COVID Emergency Declaration and Fintech Digital Payment Companies' Performance

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ABSTRACT

Past research using event-study methodology suggested that major political events such as parliamentary elections and Brexit affected the abnormal returns of equities. However, past research did not investigate the impact of the declaration of national emergency by President Trump during the Covid-19 pandemic on the abnormal returns of Fintech digital payment companies. Because of the pandemic and its subsequent social distancing measures, many governments, businesses, schools, and organizations have shut down their brick-and-mortar presence and moved their operations online. Fintech companies are expected to benefit from such migration to online operations. This study hypothesizes that Fintech companies enjoy higher abnormal returns in response to the national emergency declaration during the Covid-19 pandemic. However, this study's findings cannot reject the null hypothesis that the abnormal returns of Fintech digital payment companies are zero in the week following the declaration of national emergency. This finding implies that the US equity markets are efficient in the dissemination of the news about the national emergency as there is no statistically significant difference between the actual returns of the digital-payment equities and their predicted returns based on the CAPM model.

1 INTRODUCTION

The advancement of digital technologies in finance has led to the emergence of a wholly new service industry known as FinTech (i.e., Financial Technology) (Goldstein *et al*., 2019). According to Goldstein *et al*. (2019), FinTech encompasses digital payments, money transfers, peer-to-peer loans, crowdfunding, blockchain, cryptocurrencies, and robo-investing. The recent Covid-19 pandemic has led to a surge in the use of digital technologies such as contactless payment system, online retailing, and work-from-home (De' *et al*., 2020). However, according to Conti-Brown and Wishnick (2020), the speed at which money moves between people and business in the United States is slower than international standards.

On March 13, 2020, President Trump officially declared national emergency with the rapid spread of the Covid-19 pandemic (New York Times, 2020) in the United States. The Covid-19 pandemic resulted in negative cumulative abnormal returns of equities in many different industries (Kwan and Martens, 2020). The focus of the present study is on evaluating and comparing the abnormal returns of the five largest Fintech digital payment

companies during the week following the President's declaration of national emergency. We propose that the declaration of national emergency during the pandemic impacted the financial returns of the equities of Fintech digital-payment companies in the United States. So far, there has been no past research on how the national emergency declaration could have affected the financial performances of Fintech digital-payment companies. The present study fills this gap in the literature.

There is a reason to believe that the declaration had an impact on the returns of the equities of Fintech payment companies based on the uncertainty information hypothesis (Brown *et al*., 1988) and on the findings from past studies supporting this hypothesis (e.g., Pantzalis *et al*., 2000). This leads to our hypothesis that the pandemic had a significant impact on the performance of Fintech digital payment equities.

This study used an event study methodology to evaluate the effect of the declaration of national emergency on the abnormal returns of five Fintech digital-payment companies. To conduct the empirical analysis for this study, we collected stock price data of the three largest Fintech digital-payment companies listed on New York Stock Exchange (NYSE) and the two largest Fintech digital payment companies listed on NASDAQ. The next section provides a brief literature review on the methods of evaluating abnormal returns, which is then followed by the result section, the discussion section, and finally the concluding section.

2   LITERATURE REVIEW

2.1   Event-Study Methodology

Fama *et al*. (1969) and Fama (1970, 1991) proposed a methodology for event study. This methodology is based on the efficient market hypothesis ensuring that security prices fully reflect all available market information. According to Fama (1991), past event studies indicated that stock prices would adjust within one day of an event announcement. He reported that this quick adjustment of stock price in response to an event announcement is consistent with efficient market hypothesis. Corrado (2011) in his detailed review of event studies pointed out that the event study methodology, originally developed for empirical research in finance and accounting, is now widely adopted in other disciplines including economics, history, law, management marketing, and political science.

Past research reported mixed results concerning the impacts of major political events on stock market performance. On the one hand, some researchers found that election results had no impact on stock market performance. Repousis (2016) studied the impact of the 2000, 2004, and 2007 Greek elections on bank stocks using the event study methodology but found no evidence for the effects of these elections on stock prices. He therefore concluded that the two major political parties were unable to manipulate the stock prices of Greek banks for political purposes. In other words, stock market trading is able to efficiently absorb market information, which implies market efficiency.

On the other hand, some researchers found that election results impacted domestic stock market performance. Ying *et al*. (2016) analyzed the returns to Malaysian stocks before and after the elections in Malaysia from 2004 to 2013 and reported that both AAR (Average Abnormal Return) and CARR (Cumulative Average Abnormal Return) within the

15-day window before and after the elections were statistically significant. They therefore concluded that the Malaysian stock market did not show the properties of the semi-strong form of market efficiency in the dissemination of news about the elections. Similarly, Ahmad *et al*. (2017) reported significant impacts of political events on the abnormal returns in the Karachi Stock Exchange (KSE)100 Index and found significant CARRs of the KSE-100 Index in the windows of 20 days before and 20 days after significant political events in Pakistan.

More recently, Nandy and Sussan (2020) extended their studies of the impact of political elections to overseas stock markets and reported that the news of the 2014 parliamentary elections in India affected the short-term returns of ADRs and those of underlying equities traded in Indian. They found that the CAARs of ADRs were lower than those of the underlying Indian equities immediately before and after the elections, suggesting that the market was efficiency in absorbing information.

During the recent Covid-19 pandemic, Kwan and Martens (2020) reported that the news about the Covid-19 pandemic affected asset prices to varying degrees across different sectors of the U.S. economy. They used an event study methodology to show that the standardized cumulative abnormal returns of equities in the utilities, real estate, and energy sectors were negative during the pandemic, while the standardized cumulative abnormal returns were positive in the information technology, healthcare, and telecommunication sectors.

2.2   Fintech Digital Payments during Covid-19

The outbreak of Covid-19 led to a surge in the use of digital technologies such as contactless payment system, online retailing, work-from-home (De' *et al*., 2020). De' *et al*. (2020) stated that digital money and digital payment systems assumed importance in business transactions during the pandemic. However, Conti-Brown and Wishnick (2020) stated that the speed at which money moves between people and business in the United States is slower than international standards. As such, they argued that the slow payment speed led to economic inefficiency and impeded the Federal Government's response to the pandemic. To resolve this problem, recently the Federal Reserve Bank announced that it intended to build "FedNow", a publicly operated, real-time payment platform.

In other parts of the world, researchers reported a significant decline in household consumption during the Covid19 pandemic while mobile digital payments alleviated the problem by promoting urban consumers' online spending in China (Liu *et al*., 2020). During the current pandemic, Martiz (2020) suggested that both developed and developing countries around the world were strongly relying on mobile payment systems with cashless transactions being the major trend followed by consumers. According to Martiz (2020), with the progress in science and technology and changes in consumption patterns, the use of plastic cards is slowly replaced by digital currencies.

3   DATA COLLECTION

Frankel (2020) defined "FinTech" companies as those who develop new digital payment processing solutions as well as those who build and operate peer-to-peer payment applications. We include the five largest financial payment Fintech companies in our sample

as suggested by Frankel (2020): Square Inc., Paypal Holdings Inc., The Goldman Sachs Group Inc., Green Dot Corporation, and Mercado Libre Inc. A brief introduction of each company is as follows:

Square Inc. is listed on NYSE with the ticker symbol of SQ and has a market capitalization of $67 billion. SQ processes card payments at an annualized rate of over $100 billion (Frankel, 2020). Square Inc. provides payment and point-of-sale solutions. Square's e-commerce ecosystem includes point-of-sale software and hardware that offers its customers payment and point-of-sale solutions. (Yahoo: Square, 2020),

PayPal Holdings Inc. is listed on NASDAQ with the ticker symbol of PYPL and has a market capitalization of $228 billion. PYPL is the global leader in online payments. The COVID-19 pandemic might have helped to accelerate PayPal's growth, as more people are choosing to shop online and send money to friends and family electronically (Frankel, 2020), PayPal. operates as a technology-platform and digital-payments company that enables digital and mobile payments on behalf of consumers and merchants worldwide (Yahoo: Paypal, 2020).

The Goldman Sachs Group Inc. is listed on NYSE, with the ticker symbol of GS and has a market capitalization of $69 billion. GS is in the middle of transforming its business model from an investment bank and wealth manager for the 1% to a full-featured consumer bank. GS has expanded into the credit card business in 2019 as the exclusive issuer of Apple's credit card (Frankel, 2020).

Green Dot Corporation is listed on NASDAQ with the ticker symbol of GDOT and has a market capitalization of $2.8 billion. GDOT is one of the oldest fintech companies in the market, best known for pioneering the prepaid debit card two decades ago (Frankel, 2020). Green Dot is a financial technology and bank holding company operating in the United States (Yahoo: Greendot, 2020)

MercadoLibre Inc. is listed on NASDAQ with the ticker symbol of MELI and has a market capitalization of $60 billion (Frankel, 2020). MELI is often referred to as the Amazon of Latin America. It has a large e-commerce business that has been growing rapidly. MercadoLibre also operates MercadoPago FinTech, a financial technology solution platform, which facilitates transactions on and off its marketplaces (Yahoo: MELI, 2020).

4 METHOD

In the present study, an event study method is used to evaluate the abnormal returns of the five FinTech digital payment companies following the President's declaration of national emergency during the pandemic. We calculated the cumulative abnormal returns during the week after the declaration of national emergency during the pandemic. Daily equity price data one year prior to the announcement of the national emergency (i.e., 250 trading days for each equity from mid-March 2019 to early-March 2020) were taken from https://finance.yahoo.com/.

The return to equity i on day t is calculated as follows:

$$R_{it} = (M_C - M_O)/M_O$$

where, R_{it} = market return on day t to equity i, M_O = market opening price of equity i on day t, and M_C = market closing price of equity i on day t.

The Capital Asset Pricing Model (CAPM) is used to evaluate the abnormal return on the day of the event as follows:

$$A_{oi} = R_{it} - (\alpha_i + \beta_i R_{mt}),$$

where A_{oi} = abnormal return to equity i, R_{mt} = return to the market index on day t, α_i and β_i are parameters estimated from ordinary least squares regression between R_{it} and R_{mt}. The market indexes selected for this study are the Down Jones Industrial Average (for Square, Paupal, Goldman Sachs) and NASAQ average (for GreenDot and Mercado Libre). The control period used for linear regression contained n days – beginning with $n + 5$ days prior to the event date and ending on 6 days before the event date (Corrado, 2011). A value of n = 250 days was chosen to represent the number of trading days in a calendar year. Under a null hypothesis of no abnormal performance, the event date abnormal return A_o has an expected value of zero and a variance given as (Corrado, 2011):

$$Var(A_o) = \sigma_e^2 [1 + (1/n) + \{(RM_o - RM_{av})^2 / \Sigma(RM_b - RM_{av})^2\}]$$

where the summation is carried out starting from $n + 5$ days prior to the event date and ending on 6 days before the event date, $Var(A_o)$ is the variance of abnormal return A_o, σ_e denotes the standard error of the regression used to obtain the market model parameters α_i, and β_i. RM_o indicates the market return on the event day, RM_{av} indicates the average of n market returns, starting with $n+5$ days prior to the event day and ending 6 days before the event date, and RM_b indicates the market return on each day starting from $n+5$ days prior to the event day and ending 6 days before the event date.

Based on prior research findings, we believe that the abnormal returns (A_o) of the ADRs and the underlying equities will differ from zero on the event day. More formally, we hypothesize the following:

H₁: Ceteris Paribus, the A_{oi} will differ from zero.

The *t*-statistics for each equity were calculated as follows (Corrado, 2011)

$$t = A_o / S_{Aio}$$

where S_{Aoi} = standard deviation of A_o = $(Var(A_o))^{0.5}$ with degrees of freedom (df) = $n - 2$.

5 RESULTS

Table 1 shows the actual returns to the equities of the five Fintech payment companies during the first full week following the announcement of national emergency on Friday, March 13, 2020. It is observed from Table 1 that the returns to the individual equities are significantly negative on March 15,2020, i.e., the first day after the announcement day. The cumulative returns during the entire week are negative for all the five equities.

Table 1: Actual Returns

Equities	March 16	March 17	March 18	March 19	March 20	Cumulative
Square	-0.286	0.084	-0.117	0.013	-0.048	-0.354
PayPal	-0.158	0.056	-0.066	0.025	-0.075	-0.218
GS	-0.127	0.026	-0.118	0.068	-0.074	-0.225
Green Dot	-0.088	-0.059	-0.297	0.203	-0.089	-0.330
MercadoLibre	-0.181	0.093	-0.069	0.035	-0.055	-0.177

Table 2 shows the abnormal returns to Square Inc. during the week. The corresponding t-values and the p-values are also provided. Based on the p-values, the null hypothesis that the abnormal return is zero cannot be rejected on any of the five days. The cumulative abnormal return is negative during the entire week as shown in the last column of this table.

Table 2: Abnormal Returns of Square Inc.

	March 16	March 17	March 18	March 19	March 20	Cumulative
Abnormal Return	-0.167	0.032	-0.050	0.004	-0.013	-0.194
t-statistic	-1.003	0.424	-0.065	0.057	-0.181	-0.768
p-value	0.317	0.674	0.516	0.955	0.856	0.443

Table 3 shows the abnormal returns to Paypal Holdings, Inc. during the week. Based on the p-values, the null hypothesis that the abnormal return is zero cannot be rejected on any of the five days. The cumulative abnormal return is negative during the entire week as shown in the last column of this table.

Table 3: Abnormal Returns of Paypal Holdings Inc.

	March 16	March 17	March 18	March 19	March 20	Cumulative
Abnormal Return	-0.024	-0.013	-0.014	-0.001	-0.033	-0.085
t-statistic	-0.417	0.439	-0.451	-0.034	-0.998	-1.461
p-value	0.678	0.661	0.652	0.973	0.319	0.145

Table 4 shows the abnormal returns to The Goldman Sachs Group, Inc. during the week. Based on the *p*-values, the null hypothesis that the abnormal return is zero cannot be rejected on any of the five days. The cumulative abnormal return is negative during the entire week as shown in the last column of this table.

Table 4: Abnormal Returns of The Goldman Sachs Group Inc.

	March 16	**March 17**	**March 18**	**March 19**	**March 20**	**Cumulative**
Abnormal Return	0.032	-0.043	-0.027	0.056	-0.028	-0.010
t-statistic	0.277	-1.219	-0.348	1.087	-0.500	-0.403
p-value	0.782	0.224	0.728	0.278	0.618	0.687

Table 5 shows the abnormal returns to Greendot Inc. during the week. Based on the *p*-values, the null hypothesis that the abnormal return is zero cannot be rejected on four days during the week, except on March 18.2020. The corresponding *p*-value is shown in bold and asterisk (on March 18th) when the null hypothesis of zero abnormal return can be rejected at 10% level of significance. The cumulative abnormal return is negative during the entire week as shown in the last column of this table.

Table 5: Abnormal Returns of Green Dot Inc.

	March 16	**March 17**	**March 18**	**March 19**	**March 20**	**Cumulative**
Abnormal Return	-0.015	-0.094	-0.268	0.192	-0.065	-0.250
t-statistic	0.277	-0.704	-1.680	1.314	-0.486	-1,279
p-value	0.782	0.482	**0.094***	0.190	0.627	0.202

Table 6 shows the abnormal returns to MercadoLibre Inc. during the week. Based on the *p*-values, the null hypothesis that the abnormal return is zero cannot be rejected.

Table 6: Abnormal Returns of MercadoLibre Inc.

	March 16	March 17	March 18	March 19	March 20	Cumulative
Abnormal Return	0.054	-0.043	-0.010	-0.009	0.033	**0.025**
***t*-statistic**	1.176	-1.076	-0.244	-0.229	0.835	0.462
***p*-value**	0.241	0.283	0.807	0.819	0.404	0.644

6 DISCUSSION

It is interesting to note that our results are inconsistent with those from past studies. We found that only one FinTech firm, MercadoLibre Inc., has a positive cumulative abnormal return during the week after the declaration of emergency by President Trump. This result deviates from that of Kwan and Martens (2020) who found negative cumulative abnormal returns to U.S. equities during the same period. A possible reason for this deviation is the fact that MercadoLibre is a Latin American company who operates digital payment and other financial services in a pattern differing from those of other U.S. customer-focused Fintech companies and thus results in a different stock market behavior. Another possible reason is that the official announcement of Covid-19 pandemic in Latin America was much later than that in the U.S., resulting in investors' less pessimistic reactions to MercadoLibre's equity price during the week of current investigation.

As for the other four Fintech companies, their cumulative abnormal returns were negative during the same period under investigation, partially echoing previous findings from Kwan & Martens (2020). However, the cumulative abnormal returns to these four Fintech companies were not statistically significant from what predicted by the CAPM model.

The results from this study show that out of the five Fintech digital-payment companies considered, only one (GreedDot Inc.) of them has shown statistically significant abnormal returns that are different from zero on March 18, 2020. The financial returns to the other four Fintech digital-payment companies - Square Inc., Paypal Holdings Inc, The Goldman Sachs Group Inc. and MercadoLibre Inc - are not significantly different from what predicted by the CAPM model during the entire week following the declaration of national emergency. The daily returns to these equities during that week are not statistically different from what predicted by CAPM model. One possible reason for the absence of any significant impact of President Trump's national emergency declaration on the abnormal returns to digital payment firms is that market information had been fully absorbed and thus no shocks to these firms' returns could be empirically detected.

We further investigated whether the number of confirmed Covid-19 cases created shocks to these firms' returns. We collected data on the number of Covid-19 cases from a Covid-19 tracking website initiated by two journalists from The Atlantic since March 7, 2020. The tracking website contains information from 50 states, 5 territories, and District of Columbia (https://covidtracking.com/data/charts/us-daily-positive/) in the United States. The number of Covid-19 confirmed cases were then correlated with the abnormal returns of

the five digital payment companies. Table 7 reports the Pearson correlation coefficients between the daily confirmed cases and the abnormal returns to the five companies. None of the coefficients are statistically significant, suggesting that the daily Covid-19 cases have no relationship with the abnormal returns to the digital payment companies.

Table 7. Correlation of Confirmed COVID Cases and Abnormal Returns of Digital Payment Firms

	COVID 19 daily cases	AR_SQ	AR_PYPL	AR_GS	AR_GDOT	AR_MELI
COVID 19 daily cases	1					
AR_SQ	0.467	1				
AR_PYPL	-0.101	0.349	1			
AR_GS	-0.247	-0.407	0.414	1		
AR_GDOT	0.119	0.039	0.690	0.861	1	
AR_MELI	-0.064	-0.774	-0.673	0.371	-0.020	1

To rule out the possibility that the behavior of these stocks may be related to daily changes in the number of Covid-19 confirmed cases, we correlated the daily changes of Covid-19 confirmed cases with the abnormal returns to the five digital payment companies because we wanted to check if the uncertainties caused by the pandemic moved parallelly with the abnormal returns to these firms. Table 8 reports the Pearson correlation coefficients from these two sets of data, which suggests that none of the coefficients are statistically significant.

Table 8. Correlation of Confirmed COVID Cases Daily Change and Abnormal Returns of Digital Payment Firms

	COVID 19 daily change	AR_SQ	AR_PYPL	AR_GS	AR_GDOT	AR_MELI
COVID 19 daily change	1					
AR_SQ	0.538	1				
AR_PYPL	-0.108	0.349	1			
AR_GS	-0.795	-0.407	0.414	1		
AR_GDOT	-0.435	0.039	0.690	0.861	1	
AR_MELI	-0.461	-0.774	-0.673	0.371	-0.020	1

Thus far, our empirical results mainly report the short-term impacts of the Covid-19 pandemic on the Fintech industry performance. It is possible that, in the longer term, the industry will benefit from changing lifestyle that relies more on digital payments rather than cash and conventional banking services. To capture the longer-term impacts, we collected

financial data on the quarterly revenues of the digital payment companies from NYSE and NASDAQ. The data ranging from December 2019 to September 2020 are presented in Table 9 and Figure 1. While SQ was clearly the winner in terms of its increasing revenues. GDOT behaved differently with a big jump in its March 2020 performance and tapered off for the following two quarters. MELI experienced a continuous increase in its revenue since the announcement of Covid-19 national emergency in March 2020. PYPL also saw a substantial increase in its revenues since March 2020. GS understandably has businesses other than digital payment and thus experienced a drastic decrease in its revenue in March, which was a phenomenon also faced by many other financial firms during the same quarter.

Table 9. Quarterly Revenue of Digital Payment Firms from December 2019 to September 2020

Billions (in USD)	2019 Dec	2020 Mar	2020 Jun	2020 Sept
SQ	1.31	1.38	1.92	3.03
PYPL	4.96	4.62	5.26	5.46
GS	9.62	7.81	11.7	10.5
GDOT	0.25	0.36	0.32	0.29
MELI	0.67	0.65	0.878	1.11

Source: NASDAQ, NYSE

Figure 1. Revenue Trend of Digital Payment Firms After National Emergency Declaration
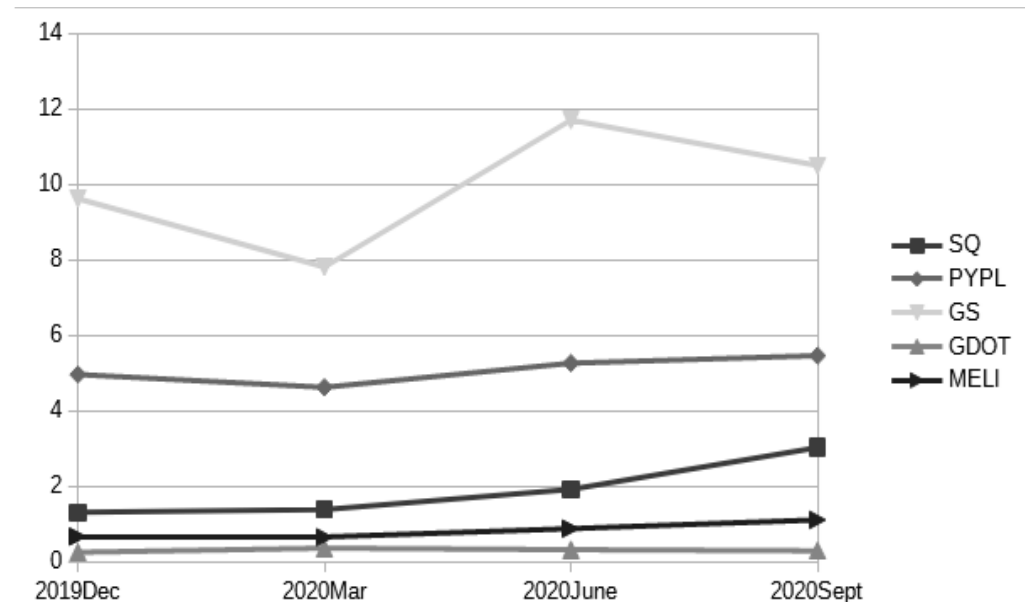
Source: NASDAQ, NYSE.

7   CONCLUSION

During the outbreak of the Covid-19 pandemic in the United States, President Trump declared a state of national emergency on March 13, 2020. This study hypothesizes that the declaration of national emergency during the pandemic had a significant impact on the

performance of Fintech digital payment equities. In this study, we evaluated the abnormal returns of the equities of the five largest digital payment companies, namely, Square, Paypal, Goldman Sachs, Green Dot and Mercado Libre, during the week following the declaration. We found that the abnormal returns are not significantly different from what predicted by the CAPM model, except for one company – Green Dot on the third day following the declaration. This finding demonstrates the efficiency of the U.S. stock market in the dissemination of the news about the declaration of national emergency. We also observed that only one company, MercadoLibre Inc., had significantly positive cumulative abnormal returns during the week. The cumulative abnormal returns were all negative during the week for the other four digital payment companies.

A limitation of this study is that it focused on only five Fintech digital payment companies. Future research may consider the abnormal returns to other Fintech companies after the declaration of national emergency during the Covid-19 pandemic and compare the performance of Fintech companies against those in other industries.

Findings from this study are useful references to portfolio managers dealing with Fintech digital payment equities. Overall, this study confirms that the returns to the five Fintech digital payment companies are in line with what predicted by the CAPM model. It demonstrates the validity of the efficient market hypothesis formulated by Fama (1991). The findings also imply that portfolio managers may focus on the financial returns to the rapidly growing Latin American Fintech e-commerce and digital payment companies such as MercadoLibre Inc., which displayed positive cumulative positive abnormal returns during the week after the declaration of national emergency.

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