Research Projects:

I. FOMC (2020)
   A. Research Lead: Bob Hunt
   B. Project description: The Consumer Finance Institute reports several key metrics to the FOMC policy meeting discussions based on supervisory loan-level data, Equifax Consumer Credit Panel, and Mintel credit card marketing data.
   C. My contribution: I designed and implemented a workflow to create the FOMC charts using a combination Spark, SQL, and R. I uncovered a misunderstanding of how new accounts were being reported. I took the initiative to compile an internal report detailing my findings to be made available to the many users of the FR Y-14M data throughout the Federal Reserve.
   D. Work products:
      i. Ten distinct charts used in the Federal Open Market Committee policy meetings.
      ii. A reproducible workflow to create these charts each month.

II. Secured Credit Cards (2020)
   A. Research Lead: Larry Santucci
   B. Project Description: This paper uses supervisory data to compare the determinants of default for unsecured credit card borrowers and secured credit card graduates. Details of the analysis are still being discussed.
   C. My Contribution: I prepared the supervisory data for analysis and evaluated the benefits of several regression specifications.
   D. Work Products: Ongoing

III. Prescreen (2020)
   A. Research Lead: Tom Akana
   B. Project Description: This working paper documents selection bias in responses to different kinds of invitations for credit cards originated via prescreened and invitation-to-apply mailing offers. This phenomenon is well understood in the industry, but has not been well documented in the academic literature, leading some to ask "why do lenders make such an effort?" I implemented a predictive margins analysis to isolate the controlled differences in account usage and profitability.
   C. My Contribution: I conducted all data preparation, but also worked with Tom Akana to theoretically justify and empirically calculate the primary profitability model. I wrote key portions of the data and modeling sections of the paper.
   D. Work Products: Ongoing

IV. Consumer Credit Dashboard (2019)
   A. Project Lead: Bob Hunt
   B. Project Description: Each quarter the Consumer Finance Institute puts out an internal report with over 40 tables and charts depicting key areas of consumer finance. The charts are exclusively based on the consumer credit panel data (CCP), a large panel dataset of 5% of US credit users provided by Equifax. With more than 1 billion rows and over 900 columns, this dataset requires careful planning to be managed effectively.
   C. My Contribution: I transitioned this massive project from a SAS environment to a Spark distributed computing environment. I then initiated a move from simple pdf charts to an interactive web-based dashboard. I was also responsible for adapting the logic, specifically relating to lagged variables, to accommodate the change in frequency from quarterly to monthly.
   D. Work products:

i. Internal reports and summaries used in policy decisions.
ii. A reproducible code workflow to create output each month.

V. Branch Closures (2019)
A. Research Lead: Slava Mikhed
B. Project Description: With the rise of online banking, many wonder about the significance of brick-and-mortar bank branches. This project explores the dependence of the supply of credit on the availability of and proximity to bank branch locations. The analysis is based on spatial relations and the credit characteristics of consumers before and after nearby bank branch closures.
C. My contribution: I was responsible for merging the branch closure data and the consumer credit data. The branch data was developed for industry metrics not for research. To fit our needs, I geocoded the branch locations, and studied the how different banks and bank types reported their metrics. The event time analysis involved using R to identify spatial relationships between branch locations and census blocks.
D. Work Products: Ongoing.

VI. Secured Credit Cards (2019)
A. Research Lead: Larry Santucci
B. Project Description: This paper employs a fixed effects regression model to identify a set of usage and repayment behaviors that are correlated with secured card "graduation" – transition from a secured card to an unsecured card. This project is described in more detail in my statement of purpose.
C. My Contribution: I prepared the supervisory data for analysis. I also contributed an alternative definition for card graduates that was ultimately used in the paper. I was the sole author of the CFI in Focus article based on the paper and co-authored the International Banker Article.
D. Work Products:
i. Santucci, Larry. "Moving into the Mainstream: Who Graduates from Secured Credit Card Programs?" *FRB of Philadelphia Payment Cards Center Discussion Paper* No. 19-2. (2019). Available at SSRN: https://ssrn.com/abstract=3413858 or http://dx.doi.org/10.21799/frbp.dp.2019.02
ii. McGroarty, Ian, and Larry Santucci. "Destination Graduation: Secured Credit-Card Graduations Are on the Rise." *International Banker*, (Summer 2019). Available at https://internationalbanker.com/finance/destination-graduation-secured-credit-card-graduations-are-on-the-rise/
iii. McGroarty, Ian. "Secured Credit Cards." *CFI in Focus | Consumer Finance Institute | Philadelphia Fed*. (2019). Available at https://www.philadelphiafed.org/consumer-finance/payment-systems/secured-credit-cards.

VII. Student Loans (2018)
A. Research Lead: Dubravka Ritter
B. Project Description: This working paper analyzes the impact of the 2005 Bankruptcy reform which restricted debtors' ability to discharge student loan debt. The paper uses an event study and parallel trends approach with a large loan level dataset of student loan borrowers.
C. My Contribution: I joined the product at a late stage and conducted extensive robustness checks and output quality control to reconcile updated results with previous

versions and thoroughly investigate and document any inconsistencies. This was made particularly complicated due to the inadequate documentation prior RAs had left. I eventually had to recode most of the data cleaning and analysis to prove that the results had not changed from the previous incarnations of the paper.

D. Work Products:
    i. Darolia, Rajeev, and Dubravka Ritter. "Strategic Default Among Private Student Loan Debtors: Evidence from Bankruptcy Reform". *Education Finance and Policy* 15(1): 1-52. (2019). Available at https://www.researchgate.net/publication/331359637_Strategic_Default_Among_Private_Student_Loan_Debtors_Evidence_from_Bankruptcy_Reform.

VIII. Senior Thesis in Economics (2017)

A. Advisor: Tim Lambie-Hanson & Richard Ball

B. Project Description: My senior thesis pioneered a novel method for identifying consumption externalities in the market for home renovations. I used mortgage loan application data to show that an increase in accepted home improvement loan applications led to an increase in home loan applications in surrounding census tracts.

C. My Contributions: I was responsible for coming up with the idea, conducting a literature review, collecting and evaluating the data, and writing the paper. This required independently understanding the data from the Home Mortgage Disclosure Act (HMDA), cleaning and evaluating its characteristics. I carefully studyied the pitfalls of similar research to understand my contribution to the literature. Finally, I had to develop the econometric proof I was trying to communicate.

D. Work Products:
    i. McGroarty, Ian. "Property Emulation : Consumption Externalities in Renovation Decisions." *Thesis (B.A.)--Haverford College, Department of Economics*. (2017). Available at https://scholarship.tricolib.brynmawr.edu/handle/10066/19262

IX. Mapping Microfinance (2015)

A. Research Lead: Shannon Mudd

B. Project Description: This project launched a database of small business resources in the Greater Philadelphia Area. We also created an interactive tool to help match entrepreneurs to the correct resources.

C. My Contribution: I managed the creation of the database and website by reaching out to small business owners, non-profits, and other organizations by phone and email. I took the initiative to present the project at the Lend for America Summit in 2016.

D. Work Products:
    i. A live database available on OpenDataPhilly: https://www.opendataphilly.org/organization/mapping-microfinance
    ii. Presentation at the Lend For America Summit 2016.