



# How hard to beat a mean

**Does an individual forecaster stand a chance against the market?**

May 26th, 2023 – AIECE meeting, Ljubljana

# Literature review

- Ottaviani & Sørensen (2006 ) - *The strategy of professional forecasting*, Journal of Financial Economics
  - Forecast are not produced in vacuum - they are prone to herding and group thinking
- Ashiya (2009) - *Strategic bias and professional affiliations of macroeconomic forecasters*, Journal of Forecasting
  - Some forecasters (ie. banking sector) may represent interests of their employers
- Crowe (2010), *Consensus Forecasts and Inefficient Information Aggregation*, IMF
  - Consensus forecast are inefficient as some participants lag behind

# Data

- We use monthly macro forecast for Polish economy.

Our data set contains:

- 18 economic indicators:
  - monetary sector: CPI, Core inflation, M3 growth
  - real variables: retail sales, industrial production, construction (%YoY)
  - labour market – wages, unemployment
  - financial sector – main FX, bond yields
- 27 forecasters – including 13 banks & 9 other financial institutions.
- 36 months of observations – i.e. three full years 2020-2022.

## How we test?

The Diebold-Mariano test:

- Calculation of differentials between two error series ( $d$ ).

$$d = g(e_{1t}) - g(e_{2t})$$

- We use symmetrical squared-error loss transformations, in line with equations.

$$g(e_{it}) = e_{it}^2$$

## How we test?

- The null hypothesis: expected value of the differential is zero - similar accuracy of forecasts.
- The alternative hypothesis: for a one-sided test points out which forecast is better.
- Test statistics with the Harvey et al. (1997) correction for small samples:

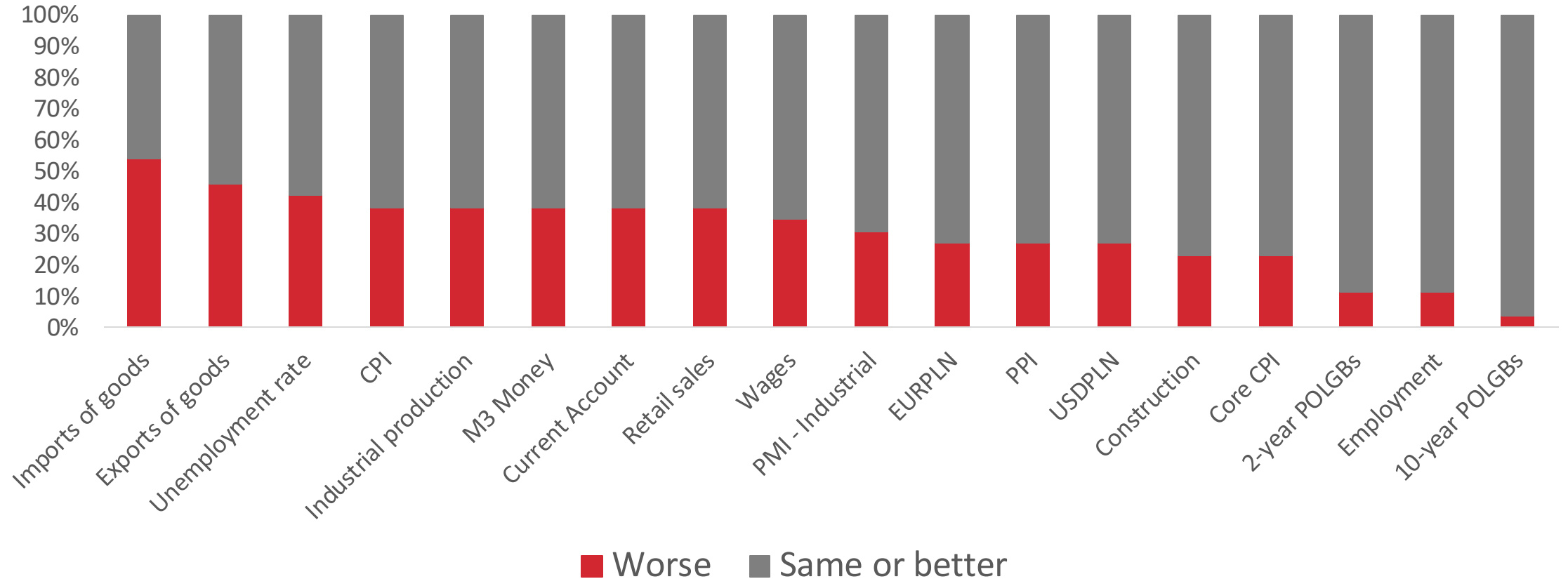
$$HLNDM = \sqrt{\frac{T + 1 - 2h + h(h - 1)}{T}} * \frac{d}{V(d)}$$

where  $T$  denotes sample size,  $h$  the forecast horizon, and  $V(d)$  is an estimate of variance related to the differential  $d$ .

HLNDM statistics has a normal distribution under null hypothesis

# Overall results

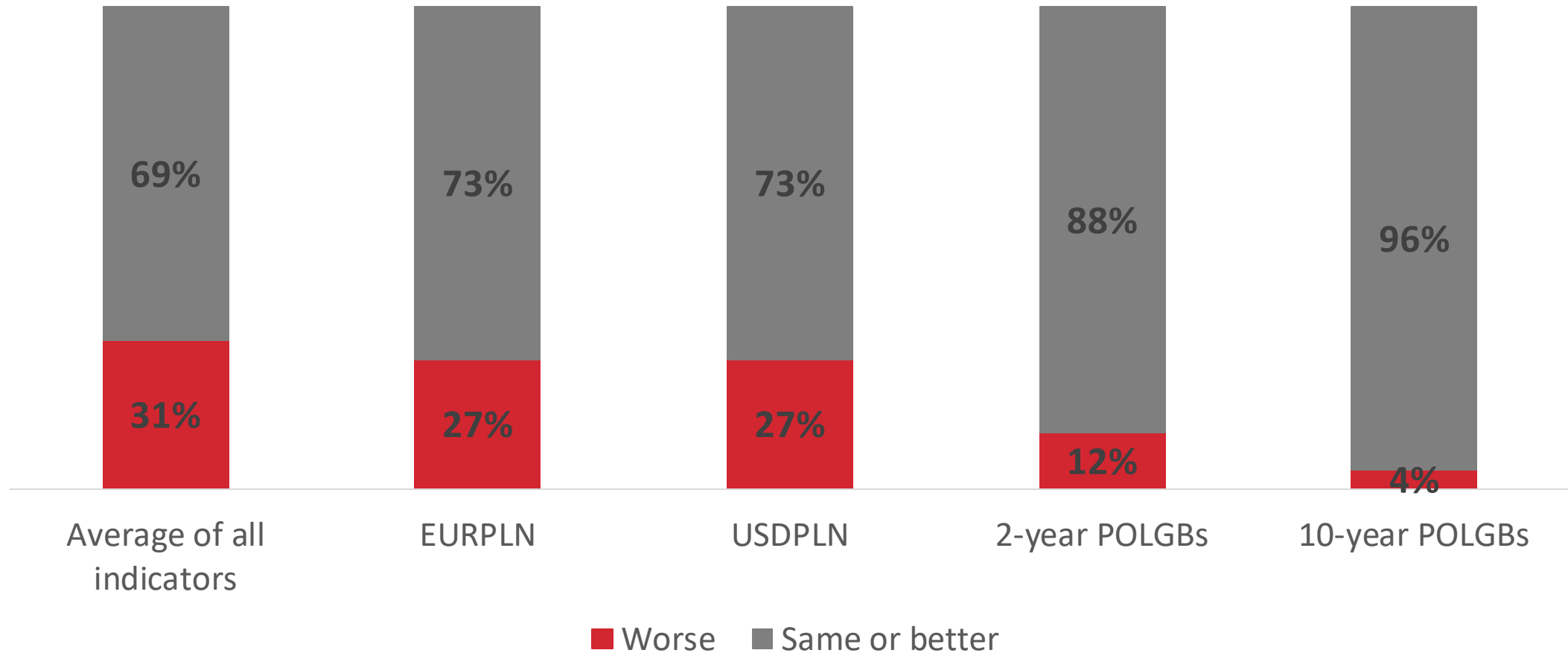
How many forecasters underperform consensus? (%share of forecasters)



Results of Diebold-Mariano test. Alpha = .05.

# Results – financial variables

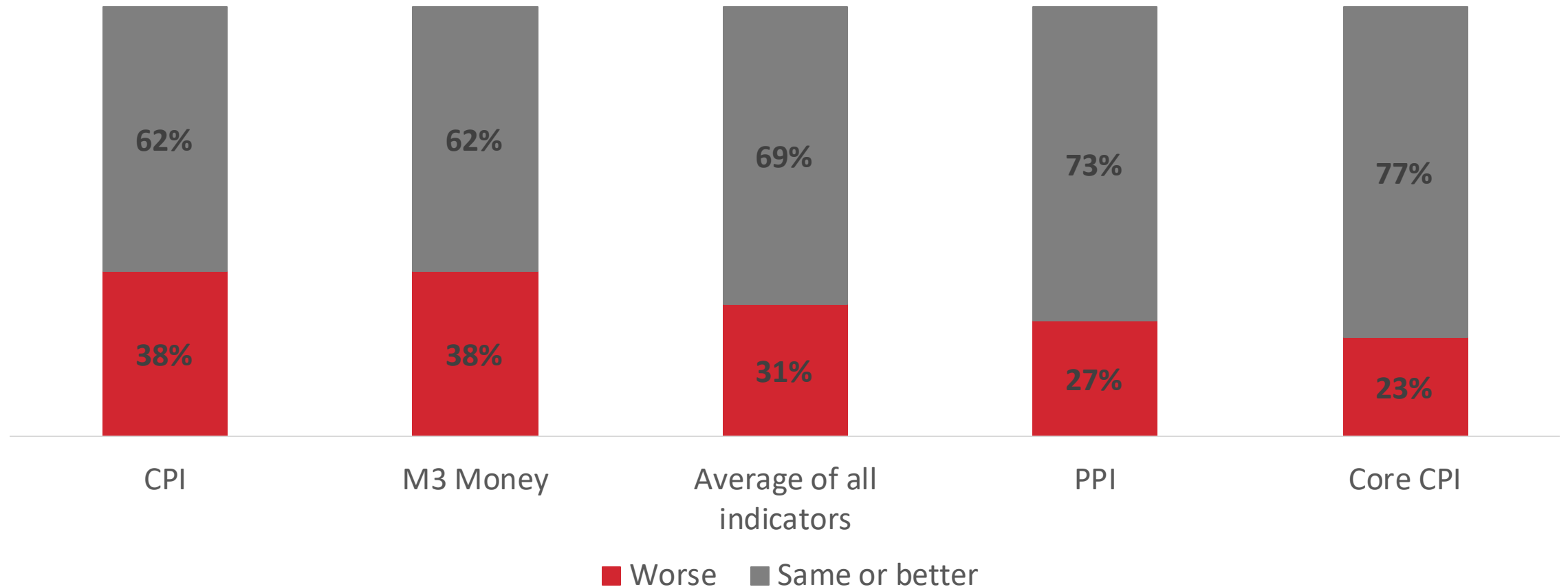
How many forecasters underperform consensus? (%share of forecasters)



Results of Diebold-Mariano test. Alpha = .05.

# Results – monetary variables

How many forecasters underperform consensus? (%share of forecasters)

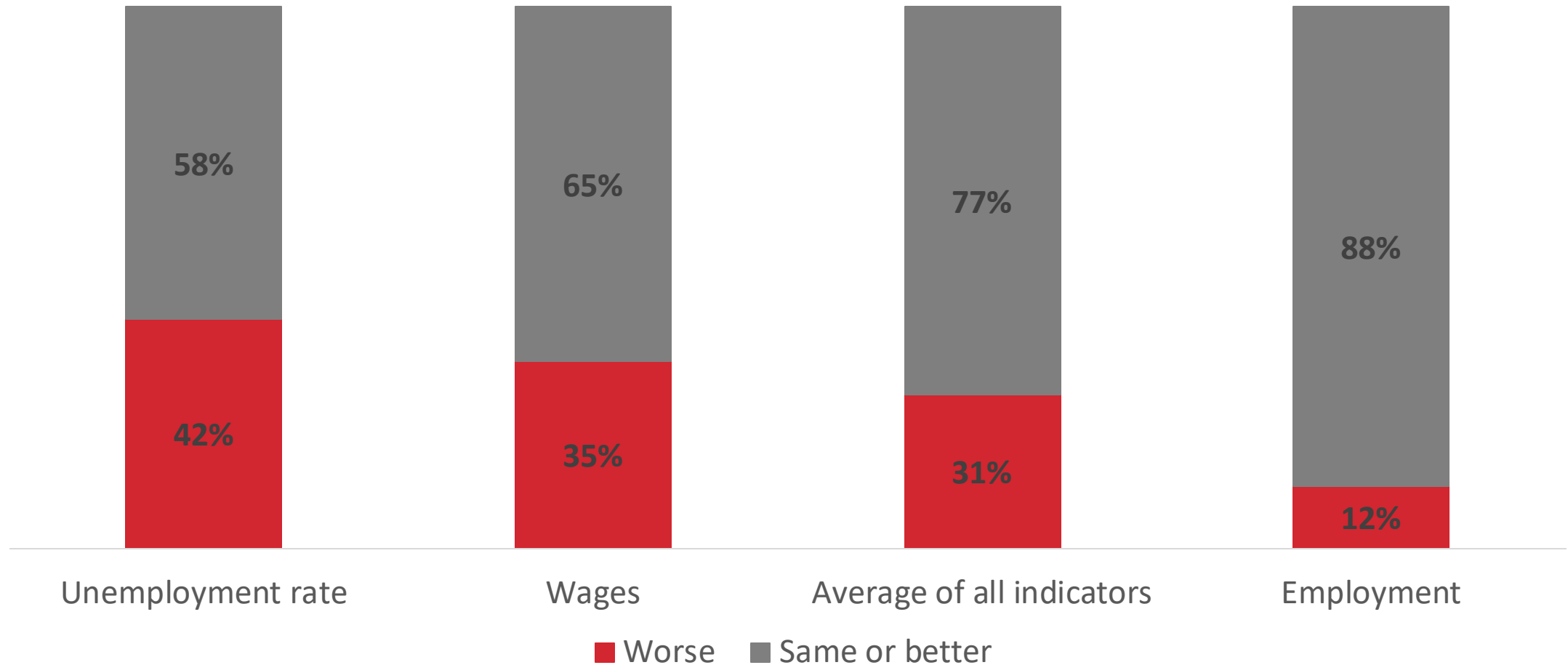


Results of Diebold-Mariano test. Alpha = .05.



# Results – labour variables

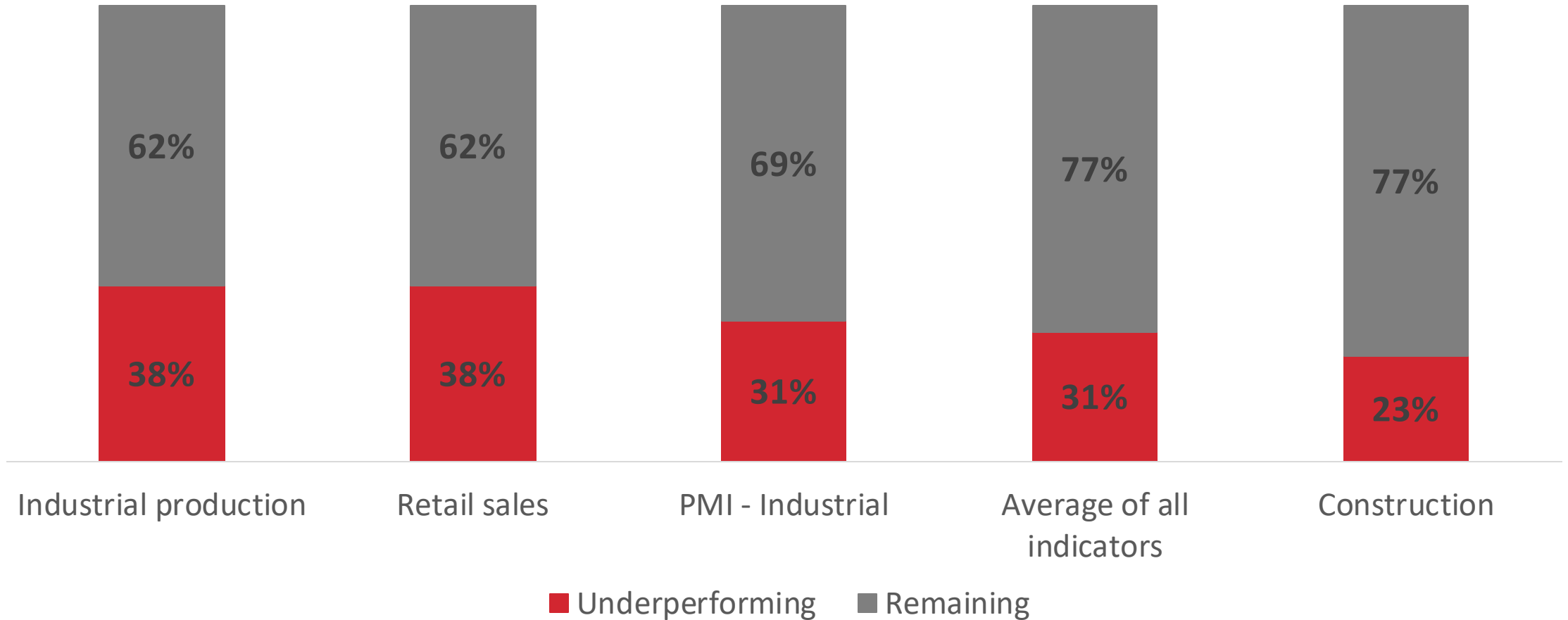
How many forecasters underperform consensus? (%share of forecasters)



Results of Diebold-Mariano test. Alpha = .05.

# Results – real economy variables

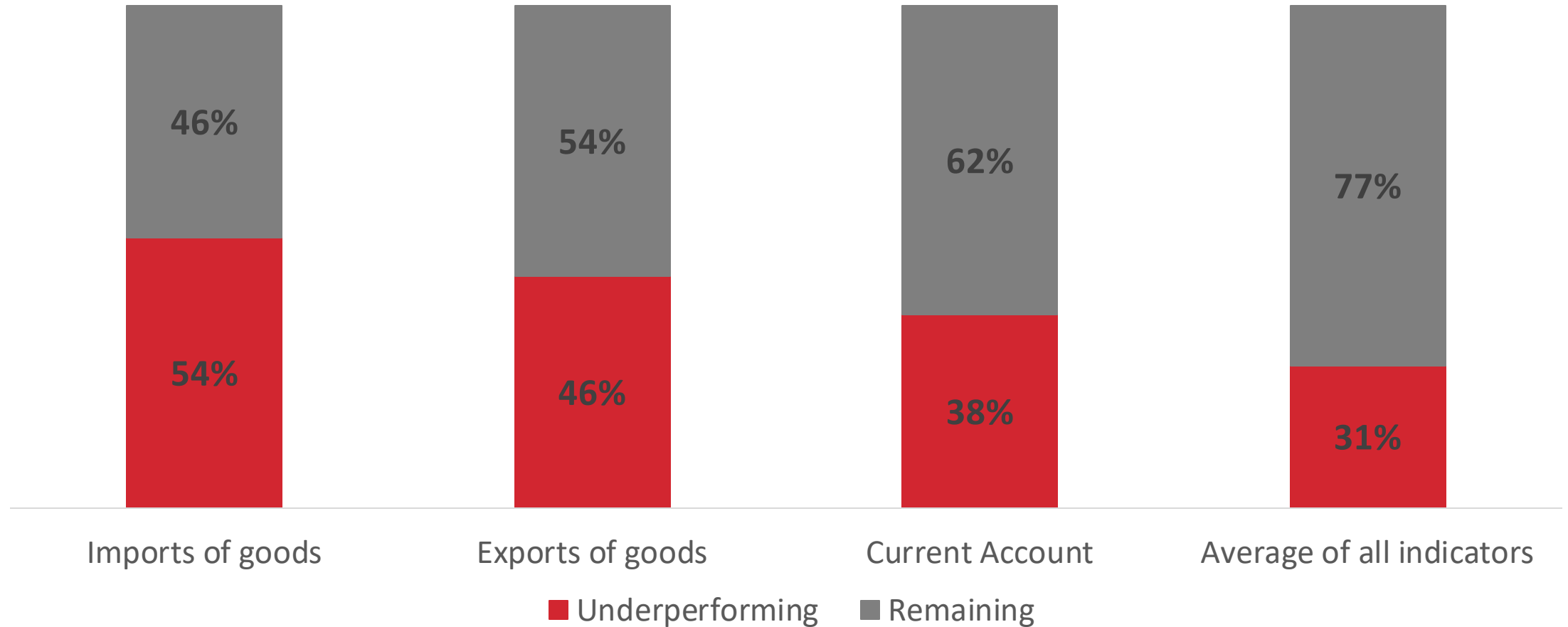
How many forecasters underperform consensus? (%share of forecasters)



Results of Diebold-Mariano test. Alpha = .05.

# Results – trade

How many forecasters underperform consensus? (%share of forecasters)



Results of Diebold-Mariano test. Alpha = .05.

# Conclusions for short-term forecasts

- Much easier to underperform in forecasting volatile series.
- Significant role of nowcasting, i.e. CPI, PPI.
- Consensus might be imperfect as a third of forecasters underperform consistently.
- Taking a median of forecasts is an option, but excluding bad forecasters is better.



# Thank you

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