Corporate liquidity during the Covid-19 crisis: The trade credit channel

Benjamin Bureau [1] Anne Duquerroy [1] Frédéric Vinas [1]

[1]Banque de France

Corporations and Covid-19 Workshop

June 17, 2021

Caveat

The opinions expressed in this paper do not necessarily reflect the views of the Banque de France.

Motivation / Why is it important?

Motivation:

1. The spring 2020 lockdown is a large fall in demand
2. While the demand falls down during the lockdown, firms have to repay their suppliers debts (trade payables)
3. Short-term funding of non-financial firms essentially comes from suppliers
   - trade payables in France
     - €560 bn (2018, INSEE)
     - 7 times higher than S.T. bank funding
   - that importance also prevails in other countries
     - U.S. (Barrot (2016)), Mexico (Cardoso-Lecourtois (2004))
4. Despite its significance, trade credit receives little attention in general and in the COVID19 crisis in particular.

Question:

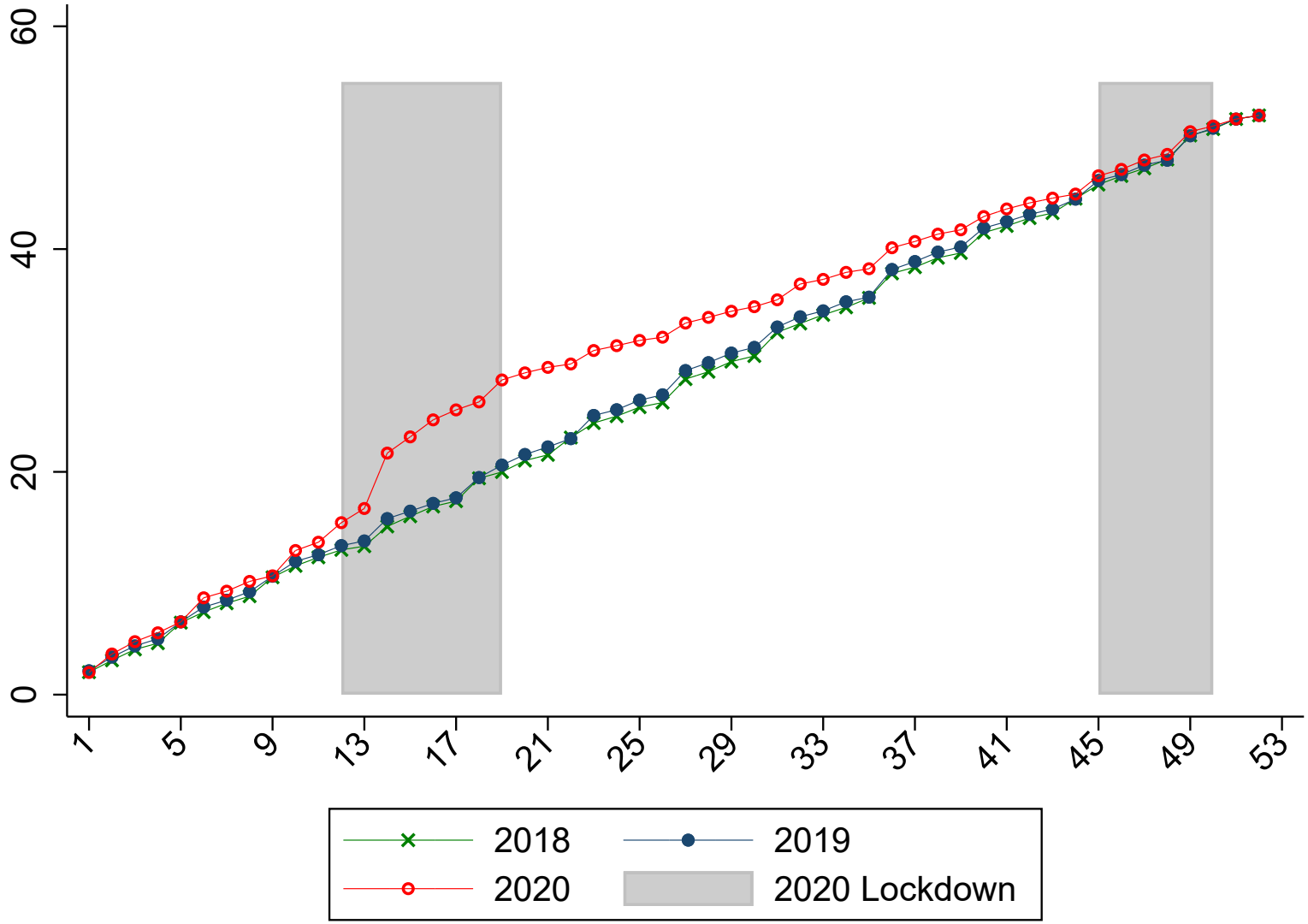
- To what extent does firm's trade credit balance explain firm liquidity stress during the lockdown?

Data & Stylized Facts

Unique Database

- 2019m1-2020m12
- Payment defaults on trade bills (Banque de France)
  - Daily data on payment default (late payment or failure to pay)
  - At the firm-supplier level, for all French firms using trade bills to pay their suppliers
- Firms' financial statement (FIBEN - Banque de France)
  - Trade credit balance
  - Firm characteristics: size, sales, leverage etc.
  - Firm Credit rating
  - Yearly
  - Number of firms: 136,021
  - Average firm (2019):
    - sales: 19.3 M euros
    - net trade credit/sales: -3%
- French Credit register (Banque de France)
  - Monthly bank-firm level information on total credit

Cumulated number of payment defaults on trade bills
scaled by the average weekly number of payment defaults over the year



Identification strategy

$$PD_{f,m} = \alpha.TC_{y-1} + \gamma.[TC_{y-1} \times \text{Post}_m] + \text{Controls}_{y-1} + FE_f + FE_{s,m} + \epsilon_{f,m}$$

- $PD_{f,m}$: a dummy set to 1 if a payment default of firm f on a trade bill is reported in month m, otherwise 0
- $TC_{f,y-1}$:
  trade credit balance of firm f scaled by sales in year $y-1$
  trade credit balance = trade payables − trade receivables
- Post_m: a dummy set to 1 from March 2020, otherwise 0
- FE_f: fixed effects at firm level
- $FE_{s,m}$: fixed effects at firm's sector × month

The mechanism of the trade credit channel in a lockdown

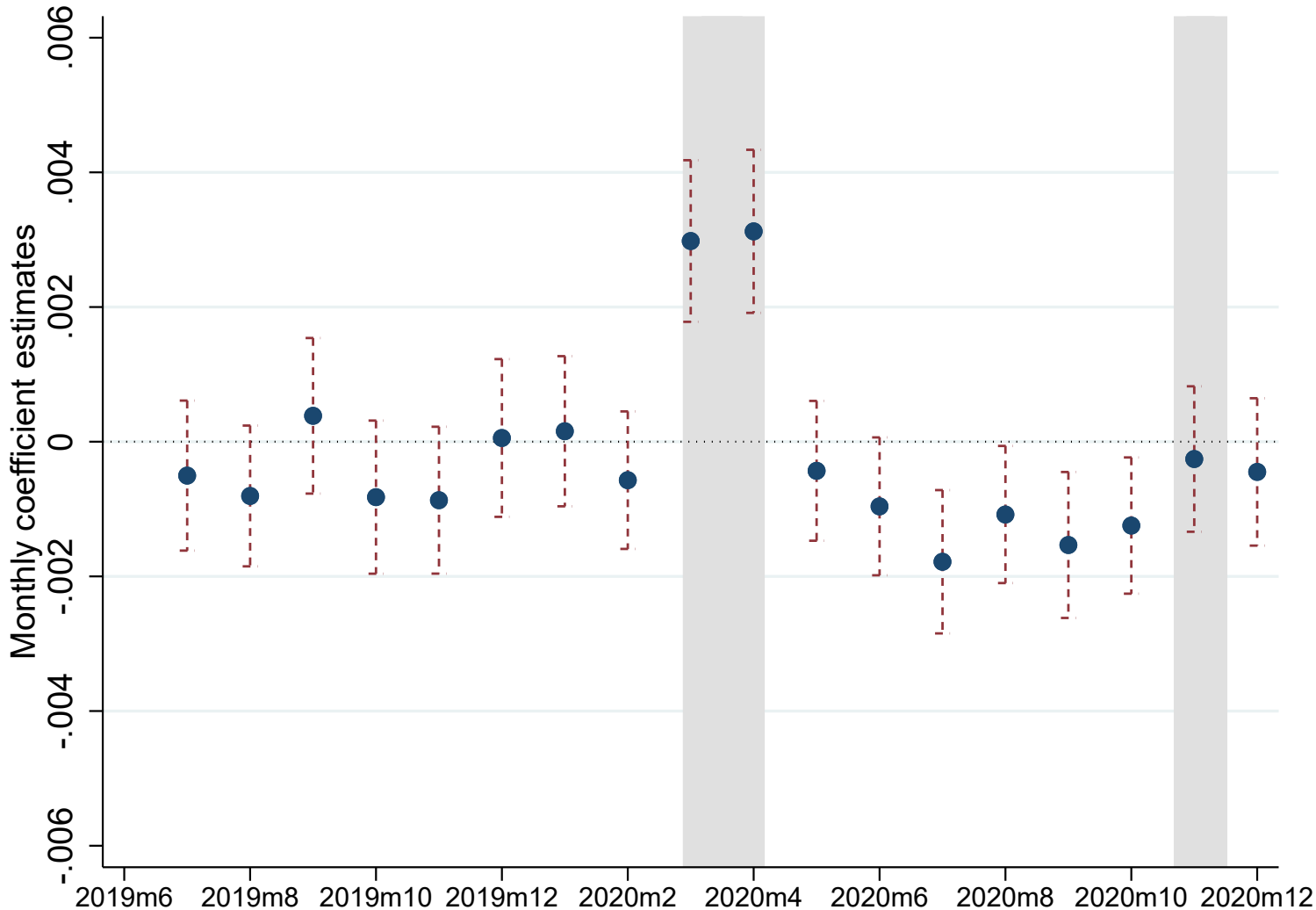
- Consider a B2C firm (retail trader, a restaurant ...)
  - that firm has structurally a positive trade credit balance
  - net debtor: i.e. more trade payables (to supplier) than trade receivables (from customers)
    - get paid cash by customers
    - pay suppliers with a delay (of at most 60 days, by law)
  - with the lockdown
    - no more customers, but trade payables still due
    - => source of a liquidity stress
  - at the end of the 2-month lockdown
    - no more trade payables
    - cash inflow from customer
    - => source of a cash-inflows

Results

Does trade credit position explain firm payment default ?

Dependent	Payment default (2019m1-2020m7)			
	(1)	(2)	(3)	(4)
Trade credit (TC)	-0.000	-0.001	-0.001	-0.001
	(0.000)	(0.000)	(0.000)	(0.000)
TC × March-July 2020		0.001***	0.001***	
		(0.000)	(0.000)	
Trade credit × March 2020				0.003***
				(0.001)
Trade credit × April 2020				0.004***
				(0.001)
Trade credit × May 2020				-0.000
				(0.000)
Trade credit × June 2020				-0.001
				(0.000)
Trade credit × July 2020				-0.001***
				(0.000)
Cash holdings / sales			-0.001*	-0.001*
			(0.000)	(0.000)
Leverage			0.002**	0.002**
			(0.001)	(0.001)
Size			0.001	0.001
			(0.002)	(0.002)
Cash × March-July 2020			-0.003**	-0.003**
			(0.001)	(0.001)
Leverage × March-July 2020			0.000	0.000
			(0.000)	(0.000)
Size × March-July 2020			-0.004***	-0.004***
			(0.000)	(0.000)
Firm FE	Y	Y	Y	Y
Industry-month FE	Y	Y	Y	Y
N firm clusters	156,355	156,355	156,355	156,355
N	2,687,487	2,687,487	2,687,487	2,687,487
Adj-R^2	20%	20%	20%	20%

Monthly coefficient estimates of the role of TC position on firm payment default



Does trade credit position explain firm payment default? By sector

Dependent	Payment default (2019m1-2020m7)				
	(1)	(2)	(3)	(4)	(5)
Trade credit (TC)	-0.001	0.000	0.002	-0.000	-0.002
	(0.003)	(0.002)	(0.002)	(0.002)	(0.001)
TC × Retail					
TC × March-May	0.004**	0.003*	0.010***	0.002**	0.002**
	(0.002)	(0.001)	(0.002)	(0.001)	(0.001)
TC × March-May × Retail					
TC × June-July	-0.002	-0.000	-0.004**	-0.002	-0.003***
	(0.002)	(0.001)	(0.002)	(0.001)	(0.001)
TC × June-July × Retail					
Controls	Y	Y	Y	Y	Y
Controls × post	Y	Y	Y	Y	Y
Firm FE	Y	Y	Y	Y	Y
Industry-month FE	Y	Y	Y	Y	Y
Observations	142,229	331,355	589,303	409,135	489,043
Adj-R^2	12%	24%	21%	20%	16%
N firm clusters	8,448	18,839	35,549	23,593	27,685
Industry	Accomod. & food	Wholesale trade	Retail trade	Construc-tion	Manu-facturing

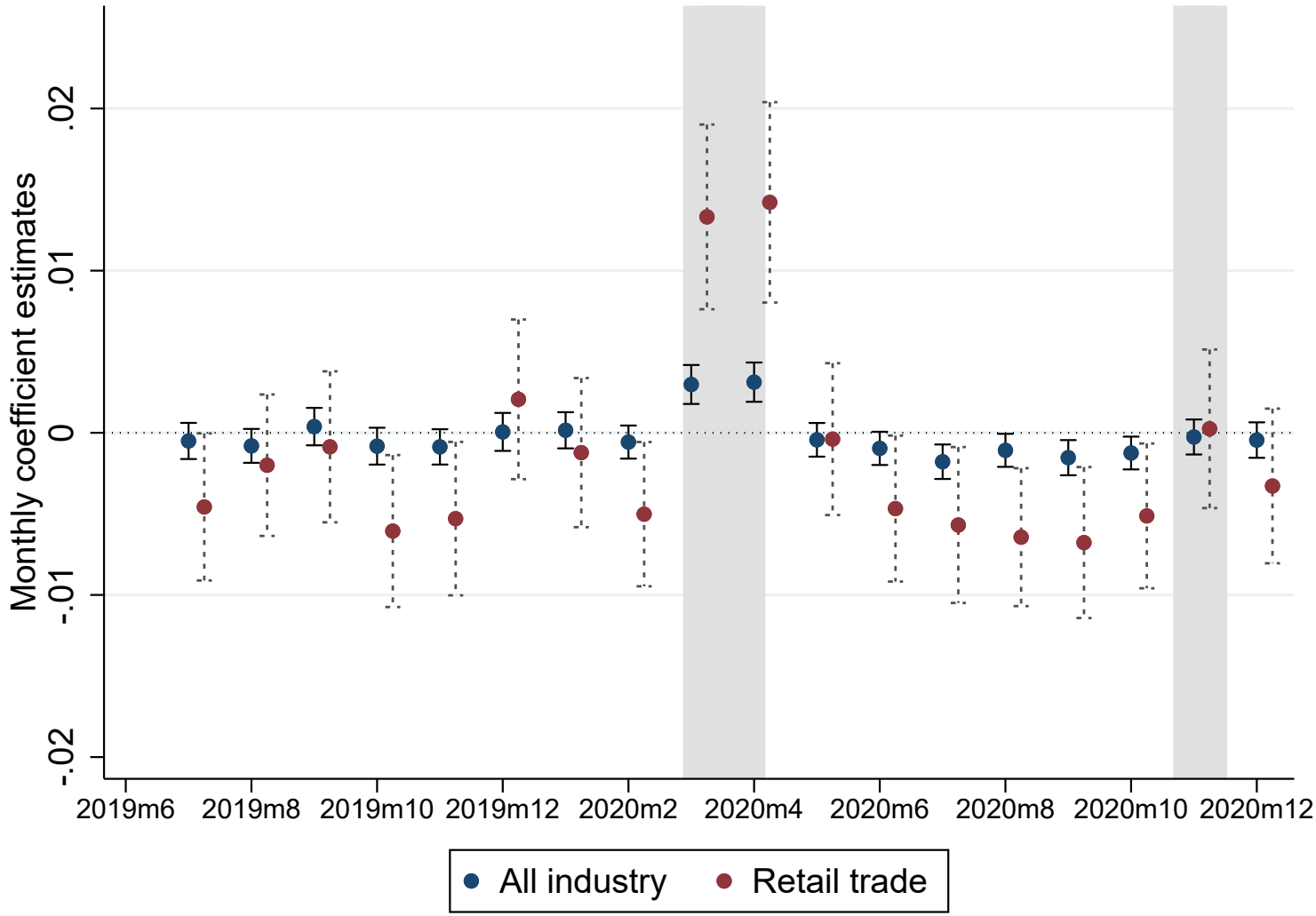
Does trade credit position explain firm payment default? By sector

Dependent	Payment default (2019m1-2020m7)										
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Trade credit (TC)	-0.001	0.000	0.002	-0.000	-0.002	-0.000	-0.001	0.001	-0.000	-0.003	-0.002
	(0.003)	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.004)	(0.002)
TC × Retail											
TC × March-May	0.004**	0.003*	0.010***	0.002**	0.002**	0.000	-0.000	0.001	-0.000	0.003	0.000
	(0.002)	(0.001)	(0.002)	(0.001)	(0.001)	(0.000)	(0.002)	(0.001)	(0.001)	(0.003)	(0.002)
TC × March-May × Retail											
TC × June-July	-0.002	-0.000	-0.004**	-0.002	-0.003***	-0.000	0.002	-0.000	0.000	0.003	-0.001
	(0.002)	(0.001)	(0.002)	(0.001)	(0.001)	(0.000)	(0.002)	(0.001)	(0.001)	(0.003)	(0.002)
TC × June-July × Retail											
Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Controls × post	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Firm FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Industry-month FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Observations	142,229	331,355	589,303	409,135	489,043	316,662	73,972	58,734	55,851	32,684	42,702
Adj-R^2	12%	24%	21%	20%	16%	17%	19%	17%	12%	13%	13%
N firm clusters	8,448	18,839	35,549	23,593	27,685	18,469	4,271	3,442	3,248	1936	2,598
Industry	Accomod. & food	Wholesale trade	Retail trade	Construc-tion	Manu-facturing	Corporate services	Health	Info.	Real estate	Recre-ation	Agricul-ture

Does trade credit position explain firm payment default? By sector

Dependent	Payment default (2019m1-2020m7)											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Trade credit (TC)	-0.001	0.000	0.002	-0.000	-0.002	-0.000	-0.001	0.001	-0.000	-0.003	-0.002	-0.001
	(0.003)	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.004)	(0.002)	(0.000)
TC × Retail												0.001
												(0.002)
TC × March-May 2020	0.004**	0.003*	0.010***	0.002**	0.002**	0.000	-0.000	0.001	-0.000	0.003	0.000	0.001***
	(0.002)	(0.001)	(0.002)	(0.001)	(0.001)	(0.000)	(0.002)	(0.001)	(0.001)	(0.003)	(0.002)	(0.000)
TC × March-May 2020 × Retail												0.009***
												(0.002)
TC × June-July 2020	-0.002	-0.000	-0.004**	-0.002	-0.003***	-0.000	0.002	-0.000	0.000	0.003	-0.001	-0.001*
	(0.002)	(0.001)	(0.002)	(0.001)	(0.001)	(0.000)	(0.002)	(0.001)	(0.001)	(0.003)	(0.002)	(0.000)
TC × June-July 2020 × Retail												-0.003
												(0.002)
Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Controls × post	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Firm FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Industry-month FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Observations	142,229	331,355	589,303	409,135	489,043	316,662	73,972	58,734	55,851	32,684	42,702	2,687,487
Adj-R^2	12%	24%	21%	20%	16%	17%	19%	17%	12%	13%	13%	20%
N firm clusters	8,448	18,839	35,549	23,593	27,685	18,469	4,271	3,442	3,248	1936	2,598	156,355
Industry	Accomod. & food	Wholesale trade	Retail trade	Construc-tion	Manu-facturing	Corporate services	Health	Info.	Real estate	Recre-ation	Agricul-ture	All industry

Monthly coefficient estimates of the effect of TC position on the probability of firm payment default: retail trade industry vs. all industry



Liquidity constraints, trade credit position and payment default

Dependent	Payment default (2019m1-2020m7)							
	Small and Medium-size firms		Non Investment Grade Rating		Transaction Lending			
	(1) D=1 if SME	(2)	(3) D=1 if nonIG	(4)	(5) D=1 if multibank	(6)	(7) D=1 if transactionL	(8)
D × TC × March-July 2020		0.002**		0.001**		0.001*		0.002*
		(0.001)		(0.001)		(0.001)		(0.001)
TC × March-July 2020	0.001***	-0.000	0.001***	-0.000	0.001***	0.001	0.001***	0.001**
	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
D × March-July 2020	0.007***	0.008***	0.003***	0.003***	0.001	0.001*	0.002*	0.002**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
TC × D		0.001		-0.000		-0.000		-0.000
		(0.001)		(0.001)		(0.001)		(0.001)
Trade credit (TC)	-0.001	-0.002*	-0.000	-0.000	-0.001	-0.000	-0.001	-0.001
	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.000)
Covariates	Y	Y	Y	Y	Y	Y	Y	Y
Covariates x Post	Y	Y	Y	Y	Y	Y	Y	Y
Firm FE	Y	Y	Y	Y	Y	Y	Y	Y
Industry-month FE	Y	Y	Y	Y	Y	Y	Y	Y
N firm clusters	156,355	156,355	156,355	156,355	156,355	156,355	152,571	152,571
N	2,687,487	2,687,487	2,687,487	2,687,487	2,687,487	2,687,487	2,603,518	2,603,518
Adj-R^2	20%	20%	20%	20%	20%	20%	20%	20%

Conclusion

- A lockdown generates a liquidity shock through the trade credit channel
- That effet is cyclical
- That trade credit channel is particularly strong for firms in a downstream position of the production process (retail trade, accomodat./food services)
- For a policy maker?
  - The goal could be to build a liquidity bridge to help firms face the payment delay constraint on trade payables (60 days)