensions of Customer Usage									
				Reach		Access		Quality			Option-ality	Env Use	End of Life
Company	Revenue	Positive Product Impact	Negative Product Impact	Quantity		Affordability	Underserved	Health & Safety	Effectiveness	Need	Information	Emissions	Recyclability
A	$43bn	$0.5bn	-$1.0bn	Cards	114m	-	-	-$951m	$476m	-	-$2.9m	-	-$11.4m
				Merchants	20m								
B	$13bn	$3.6bn	-$1.1bn	Cards	57m	$1,592m	$1,665m	-$1,094m	$309m	-	-$0.6m	-	-$5.7m
				Merchants	45m								

**variances from totals below due to rounding*

For the consumer finance industry, we examine the impacts from their credit card services. For Company B, the relevant impact revenue is smaller than the full revenue because Company B's operations extend to additional non-credit card loans. We exclude that portion of the business to determine the relevant impact revenue. The reach dimension looks at the quantity of cards issued and the number of merchants. The affordability dimension captures the pricing of different fees and interest rates for non-luxury credit card services, compared to the industry average. Serving more customers with lower FICO scores proxy for underserved impact. Credit card exposure that is associated with indebtedness is monetized in the health and safety dimension. Effectiveness is proxied with customer satisfaction. The cost of unrecycled plastic is captured in the end of life recyclability dimension. There is no basic need or environmental usage impacts estimated in this industry given access to credit cards does not satisfy the basic need for financial access and the energy required for credit card use is minimal. The following sections dive into the details, assumptions, and decisions behind these estimated impacts.

3.2 Reach

TABLE 2

Card Issued and Merchants of Company A and B

Data			
		A	**B**
10K	Cards issued	114,000,000	57,100,000
10K	Merchants	19,500,000	45,000,000
Nilson	Card per cardholder	1.41	1.28

Estimation		
	A	**B**
Cards issued	114,000,000	57,100,000
	÷	
Cards per cardholder	1.41	1.28
	=	
Cardholders	80,851,064	44,609,375

3.2.A The customer

The goal of the reach category is to identify the number of individuals reached by the company. For consumer finance, we identify two customer groups, the credit cardholders and the merchants who accept the credit card for payment. This decision is rooted in the fact that both cardholders and merchants are receiving and paying for a service from these companies.

3.2.B Unit of measurement

Given consumer finance companies often disclose the number of cards issued rather than the number of cardholders, the number of cards issued is the unit of measurement for the cardholder customer group. Estimating the number of merchants is more straightforward given companies do disclose the number of merchants in their network.

3.2.C The estimate

When the number of cardholders, rather than the number of cards issued, is required, we divide the number of cards issued by the industry assumption from the Nilson Report[2] of number of company-specific cards per cardholder to estimate the cardholders served by the company.

[2] "US Cards – Credit, Debit, and Prepaid". *Nilson Report, (1147), 10-11*. Published February 2019. Accessed June 2020.

3.3 Access - Affordability

TABLE 3

Product Affordability of Company A and B

Data			
Company datapoints		**A**	**B**
Company marketing	*Non-luxury cards*		
	Cash back cards	3	4
	Secured cards	0	1
	Student cards	0	1
	Luxury cards		
	Travel cards	10	1
	Reward cards	3	0
10K	Credit card fee	$51.00	$0.00
	Interest rate	12.95%	12.12%
	Merchant fee	2.37%	1.93%
	Interest income	$10.6bn	$8.8bn
	Merchant volume	$1,184bn	$144bn
Industry assumptions			
Federal Reserve	Avg interest	13.64%	
	Avg merchant fee	2.00%	
Card Fee Study	Cash back cards	$11.49	
	Secured cards	$22.43	
	Student cards	$0.00	
	Travel cards	$93.17	
	Reward cards	$41.38	

Estimation		
	A	**B**
Underlying principal	$81.9bn	$72.9bn
	x	
Industry interest rate	13.64%	
	÷	
Cards issued	114m	57m
	=	
Industry interest cost	$97.99	$174.09
	+	
Industry card fee	$11.49	$11.40
	=	
Industry cardholder cost	**$109**	**$185**
	-	
(Credit card fee	$51.00	$0.00
	+	
(Interest income	$10.6bn	$8.8bn
	÷	
Cards issued))	114m	57m
	=	
Company cardholder cost	**$144**	**$155**
	x	
Cards issued	114m	57m
	x	
Percent non-luxury cards	19%	86%
	=	
Card affordability	**-**	**$1,505m**
Percent non-luxury cards	19%	86%
	x	
(Industry average merchant fee	2.00%	
	-	
Merchant fee)	2.37%	1.93%
	x	
Merchant volume	$1,184bn	$144bn
	=	
Merchant fee affordability	**-**	**$86m**

3.3.A Product affordability in consumer finance

Affordability in the consumer finance industry aims to capture the impact of providing non-luxury credit card services to cardholders and merchants more affordably than others in the industry. For cardholders, affordability can be measured through the credit card fee and the interest rate to the cardholder. For merchants, affordability can be measured through the transaction fee to the merchant. Given the luxury travel and reward cards are inherently unaffordable, we exclude

those cards from our affordability impact estimate. Their inclusion would lead to unintuitive findings in which unaffordable travel and reward cards could have a positive affordability impact if they are priced below the much higher industry average for a travel or reward card. Our goal is to account for affordable service provision without penalizing other pricing strategies.

3.3.B Pricing data

To estimate the affordability of these credit card services, we examine industry price averages and look for the corresponding company-specific metric. For industry price averages, the Federal Reserve provides the industry average interest rate on both interest-bearing accounts only and all accounts and the industry average merchant transaction fee.[3] For the average card fee, the Consumer Credit Card Fee Study[4], which analyzes the fees of hundreds of credit cards, provides industry average card fees by card type, inclusive of no-fee cards.

For the company-specific costs and fees, we looked to the company's Form 10-K and marketing materials to identify the appropriate corresponding data. In marketing materials, both Company A and Company B disclose descriptions of the different cards they offer. We use the marketing material to determine the type of card offered, such as cash back or reward. Ignoring the type of card offered and the associated benefits of the card would lead to miscalculated estimates as cards with more benefits tend to charge higher fees. Assuming an even distribution of cards offered across cardholders, we can then estimate a company-specific industry average benchmark for non-luxury cards offered. In practice, companies can estimate the industry average benchmark using the actual distribution of cards issued. For the average card fee, Company A disclosed their average card fee across all cards issued while company B's online credit card descriptions highlighted that they charge no annual fee. Since neither company explicitly disclosed their average interest rate, we estimated the interest rate on all accounts by dividing interest income from credit cards with credit card loan receivables. Both companies disclose the merchant transaction fee in their Form 10-K.

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[3] Resendiz, Joe. "Average Credit Card Interest Rates". *Value Penguin by Lending Tree.* Published August 2020. Accessed October 2020. Data from the Federal Reserve Consumer Credit – G.19 Data Release.
[4] US News Staff. "2019 Credit Card Fee Study". *US News.* Published October 2020. Accessed October 2020.

3.3.C The impact estimate

We calculate card affordability impact only for non-luxury cards. To estimate the card affordability, we take the cost differential between the industry average and company average overall cost for credit card services as shown in Table 3 with a floor at zero.

To estimate the industry average overall cost for credit card services, we sum the industry average annual card fee with the interest income per card. To estimate the interest income per card, we apply the industry interest rate to the implied underlying principal of both companies and divide by the number of cardholders. To estimate the company average overall cost for credit card services, we sum the company average annual card fee with the interest income per card. A company estimating affordability with internal data could compare individual card fees and interest rates to the appropriate industry average benchmark to minimize discrepancies.

We calculate the merchant fee affordability by multiplying the difference in merchant transaction rates with a floor at zero with the total billed merchant volume to estimate the merchant fee affordability impact.

3.4 Access – Underserved

TABLE 4

Underserved Accessibility of Company A and B

Data			
Company datapoints		**A**	**B**
10K	Average FICO	740	-
	% FICO < 669	-	19.00%
Industry assumptions			
Experian	Fair FICO cutoff	669	
SF Fed	Financial exclusion cost	$196.50	

Estimation		
	A	**B**
"Fair" & riskier FICO customers	0%	19%
	x	
Cardholders	81m	45m
	x	
Financial exclusion cost	$196.50	
	=	
Underbanked impact	**-**	**$1,665m**

3.4.A The underserved consumer

In the consumer finance space, we estimate the underserved impact by identifying under- and un-banked customers that have been reached. In this example, we use FICO score estimates to identify underbanked customers that have limited access to credit due to their credit risk score. Although the FICO credit score is used in the United States over other geographies, we make the simplifying assumption given data availability that a company's customer risk profile is consistent

globally. Companies internally have much better proxies for the probability that a customer might be underserved.

From a public data perspective, this example focuses on FICO score to identify underserved customers. Companies with more granular internal data can identify additional underserved groups. For example, Company A touts its efforts to provide services to small businesses and Company B touts its efforts to provide services to students. Without demographic details, we cannot identify which students or small businesses are truly underserved and do not include these customer groups in our estimate per our conservatism principle[5]. Companies with more granular internal data can meaningfully make this distinction and could include additional customer groupings in their underserved impact estimate. The intent is to capture customers who are truly under or un-banked.

3.4.B FICO score data

To identify the cardholders that have a sub-prime FICO score, we use a mix of company self-reporting on the average FICO score of their cardholders and Experian data on the distribution of customer credit ratings. Given Experian and lenders often define customers with a "Fair" or "Very Poor" rating as "subprime", we use the cutoff for a Fair FICO score of 669 to identify which customers are underserved.[6]

For Company A, since their average FICO credit score is 740, we know that on average, their customers tend to receive the second highest credit rating of "Very Good". We therefore make the simplifying assumption that 0% of their customers have credit scores fall in the "Fair" or "Very Poor" group. This example understates Company A's underserved impact. In practice, Company A would use internal data to identify what percentage of their customers either have a credit score under 669 or no credit score.

On the other hand, Company B discloses the percentage of their customers that have a FICO score below 660 or no credit score. This metric can be used directly in the impact estimate calculation with no additional manipulation. Given Company B uses a more restrictive cut-off to identify underserved customers than the "Fair" cutoff of 669, this example potentially also

[5] George Serafeim and Katie Trinh. "A Framework for Product Impact-Weighted Accounts", p 12. Harvard Business School.
[6] "What is a Good Credit Score". *Experian.* Accessed October 2020.

understates Company B's underserved impact. The choice of 669 as the underserved cut-off score is an industry assumption that can and should be refined and updated as additional information and research is made available.

Given Company A's average credit score is higher than the underserved cut-off and Company B directly reports the percentage of their underserved customers, neither datapoint required additional manipulation to estimate the percent of subprime cardholders served. Therefore, we provide the following example in Table 5 to demonstrate how this percentage might be estimated for companies with average credit scores below the cut-off of 669. In this example, we take the difference between the company average credit score and the cut-off for the lowest credit score rating group to identify the "Very Poor" credit score ratings included. In the 550-Risk case, the 29 credit scores between 550 and 579. We then make two simplifying assumptions. First, that credit score ratings are evenly distributed within each risk band and second, that the distribution of credit scores in the general population is consistent with the company distribution. With these two assumptions, we multiply the included credit scores by the percentage of customers that have that credit score to identify the percentage of customers with a "Very Poor" credit score. We repeat this exercise for the "Fair" credit score and sum the two percentages to identify the total percentage of subprime cardholders served.

TABLE 5

Estimating Percentage of Subprime Customers from Average Credit Score

Industry assumptions

Risk	FICO Score	Population	% per FICO point
Very Poor	300 - 579	16%	0.0571%
Fair	580 - 669	18%	0.2000%
Good	670 - 739	21%	0.3000%
Very Good	740 - 799	25%	0.4167%
Exceptional	800 - 850	20%	0.3922%

Estimation

	550-Risk	600-Risk
(Very Poor [VP] cutoff	579	
	-	
Example company average FICO)	550	600
	=	
VP FICO score points included	29	-
	x	
% population per VP FICO score	0.0571%	
	=	
% "VP" customers	**2%**	**-**
	+	
(Fair cutoff	669	
	-	
Example company average FICO)	550	600
	=	
Fair FICO Points included	90	69
	x	
% population per VP FICO score	0.2000%	
	=	
% fair customers	**18%**	**14%**
Fair & riskier FICO customers	**20%**	**14%**

3.4.C The impact estimate

We multiply the estimated or reported percent of subprime cardholders with the total number of cardholders to calculate the number of subprime cardholders served. We then apply industry assumptions on the cost of financial exclusion to estimate the underserved impact. As noted in section 3.4.A, companies that identify additional underserved customer groups can repeat this calculation for those additional groups.

3.5 Quality – Health and Safety

TABLE 6

Health and Safety Impact of Company A and B

Data			
Company datapoints		**A**	**B**
10K	Past due & TDR loans	$1.7bn	$4.8bn
	Past due & TDR receivables	$644m	
	Average loan amount	$732	$1,276
	Average receivables amount	$511	
	Cards per cardholder	1.41	1.28
	% cards in region of data breaches	47%	100%
CFPB	Data breach complaints recorded	99	376
Industry assumptions			
Aging & M. Heal	Relative risk for depression from debt	106%	
J Clin Psych	Prevalence of depression	6%	
J Clin Psych	Annual cost of depression	$5,769.00	
IBM	Cost of data breach	$150	
LRI	Unreported issues per complaint	26	

Estimation	**A**	**B**
Outstanding loans	$1.7bn	$4.8bn
	÷	
Average loan amount	$732	$1,276
	÷	
Cards per cardholder	1.41	1.28
	=	
Customers with loan debt	1.7m	2.9m
	+	
Customers with receivables debt	0.9m	-
same calculation as loans	=	
Customers in debt	2.5m	2.9m
	x	
Relative risk for depression	106%	
	x	
Prevalence of depression	6%	
	=	
Customers with increased risk	164,639	189,312
	x	
Prevalence of depression	$5,769.00	
Indebtedness impact	**-$950m**	**-$1,092m**
Recorded breach complaints	99	376
	÷	
% cards in region w/ breach	47%	100%
	=	
Implied global breach complaints	210	376
	x	
Unreported issues for each complaint	26	
	x	
Cost of data breach	$150	
Data breach impact	**-$0.8m**	**-$1.5m**
Health and safety impact	**-$951m**	**-$1,094m**

3.5.A Consumer finance health and safety

In the health and safety dimension, we look at whether there have been any breaches of health and safety related to the product. For consumer finance, the health and safety breaches that occur are breaches of financial health and data privacy. In this example, we examine the negative health effects associated with excessive indebtedness and reported data privacy complaints. As lending practices in the consumer finance space evolve, other health and safety breaches may become relevant for these estimates.

3.5.B Data on indebtedness and data breaches

Since consumer finance companies do not disclose metrics that directly identify cardholders that are delinquent or have defaulted, we use the company's past due or troubled debt restructuring loans and receivables and the average loan or receivables amount for a single cardholder to estimate excessive indebtedness. We then look to the medical literature to identify the health outcomes associated with indebtedness[7], the prevalence of those outcomes and the associated costs[8]. In this example, the industry assumptions for prevalence and health costs are specific to the United States. In practice, a company estimating their indebtedness impact can use more specific prevalence assumptions based on their operating geographies. On the other hand, referring back to the incentive alignment principle in the product impact framework[9], the health cost used should be consistent regardless of geography, given the toll of depression on a cardholder is not lower where the associated health cost is lower. In line with our conservatism principle, we use US-based estimates of health costs given healthcare costs in the US tend to be on the higher end, allowing us to capture the maximum possible negative impact.

For data breaches, although companies do not report instances of cardholder or merchant data privacy breaches, we use the Consumer Financial Protection Bureau's Consumer Complaint Database and Virtual Hold Technology's estimate of unreported issues per complaint to measure data breach occurrences.[10] Any consumer finance company conducting this analysis could calculate the health and safety impact using actual instances of cardholder or merchant data breaches.

3.5.C The impact estimate

For the indebtedness impact, we divide the past due or in troubled debt restructuring loans or receivables by the average loan or receivables amount for a single cardholder to estimate the number of cardholders that have excessive debt. We then multiply the number of cardholders with

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[7] Gillian L. Marshall, Eva Kahana, William T. Gallo, Kim L. Stansbury, and Stephen Thielke. "The price of mental well-being in later life: the role of financial hardship and debt". *Aging & Mental Health*. Published 2020. Accessed 2020.

[8] Paul E. Greenberg, Andree-Anne Fournier, Tammy Sisitsky, Crystal T. Pike, and Ronald C. Kessler. "The Economic Burden of Adults with Major Depressive Disorder in the United States". *The Journal of Clinical Psychology, 76(2): 155-162.* Published November 2014. Accessed October 2020.

[9] George Serafeim and Katie Trinh. "A Framework for Product Impact-Weighted Accounts", p 12. Harvard Business School.

[10] VHT Marketing. "Customer Service: Stats that Matter Part II". *Virtual Hold Technology Solutions.* Accessed October 2020.

excessive debt by the relative risk of indebtedness on depression and the prevalence of depression to estimate the change in prevalence of depression due to indebtedness. As mentioned in section 3.5.B, a company with more granular data could use prevalence for the relevant geography.

For the data breach impact, we start with the number of recorded cardholder complaints. Given the Consumer Complaint Database only captures complaints made in the US, a company with global operations would have an understated number of complaints. We assume that the complaint rate is consistent across geographies and calculate the implied total number of complaints by dividing the number of US cardholder complaints by the percent of cards issued in the US. Given the number of customer complaints understates the actual rate of issue occurrence, we multiply the number of complaints by the estimated number of unreported issues per complaint determine global data breach occurrences. Finally, we multiply the total occurrences by the cost of a data breach to estimate the breach impact.

3.6 Quality – Effectiveness

TABLE 7

Effectiveness Impact of Company A and B

Data			
Company datapoints		**A**	**B**
JD P	Customer satisfaction	83.0%	83.6%
10K	Annual average card & interest fees	$144	$155
Industry assumptions			
JD P	Industry average satisfaction	80.1%	

Estimation		
	A	**B**
Customer satisfaction	83.0%	83.6%
	-	
Average satisfaction	80.1%	
	=	
Satisfaction differential	2.9%	3.5%
	x	
Total cards issued	114.0m	57.1m
	=	
Satisfied customers over average	3.3m	2.0m
	x	
Averted fee and interest loss	$144	$155
	=	
Effectiveness impact	**$476.2m**	**$309.2m**

3.6.A Consumer finance effectiveness

For consumer finance, effectiveness cannot yet be directly measured with publicly available data. We therefore use customer satisfaction to estimate the effectiveness of the product. Although customer satisfaction is influenced by a range of characteristics, it does reflect the customer's perception of the performance of the product. In this example, we note that the

customer satisfaction captures the effectiveness impact to the cardholder rather than the merchant. Over time, as the industry begins to record and report data that directly captures the product's performance to both cardholders and merchants. It may be possible to more directly measure effectiveness impacts, such as averted instances of fraud for cardholders and merchants, increased business through business analytics services for merchants, and reward benefits for cardholders.

3.6.B Data on customer satisfaction

Data on company and industry customer satisfaction comes from JD Power, an established consumer insights firm. The firm conducts the Credit Card Satisfaction Study[11] which measures customer satisfaction based on various card characteristics, including credit card terms, communication and interaction, benefits and services, and rewards. The averted fee and interest cost estimates come from the company provided average card fee and average interest income per cardholder.

3.6.C The impact estimate

We calculate the impact of customer satisfaction by estimating the additional or averted costs from having a below or above average customer satisfaction rate. First, we take the difference between company and industry customer satisfaction rate. We then calculate the number of individuals that are satisfied with their card over or under the industry average. Multiplying the number of individuals by the annual cost associated with the card allows us to estimate the costs averted by additional customer satisfaction.

3.7 Quality – Basic Need

The basic need dimension aims to capture whether the product or service provided satisfies some basic need. In the financial services sector, only products or services that provide access to finance, such as a bank account so an employee can have a direct deposit for payroll, qualify for basic need. For most consumer finance companies, the products and services provided do not have a basic need impact. In the case of Company A and B, credit cards provide access to a line of credit

[11] "US Credit Card Satisfaction Study". *J.D. Power*. Published 2018. Accessed 2020. < https://www.jdpower.com/business/financial-services/us-credit-card-satisfaction-study>

and enable cashless payment and transactions. While these services make financial access more efficient, they do not enable financial access itself.

3.8 Optionality

TABLE 8

Optionality Impact of Company A and B

Data			
Company datapoints		**A**	**B**
CFPB	Marketing & advertising complaints	368	152
10K	% cards in region of complaints	47%	100%
10K	Annual average card & interest fees	$144	$155
Industry assumptions			
LRI	Unreported issues per complaint	26	

Estimation		
	A	**B**
Recorded marketing complaints	368	152
÷		
% cards in region w/ complaint	47%	100%
=		
Implied global marketing complaints	781	152
x		
Unreported issues for each complaint	26	
x		
Cost of service to coerced customer	$144	$155
Optionality impact	**-$2.9m**	**-$0.6m**

Although Company A and B do not operate in a monopoly and do not sell addictive products, there are instances in of false marketing and information in the industry. The optionality impact in consumer finance captures the impact from false marketing and information. To estimate the instances of false marketing and information, we refer to the Consumer Financial Protection Bureau's Consumer Complaint Database. This dataset not only provides counts of data breach complaints as used in section 3.5 for health and safety, but also records false marketing complaints.

Using the same method for health and safety, we divide the marketing complaint counts by the percentage of cards issued in the US to estimate a global number of complaints. We then multiply this by the estimated unreported issues per complaint[12] to estimate the global number of optionality issues. We multiply the number of issues by the lost costs incurred by having the card, as we did with effectiveness, in which we estimate card fees and interest income per cardholder. The small estimates associated with the optionality dimension is a reflection of the small number of marketing failure instances. In the context of large and systematic failures, this estimate would be considerably larger. For example, with Wells Fargo's fraudulent account scandal, during which

[12] VHT Marketing. "Customer Service: Stats that Matter Part II". *Virtual Hold Technology Solutions.* Accessed October 2020.

potentially 3.5 million unauthorized accounts were opened[13], the optionality impact would be around -$523 million assuming similar costs as Company A and B to the coerced consumer.

3.9 Environmental Usage Emissions

For consumer finance companies, we do not estimate an environmental usage impact given there are minimal emissions or efficiencies enabled during use of the credit card. While purchases enabled by credit card lending have downstream environmental impacts, we do not include these downstream effects in a consumer finance's environmental usage impact given credit card lending occurs independent of spending decisions. The consumer, rather than the credit card lender, solely determines how the credit card loan is used. On the other hand, a bank that actively approves loans for a specific purpose or use would have the downstream environmental impacts enabled by lending included in the environmental usage dimension. Ultimately, a consumer finance company with more detailed information could include the energy required for use of a card reader in the environmental usage dimension, but those impacts are expected to be immaterial for consumer finance companies.

3.10 End of Life Recyclability Impact

TABLE 9

End of Life Recyclability Impact of Company A and B

Data			Estimation		
Company datapoints	**A**	**B**		**A**	**B**
Assumed Unrecycled cards	114,000,000	57,100,000	Unrecycled cards	114,000,000	57,100,000
Assumed Plastic per card (tons)	0.00001			x	
			Plastic per card (tons)	0.00001	
Industry assumptions				x	
Cost of plastic (ton)	$18,150		Cost of plastic (ton)	$18,150	
			End of life impact	**-$11.4m**	**-$5.7m**

3.10.A Consumer finance end of life impact

The end-of-life and recyclability impact for a consumer finance company consists of the impacts from wasted, recycled, and recovered product. This consists of paper statements and the

[13] Keller, Laura J. "Wells Fargo Boosts Fake-Account Estimate 67% to 3.5 Million". *Bloomberg.* Published August 2017. Accessed October 2020.

plastic used in credit cards. For this example, we rely on available assumptions to estimate the amount of plastic wasted. A company conducting this analysis could specify the actual amount of paper and plastic that is used and the relevant end of life treatment.

3.10.B Credit card plastic data

Consumer finance companies do not yet disclose the amount of plastic in a card, the recyclability of cards, and the average product volume recycled or recovered. In this example, we rely on industry assumptions to estimate the average amount of plastic contained in a credit card and assume no cards are recycled.

Company A has noted in its disclosures that it plans to report information on plastic volume contained in cards and the amount that is recycled. As companies begin disclosing this information, the end of life impact estimate can reflect those datapoints.

3.10.B Consumer finance end of life estimate

To estimate the unrecycled plastic volume created by these companies, we multiply the cards issued by the average plastic contained in a credit card. We then multiply the total unrecycled plastic volume by the cost associated with unrecycled plastic to estimate the end of life impact.

4. Value of impact-weighted financial statement analysis

This application of the product framework to consumer finance companies not only indicates feasibility of estimating monetary product impacts within this industry, but also demonstrates the potential value of impact-weighted financial statement analysis.

With credit cards, the impact-weighted financial statement analysis indicates which dimensions are most material to product impact creation with the consumer finance industry. As shown with Companies A and B, the impact is driven mostly by dimensions that influence the accessibility and quality of the product, most specifically through the affordability, underserved, and health and safety dimensions. This suggests that the variance in company performance on product impact in consumer finance is most dependent on the cost for service and the risk profile of populations served.

Another potential analysis could compare the product impacts of different companies. Within a single industry, one can identify differences in how the two companies approach different

product attributes. For example, our analysis suggests that while Company A is less affordable and generally accessible than Company B, Company A is also less likely to be responsible for putting their cardholders into excessive debt. Analyzing each dimension allows for a deeper understanding of company performance.

Impact-weighted financial accounts also provide insight into a company's strategic focus. With credit cards, the same dimensions on which product impact is driven and on which companies differentiate themselves are also the dimensions that capture the company's strategy to target certain customer segments. Company A targets consumers with excellent credit through their pricing and marketing. Their minimal accessibility impact indicates that they provide their credit card services at a higher price and are more particular about the individuals to which they extend credit. Their minimally negative health and safety impact in turn indicates that cardholders are more likely to make consistent and on-time payments. On the other hand, Company B's strategy aims to provide services to a broader range of customers. Their accessibility impact indicates that they provide credit card services with minimal annual fees and extend credit to individuals who often otherwise might not have access to credit. Their more negative health and safety impact in turn indicates that their cardholders are more likely to enter excessive debt.

More broadly, the impact estimates on the access and health and safety dimensions suggest a current trade-off within the industry in which companies can either outperform on access or health and safety, but not both. Examining impact-weighted financial accounts over a longer time horizon can provide insights into company and industry innovation. For example, lenders could develop better methodologies to assess the risk profiles of their potential customers. The industry leaders which successfully implement these innovations will overcome this tradeoff and find their performance reflected in the product impact dimensions of access and health and safety dimensions. Both detailed company and broader industry analysis of impact-weighted financial accounts could provide useful insights for industry leaders and internal strategic decision-making.

4.1 Application of impact-weighted financial statement analysis

To provide a comprehensive example of the information enabled by impact-weighted financial statement analysis, we generated product impact estimates for other companies within the consumer finance industry. These estimates allow us to identify competitive dimensions of

product impact within consumer finance and company strategy and product impact performance over time.

The dataset consists of product impact estimates across 4 years, 2015 to 2018, of the 4 leading consumer finance companies that are publicly traded and cross-listed in the United States with over $2 billion in credit card segment revenue to ensure data availability and comparability. Given the industry assumptions used for monetizing product impact stay constant throughout the industry, the product estimates are calculated by applying the industry-wide assumptions to the respective company-specific data points as demonstrated with Companies A and B. For comparability, we examine the product estimates scaled by EBITDA.

For the affordability dimension, company-specific data on credit card fees, interest rates and merchant transaction fees come from company annual reports. The affordability benchmarks are based on non-luxury credit card fees and interest rates. We designate travel and rewards credit cards to be luxury cards.

For the underserved dimension, we collect company-specific data on consumer FICO scores and underbanked customers from company annual reports. We note that the level of granularity in FICO-score reporting varies by company. We identify the most conservative estimate given this variation.

For the health and safety dimension, company-specific data on loan amounts, and past due loans and receivables are from company annual reports. For consistency of methodology, company-specific data on data breach complaints are from the Consumer Financial Protection Bureau's (CFPB) Consumer Complaint Database. We include any complaints related to data privacy and identity fraud to ensure a complete estimate of impact.

For the effectiveness dimension, card data is from company annual reports and annual customer satisfaction data is from JD Power. We apply the same industry assumptions as provided in the examples with Companies A and B.

For the optionality dimension, we take card data from company annual reports and marketing and advertising complaints data from the Consumer Financial Protection Bureau. We use marketing and advertising complaints as a proxy for optionality-related issues of information failure. We include any complaints pertaining to marketing and promotional offers to ensure an encompassing estimate.

For the end-of-life dimension, the plastic per card data comes from the World Wildlife Foundation. For data consistency purposes in estimating impact from plastic cards, we use the same industry average plastic per card for all companies. Given data availability, we make the simplifying assumption for all companies that none of their cards are recycled given the current limited company-specific information surrounding consumer recycling rates. Companies with larger card issuance volumes will inevitably have larger end of life impact.

TABLE 10

Product Impact of Consumer Finance Companies

	Impact Scaled by EBITDA			**Impact Scaled by Revenue**		
Impact	N	Average	SD	N	Average	SD
Affordability Impact	16	38.01%	0.41	16	13.05%	0.16
Underserved Impact	16	19.94%	0.20	16	6.79%	0.08
Health and Safety Impact	16	-20.39%	0.10	16	-5.92%	0.03
Effectiveness Impact	16	-1.51%	0.11	16	-0.28%	0.03
Optionality Impact	16	-0.02%	0.00	16	0.00%	0.00
End of Life Treatment Impact	16	-0.20%	0.00	16	-0.05%	0.00
Overall Product Impact	16	35.84%	0.66	16	13.58%	0.24

Table 10 shows summary statistics for all impact variables. Examining the average impact scaled by EBITDA and revenue indicates that both access dimensions, affordability and underserved, and the health and safety dimension are significant drivers of product impact. These dimensions are also characterized by larger standard deviation, indicating variance in firm performance and strategy around issues of financial inclusion and indebtedness.

FIGURE 2

Distribution of Overall Product Impact Estimates Scaled by EBITDA

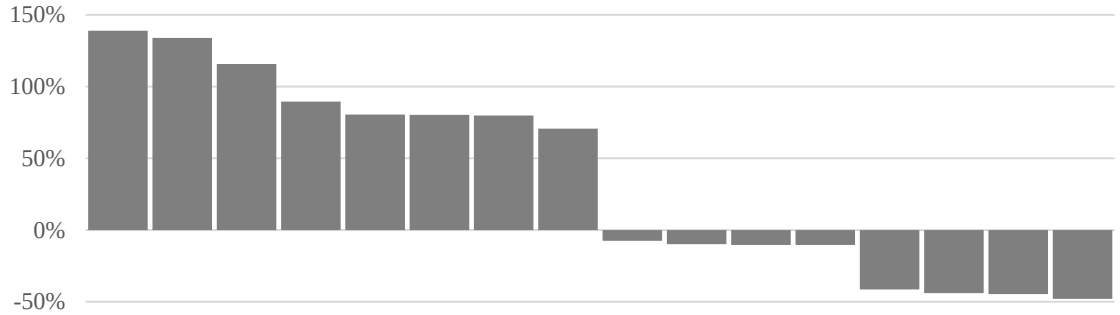


Figure 2 shows the distribution of total product impact in the sample showing significant variation. The distribution exhibits a positive mean suggesting that the firms in our sample overall deliver more positive product impact.

4.2 Hypotheses explaining positive product impact estimates

There are four hypotheses that can explain why we are observing more positive product impact within the consumer finance industry. The first hypothesis is the *baseline case* in which the positive product impact estimated is consistent with and captures the impact of the industry. The second hypothesis is the *scope bias case* in which some negative impacts created by the consumer finance industry have not yet been estimated and included in the total product impact. The third hypothesis is the *measurement bias case* in which the benefits or costs are rightly scoped but incorrectly estimated, in this case benefits are overestimated and costs underestimated. Finally, the fourth hypothesis is *sample selection bias* in which the companies selected in our sample are unrepresentative of the full industry, in this case product impact leaders.

The latest Fair Lending Report to Congress by the Consumer Finance Protection Bureau highlights the key issues facing the consumer finance industry as fair and equitable access, financial inclusion for the un- and under-banked, and financial well-being[14]. Given these issues are captured within the product impact framework, we rule out the *scope bias case* but note that there could be negative impacts created by the consumer finance industry that have not yet been identified and studied. To minimize the *measurement bias case*, we use commonly accepted industry research and guidance to estimate benefits and costs. Finally, given the list of firms that meet our criteria for data collection are all from one geography, it is possible that there is *sample selection bias* if this geography has more product impact leaders than others.

4.3 Discussion of insights enabled by impact-weighted financial statement analysis

Comparing the distribution of overall product impact estimates in 2015 and 2018 indicates consistent performance in the overall product impact performance of three of the four consumer finance firms. The maximum product impact performance has stabilized to around 80% in 2018,

[14] "Fair Lending Report of the Bureau of Consumer Financial Protection". *Bureau of Consumer Financial Protection.* Published April 2020. Accessed December 2020.

and the minimum has stayed consistent. In both years, there are two firms with positive product impact and two firms with negative product impact.

Figure 3

2015 Overall Product Impact Estimates

(Scaled by EBITDA)

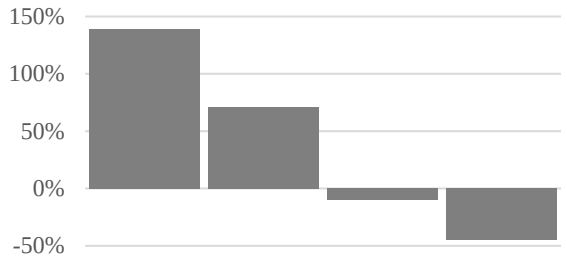
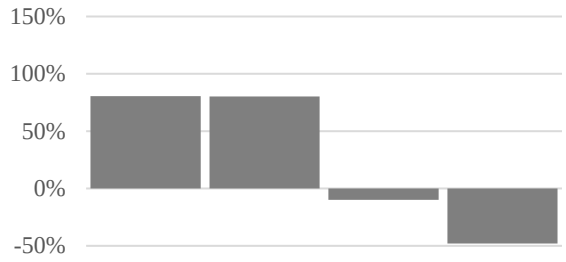


Figure 4

2018 Overall Product Impact Estimates

(Scaled by EBITDA)



We next examine the distribution of product impact estimates to identify dimensions of product impact that are most influential within consumer finance.

Figure 5

Affordability Impact Estimates

(Across All Years, Scaled by EBITDA)

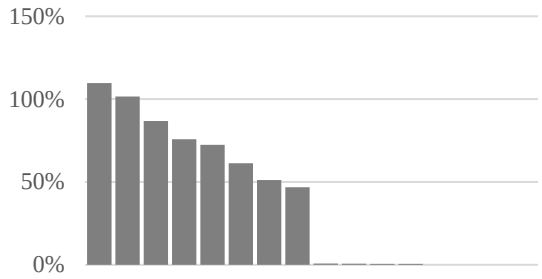


Figure 6

Underserved Impact Estimates

(Across All Years, Scaled by EBITDA)

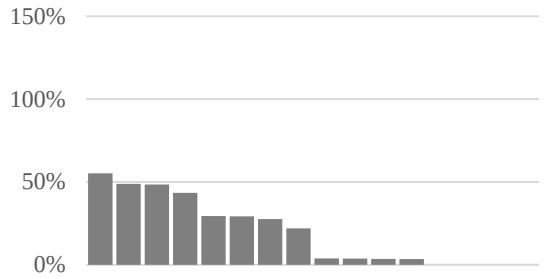


Figure 7

Health & Safety Impact Estimates

(Across All Years, Scaled by EBITDA)

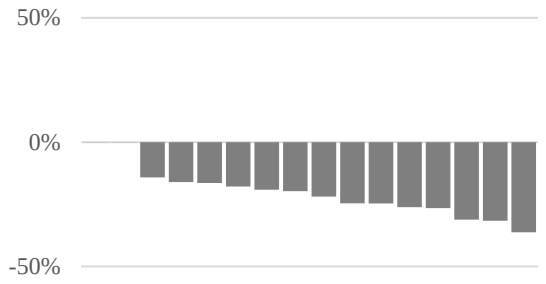


Figure 8

Effectiveness Impact Estimates

(Across All Years, Scaled by EBITDA)

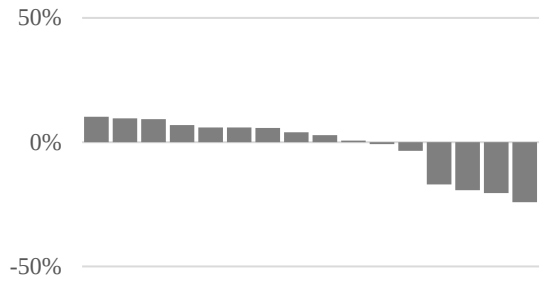


Figure 9

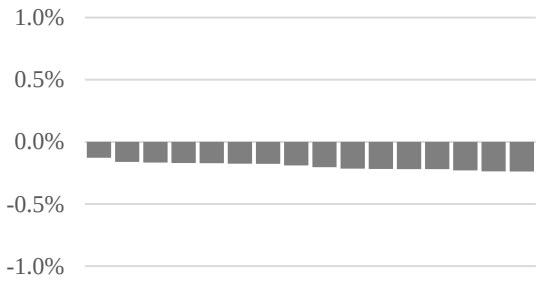
Optionality Impact Estimates

(Across All Years, Scaled by EBITDA)

Figure 10

End of Life Impact Estimates

(Across All Years, Scaled by EBITDA)



Comparing the distribution of product impact by dimension provides information on which dimensions are drivers of product impact within consumer finance and how the dimensions influence overall product impact numbers. The magnitude and distribution of the affordability and underserved dimensions suggests that these two dimensions are key drivers of product impact for firms which create financial inclusion. The access dimensions are not a key driver of product impact for Synchrony and American Express, as both firms have significant luxury card offerings. The magnitude of the health and safety dimension suggests that this dimension is also a key driver of product impact. Unlike affordability and underserved, all firms have health and safety impact, indicating this dimension is a driver of product impact for all firms in the dataset.

Given the trade-off between the underserved and health and safety dimension, we examine whether firms with more positive underserved impact from lending to riskier cardholders also have

more negative health and safety impact from creating excess indebtedness. In general, we do find that firms with more positive underserved impact have more negative health and safety impact. However, Capital One performs above average on both the underserved and health and safety dimensions for most firm-year observations, indicating the trade-off between these two dimensions is not inevitable.

The effectiveness impact estimates are characterized by less variation and no extreme outliers. This suggests that while customer satisfaction is a driver of product impact for consumer finance firms, it is not a key differentiator in this industry.

The optionality and end of life impact dimensions are characterized by much smaller overall magnitudes and smaller variation. The smaller magnitude of the optionality impact dimension can be explained by lack of optionality issues for the firms within the dataset for the years observed. Firm-conducted fraud and other information failure scandals would lead to significantly larger optionality impacts. The smaller magnitude of the end of life dimension can be explained by the minimal waste created from use of credit card services and the minimal data available around waste created, such as paper waste and e-waste. While the impact in these dimensions may be understated, the significant difference in magnitude indicates that these dimensions have less influence on a consumer finance company's product impact performance.

5. Conclusion

Although interest in ESG measurement continues to grow significantly, product impact has been difficult to systematically measure given the idiosyncratic nature of the impacts and the tendency to view products in broad categorizations of simply good and bad. The creation of a product impact framework allows for a systematic methodology that can be applied to different companies across a wide range of industries. This enables transparency, comparability, and scalability within product impact reporting. The identified standard dimensions on which product impact can be measured are rooted in existing measurement efforts, allowing data that is publicly available to be leveraged.

To ensure applicability, determine feasibility, and identify nuances within each dimension of product impact, we examine applications of the framework to company pairs across each GICS sector. In this working paper, we provide a sample application to the consumer finance industry. We use publicly disclosed data and industry-wide assumptions to derive monetary estimates of a

product’s reach, accessibility, quality, optionality, environmental use emissions and end of life recyclability. While publicly disclosed data can provide meaningful insights, use of internal company data can further enable precision and support internal decision-making. This example also highlights the need for ongoing discussion and refinement of industry-accepted assumptions as contemporary literature leads to changing guidance over time.

This paper is one within the series of applications of the framework across each GICS sector, covering consumer finance in the financials sector. Ultimately, the aspiration is to develop and provide a framework that enables more informed decisions which account for the many impacts created by products.