Analysis

Monetary policy measures taken during pandemic revived euro area economy

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During the COVID-19 pandemic, monetary policy securities purchases and policies to support bank lending have helped us avoid a deeper recession and deflation in the euro area. As a consequence of the securities purchases, GDP has, based on our model calculations, grown around 2 percentage points faster annually and inflation has been around 0.5 of a percentage point faster in 2020 and 2021. In a similar manner, refinancing operations to support bank lending during the pandemic have boosted annual GDP growth by around 0.5 of a percentage point and inflation by around 0.2 of a percentage point. Without the securities purchases, GDP would at the end of 2021 be around 3.5% and consumer prices around 1% lower. By the end of 2021, the refinancing operations will have boosted GDP by around 1% and consumer prices by around 0.3%.



Following the outbreak of the COVID-19 crisis, the ECB eased its monetary policy through a number of measures aimed at reassuring the financial markets, supporting bank lending and sustaining relaxed financial conditions. Among the most important measures have been the expansion of the purchase programmes and the longer-term refinancing operations. In March 2020, the ECB expanded the Asset Purchase Programme (APP) it had been operating since 2014 and launched a new Pandemic Emergency Purchase Programme (PEPP), which has been further expanded during the course of the pandemic. The ECB has also made changes to its targeted longer-term refinancing operations (TLTROs) in order to support bank lending.[1]

How do the non-standard measures affect the economy?

The instruments the ECB has utilised during the pandemic are all different in character, and therefore they also differ in their impacts. TLTROs reduce banks' funding costs and boost lending to the private sector.[2] Through these operations, banks receive credit from the central bank at an interest rate that depends on the bank's lending to non-financial corporations and households (excl. housing loans). If the amounts lent exceed the target, the interest on the central bank credit is reduced. At its lowest, the interest rate can be -1%.

For their part, the purchase programmes lowered particularly long-term interest rates and further reduced funding costs on a number of markets. Central bank purchases of bonds with a long maturity reduce their availability on the markets. When investors do not consider other asset classes to be such a good alternative, bond prices rise and their yields decline. In this way, the difference in yield between short-term and long-term bonds narrows. Furthermore, central bank

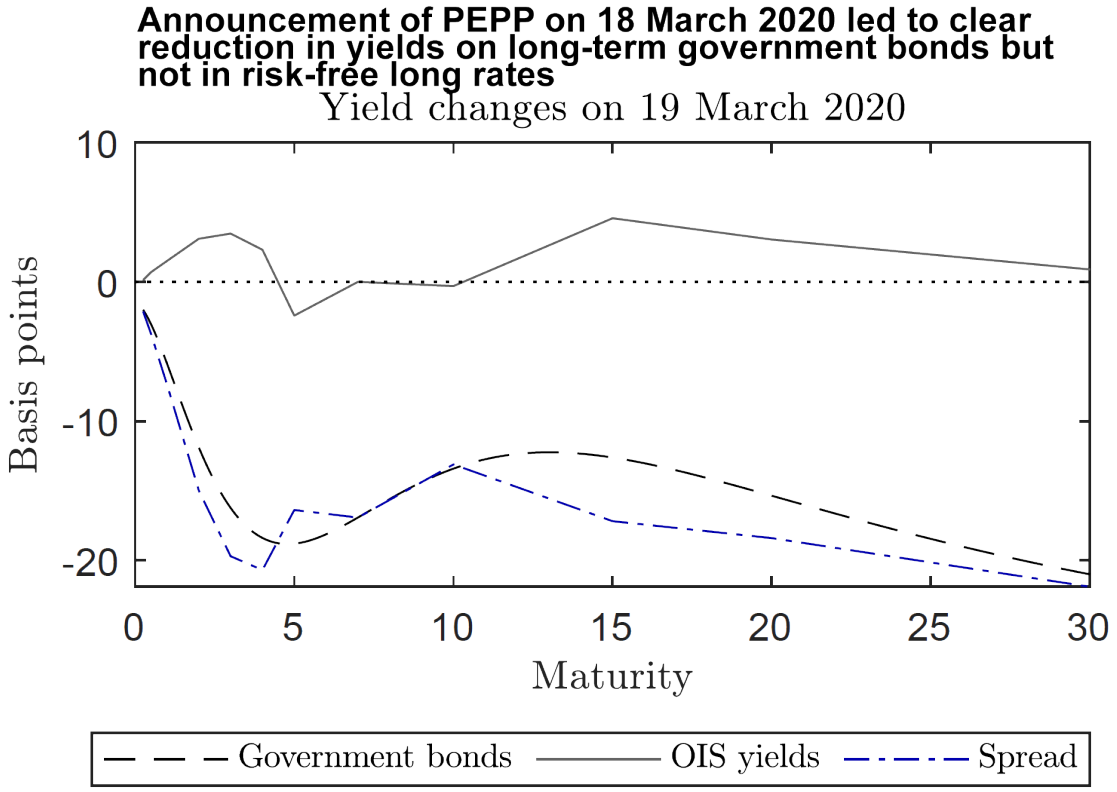
security purchases and lower long-term bond yields lead investors to reallocate their portfolios towards longer and more risky bonds in pursuit of a higher yield. Investors then demand a smaller premium on long-term bonds; in other words, the purchase programmes remove duration risk from the markets. Growing demand reduces the risk premia in several asset categories, reduces funding costs across the board and makes investment more attractive.

The mechanism described above is called the portfolio rebalancing channel, and it may be considered the most important impact channel for the securities purchase programmes – both the APP and the PEPP. The mechanism is based on the fact that the different securities categories are not perfect substitutes, but their yields would be similar. This market imperfection could be due to, for example, legislative reasons or the views of investors.[3]

The key difference between the earlier purchase programme (APP) and the new pandemic-related purchase programme (PEPP) is that in the latter the securities purchases can be carried out flexibly over time and different asset categories and also, in respect of government bond purchases, diverging temporarily from the capital key.[4] Due to this flexibility it has been possible to use PEPP purchases to in a more targeted way prevent disintegration and instability on the euro area financial markets, which could have made harder the efficient transmission of risk-free market interest rates to the financial markets. The programme can also be seen as having narrowed yield differentials between government bonds in the euro area, which had increased significantly during the uncertainty on the markets in March 2020.[5]

The nature of how PEPP purchases influence yield differentials is shown in Chart 1, which presents the yields of Overnight Index Swaps (OIS) of different durations, the average yields of euro area GDP-weighted government bonds and the changes in their yield differentials at the moment the launch of the PEPP was announced on 18 March 2020.[6] The chart shows that specifically the yields on government bonds declined on the day following the announcement, while the OIS yields (considered to be risk-free) remained almost unchanged. Thus, initially the PEPP above all narrowed the yield differentials.

Chart 1.



Source: Bank of Finland.

The chart shows the immediate reaction of euro area government bond and risk-free OIS yields of different maturities (x-axis) to the announcement of the PEPP. Government bonds: average yield on euro area government bonds; OIS yield: trajectory of the EONIA rate in line with euro area risk-free OISs; Yield differential: the yield on government bonds minus the OIS yield. Sources: Bloomberg and ECB.

Pandemic-related securities purchases and targeted refinancing operations accelerate growth and inflation

The macroeconomic impacts of securities purchases and targeted longer-term refinancing operations (TLTROs) conducted during the pandemic can be measured via interest rates and risk premia.[7] The purchase programmes have probably reduced both the risk premia on government bonds and risk-free long-term interest rates in the euro area. The calculation assumes that without the expended securities purchases (PEPP and APP) the average yield on 10-year government bonds in the euro area would have gradually risen to 0.4–0.8 percentage points above

the observed level. The risk premia on government bonds and the yields on long government bonds would then have been more or less at the level of March 2020, when the uncertainty on the financial markets was at its height.[8] Similarly, we also assume that without the extraordinary TLTROs the average interest rate on banks' new loans to non-financial corporations would have been approximately 0.1 of a percentage point higher.[9] In this case, the lending rate would have begun a slight rise to the level of early 2019.

The macroeconomic impacts are derived from a structural vector autoregression (SVAR) model such that the policy impacts on yields and risk premia are of the magnitude assumed above. The macroeconomic impacts have been measured by separating out from the model's unexplained part the variation due to unexpected changes in monetary policy.[10] These changes are suited to measuring the direct impacts of monetary policy, as they do not reflect actions through which the central bank would react to an endogenously changing situation in the economy, such as supply and demand shocks. Instead, the impacts measured are from the central bank's surprising, non-standard measures that are not in line with market expectations and hence reflect exogenous variation. When calculating the impacts, we also note that the central bank has at the same time held the normal policy rates unchanged and reinforced this through its forward guidance.[11]

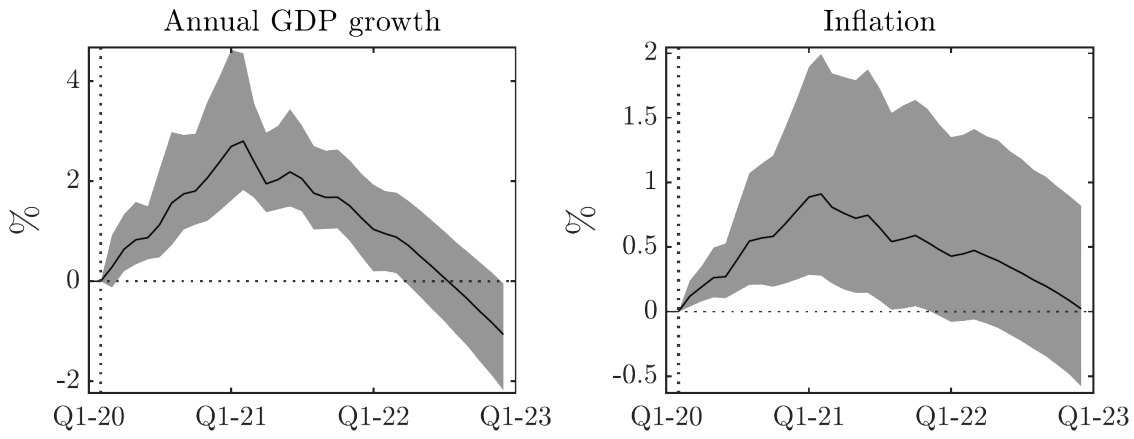
Charts 2 and 3 present the estimates, made using the model, of the impacts on inflation and real GDP of policy changes related to the PEPP and the targeted long-term refinancing operations. From the charts we can see that the PEPP and the TLTROs have accelerated growth in GDP and the general level of prices. As a consequence of the securities purchases, annual growth in GDP has been around 2 percentage points, and inflation around 0.5 of a percentage point faster than they otherwise would have been in 2020 and 2021.[12] At the end of 2021, GDP would be around 3.5%, and the general index of consumer prices around 1% higher than in the absence of the policy measures.[13] In similar vein, the TLTROs conducted during the pandemic have accelerated the pace of GDP growth by around 0.5 of a percentage point annually, and inflation by around 0.2 of a percentage point. In the absence of these measures, the level of GDP would have been around 1%, and consumer prices around 0.3% lower at the end of 2021.

The results demonstrate that monetary policy has been used successfully to alleviate the economic losses caused by the pandemic and supported achievement of the ECB's price stability objective. The PEPP, in particular, has had positive impacts on the economy. The securities purchases and refinancing operations have ensured that financing conditions have remained favourable both on the bond markets and in respect of bank funding, which has in turn supported the real economy, e.g. via increased corporate lending. Finally, the policy has fed through into inflation and GDP, thereby helping to prevent a deep recession and avoid deflation. It is also worth

noting that the calculations do not take into account the possibility of an alternative train of events in which a lack of monetary policy intervention at the start of the pandemic would have led to a deterioration in the situation on the financial markets and considerable growth in uncertainty. Viewed thus, the macroeconomic effects of the programmes would be still more significant.

Chart 2.

The purchase programmes' impact on GDP and inflation has been markedly positive

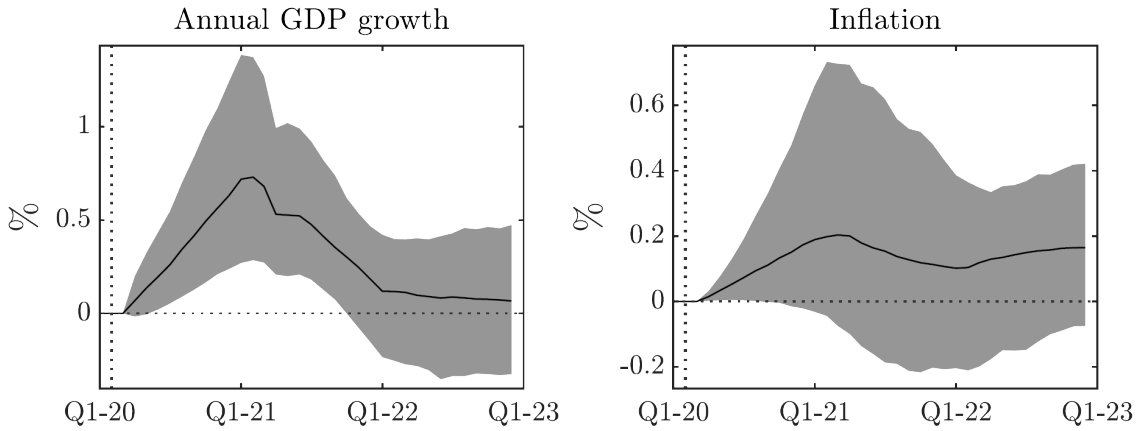


Source: Bank of Finland.

The impact of the purchase programmes implemented during the pandemic has been entered on the chart as percentage points of the variables compared with a situation in which said purchase programmes had not been implemented. The calculation has been based on a SVAR model such that in the alternative scenario the euro area long interest rate would have been around 0.6 of a percentage point higher. The grey areas depict the 68% confidence interval given by the model.

Chart 3.

TLTROs conducted during the pandemic have been moderately supportive of economic growth and inflation



Source: Bank of Finland.

The impact of the longer-term targeted refinancing operations (TLTROs) implemented during the pandemic has been entered on the chart as percentage points of the variables compared with a situation in which said additional purchase programmes had not been implemented. In the alternative scenario the interest rate on new corporate loans issued by the banks would be around 0.1 of a percentage point higher. The grey areas depict the 68% confidence interval given by the model.

Notes

1. This article is based on another by the same authors: 'The effects of the ECB's pandemic-related policies', published in the BoF Economics Review, 4/2021. ↑
2. See also Kristian Tötterman's blog entry 'Pankit nostaneet ennätyksellisen määrän edullisia kohdennettuja luottoja' published in Finnish on 11 March 2021. ↑
3. Such reasons can be, for example, that institutional investors are under a regulatory compulsion to hold in their portfolios certain types of securities, or that investors favour domestic securities over investment objects from other markets (home bias). The imperfections have been examined forensically by e.g. Vayanos and Vila (2009): 'A Preferred-Habitat Model of the Term Structure of Interest Rates', NBER Working Papers 15487. ↑
4. The capital key is a multiplier calculated from the size of the economy and populations of euro area countries: see https://www.ecb.europa.eu/ecb/orga/capital/html/index.en.html. ↑
5. See Moessner and de Haan (2021): Effects of monetary policy announcements on term ↑

premia in the euro area during the Covid-19 pandemic. Finance Research Letters, pending.

6. The PEPP was announced late in the evening of 18 March 2020, wherefore the chart shows the daily change in yields that occurred on 19 March 2020. ↑

7. It is harder to draw conclusions regarding the amounts purchased and the macroeconomic impacts of the different programmes. This is because the impact of the amounts purchased on interest rates depends on factors such as the structure of the programmes, the credibility of monetary policy and the volume of bonds on the markets. See on the APP's impacts on the yield curve, Eser et al (2019): Tracing the impact of the ECB's asset purchase programme on the yield curve. ECB Working Paper Series, 2293. ↑

8. The estimated impacts on interest rates are in line with other empirical observations: see e.g. Aguilar et al (2020): The ECB monetary policy response to the covid-19 crisis. Documentos Ocasionales 2026, Banco de España and the ECB Economic Bulletin 5/2020, box 3. The pre-pandemic APP is estimated as having reduced the euro area 10-year government bond yield by around 1 percentage point: see more closely Rostagno et al (2019). A tale of two decades: the ECB's monetary policy at 20. ECB Working Paper Series, 2346. ↑

9. For example, the first TLTRO is estimated to have reduced the interest rate on corporate lending by the banks by 0.2 of a percentage point: see Benetton and Fantino (2021): Targeted monetary policy and bank lending behavior. Journal of Financial Economics (forthcoming). Also Rostagno et al (2019) estimate the TLTROs to have reduced the lending rate by 0.2. of a percentage point by 2019. ↑

10. The model includes euro area interest rates, and financial market and macroeconomic variables and is estimated using Bayesian analysis on monthly data. The SVAR model allowed us to identify five different policy shocks that affect euro area interest rates and risk premia in various ways. In identifying the shocks, we have drawn on zero-value and signed delineators and tight interval effects at those moments when the ECB has announced its monetary policy measures. The impacts of the purchase programmes are analysed via shocks that affect the risk-free long-term interest rate and the risk premia on government bonds. TLTRO impacts are analysed via shocks that change the lending rate and the stock of loans. ↑

11. Otherwise the expansion of the purchase programmes, for example, could lead after a delay to a rise in policy interest rates, as the central bank responds to accelerating inflation. The purchase programmes are, however, accompanied by forward guidance such that the policy rates will be held at their current or lower levels until the inflation outlook returns sustainably to a level sufficiently close to 2%. In the calculation, the policy rate and expectations regarding it are fixed at zero with monetary policy shocks reflecting forward guidance and short interest policy. ↑

12. The estimated impacts of the purchase programmes are slightly more positive than in the calculations by e.g. Aguilar et al (2020) and ECB (2020) (footnote 6). This is due to the different approach to identifying the impacts and the taking into account of later additions to the programmes. ↑

13. The impacts on GDP are temporary and GDP will return to its baseline trajectory at the end of the forecast horizon. ↑

Keywords

ECB, monetary policy, pandemic emergency purchase programme (PEPP), policy evaluation, purchase programmes, TLTRO