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# Firms vulnerabilities induced by the crisis and impact of the firm-level policy support

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*Based on the EIB Working Paper 2022/01 - Firm-level policy support during the crisis: So far, so good?*
*And the EIB Investment Report 2021/2022: Recovery as a springboard for change*

***Financing Corporates: Lessons from the COVID-19 Crisis and Challenges Ahead***

**Banco de España – Banco de Portugal – European Investment Bank Conference, Madrid, 4 April 2022**

# Overview

Massive and very diverse policy support, from central banks, financial supervisory agencies, sovereigns and the EU.

**We focus on firm level policy support**.

Being mostly untargeted, it raised concerns about side effects in the long-term, so-called zombie lending. We take benefit of the **EIBIS 2021** to shed light on the debate.

We focus on the distribution of the policy support. We show that it has been allotted mostly owing to the sales losses during the crisis, going to firms most affected during the crisis.

We show that the policy supported the investment recovery, especially for investment in digital technologies.

# Specific policy-related questions in the EIB Investment Survey (EIBIS)

12000 EU firms surveyed each year since 2016 (two-third renewed each year).
Augmented by 500 UK and 500 US firms.

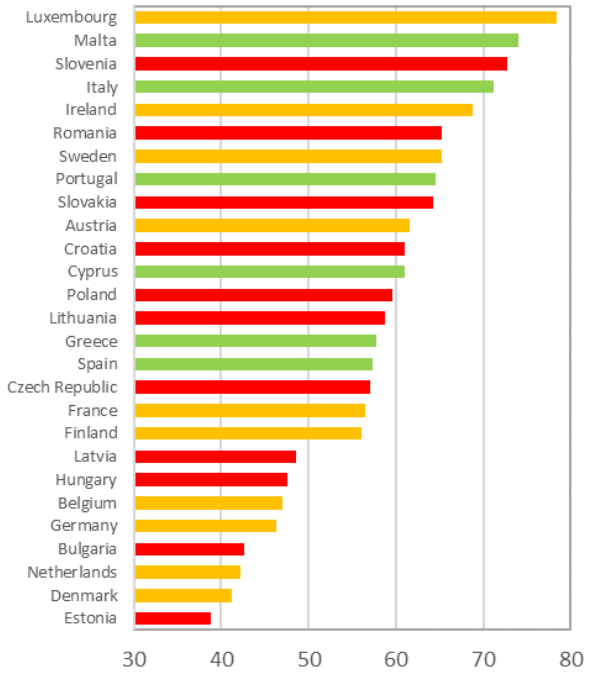
In the 2021 vintage, four types of firm level policy support are distinguished:

1. **New subsidized or guaranteed credits** (e.g. loan, overdraft or credit card from a bank or other finance provider) that will need to be paid back in the future but may have preferential or reduced interest rates and/or an extended repayment plan
2. **Deferral of payments** which still leave a liability to be paid by the company in the future (e.g. deferral of tax payments, deferral of rent or mortgage for commercial property, suspension of interest payments),
3. **Subsidies or any other type of financial support** that the company will not have to pay back in the future, a type of support that comprises job retention policies
4. any other type of financial support.

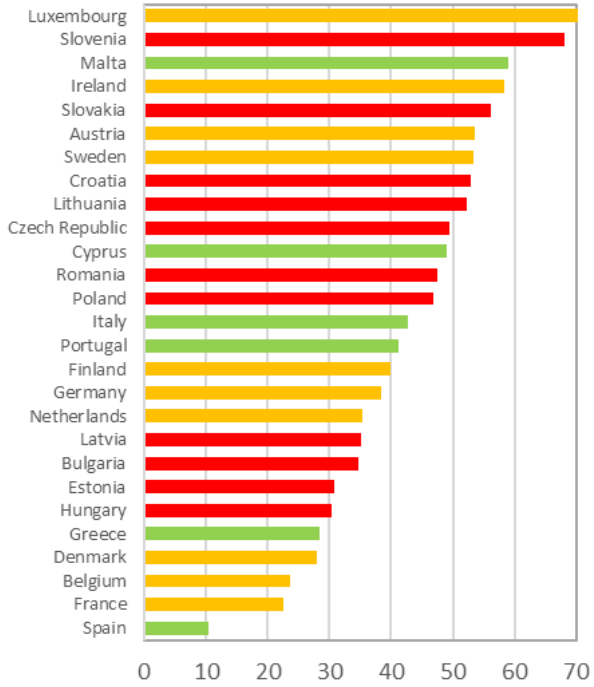
At the firm level, survey answers are matched with pre-Covid balance sheet characteristics and P&L information (taken from ORBIS).

# Massive and diverse support across EU economies: Intensity of support

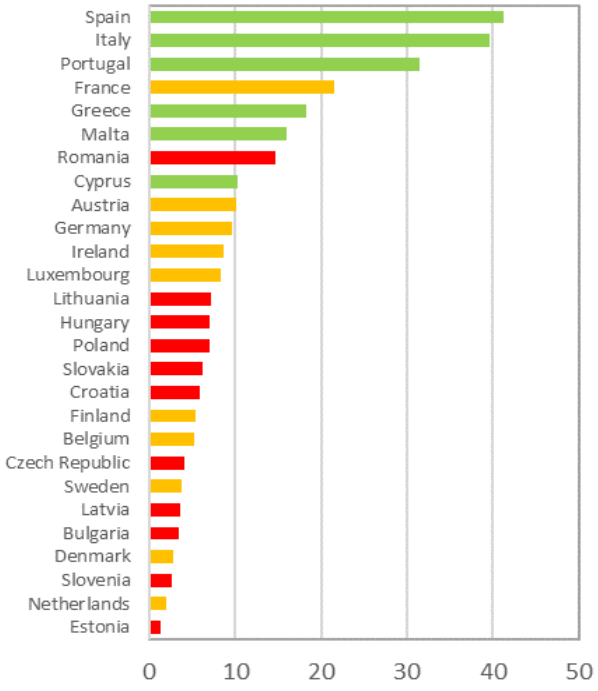
## Overall support
*(% of supported firms)*




## Subsidies or temporary support
*(% of supported firms)*




## New subsidized or guaranteed credits *(% of supported firms)*

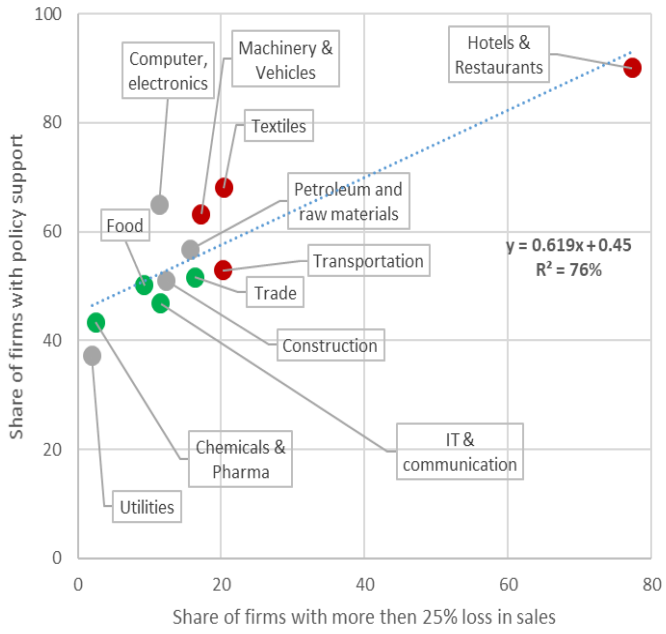


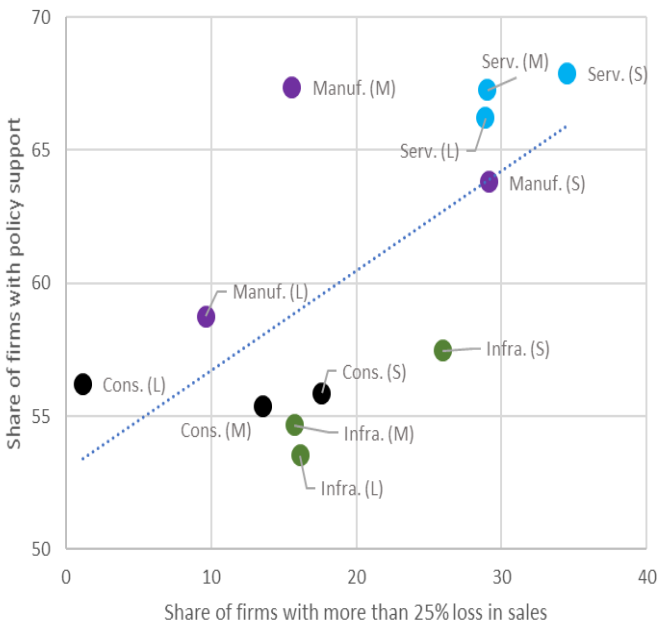

***Source:*** EIB Calculations based on the EIBIS 2021. ***Note:*** The color reflects the region in which the economy is located: Red indicates Central and Eastern economies, Green indicates Southern economies and Orange indicates Northern and Western economies.

- ✓ In Europe, **56% of firms got support via at least one specific policy**. Among types of policy support, **subsidies or temporary support** is the most common, used by 36% of the firms. A similar share of firms, 16-17%, benefitted from the deferral of payments or credit support to be paid back.
- ✓ The volume of the support **differs widely across countries** and regions and the nature of the support varies across jurisdictions (e.g. guarantees were more activated in Southern EU countries)

# The support went to the firms most affected by the crisis

## Determinant of the allotment of policy support *(% of firms)*



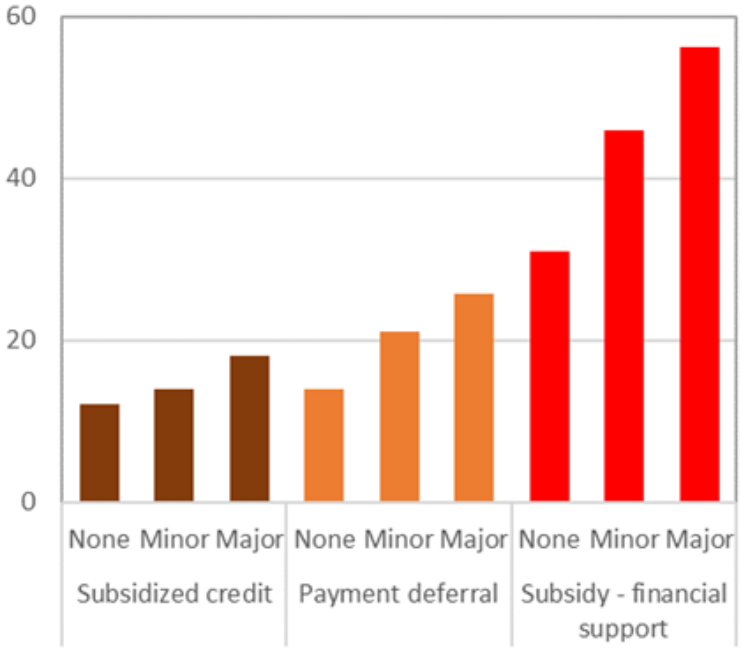




***Source**: Calculations based on EIBIS 2021. **Note:** Any type of policy support is considered simultaneously.*

- ✓ Services comprise some of the sectors most hit, but also some sectors not or positively affected.
- ✓ The stronger the decline in turnover in the sector, the higher the intensity of the policy support.
- ✓ For each of the four sectors considered separately, the proportion of allotment to smaller companies is higher than for larger companies.
- ✓ Smaller firms more likely than larger ones to suffer large sales losses: 29% vs 9% (manufacturing sector), 35% vs 29% (services sector), 18% vs 1% (construction sector) and 26% vs 16% (infrastructure sector).

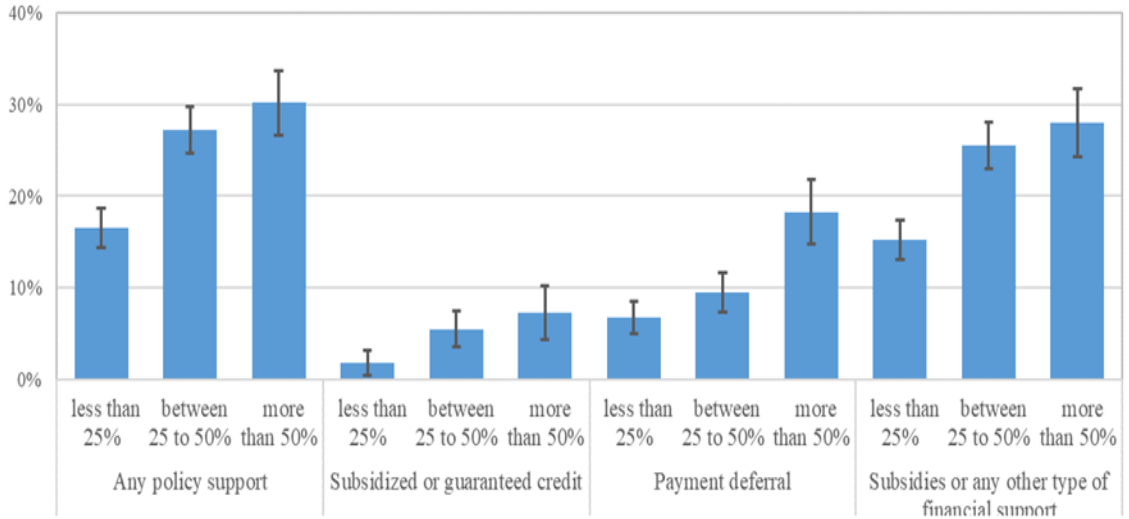
# The support went to the firms most affected by the crisis

## Allotment and sales losses *(% of firms)*




***Source:*** *Calculations based on the EIBIS 2021.* ***Note:*** *The y-axis indicate the proportion of firms having benefitted from the support. Minor (Major) change corresponds to less (more) than 25%.*

## Impact of sales loss on the likelihood of getting supported *(Change in probability, pp.)*

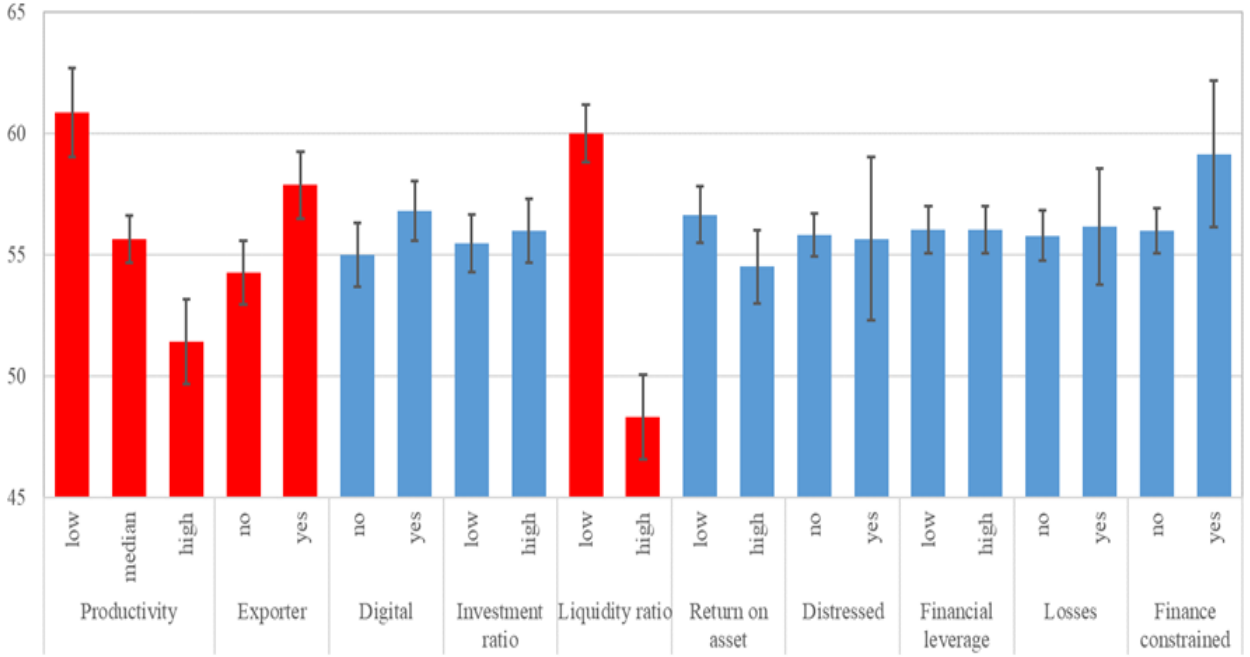



$$q^{k}_{i,c,s} = \alpha Sales_i + \theta_c + \theta_{sec} + \theta_{size} + \varepsilon_i$$

Recording a decline in sales increases the probability to be supported by 21 pp. The intensity of the effect increases with the magnitude of the decline. This is even more pronounced for subsidies and other policy support, a component that includes labour support more linked to sales drops.

# The allotment is mostly unrelated to pre-crisis weakness

**Predicted probability of getting supported conditioned on pre-Covid-19 firm characteristics** *(Probability, pp.)*




***Source:*** *Estimations based on the EIBIS2021 matched with the ORBIS database.* ***Note:*** *The vertical line reports the 95% interval confidence of the conditional probability of getting the support (see EQ2). Two overlapping lines indicate that the factor does not alter significantly the probability. Red bars indicate when the characteristic is statistically discriminant.*

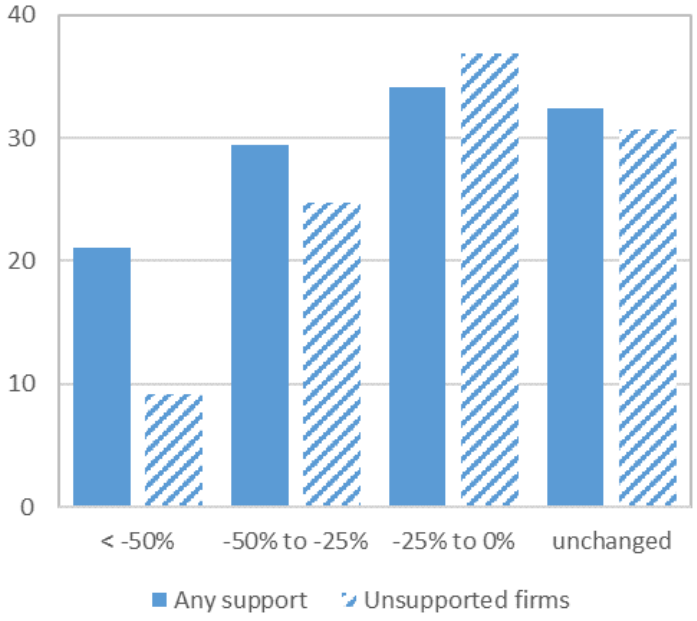
The previous model is put in a logit form and augmented by a firm characteristic, real and financial

$$q_{i,c,s}^{k} = Probit(\alpha Sales_i + characteristic + \theta_c + \theta_s) + \varepsilon_i$$

- ✓ Productivity appears when the two extreme deciles are considered. This mostly reflects the fact that the most productive firms did not take the support. Being an **exporter** also significantly matters.
- ✓ Firms with low liquidity, are more likely to get policy support. Those in distress, with low return on assets, recording losses, highly indebted are more likely to get support, but the difference is not significant.
- ✓ The primary goal of the policy support, avoiding a liquidity dry-out was reached.

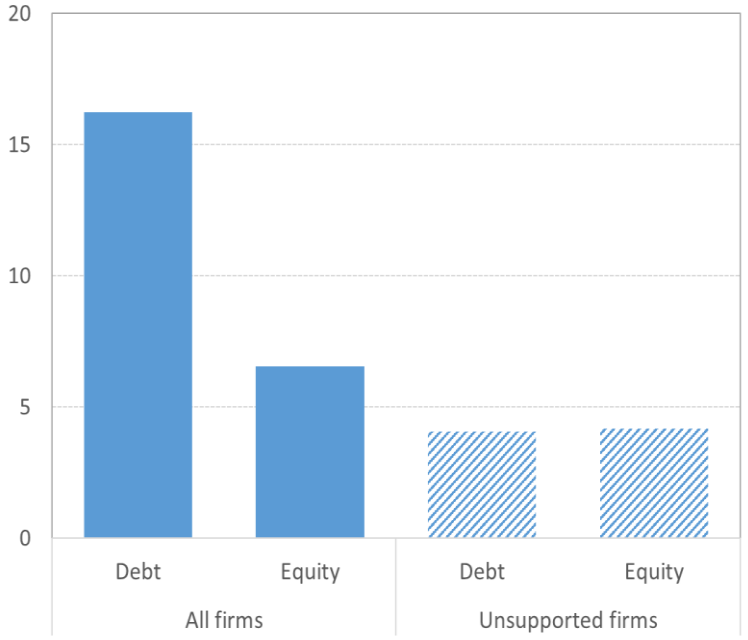
# Supported firms plan to raise investment by more

## Investment plans conditional on sales losses and policy support *(% firms)*




***Source**: computations based on the EIBIS 2021. **Note**: the x-axis reflects the sale losses reported by the company. The y-axis reports the percentage of firms surveyed that plan to raise investment in the current financial year.*

## Policy support and balance sheet expansion *(% firms)*

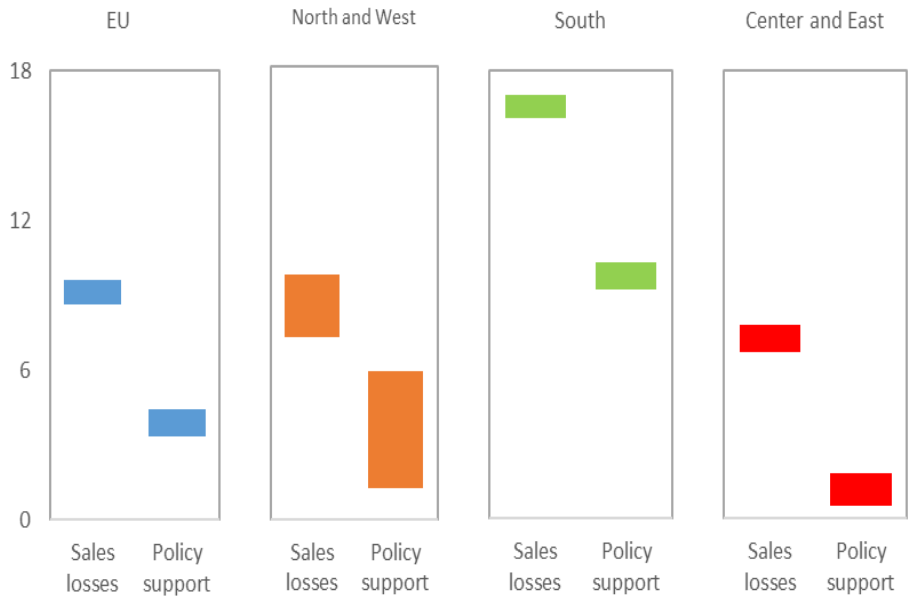



***Source:** computations based on the EIBIS 2021.*

- ✓ For the same level of losses, supported firms plan to raise investment by more. The difference is especially pronounced for large sales losses.
- ✓ Leverage increased for 17% of firms and supported firms strengthened their equity base by more.
- ✓ Supported firms more likely to recapitalize (7% compared to 4%).

# Policy support cushioning the crisis impact on investment and digitalisation

## Estimated impact on the likelihood to raise investment *(in pp)*




## Estimated impact on the likelihood to invest more in digitalisation *(in pp)*


***Source**: ECON estimations based on the EIBIS 2021 and ORBIS. **Note**: The bars indicate the impact range estimated through a suite of models. See Harasztosi et al. (2021). The impact of sales losses (of above 25%) is always negative and is reported in absolute terms.*

- ✓ Covid-19 induced sales losses always have a negative impact on investment, which is never fully compensated by the policy support, especially in Southern and Central and Eastern economies.
- ✓ For investment in digitalisation, policy support has been somehow countering the negative effect of sales losses in the overall of the EU and in the North-Western Europe and in the South, but not in Central and Eastern Europe.

# Concluding remarks

- ✓ Initial fears of massive firm bankruptcies did not materialize so far. Corporate investment hit below expectations and the recovery surprised on the upside so far.
- ✓ The analysis suggests that, to some extent at least, these favorable developments reflect the success of the firm level policy support implemented.

  We do not find evidence that it was tilted towards firms with pre-crisis weakness.

  We find some signs that it fostered recapitalization.

  We also find that beneficent firms tend to be more optimistic regarding their investment plans.

  And that the impact is especially pronounced for investment in digital technologies.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Thank you!

# The EIB Investment Survey (EIBIS)

- 12000 EU firms surveyed each year since 2016 (two-third renewed each year). Augmented by 500 UK and 500 US firms.

- Between 250 and 650 firms per country.

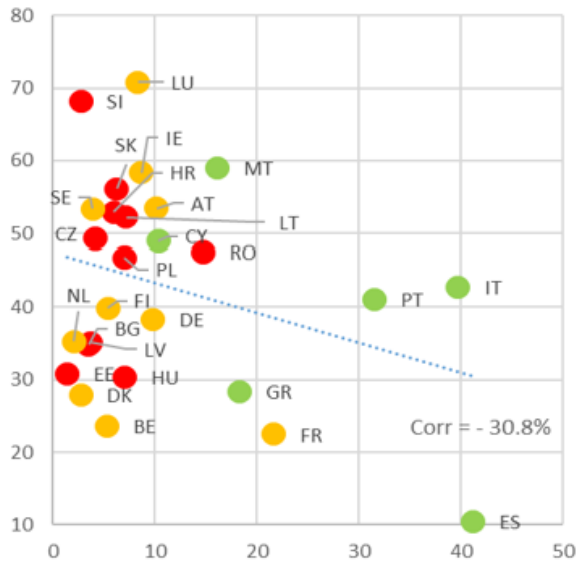
- Sampling to be representative at the country, sectors (4), size level (firms above 5 employees, 4 size classes)

- Questions about the firm, its activity, investments (past and future), financing, climate risk and environmental considerations…

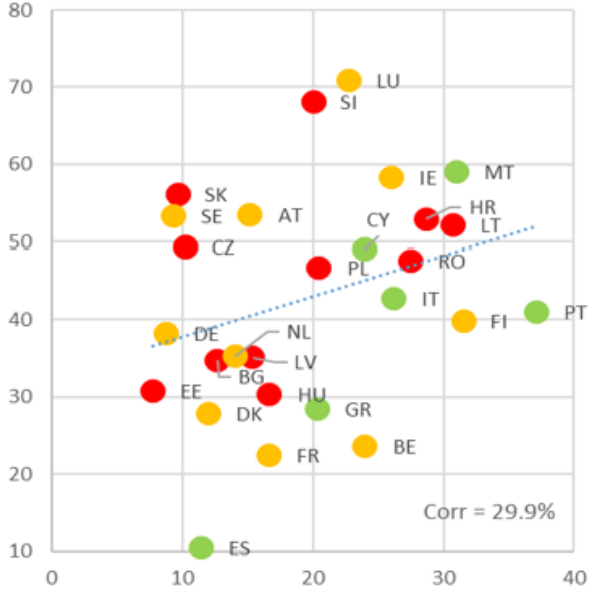
- We use the 2021 vintage of the EIBIS:
  Interviews were conducted between Beginning of April and end May 2021.
  We focus on the questions related to the policy support and the Covid-19 impact.

# Relation between types of policy support

*New subsidized or guaranteed credits (x-axis) and subsidiesor any other type of financial support (y-axis)*




*Deferral of payments (x-axis) and Subsidies or any other type of financial support (y-axis)*




*New subsidized or guaranteed credits (x-axis) deferral of payments (y-axis)*


***Source**: Calculations based on the EIBIS 2021.*

- ✓ In countries where firms benefit more from subsidies or any other type of financial support, firms benefit less from new subsidized or guaranteed credits. The negative correlation is strongly driven by a set of countries.

- ✓ Deferral of payments is positively correlated with subsidies or any other type of financial support not to be paid back. This suggests that most of the measures that fall under the category subsidies or any other type of financial support are likely to be labour support policies. The allotment of this support has been associated with the deferral of social contributions or tax payments.

# The policy support contributes to the investment rebound

## Factors explaining the likelihood of increasing investment in the current financial year *(diff and diff estimates)*

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|---|
| Policy support | 0.014 | **0.024**** | 0.014 | 0.007 | **0.023**** | **0.020*** | 0.010 | 0.002 | 0.019 |
| | [0.011] | [0.011] | [0.012] | [0.013] | [0.011] | [0.012] | [0.013] | [0.014] | [0.012] |
| Covid-year sales loss above 25% | | **-0.076***** | **-0.069***** | **-0.057***** | **-0.075***** | **-0.093***** | **-0.086***** | **-0.082***** | **-0.091***** |
| | | [0.013] | [0.014] | [0.016] | [0.013] | [0.022] | [0.024] | [0.029] | [0.022] |
| Covid-year sales loss above 25% X | | | | | | 0.025 | 0.025 | 0.035 | 0.023 |
| | | | | | | [0.027] | [0.029] | [0.035] | [0.027] |
| Pre-covid Productivity | 0.004 | 0.002 | -0.001 | 0.004 | 0.003 | 0.002 | -0.001 | 0.004 | 0.003 |
| | [0.007] | [0.007] | [0.007] | [0.009] | [0.007] | [0.007] | [0.007] | [0.009] | [0.007] |
| Financial leverage | | | 0.004 | | | | 0.004 | | |
| | | | [0.006] | | | | [0.006] | | |
| Firm in distress | | | | 0.021 | | | | 0.021 | |
| | | | | [0.017] | | | | [0.017] | |
| Capital ratio | | | | | -0.029 | | | | -0.029 |
| | | | | | [0.022] | | | | [0.022] |
| Observations | 8,823 | 8,823 | 7,796 | 6,091 | 8,545 | 8,823 | 7,796 | 6,091 | 8,545 |
| R-squared | 0.018 | 0.022 | 0.022 | 0.019 | 0.021 | 0.022 | 0.022 | 0.019 | 0.021 |
| Country FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Sector FE | yes | yes | yes | yes | yes | yes | yes | yes | yes |

***Source:*** *Authors' estimations based on EIBIS21 matched with firm-level ORBIS information.* ***Note:*** *Linear Probability Model estimated with firm size dummies and firm age dummies. Constant not reported. Robust standard errors in brackets, *** p<0.01, ** p<0.05, * p<0.1. The coefficients reported in bold are significant at 10% or below.*

$$q_{i,c,s} = \alpha.Sales_i + \beta.Pol_i^k + \gamma.Sales_i \times Pol_i^k + Z_i + \theta_{sect} + \theta_{size} + \theta_c + \varepsilon_i$$

*Pol* indicates that the firm has benefitted from at least one policy support measure.

*Z* is a set of firm characteristics, related to its balance sheet structure or P&L.

Firms which benefitted from policy support are more likely to increase investment in 2021.

Firms reporting a sales loss of more than 25% are 6 to 9 pp less likely to increase investment.

The positive coefficient on Sales × Policy indicates that for the same decline in losses, investment prospects are more positive for firms that have been supported.

# The policy support fosters recapitalization

## Factors explaining recapitalization *(diff and diff estimates)*

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|---|
| Policy support | **0.024*** ** [0.005] | **0.017*** ** [0.005] | **0.015*** ** [0.006] | **0.018*** ** [0.006] | **0.013** ** [0.006] | **0.019*** ** [0.006] | **0.017*** ** [0.006] | **0.019*** ** [0.007] | **0.015*** ** [0.006] |
| Covid-year sales loss above 25% | | **0.048*** ** [0.008] | **0.045*** ** [0.009] | **0.038*** ** [0.010] | **0.047*** ** [0.008] | **0.055*** ** [0.014] | **0.054*** ** [0.015] | **0.045*** ** [0.017] | **0.055*** ** [0.015] |
| Covid-year sales loss above 25% | | | | | | -0.010 [0.017] | -0.013 [0.018] | -0.009 [0.021] | -0.011 [0.017] |
| Pre-covid Productivity | **-0.016*** ** [0.004] | **-0.015*** ** [0.004] | **-0.015*** ** [0.004] | **-0.012** ** [0.005] | **-0.011*** ** [0.004] | **-0.015*** ** [0.004] | **-0.015*** ** [0.004] | **-0.012** ** [0.005] | **-0.011*** ** [0.004] |
| Financial leverage | | | **0.008** ** [0.003] | | | | **0.008** ** [0.003] | | |
| Firm in distress | | | | **0.056*** ** [0.010] | | | | **0.056*** ** [0.010] | |
| Capital ratio | | | | | **-0.071*** ** [0.011] | | | | **-0.071*** ** [0.011] |
| Observations | 8,823 | 8,823 | 7,796 | 6,091 | 8,545 | 8,823 | 7,796 | 6,091 | 8,545 |
| R-squared | 0.032 | 0.037 | 0.031 | 0.049 | 0.042 | 0.037 | 0.031 | 0.049 | 0.042 |
| Country FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Sector FE | yes | yes | yes | yes | yes | yes | yes | yes | yes |

***Source:*** *Authors' estimations based on EIBIS21 matched with firm-level ORBIS information.* ***Note:*** *The dependent variable is the dummy indicating whether the firm has raised equity. Linear Probability Model estimated with firm size dummies and firm age dummies. Constant not reported. Robust standard errors in brackets, *** p<0.01, ** p<0.05, * p<0.1. The coefficients reported in bold are significant at 10% or below.*

Policy support raises the likelihood of increasing the equity base, an effect always significant at a 1% confidence level.

Sales losses also raise the probability of increasing the equity base.

These two effects suggest that recapitalization needs resulting from large losses become more likely with the policy allotment. Getting it would facilitate crowding-in equity investors.

Such interpretation is somewhat supported by the estimated impact of firm characteristics. The higher the financial leverage and the lower the capital ratio pre-Covid19, the more likely the increase in the equity base.

Hence, the change in the financial structure possibly corrects balance sheet weakness.

# The policy support fastens firms digitalisation

## Factors explaining the likelihood of becoming more digital

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|---|
| Policy support | **0.046*** ** | **0.053*** ** | **0.055*** ** | **0.052*** ** | **0.052*** ** | **0.045*** ** | **0.047*** ** | **0.045*** ** | **0.043*** ** |
| | [0.011] | [0.011] | [0.011] | [0.013] | [0.011] | [0.012] | [0.013] | [0.014] | [0.012] |
| Covid-year sales loss above 25% | | **-0.060*** ** | **-0.055*** ** | **-0.051*** ** | **-0.058*** ** | **-0.092*** ** | **-0.088*** ** | **-0.085*** ** | **-0.094*** ** |
| | | [0.013] | [0.014] | [0.016] | [0.013] | [0.020] | [0.022] | [0.027] | [0.021] |
| Covid-year sales loss above 25% X | | | | | | **0.047*** | **0.049*** | **0.048** | **0.053** ** |
| | | | | | | [0.025] | [0.027] | [0.032] | [0.026] |
| Pre-covid Productivity | **0.043*** ** | **0.042*** ** | **0.038*** ** | **0.031*** ** | **0.038*** ** | **0.042*** ** | **0.038*** ** | **0.031*** ** | **0.038*** ** |
| | [0.007] | [0.007] | [0.007] | [0.008] | [0.007] | [0.007] | [0.007] | [0.008] | [0.007] |
| Debt increase | **0.050*** ** | **0.058*** ** | **0.062*** ** | **0.050*** ** | **0.060*** ** | **0.058*** ** | **0.062*** ** | **0.050*** ** | **0.060*** ** |
| | [0.015] | [0.015] | [0.016] | [0.017] | [0.015] | [0.015] | [0.016] | [0.017] | [0.015] |
| Equity injection | **0.036*** | **0.041** ** | **0.048** ** | **0.044*** | **0.041*** | **0.042** ** | **0.049** ** | **0.044*** | **0.042*** |
| | [0.021] | [0.021] | [0.023] | [0.026] | [0.021] | [0.021] | [0.023] | [0.026] | [0.021] |
| Financial leverage | | | **-0.010*** | | | | **-0.010*** | | |
| | | | [0.005] | | | | [0.005] | | |
| Firm in distress | | | | -0.024 | | | | -0.024 | |
| | | | | [0.016] | | | | [0.016] | |
| Capital ratio | | | | | 0.018 | | | | 0.018 |
| | | | | | [0.021] | | | | [0.021] |
| Observations | 8,823 | 8,823 | 7,796 | 6,091 | 8,545 | 8,823 | 7,796 | 6,091 | 8,545 |
| R-squared | 0.067 | 0.070 | 0.076 | 0.072 | 0.070 | 0.070 | 0.076 | 0.073 | 0.070 |
| Country FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Sector FE | yes | yes | yes | yes | yes | yes | yes | yes | yes |

***Source:*** *Authors' estimations based on EIBIS21 matched with firm-level ORBIS information.* ***Note:*** *Linear Probability Model estimated with firm size dummies and firm age dummies. Constant not reported. Robust standard errors in brackets, *** p<0.01, ** p<0.05, * p<0.1. The coefficients reported in bold are significant at 10% or below.*

$$q_{i,c,s} = \alpha.Sales_i + \beta.Pol_i^k + \gamma.Sales_i \times Pol_i^k + \emptyset.Fin.Expansion_i + Z_i + \theta_{sec} + \theta_{size} + \theta_c + \varepsilon_i$$

Sales losses has a negative impact on digitalisation, reducing the likelihood to digitalize more by 5 to 10 pp. However, the effect is compensated by the policy support.

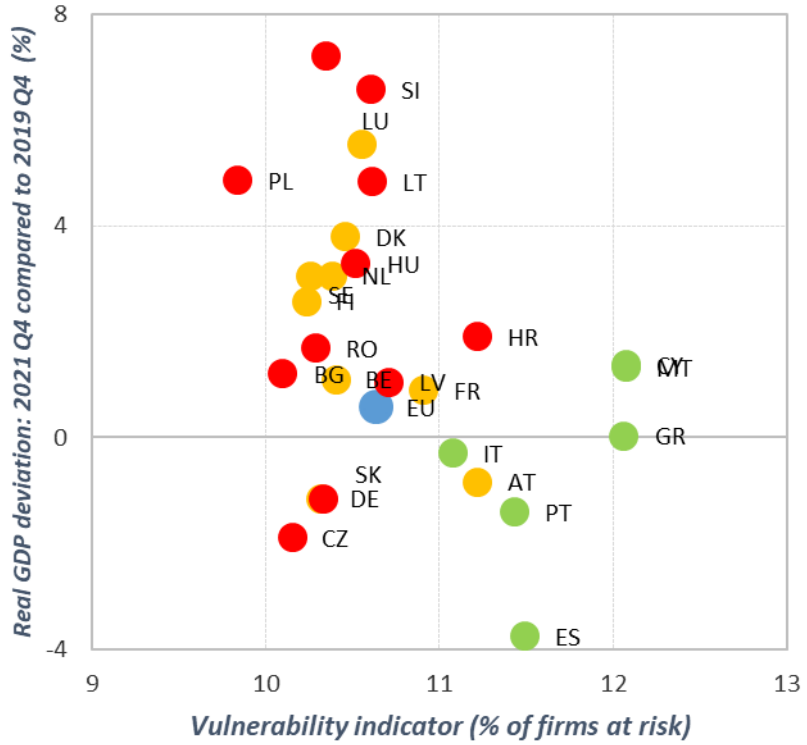
Firms not in distress, having a lower leverage or higher capital base, are more likely to digitalize. These effects are not significant at 10%.

In all the cases, firms that have increased their external financing are more likely to digitalize, an effect that is always significant at 10% at least.

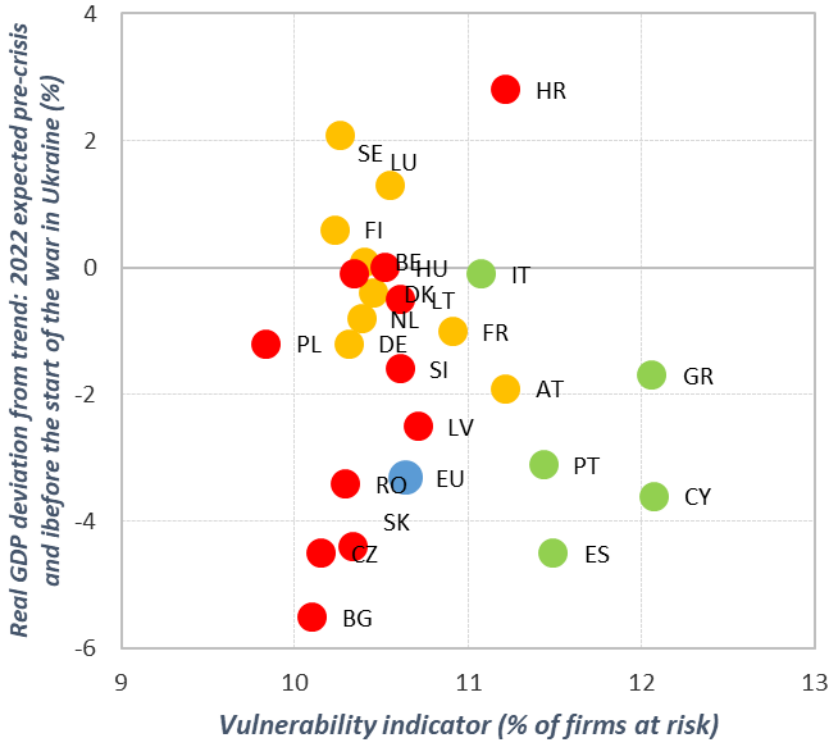
Hence, increased equity raises the probability to digitalize by 4 to 5 pp. A similar, but slightly stronger effect is found for debt.

# Where we stand: GDP compared to pre-crisis

## 2021 Q4 compared to 2019 Q4




## Pre-crisis expected 2022 compared to latest projection (%)




***Source:*** *ECON estimations based on Eurostat, EIBIS-ORBIS database.* ***Note:*** *Vulnerability indicator is obtained as the average of the default and solvency risk indicators. Those are obtained as the average across the 12 sectors of the related risk estimated at the EU level weighed by the share of each sector in the economy.*