Statistical analysis of italians tech startups.

COVID-19 impact on business performance.
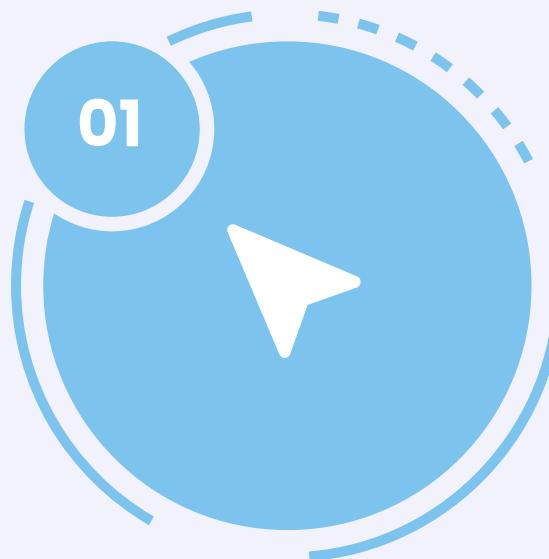
Goal of the analysis

PERFORMANCE ANALYSIS

Investigation into startups that, despite the Covid-19, have managed to enhance their financial and economic standing.

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Steps of the analysis

01
Definition of balance sheet ratios
Selection of the best indices representing Profitability, Equity Solvency and Liquidity.
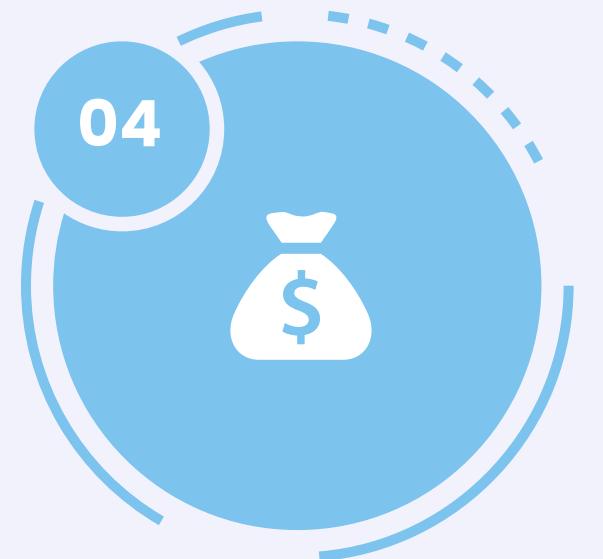
02
Principal Component Analysis
Statistical analysis for comparison and evaluation of the financial and economic situation of companies.

03
Test di Wilcoxon
Non-parametric test for identifying the drivers that allowed startups to improve

04
Conclusions
Based on the analysis conducted, identification of the three startups that improved the most during the pandemic.

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Definition of the index

Redditivity

1 **Return on Assets**
Indicates the net profitability of investments.

2 **EBITDA Margin**
Indicates the impact on sales due to actual costs incurred

Financial Strength

1 **Debt-to-Equity Ratio**
Indicates the proportion of equity and third-party capital.

2 **Financial Independence**
Indicates the degree of equity capitalization of the company.

Liquidity

1 **Current ratio**
Indicates the percentage of short-term liabilities covered by current assets.
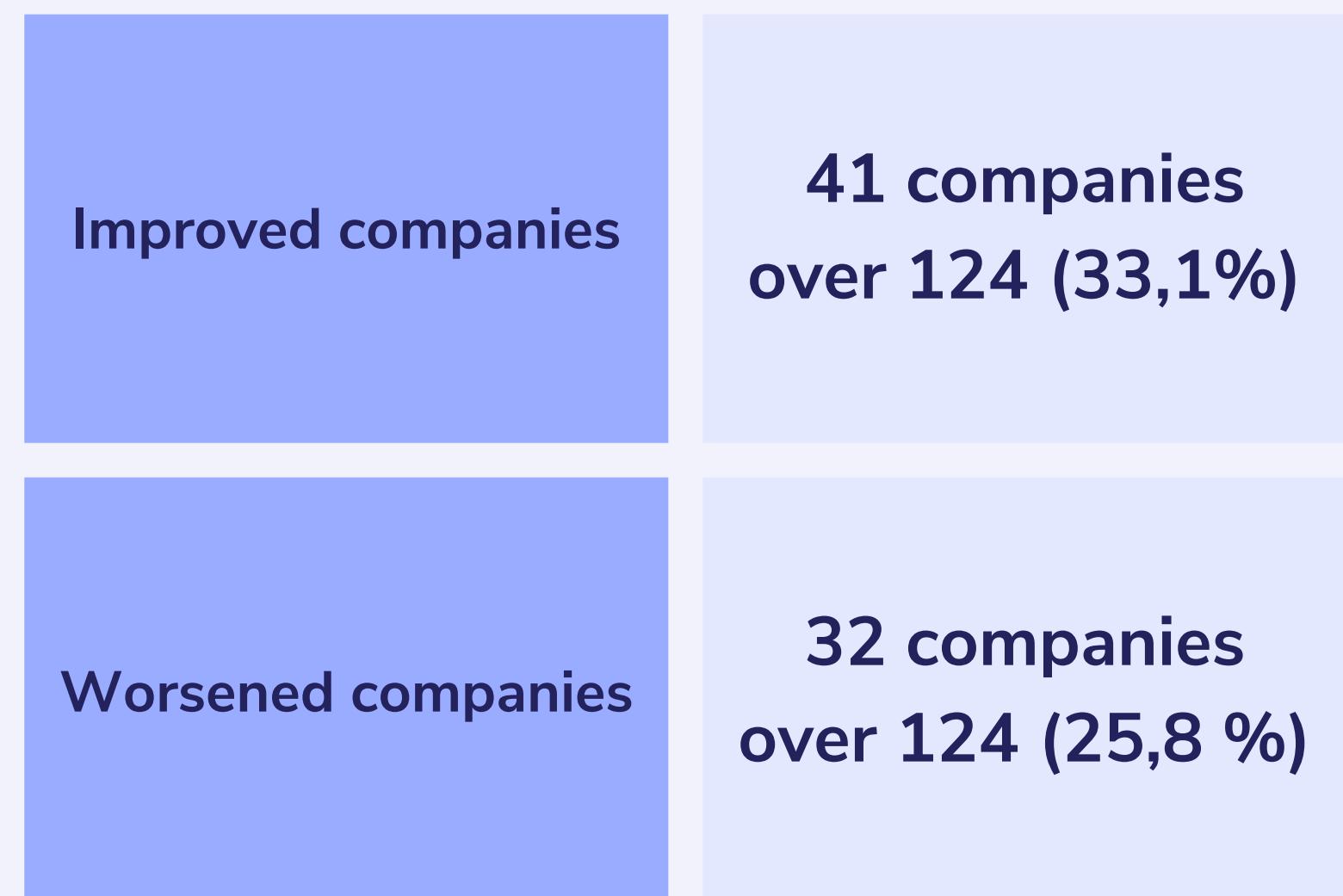
2 **NWC on Assets**
Expresses the company's ability to cover short-term liabilities with liquid assets

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Sector overview

Mean of the indices over the two-year period

	2019	2020
ROA	-0,042	-0,025
CR	1,649	1,528
Financial Independence	0,396	0,350

Data on the sample.

|	
Improved companies	41 companies over 124 (33,1%)
Worsened companies	32 companies over 124 (25,8 %)

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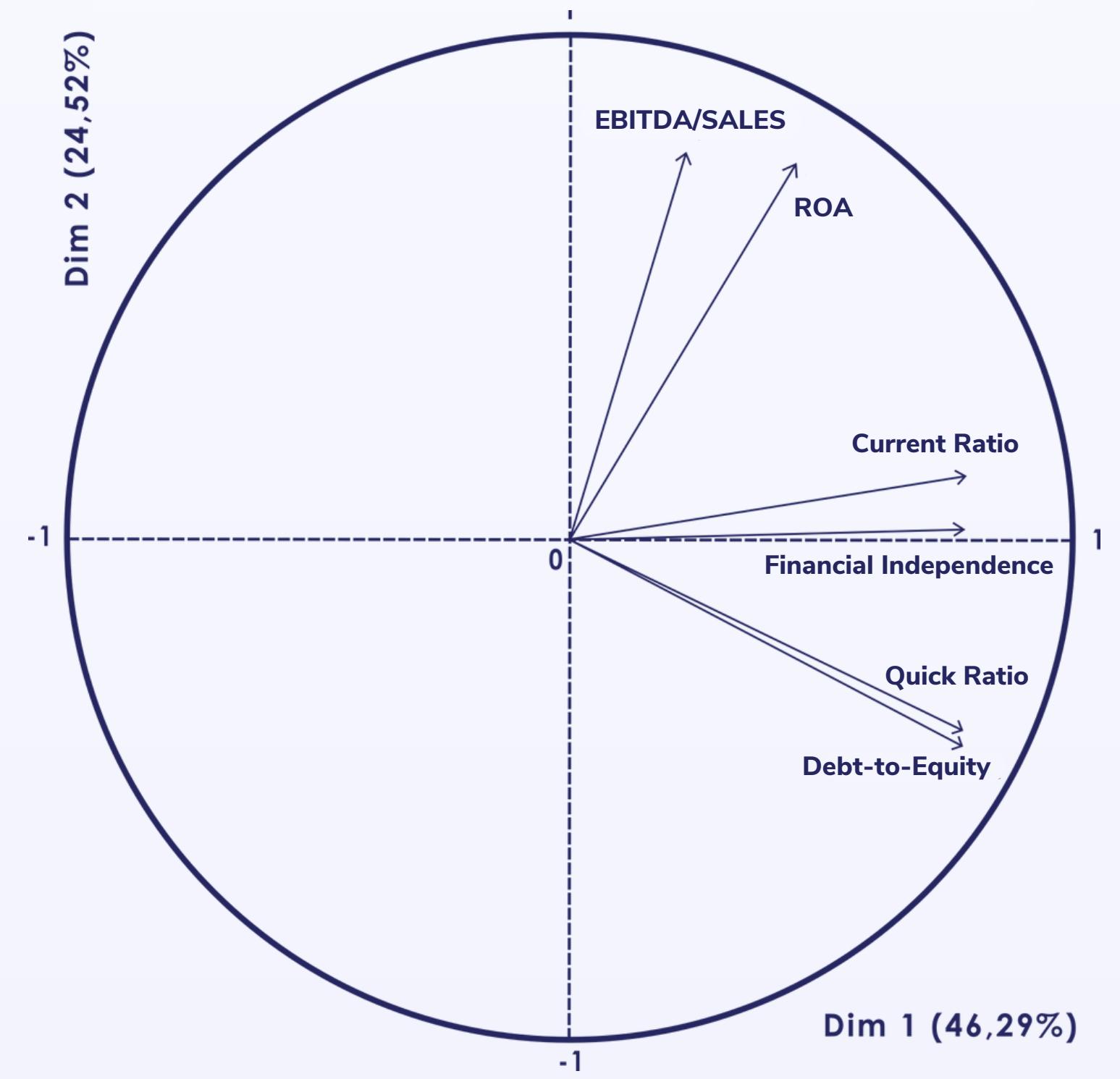
Principal Component Analysis

With an explained variance of 70%, the two components are more than sufficient.

Specifically, it is possible to notice how the profitability indices are highly correlated with the second dimension.

The liquidity and patrimony indices are highly correlated with the first dimension
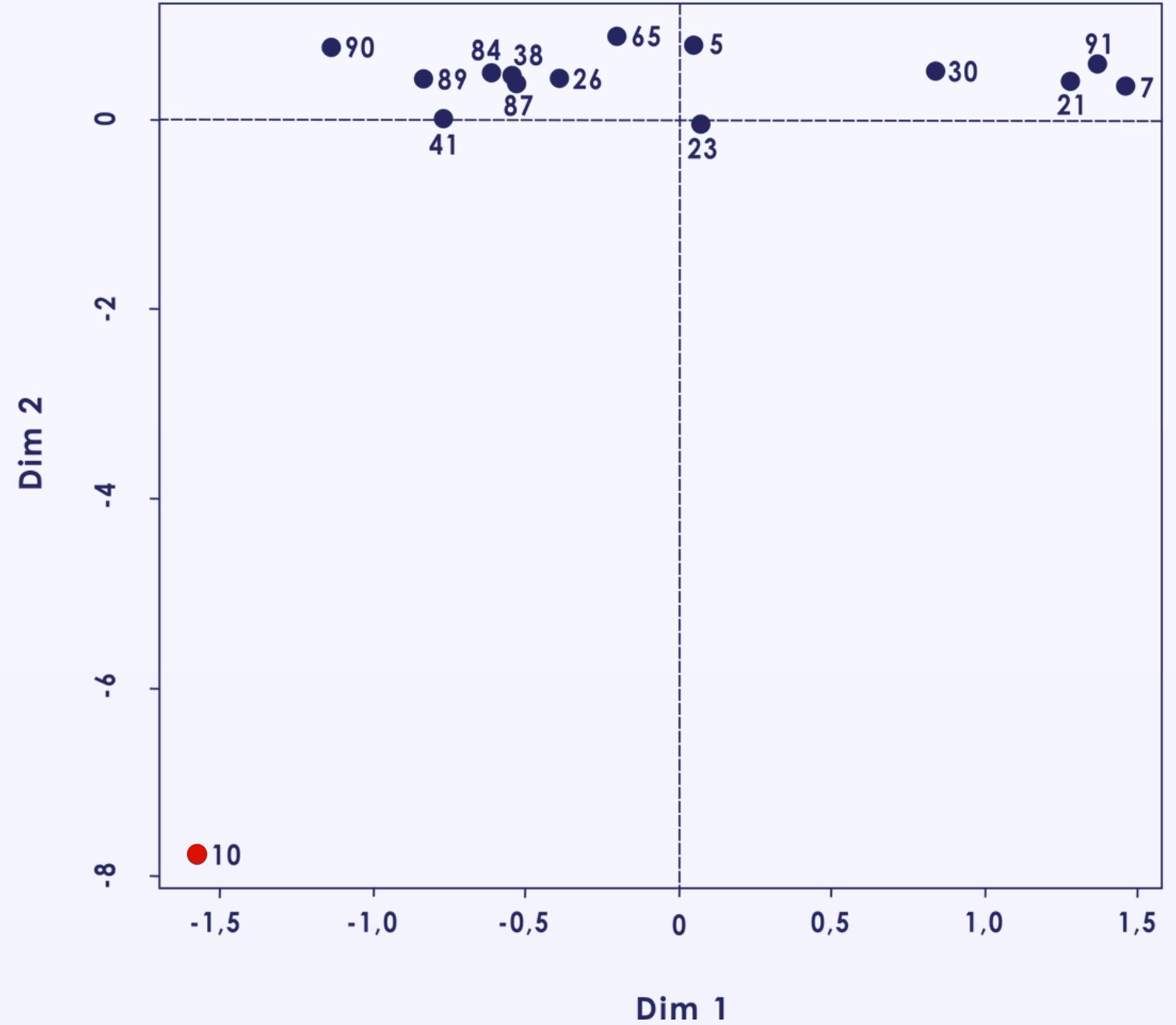

Vector graph of the variables
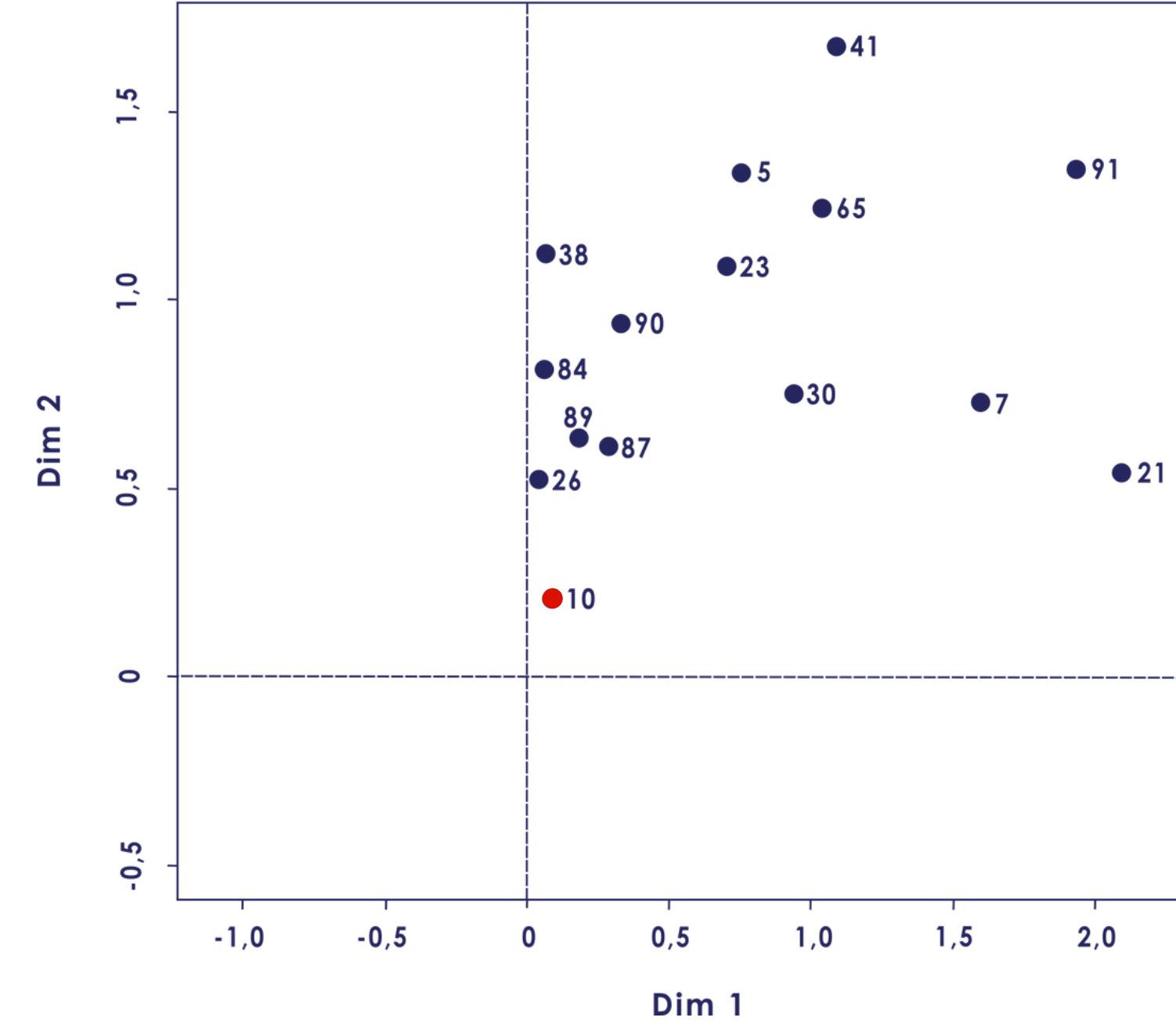
Interpretation of the plots

+ Profitability
- Stability

+ Profitability
+ Stability

- Profitability
- Stability

- Profitability
+ Stability

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Individual Map 2019

Dim 2

● 90
● 84 38
● 89
● 87
● 26
41
● 65
● 5
● 91
● 30
21
● 7
● 23

● 10

Dim 1

Individual Map 2020

Dim 2

● 41
● 5
● 91
● 65
● 38
● 23
● 90
● 84
● 30
● 7
● 89
● 87
● 26
● 21
● 10

Dim 1

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Test di Wilcoxon

Test to verify a significant difference between the medians of the indices in 2019 and 2020.

	Redditivity	Financial Strength	Liquidity
P - Value	0,19 %	5,37 %	0,01 %
Significatività	✅	❌	✅

*Alpha of 1%.

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Conclusions

The three best companies were selected based on the increase in profitability.

PHARMACARE — It's a home healthcare assistance application that allows you to order medical services simply from your phone.

EFFICIAM S.R.L. — It's a startup that provides specialized consulting in IoT and avionics

EDILMAG S.R.L. — It's a startup that enables the rental, sale, purchase, and cataloging of building products.

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