

Top 5 Forecasting Institutions - Methodology

The Investor Relations Group (GERIN) ranks the accuracy of institutions participating in the survey of market expectations, and releases the Top 5 short-, medium-, and long-term forecasting institutions. Rankings are applied to forecasts for the IPCA, IGP-M, IGP-DI, Over-Selic interest rate, and the exchange rate.

The short-term Top 5 takes into account the accuracy of 1-month forecasts over the last 6 months (Figure 1). The medium-term Top 5 ranks the accuracy of the forecasts in three consecutive given months in each of the previous respective four months. For example, the ranking of the Top 5 medium-term forecasters for the IPCA inflation rate in December of a given year, released in the subsequent January, is based on the projections they produce for December IPCA inflation in September, October, November, and December of the same year; the projections for November produced in August, September, October and November; and for October produced in July, August, September and October (Figure 2). Finally, the long-term Top 5 ranks the accuracy of forecasts for the annual value of the variable made in each of the 12 months before the annual indicator is released in the subsequent January. The Top 5 short- and medium-term forecasting institutions are announced monthly, while the Top 5 long-term forecasting institutions are announced every January.

Figure 1
Short-Term Top 5

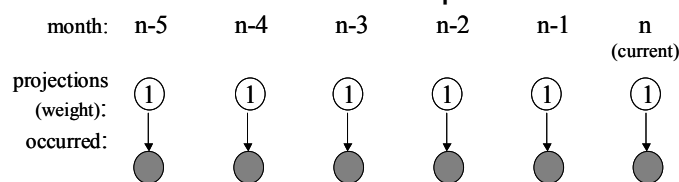
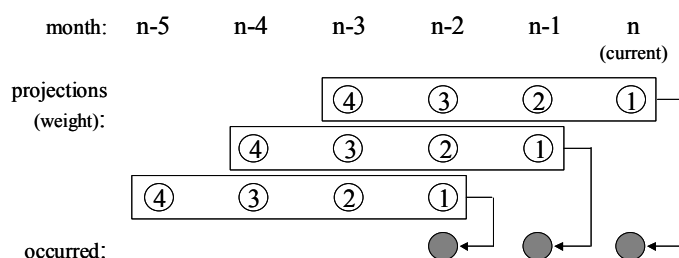


Figure 2
Medium-Term Top 5



Penalties are imposed on institutions that do not comply with the BCB's minimum reporting requirements: institutions are excluded from the ranking if they have not confirmed or updated their monthly projections for at least 3 months into the future, or if they have not confirmed or updated their annual projections for at least one year, in the 30-days ending on the Last Reporting Day of the month.

Forecasting institutions are ranked according to the accuracy of their *valid forecasts*, e.g. those forecasts that are in Gerin's reporting system on the Last Reporting Day of the month for the relevant variable, and that have been confirmed or updated in the prior 30-days. The Last Reporting Day of the month is typically the day before significant information on the future trend of the surveyed variable is scheduled to be announced – see Table 1 below. In the cases of Over-Selic and exchange rates, two projections will be compared to the respective occurred results: the valid projection on the last reporting day and the valid projection on the Wednesday immediately previous to the Copom meeting of the month.

Table 1
Last Reporting Days

Surveyed variable	Last Reporting Day: working day immediately before the...
IPCA	day of release of IPCA-15
IGP-DI	day of release of the IGP-M 2nd preview
IGP-M	day of release of the IGP-M 1st preview
Over-Selic rate	1st working day of the month
Exchange rate	1st working day of the month

Obs.: in the cases of Over-Selic and exchange rates, valid projections on the Wednesday immediately previous to the Copom meeting of the month will be also compared to the occurred results.

All ranking is based on equations that specify a penalty for each institution based on the deviation of its projections from the actual result. The lower the penalty, the higher the institution's ranking. The differences between the methodologies for calculating the short-, medium-, and long-term rankings are the time span considered for calculating the deviation, the weights attributed to past forecasts, and the time horizon of the survey (the monthly index or rate, the index or rate from one to four months ahead, the yearly index or rate).

As far as the medium and long-term rankings are concerned, those institutions that do not have valid forecasts in each month are penalized in that month through application of the highest

deviation registered. In the case of the short-term ranking, institutions that do not have valid forecasts in each month are penalized through one of two methods: if the institution has already participated in the survey in the past, it is assigned the highest absolute deviation; otherwise it is assigned the average absolute deviation of the participating institutions with valid forecasts.

Short-term forecasting institutions are ranked on the basis of Equation 1.

$$\psi^R = \sum_{t=N-5}^N \{(\text{average penalty})_{d_t} \cdot (1 - j_{d_t}) + j_{d_t} \cdot [(\text{maximum penalty})_{d_t} \cdot (1 - k_{d_t}) + |E_{d_t} \tau_t^R - \tau_t| \cdot k_{d_t}]\} / 6 \quad (1)$$

in which

ψ^R = penalty assigned to institution R ;

t = month for which the deviation is calculated;

N = month referring to the day immediately after the last reporting day;

d_t = last reporting day of τ in month t ;

$E_{d_t} \tau_t^R$ = forecast provided by the institution R , since valid on d_t for τ_t ;

τ_t = actual result of the surveyed variable τ in month t ;

$(\text{average penalty})_{d_t}$ = average absolute deviation of the valid forecasts of the participating institutions on d_t , from the surveyed variable τ_t 's effective result in month t ;

$(\text{maximum penalty})_{d_t}$ = maximum absolute deviation of the valid forecasts of the participating institutions on d_t , from the surveyed variable τ_t 's effective result in month t ;

$k_{d_t} = 0$, when the institution has not a valid forecast on d_t ;

1, when the institution has a valid forecast on d_t ;

$j_{d_t} = 0$, if d_t is a day previous to the day of the first forecast of the institution for τ ;

1, if d_t is at least the day of the first forecast of the institution for τ .

Medium-term forecasting institutions are ranked on the basis of Equation 2.

$$\psi^R = \left\{ \sum_{t=N-3}^N (N - t + 1) \cdot \sum_{w=1}^3 [(\text{maximum penalty})_{d_{t-w+1}} \cdot (1 - k_{d_{t-w+1}}) + |E_{d_{t-w+1}} \tau_{N-w+1}^R - \tau_{N-w+1}| \cdot k_{d_{t-w+1}}] \right\} / 30 \quad (2)$$

in which

ψ^R = penalty assigned to institution R ;

t = month for which the deviation is calculated;

N = month referring to the day immediately after the last reporting day;

d_{t-w+1} = last reporting day of τ in month $t-w+1$;

$E_{d_{t-w+1}} \tau_{N-w+1}^R$ = forecast of the institution R valid on d_{t-w+1} for τ_{N-w+1} (in the cases of Over-Selic and exchange rates, not only the forecast valid on d_{t-w+1} but also the forecast valid on the Wednesday immediately previous to the Copom meeting of the month $t-w+1$ will be compared to the actual result);

τ_{N-w+1} = actual value of the surveyed variable τ in month $N-w+1$;

$(\text{maximum penalty})_{d_{t-w+1}}$ = maximum absolute deviation of the valid forecasts of the participating institutions on d_{t-w+1} , from the surveyed variable τ_{N-w+1} 's effective result;

$k_{d_{t-w+1}} = 0$, when the institution has not a valid forecast on d_{t-w+1} ;

1, when the institution has a valid forecast on d_{t-w+1} .

Long-term forecasting institutions are ranked on the basis of Equation 3.

$$\psi^R = \sum_{t=N-11}^N (N-t+1) \cdot [(\text{maximum penalty})_{d_t} \cdot (1 - k_{d_t}) + |E_{d_t} \tau^R - \tau| \cdot k_{d_t}] \quad (3)$$

in which

ψ^R = penalty assigned to institution R ;

t = month for which the deviation is calculated;

N = month referring to the day immediately after the last reporting day;

d_t = last reporting day of τ in month t ;

$E_{d_t} \tau^R$ = forecast provided by institution R since valid on d_t for τ ;

τ = yearly actual value of the surveyed variable τ ;

$(\text{maximum penalty})_{d_t}$ = maximum absolute deviation of the valid forecasts of the participating institutions on d_t , from the yearly surveyed variable τ 's effective result;

$k_{d_t} = 0$, when the institution has not a valid forecast on d_t ;

1, when the institution has a valid forecast on d_t .