

# The Visible Hand when Revenues Stop: Evidence from Loan and Stock Markets during Covid19

Francois Koulischer

Diane Pierret

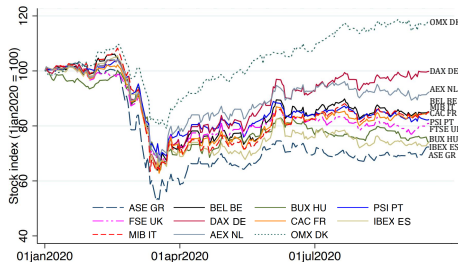
Roberto Steri

University of Luxembourg

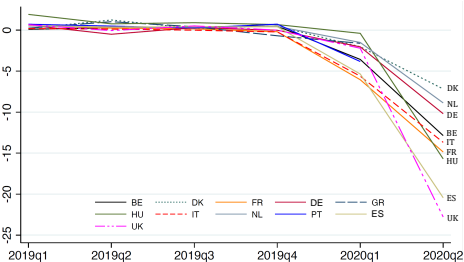
BCBS-CGFS conference on “How effective were policy measures in supporting bank lending during the Covid-19 crisis?”, Basel, May 2022

# Stock prices recover after March 2020... while real economic indicators continue to plunge

## Stock indices



## vs. Quarterly GDP growth



Sources: Datastream and ECB Statistical Data Warehouse

# This Paper: Public Interventions and the Disconnect between Markets and the Real Economy

- **Disconnect between financial performance and real economic performance**
  - what is **the role of government interventions**?
- Are public interventions effective to cope with firms' liquidity shortfalls?
  - To the extent that market valuations offer a forward-looking outlook about firms' prospects, do they suggest that firms benefit from interventions?
- Do firms pass their liquidity shocks on to banks through the market for corporate loans?
  - Is there evidence of a **firm-borrowing channel**?

# This Paper: Methodology

- Our lab:
  - European countries differ in intervention amounts and types
  - Firm-level data on Covid19-related news to trace firms' liquidity shocks
- We study the effect of Covid19 shock and public interventions on firm and bank market valuations
- Firm borrowing channel: effect of public interventions on firm demand for bank credit
  - Bank fixed effects (Khwaja and Mian, 2008): one bank lends to the corporate sectors of several countries that differ in public intervention intensities
  - Granular Instrumental Variable (GIV) approach (Gabaix and Koijen, 2020)
- Interpretation of results: moral hazard model of corporate borrowing and public interventions

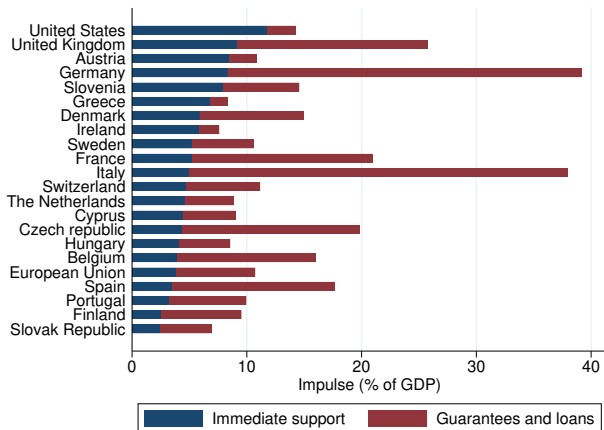
- 1 Institutional Background and Data
- 2 Empirical Analysis

- 1 Institutional Background and Data
- 2 Empirical Analysis

# Direct support and guarantees vary across countries

## Public interventions in the corporate sector

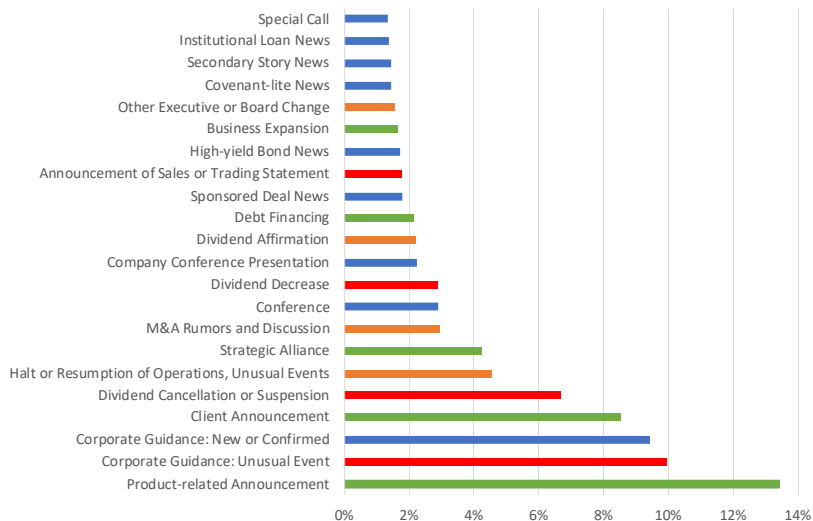
- Immediate support: firms receive cash injections they do not need to reimburse.
- Guarantees and loans: guarantees on loans and additional loans, which firms have to reimburse in the future.



# Covid19-related news

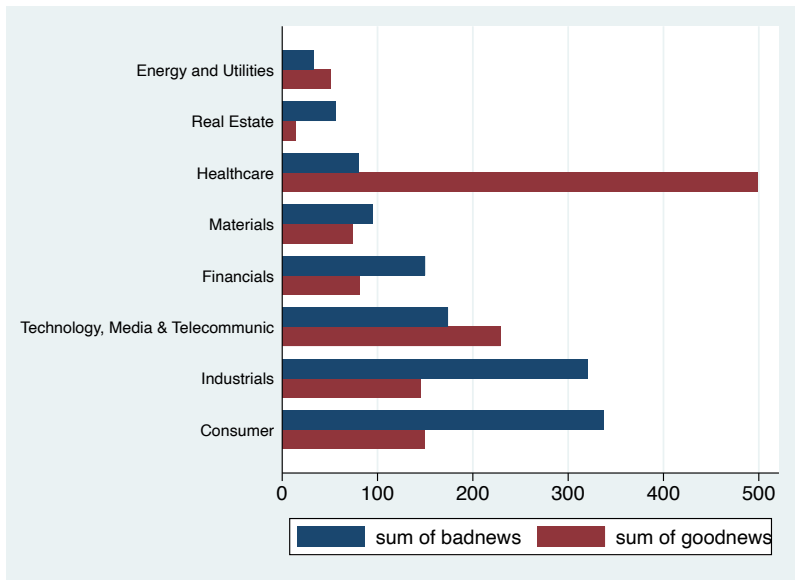
S&P Market Intelligence: 2626 companies in Europe with “covid” or “coronavirus” related news between Feb 1 and Sep 22, 2020

Good vs. bad news





# Bad vs. good news by sector



# What happens at firms hit by covid shock?

$$policy_f = \alpha_c + \alpha_s + \beta_1 badNews_f + \beta_2 goodNews_f + \Gamma^T X_f + \varepsilon_f \quad (1)$$

where  $policy_f$  is the 6-month growth (as of June 2020) in (i) revenues, (ii) equity, and (iii) debt of the firm,

$badNews_f$  is the number of Covid19-related bad news reported by the firm,  $\alpha_c$  and  $\alpha_s$  are country and sector fixed effects.

Summary of results: firms reporting bad news related to Covid19

- have lower revenues
- resulting in a reduction of equity
- increase debt
- have lower realized stock returns (especially for the “halt of operations” news category)

# “Halt of Operations” news examples

## Halt of Operations Unusual Event (“close”, “halt”, “suspend”, “cease”)

- 03/18/2020 BMW Closes Factories in Europe and South Africa Until 19 April
- 03/16/2020 DFL Deutsche Fußball Liga Suspends Match Operations Due to the Current COVID-19 Situation
- 03/31/2020 eDreams ODIGEO Announces the Implementation of Temporary Labour Measures to Ensure Both the Protection of Its Workforce and Business Continuity During the COVID-19 Pandemic
- 04/15/2020 Energean Oil & Gas plc Announces Temporary Halt to Operations
- 03/17/2020 FCA Italy and Maserati to Temporarily Suspend Production Across Majority of Their European Manufacturing Plants
- 03/16/2020 Ferrari Announces the Suspension of Production in Maranello and Modena Until 27 March 2020
- 03/17/2020 H & M Hennes & Mauritz AB Announces Temporarily Closing All Stores in Germany and the US

# Outline

- 1 Institutional Background and Data
- 2 Empirical Analysis

# Public Interventions and Firms' Market Valuations

$$Return_f = \alpha_c \times \alpha_s + \beta_1 Haltnews_f + \beta_2 Haltnews_f \times Interventions_c + \Gamma^T X_f + \varepsilon_f \quad (2)$$

where  $Return_f$  is the stock return of firm  $f$  from Jan to Sept 2020.

	Stock Return					
	(1)	(2)	(3)	(4)	(5)	(6)
$Haltnews_f$	-0.42*** (-2.90)	-0.42** (-2.11)	-0.37*** (-3.07)	-0.43*** (-2.99)	-0.43** (-2.21)	-0.37*** (-3.07)
$Haltnews_f * Interventions_c$	0.01* (1.87)			0.01** (2.39)		
$Haltnews_f * Immediate_c$		0.03 (1.20)			0.04 (1.61)	
$Haltnews_f * Guarantees_c$			0.01* (1.92)			0.02** (2.41)
Observations	1,048	1,048	1,048	1,048	1,048	1,048
R-squared	0.25	0.25	0.25	0.28	0.28	0.28
Firm Controls	NO	NO	NO	YES	YES	YES
Country*Sector FE	YES	YES	YES	YES	YES	YES

# Public Interventions and Bank Market Valuations

$$Return_b = \beta_0 + \beta_1 Badnews_b + \beta_2 Interventions_b + \beta_3 Badnews_b \times Interventions_b + \Gamma^T X_b + \varepsilon_b \quad (3)$$

where  $Badnews_b = \sum_c w_{b,c} bad\ news_c / (bad\ news_c + good\ news_c)$ ,  
 $Interventions_b = \sum_c w_{b,c} Interventions_c$ , and  $w_{b,c}$  are based on bank cross-country corporate exposures as of Dec 2019 (EBA Transparency Exercise)

Panel A: Bank Stock Return and Interventions				
	(1)	(2)	(3)	(4)
<i>Badnews<sub>b</sub></i>	-0.45* (-1.73)	-1.08*** (-3.37)	-0.57 (-1.42)	-0.89*** (-3.18)
<i>Interventions<sub>b</sub></i>	0.00 (0.51)	-0.04* (-1.98)		
<i>Badnews<sub>b</sub>*Interventions<sub>b</sub></i>		0.10** (2.04)		
<i>Immediate<sub>b</sub></i>			-0.08* (-1.73)	
<i>Badnews<sub>b</sub>*Immediate<sub>b</sub></i>			0.11 (1.02)	
<i>Guarantees<sub>b</sub></i>				-0.05* (-1.81)
<i>Badnews<sub>b</sub>*Guarantees<sub>b</sub></i>				0.14* (1.94)
Observations	45	45	45	45
R-squared	0.27	0.32	0.33	0.32

# Economic Magnitudes

- Ratio of government interventions to GDP:
  - 8% in Greece
  - 40% in Germany
- Firms: effect of bad news on firm stock market valuations from Jan to Sept 2020
  - Stock price of Greek firm drops by 35%
  - Stock price of German firm declines by 4%
- Banks: effect of lending to firms with liquidity shortfalls on bank stock market valuations
  - Bank A operates only in Germany
  - Bank B operates only in Greece
  - Stock price of bank A increases by 2.8%, but decreases for bank B by 0.2%

# Foreign Public Interventions and Bank Market Valuations

Reverse causality: government decision to intervene is a function of the health of its domestic banking sector.

→ we consider the exposure of the bank to foreign public interventions.

	Panel B: Bank Stock Return and Foreign Interventions			
	(1)	(2)	(3)	(4)
<i>Badnews<sub>b</sub></i>	-0.31 (-1.02)	-0.87** (-2.20)	-0.53 (-1.47)	-0.88*** (-2.96)
<i>Foreign_Interventions<sub>b</sub></i>	-0.01 (-1.29)	-0.03** (-2.19)		
<i>Badnews<sub>b</sub>*Foreign_Interventions<sub>b</sub></i>		0.07* (1.78)		
<i>Foreign_Immediate<sub>b</sub></i>			-0.07* (-1.99)	
<i>Badnews<sub>b</sub>*Foreign_Immediate<sub>b</sub></i>			0.09 (1.15)	
<i>Foreign_Guarantees<sub>b</sub></i>				-0.06** (-2.42)
<i>Badnews<sub>b</sub>*Foreign_Guarantees<sub>b</sub></i>				0.12** (2.36)
Observations	45	45	45	45
R-squared	0.29	0.33	0.36	0.32



# Public Interventions and Credit Allocation

Firm borrowing channel: we want to consistently estimate  $\beta$  in the following specification

$$A_{bf} = \alpha_b + \beta \text{Badnews}_f + \Gamma^T X_f + \varepsilon_{bf},$$

where  $A_{bf}$  are the amount of new loans bank  $b$  grants to firm  $f$  between Dec 2019 and June 2020, and  $\text{Badnews}_f$  is a proxy for the firm liquidity shock.

Instead, we have banks' exposures to corporate sectors at the bank-country level:

$$A_{bc} = \alpha_b + \beta \text{Badnews}_c + \Gamma^T X_c + \varepsilon_{bc},$$

where  $A_{bc}$  is the difference in the bank  $b$  exposure to country  $c$  between Dec 2019 and June 2020 (EBA), and  $\text{Badnews}_c$  is the average bad news index of a firm in country  $c$ .

Identification issue: despite the inclusion of  $X_c$ ,  $\text{Badnews}_c$  might still correlate with omitted variables describing the corporate sector in country  $c$ .

# Public Interventions and Credit Allocation

Firm borrowing channel: we want to consistently estimate  $\beta$  in the following specification

$$A_{bf} = \alpha_b + \beta \text{Badnews}_f + \Gamma^T X_f + \varepsilon_{bf},$$

where  $A_{bf}$  are the amount of new loans bank  $b$  grants to firm  $f$  between Dec 2019 and June 2020, and  $\text{Badnews}_f$  is a proxy for the firm liquidity shock.

Instead, we have banks' exposures to corporate sectors at the bank-country level:

$$A_{bc} = \alpha_b + \beta \text{Badnews}_c + \Gamma^T X_c + \varepsilon_{bc},$$

where  $A_{bc}$  is the difference in the bank  $b$  exposure to country  $c$  between Dec 2019 and June 2020 (EBA), and  $\text{Badnews}_c$  is the average bad news index of a firm in country  $c$ .

Identification issue: despite the inclusion of  $X_c$ ,  $\text{Badnews}_c$  might still correlate with omitted variables describing the corporate sector in country  $c$ .

# Public Interventions and Credit Allocation: Stage 1

GIV for  $Badnews_c$  based on firms' halt of operations news:

$$\widetilde{Halt}_c = \sum_{f \in C} w_{fc} Haltnews_f - \frac{1}{F_c} \sum_{f \in C} Haltnews_f \quad (4)$$

where  $w_{fc} = total\ assets_{fc} / \sum_{f \in C} total\ assets_{fc}$  based on firms' total assets as of Dec 2019, and  $F_c$  is the total number of firms in country  $c$  in our sample.

---

	Panel A: First Stage			
	All bad news		Foreign bad news	
	(1)	(2)	(3)	(4)
$\widetilde{Halt}_c$	0.65*** (9.79)	0.44*** (3.00)	0.72*** (10.88)	0.57*** (3.68)
Observations	731	724	611	604
R-squared	0.21	0.46	0.24	0.52
Country Controls	NO	YES	NO	YES
Bank FE	YES	YES	YES	YES

---

# Public Interventions and Credit Allocation: Stage 2

The second stage regression uses the instrumented variable  $Badnews'_c$ :

$$A_{bc} = \alpha_b + \beta Badnews'_c + \Gamma^T X_c + \xi_{bc} \quad (5)$$

	Panel B: Second Stage					
	All credit			Foreign credit		
	(1)	(2)	(3)	(4)	(5)	(6)
$Badnews'_c$	14.46 (0.97)	15.22 (0.33)	371.01** (2.15)	14.38 (1.21)	12.46 (0.58)	99.20 (1.50)
$Immediate_c$	-87.57* (-1.84)	43.42 (0.94)	46.75 (0.89)	-17.42 (-0.47)	19.89 (0.71)	-6.02 (-0.22)
$Guarantees_c$	12.05 (1.33)	0.16 (0.02)	19.29 (1.34)	3.63 (0.89)	3.13 (0.64)	8.60 (1.26)
$Badnews'_c * Immediate_c$			-82.02** (-2.07)			-24.99 (-1.63)
$Badnews'_c * Guarantees_c$			7.99* (1.82)			3.90** (2.09)
Observations	546	539	539	433	426	426
R-squared	0.21	0.24	0.25	0.36	0.40	0.41
Country Controls	NO	YES	YES	NO	YES	YES
Bank FE	YES	YES	YES	YES	YES	YES

# Summary

After the outbreak of the Covid19 pandemic, stock markets have recovered almost completely, despite a continued deterioration of real economic indicators.

The disconnect is partly explained by public interventions in the corporate sector.

Our lab: public interventions in Europe during the Covid19 period and firms reporting bad news

- 1 Public interventions (guarantees) boost market valuations of firms affected by liquidity shocks
  - heterogenous impact of the Covid19 shock on stock prices depending on the scope of country-level interventions.
- 2 *Financial* firms benefit from public interventions (guarantees) targeting *non-financial* firms
  - Supported by the firm borrowing channel: firm demand for bank credit reduces with immediate support, and increases with guarantees and loan support
  - Corporate debt guarantees compensate lenders to provide liquidity to firms with severe debt overhang problems.