Mastering the Strengths of Data

Improving Mastercard Inc.’s performance using economic indicators and purchase data

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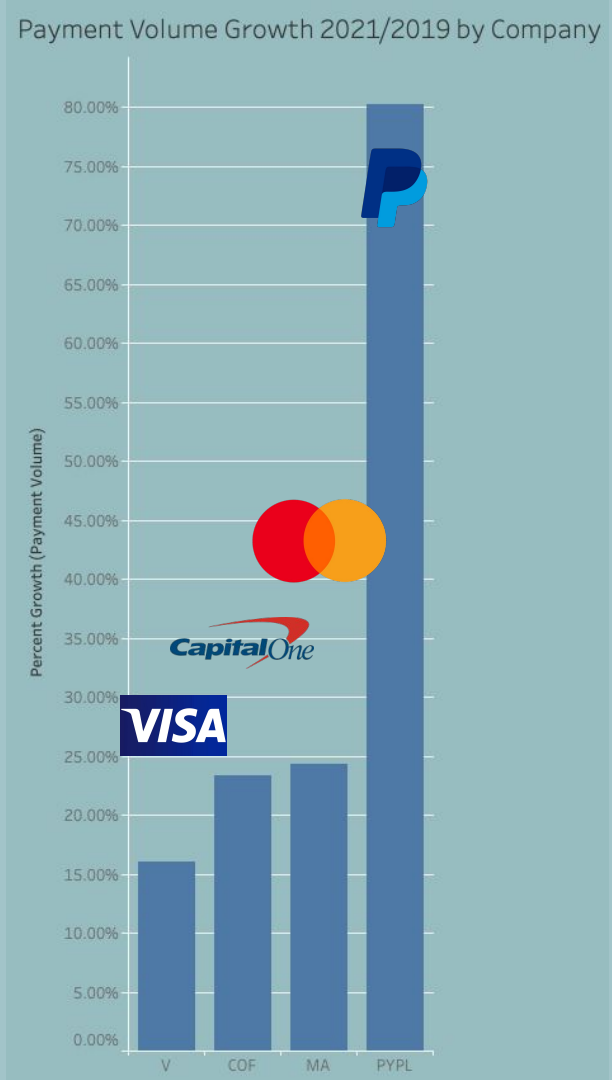
Motivation: Main Competitors

In terms of payment volume, MasterCard is growing faster than its two main competitors: Visa and CapitalOne.

However, it faces new competition in the form of PayPal, which is swiftly closing the distance between itself and MasterCard.



MA's growth underperforms PayPal's because PYPL's primary focus is conducting transactions over the internet. Over the COVID pandemic, much commerce has shifted online.

Additionally, PayPal builds off of MasterCard and its competitors by allowing customers to use credit/debit cards to refill their PayPal wallets.

PYPL relatively new; market not fully penetrated.

Mastercard SpendingPulse™
U.S. Snapshot – September 2021

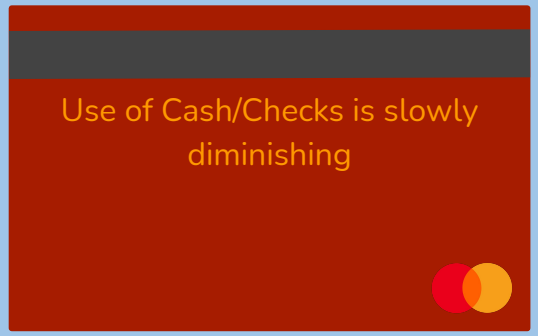
	Sales Growth **September 2021 vs. 2020**	Sales Growth **September 2021 vs. 2019**
Total Retail Sales (ex. Auto & Gas)	+5.4%	+11.5%
Total Retail Sales (ex. Auto)	+8.1%	+12.2%
E-commerce Sales	+11.5%	+72.4%
By Sector		
Apparel	+56.0%	+15.6%
Department Stores	+20.8%	+15.5%
Electronics & Appliances	+18.0%	+16.5%
Grocery	+3.3%	+14.0%
Jewelry	+55.3%	+56.9%
Luxury (excluding jewelry)	+63.8%	+12.0%
Restaurants	+44.1%	+30.7%

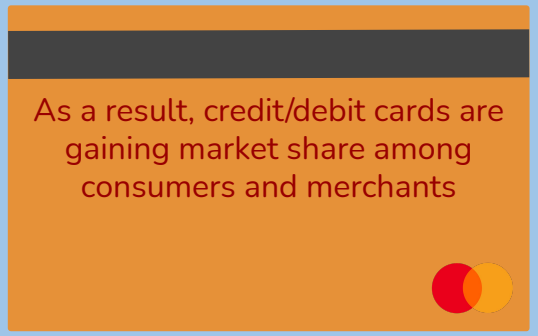
SpendingPulse™

Source: Mastercard SpendingPulse, which measures overall retail sales across all payment types, including cash and check.

Where should Mastercard direct resources?

Opportunity: COVID's silver lining





Goal

Market to merchants with greater efficiency, given:

- Retail sector (Apparel, Groceries, Restaurants, etc.)
- Location (state/country)
- Economic status of surrounding area

Solution

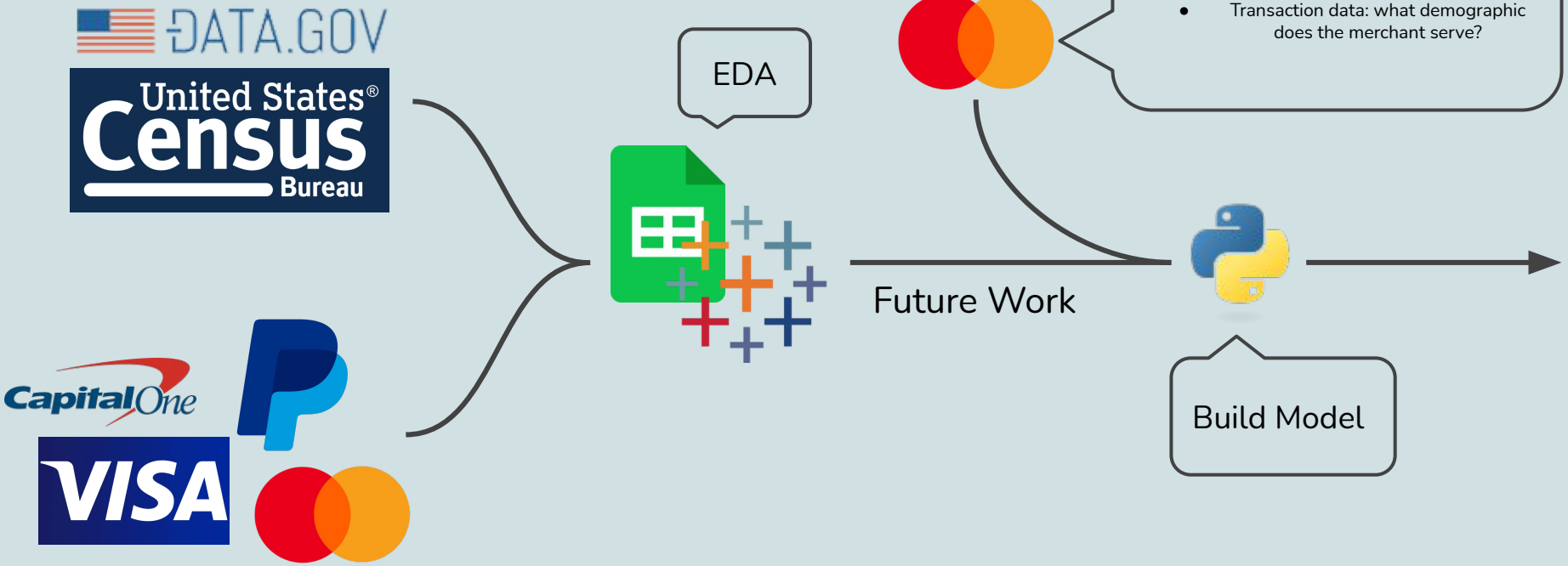
Build a regression algorithm to predict the return on investment for marketing to a specific demographic of merchants: additional dollar spent to additional dollar in revenue

Success metric:

Payment Volume Growth Ratio

If the MasterCard-PayPal ratio increases significantly, the project can be considered a success.

Methodology



Data for Preliminary EDA

Data collected from:

- Data.gov: Retail sectors by state
  - 3020 datapoints; 5 states near New York; 9 months
  - Relevant features: State, Date, Business Sector, Sales

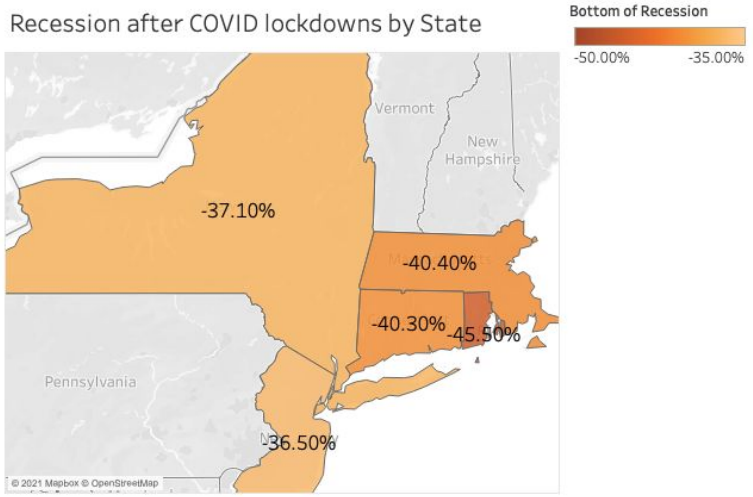
- US Census Bureau: Retail sectors nationwide
  - Relevant features: Business Type, Date, Sales Volume

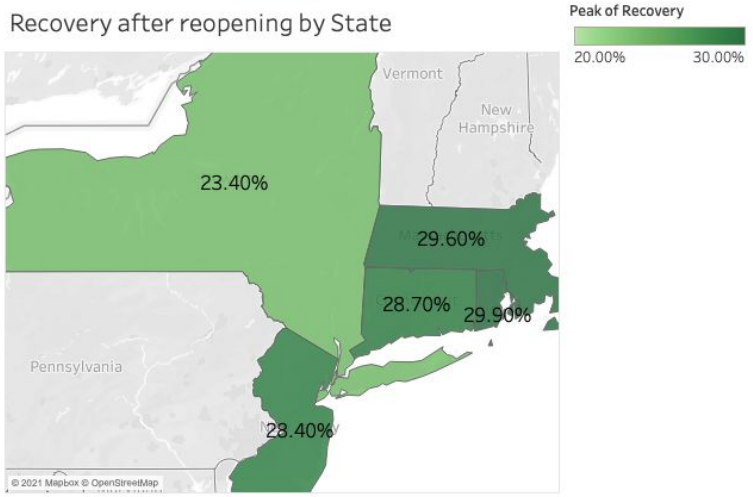
- Press releases from MasterCard and its competitors
  - Relevant features: Payment Volume, Business Quarter

Preliminary Findings

Deeper Valley; Higher Peak

Smaller states' economies are more volatile; larger states are more stable.

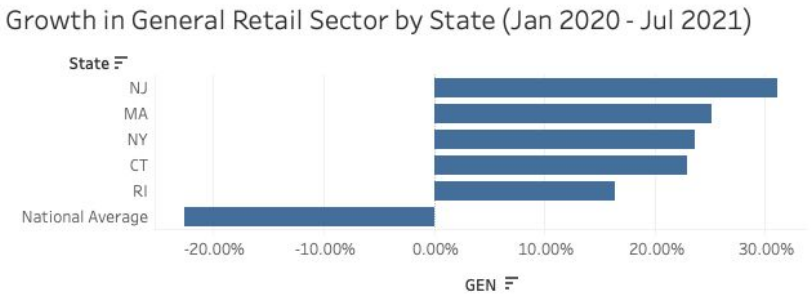


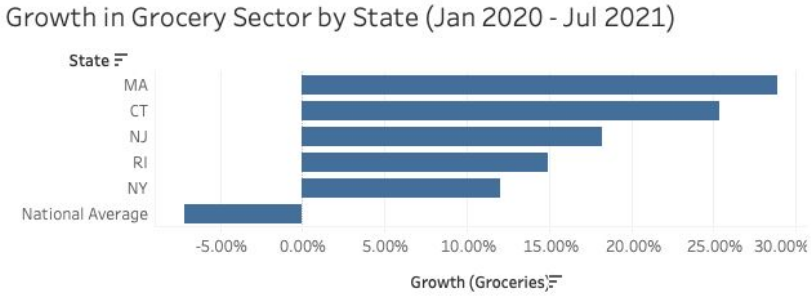


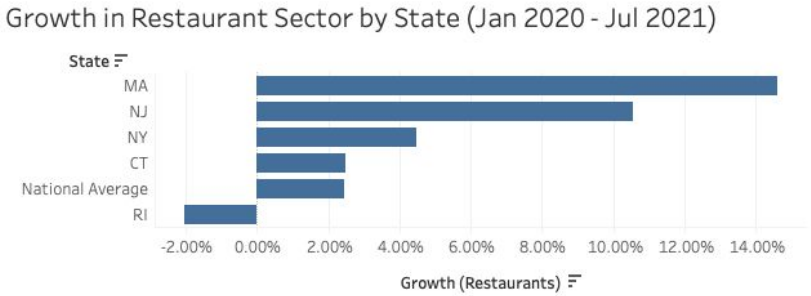
States vs. National Average

Massachusetts seems to show the most potential across the board.

However, out of all 5 states in the data set, New Jersey appears most promising when marketing to General Retail merchants in particular.







Conclusion

PayPal’s 80% growth over the past two years is definitely intimidating; a competitor catching up to you usually is.

VISA
- HASTA LA VISA.
- BABY.

Thank you!

Questions?

Appendix

Basically all the slide fragments I cut

The Problem

How can MasterCard improve its recovery in the US?

[Note: Visa has an 8-year headstart on MA]

Network Effect; as credit card service grows, it becomes exponentially more useful, and grows even more. [rewrite this]

Substitutes

Cash (COVID - cash down)

Checks (Checks down)

Find new merchants to expand MasterCard’s network.

Utilize MasterCard's proprietary datasets to determine how well marketing to merchants in different economic sectors (e.g. apparel, groceries, luxury, restaurants) can improve growth

Proposed Solution

Inputs: Sector, location (state/country), demographic

Output: Marketing cost to accept vs. how much additional revenue/income merchant provides

Marketing: to merchants (advertising)