**University/College Name:** College of William & Mary

**Participant List:**

1. Gio Defrank ([mgdefrank@wm.edu](mailto:mgdefrank@email.wm.edu)), Master of Science (Business Analytics), Class of 2022
2. Junghee Mun ([jmun@wm.edu](mailto:jmun@email.wm.edu)), Master of Science (Business Analytics), Class of 2022
3. Kristina Posner ([kmposner@wm.edu](mailto:kmposner@email.wm.edu)), Master of Science (Business Analytics), Class of 2022

**Faculty Sponsor (and email address):** Joseph Wilck, Ph.D., P.E. (Joe.Wilck@mason.wm.edu)

**Course (if applicable):** N/A

**Research Idea/Hypothesis:**

While all community banks played an essential role in the disbursement of PPP loans to populations in need, community banks that partnered with fintech companies were ultimately more successful in distributing PPP loans to small businesses with racial minorities, underbanked populations, and businesses in locations with low branch presence.

**Expected Data Sources:**

Main Secondary Data Sources:

1. <https://www.communitybanking.org/~/media/files/publication/cb21publication_2021.pdf>
2. <https://libertystreeteconomics.newyorkfed.org/2021/05/who-received-ppp-loans-by-fintech-lenders/>
3. <https://www.fedsmallbusiness.org/survey/2020/report-on-employer-firms>
4. <https://data.sba.gov/dataset/ppp-foia>
5. <https://data.census.gov/cedsci/>
6. <https://www.fdic.gov/analysis/>

Other Data Sources For Referencing:

1. <https://libertystreeteconomics.newyorkfed.org/2021/05/who-benefited-from-ppp-loans-by-fintech-lenders/>
2. <https://www.fdic.gov/resources/community-banking/cbi-data.html>
3. <https://cdr.ffiec.gov/public/PWS/DownloadBulkData.aspx>

**Proposed Methods(s) to Test Hypothesis:**

We plan on combining the data provided by the Small Business Administration with several other data sources to more comprehensively understand the impact fintech and community bank partnerships had on the distribution of PPP loans to particular populations. For example, we’ll use the FDIC Summary of Deposits database to obtain the number of branches per financial institution as well as information about the “unbanked” (individual or household that does not have a checking or savings account) and the “underbanked” (individual or household that has a bank account, but also uses financial services outside the banking system). We also plan to utilize demographic information from the US Census Bureau. Additionally, we recognize that there will likely be missing information in the PPP data that is integral to our analysis, such as the race of the borrower. To counter this potential lack of information, we plan to use the “predictrace” package in R, which predicts the probability that an individual belongs to a certain race based on the individual’s first or last name (which are compared against over 167 thousand names from United States Census Bureau). While this method of obtaining the race of the borrower has its limitations, it provides a useful supplement for the otherwise blank data points we will need to fill in. The cleaning and combining of these disparate datasets will be done using Alteryx.

The linchpin of our research relies on obtaining a list of community banks that partnered with fintech companies during the pandemic to issue PPP loans. To accomplish this, we will use data collected as part of the CSBS’s 2021 National Survey of Community Banks - as the survey includes several questions relating to the partnerships we hope to analyze. However, as this survey only represents a small percentage of all community banks, we may need to supplement this list by web scraping various websites that include mention of community bank and fintech partnerships. This will only be necessary if the number of partnership transactions is not sufficient to train the model. Once a list of banks that partnered with fintech organizations is generated, it will be added to the PPP data and will constitute the variable “partnership.”

With this cleaned and combined data, we intend to run various linear regression models on different dependent variables: amount of PPP loans forgiven, amount of PPP loans given to minorities, and amount of PPP loans given to underbanked populations. As stated previously, we intend to have an independent binary variable to represent if a community bank partnered with fintech companies during Covid-19, and will use multi-linear regression models to explore the impact this independent variable has on the various dependent variables we’re modeling against. Finally, once we have a better understanding of the variance explained by the “partnership” variable, we will run two logistic regression models to predict the likelihood that a loan is forgiven. One of the logistic regression models will feature the “partnership” variable, and the other will not. This will allow us to evaluate the predictive power of our “partnership” variable and help explain if and how the synergy between fintech and community banks impacted the likelihood of loan disbursement and forgiveness for underserved populations.

**Planned Deliverable(s):**

With the onset of Covid-19, the banking industry has accelerated its transition to digital banking, particularly as many fintech services have begun competing with small and large banks alike. The models and research we plan to deliver may help provide insight into the performance of fintech and community bank partnerships, their ability to reach disadvantaged audiences, and strategies for community banks to succeed in a rapidly digitizing world.

Our research may show that partnering with fintech companies allows for greater accessibility for underserved communities. For community banks wishing to reach these populations, the ubiquitous online access offered by a fintech partnership may be the answer – thereby more effectively promoting equity, diversity, and inclusivity to these populations. Additionally, the proposed study may provide policymakers insights on how to best leverage community banks to reach disadvantaged communities and small businesses during future economic downturns and crises.

Finally, our research may reveal that the partnerships formed during the pandemic could provide community banks the blueprint necessary to compete in an environment of technologically driven megabanks and a decades-long trend of community bank consolidation.

**Market Readiness:**

Based on preliminary research provided by the PPP program during the pandemic, fintech companies and community banks have proven that they can work together quickly and efficiently under tremendous pressure. Since fintech companies are readily available and community banks are already digitizing, wide-scale adoption should be relatively seamless.