

ESM Briefs 8: Technical Annex

Table A.1: Variables and data sources

Variable	Sources
Baseline GDP forecast <i>(real, quarter-on-quarter %-change)</i>	European Commission (for CY, GR, IE, and MT we use the quarterly equal growth profile consistent with the annual forecast)
GDP <i>(real, quarter-on-quarter %-change)</i>	Eurostat (for IE replaced by <i>Modified Final Domestic Demand</i> , obtained from the Central Statistics Office)
Country-Level Index of Financial Stress (CLIFS)	Duprey et al. (2017) and European Central Bank (for EE we use the average of LV and LT)
Stock market index <i>(year-on-year %-change)</i>	Bloomberg, Financial Times
Credit to the non-financial private sector <i>(year-on-year %-change)</i>	European Central Bank
House prices <i>(year-on-year %-change)</i>	OECD, Eurostat
Interest rate (%)	Bloomberg, Bulgarian National Bank, London Stock Exchange, Greek PDMO, National Bank of Belgium, National Bank of Slovakia, OECD
HICP <i>(year-on-year %-change)</i>	Eurostat

Notes: Most of the series were retrieved from Haver Analytics, with the exceptions of those obtained from Bloomberg and the data on credit to the private non-financial sector, which was retrieved from the ECB Data Portal.

Annex A.1: Empirical specification

$$Q^p(y_{t+h|t,i}) = \alpha_i + \beta_0^p + \beta_1^p y_{t,i} + \beta_2^p FCI_{t,i} + \beta_3^p CLIFS_{t,i}$$

- $y_{t+h|t,i}$: h-quarter-ahead avg. (q/q) growth of real GDP.
- Q^p : p^{th} -quantile (5%, 25%, 50%, 75%, 95%).
- Inclusion of dummies for Covid-19 observations (Q2 and Q3 2020). This requires h+1 dummy variables since these two quarters affect (h+1) observations of the dependent variable.
- Estimation via two-step approach of Canay (2011).
- Fitting of skew-t distribution following Adrian et al. (2019).

Table A.2: Estimated quantile regression coefficients

	Quantile				
	5%	25%	50%	75%	95%
Constant	-0.891 (0.107)	-0.232 (0.030)	0.047 (0.025)	0.288 (0.027)	0.845 (0.084)
GDP growth	0.105 (0.024)	0.077 (0.014)	0.076 (0.013)	0.069 (0.020)	0.035 (0.041)
FCI	0.341 (0.165)	0.326 (0.062)	0.337 (0.040)	0.274 (0.052)	0.468 (0.140)
CLIFS	-3.095 (1.214)	-1.473 (0.416)	-0.704 (0.325)	-0.481 (0.277)	-0.870 (0.677)
Obs.	985	985	985	985	985

Notes: The standard errors (in brackets) are obtained through (block) bootstrapping. The estimated fixed effects and the dummies for the Covid-19 observations are not reported.