The Journal of Technology Transfer
https://doi.org/10.1007/s10961-021-09899-6

COVID-19 bust, policy response, and rebound: equity crowdfunding and P2P versus banks

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Accepted: 29 September 2021

Abstract
Traditional intermediaries have the ability and the incentive to intertemporarily smooth outcomes. Fintechs, such as peer-to-peer (P2P) lending platforms and equity crowdfunding (ECF) platforms, enable riskier projects without regard to intertemporal smoothing. U.S. data from May 2016 to June 2020 show that COVID-19 had an adverse impact on bank consumer lending. However, counter to our expectations, ECF and P2P are much more stable, timely, and resilient in the COVID-19 crisis compared to bank consumer lending. Moreover, the data indicate that P2P lending is a leading indicator for bank consumer lending and that bank consumer lending substitutes ECF. The policy response—CARES Act—caused: (1) a significant increase in ECF volumes, (2) a substantial rebound to bank consumer lending, and iii) at best, neutralized an already-stabilized level of P2P lending.

Keywords Equity Crowdfunding · P2P Lending · Fintech · COVID-19 · Bank Consumer Lending

JEL Classification G21 · G28 · G51

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Published online: 16 October 2021

1 Introduction

Entrepreneurship, innovation, and technology transfer critically depend on entrepreneurial finance (Audretsch et al., 2016; Colombo et al., 2016). In addition, entrepreneurs need stable sources of cash flows from their investors. In a crisis, such as the COVID-19 crisis, a massive drop in external finance for entrepreneurs would have major implications for entrepreneurs developing new technologies over a multi-year horizon. A consistent flow of funds is needed for R&D, office and lab expenses, salaries, patent applications, accounting, legal, and other expenses. If certain forms of finance are particularly susceptible in a crisis, entrepreneurs and public policymakers need to know about it.

Crises disrupt lending markets (Andersen et al., 2007; Cull & Martínez Pería, 2013); however, it is well established that larger banks fare much better in crisis periods (Berger & Bouwman, 2013; Berger et al., 2021). Indeed, banks are able to smooth sources of capital and the uses of capital. Relationship banking offers incentives to intertemporally smooth loans (Berger & Udel, 2002; Boot & Thakor, 2012). Banks build up capital in favorable periods and smooth out down periods by extending lines of credit to mitigate negative swings (Petersen & Rajan, 1995). Over time, the smoothing of capital is encouraged by virtue of bank regulatory restrictions through reserve requirements and risk-taking constraints (de Roure et al., 2019).

On the contrary, the role of relationship lending is less prevalent in fintech start-ups that have grown in recent years to take advantage of market segments that traditional intermediaries underserve. An interesting development in the lending landscape utilized by fintech start-ups is the peer-to-peer business model. In this model, the platform serves as an intermediary connecting capital suppliers with capital providers. Peer-to-peer (P2P) lending platforms are one such example, as they enable lenders to directly link to borrowers through an online platform with no regard to intertemporal smoothing. P2P loans are typically smaller and riskier and have higher interest rates than loans normally available from traditional intermediaries with stronger requirements for collateral and other restrictions (de Roure et al., 2019). Similarly, equity crowdfunding (ECF) enables smaller and riskier entrepreneurs to access capital markets by selling small equity stakes in their firm at a very early stage with minimal and low cost disclosure (Allen et al., 2021; Coakley et al., 2021; Cumming et al., 2019; Rossi et al., 2021; see also Philippi et al., 2021 for other types of crowdfunding involving coin offerings). These alternative financing options have no motives for intertemporal smoothing since they serve as an intermediary, assume no risks, and face fewer regulatory restrictions.

In this paper, we examine two interrelated questions that build on prior work but have not been directly examined in prior work. First, we examine the relationship between aggregate ECF, P2P lending, and consumer bank loans as well as the comparative impact of COVID-19 on each funding type. Prior work has not compared fintech to non-fintech intermediaries in a crisis period, and, more generally, which intermediary is a leading versus a lagged indicator. Second, we consider the role of the U.S. Coronavirus Aid, Relief, and Economic Security (CARES) Act policy response in mitigating the negative impact of COVID-19 on the three alternative forms of finance.

Our paper builds on the expectation that banks with sophisticated managers anticipate in advance the negative economic impact of COVID-19 and, as a result, decrease loan amounts prior to the crisis to better smooth loans intertemporally. And, moreover, we expect that smaller, riskier P2P loans and ECF would be much more sensitive to an economic shock, like the one caused by the COVID-19 crisis. The U.S. data that we

examined for the period May 12th, 2016 to June 30th, 2020 shows the exact opposite. The data indicate that P2P lending dropped much earlier than consumer bank loans. Specifically, P2P loan volumes in the U.S. dropped with the emergence of COVID-19 in global news, prior to the actual outbreak in the U.S., while consumer bank loans dropped a month after the COVID-19 outbreak in the U.S. Hence, P2P loan volumes dropped two full months earlier relative to bank consumer lending. Turning to aggregate ECF volumes in the U.S., we note a scant decline coinciding with the first COVID-19 case in the U.S. The timing of the drop in the volumes of these alternative capital sources were counter to our expectations. Furthermore, contrary to the expectations, the (normalized) decline in bank lending was twice as large as that of P2P lending. Overall, the data show P2P lending was only half as susceptible to the COVID-19 crisis as bank consumer lending.

The data indicate that the policy response—the Coronavirus Aid, Relief, and Economic Security (CARES) Act—caused a substantial rebound to bank consumer lending. However, the CARES Act did little or nothing to stabilize P2P lending and ECF. P2P lending and ECF had already stabilized prior to the CARES act. At most, the CARES Act merely stabilized an already-stabilized level of P2P lending and ECF. Overall, we may infer that the CARES Act benefited banks and corporations (which, in turn, indirectly benefited investors and borrowers from traditional intermediaries), but the CARES Act had little direct benefit to borrowers and lenders themselves if they did not use a traditional bank intermediary. Likewise, aggregate equity crowdfunders seemed to experience little direct benefit from the CARES Act.

A possible explanation for our finding that the magnitude of the negative swing in P2P is less than that of bank consumer lending could be attributed to credit rationing in traditional credit markets (Tedeschi et al., 2012). Indeed, it is well documented that credit rationing increases in economic downturns, primarily affecting riskier and smaller borrowers who are often not able to get credit from traditional intermediaries. Thus, these consumers would, in turn, switch to P2P lending resulting in a less pronounced drop in P2P loan levels. This explanation is in line with Tang's (2019) study, which states that although P2P loan markets generally complement bank consumer lending, they could serve as a substitute for borrowers with no access to traditional financing. All this highlights the relevant role of P2P markets in mitigating the adverse effects of economic shocks. As for the delayed response by banks, a further added explanation could be that banks have some longer fixed contracts that render them less responsive in crisis periods.

Our paper contributes to three main strands in the literature. First, it contributes to current work on the impact of COVID-19 on capital markets (Ari et al., 2021; Nozawa & Qiu, 2021). Our paper shows a negative impact of the COVID-19 crisis on bank consumer loans and the importance of the CARES Act in alleviating this stress. However, comparing bank consumer lending to the fintech P2P sector, we show that the impact of COVID-19 on P2P lending and ECF has been in complete contrast to the bank consumer loan market. Second, this paper contributes to the literature on the relationship between P2P lending and bank consumer lending markets (Balyuk et al., 2020; Butler et al., 2017; Tang, 2019). Our findings highlight the complementarity amongst these two lending channels during normal periods at the aggregate level. However, it suggests a substitution effect during periods of crisis which is driven by credit rationing in traditional lending mediums (Tedeschi et al., 2012). This substitute role that P2P lending channels play during the crisis aid in dampening the adverse effects of the crisis. Third, this paper contributes to the ECF literature (e.g., Coakley et al., 2021; Rossi et al., 2021) by analyzing the impact of the COVID-19 crisis on ECF levels in the U.S., and compares this impact relative to P2P lending and bank loans.

This paper is organized as follows. Section 2 discusses the institutional details of the ECF and P2P markets. Section 3 summarizes the testable hypotheses. Section 4 presents the data and summary statistics and discusses the activity of ECF, P2P, and bank consumer lending markets and highlights graphically the relationship between ECF, P2P, and bank consumer lending markets. The econometric results are presented in Sect. 5. Section 6 summarizes our findings, discusses the limitations and extensions for further work, and offers concluding remarks.

2 Institutional Context of ECF and P2P Lending

2.1 ECF in the U.S.

Research in foreign ECF markets is expansive. New studies focus on investor orientation, differences in platform models, differences across the firm industry, quality signals of entrepreneurs, the effect of successful crowdfunding on follow-on funding, and the market environment (Butticè et al., 2021; Cerpentier et al., 2021; Coakley et al., 2021; Hornuf et al., 2021; Johan & Zhang, 2021; Kleinert & Mochkabadi, 2021). Conversely, few works have been published on the U.S. ECF market. ECF in the U.S. began with the approval of the Jumpstart Our Businesses (JOBS) Act, enacted on April 5, 2012 (Horváthová, 2019). In 2015, the Securities and Exchange Commission (SEC) adopted amendments to Regulation A to the Securities Act 1933 and in May 2016, whereupon the SEC introduced new ECF rules. Of which, crowdfunding intermediaries, often referred to as portals or platforms, must become members of FINRA. Second, promotors can raise a maximum of $1,070,000 (USD) in a 12-month period with crowdfunding (inflation adjusted each year; this limit was increased to $5 million on March 26th, 2021, after the end of our sample period described below). Finally, there are limits on the amounts of possible investments of accredited and non-accredited investors (US SEC, 2020).

ECF campaigns first began in the U.S. in Q2, 2016 (Cumming et al., 2021). The primary lending platforms that have emerged are Wefunder (which has 25.9% of the ECF activity as of Q2, 2021), Startengine (19.8%), Republic (9.4%), MainVest (8.2%), SeedInvest (6.6%), Netcapital (5%), Honeycomb Credit (3.7%), truCrowd (2.7%), MicroVentures (2.2%), and NextSeed (2.1%). Other platforms comprise the remaining 14.4% of ECF activity in the U.S. (Cumming et al., 2021).

The evolution of the U.S. ECF market from its beginning on May 16th, 2016, shows a trend towards more successful campaigns over time, as well as more campaigns, and more funds raised over time. The number of U.S. ECF campaigns has grown on average by 69% per year from 2016 to 2021. As of Q2, 2021, there have been 4,018 total campaigns. (Cumming et al., 2021). The total amount of funds raised by ECF over the January 1st, 2019—June 30th, 2020 period was $221.96 million and $421.85 million was raised over the May 16th, 2016–June 30th, 2020 period. ECF campaigns involved firms that are typically 2–4 years old, and have an average revenue of $253,304 in their prior fiscal year. Following the accepted practice (Ahlers et al., 2015), funding *success* is defined as a venture raising or exceeding the full target amount of capital. 1417 of 2377 (59.6%) campaigns in our dataset were successful in achieving their funding goals. 32.9% of campaigns reached less than 25% of their target amount. For the period, May 16th, 2016 to December 31st, 2018, 1140 of 1972 campaigns were successful (58%). In the subsequent period from January

1st, 2019, to June 30th, 2020, the success rate increased to 68%. These trends are perhaps not surprising as the U.S. ECF market professionalizes from its earlier days.

For more information about equity crowdfunding activity in the emerging US market, the Equity Crowdfunding Tracker at Florida Atlantic University accessed at the following address: https://business.fau.edu/equity-crowdfunding-tracker/ provides a US state heat map and interactive quarterly graphs for the number of campaigns, amount raised, success rate, security type, firm, and platform characteristics.

2.2 P2P Lending in the U.S.

Peer-to-peer (P2P) lending has arisen as a mechanism that efficiently brings together lenders and borrowers. It has experienced dramatic growth across the world since its inception. In the United States, Prosper.com (hereinafter Prosper) was the first established online P2P lending platform. It was launched by the end of 2005 and opened to the general public on February 5th, 2006 (Balyuk, 2016; Herzenstein et al., 2011; Lin et al., 2013). As with all forms of two-sided markets, to ensure success, platforms should be able to attract both sides of the market (Rochet & Tirole, 2003). Indeed, Prosper quickly gained traction and attracted a large number of investors and borrowers, making it one of the leading P2P lending platforms in the United States (Balyuk, 2016).

Usually, P2P deals imply that lenders and loan applicants have no previous relationship. Investment decisions are, thus, almost exclusively based on the applicant's profile and the loan characteristics (Larrimore et al., 2011). Therefore, to engage in any transaction, Prosper's applicants and investors go through a verification process. This process entails validating the individual's identity, social security number, and bank account information. In addition, more personal information is requested from loan applicants (income level, employment status, length of employment, and occupation), and a comprehensive credit report is extracted through credit reporting agencies, such as Experian and Transunion (Herzenstein et al., 2008, 2011; Lin et al., 2013; Michels, 2012). With this information, Prosper screens out loan applicants with credit scores below 640 and assigns a credit grade to the remaining applicants. The credit grades range from AA (extremely low risk) to HR (highest risk of default), with A, B, C, D, and E falling between (Herzenstein et al., 2008, 2011; Lin et al., 2013).

Prosper's borrowing and lending process has been subject to changes over time. In regards to the credit allocation process, it was initially based on an auction-mechanism. In this auction-based model, Prosper did not allow the partial funding of loans. Therefore, if a loan was not completely funded, the request failed, and the loan was not originated. On December 20th, 2010, Prosper's credit allocation process was changed from an auction mechanism to a posted-price mechanism with a preset rate. Prosper's proprietary algorithm would evaluate the loan applicant's risk profile and assign a risk grade and a corresponding interest rate. Contrary to the auction-model that required full funding, the preset rate model came with the possibility of partial funding (70% of the loan amount). By opting for partial funding, if the loan applicant failed to secure 70% of their requested loan amount during the updated listing period of 14 days, the listing would expire with no credit being allocated to the applicant.

Prosper's credit allocation mechanism was not the only change over the years; the information shared with potential investors also had its fair share of changes. Initially, only the debt to income ratio (DTI) computed by Prosper and the credit grade was supplied to potential investors as 'hard' information, while loan applicants were permitted to include

some 'soft' information. After the switch to a posted-price mechanism, Prosper stopped collecting the soft information previously provided by loan applicants. This made investors rely predominantly on hard information. More detailed hard information about credit lines and utilization, credit inquiries, delinquencies, and public records started being reported in May, 2016. Some months later, information about employment, occupation, and income was included (Freedman & Jin, 2014). All the information pertaining to the loan request was anonymously presented to potential investors (Michels, 2012).

In a nutshell, Prosper, as a lending platform, plays two major roles. First, it serves as a matching marketplace, where loan applicants and investors are matched. Second, Prosper maintains the loan and is responsible for managing the monthly loan repayments. In return for the matching process, Prosper charges loan applicants a loan origination fee of 5%, which is deducted upfront from the loan amount. This fee might be reduced to 2.4% if the loan applicant has excellent credit. While maintaining the loan, Prosper charges investors an annual service fee of 1%. If payments are late for two or more months, Prosper pursues collection efforts through a collection agency. Furthermore, the platform reports delinquencies to credit reporting agencies. Defaulted borrowers are not allowed to borrow again on Prosper, while borrowers who have successfully paid back previous loans are rewarded with improved credit grades, even if there was no improvement in their FICO credit score (Herzenstein et al., 2008; Lin et al., 2013; Michels, 2012).

Relative to the ECF market, the P2P lending market was much more established in May 2016 when ECF first started. From May 2016 to June 2020, P2P loans were approximately 25 times the dollar volume as ECF, but only approximately 13 times the size over the January 2019 to June 2020 period. Specifically, prosper loans amount over the May 18th, 2016 to June 30th, 2020 totaled $11.23 billion, and over January 1st, 2019 to June 30th, 2020 totaled $3.07 billion. And for further comparison, consumer bank loans are substantially larger (over 100 times the size) than the P2P market in the U.S. While it is tough to summarize the net weekly change in consumer loan balances since there are repayments and new loans originating each week, it is possible to summarize the outstanding consumer loan balances at the different points in time. For example, consumer loan balances on the week ending May 18th, 2016 were $1,300.23 billion; consumer balances on the week ending January 9th, 2019 were $1,501.56 billion; and consumer loan balances on the week ending July 1st, 2020 were $1,517.68 billion.

3 Hypotheses

Recently, growing numbers of institutional investors tap P2P lending platforms for the opportunity to diversify their portfolios by investing in an asset class not available to them before (Cummins et al., 2020). Surprisingly, commercial banks that are able to extend credit through their own channels jumped on the bandwagon and started investing alongside other institutional (non-bank financial institutions, asset management firms) and retail investors. The benefit that P2P lending platforms brought to these commercial banks is the ability to syndicate consumer loans and diversify risk exposure. As institutional investors joined P2P lending platforms, the liquidity available on these platforms increased tremendously. This helped P2P lending platforms evolve into a significant source of liquidity in consumer lending markets. But, it is still unclear how P2P and bank consumer loan markets relate; are they complements or substitutes?

Butler et al. (2017) investigate the relationship between local banking conditions and P2P lending markets and find that borrowers in areas with good access to financing request loans for lower interest rates on P2P lending platforms. Their findings suggest a substitution effect in the demand for funds. However, on the supply side of funds, lenders on P2P lending platforms do not factor local capital markets conditions in their decision to extend credit to loan applicants. Tang (2019) further analyzes this relationship and highlights that P2P loan markets substitute bank lending for smaller loan applications while complement bank lending for larger loan applications. However, at the aggregate level, it is still not clear how these two lending markets relate. In general, we expect that P2P loan markets would complement bank consumer loan markets in regular periods. However, during periods of crisis, such as COVID-19, there is a greater likelihood that marginal borrowers substitute bank loans for P2P loans. Given the disproportionate impact of larger loans at the aggregate level, we expect the effect of COVID-19 to be similar for both lending channels; however, due to different mechanisms, the timing and the magnitude of the effects could vary.

There are at least four reasons from the prior literature as to why we expect the P2P market to respond to an economic shock quicker than consumer bank loans. First, banks build up capital over time in good periods, extending better credit lines in bad periods. That is, banks have the ability to create intertemporal surpluses and smooth down periods. While increased credit market competition imposes constraints on the ability of borrowers and lenders to do this intemporal substitution, it is nevertheless still feasible (Petersen & Rajan, 1995). Second, de Roure et al. (2019) explain that banks have exogenously higher regulatory costs, while P2P lending can grow (or shrink) without the comparative regulatory burden. Regulatory oversight facilitates a smoother level of loans over time due to bank reserve requirements and constraints on risk-taking. Third, de Roure et al. (2019) also show that P2P loans are riskier and have higher risk-adjusted interest rates compared to bank loans. P2P platforms serve smaller, riskier borrowers who are underserved consumers (Beck, 2020). As such, there are higher adverse selection costs with P2P loans, and these expected costs are more pronounced in large negative market swings with more desperate borrowers using the P2P market in times of crisis. Fourth, Boot and Thakor (2012) explain that relationship banking facilitates an intertemporal smoothing of bank loans and even contract terms (Allen & Gale, 1995, 1997). Banks can absorb losses in one period and recoup those losses later on and in ways that mitigate information asymmetries and adverse selection costs through the banks' capacity to learn more about their borrowers over time (Petersen & Rajan, 1995).

Taken together, these smoothing considerations all point to the expectation that markets will swing more quickly in P2P markets than in traditional bank consumer lending markets. Moreover, the riskiness of P2P loans leads us to expect that the magnitude of swings will be more pronounced in the P2P lending market than in the bank loan market.

ECF markets are arguably even riskier than both P2P markets and consumer bank loans. ECF involves exacerbated risks through the lack of liquidity and lack of disclosure that normally accompanies equity offerings (Cumming et al., 2019; Rossi et al., 2021). As such, there are pronounced adverse selection costs associated with ECF (Blaseg et al., 2020; Walthoff-Borm et al., 2018). In the covid crisis period, we expect the impact on ECF to be the most pronounced relative to P2P lending and consumer bank loans due to the massive drop in liquidity, the fact that ECF is the least liquid market, and that ECF campaigns arguably involve the most pronounced adverse selection issues.

With these arguments in mind, we expect that the COVID-19 crisis would have the most significant impact on the ECF market, followed by the P2P market and then the consumer bank lending market in that order. What is less clear is the timing of the drops and the lead-lag relationship between these markets. We examine those data below.

4 Data and methodology

4.1 Dataset

To conduct our analysis, we merge and aggregate data from multiple sources for the period May 12th, 2016, up to June 30th, 2020. Data on ECF activity is accessed through the Securities Exchange Commission's (SEC) website. Our dependent variable, *ECF Amounts Raised*, is the weekly aggregated total dollar amounts raised by campaigns. We extract the amounts raised from campaign progress update filings that correspond to an original Form C filing by a firm. Per SEC regulations, an issuer must provide an update on the progress of a campaign within 5-days of the campaign, reaching 50% and 100% of its target amount offered. The issuer must also report an update a final time when the campaign is closed. To compensate for the ambiguous funding amounts of campaigns still open for investment or any campaigns that failed to report, we also collected precise funding amounts directly from the platform websites as of July 2021. We additionally operationalize the variable *ECF Offerings*, which captures the weekly aggregated capital sought by ECF campaigns as initially reported on the Form-C SEC filing by the campaign issuer. ECF campaigns with a corresponding 'C-W' (i.e., withdrawal) submission type filing were excluded from our sample. Furthermore, offerings identified as duplicates are consolidated.

To capture the funding dynamics of marketplace loans, we acquire information pertaining to credit allocation on Prosper, the first established P2P lending platform in the United States. Similar to ECF data, credit allocation volumes on Prosper are aggregated weekly and is denoted by *P2P Loan Amounts*. Data retaining to bank consumer lending is accessed from the Federal Reserve Economic Data's website. *Net Consumer Loans* is the difference between current weekly outstanding consumer loans and the previous week's outstanding consumer loans reported by FRED. We also collect data on weekly *NASDAQ Returns* to use as an indicator of capital market condition from NASDAQ's website. Information related to the *Weekly COVID-19 Cases* in the United States is accessed from the Center for Disease Control's website, and information related to the implementation of the *CARES Act* is accessed from the United States Treasury's website. A summary of the variables of interest is presented in Table 1.

4.2 Descriptive statistics

Tables 2 and 3 present summary statistics of the variables of interest and their correlation. In Table 4, to gauge the general effect of COVID-19 on the variables of interest, we conduct a two-tailed t-test means comparisons to see if there are significant differences pre- and post-COVID-19. We also test for significant differences in the volatility of each variable; for example, *ECF Amounts Raised SD* in Table 4 refers to the standard deviation (SD) of the weekly ECF amounts raised. The data indicate that relative to their pre-COVID-19

Table 1 Variable definitions

Variable	Description	Source
ECF Amounts Raised	The total weekly dollar amount raised on equity crowdfunding platforms in the United States	SEC.gov
ECF Offerings	The total weekly dollar offerings on equity crowdfunding platforms in the United States	SEC.gov
P2P Loan Amounts	The total weekly dollar amount committed to P2P loans on Prosper.com	Prosper.com
Net Consumer Loans	The dollar value of the weekly difference in the sum of consumer loans on all U.S. banks' balance sheets	FRED.stlouisfed.org
NASDAQ Returns	The NASDAQ weekly percentage return	NASDAQ.com
Weekly COVID-19	The new weekly COVID-19 infections in the United States	CDC.gov
CARES Act	A dummy variable = 1 for the period 28/3/2020—30/06/2020	TREASURY.gov

Table 2 Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
ECF Amounts Raised (in $)	216	$1,952,987	1,626,432	0	8,615,170
ECF Offerings (in $)	216	$718,751	514,934	0	3,312,400
P2P Loan Amounts (in $)	216	$52,010,610	18,866,750	11,554,330	99,150,530
Net Consumer Loans (in $ thousands)	216	$1,014,260	3,406,410	− 16,518.30	18,841.30
NASDAQ Returns (in %)	216	0.39%	2.62	− 12.64	10.59
Weekly COVID-19 Cases	216	12,380	47,192	0	306,297

Table 3 Correlation matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)
(1) ECF Amounts Raised	1					
(2) ECF Offerings	0.3671***	1				
(3) P2P Loan Amounts	− 0.2299***	− 0.0100	1			
(4) Net Consumer Loans	− 0.2633***	− 0.0817	0.2287***	1		
(5) NASDAQ Returns	0.0820	0.0664	− 0.0361	− 0.2505***		
(6) Weekly COVID-19 Cases	0.4393	0.0161	− 0.4756***	− 0.5538***	0.2194***	1

*$p < 0.10$, **$p < 0.05$, ***$p < 0.01$

Table 4 Difference in means (pre COVID-19 & post COVID-19)

Variable	Pre-COVID-19	Post-COVID-19	Two tailedt-test
ECF Amounts Raised	$ 1,689,388	$4,061,780	***
ECF Amounts Raised SD	1,358,777	2,043,307	***
P2P Loan Amounts	$ 55,507,780	$ 24,041,260	***
P2P Loan Amounts SD	16,764,580	8,667,166	***
Net Consumer Loans (in thousands)	$ 1,528,932	$ (3,103,117)	***
Net Consumer Loans SD	2,333,153	6,584,968	***
NASDAQ Returns	0.38%	0.48%	
NASDAQ Returns SD	2.02	5.51	***
Number of Weeks	192	24	

This table presents the two-tailed t-test, which is applied to compare means between pre- and post-COVID-19 for the period 12/05/2016 to 30/06/2020. The difference in means was calculated using weekly data for ECF Amounts Raised, P2P Loan Amounts (amounts raised on Prosper.com), Net Consumer Loans (the difference between the current and the previous week's Consumer Loan balances), and NASDAQ Returns (weekly NASDAQ returns). This test is also applied to compare variables' volatility as gauged by its standard deviation

*$p < 0.10$, **$p < 0.05$, ***$p < 0.01$

values: *ECF Amounts Raised* increased by 140% (from $1.69 million to $4.06 million) while its SD deviation increased by 50% *ECF Offerings* increased by 8% (from $0.71 million to $0.77 million) while its volatility dropped by 48%, *P2P Loan Amounts* have

decreased by 57% (from $55.5 million to $24 million), and its volatility decreased by 48%, *Net Consumer Loans* have dropped by 300% (from $1.53 billion to -$3.1 billion), but its volatility has surged by 182%, *NASDAQ Returns* did not significantly change, but volatility has increased by 172% since the COVID-19 outbreak. Worth noting, volatility increasing during COVID-19 was higher in traditional capital markets when compared to ECF and P2P markets.

4.3 Graphical analysis: ECF, P2P and bank consumer lending

A time series of ECF, P2P loans, and consumer bank loans are depicted graphically in Fig. 1. Figure 1 shows the normalized levels of ECF, P2P loans, and consumer bank loans. The data indicate that the P2P loan market in the U.S. dropped starting on December 25th, 2019, and fell continuously to January 29th, 2020, with the initial Christmas break drop being less pronounced than the subsequent drop in January. We may infer that this drop is related to international news about COVID-19, at least in the absence of another compelling explanation. Thereafter, as COVID-19 became more widely recognized in the U.S., there was an increase in P2P loans, followed by a modest decline. By contrast, consumer bank loans peaked on March 4th, 2020, and fell until April 15th, 2020, just after the introduction of the CARES Act a few days before. Normalized P2P levels went from 0.3 to -2 in January, while normalized consumer bank loans went from 1.8 to −3.9, or approximately 2.5 times the size of the drop of the normalized P2P amounts. Over the contemporaneous period, when normalized bank loans dropped, P2P loans dropped by 1/5th. In short, the data are consistent with the view that there was a marked delay in the decline in the consumer bank loans market by 2–3 months relative to P2P loans, as expected. But counter to expectations (Sect. 3), there was a much more pronounced decline in consumer bank loans

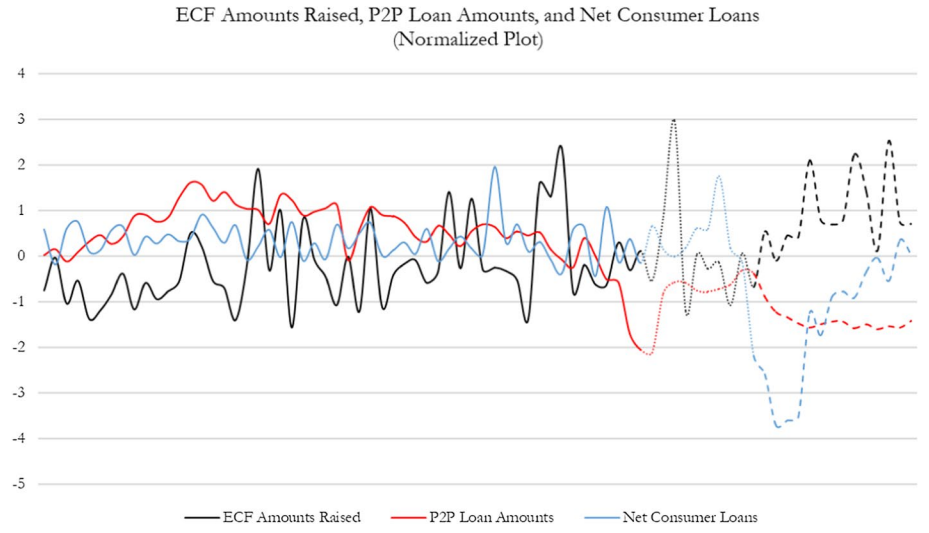

Fig. 1 Normalized weekly ECF amounts raised, P2P loan amounts, and net consumer loans for the period 1/1/2019 to 30/6/2020. The dotted line presents the start of the COVID-19 outbreak in the United States in the week starting on 15/1/2020, and the dashed line marks the implementation of the CARES Act in the week starting on 25/3/2020

relative to P2P loans. Finally, note that the CARES Act caused a strong rebound in the consumer bank loan market; but, in striking contrast, after the CARES Act, the subsequent performance of the P2P levels was slightly negative.

A possible explanation for our findings can be extended from the arguments made by Butler et al. (2017) and Tang (2019). Although P2P loan markets generally complement bank consumer lending at times when borrowers have access to credit from banks, it could have served as a substitute during the crisis when borrowers could not get credit from banks. Hence, the drop in the P2P loans is not as pronounced as that of bank consumer lending since consumers who would have normally sought bank loans switch to P2P markets. Thus, the fintech innovation of P2P mitigated the adverse effects of the crisis.

Equally surprising in Fig. 1 is that U.S. ECF amounts did not have any marked drop at all due to the COVID-19 crisis. Unlike P2P levels, ECF levels were slightly positive after the implementation of the CARES Act. Given liquidity and adverse selection issues with ECF, we had expected a more pronounced negative impact of COVID-19 on ECF relative to P2P lending and consumer bank loans (Sect. 3). The surprising findings in the data show that ECF is the most resilient during the COVID-19 crisis period.

The ECF trends around COVID-19 reported in Fig. 1 are somewhat similar to levels of venture capital activity over the same period. Pitchbook (2021, p. 11) reports that venture capital investment totaled $10.5 billion in April 2020, down just slightly from the average amount of venture capital investment per month in the U.S. of $11.2 billion over January 2017–June 2021. Moreover, venture capital investments were at the average $11.2 billion in March and June 2020, and above the average $11.2 billion levels in January, February, and May 2020. Since July 2020, venture capital investment levels in the U.S. have risen sharply above the average of $11.2 billion.

The subsequent sections of the paper examine these ECF, P2P, and consumer loan trends reported in Fig. 1 in further detail. We examine lead-lag relations between these three alternative sources of capital for entrepreneurship and innovation.

5 Econometric estimation methods and results

In the first stage of our analysis, we ought to disentangle the relationship between ECF market dynamics and other capital markets (marketplace lending, bank lending, and the stock market). To do this, we run a system of equations using a vector autoregression model (VAR). Vector autoregression models have been frequently used in the finance and economics literature to identify trends and interrelationships between different macro-economic variables (Ang & Piazzesi, 2003; Shan, 2005). In the VAR model conducted, there are no exogenous variables, such that all our variables of interest are treated as endogenous variables. The VAR model conducted in our preliminary analysis consists of four variables: *ECF Amounts Raised*, *P2P Loan Amounts*, *Net Consumer Loans*, and *NASDAQ Returns*. The model consists of four regression equations, one for each variable, and the right-hand side of the equations is identical: first and second lags of the four variables, a constant, and an error term. The model is expressed in Eq. (1) below where X denotes the vector of endogenous variables, β is the corresponding coefficient, c is the constant term, and ε denotes the error term:

$$X_t = \sum_{i=1}^{2} \beta_{t-i} X_{t-i} + c + \varepsilon_t \tag{1}$$

Table 5 Vector autoregression (VAR) model

Dependent variable	ECF amount raised$_t$	P2P loan amounts$_t$	Net consumer loans$_t$	Nasdaq returns$_t$
Independent variables				
ECF Amount Raised$_{t-1}$	0.2339***	−0.0466	0.0197	0.0869
	(0.0654)	(0.0457)	(0.0638)	(0.0761)
ECF Amount Raised$_{t-2}$	0.2832***	−0.0321	0.0342	0.0299
	(0.0655)	(0.0457)	(0.0639)	(0.0762)
P2P Loan Amounts$_{t-1}$	0.0045	0.4641***	0.2082**	−0.0829
	(0.0910)	(0.0636)	(0.0888)	(0.1059)
P2P Loan Amounts$_{t-2}$	−0.1023	0.3501***	−0.1617*	0.1107
	(0.0906)	(0.0633)	(0.0885)	(0.1055)
Net Consumer Loans$_{t-1}$	−0.0738	0.0348	0.2936***	−0.0416
	(0.0682)	(0.0477)	(0.0666)	(0.0795)
Net Consumer Loans$_{t-2}$	−0.1248*	0.0670	0.3580***	−0.1175
	(0.0682)	(0.0477)	(0.0666)	(0.0795)
NASDAQ Returns$_{t-1}$	−0.0998*	−0.0163	−0.0548	−0.0801
	(0.0599)	(0.0419)	(0.0585)	(0.0698)
NASDAQ Returns$_{t-2}$	−0.0159	0.0340	0.0612	0.0345
	(0.0600)	(0.0419)	(0.0586)	(0.0699)
Constant	0.0041	−0.0065	0.0024	−0.0068
	(0.0574)	(0.0401)	(0.0560)	(0.0668)
Observations	214	214	214	214
Chi^2	89.07	411.88	107.56	10.78
$P>\text{chi}^2$	0.00	0.00	0.00	0.21
R-Squared	0.2939	0.6581	0.3345	0.0479

This table reports theresults of the vector autoregression (VAR) model aimed at assessing the relationship between the ECF market in the United States, peer-to-peer loan markets, consumer banking loans, and NASDAQ returns. The normalized weekly ECF amounts, weekly Prosper loan amounts, weekly net consumer loans, and weekly NASDAQ returns are regressed on up to two lagged terms of each of these variables. Data correspond to the period between May 12th, 2016 and June 30th, 2020

*$p<0.10$, **$p<0.05$, ***$p<0.01$

The results of the VAR model are reported in Table 5. However, to verify the validity and the direction of the causality indicated by the VAR model, we complement this analysis with the Granger causality test (Sewaid et al., 2021; Shan, 2005). The Granger causality test is used to determine the significance of the causal relationship implied by the VAR model. The results are reported in Table 6.

The data in Table 5 indicate that lags of net consumer loans and NASDAQ returns are significantly associated with ECF volumes. This negative association with both markets suggest a substitution effect on both the demand and supply side. On the demand side of funds, an increase in net consumer loans might be associated with entrepreneurs turning to traditional lending channels, hence less demand for funds via ECF platforms. On the supply side of funds, positive trends in the stock market might motivate investors to allocate their capital in the liquid stock market rather than invest in ECF offerings. To validate these inferences, we turn to the Granger causality test reported in Table 6 and highlight that only the causal effect of bank consumer lending on ECF volumes is significant. Moreover, the data indicate that there is no association between lagged ECF volumes and current

Table 6 Granger causality tests

Equation (1)	ECF amounts raised	Equation (2)	P2P loan amounts	Equation (3)	Net Consumer loans	Equation (4)	Nasdaq returns
Excluded:	Prob > chi^2	Excluded:	Prob > chi^2	Excluded:	Prob > chi^2	Excluded:	Prob > chi^2
P2P Loan Amounts	0.274	ECF Amounts Raised	0.318	ECF Amounts Raised	0.756	ECF Amounts Raised	0.368
Net Consumer Loans	0.030	Net Consumer Loans	0.148	P2P Loan Amounts	0.063	P2P Loan Amounts	0.577
NASDAQ Returns	0.248	NASDAQ Returns	0.646	NASDAQ Returns	0.339	Net Consumer Loans	0.170
All	0.035	All	0.169	All	0.286	All	0.185

This table reports the results of the Granger Causality Tests between weekly ECF amounts raised, weekly Prosper loan amounts, weekly net consumer loans, and weekly NASDAQ returns. Data correspond to the period between May 12th, 2016 and June 30th, 2020

consumer lending volumes, confirming a unidirectional effect from bank consumer lending to ECF volumes. Additionally, we highlight that lags of Prosper loans are significantly associated with net consumer loans. However, lagged consumer loans are not associated with Prosper loans. We further validate these inferences in Table 6 using a Granger causality test. The data indicate a unidirectional effect from lagged Prosper loans to consumer loans. The absence of an effect of consumer loans on Prosper loans is corroborated by prior findings that lenders on P2P platforms do not factor banking conditions in their decision to extend credit to borrowers (Butler et al., 2017).

In the second stage of our analysis, to identify the effect of COVID-19 on the dynamics of the alternative financing options available to entrepreneurs and the response of these markets to the CARES Act, we run three independent robust ordinary least squares regressions (OLS). In the first OLS regression model, *ECF Amounts Raised* is regressed

Table 7 Robust Ordinary Least Squares (OLS) Regression Model (ECF Amounts Raised)

	(1) *β/s.e*	(2) *β/s.e*	(3) *β/s.e*	(4) *β/s.e*
Weekly COVID-19 Cases				−0.0370
				(0.0465)
CARES Act				1.6430**
				(0.7212)
ECF Offerings$_t$			0.3459***	0.3461***
			(0.0747)	(0.0731)
ECF Amount Raised$_{t-1}$	0.2339**	0.2184**	0.1928**	0.1574*
	(0.0915)	(0.0920)	(0.0852)	(0.0857)
ECF Amount Raised$_{t-2}$	0.2832***	0.2710***	0.2685***	0.2305***
	(0.0717)	(0.0699)	(0.0656)	(0.0697)
P2P Loan Amounts $_{t-1}$	0.0045	−0.0031	0.0273	0.0696
	(0.0709)	(0.0726)	(0.0580)	(0.0586)
P2P Loan Amounts$_{t-2}$	−0.1023	−0.1189	−0.1744***	−0.1331**
	(0.0707)	(0.0732)	(0.0602)	(0.0585)
Net Consumer Loans $_{t-1}$	−0.0738	−0.0601	−0.0786	−0.0021
	(0.0645)	(0.0631)	(0.0539)	(0.0660)
Net Consumer Loans$_{t-2}$	−0.1248**	−0.1085*	−0.0584	0.0271
	(0.0575)	(0.0563)	(0.0535)	(0.0546)
NASDAQ Returns$_{t-1}$	−0.0998*	−0.1095*	−0.0930*	−0.1294*
	(0.0563)	(0.0562)	(0.0552)	(0.0675)
NASDAQ Returns$_{t-2}$	−0.0159	−0.0142	−0.0021	−0.0146
	(0.0553)	(0.0539)	(0.0487)	(0.0503)
Constant	0.0041	−0.0790	−0.0512	−0.0384
	(0.0593)	(0.1203)	(0.1025)	(0.1124)
Quarter Dummies	No	Yes	Yes	Yes
Observations	214	214	214	214
R-Squared	0.294	0.305	0.407	0.432

This table reports the results of the robust ordinary least squares regression with normalized ECF Amounts Raised as the dependent variable regressed on lags of the normalized independent variables

*$p < 0.10$, **$p < 0.05$, ***$p < 0.01$

Table 8 Robust Ordinary Least Squares (OLS) Regression Model (P2P Loan Amounts)

	(1) *β/s.e*	(2) *β/s.e*	(3) *β/s.e*	(4) *β/s.e*
Weekly COVID-19 Cases			−0.0351**	−0.0361
			(0.0156)	(0.0291)
CARES Act				0.0173
				(0.4608)
P2P Loan Amounts$_{t-1}$	0.4734***	0.4721***	0.4469***	0.4470***
	(0.1124)	(0.1114)	(0.1143)	(0.1148)
P2P Loan Amounts $_{t-2}$	0.3559***	0.3566***	0.3298***	0.3298***
	(0.1081)	(0.1068)	(0.1088)	(0.1091)
ECF Amount Raised $_{t-1}$	0.0223	0.0164	0.0149	0.0148
	(0.0368)	(0.0357)	(0.0358)	(0.0363)
ECF Amount Raised $_{t-2}$	−0.0025	−0.0039	−0.0055	−0.0055
	(0.0469)	(0.0468)	(0.0479)	(0.0480)
Net Consumer Loans$_{t-1}$	0.0445	0.0464	0.0094	0.0096
	(0.0321)	(0.0332)	(0.0387)	(0.0386)
Net Consumer Loans $_{t-2}$	0.0782**	0.0849**	0.0536	0.0540
	(0.0395)	(0.0414)	(0.0357)	(0.0369)
NASDAQ Returns$_{t-1}$	−0.0206	−0.0230	−0.0370	−0.0376
	(0.0352)	(0.0355)	(0.0366)	(0.0486)
NASDAQ Returns$_{t-2}$	0.0380	0.0364	0.0218	0.0214
	(0.0374)	(0.0391)	(0.0373)	(0.0443)
Constant	−0.0051	0.0718	0.0993	0.1000
	(0.0412)	(0.0804)	(0.0803)	(0.0870)
Quarter Dummies	No	Yes	Yes	Yes
Observations	214	214	214	214
R-Squared	0.655	0.659	0.664	0.664

This table reports the results of the robust ordinary least squares regression with normalized P2P Loan Amounts as the dependent variable regressed on lags of the normalized independent variables

*$p < 0.10$, **$p < 0.05$, ***$p < 0.01$

on its lagged value, *ECF Offerings*, and lagged values of *P2P Loan Amounts*, *Net Consumer Loans*, and *NASDAQ Returns*. To capture the effect of COVID-19 infections and the CARES Act, *Weekly COVID-19 Cases* and *CARES Act* dummy are added in the full model. The results of the analysis are reported in Table 7. In the second OLS regression model, *P2P loan amounts* is regressed on its lagged value and lagged values of *ECF Amounts Raised*, *Net Consumer Loans*, and *NASDAQ Returns*. *Weekly COVID-19 Cases* and the *CARES Act* dummy are added in the full model, and the results are reported in Table 8. In the third OLS regression model, *Net Consumer Loans* is regressed on its lagged value and lagged values of *ECF Amounts Raised*, *P2P Loan Amounts*, and *NASDAQ Returns*. To capture the effect of COVID-19 and the CARES Act, *Weekly COVID-19 Cases* and the *CARES Act* dummy are added in the full model. The results are reported in Table 9.

The data in Table 7 highlight several interesting findings. Columns (1) and (2) corroborate prior results that lagged values of bank consumer lending are associated with current ECF volumes since it affects the supply of entrepreneurs and volumes of funds requested

Table 9 Robust Ordinary Least Squares (OLS) Regression Model (Net Consumer Loans)

	(1)	(2)	(3)	(4)
	β/*s.e*	*β*/*s.e*	*β*/*s.e*	*β*/*s.e*
Weekly COVID-19 Cases			−0.1661***	−0.2003**
			(0.0343)	(0.0772)
CARES Act				0.5791
				(1.0634)
Net Consumer Loans$_{t-1}$	0.2936**	0.2894**	0.1203	0.1258
	(0.1179)	(0.1178)	(0.0804)	(0.0839)
Net Consumer Loans$_{t-2}$	0.3580***	0.3505***	0.2272***	0.2417***
	(0.0905)	(0.0884)	(0.0626)	(0.0700)
ECF Amount Raised$_{t-1}$	0.0197	0.0245	0.0940	0.0903
	(0.0592)	(0.0620)	(0.0611)	(0.0611)
ECF Amount Raised$_{t-2}$	0.0342	0.0355	0.1345**	0.1337**
	(0.0571)	(0.0580)	(0.0653)	(0.0653)
P2P Loan Amounts$_{t-1}$	0.2082**	0.2106**	0.1161	0.1190
	(0.0890)	(0.0890)	(0.0794)	(0.0799)
P2P Loan Amounts$_{t-2}$	−0.1617**	−0.1581**	−0.2723***	−0.2722***
	(0.0713)	(0.0772)	(0.0791)	(0.0796)
NASDAQ Returns$_{t-1}$	−0.0548	−0.0508	−0.1258	−0.1482**
	(0.1073)	(0.1080)	(0.0825)	(0.0698)
NASDAQ Returns$_{t-2}$	0.0612	0.0619	−0.0055	−0.0184
	(0.1192)	(0.1200)	(0.0982)	(0.0987)
Constant	0.0024	−0.0192	0.1301	0.1536*
	(0.0571)	(0.0945)	(0.0818)	(0.0793)
Quarter Dummies	No	Yes	Yes	Yes
Observations	214	214	214	214
R-Squared	0.334	0.337	0.440	0.442

This table reports the results of the robust ordinary least squares regression with normalized Net Consumer Loans as the dependent variable regressed on lags of the normalized independent variables

*$p < 0.10$, **$p < 0.05$, ***$p < 0.01$

on the platform. However, once we control for the demand side of funds by including ECF Offerings in Column (3), this association is no longer relevant. The data in Column (4) indicate that COVID-19 did not have a statistically significant impact on ECF volumes. However, the CARES Act did have a positive and statistically significant impact at the 5% level. The CARES Act implementation was associated with an increase of 1.6430 SD (approx. $2.67 million) in the weekly aggregated volumes of ECF Amounts Raised. As for P2P loan volumes, in Column (3) Table 8, the data indicate that COVID-19 had a significant negative impact on P2P Loan Amounts. The economic magnitude of this effect is such that an increase of 1 SD in the number of weekly COVID-19 infections was associated with a decrease of 0.0815 SD (approx. $1.54 million) in the weekly aggregated volume of P2P Loan Amounts. Nevertheless, accounting for the CARES Act in Model 4, the net effect of weekly COVID-19 cases is insignificant. Table 9 highlights in Column (3) that COVID-19 had a significant negative impact on consumer bank loans. The economic magnitude of this effect is such that an increase of 1 SD in the number of weekly COVID-19 infections was

associated with a decrease of 0.39 SD (approx. $1.31 billion) in net consumer loans. This adverse effect of COVID-19 infections persists even after accounting for the CARES Act in Column (4) of Table 9.

Summing our graphical depictions and empirical analyses, we indicate that P2P loans evolved as a lead indicator for bank consumer lending starting. At the same time, bank consumer lending volumes seem to predict ECF volumes through its effect on the demand side of funds suggesting a substitution effect between these two sources of capital. COVID-19 significantly affected P2P markets to a very large degree. The impact of COVID-19 on bank consumer lending was significantly delayed and more pronounced. The benefits of the U.S. policy response to COVID-19—the CARES Act—are seen in the bank consumer lending market, not the P2P market. P2P lending, while serving riskier and smaller borrowers, turns out to be much more stable, timely, and resilient in a crisis than bank consumer lending. Finally, counter to our expectations, the data indicate that the aggregate amount of ECF was not impacted by the COVID-19 crisis in the U.S. However, the CARES Act did increase the aggregate amount of ECF volumes.

6 Conclusions

This paper examined the relationship between three alternative sources of capital available for entrepreneurs: consumer banking loans, P2P loans, and ECF. P2P loans and ECF are fintech solutions that connect capital seekers and capital providers through an online platform and without the involvement of a traditional banking financial institution. We highlighted the relationship between these three lending channels. Additionally, this paper examined and compared the differential impact of COVID-19 on these markets and the response of these markets to the CARES Act.

First, we showed that COVID-19 affected consumer bank loans in a differential way. Intermediated bank loans are smoothed over time relative to P2P loans; hence, consumer bank loans reacted much later to COVID-19 relative to P2P loans. Another possible explanation for the delayed drop in bank loans could be associated with the lack of digitalization in the loan origination processes adopted by traditional banks. State of emergency declarations in March 2020 and individuals' concerns around physical presence in public reduced access to banks around that period. This, in turn, affected the loan origination process, which generally requires the physical presence of the loan applicant and the employee evaluating the loan application. Even though P2P loans serve marginal, riskier borrowers, the data show that P2P loans dropped in total dollar value two months prior to the drop in consumer bank loans in response to COVID-19. The differences in the normalized dollar value of consumer bank loans versus P2P loans are enormous: consumer bank loans fell off at least twice as much relative to P2P loans. As for ECF volumes, surprisingly, it only exhibited a scant decline in response to the COVID-19 outbreak in the U.S., which was followed by an upward trend in ECF volumes. This finding is similar to reports indicating that VC funding volumes have increased significantly during the COVID-19 crisis. The findings related to the magnitude of drop could be potentially explained by the supply side of funds, the party allocating the capital. In banks, bank managers' career concerns generally deter them from lending during times of crisis; hence, the pronounced decline in lending volumes. Whereas, even though loan applicants on P2P lending platforms and entrepreneurs raising capital through ECF platforms are riskier, capital providers on these platforms are

known to be risk-takers, which explains the less pronounced decline in capital allocation through these financing channels.

Second, we graphically highlight that the policy response—the Coronavirus Aid, Relief, and Economic Security (CARES) Act—caused a substantial rebound to bank consumer lending volumes. However, we note that the negative impact of COVID-19 persisted. Surprisingly, the CARES Act had an insignificant impact on P2P lending. The CARES Act merely stabilized an already stable level of P2P lending activity. However, we note that the increase in ECF volumes coincided with the CARES Act. Even though the CARES Act was not directly channeled towards ECF platforms, market sentiment with the implementation of the CARES Act and the indirect effects of the CARES Act seem to have positively impacted ECF volumes.

The data here suggest many ideas for future research and policy implications. Are P2P loans and ECF volumes as stable in other countries, or have there been differential reactions across countries? Do financial institutions in other countries lag P2P market developments as much as they do in the U.S.? Do financial institutions in other countries serve as a substitute for ECF? To what extent have other policy responses in other countries affected the P2P and ECF market versus the consumer loans market? Is welfare improving to design policy that enables financial institutions to rebound quicker in response to a crisis? Or, should policy be geared directly towards consumers in the market? These and other related questions could usefully inform future scholars, practitioners, and policymakers alike.

In this paper, we examined the relationship between ECF, P2P lending, and consumer bank loans. We show that consumer bank lending dropped dramatically in the U.S. at the start of the COVID-19 crisis. P2P and ECF were much more stable in the U.S. at the start of the COVID-19 crisis. Hence, P2P and ECF provide an important alternative source of capital for entrepreneurs. However, P2P and ECF markets are currently much smaller than the consumer bank loan market, and as such do not make up all of the funding gaps in crisis periods. In our analysis, we gauged P2P market dynamics through data acquired from Prosper, the first P2P lending platform established in the U.S. and one of the largest in transaction volumes. Future research, can expand this analysis to account for other P2P platforms employing different business models and serving different groups. Additionally, we analyzed the impact of COVID-19 and the CARES Act on aggregate weekly investment amounts for ECF, P2P lending, and consumer bank loans in the U.S. However, we did not examine how amounts shifted within each of these sources of capital, such as between industries and regions. Future research could explore those issues in more detail. In addition, future research could consider the impact of crises like COVID-19 on other sources of capital and other countries.

Acknowledgements We owe thanks to Silvio Vismara, the anonymous reviewers, as well the seminar participants at the 2021 British Academy of Management Annual Conference, 5th Entrepreneurial Finance Conference, 60th Annual Meeting of the Southwestern Finance Association, and the Green Finance Conference in Shanghai, for their helpful comments and suggestions.

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