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The Vienna Institute for International Economic Studies
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VASILY ASTROV
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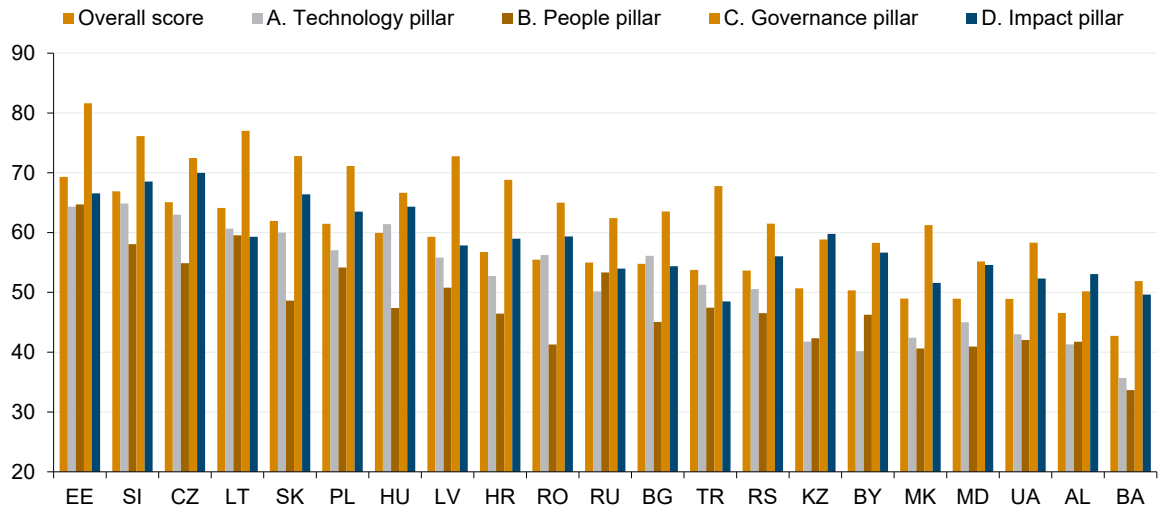
Chart of the month: Network readiness index in CESEE

BY DORIS HANZL-WEISS

The COVID-19 pandemic that has engulfed the world since the beginning of 2020 has brought information and communication technologies (ICT) and the internet to the forefront: as most of our lives have gone online, so connectivity and digital skills have come to be of the utmost importance.

Network Readiness Index, Score (1-100), 2019, ranked by overall score



Notes: The Network Readiness Index (NRI) is a composite index comprising 62 indicators. NRI is composed of four pillars – a technology pillar, a people pillar, a governance pillar and an impact pillar, with each pillar made up of three sub-pillars:

- Technology pillar: Access, Content, Future Technologies
- People pillar: Individuals, Businesses, Governments
- Governance pillar: Trust, Regulation, Inclusion
- Impact pillar: Economy, Quality of Life, SDG (Sustainable Development Goal) Contribution

Indicators are normalised using the Min-Max normalisation method, so that all values fall into the [0, 100] range, with higher scores indicating better outcomes. The computation of NRI is based on successive aggregations of scores, from the indicator level (i.e. the most disaggregated level) to the overall NRI score. In general, the unweighted arithmetic mean has been used to aggregate (i) individual indicators within each sub-pillar, (ii) sub-pillars within each pillar, and (iii) the pillars comprising the overall NRI. Kosovo and Montenegro are not included.

Source: S. Dutta and B. Lanvin (2019), 'The Network Readiness Index 2019: Towards a Future-Ready Society', Portulans Institute, Washington, DC, USA.

The above chart shows the digital readiness of CESEE countries to face these new challenges. The Network Readiness Index (NRI), which was updated and redesigned in 2019,[1] is the global index for the application and utilisation of ICT; it covers 121 economies. The first five places are occupied by Sweden, Singapore, the Netherlands, Norway and Switzerland (with scores of 83-81). In the CESEE region, the best-positioned countries are Estonia and Slovenia (ranked 23rd and 27th, respectively), followed by the

[1] The NRI was formerly published by the World Economic Forum but is now managed by the Portulans Institute.

Czech Republic and Lithuania (placed 30th and 31st). Overall, the EU-CEE countries are quite well placed; they are followed by Turkey, the CIS and Ukraine, with the Western Balkan countries trailing behind (Albania and Bosnia and Herzegovina only rank 75th and 81st, respectively).

If we drill down into the detail, the index is composed of four pillars: a technology pillar, a people pillar, a governance pillar and an impact pillar; and each pillar is made up of three sub-pillars. In CESEE, the governance pillar is doing particularly well, and the impact pillar also scores highly. At the other end, the people pillar generally scores lowest of the four pillars. At a more detailed, sub-pillar level, the people pillar depicts the involvement of individuals, businesses and governments with ICT. In CESEE, of the three elements within the people pillar, individuals are often found to perform best; meanwhile in 14 countries businesses do worst and in seven countries the worst performers are the governments. Interestingly, there are two exceptions to this pattern: in the Czech Republic, businesses are doing best in the people pillar, while in Russia it is the government. The technology pillar is also lagging behind, especially in the CIS and the Western Balkan countries. In order to face the new challenges, in particular the technology and the people pillars need to be strengthened.

Opinion Corner*: Will monetary stimulus in response to the COVID-19 pandemic yield the desired results?

BY JOSEF PÖSCHL[1] AND VASILY ASTROV

Massive monetary stimulus is being used to offset the negative economic effects of the COVID-19 induced lockdowns. While it has prevented the collapse of the financial markets, it is unlikely either to fuel inflation or to boost GDP growth. The latter mainly depends on fiscal measures.

We have learnt that $M * V = Y_r * P$, where M stands for the quantity of money, V for money velocity (the frequency of money use within a given period), Y_r for GDP in real terms and P for the price level.

For decades, this relationship, formulated by Irving Fisher and known as the 'equation of exchange',[2] has continued to exert a strong influence on economists and policy makers. Whenever a central bank decides to buy a large volume of government bonds or other securities, and thus injects liquidity into the economy, many observers hear the sound of alarm bells ringing, as this is supposed to fuel inflation.[3] Others believe that it will provide a boost for the real economy. More M is supposed to increase either P or Y_r, or both, because V is supposed to remain constant.

We argue that in the current circumstances, neither the fears of inflation nor the hopes of a rapid economic recovery may come to be realised, since the velocity of money will likely decline – as has always been the case in time of crisis.

THREE TYPES OF MONEY DEMAND

Basic macroeconomic models always start with the assumption that M is a constant, which can be exogenously modified through monetary policy. These models do not take into account the fact that, in reality, M is also determined by demand for credit. Whenever economic agents want to spend more money on consumption or investment, they apply for loans, and commercial banks increase the quantity of money in the economy by extending such loans. That is, the quantity of money is ultimately endogenous.

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* Disclaimer: The views expressed in the Opinion Corner section of the Monthly Report are exclusively those of the authors and do not necessarily represent the official view of wiiw.

1 Josef Pöschl is former senior economist at wiiw; in recent years, as a consultant, he has worked as team leader on EBRD and EuropeAid projects.

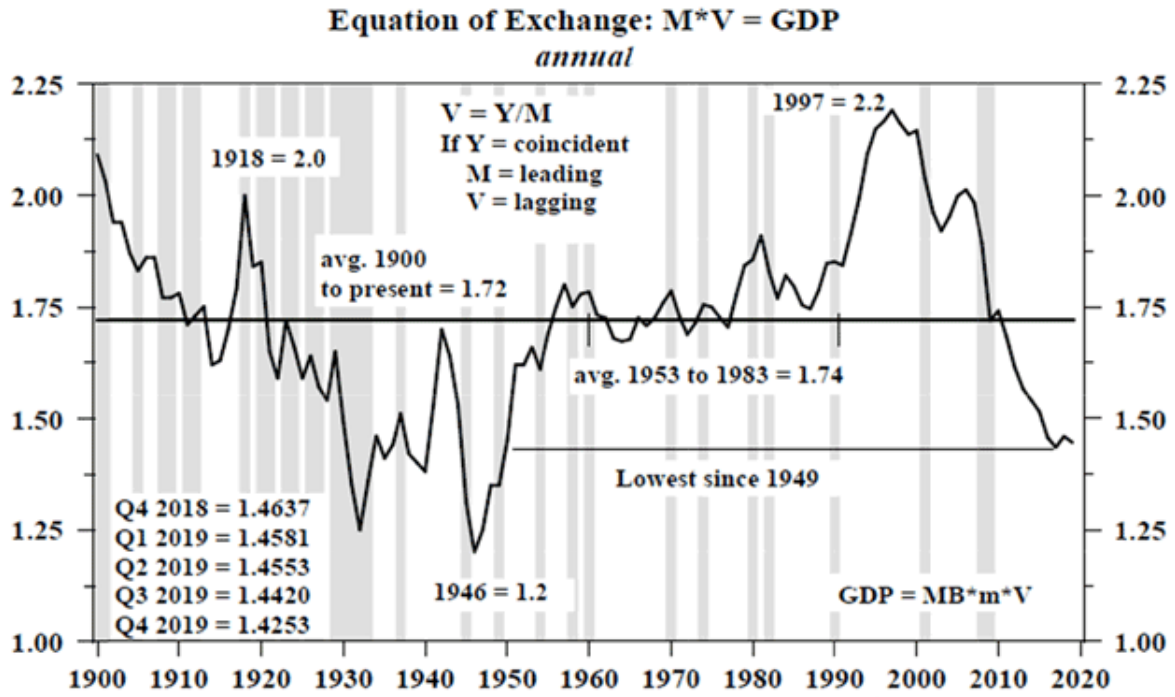
2 I. Fisher (1911), *The Purchasing Power of Money: Its Determination and Relation to Credit, Interest and Crises*. Macmillan, New York.

3 To a large degree, this explains Germany's opposition to the ultra-loose monetary policy pursued by the ECB over the past decade.

The velocity of money circulating in the real sector may be stable, but this is only part of total M. We should distinguish between the following three types of money 'use' or 'demand': (i) money being used for payments in the real sector; (ii) money being used to store wealth, e.g. in the form of a deposit in a commercial bank or a safe; and finally (iii) money being used for purchases on the financial markets. If monetary policy increases M, this may lead to changes in the real sector in the form of higher Y_r, higher P, or both. Alternatively, money may end up being used as a wealth storage vehicle, so that it will not have any impact on Y_r and P (this is what is referred to as a 'liquidity trap'). Finally, additional money may find its way onto financial markets. In that case, it may have a positive impact, for instance, on the stock indices or the price of other assets, such as real estate. On these markets, there is a price level P_f, which may be completely different from P, the price level in the real sector.

Depending on the economic circumstances, the shares of M used for these three different purposes – real transactions, wealth storage and financial market acquisitions – can shift markedly, leading to a change in the velocity of money. In times of economic boom, more M is used to serve transactions in the real sector, and the velocity of money goes up. In times of crisis, by contrast, more M is used as wealth storage, and the velocity of money goes down. Besides, what matters is the transmission mechanism of monetary stimulus: it may trigger a bullish mood in the financial markets, but not in the real economy, and in that case the velocity of money may decline as well. In the United States, for instance, V has been fluctuating strongly around its historical average of 1.72, reaching an all-time peak of 2.2 in 1997, since when it has mostly been trending downward. By the end of 2019, it had declined to 1.43, its lowest value since 1949, and will likely drop further this year (see Figure 1).

Figure 1 / Velocity of money in the US, 1900-2019



Source: Hoisington Investment Management, found in John Mauldin, Bending the Inflation Curve, posted 10 April 2020, https://www.mauldineconomics.com/frontlinethoughts/bending-the-inflation-curve.

FINANCIAL MARKETS, THE GREAT BENEFICIARIES OF MONETARY EASING

Over the past few decades, central banks have pumped a lot of new liquidity into the economy on at least three occasions: in 2000-2001, after the dot.com bubble burst; during the global economic crisis of 2008-2009; and most recently, in response to the COVID-19 crisis.[4] On each occasion, this helped to prevent a collapse of the financial markets: after an initial shock, they soon became 'bullish' again. In that sense, monetary policy has been very successful. For instance, between the two pre-crisis peaks (in October 2007 and February 2020), the German DAX index picked up by 70% – much more than the 37% growth in nominal GDP in 2007-2019. Similar trends could be observed in other advanced economies.

However, monetary easing has done little to stimulate aggregate demand in the real economy. In theory, monetary policy can reduce the risk exposure of real sector investment by ensuring that investors can borrow money at a low interest rate. Indeed, interest rates have plunged markedly since the 2008-2009 crisis. Nevertheless, demand for credit in the real economy has remained generally low – not least because growth prospects have been constrained by austerity policies, at least in the euro area.

ASSET PRICES CAN POTENTIALLY RISE INDEFINITELY

What might economic developments look like in the next few years? In the aftermath of the COVID-19 crisis, the real sector will be traumatised. Entrepreneurs have raised their assessment of the risk of investment, and we cannot be sure that investment in productive assets will reach pre-crisis levels again soon. Besides, the COVID-19 crisis seems to have left the mood of households depressed, too. As these are global phenomena, export opportunities have worsened as well. Therefore, only governments can generate a rise in aggregate demand. Currently, this is what most of them are trying to achieve, including the EUR 750 billion Next Generation EU package, approved on 21 July 2020.[5] This will, it is hoped, re-establish expectations of future growth, so that ultimately the private sector will take over again. However, it is unclear how long this policy will continue: a government-manufactured good business climate as a permanent target also creates discomfort, and a return to austerity is likely in the medium term (as happened after the global financial crisis of 2008-2009). Besides, government demand only partially offsets the fall in private demand, and the real sector is under deflationary pressure, rather than inflationary.

In this situation, the central banks will likely continue to pump liquidity into the economic system. Most probably, in the absence of fiscal stimulus in the medium term, this new liquidity will again find its way primarily onto the financial markets, rather than into the real economy. This will produce further asset market inflation – something investors are keen on. One may be tempted to call it 'bubble' generation. The thing about bubbles is that one expects them to burst – sooner or later. However, why shouldn't asset prices grow indefinitely, so long as central banks keep 'nurturing' them? According to this scenario, asset prices could conceivably grow even in the long term. The growth of physical wealth is unlikely to keep pace, so that a rising share of this wealth will be concentrated in the hands of big financial corporations.

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4 For instance, on 4 June 2020 the ECB announced a EUR 1,350 billion pandemic emergency purchase programme (PEPP), see https://www.ecb.europa.eu/press/pr/date/2020/html/ecb.mp200604~a307d3429c.en.html

5 https://www.consilium.europa.eu/en/

Public debt and inflation

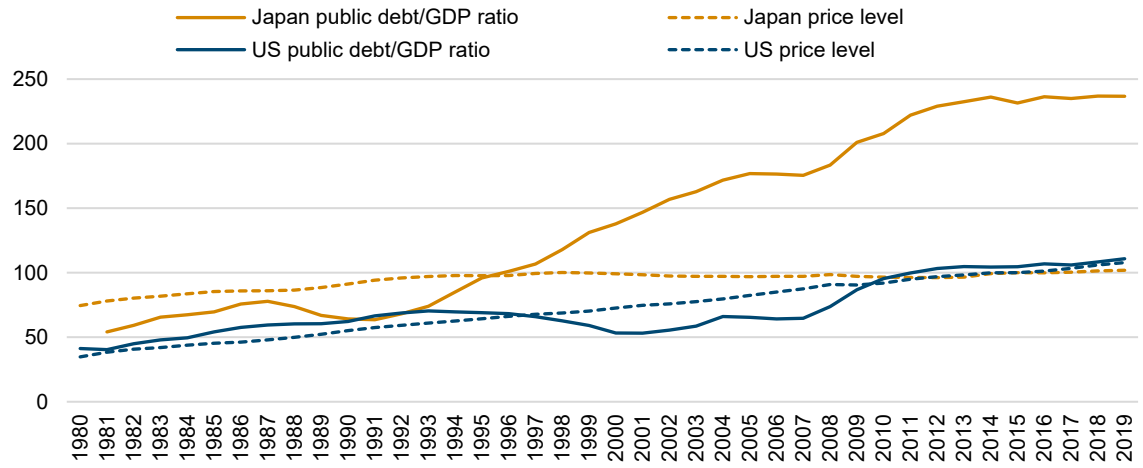
BY LEON PODKAMINER

Granger non-causality tests applied to data for a large set of countries indicate that the public debt/GDP ratio is generally a poor 'leading indicator' for the price level, while the growth rate of the public debt/GDP ratio is generally a poor 'leading indicator' for the inflation rate. Moreover, in a few cases the rising public debt/GDP ratio appears to have depressed inflation. The widespread conviction that expanding public debt must sooner or later lead to higher inflation is empirically unfounded.

The idea that rising levels of public debt must sooner or later lead to higher inflation still haunts many economists – amateurs as well as professionals.[1] The massive 'deficit spending' currently necessary in view of the global recession caused by the coronavirus pandemic may be less than adequate – also because of the instinctive fears of ensuing inflations (or hyperinflations).

However, history casts doubt on the purported link between public debt and inflation. Massively rising public debt/GDP ratios during and after the Great Recession have left inflation depressed. Yearly inflation averaged 1.1% for the euro area (12 core countries) over the ten-year period 2008-2018. The average inflation rate for Germany was 1.2%, for the US it was 1.6%, and for Japan it was 0.4%. Certainly, it is possible to claim that eventually, in some indefinite 'long run', pent-up inflation will have to come back (or be brought back to effectively reduce public debt).

Figure 1 / Public debt/GDP (%) and price level (2015=100): Japan and US, 1980/81-2019



Source: AMECO.

[1] An esoteric 'Fiscal Theory of the Price Level', initiated by Leeper (1991) and further elaborated by Woodward, Cochrane and others, sought to link the price level to fiscal (and not merely monetary) policies. Buiter (1999) showed the theory to be 'fallacious'. More recently Farmer and Zabczyk (2019) offered a 'requiem' to it.

The longer-term data on price levels and public debt/GDP ratios for the US and Japan are shown in Figure 1. Evidently, since 1994 Japan's strongly expanding public debt has not had much of an observable impact on the price level. If anything, the rapid rise in Japan's debt/GDP ratio after 2008 could be linked to a slight deflation prevailing from 2008 through to 2013. Things are less obvious for the US: both have tended to increase secularly, and the 'plain eye' does not offer any clue as to the direction of eventual 'causality'.

ECONOMETRIC EVIDENCE FOR THE US AND JAPAN

However, it is possible to test statistically for the presence of Granger causality. Since both indicators for the US and the public debt/GDP ratio for Japan are non-stationary, testing for Granger non-causality may be executed using the Toda-Yamamoto (1995) procedure. Table 1 reports the P-values for the Granger non-causality tests applied to the price and debt/GDP levels.

The hypothesis that public debt level does *not* Granger-cause price level is rejected (at the conventional 5% significance level) only for Japan. All remaining hypotheses (including for the US debt level not Granger-causing price level) cannot be rejected. Thus, there is econometric evidence that the US public debt level is a poor 'leading indicator' for the US price level, whereas Japan's public debt level is a good ‘leading indicator’ for Japan's price level. But perhaps paradoxically, the impact in question appears to be negative: it is evident from Figure 1 that Japan’s high and rising debt level is in due time followed by a stagnating or even lowered price level and disinflation.

Table 1 / P-values for Granger non-causality tests for Japan and the US (years 1980/81-2019)

	Japan	US
price level does not Granger-cause debt/GDP level	0.3901	0.1959
debt/GDP level does not Granger-cause price level	**0.0203**	0.0830

Source: Own calculations (via Toda-Yamamoto procedure) based on AMECO data.

The results of Granger non-causality tests conducted on the *growth rates* of both items are reported in Table 2. It appears that here Granger causality runs both ways in Japan: inflation Granger-causes the rate of growth of the public debt/GDP ratio, and the growth rate of public debt/GDP ratio Granger-causes inflation. For the US only one Granger-causality holds: from the inflation rate to the rate of growth of the public debt/GDP ratio. Of course, in most cases the Granger-causality does not, per se, say anything about the strength and direction of the 'causal impacts'.

Table 2 / P-values for Granger non-causality tests applied to the growth rates for Japan and the US (years 1980/81-2019)

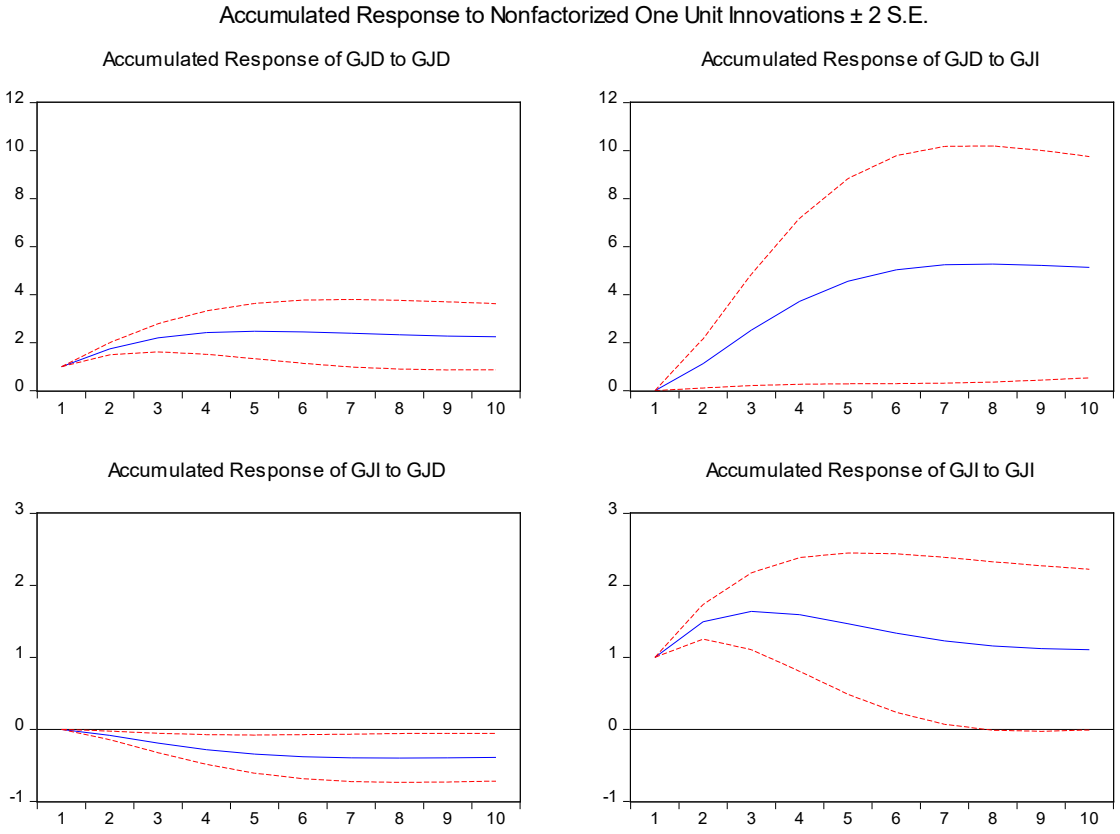
	Japan	US
inflation rate does not Granger-cause growth rate of the debt/GDP level	**0.0275**	**0.0067**
growth rate of the debt/GDP level does not Granger-cause inflation rate	**0.0036**	0.4821

Source: Own calculations (via auxiliary VAR analyses) based on AMECO data.

To learn more about the strengths and directions of 'causalities' as contained in the data one may resort to the VAR (vector auto regression) analysis of the data. Figures 2 and 3 sum up the properties of the

VARs calculated for Japan and the US. Of particular interest are the bottom left-hand side panels, showing the accumulated responses of inflation (GJI for Japan in Figure 2; GAI for the US in Figure 3) to a one-off 'shock' to the rate of growth of the public debt/GDP ratio (GJD for Japan in Figure 2; GAD for the US in Figure 3).

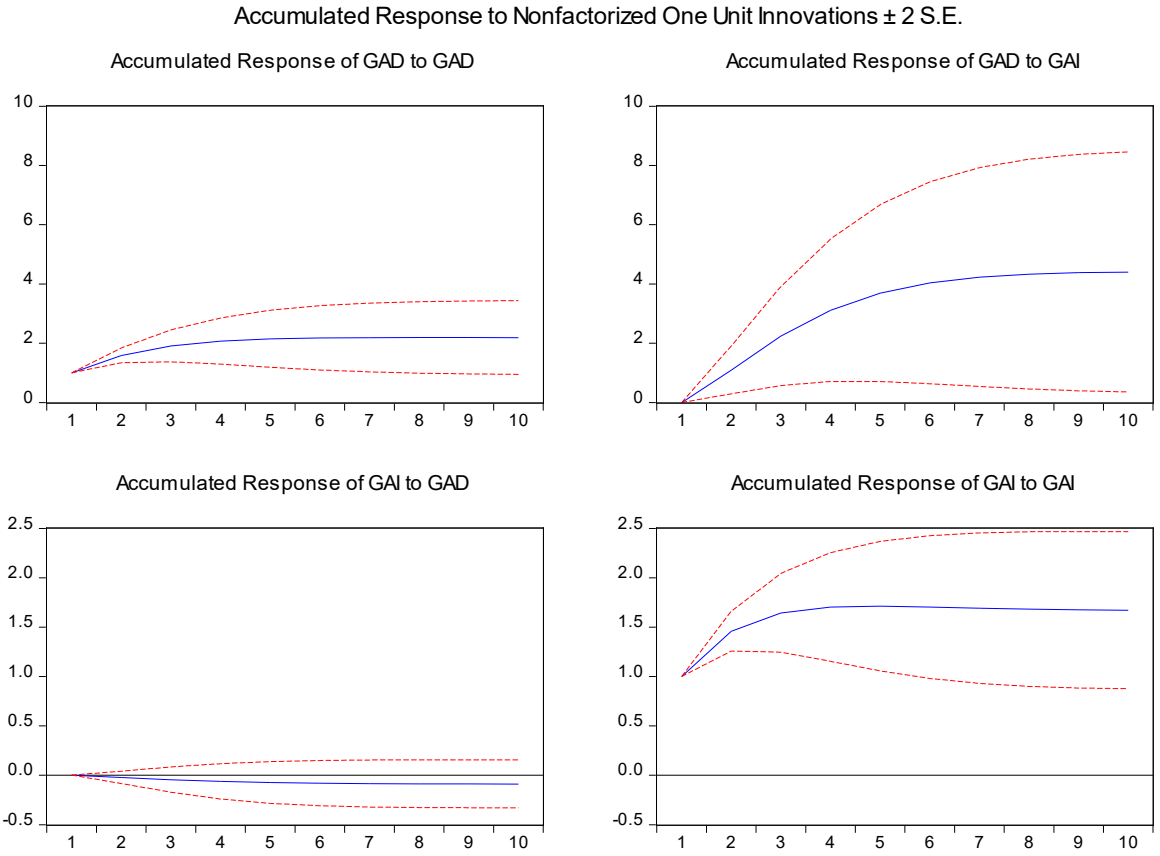
Figure 2 / Impact Response Functions for Japan



As can be seen, the accumulated impacts on inflation of a one-off increase in the rate of growth of the public debt/GDP ratio are *negative* in both countries. An increase in the rate of growth of the public debt/GDP ratios has – on average – been depressing inflation during the period under consideration. On average, such impacts died out after about seven years in both countries. However, the size of the negative impact differed in the two countries – it was much stronger in Japan and close to nil in the US. Besides, the two-standard deviations range of impacts for Japan is located below zero. That range for the US is located around zero – the sign of the impact is here much more ambiguous.

The upper right-hand side panels indicate that the impacts on the rate of growth of the public debt/GDP ratio of 'shocks' to the inflation rate are unambiguously *positive* in both countries. This suggests that inflation has been *supporting* growth in the public debt/GDP ratio, rather than acting to erode it. This is inconsistent with the idea that inflation is a 'method' of getting rid of public debt. Observe that the impact response functions agree with the findings from Table 2. For Japan the data indicate Granger causality running in both directions, while for the US the Granger causality runs only from the inflation rate to the rate of growth of the debt/GDP ratio.

Figure 3 / Impact Response Functions for the US



EVIDENCE FOR OTHER COUNTRIES

For a much larger set of countries AMECO supplies the public debt/GDP and price level data starting in 1995. It is possible to conduct the Granger non-causality tests for these countries (albeit for a much shorter time span, 1995-2019). The detailed results of these tests are reported in a longer paper to be published shortly (Podkaminer, 2020).

It turns out that the public debt/GDP *level* is likely to 'cause' the price level in only a few, largely marginal countries. These include (1) countries pursuing very conservative fiscal policies with very low levels of public debt; (2) high-debt euro area countries kept fiscally on a short leash by the European Commission, i.e. Greece, Italy, Portugal and Spain (Ireland had its share of 'trauma' during and after the Great Recession too).

The hypothesis of the growth rate of the public debt/GDP ratio Granger-causing the inflation rate is invalid in 19 out of 27 countries (for which conclusive inferences can be drawn). In only eight of these is there evidence of Granger causality running from the growth rate of the public debt/GDP ratio to the inflation rate. Four of these countries, Ireland, Greece, Italy and Latvia, have been experiencing hard times since 2007, and two have been fiscally conservative all along (Luxembourg and Sweden). Of course, here the presence of Granger causality does not mean that a positive 'shock' to the rate of

growth of the public debt/GDP ratio is necessarily followed by positive increments to the inflation rate. As demonstrated earlier (Table 2 and Figures 2-3), the responses in question may be *negative*. (Actually, the responses of inflation rates to rising public debt/GDP ratios appear to be negative for Luxembourg and Sweden).

CONCLUSIONS

In conclusion, the Granger non-causality tests applied to data for a large set of countries indicate that the public debt/GDP ratio is generally a poor 'leading indicator' for the price level, while the growth rate of the public debt/GDP ratio is generally a poor 'leading indicator' for the inflation rate. Moreover, in a few cases the rising debt/GDP ratio appears to have depressed inflation. The widespread conviction that expanding public debt must sooner or later lead to higher inflation is empirically unfounded.

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Deregulation of European railways: Caution required

BY VASILY ASTROV AND DORIS HANZL-WEISS[1]

In 1991, the European Commission initiated the gradual deregulation of the railway sector, with the aim of making it more efficient and less dependent on government subsidies. However, the results of the deregulation of rail passenger services so far have been at best mixed. A sustainable reduction in subsidies has proved largely elusive, while competitive markets in rail passenger transportation have been confined to lucrative routes with high passenger turnover.

NATURAL MONOPOLY ARGUMENT UNDER PRESSURE

For a long time, all rail transport was considered a clear-cut case of so-called 'natural monopoly' – i.e. where the high entry and exit costs (which in turn are caused by the sunk costs of investments) deter competition and make monopolisation of the market possible (Campos and Cantos, 1999). At the end of the 1970s, however, the primacy of natural monopoly as the theoretical basis for the organisation of rail transport (as well as of energy, telecommunications and other sectors that had up until then been monopolised and controlled by the state) was challenged by the reformulated theory of 'contestable markets'. According to this theory, if the costs are low enough, the risk of a new supplier entering the market forces the monopolist to be efficient, which – among other things – reduces the need for public subsidies (Baumol et al., 1982).

The 'contestable market' hypothesis provided a theoretical foundation for deregulation and liberalisation of natural monopolies, including rail transport. From a theoretical point of view, one can distinguish the following sub-areas of deregulation and liberalisation:

› Vertical separation (separation of rail infrastructure from transport services);

› Horizontal separation (separation between passenger and freight transport); and

› The introduction of competition, which can be divided into the following two models:

- Competitive tendering, whereby a single bidder is granted a licence by the state and competition takes place only at the stage of submission of bids ('competition *for* the rail'); and
- Open access, whereby several providers of transport services are present on the market at the same time and compete with each other ('competition *on* the rail').

[1] This text is based on an earlier wiiw study (in German) done for ÖBB-Infrastruktur AG.

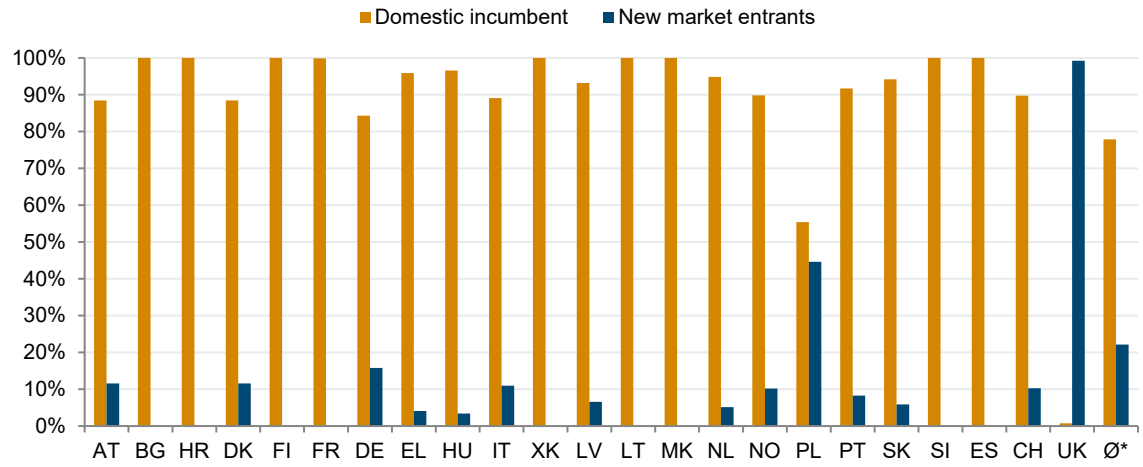
STAGES OF RAILWAY REFORMS

The drive to deregulate and liberalise the European railways was launched in 1991. Over the past three decades, a European internal market in the railway sector has been established. This has involved an extensive body of legal regulations – the so-called 'railway packages', which envisage most notably non-discriminatory access to infrastructure and the opening up of the market to rail transport services. This has proceeded gradually: the market for rail freight transport was opened up on 1 January 2007, and that for international rail passenger transport on 1 January 2010.

The latest (fourth) railway package, which was adopted in 2016, aims to make rail transport in the EU more attractive, innovative and competitive, and to complete the internal market for rail transport services. It provides for the liberalisation of the market for domestic passenger services and strengthens the role of infrastructure managers. Domestic passenger services can be provided in two ways: by offering competing services (open access) or by bidding for public service contracts. Since December 2019, new entrants have been able to offer commercial services, and from 2023, public service contracts in rail transport will be awarded almost exclusively through public tendering (with some exceptions).

This article focuses on the economic effects of deregulation and liberalisation in one segment of rail transport: passenger transport. The opening up of the market in this segment started later than in freight transport and has not yet been completed. It is therefore not surprising that in most EU countries the share of new entrants to rail passenger transport should still be relatively small (Figure 1). Only in the UK, where the railway sector was liberalised at a very early stage, do new entrants occupy almost the entire market. In Poland, the domestic state-owned incumbent accounts for about half of the market, and all new entrants combined for the other half (IRG-Rail, 2018).

Figure 1 / Market share of passenger railway undertakings (based on passenger km) in 2016



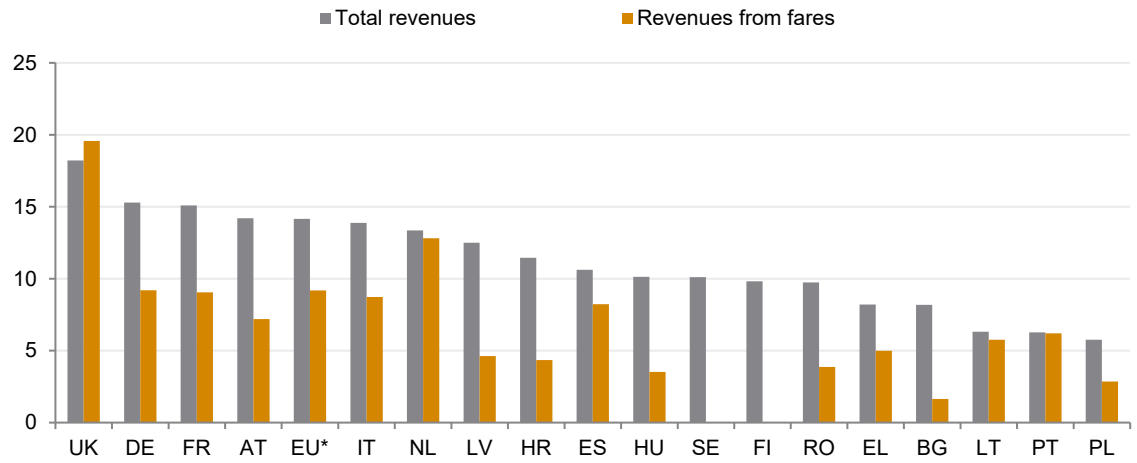
* Note: Average for all countries that provided data.
Source: IRG-Rail (2018).

ECONOMIC EFFECTS OF COMPETITIVE TENDERING

Competitive tendering has found a relatively broad application in only four EU states: **Sweden**, **the Netherlands**, **Germany** and, above all, **the UK**. In the first phase, competitive tendering did indeed often lead to the hoped-for reduction in subsidies – by up to 50% in Sweden and the Netherlands, for example. However, in the face of lower subsidies, transport service providers often had to carry out massive rationalisation, which resulted, among other things, in traffic interruptions and fewer trains. The original bids by the transport service providers often proved to have been too low for them to be able to provide services of the agreed volume and of adequate quality, which made it necessary to renegotiate the initial contracts. As a result, the hopes of lasting savings to the public sector proved elusive: after an initial decline, subsidies increased again over time (Alexandersson and Hultén, 2006; Nash and Smith, 2006).

Only in the UK has a decline in public subsidies been achieved in recent years. However, this has come about solely at the expense of higher fares for passengers, and not thanks to efficiency gains. Figure 2 shows that the cost of rail passenger transport in the UK is by far the highest in the EU and is double the EU average. Figure 2 also demonstrates that this is at least partly due to the absence of subsidies in the UK, as the strategy of the British government has been to shift the burden of financing rail transportation from taxpayers to passengers.

Figure 2 / Revenues of passenger railway undertakings in 2016, in eurocents per passenger km



* Note: Average for all countries that provided data.
Source: IRG-Rail (2018).

In almost all other EU countries, state subsidies have continued to provide an important source of revenue for rail companies: 28% of total revenue on average in the EU (as of 2016). The high degree of subsidisation of railways is necessitated by the high proportion of routes that are not profitable and that are provided on the basis of public service obligation (PSO), especially in local transportation and transportation in sparsely populated areas. On average in the EU, 65% of all passenger railway services are provided on a PSO basis.

Apart from missing subsidies, other reasons for the high fares on British rail passenger transport are:

› The high infrastructure charges, which are necessary for the renewal of the rail infrastructure, following neglect by the former private infrastructure operator Railtrack as well as by the previous state operator (the UK's railway infrastructure has subsequently been renationalised); and

› The de facto strongly monopolised market structure, which is related to the specific design of the franchise system of railway passenger services in the UK. Under this system, the winner in a tender competition is granted exclusive rights to provide transportation services. Thus, although open access exists in theory, in practice it is not really possible, as the winner of the tendering competition must not be hampered. This system has led to transport service providers operating on largely different routes and competing with each other only to a limited extent – i.e. only where the routes overlap with each other (Gütermann, 2013).

ECONOMIC EFFECTS OF OPEN ACCESS

In the EU, open access has so far been introduced primarily in the freight transport sector, where the prerequisites – especially profitability – are most likely to exist. In passenger transport, there are only six countries where open access has resulted in a competitive market on certain routes: **Germany**, **Italy**, **Austria**, **Sweden**, **Slovakia** and the **Czech Republic**. In all cases, open-access competition in passenger transport is confined exclusively to those segments with high traffic volumes. Private operators are mainly interested in lucrative routes and services on which they can make a profit (so-called 'cherry-picking'). Such routes are mainly found in long-distance traffic and usually connect large cities: e.g. Prague-Ostrava and Prague-Brno in the Czech Republic; Stockholm-Göteborg in Sweden; Rome-Milan, Rome-Turin, Rome-Venice and Milan-Ancona in Italy; Vienna-Salzburg in Austria; Cologne-Hamburg in Germany. In addition, there are several international routes on which there is also open-access competition in passenger transport.

In most of the countries mentioned above, the introduction of open-access competition in passenger transport has resulted in a higher number of trains per day. This is partly because, despite the increased competitive pressure, the state railways have not reduced the frequency of their services. In addition, in some cases, such as the Czech Republic, the quality of the rail journeys has also improved significantly, with many new services (such as food, TV screens, etc.) being offered on board (Tomes et al., 2016). Private transport providers generally offer a smaller range of services (fewer routes, fewer trains running on a particular route, a focus on peak times, etc.), but at lower prices. Their competitive advantage over the state railways therefore primarily revolves around price. The experience of Germany, Austria and Sweden, for example, shows that the price advantage offered by the new providers can be up to 50% (European Commission, 2016).

However, the question arises as to how sustainable these price reductions are. It is conceivable, for example, that private providers might offer targeted fare reductions in the initial phase, in order to gain market share. These initial fares may well be below the (variable) costs, and in such an instance constitute dumping. As soon as the target in terms of market share is reached, there is often an incentive to raise fares again. Then, if the provider does not succeed financially, it either has to leave the market or become dependent on state aid.

The experience of several countries provides support for this hypothesis, with all three scenarios mentioned above (market exit, fare increases and government aid) being realised in one form or another. It is reported that in the Czech Republic, for example, all competitors consistently make losses (Tomes et al., 2016). This situation is unlikely to continue in the long run without market exit, fare increases or state support. In the Netherlands, open-access competition in passenger transport ended with the bankruptcy of the private provider Lovers Rail in 1999 (van de Velde, 2005). In Sweden, the private provider MTR made losses in the first year after it entered the market, and the only way to recover its financial situation was to raise fares (Vigren, 2016). In Italy, the continuation of open-access competition in rail passenger transport has only been possible with state support (in the form of lower infrastructure charges), which calls into question the very concept of competition in rail passenger transport (Crozet, 2016).

CONCLUSIONS AND POLICY IMPLICATIONS

The EU Commission has been encouraging deregulation and liberalisation of rail transportation, guided by the theory that market-based mechanisms should result in lower costs and prices and better quality of transport services. However, despite several 'railway packages' adopted over the past decades, rail transport in the EU has so far been reformed only partially. In passenger transport, only limited segments are organised on a competitive basis. Moreover, the degree of liberalisation varies considerably from country to country. Most EU countries are still characterised by the dominance of state monopolies in rail passenger transport. The transition to market-based mechanisms in passenger rail transport is hampered by the high proportion of services provided on a PSO basis, which makes it heavily dependent on state subsidies.

The practical experience of individual EU states with the deregulation and liberalisation of rail passenger transport has so far been mixed, at best. Despite initial savings for the public sector following the introduction of competitive tendering, a permanent reduction in subsidies has proved elusive. The quality of transport services has also suffered in some instances. The introduction of open access on certain segments of passenger transport can arguably (and with certain reservations) be considered a success. However, this success is confined to lucrative routes with high passenger turnover, whose market share is small. By and large, these findings call into question the advantages of universal deregulation and liberalisation of passenger rail transport services. Rather, it would make sense to identify those segments where competition can function without harmful side effects (e.g. market abuse by private monopolies) and offer real benefits to consumers. The remaining segments should continue to be dominated by state-run railways.

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The monthly and quarterly statistics cover **22 countries** of the CESEE region. The graphical form of presenting statistical data is intended to facilitate the **analysis of short-term macroeconomic developments**. The set of indicators captures trends in the real and monetary sectors of the economy, in the labour market, as well as in the financial and external sectors.

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Conventional signs and abbreviations used

%	per cent
ER	exchange rate
GDP	Gross Domestic Product
HICP	Harmonized Index of Consumer Prices (for new EU Member States)
LFS	Labour Force Survey
NPISHs	Non-profit institutions serving households
p.a.	per annum
PPI	Producer Price Index
reg.	registered

The following national currencies are used:

ALL	Albanian lek	HRK	Croatian kuna	RON	Romanian leu
BAM	Bosnian convertible mark	HUF	Hungarian forint	RSD	Serbian dinar
BGN	Bulgarian lev	KZT	Kazakh tenge	RUB	Russian rouble
BYN	Belarusian rouble	MKD	Macedonian denar	TRY	Turkish lira
CZK	Czech koruna	PLN	Polish zloty	UAH	Ukrainian hryvnia

EUR euro – national currency for Montenegro, Kosovo and for the euro-area countries Estonia (from January 2011, euro-fixed before), Latvia (from January 2014, euro-fixed before), Lithuania (from January 2015, euro-fixed before), Slovakia (from January 2009, euro-fixed before) and Slovenia (from January 2007, euro-fixed before).

Sources of statistical data: Eurostat, National Statistical Offices, Central Banks and Public Employment Services; wiiw estimates.

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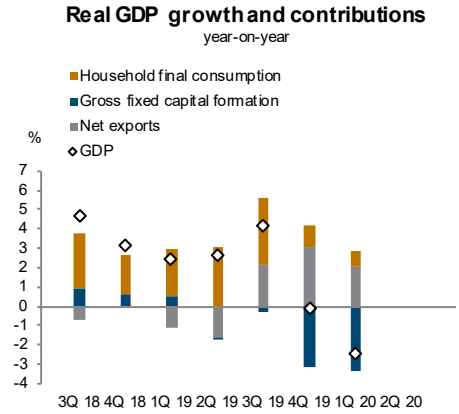
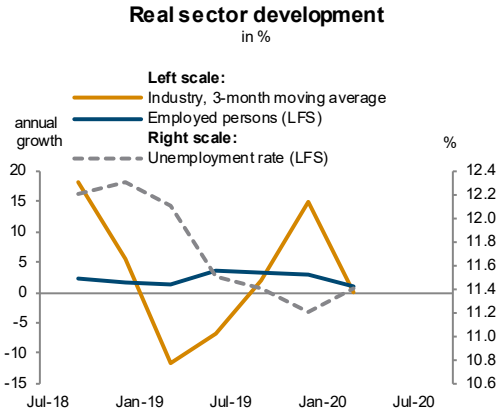
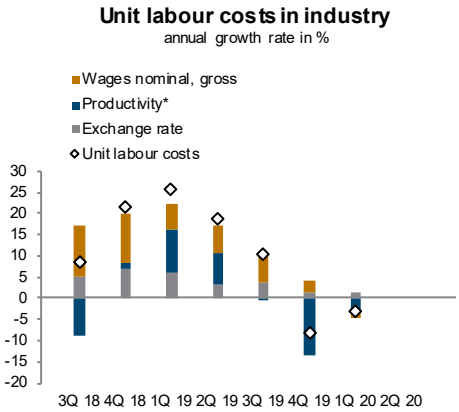
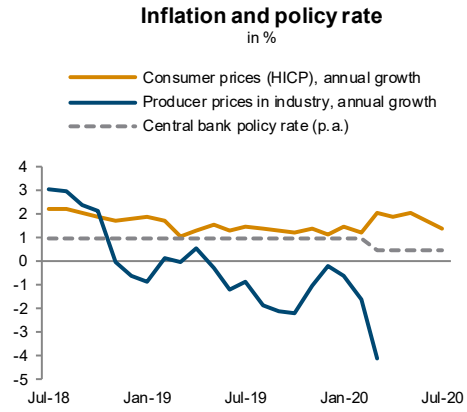
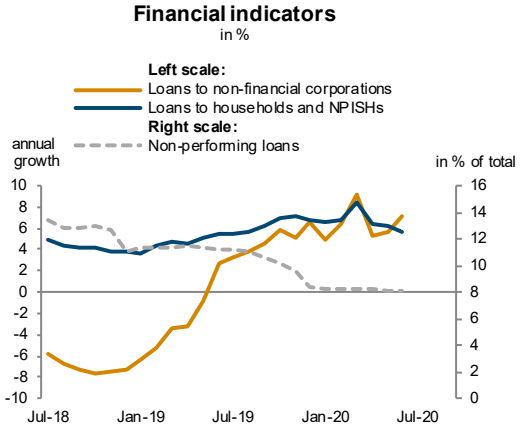
Albania

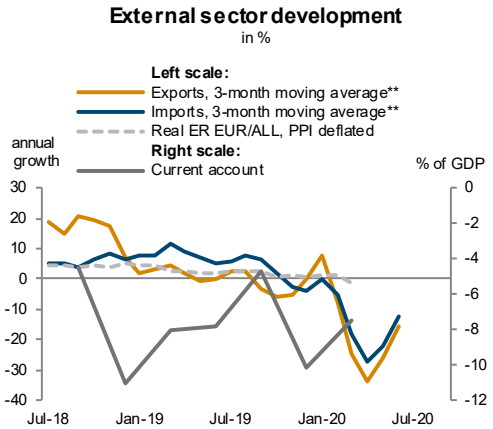












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**EUR based.

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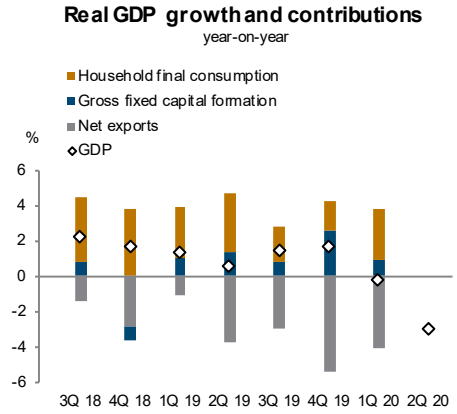
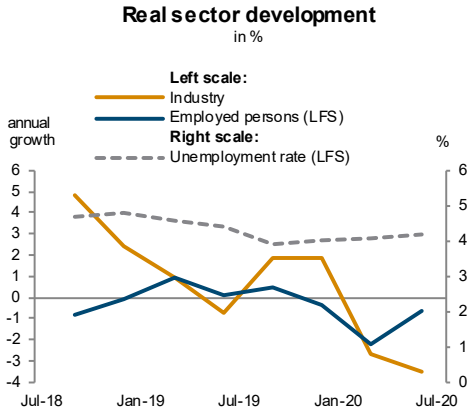
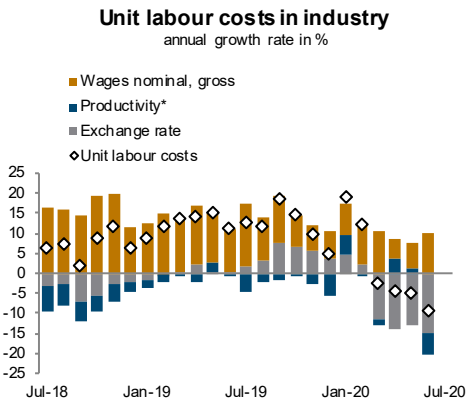
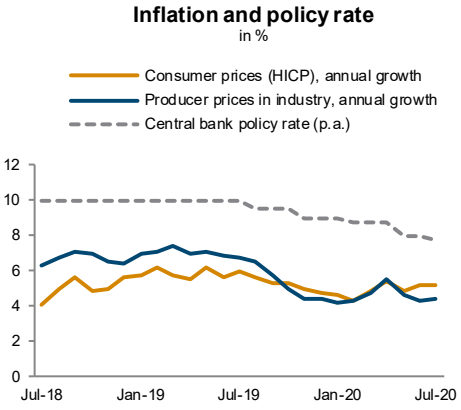
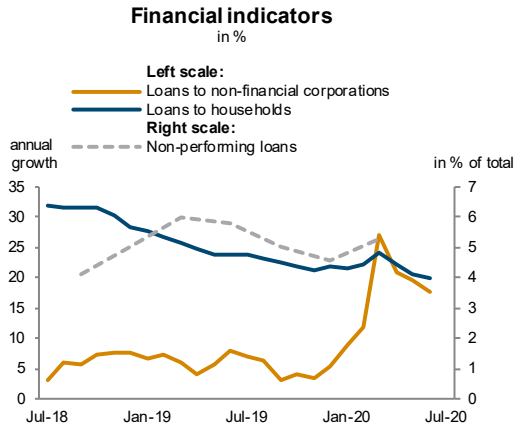
Belarus

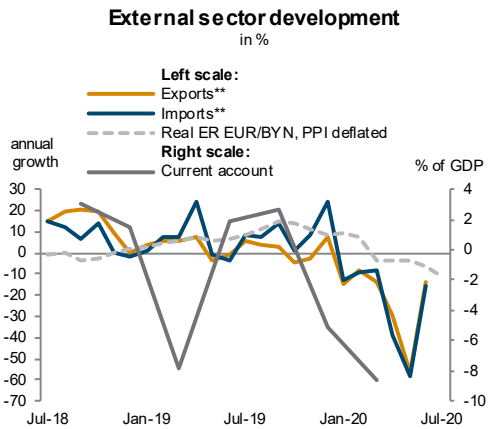












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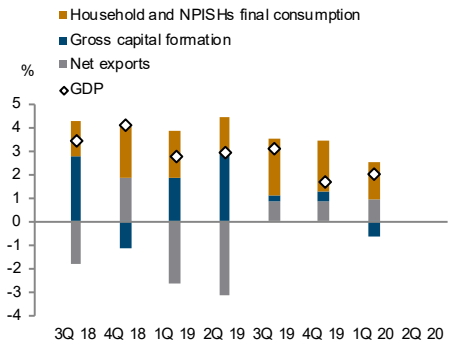
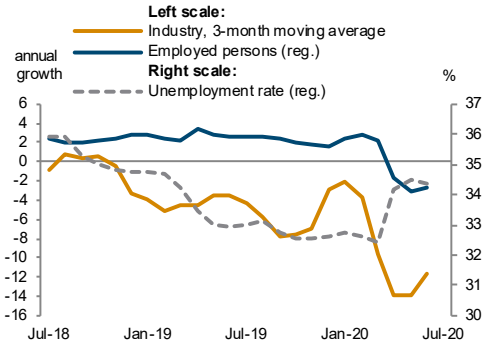
Bosnia and Herzegovina

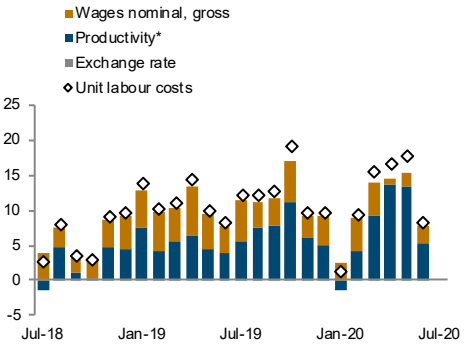
Real GDP growth and contributions
year-on-year



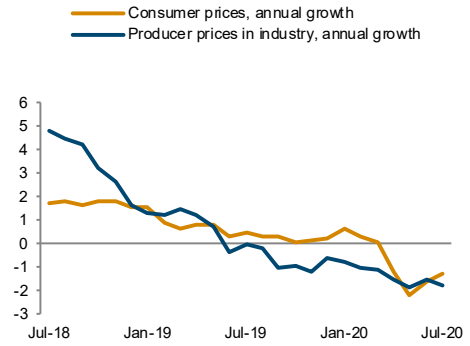
Real sector development
in %



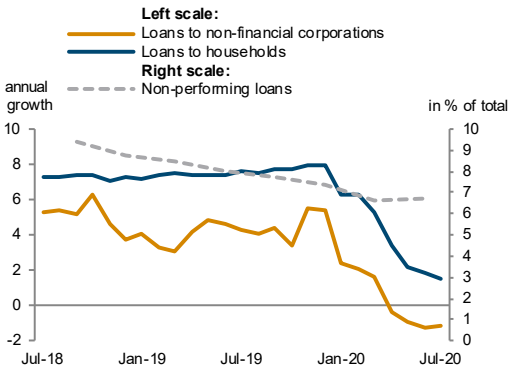
Unit labour costs in industry
annual growth rate in %



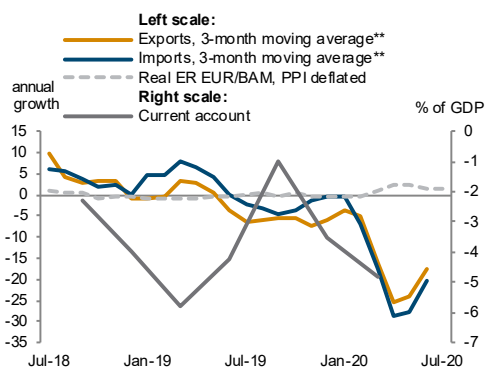
Inflation
in %



Financial indicators
in %



External sector development
in %



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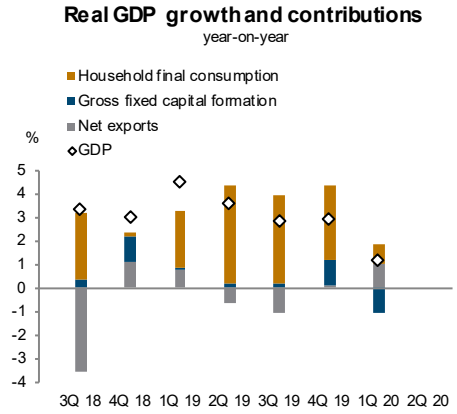
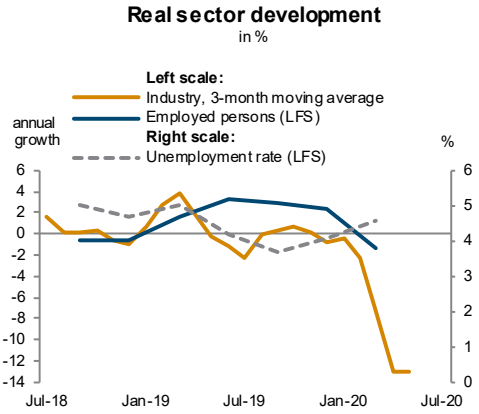
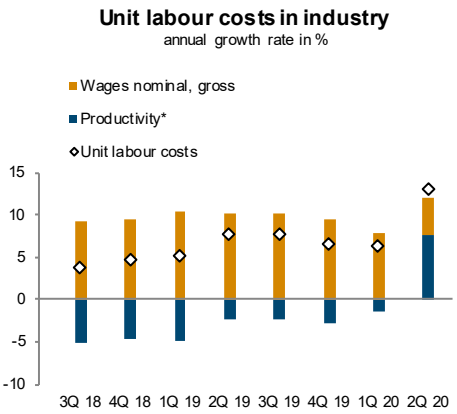
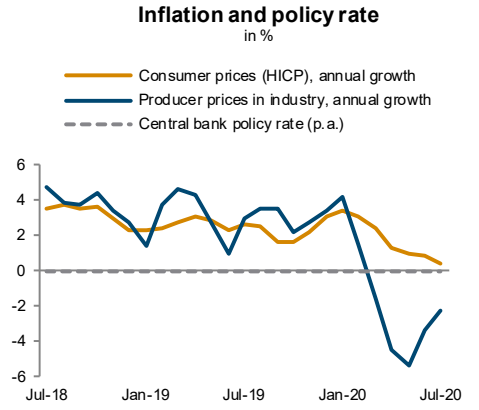
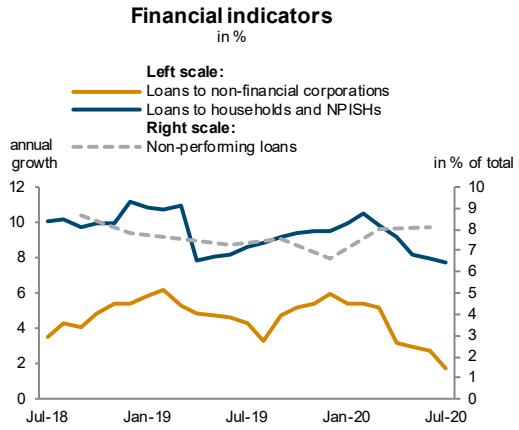
Bulgaria

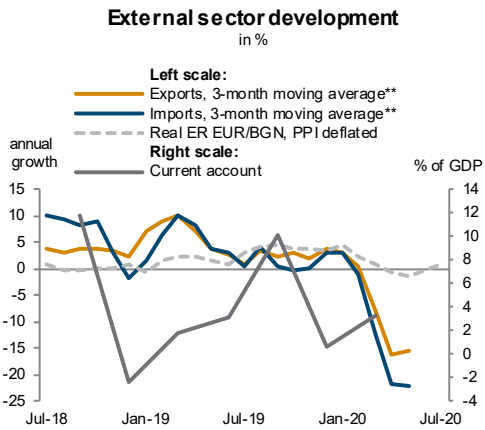












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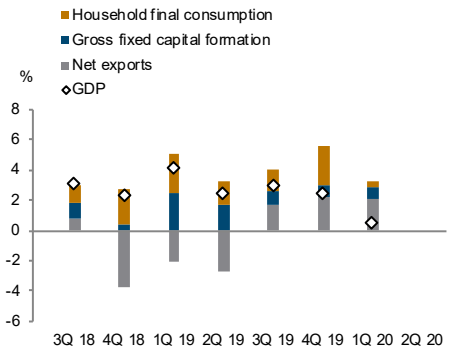
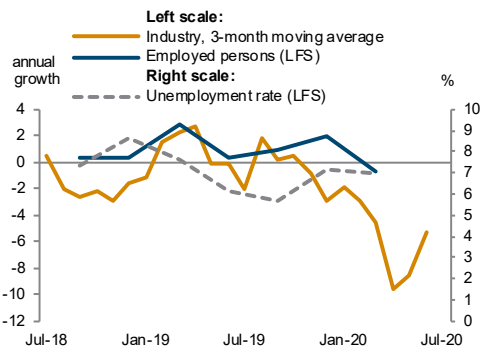
Croatia

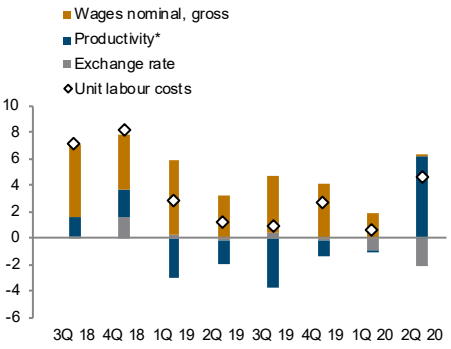
Real GDP growth and contributions
year-on-year



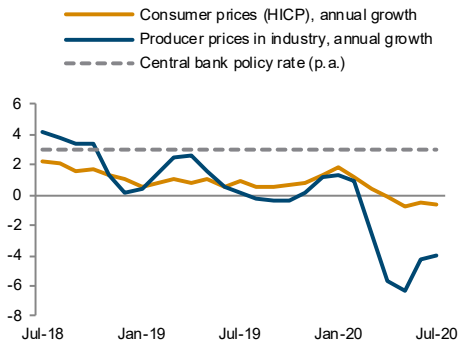
Real sector development
in %



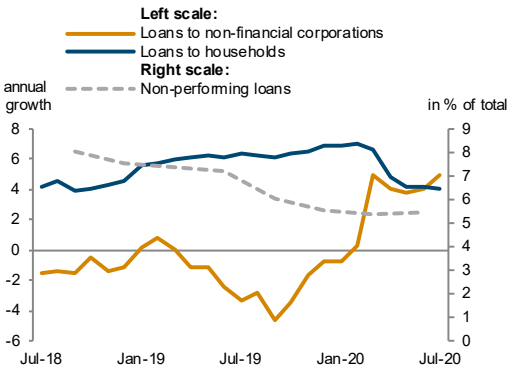
Unit labour costs in industry
annual growth rate in %



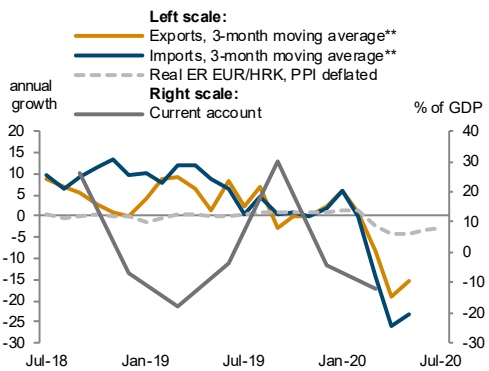
Inflation and policy rate
in %



Financial indicators
in %



External sector development
in %



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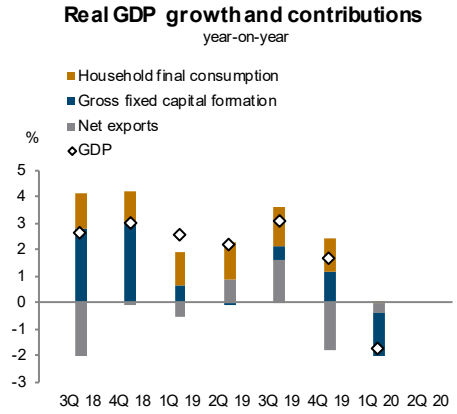
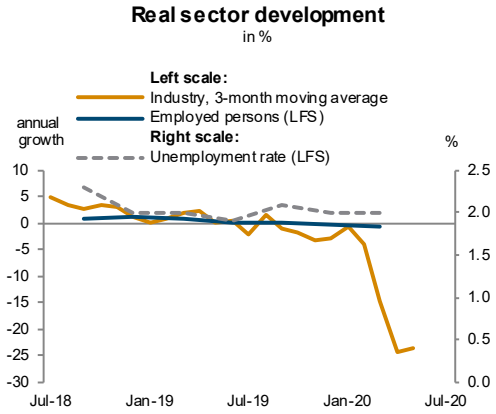
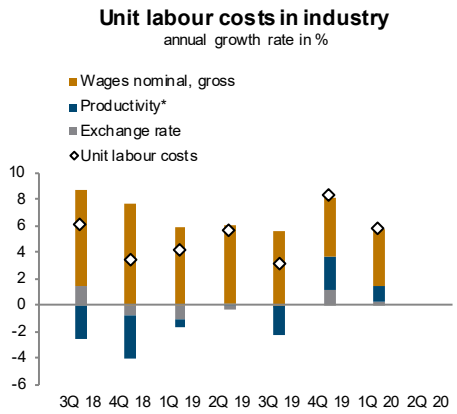
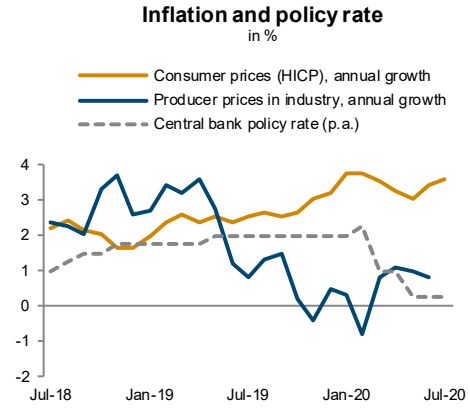
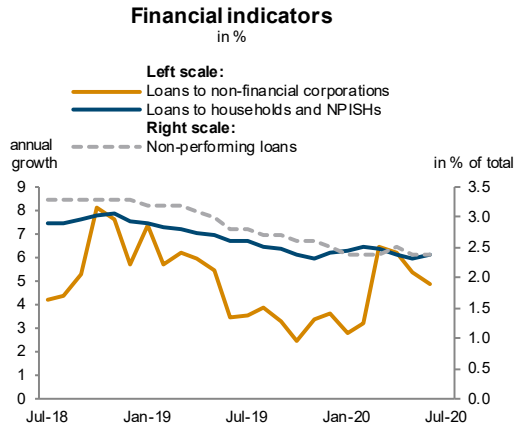
Czech Republic

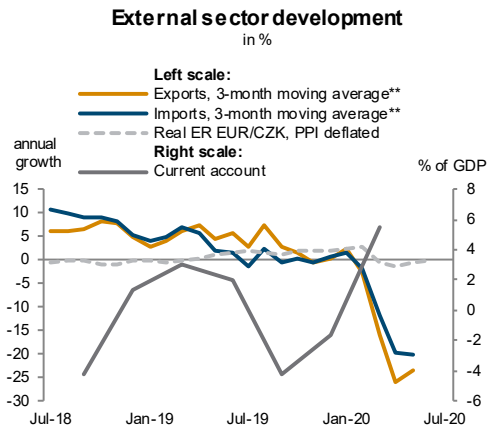












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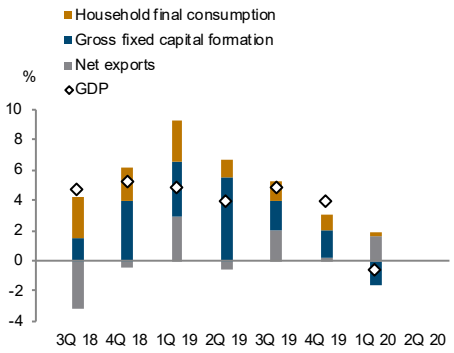
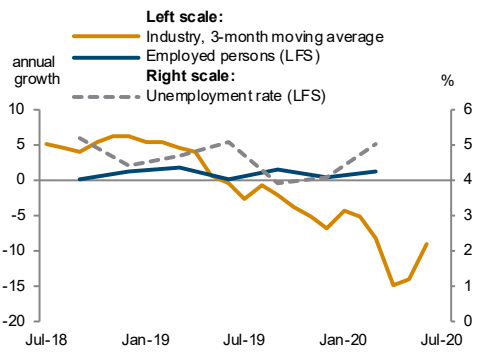
Estonia

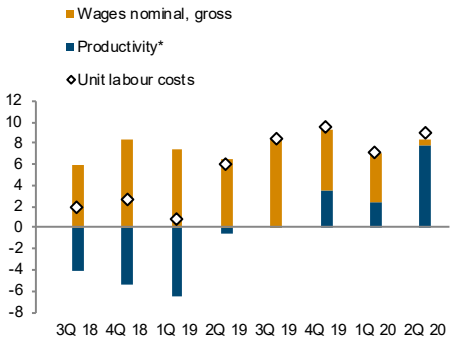
Real GDP growth and contributions
year-on-year



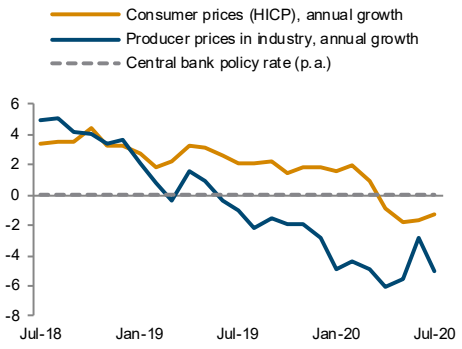
Real sector development
in %



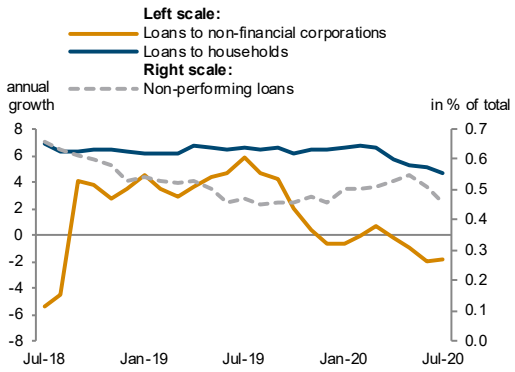
Unit labour costs in industry
annual growth rate in %



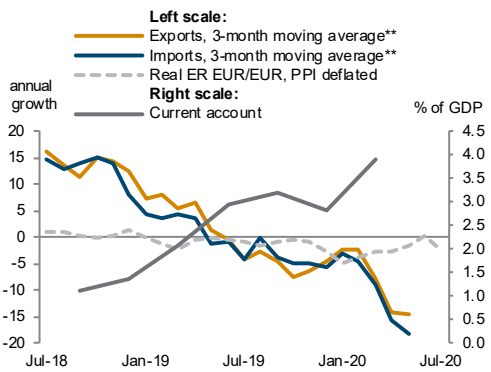
Inflation and policy rate
in %



Financial indicators
in %



External sector development
in %



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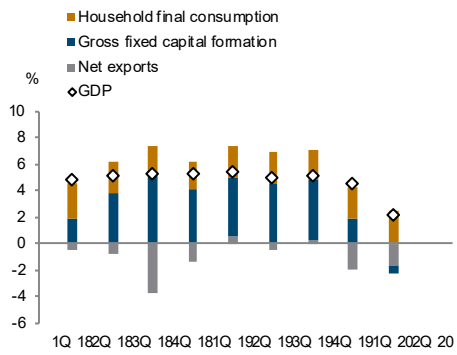
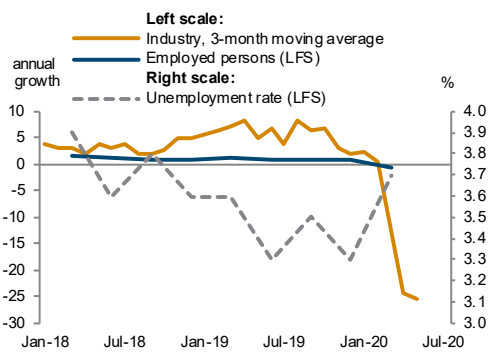
Hungary

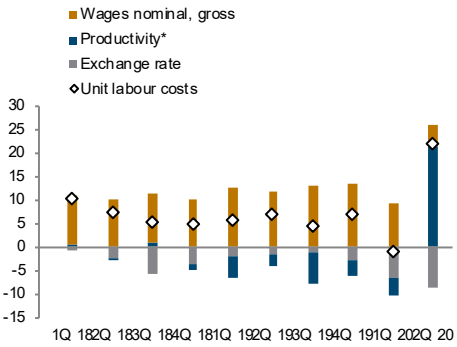
Real GDP growth and contributions
year-on-year



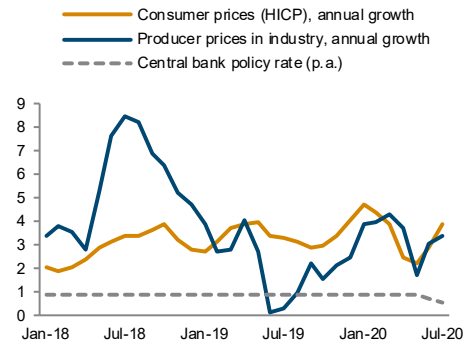
Real sector development
in %



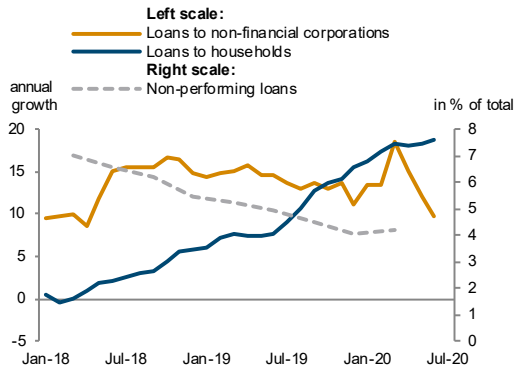
Unit labour costs in industry
annual growth rate in %



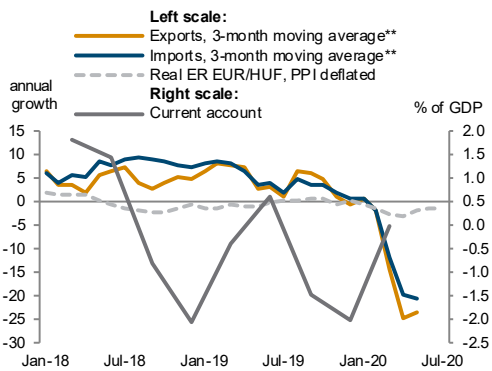
Inflation and policy rate
in %



Financial indicators
in %



External sector development
in %



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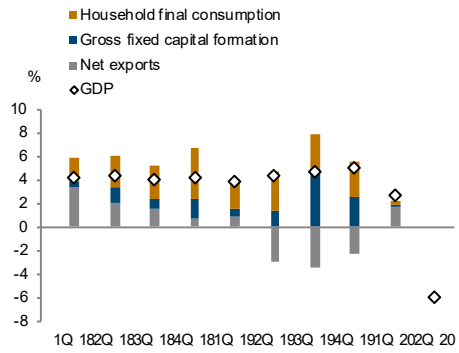
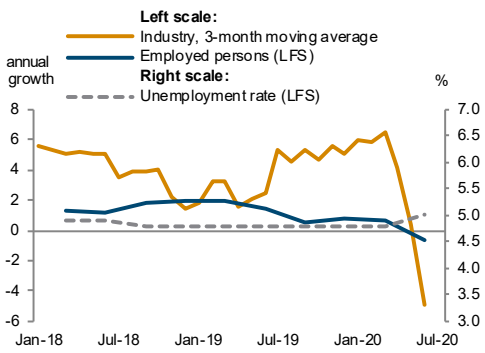
Kazakhstan

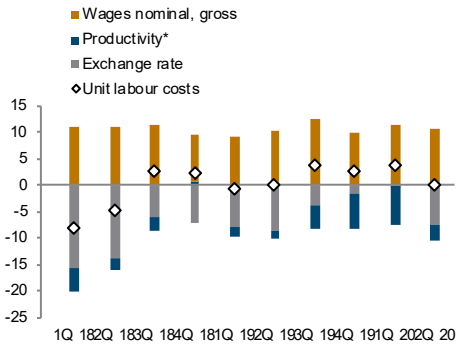
Real GDP growth and contributions
year-on-year



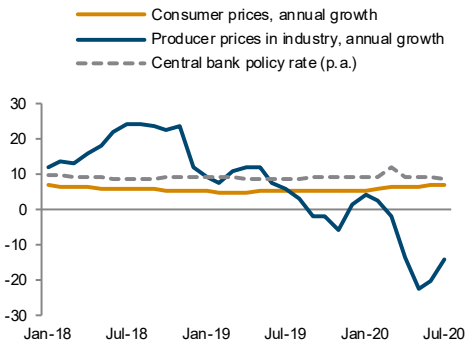
Real sector development
in %



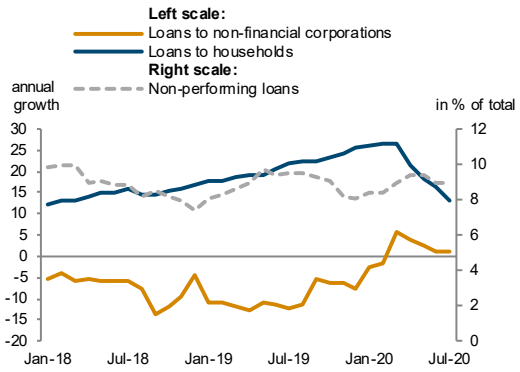
Unit labour costs in industry
annual growth rate in %



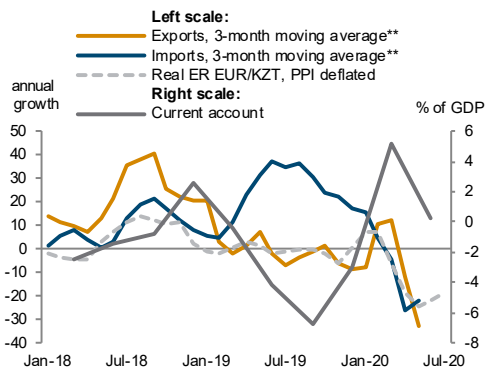
Inflation and policy rate
in %



Financial indicators
in %



External sector development
in %



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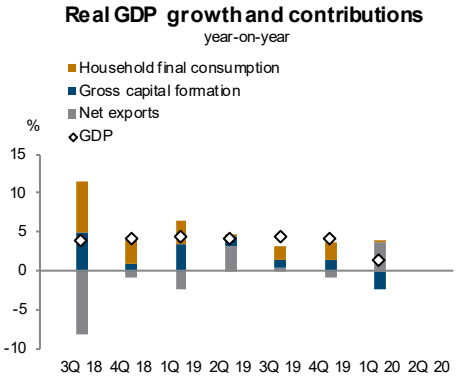
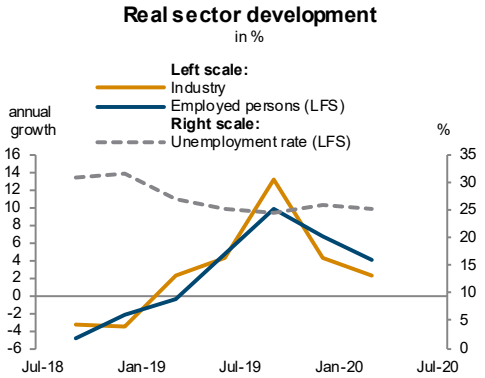
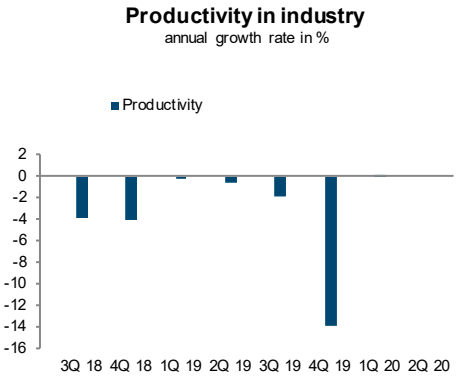
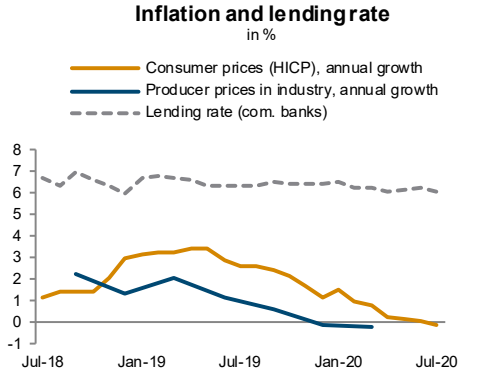
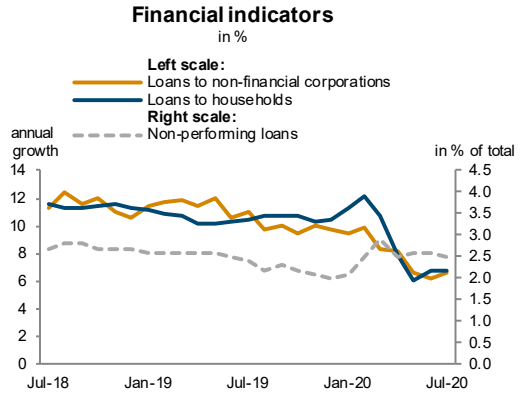
Kosovo

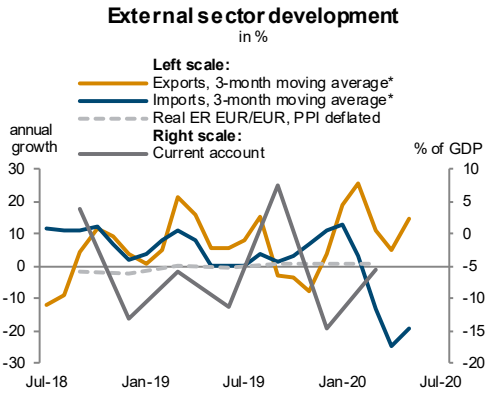












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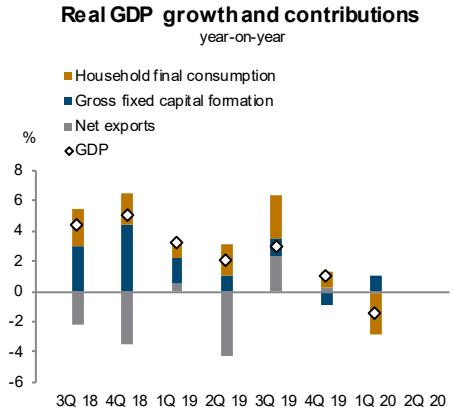
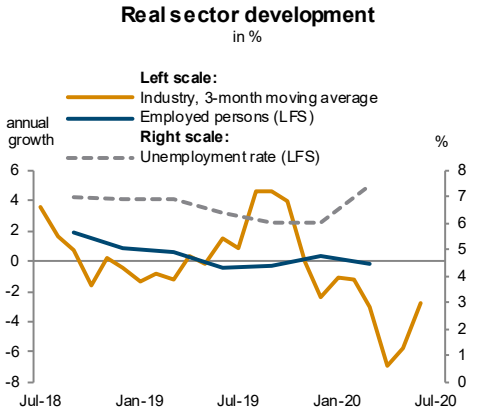
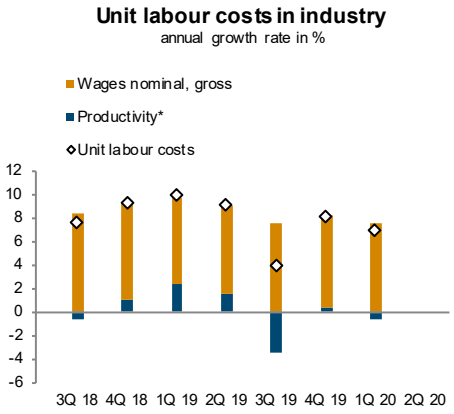
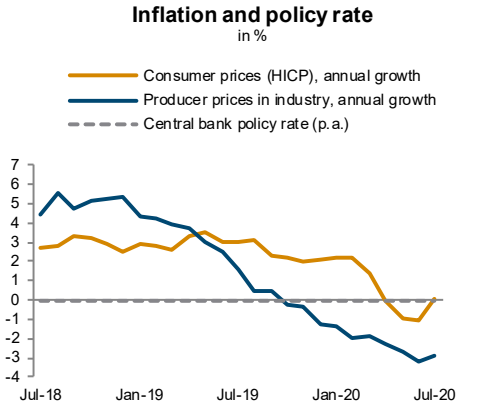
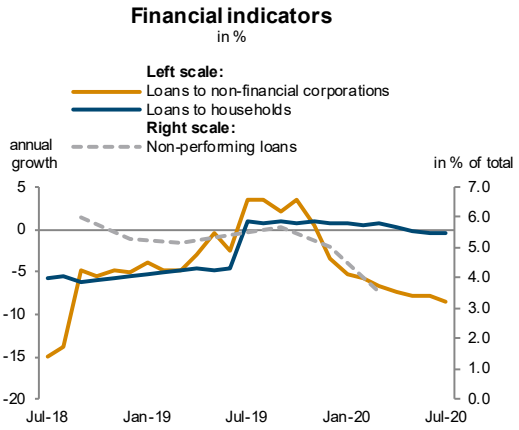
Latvia

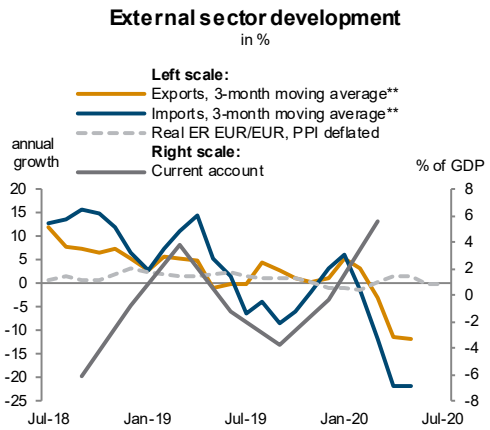












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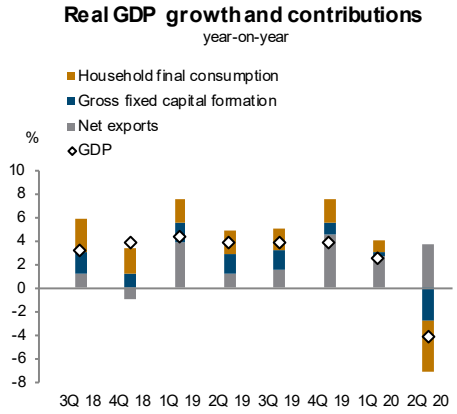
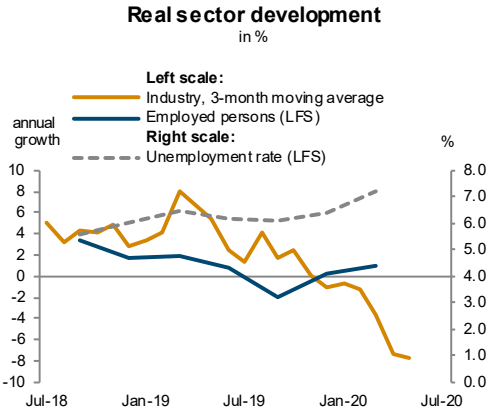
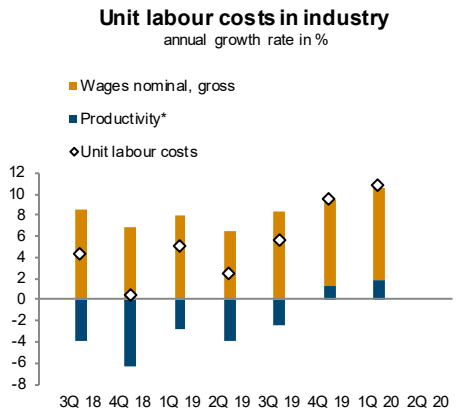
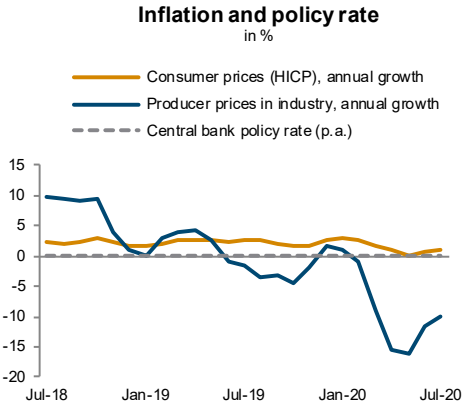
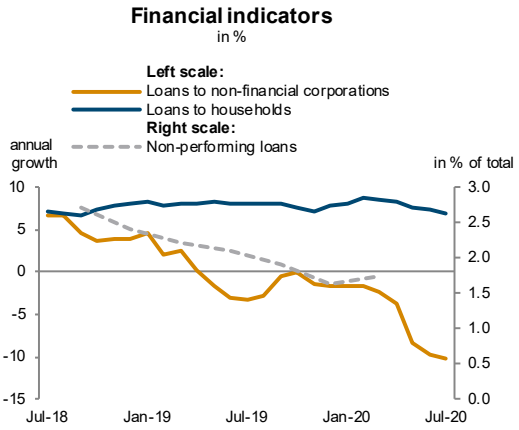
Lithuania

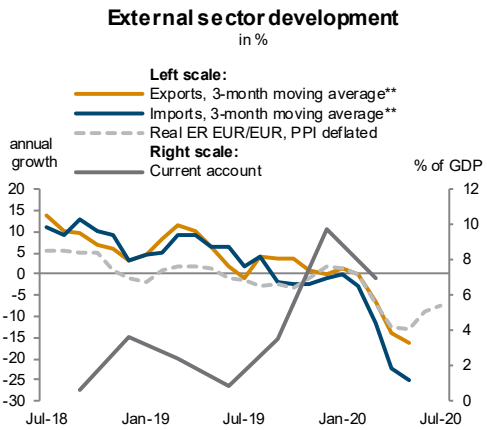












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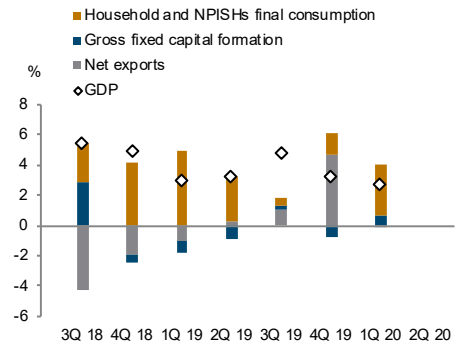
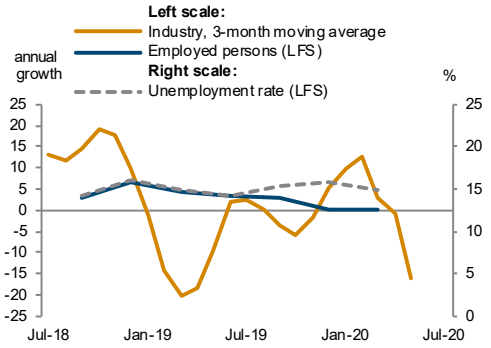
Montenegro

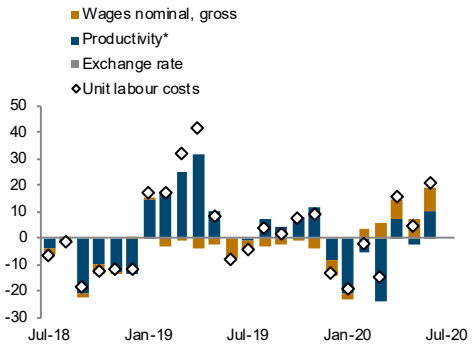
Real GDP growth and contributions
year-on-year



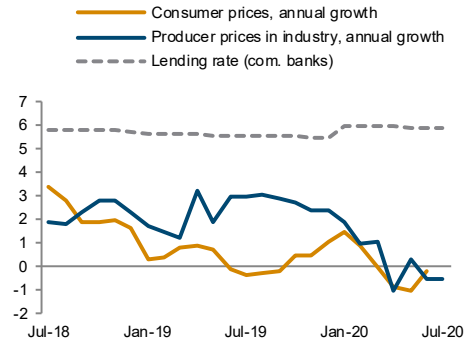
Real sector development
in %



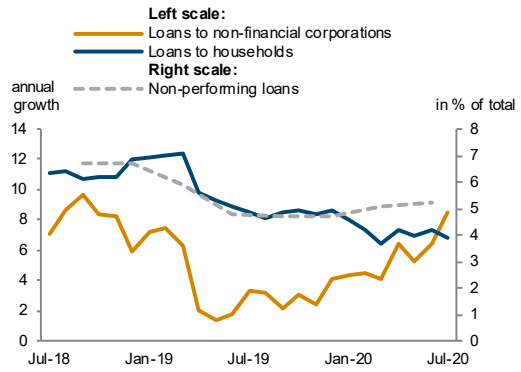
Unit labour costs in industry
annual growth rate in %



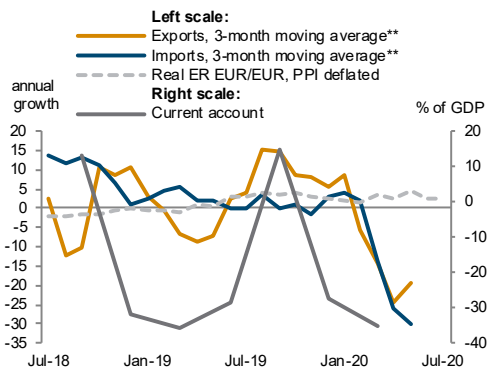
Inflation and lending rate
in %



Financial indicators
in %



External sector development
in %



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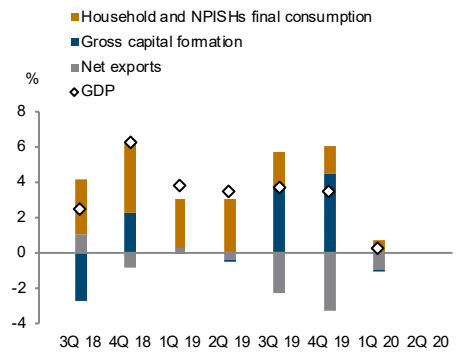
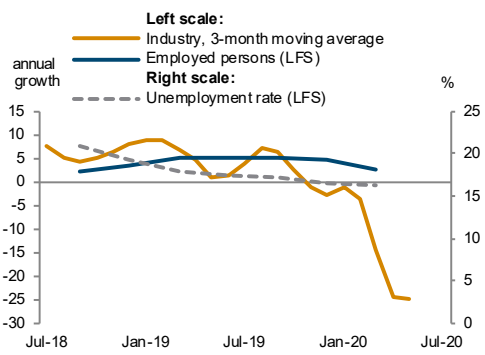
North Macedonia

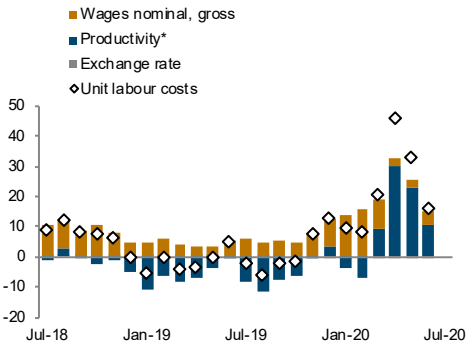
Real GDP growth and contributions
year-on-year



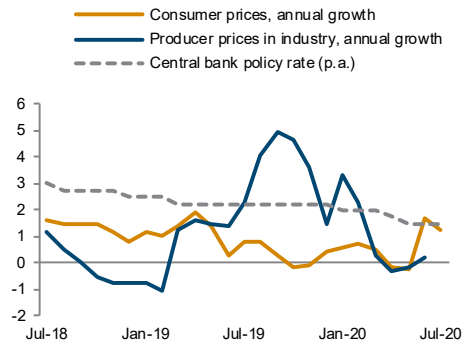
Real sector development
in %



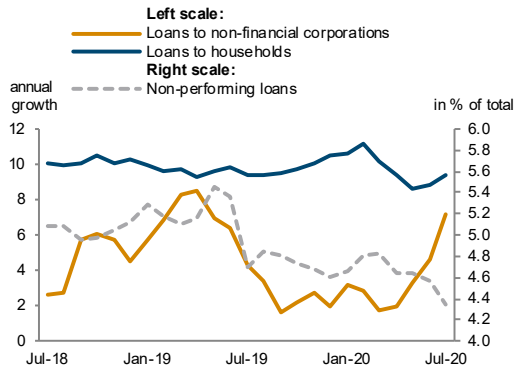
Unit labour costs in industry
annual growth rate in %



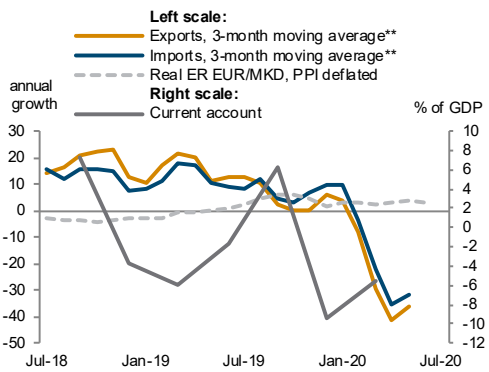
Inflation and policy rate
in %



Financial indicators
in %



External sector development
in %



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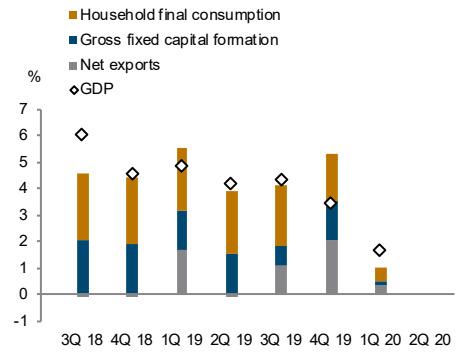
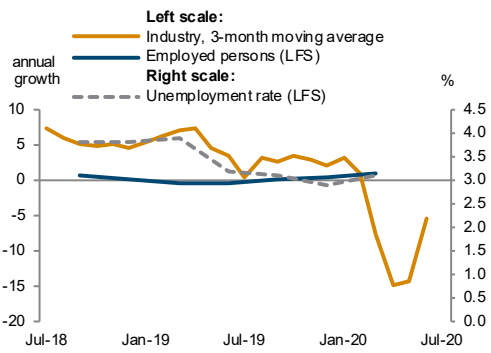
Poland

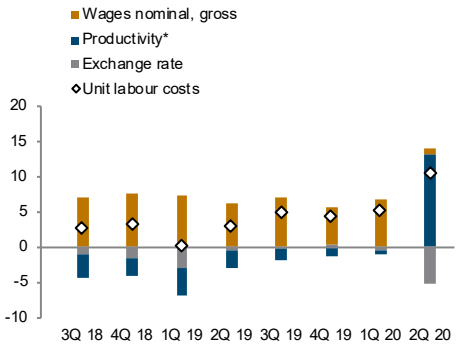
Real GDP growth and contributions
year-on-year



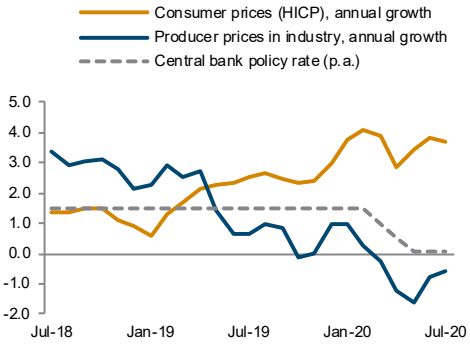
Real sector development
in %



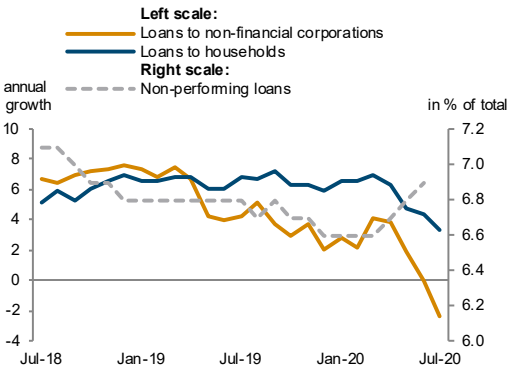
Unit labour costs in industry
annual growth rate in %



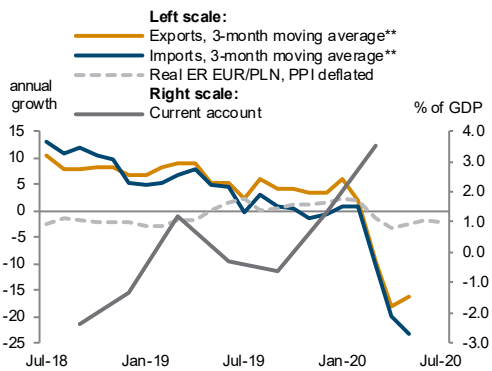
Inflation and policy rate
in %



Financial indicators
in %



External sector development
in %



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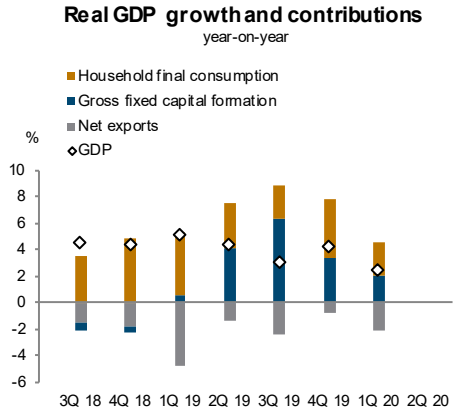
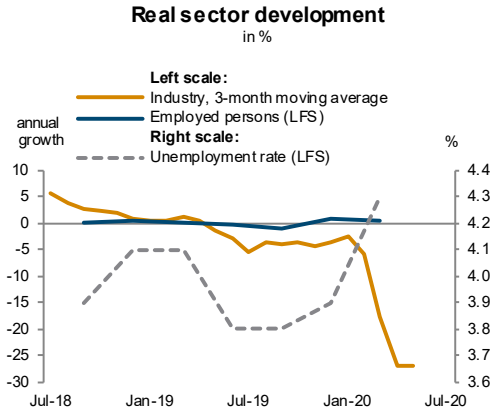
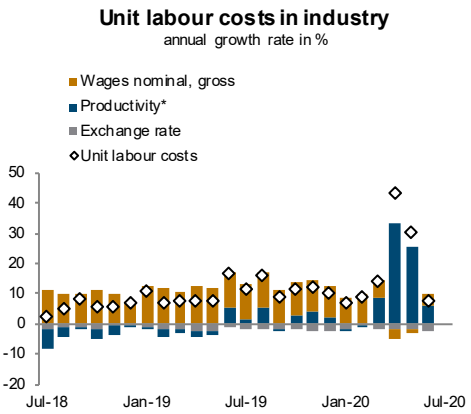
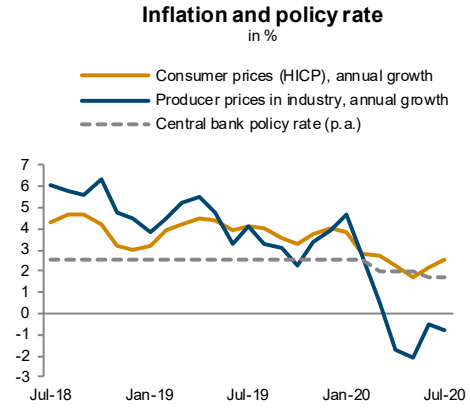
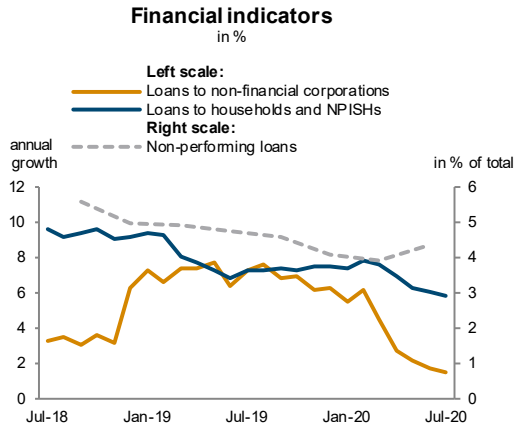
Romania

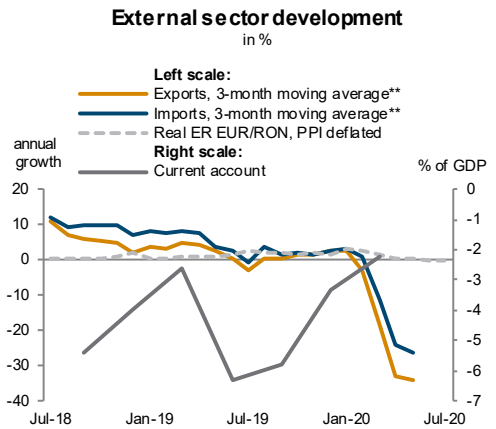












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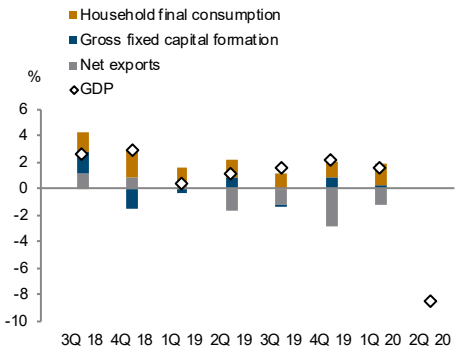
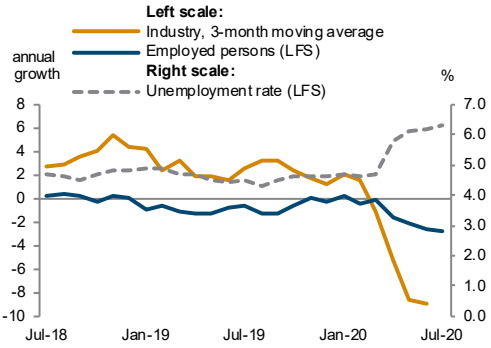
Russia

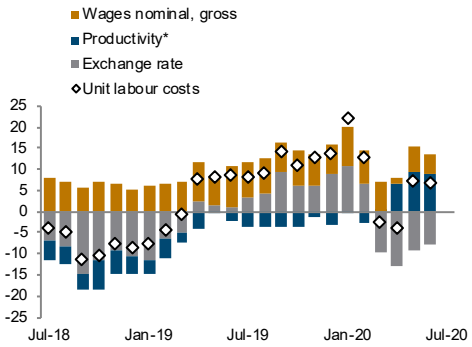
Real GDP growth and contributions
year-on-year



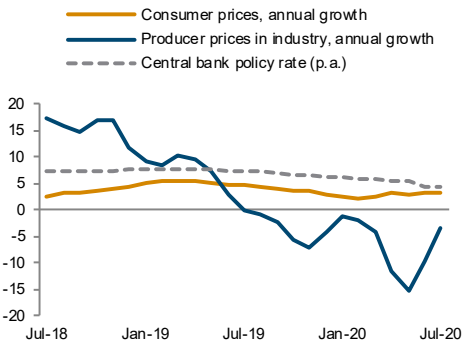
Real sector development
in %



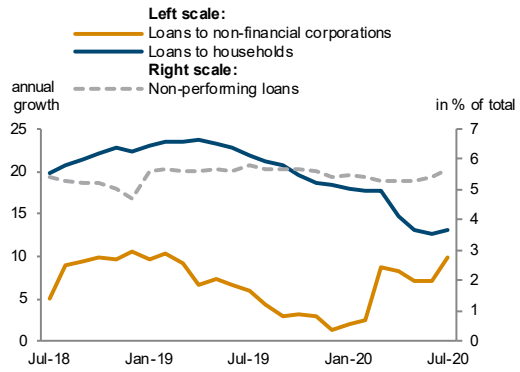
Unit labour costs in industry
annual growth rate in %



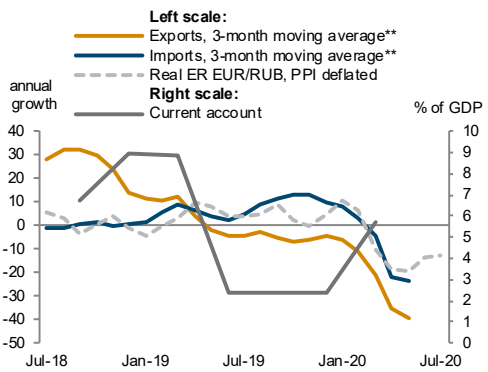
Inflation and policy rate
in %



Financial indicators
in %



External sector development
in %



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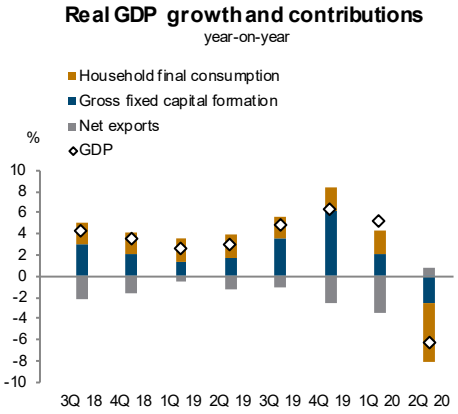
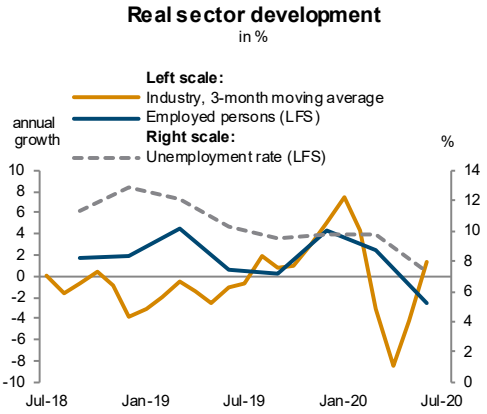
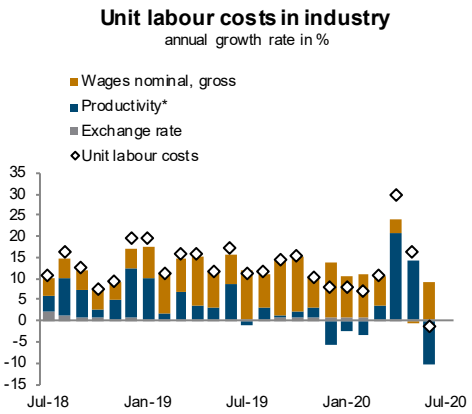
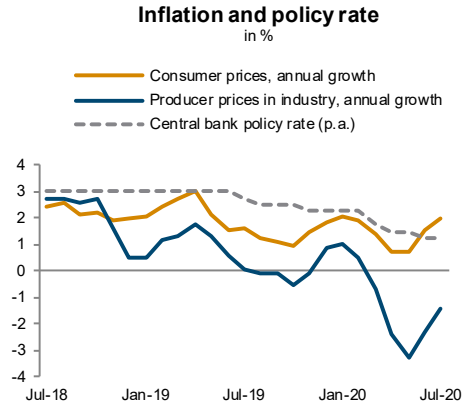
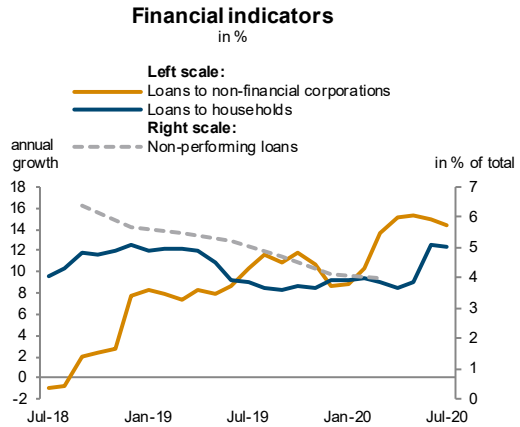
Serbia

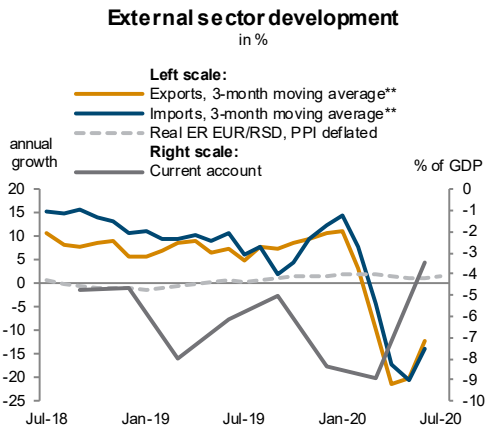












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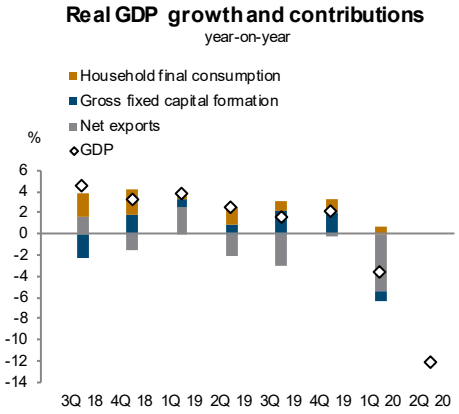
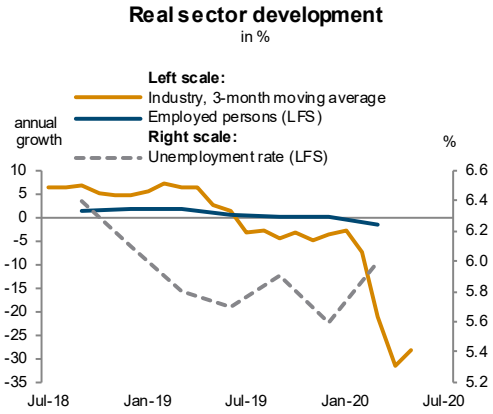
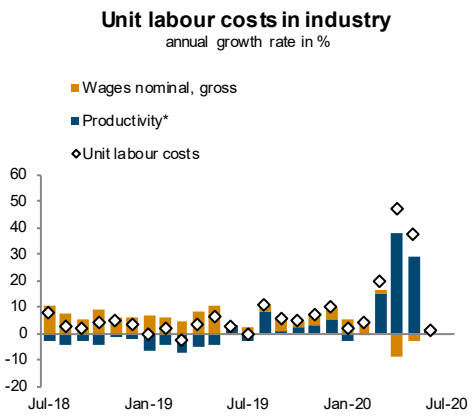
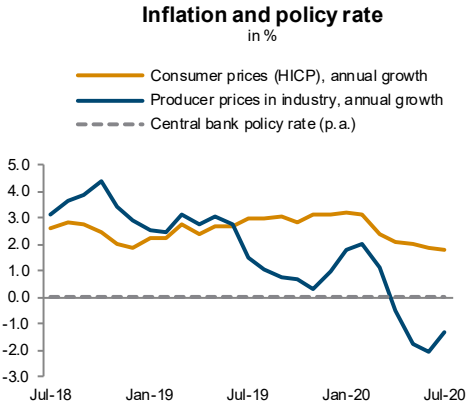
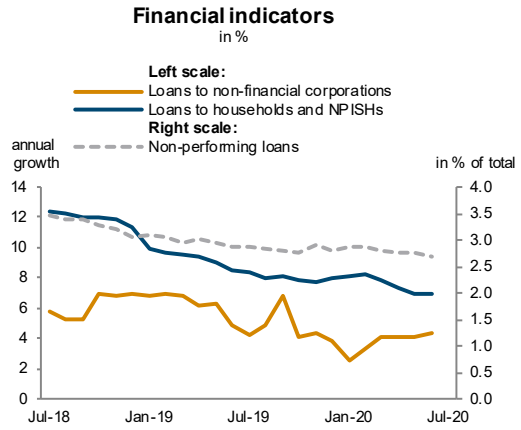
Slovakia

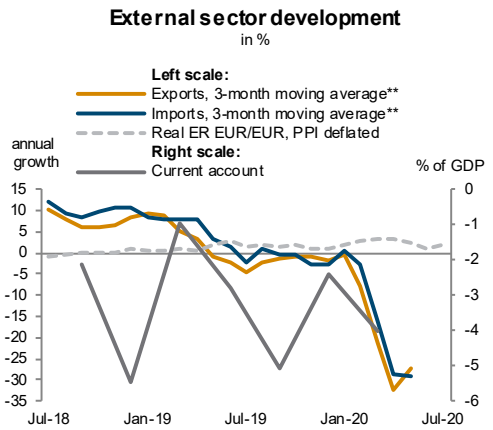












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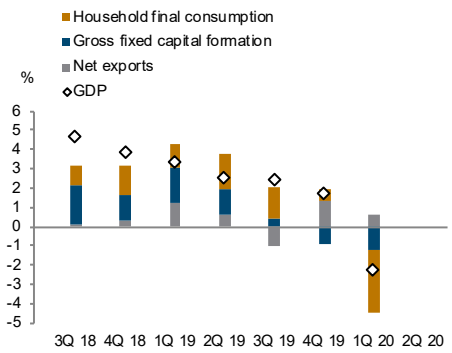
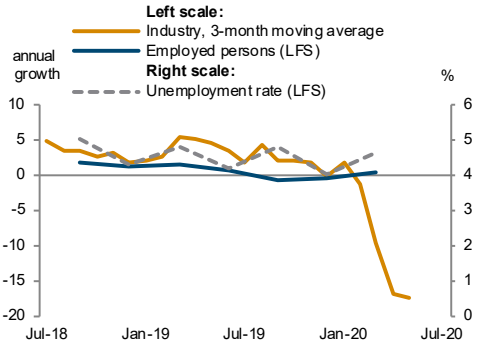
Slovenia

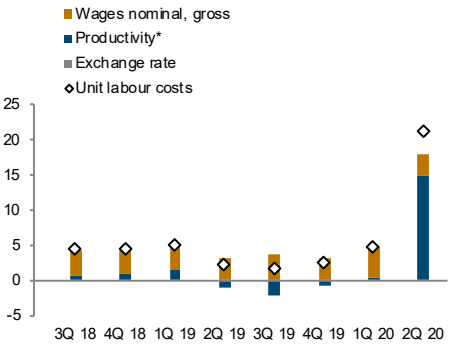
Real GDP growth and contributions
year-on-year



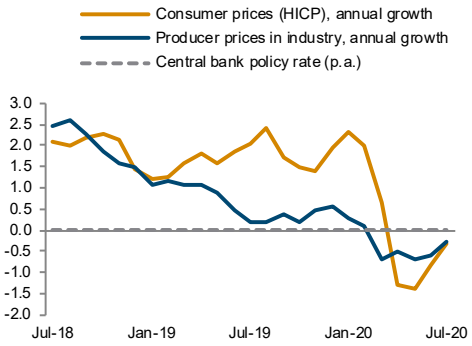
Real sector development
in %



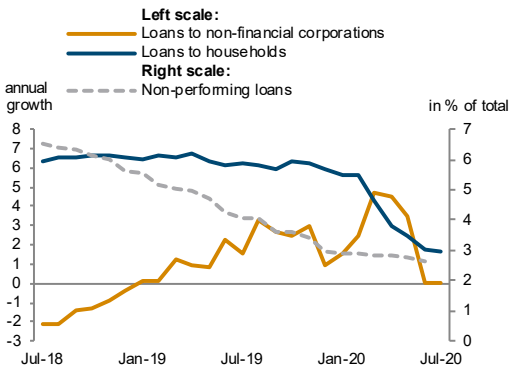
Unit labour costs in industry
annual growth rate in %



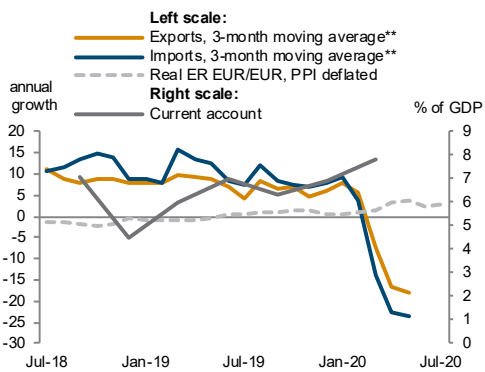
Inflation and policy rate
in %



Financial indicators
in %



External sector development
in %



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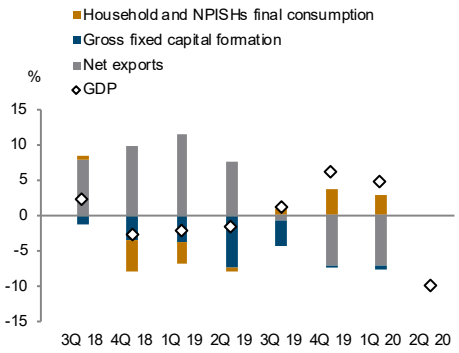
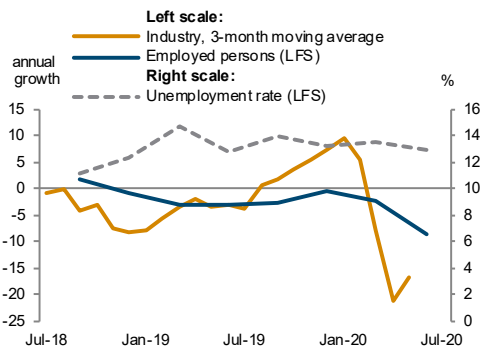
Turkey

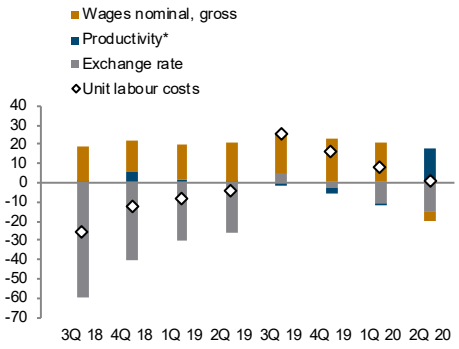
Real GDP growth and contributions
year-on-year



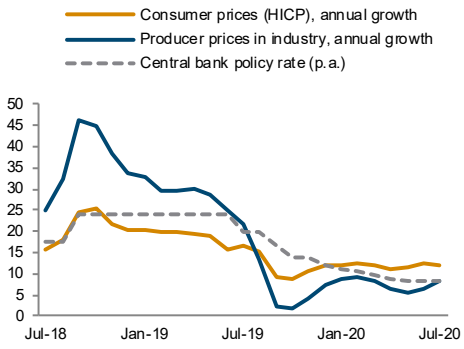
Real sector development
in %



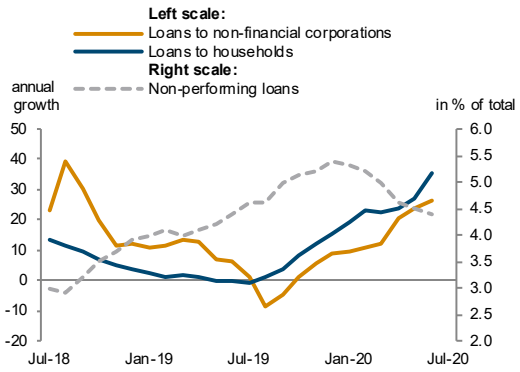
Unit labour costs in industry
annual growth rate in %



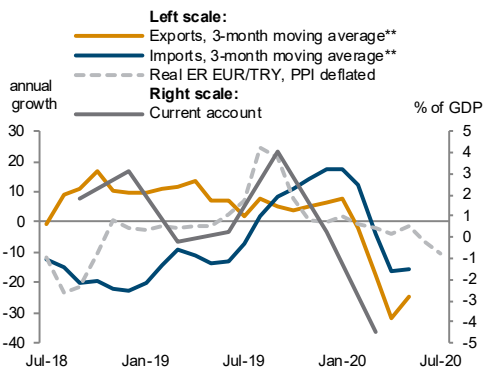
Inflation and policy rate
in %



Financial indicators
in %



External sector development
in %



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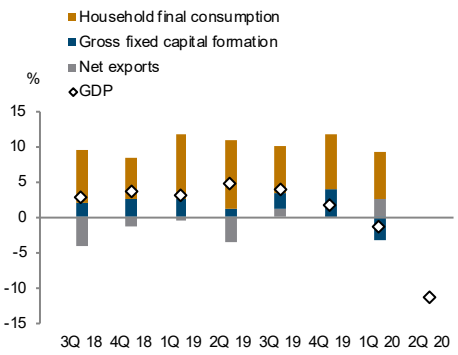
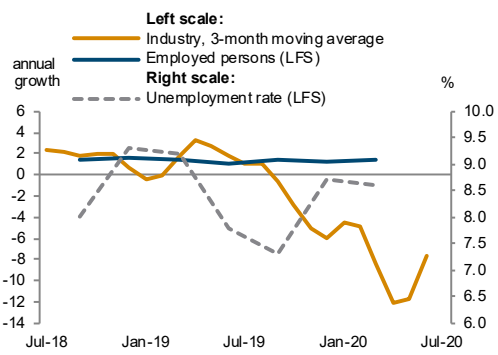
Ukraine

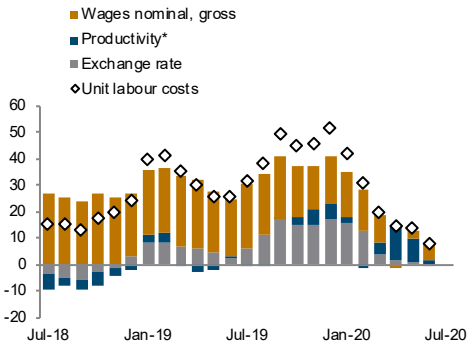
Real GDP growth and contributions
year-on-year



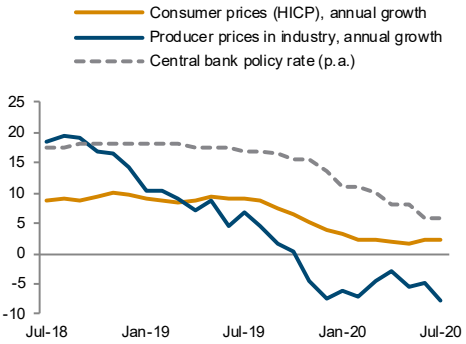
Real sector development
in %



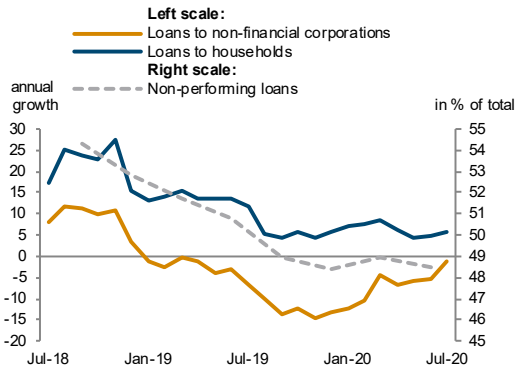
Unit labour costs in industry
annual growth rate in %



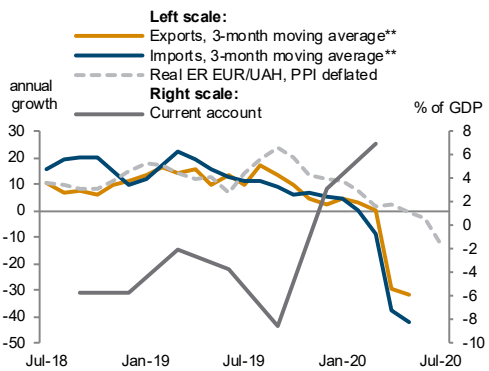
Inflation and policy rate
in %



Financial indicators
in %



External sector development
in %



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multi-country articles and statistical overviews

Economic editor: Vasily Astrov

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