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SPECIAL ISSUE

CHANGE IN THE MACROECONOMIC FRAMEWORK OR "INFLATION!"

INDEX

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Monetary policy and financial stability in times of persistently high inflation and gloomier economic prospects

*Boštjan Vasle**

The past three years have been challenging in several respects – in terms of health, economics and geopolitics – and the period ahead remains marked with elevated uncertainty. After a strong rebound from the pandemic crisis, economic activity in the euro area continued to expand this year, despite the war raging on the fringes of the EU. Employment in Slovenia and in the euro area has soared to record highs, but so has inflation. Following multi-layered shocks, supply bottlenecks continued and the energy crisis deepened; inflation surged to over 10 percent, and became broad-based and more persistent. In such an environment, the world's major central banks have responded with monetary policy normalisation. Within the Eurosystem, this year we have ended additional (net) asset purchases and, for the first time in eleven years, raised our key interest rates - so far by a total of two percentage points. Additionally, we have aligned the conditions of lending to the banks through the remainder of our targeted longer-term refinancing operations, which might turn out to be a first step towards the reduction of the Eurosystem balance sheet. High core inflation that has not yet started to fall, the pressures that are still in the pipeline and the very tight labour market are, in my view, the arguments for staying the course.

Amidst the energy shock and high inflation, both consumer and business sentiment deteriorated severely this year. The growth momentum in the euro area considerably weakened in the third quarter, with quarterly GDP declines in Slovenia and a few other countries, and the probability of a recession in the region and around the globe has increased. For the next few quarters, it now seems very likely that the euro area and Slovenian economy will face a stagnation or even a temporary decline. However, uncertainty is unusually high, and what will happen next depends largely on geopolitical developments.

The response of financial markets to the historically rapid rise in major central banks' interest rates has so far been smooth. Rising bank borrowing costs have been gradually translating into higher interest rates on bank loans to firms and households, while bank deposit interest rates have been adjusting more slowly, especially in the household segment. Sovereign bond yields have also risen across the board over the last year. In order to prepare for the possibility of different reactions to our policy rate increase campaign in the euro area, we introduced two different lines of defence at the ECB: (a) we started with flexible reinvestments of maturing bonds within the pandemic purchase program, and (b) we preventively launched a new bond purchasing instrument (TPI) that allows us to address any potential unwarranted surges in bond spreads. This helps us in safeguarding the smooth transmission of our policy measures throughout the euro area, which is essential for taming high

* Boštjan Vasle, Governor, Banka Slovenije

inflation. Regarding the global stock and bond markets, we have this year seen significant but gradual price corrections after a period of buoyant growth. Amidst high market volatility, some segments have felt more stress than others. Overall, the markets remain jittery and asset prices are exposed to further downward corrections, as recently noted by the ESRB in its first general warning of heightened risks to financial stability since 2010.

The euro area and Slovenian banking systems as a whole have so far retained good liquidity, being adequately capitalised and resilient, though both capital and liquidity indicators decreased somewhat in the last year. High uncertainty and a deterioration in macroeconomic prospects have only been reflected to a minor extent in the asset quality indicators. This holds especially true for the Slovenian banking system, where, in addition to the NPL ratio - which has decreased further in the entire euro area - the share of Stage 2 loans also decreased this year. So far, banks have been mostly reaping the positive effects of monetary policy rate hikes, while the negative impact on (potential) borrowers commonly comes with a lag. The still high growth rates of household lending, for example, have started to show the signs of slowing down, in line with the first signs of cooling of the housing market. In response to the growing risks in the housing market, Banka Slovenije introduced a requirement for banks in the spring to maintain sectoral (capital) buffers for systemic risks, which comes into effect in 2023. As bank lending conditions tighten, more indebted households and businesses will come under increasing pressure, also being affected by the rises in energy and other prices. Given the gloomier economic outlook, banks should be (more) proactive in loan-loss provisioning. The pressure on banks' profitability is expected to increase in the coming years, and the question of its sustainability might once a gain come to the fore.

Looking ahead, high inflation and the considerable price pressures that are still in the pipeline call for further increases in our policy rates, possibly into restrictive territory, to bring inflation close to our two-percent target over the coming years. Soon we will set the plans for reducing the Eurosystem's bond holdings, ideally by not replacing all maturing bonds from sometime next year onwards. It is of utmost importance that fiscal policy works hand in hand with monetary policy in the fight against inflation. Otherwise, disinflation process will take longer and would be accompanied by unnecessary costs.

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Challenges for macro-finance programming against the backdrop of economic uncertainty

*Mitja Gaspari**

Challanges for macro-finance programming against the backdrop of economic uncertainty are primarilly related to four fiscal targets. First, to sustain countercyclical fiscal policy by which we can combine economic growth and low inflation. Second, the need for targeted sustainable government debt as a percentage of GDP to enhance the efficiency of fiscal policy in different economic situations. Third, gradual alignment of government expenditures with the target fiscal anchor to maintain enough flexibility in implementation of fiscal strategy. Forth, program budgeting that should facilitate effective earmarking of resources to optimal provision of public goods and services.

JEL E6 H2

The last three-year period was marked by what in the usual economic environment is referred to as exceptional events. These are events that cannot be predicted as nothing similar took place in the past, hence we are unable to calculate the probability of recurrence of these events. It happened in the world and in Europe with the outbreak of the coronavirus pandemic and the energy/food crisis driven by the war in Ukraine. We will look into the possible responses economic policy may give to such a phenomenon in a small open economy integrated into a larger economic area. A characteristic of such an economy is that it has renounced its national currency and by doing so, also its monetary policy, which means that it has to adopt a defensive stance to fend off unannounced suplly shocks and/or demand shocks having at its disposal a smaller range of economic policy instruments. What is left is only fiscal and revenue policy and, as a last resort, direct non-market regulation of prices and revenues.

Since in an integrated economic area such as, for example, in the euro area, cross-border effects of the aforementioned shocks are also present, it is essential that there is also a functioning coordination of national economic policies when it comes to the policies overseen by the nation-state. The role the supranational institutions have is to provide for the stability of the entire system by pursuing adequate common monetary policy and the transfer mechanisms

* Mitja Gaspari, former Minister of Finance and Minister of Economic Development

serving to ensure convergence of certain national economies. The role of the supranational institutions in emergency situations gains further importance when it comes to ensuring sufficient availability of financial resources for funding temporary following a shortfall in own resources at the level of an individual national economy. Therefore, in a situation of elevated inflation and economic uncertainty, which are the characteristics of the present crises, it is crucial to ensure that appropriate fiscal strategies are developed at the level of the individual member countries of the euro area, which need to be aligned with the fiscal and monetary strategy of the monetary union.

Given the macroeconomic circumstances and considering that Slovenia has a new government, the economic policy goal should be to design a medium-term development programme strategy founded on the assessment of the development capacity of the economy, the assessment of the financial constraints for the implementation of the programme, and the necessary structural adjustments, primarily in the fiscal area serving to ease tensions between the development targets and financial constraints. The time has come when it is once again necessary to give a centre stage role to macroeconomic and fiscal programming, given the fact that at a time of great uncertainty, it is impossible to count on the efficient functioning of the market without a proactive role of the government and its policies. Awareness is rising in Europe that in the aftermath of two exceptional occurrences during the last three years (COVID-19 pandemic and energy crisis resulting from the war in Ukraine) that have driven an exceptional surge in the government expenditure and a strong inflation pressure, it is no longer realistic[1] to expect that sustainable economic growth could be resumed without a proactive role played by fiscal policy. Three targets are essential for the fiscal strategy over the medium term: first, stabilising the economy during the crisis, which requires stabilising incomes of households, maintaining productive capacity of the economy, and strengthening infrastructure and defence potentials at a time of geopolitical tensions. Second, promoting sustainable economic growth by means of efficient public and private investment programmes, dismantling administrative barriers to propulsive development programmes and modernising public administration for efficient running of economic and fiscal policies. Third, promoting sustainable public finances at a time of rising interest rates and systemically driven rise of social expenditure that will enable smooth financing of government obligations.

These are also the starting points for the analysis of financial programming and fiscal strategy in Slovenia, which we will present below.

I. SHORTFALLS OF THE PRESENT MACRO-FINANCE PROGRAMMING

The starting point for macro-finance programming and fiscal strategy shall be the substantial integration of the European and national development and fiscal targets and programmes contained in the development and financial documents of both Slovenia and the EU. A higher extent of the substantial alignment of those documents at both levels would enable a more effective reaction to sudden changes in the economic environment and a more a more predictable functioning of the national economic policies at a time when development opportunities may be severely constrained by the fact that international financial markets are fraught with uncertainty.

It is typical of Slovenia that this link is of more formal than substantial nature. The issue here is that despite the fact that the core long-term development

[1] Among the countries in the euro area, which are already contemplating a move in that direction, is Germany and its ministry of finance. See »Fiscal policy at a watershed moment – boosting growth and avoiding inflationary pressures«, May 2022

Table 1: Development and financial documents at the level of Slovenia and the EU

		DEVELOPMENT DOCUMENTS		FINANCIAL DOCUMENTS	
		SLO	EU	SLO	EU
STRATEGIC DOCUMENTS	- primary	SRS/SPS	?	SFO	TSCG /SGP
	- implementing	DPRP	NGEU/MFF	FP	AMR
OPERATIONAL DOCUMENTS	- primary	PK/ POO	RRF	PS	AGS/FPG
	- implementing	NRP	PCA	OPN	EU CR

Legend: SRS/SPS – Strategy RS/Smart Specialisation Strategy; PK/POO - Cohesion Policy Programme; Recovery and Resilience Facility; DPRP – National Development Policy Programme; NRP - National Reform Programme; TSCG – Treaty on Stability, Coordination and Governance in the Economic and Monetary Union; NG EU - NextGenerationEU; RRF - Recovery and Resilience Facility; MMF - Multiannual Financial Framework; PCA - Partnership Contract Agreement; SFO – Medium-term Fiscal Framework; FP- Fiscal Rules; PS- Stability Programme; OPN – Draft budgetary plan; SGP - Stability and Growth Pact; AMR - Alert Mechanism Report; AGS/FPG - Annual growth survey/fiscal policy guidance; EU CR - EU country recommendations.

programmes (SRS/SPS) are formally adequately structured regarding the long-term development priorities, but they fall short of being appropriately implemented in the operational financial development documents. There is no DPRP in practice equipped to transpose into the fiscal balances adequately financially appraised programme priorities during the life cycle of those programmes. Hence what remains are POO and PK mostly funded by the EU non-integrated with the comprehensive medium-term financial programme for development priorities and actually define the priorities set by the EU and not by Slovenia's development policy. Small wonder that the »internalisation« of development targets is rather a consequence of the priorities set beforehand by the European Commission and that of our own development-related decisions.
Thereby we are losing the advantage of our own medium-term financial programming and become more or less dependent on the external circumstances and the will of the European Commission. There is no mechanism for the evaluation of the efficiency of the development programmes on a regular basis and, consequently, there is no picture to show how successfully the development resources were used in a given period of time, and those programmes were not integrated into the fiscal documents although it would have given a clear picture of the relation between the funding of those programmes and the public finance constraints requested by the international financial markets.
So, we eventually arrive at NRP as the annual variant of the reform programme reduced to a torso with no role to play when it comes to monitoring structural changes in the national economy expected to enable efficient implementation of development priorities against the backdrop of fiscal constraints. There is no fiscal strategy as a strategic document targets fiscal policy over a longer time period with the main task to deliver a clear-cut assessment of fiscal risk in relation to the fluctuations of the public/general government debt on the basis of different macroeconomic scenarios and set medium-term fiscal targets. The latter have to be aligned with the fiscal rules, which determine the relations among the foreseen economic growth, interest rate movements, the level of the government debt and the necessary amount of fiscal balance to ensure fiscal sustainability over a longer period of time.
The absence of fiscal strategy dwarfs the significance of the law on fiscal rule and the ordinance on the ceiling on government expenditure as there is no reliable fiscal programming framework and no consistent verification of the achievement of the set fiscal targets. Hence it is a common practice to often modify the fiscal targets and inconsistent implementation of SFO. At this point we ca also add the inconsistent and non-transparent organised process of drafting and adopting budgetary documents largely focused on the preparation of the general government budget. In the course of the process of the preparation of the budgetary documents, a highly important first phase has been skipped, although it should have linked the targets laid down in the development documents to the constraints on public finance expenditure at the level of the programme. In Slovenia, there is no substantive transposition of the EU-driven development targets (PK, POO) into the development financial document (DPRP) that should serve as the foundation for the annual document on the necessary development reforms (NRP).
The absence of such a comprehensive medium-term development document impedes adequate medium-term fiscal programming as there are no medium-term development priorities with clearly determined financial values to designate programme sets by financing priority from restricted fiscal resources. Consequently, annual fiscal programming is reduced to the phase of budgetary planning at the level of central government budget by budget users without a clear picture on the medium-term development priorities by programme set, i.e. by the owner of development policies. A formal placement of NRP in the budgetary documents gives a false picture of the process of aligning development targets and fiscal constraints. Hence also the application of the act governing the fiscal rule is mostly of formal nature given the fact that a SFO decision is a result of a non-transparent process of the financial evaluation of budgetary priorities. There is no systematic correlation between the multi-annual macroeconomic projections made by the Institute of Macroeconomic Analysis and Development and the medium-term public finance constraints derived from those projections on the one hand, and the financially evaluated development targets on the other.
As a consequence of the inconsistencies outlined above, PS and NRP remain two documents with few topics in common, even though they share the same purpose: to clearly define the cross multiplication between the development targets and constraints on government expenditure. Should the two policy documents be examined every spring as the first phase of the budget-making process, the members of Slovenia's parliament would have as early as in May a clear picture of the macro-fiscal constraints on economic development and, at the same time, a set of supporting development policies and programmes, without having to discuss spreading of budgetary constraints over to concrete budget users (BU).

We would get a macro picture of the public funding capacity for several years ahead and the order of precedence assigning priorities to development policies and programmes at the country level.
To elaborate: autumn drafting of the budget would become a »technical« process of translating global figures to the budget users' level. In doing so, we would also resolve the dilemmas concerning the owners of programme sets and, should there be more than one for an individual set, who should coordinate the activities for the concerned programme set. The autumn drafting of OPN be a mere retouching of the PS and NRP content to reflect the correction to the macroeconomic forecasts of the Institute of Macroeconomic Analysis and Development. By embracing such a model of budgetary planning, the preparation of bi-annual budgetary documents would no longer be necessary given the fact that a proper preparation of SFO in terms of its scope and substance would satisfy the requirement for having in place a stable fiscal framework over the medium term.

II. NECESSARY CHANGES TO MACRO-FINANCE PROGRAMMING

The necessary changes to financial programming can be divided in two groups. The first group containing changes should incorporate the EU-driven development documents (PK, POO) into the framework medium-term national development document (DPRP) with the clearly defined national development priorities. The document should be based on the methodology used for drafting the report on the achieved targets[2] that determines the basic guidelines for setting targets and indicators and calls for the appropriate programme structure of government expenditure. Therefore, the development programme structure of government expenditure is the consequence of the development priorities set over a medium-term horizon and requires a medium-term specific set of development policies, which is not necessarily identical to the expenditure data under the Classification of the Functions of Government (COFOG).
For the sake of the transparency and taxonomy of this paper, it is also important that the structure of financial resources is precisely defined for the entire duration of the priority policies and programmes. These resources have to be divided into the domestic (integral, purpose-oriented, Slovenia's contribution) and the European (non-repayable, repayable) segment by the source of funding to the resources from PK, financial mechanisms, and POO. Such a medium-term development document that should be revised every five years as a rule, would serve as a basis for the preparation of the annual NRP – a document that defines the necessary economic policy structural measures/reforms in the current budgetary documents implementation cycle. The annual NRP would be prepared on the basis of the endorsed DPRP in the first quarter of the current year as a financially evaluated set of development policies and the necessary structural adjustments for their implementation in the current fiscal year.
In the second group of the necessary changes, the macro-fiscal framework should be recast, so as to enable the adjustment of the fiscal programming rules, specifically the SFO provisions, fiscal rules, and the method of the preparation and adoption of budgetary documents. The document containing these elements, would be a PS, and when drafting SFO, its starting point should be the assumption of fiscal sustainability defined by keeping in mind sustainability of the ratio of the country's government debt to its GDP based on the applied debt sustainability analysis (DSA)[3]. On the basis of the assessed level and the window of opportunity for fiscal risk, a medium-term anchor for an overall fiscal balance would be set.
Back in 2011, the government proposed amendments to the Public Finance Act to introduce a definition of the fiscal rules without having to promulgate a constitutional act. The starting point was that a fiscal anchor should be a foundation stone on which the SFO long-term sustainability of the government debt in relation to GDP would be built. A condition for the long-term sustainability of the government debt-to-GDP ratio is that primary overall fiscal balance as a percentage of GDP may not be higher than the sum obtained by multiplying the government debt ratio and the difference between the GDP growth rate and the interest rate charged on the government debt[4]. On the basis of this correlation, it becomes possible to calculate the maximum primary fiscal balance (deficit) as a percentage of GDP to be pencilled in by the fiscal authorities without leaving room the government debt ratio to surge across the board. Under the fiscal rule, the overall primary fiscal balance should be adjusted to the different classes of the government debt ratio, such as, for example, for the 100 to 140 per cent band of GDP (scenario 1) and the 80 and 40 per cent band of GDP (scen-

[2] The Decree on development planning documents and procedures for the preparation of the central government budget, and the Methodology for preparing a report on the achieved goals, Ministry of Finance, March 2018.

[3] E.g. the European Commission document: »Fiscal Sustainability Report«, or the IMF document: »Debt Sustainability Framework for Market Access Countries«.

[4] By using a simple formula: b* = (r-g)d; the maximum level of primary fiscal balance depends on the movement of the difference between the interest rate and the rate of economic growth, the amount of the pre-existing government debt, all expressed as a share in GDP.

ario 2). However, a determinant for achieving the targets under the two scenarios is the assumed change in the interest rate and GDP growth rate. The paper considers two hypothetical scenarios built on a broad-brush cross-section of the EU economy during the last ten years for two groups of countries with sizeable debts and two variations of the economic cycle dynamics. Under scenario 1, GDP growth exceeds the interest rate as opposed to the assumed rate of interest that overshoots GDP growth assumed in scenario 2 – the situations witnessed before and after the COVID-19 and the energy crisis.

If achieving long-term sustainability of the government debt ratio is the target, then primary fiscal deficit as a percentage of GDP shall not be higher than the product of the government debt ratio and the difference between the GDP growth rate and the interest rate. The table also shows that against the backdrop of a rising interest rate, previously sustainable primary fiscal deficit is on track of becoming unsustainable even if general government debt remains stable. It means that the highly indebted EU Member States will find themselves in a tight corner if their deficit remains at the same level, let alone if it rises, should the interest rate surge and sagging economic growth continue. Thus, fiscal consolidation shall be undertaken by deploying primary fiscal balance at a pace that would still be politically acceptable. The higher the primary fiscal balance is, the faster decrease of the government debt ratio will be.

Scenario 3 takes into consideration the actual situation in Slovenia in 2022. The government debt ratio stood at 73 per cent of GDP at the end of 2021, the average nominal interest long-term interest rate on the government 10-year bonds in 2022 was 1.6 per cent as opposed to the forecast average nominal GDP growth in the period 2021-2023 of 8.9 per cent[5]. Such a combination of the pre-existing share of government debt in GDP and the ratio between the nominal GDP growth and the average yield of the 10-year government bonds ensures stability of the pre-existing share of government debt in GDP, provided that primary fiscal deficit does not exceed 5.3 per cent of GDP. On the basis of the medium-term anchor for the fiscal balance calculated as shown above, we would opt for the medium-term framework for the growth of government expenditure. Instead of using aggregates of the potential output, output gap and the structural fiscal balance, the aggregate of the entire primary fiscal balance and the medium-term projection of the nominal GDP growth would be used. It would simplify the calculation of the fiscal rules and eliminate the problem associated with the use of the derived economic categories.[6] The SFO adjusted as shown above and the fiscal rule would be an individual country's commitment and it may differ from one EU Member State to another. Nevertheless, as the national target, it should represent the country's firm obligation vis-à-vis the European Commission expected to act by using its financial instruments in case that the commitment made has been breached (7).

The SFO adjusted as shown above and the fiscal rule would be an individual country's commitment and it may differ from one EU Member State to another. Nevertheless, as the national target, it should represent the country's firm obligation vis-à-vis the European Commission expected to act by using its financial instruments[7] in case that the commitment made has been breached.

The annual budgetary procedure should also be adjusted accordingly

[5] The data for government debt, interest rate and GDP growth have been taken from the Draft Budgetary Plan for 2023, Ministry of Finance, October 2022.

Table 2: The scenarios for the medium-term primary fiscal balance (d*) required for a stable share of government debt in GDP (d)

	Scenario 1	Scenario 2	Scenario 3
	- r = 0.0%	- r = 4.0%	- r = 1.6%
	- g = 5.0%	- g = 1.0%	- g = 8.9%
Scenario 1 for (d)			
-140%	7.0%	-4.2%	
-120%	6.0%	-3.6%	
-100%	5.0%	-3.0%	
Scenario 2 for (d)			
-80%	4.0%	-2.4%	
-60%	3.0%	-1.8%	
-40%	2.0%	-1.2%	
Scenario 3 for (d)			
-71%			5.3%

Note: (g) - nominal GDP growth rate (d) - government debt as a percentage of GDP
(r) - nominal interest rate paid on government
(d) - necessary primary fiscal deficit (+), surplus (-) for a stable government debt percentage*

[6] The IMF made a similar proposal to revisit the fiscal rules in the departmental paper »Reforming the EU Fiscal Framework, Strengthening Fiscal Rules and Institutions, DP/2022/014.

[7] The idea to have different fiscal standards (not rules across EU Member States) came from O. Blanchard et al, Redesigning EU Fiscal Rules: from rules to standards, PIIE Working Paper, February 2021.

Table 3: The structure of fiscal programming

MEDIUM-TERM FISCAL FRAMEWORK	ANNUAL BUDGETARY PROCEDURE	TARGET FISCAL RESULTS
1. Macro-fiscal scenario - macro forecast - fiscal risk assessment - target overall fiscal balance - government expenditure ceiling 2. The role of fiscal council - assesses quality of macro-fiscal scenario - requests urgent changes and corrections of government proposals	1. Spring cycle - ceiling on government expenditure growth by development policy - set of structural measures by policy 2. Autumn cycle - allocation of government expenditure by fiscal balance - allocation of government expenditure po budgetary PU by applying the »productivity rent« principle	1. Countercyclical fiscal policy 2. Ensuring sustainable government debt coefficient 3. Gradual alignment with the target fiscal balance 4. Result-oriented budgets: - efficient allocation of resources - efficient provision of public goods

given the fact that it is already adequately set out in the Public Finance Act (in Articles 9a to 9e), it has not been implemented in practice yet. In practice, two phases of the procedure must be clearly separated. In the first phase, macro-fiscal aggregates shall be determined (»top-down« procedure) and pushed down to the level of development policies and programmes without designating budget users as budget implementation institutions. It enables concentration on the development priorities, which designate the entities for their implementation and not the other way round. In the second phase, however, the focus shifts to the alignment of the known macro development and financial constraints with BU (»bottom-up« procedure). Both phases must follow the programme layout of the budgetary documents, which, if implemented by observing its substantive terms, leaves room for a higher degree of budgetary flexibility within the programme and sub-programme structure of appropriation and the application of the »productivity rent«. The latter facilitates a higher effectiveness in spending public funds. Specifically, it provides the possibility for BU to carry forward any unspent allocations from one budget year into the next.

III. CONCLUSION

Therefore, the ultimate purpose of the changes proposed against the backdrop of economic uncertainty is to meet four fiscal targets:

- the main objective of countercyclical fiscal policy is that it shall not deter economic growth in the absence of inflation pressures and that it curbs economic growth when production capacities are fully utilised,
- the main fiscal strategy anchor shall be targeting sustainability of the government debt as a GDP ratio, which enables expansionary fiscal policy in an economic downturn and demands fiscal restriction in a period of overheated economic activity,
- such a fiscal strategy enables a gradual alignment with the target fiscal anchor, since an adequate transition period is foreseen and, therefore, a more gradual adjustment of the overall primary fiscal balance required to achieve the pursued fiscal anchor,
- an important element of the redesigned fiscal strategy shall also be target-oriented budgets (central government, local authorities, pension and healthcare purse) that should facilitate effective earmarking of resources and effective provision of public goods.

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Inflation is expected to ease gradually

*Maja Bednaš**

The key factors behind inflationary pressures are post-pandemic economic recovery and supply bottlenecks, combined with the surge in energy prices, which started already in 2021 and intensified immensely after the Russian invasion of Ukraine.

JEL E31

After more than a decade of low inflation or even short periods of deflation in Slovenia and the EU, unprecedented external shocks in the past two years and a half led to accelerated growth of prices. Over a more than ten year period, consumer prices have risen by an average of just over 1% on an annual basis, but at the end of 2021 year-on-year growth reached around 5%, the highest since 2007 in Slovenia. The most important reasons for this increase and broader base price growth were significantly higher fuel prices, economic recovery after pandemic recession and the impact of supply chain disruptions. In addition to the prices of fuel, which contributed the most to inflation, the contribution of non-energy industrial goods prices started to increase. While in the period 2011–2020, these fell on average by around 0.5% each year, last year price growth averaged around 4.5%. With the bottlenecks in supply chains and pressures from higher commodity prices, the supply of some semi-durable and durable products did not follow the increased demand and consumption of households. Higher prices of fuel, input materials and raw materials and a poor harvest affected food prices, and both processed and unprocessed food became more expensive. The overall growth in service prices was still subdued in 2021 (1.5%). The hospitality sector contributed the most to the hike in service prices last year, which we believe is due both to higher demand (including the redeeming of tourist vouchers) and to labour shortages

* Maja Bednaš, Director, Institute of Macroeconomic Analysis and Development of the Republic of Slovenia

in this segment of services. In 2021, the Harmonised Indices of Consumer Prices (HICP) increase in Slovenia was similar to the EU average, with only slightly larger differences in the composition of inflation. In Slovenia, the contribution from growth in the prices of non-energy industrial goods was above average, while the rise of prices of services was about half lower than the EU average.

In February 2022, after the Russian invasion of Ukraine, price growth intensified and became more broad-based. The war in Ukraine has led to great uncertainties in the market for fuel, gas and electricity, non-energy commodities and food, as well as additional problems in supply chains, which maintained high pressures on further price growth. Higher energy prices were the main contributor to inflation, mainly because of the tightened geopolitical situation, but also because of higher demand due to favourable economic developments. All this strengthened impact on food price growth, which started to accelerate at the end of last year. Consumer price growth accelerated further by the summer 2022, whereas the contribution of food and energy combined (they together account for slightly less than 30% of the consumer price index), to 11% year-on-year inflation in August was around 50%. After peaking in August, year-on-year inflation moderated to 10% in September. This was to a large extent the result of the government's measures to mitigate the impact of the price increase by reducing taxes and regulating the prices of certain energy sources. In September, the price of electricity fell by almost a quarter month-on-month, while it was slightly more than half a percent higher year-on-year. On the other hand, food prices continued to rise gradually, by 14.4% year-on-year, while the prices of durable goods and services stabilised roughly at the levels reached (10% and 5%, respectively).

Inflation is expected to remain high until the end of the year. In anticipation of a slowdown in economic activity and given last year's relatively high base, growth in Slovenian industrial producer prices and import prices started slowing down in recent months, it however remains high, and in the event of a continuation of this trend we can expect the pressure on retail price growth to ease slightly. This, together with measures to mitigate the impact of high energy prices, 2021 high base towards the end of the year and the projected decline in household spending, could lead to a slight moderation of consumer price growth by the end of the year. Lower household spending could lead to the gradual slowdown of non-energy industrial goods price growth, which will nevertheless remain relatively high this year. In 2022 as a whole, consumer price growth on average will stand at 8.9%, whereas in 2023 we expect it to fall to 6% and in 2024 to 2.9%. In 2023, food and services price growth will remain relatively high and the contribution of energy prices is expected to be lower than this year, but the latter is subject to significant risks. Price growth will thus remain relatively higher compared to last decade, also due to at least partial pass-through of higher wages to prices, especially for services that are less exposed to international competition. The impact of the labour market situation on overall inflation is estimated to be still modest, but the risk of increasing wage pressures due to labour shortages in several industries increased, which along with higher corporate costs and higher demand (as a result of higher incomes) could spill over into higher final price growth, especially in services. While until the summer of 2021 bringing low inflation up to its target was the key monetary policy challenge, today's challenge is how to keep inflation expectations anchored at 2%. We anticipate that interest rate hikes and the normalisation of the ECB's monetary policy will contribute to a gradual decrease in inflationary expectations and the decline in inflation in the coming years. Besides current events that have strong impact on the growth of prices and are still keeping inflation expectations on a high level in the years to come, inflation will be increasingly influenced by structural reasons, especially climate change and green transition, as well as deglobalisation, all of which will increase cost pressures and will demand appropriate measures and structural changes.

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The Transmission of Targeted Monetary Policy to Bank Credit Supply

*Matjaž Volk**

In this paper I estimate the impact of Targeted Longer-Term Refinancing Operations (TLTRO) on the evolution of lending amounts and rates in Slovenia. I use a combination of difference-in-differences and instrumental variable approach, which together with detail credit register data enable the identification of supply side effects of the TLTRO policy. The results show a supporting impact of targeted operations on bank loan supply, resulting in higher credit growth and lower rates. I find that the TLTRO-I was supportive through both, quantity and price channel, whereas the TLTRO-II only shows a sizeable impact on quantity of credit. Further, I find the transmission was higher through larger and better capitalised banks and the increase in lending was directed more to safe firms.

JEL E52, E58, G21

1. Introduction

Since the global financial crisis central banks around the world have implemented unconventional monetary policy measures to counteract a credit crunch and stimulate aggregate demand. One of the instruments in the arsenal of unconventional measures[1] are Targeted Longer-Term Refinancing Operations (TLTROs) that were first announced by the ECB on June 5 2014. While previous operations (like various LTRO versions) were designed to support the banking system during the peak of the European sovereign debt crisis, TLTRO explicitly targeted lending to the real economy. Its main goal is to enhance the functioning of the monetary policy transmission through bank lending channel. There were three TLTRO series up to now, the latest one (TLTRO-III) started in 2019.

This paper presents estimates of the TLTRO impact on bank lending to corporates. I estimate how banks operating in Slovenia adjusted their lending amounts and prices in response to the TLTRO take-ups. To get the most comprehensive evaluation I use data for both series of operations that concluded by now – TLTRO I and II – and explore if certain firm or bank characteristics matter more for the transmission of targeted monetary policy.

Estimating the casual impact of targeted monetary policy on bank lending is challenging. First, the price of credit and its quantity is

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[1] In the euro area the unconventional measures include various programs of asset purchases, like corporate sector purchase programme (CSPP), public sector purchase programme (PSPP) and pandemic emergency purchase programme (PEPP), longer-term liquidity provision to banks, negative rate policy and forward guidance.

jointly determined by borrowers' demand for credit and banks' incentives to supply credit to the real economy. The estimation of the TLTRO impact would be upward biased if for example less risky firms mainly borrow from banks with more TLTRO funding and they increased their demand for loans relative to more risky firms. Analogously, the results would be biased downward if riskier borrowers demanded more loans compared to safer firms. To tackle this issue, I apply the methodology put forward by Khwaja and Mian (2008) where I estimate how banks that are exposed differently to the treatment (the amount of TLTRO take-up) adjust their supply of loans to the same firm. The approach of Khwaja and Mian (2008) is widely used in empirical banking to identify the supply-side impacts of policy measures.[2] Second, participation in the TLTRO is voluntary, which may result in a selection bias due to non-random assignment to treatment. The direction of the bias can be positive or negative, depending on characteristics of banks that took TLTRO funding and on their lending opportunities or planned expansion of loan supply. I address this selection problem by exploiting the institutional setting of the TLTRO policy, following Benetton and Fantino (2021). In particular, I instrument the actual borrowing of TLTRO funding with the maximum borrowing allowance. Crucially, the borrowing allowance set by the ECB is common across banks and is predetermined at the time of the announcement of both operations. It makes it exogenous to future banks' decisions on loan expansion. At the same time, the borrowing allowance is a relevant instrument as it is strongly correlated with actual TLTRO take-ups.

The results show a positive impact of targeted operations on bank lending, both on credit quantity and price. I find that the first wave of operations (TLTRO-I) was supportive through both, quantity and price channel, whereas the second wave (TLTRO-II) only shows a sizeable impact on quantity of credit. A firm borrowing from a bank with 1 percentage point higher share of TLTRO funding in its balance sheet received 1.57 pp more in credit and 0.17 pp lower lending rate after TLTRO-I introduction. The impact of TLTRO-II on credit growth is larger, at 3.02 pp, but it does not show any impact on lending rates.

TLTRO impact is heterogeneous and depends on bank and firm characteristics. I find the transmission is higher for larger banks and for TLTRO-I it mainly worked through banks that were better capitalised and had higher funding costs. This result tells that the ECB funding helps to reduce bank funding costs and thus support lending activity, but mainly through banks with solid capital position. Further, both TLTRO I and II show a higher impact on lending to safe and stable firms with higher credit ratings. This result is desired from a policymaker's perspective as this way the increased lending is directed to more productive firms and does not show any unintended consequences of the policy.

This paper contributes to the literature on the transmission of unconventional monetary policy. There is a growing body of literature assessing the impacts of non-standard monetary policy measures, like asset purchases, negative rates, long-term liquidity provision and forward guidance, that were taken by the central banks all over the world in response and after the global financial crisis.[3] The literature on central bank liquidity provision, to which my paper contributes, assesses the impact of LTRO that was announced by the ECB in 2011 in response to sovereign debt crisis (see Garcia-Posada and Marchetti (2016) and Crosignani et al. (2020)) and targeted policies (TLTROs), that started in 2014 (see Benetton and Fantino (2021) and Andreeva and Garcia-Posada (2021)). All the authors find a positive impact of liquidity provision on supply of loans. My paper is the first one that compares the impact of TLTRO I and II in a consistent way, using credit register data for the same economy.

The rest of the paper is structured as follows. Section 2 presents the institutional background of TLTRO I and II, whereas Section 3 gives more details on the participation of Slovenian banks in both series with a description of summary statistics and bank behaviour in general. In Section 4 I describe the identification strategy. Results are presented in Section 5. Finally, Section 6 concludes the paper and discusses policy implications.

2. Targeted longer-term refinancing operations

On June 5 2014, the ECB announced TLTRO-I that consisted of eight auctions over a time window of two years. In the first two auctions, banks could borrow up to a maximum allowance of 7% of their amount of eligible loans outstanding as of April 30 2014. Eligible loans include loans to firms and households, excluding loans to households for house purchase. There was an incentive scheme in place that further supported banks to lend. Banks whose net lending in the 24-months ending on April 30 2016 was lower than their benchmark (defined as flow of net lending in the 12-month period before April 30 2014) were required to repay their TLTRO-I borrowings before the maturity of the operations which was set to September 2018. A different incentive scheme was adopted for the remaining six operations, where banks could borrow up to three times the

[2] For examples see Jimenez et al. (2012), Jimenez et al. (2017), Gropp et al. (2019) and Sivec and Volk (forthcoming).

[3] See for example Altavilla et al. (2016), Boeckx et al. (2017), Ferrando et al. (2019) and Heider et al. (2019).

amount by which their net lending had exceeded the lending benchmark.

Second wave of TLTRO operations (TLTRO-II) was announced by the ECB on 10 June 2016. The TLTRO-II consisted of four auctions between June 2016 and March 2017 and has two main distinguishing features compared to the TLTRO-I. First, the incentive structure of the TLTRO-I was dropped and throughout the four operations, banks could borrow up to 30% of their eligible loans outstanding as of 31 January 2016, net of the outstanding debt from the first two TLTRO-I operations. Second, banks whose net lending exceeded their benchmark received a lower rate that could be as low as the rate on the deposit facility (-0.40%).

On 7 March 2019, the ECB announced the third series of TLTRO operations (TLTRO-III) that went through several recalibrations, mainly due to the COVID-19 pandemic. Initially, seven operations were envisaged, taking place between September 2019 and March 2021. Borrowing allowance was set on the same level as for the TLTRO-II, i.e. banks could borrow up to 30% of the stock of eligible loans as at 28 February 2019. TLTRO-III interest rate was set at 10 basis points above the average Main Refinancing Operations (MRO) rate over the life of each operation. It changed on 12 September 2019, when the rate was set to equal to the average MRO rate and could be further dropped for banks that meet the lending benchmark criteria. The rules were further modified on 12 March 2020 in response to the COVID-19 pandemic. The rate was reduced by 25 basis points and the borrowing allowance raised to 50% of eligible loans. By the end of 2020, the rate was reduced again by 25 basis points, to as low as -1%, the borrowing allowance raised to 55% and three additional auctions were announced, taking place between June and December 2021.

3. TLTRO participation and bank behaviour

In total, Slovenian banks borrowed EUR 706 million from the Eurosystem in TLTRO-I and EUR 1102 million in TLTRO-II (see Figure 1).[4] Banks utilised a larger share of the borrowing allowance in TLTRO-I, where the take-up amount was 73% of their borrowing allowance, as opposed to 32% in TLTRO-II. Out of 16 banks that were present in the Slovenian banking system in 2014, 13 borrowed from the Eurosystem via TLTRO-I operations, with the average borrowing amount being 2.26% of total assets (Table 1). At the time of announcement of the TLTRO-II in 2016, there were 14[5] banks comprising the Slovenian banking system, of which 10 borrowed via TLTRO-II operations. An average bank had 5.67% of borrowings from TLTRO-II in its balance sheet.

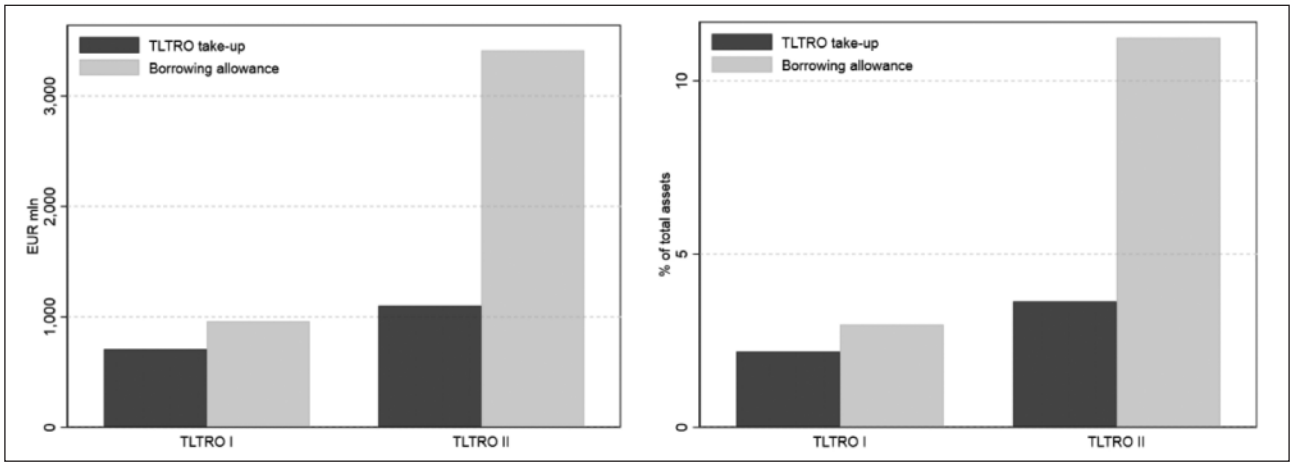
The banking environment differed significantly at the time of TLTRO I and II. Banks in Slovenia were heavily burdened with non-performing loans during the financial crisis and despite the transfer of a large proportion of defaulted assets to the Bank Assets Management Company (BAMC), the NPL ratio[6] of the average bank still stood at almost 19% in 2014 before the launch of the TLTRO-I operations (Table 1). By 2016, when the second TLTRO series started, it dropped by half to 10%. At the same time, the capitalisation (measured with capital adequacy ratio) strengthen by 2.4 pp on average between the two rounds of operations, return on assets increased and lending dynamic picked up,

[4] The reported take-up amount in TLTRO-I (EUR 706 million) is for the first two auctions, as, for the identification purposes, only these are used in the analysis (see Section 4 for the explanation). Total borrowing amount in all eight TLTRO-I auctions equals to EUR 751 million.

[5] The number is lower than in 2014 due to bank mergers.

[6] Default exposure entering the calculation of the NPL ratio takes into account borrowers that are either more than 90 days overdue in loan repayment or a bank assigns them a credit rating D or E (under the five-grade rating scale from A to E).

Figure 1: TLTRO take-up by Slovenian banks in EUR mln (lhs) and in % of bank total assets (rhs)



Source: Bank of Slovenia, own calculations. TLTRO take-up amounts are reported for the first two TLTRO-I auctions (September and December 2014) and for all four TLTRO-II auctions (from June 2016 to March 2017).

Table 1: Summary statistics

	TLTRO-I		TLTRO-II	
Total number of banks	16		14	
Number of banks with TLTRO> 0	13		10	
	Mean	St. dev.	Mean	St. dev.
TLTRO in % of total assets	2.26	1.43	5.67	5.00
Borrowing allowance in % of total assets	2.84	1.40	10.32	4.96
Capital adequacy in %	16.10	5.13	18.55	6.20
NPL ratio in %	18.88	12.05	9.78	5.58
Return on assets in %	0.07	1.42	1.18	1,16
Funding costs in %	1.27	0.48	0.54	0.30
Loan growth in %	-4.43	14.93	1.77	21.27

Source: Bank of Slovenia, own calculations
Note: The table reports summary characteristics of banks present during the TLTRO-I and TLTRO-II operations. Threshold date for the calculation of summary statistics in one month before first round of operations, i.e. 2014m8 for TLTRO-I and 2016m5 for TLTRO-II. Defaulted exposure entering the calculation of the NPL ratio takes into account borrowers that are more than 90 days overdue in loan repayment or a bank assigns them a credit rating D or E (in five-grade rating scale from A to E).
Funding costs are total weighted funding costs of a bank, across all the liability sources. Loan growth is reported for the non-banking sector.

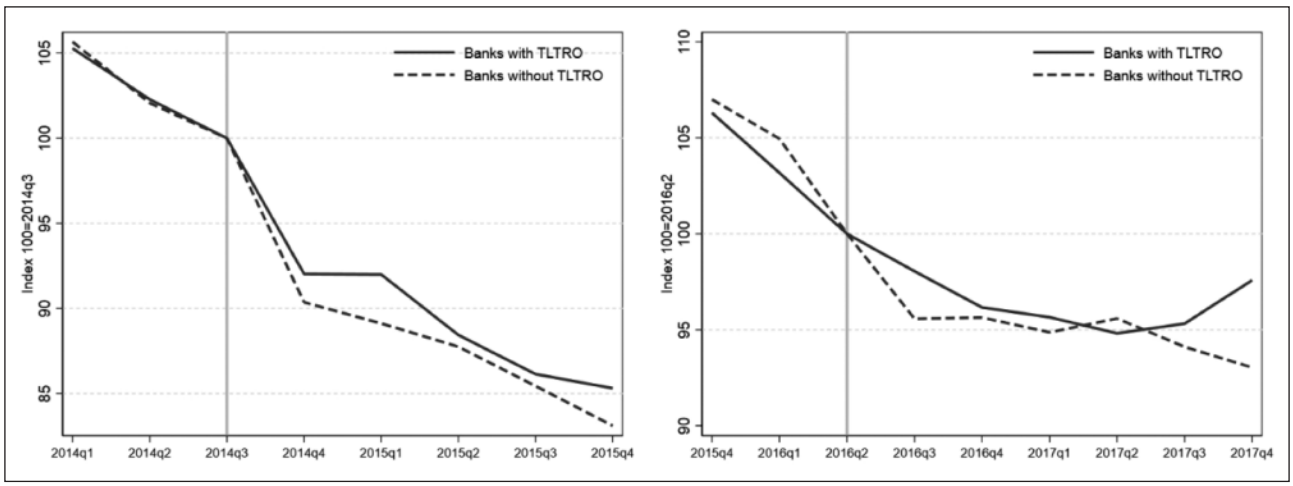
turning positive after several years of contraction. Bank funding costs, on the other hand, dropped following a prolong period of accommodative monetary policy. These large differences between banks and between the two rounds of operations point at the importance of controlling for bank characteristics as they might drive the conclusions on the impact of TLTROs on bank lending.

Figures 2 and 3 present the evolution of lending amounts and rates at the time of the two rounds of operations. Each of the four figures shows two lines: the solid line is for banks that participated in the TLTRO, whereas the dashed line is for those that did not.[7] First, note that the evolution of lending volume and rate before the introduction of the policy (marked with grey lines in 2014q3 for TLTRO-I and in 2016q2 for TLTRO-II) was very similar for the participating and non-participating banks. This is important for the identification with difference-in-difference setup that builds on the assumption of parallel trend in absence of policy. After the policy, banks with TLTRO-I funding seem to have a bit higher evolution of lending and significantly lower rates. The evolution of lending is more positive also for the banks participating in TLTRO-II (with exception of one period), whereas rate drops lower only at the end of the horizon.

Visual inspection in Figures 2 and 3 offers a first indication of differences in evolution of lending amounts and rates after the introduction of policy. It is however not yet a proof, since there are several other factors at play that are

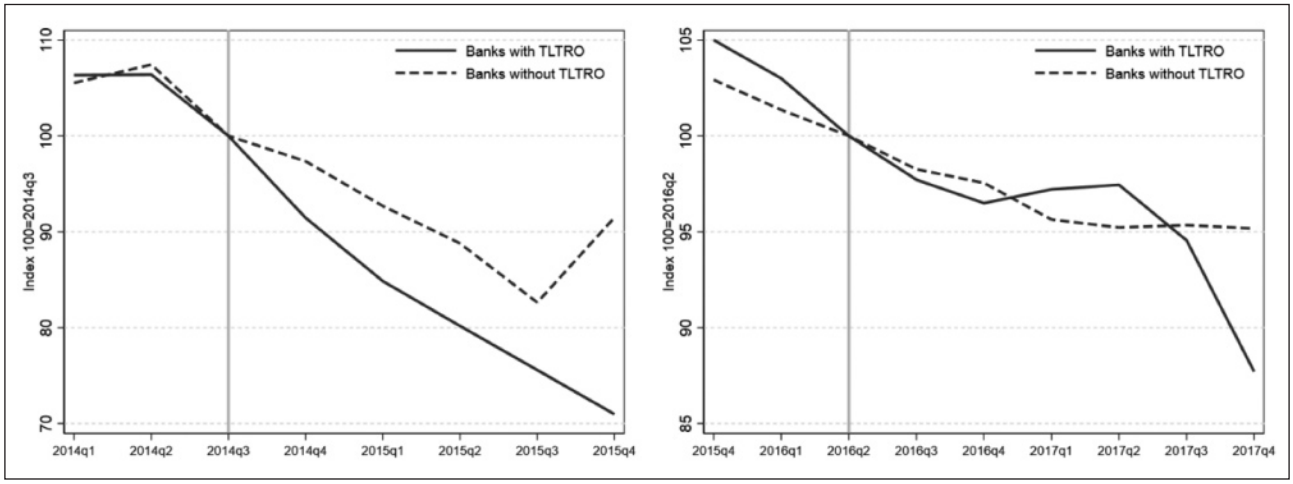
[7] Note that the number of banks that did not participate in TLTRO borrowing is low, 3 banks in TLTRO-I and 4 banks in TLTRO-II, but their share in total assets is non-negligible: 15% in TLTRO-I and 41% in TLTRO-II. For estimation I use continuous treatment, which drops the concern of low representation of banks without TLTRO funding.

Figure 2: Evolution of lending amount around TLTRO-I (left) and TLTRO-II (right)



Source: Bank of Slovenia, own calculations.

Figure 3: Evolution of lending rates around TLTRO-I (left) and TLTRO-II (right)



Source: Bank of Slovenia, own calculations.

not controlled for here. First, as already presented above, there are large differences between banks that could drive the results if they are correlated with TLTRO participation. Second, the evolution of lending amount and rate, as presented in Figures 2 and 3 is a result of demand and supply factors. The goal of my analysis is to estimate if banks with higher TLTRO funding adjusted their lending amount and rate differently, i.e. to identify the supply side. In order to do this, I use a difference-in-difference approach with a series of fixed effects that absorb loan demand (see next section). Last, in the two figures I only split banks to participating and non-participating. For estimation, I instead use a continuous treatment, which gives a more clear identification depending on the amount of TLTRO funding a bank borrowed.

4. Identification strategy

Estimating the impact of TLTRO on bank lending poses several empirical challenges. First, TLTROs were implemented by the policymakers as a reaction to macroeconomic conditions with a specific target to promote lending to the real economy. Therefore, macroeconomic shocks correlated to the policy may induce unobservable loan demand shifts that are contemporaneous to the ECB policy introduction, leading to simultaneity and omitted variable bias. Second, participation in the TLTRO is voluntary, which may result is a selection bias due to non-random assignment to treatment. The direction of the bias can be positive or negative, depending on characteristics of banks that took TLTRO funding and on their lending opportunities or planned expansion of loan supply.

To tackle the two issues above, I use the instrumental variable (IV) approach and rely on detailed credit register data to control for loan demand. In the first stage regression I instrument the treatment intensity with a maximum borrowing allowance within TLTRO I and II. In particular, I estimate the following equation:

$$TLTRO_b = \phi\, Allowance_b + \theta Controls_b + \varepsilon_b$$

where $TLTRO_b$ is TLTRO take-up by bank b and $Allowance_b$ is borrowing allowance that determines maximum amount banks can borrow via TLTRO operations. The model is estimated separately for TLTRO I and II. Both, the actual take-up and the allowance, are measured in percent of bank total assets. Borrowing allowance is a valid instrument as it is correlated with actual TLTRO take-ups (the correlation coefficients equal to 0.748 and 0.457 for TLTRO I and II, respectively) and is exogenous to banks loan supply decisions during both operations.

The exogeneity of borrowing allowance comes from the institutional setup of both operations. The maximum borrowing allowance is set by the ECB in a common way for all banks and is predetermined at the time of announcement of both operations. In particular, as explained in Section 2, in the first two TLTRO-I auctions (in September and December 2014), banks could borrow up to 7% of their outstanding amount of eligible loans on 30 April 2014. By contrast, I disregard the amounts borrowed in the additional TLTRO-I auctions (between March 2015 and June 2016) because the additional borrowing allowances depended on the evolution of banks' eligible lending activities in excess of bank-specific benchmarks. This incentive scheme was dropped for TLTRO-II and throughout the four TLTRO-II operations, banks could borrow up to 30% of their eligible loans.

In addition to the borrowing allowance, first stage regression (equation 1) controls also for other bank characteristics that might be relevant for explaining actual bank take-ups during TLTRO auctions. In particular, the set of

controls ($Controls_b$) includes the following variables: capital adequacy ratio, NPL ratio, ROA, funding costs, log of total assets and annual credit growth at a bank level. All the variables are measured one month before the initial take-ups within both series of operations, i.e. in 2014m8 for TLTRO-I and in 2016m5 for TLTRO-II.

In the second stage, I estimate the impact of TLTRO take-ups on credit growth and lending rates for new loans. The impacts are estimated for non-financial corporates using detailed credit register data that enable to control for loan demand and other unobserved firm characteristics with a series of fixed effects. Whereas both, credit growth and lending rate equation are based on Khwaja and Mian (2008) methodology, they differ slightly in their setup. TLTRO impacts on the evolution of lending amount is estimated for one-year window before/after the introduction of each TLTRO series. In particular, I estimate the following model:

$$\Delta L_{fb} = \beta \times \widehat{TLTRO}_b + \theta Controls_b + D_f + \varepsilon_{fb}$$

where ΔL_{fb} is log change of firm *f* loan amount in bank *b* in period between 2014m8 and 2015m8 for TLTRO-I and between 2016m5 and 2017m5 for TLTRO-II. $\widehat{TLTRO}_b$ are the fitted values from the first stage regression. D_f are fixed effects that capture loan demand and other unobserved firm characteristics. The identification assumption is that loan demand is not bank specific.

To uncover the TLTRO impacts on lending rate I make use of reported monthly rates and estimate the following difference-in-difference model:

$$LR_{fbt} = \beta \times (t \geq T) \times \widehat{TLTRO}_b + \theta Controls_b + D_{fy} + D_b + \varepsilon_{fbt}$$

where LR_{fbt} is lending rate for a new loan, taken by firm *f* in by bank *b* in month *t*. D_{fy} are firm-year fixed effects, that capture loan demand and other firm characteristics. D_b captures bank effects that are constant over time. The time frame for the estimation is 2013m1-2015m12 for TLTRO-I and 2015m1-2017m12 for TLTRO-II. The coefficient of interest, β, captures the differential effect of the policy between treated and control banks after each of the two TLTRO series became effective *(t ≥ T)*. More specifically, *T=2014m9* for TLTRO-I and *T=2016m2* for TLTRO-II. In addition to the control variables described above, I also control for loan-specific characteristics like loan maturity, credit rating, collateral and interest rate fixation. Last, when estimating the impact of TLTRO-II I control for the still-existing amount of TLTRO-I funding in banks' balance sheets, which might affect the estimated effects of the TLTRO-II.

5. Results

Table 2 presents the main set of results for the impact of TLTRO I and II on credit growth and lending rates for new businesses. The displayed impacts are coefficients in the second stage regressions. Both, TLTRO I and II show a positive and statistically significant impact on credit growth. The same firm is expected to have about 1.6 percentage points higher growth of loans in a bank with 1 percentage point higher share of TLTRO-I funding on its balance sheet. For TLTRO-II, the impact is twice as large, at 3 percentage points. Furthermore, TLTRO-I has a supporting impact on

Table 2: TLTRO impact on credit growth and lending rates[8]

	Credit growth		Lending rate	
	TLTRO-I	TLTRO-II	TLTRO-I	TLTRO-II
TLTRO	1.574**	3.022***	-0.167***	-0.019
Level of estimation	Firm-bank	Firm-bank	Firm-bank-month	Firm-bank-month
Firm controls	Firm FE Firm FE	Firm-year FE	Firm-year FE	Firm-year FE
Bank fixed effects	No	No	Yes	Yes
Number of observations	11558	9606	27398	36844
R-square	0.507	0.599	0.857	0.880

Source: Bank of Slovenia, own calculations

*Note: The table reports the estimated coefficients of the impact of TLTRO I and II on credit growth and lending rates to corporates. The impact on credit growth is estimated on a bank-firm level, using only firms with multiple relations with banks, where the dependent variable is change in log credit amounts between 2014m8 and 2015m8 for TLTRO I and between 2016m5 and 2017m5 for TLTRO II. The impact on lending rate is estimated on firm-bank-time level, using only firms that take loans from multiple banks in a given year. TLTRO are fitted values from first-stage regression, where TLTRO amounts (in % of total assets) are explained with borrowing allowance and bank controls. The same set of controls is included also in the second stage and include: capital adequacy ratio, leverage ratio, NPL ratio, ROA, funding costs, log of total assets and annual credit growth at a bank level. Estimates for lending rates also control for loan characteristics: maturity, credit rating, collateral and interest rate fixation. In addition, TLTRO-II estimates control also for the still existing TLTRO-I amounts in time of TLTRO-II take-ups. Significance: * p<0.10, ** p<0.05, *** p<0.01. Standard errors are clustered at bank level.*

[8] The robustness of the results was tested with two alternative approaches. First, I conduct a placebo test of a hypothetical introduction of TLTRO policy one year earlier. The estimated coefficients are not statistically significant and their magnitude is close to zero, which rules out that my results are driven by a particular set of confounding factors. Second, I expand the sample by adding single-bank relation firms to increase the external validity of results. I apply the methodology by Degryse et al. (2019) where the demand side is controlled for with industry-location-size-time fixed effects. The estimated effects are of a similar magnitude as those in Table 2.

lending also via rates, as the same firm is expected to receive 0.167 percentage point lower lending rate for a new loan in a bank with 1 percentage point higher share of TLTRO-I funding. TLTRO-II, on the other hand, does not show any impact through the price channel, indicating that it was only operative through adjustment of lending amounts.

Table 3 presents the results of the heterogeneous impact of TLTROs on bank lending, depending on bank and firm characteristics. For this purpose I interact the policy of TLTRO take-ups with indicator variable for the size of bank total assets, capital adequacy and funding costs. The indicator equals one if a bank-specific value of the variable of interest lies above the median. Further, an indicator for firm riskiness equals to one if a firm is assigned a credit rating A or B.

The impact of TLTRO on lending is higher for larger and better capitalised banks, though the latter appears significant only for TLTRO-I (column 2 in Table 3). This result indicates that monetary policy intervention in a form of TLTRO-I had an only limited impact on the real economy through banks that were not in a strong capital position. Later, during the TLTRO-II operations, the capital position of banks strengthened, which could be a reason for non-significant effect of bank capitalisation for the transmission of the TLTRO-II. Similarly, I find that bank funding costs played a role for the transmission of the policy only during TLTRO-I, where the impact of TLTRO funding is larger for banks with higher funding costs (column 3). High funding costs of banks can be an important obstacle for bank loan supply and this result shows that the TLTRO policy alleviates this issue. During TLTRO-II, banks could raise funds cheaply from the market as a result of accommodative monetary policy. This likely explains a less relevant role of funding costs for the transmission of TLTRO-II.

Turning to firm heterogeneity, the positive coefficient of the interaction term between TLTRO funding and indicator for rating A and B tells that increased lending under both TLTRO operations was directed more to solid and safe firms. This outcome is desirable by the policymaker as less risky firms are expected to be more productive in the long run.

6. Conclusion

In this paper I study the impact of the first two TLTRO series - TLTRO I and II - on bank lending to corporates. In particular, I estimate how banks adjust the quantity and price of credit in response to the two waves of targeted monetary policy. To identify the supply-side effects of the policy I look how banks that are affected differently by the policy adjust lending amount and rate to the same firm. Further, as banks participated in TLTRO auctions on a voluntary basis - potentially resulting in a selection bias - I use the IV approach leveraging on the exogenous ECB allocation rule. The results show a supporting impact of targeted operations on bank loan supply, resulting in higher credit growth and lower rates. I find that the TLTRO-I was supportive through both quantity and price channel, whereas the TLTRO-II only shows a sizeable impact on the quantity of credit.

The findings of my paper have important implications for policymakers, especially regarding the unconventional monetary policy measures. I show that firms benefiting from

Table 3: TLTRO impact on credit growth – bank and firm heterogeneity

	(1)	(2)	(3)	(4)
	TLTRO-I			
TLTRO	0.992	0.754	2.329***	0.643
TLTRO x I(Assets)	1.705**			
TLTRO x I(Capital adeq. ratio)		2.741***		
TLTRO x I(Funding costs)			4.727***	
TLTRO x I(Rating A/B)				1.131*
	TLTRO-II			
TLTRO	2.447***	2.847***	3.391***	2.164**
TLTRO x I(Assets)	3.571***			
TLTRO x I(Capital adeq. ratio)		2.684		
TLTRO x I(Funding costs)			-0.454	
TLTRO x I(Rating A/B)				1.114*

Source: Bank of Slovenia, own calculations

*The table reports the estimated coefficients of the impact of TLTRO I and II on credit growth, exploring bank and firm heterogeneity. I() denotes indicator variables that equal one when a bank-specific value for the variable in brackets is above the median, except for Rating A/Bwhere it equals one when a firm is assigned rating A or B. Significance: * p<0.10, ** p<0.05, *** p<0.01. Standard errors are clustered at bank level.*

the TLTRO operations were mostly stable and less risky firms, which are expected to be more productive in the long run. The results also reveal the importance of stable banking environment, as the propagation of monetary policy stimulus is larger through better capitalised banks. This holds especially for the impact around the TLTRO-I introduction when banks were still building-up their capital base. By the time of the second TLTRO programme, the capitalisation of the Slovenian banking system increased by 2.4 pp in terms of capital adequacy ratio, and hence bank capitalisation played a lesser role in the propagation of targeted monetary policy.

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Inflation, budget, and fiscal policy

*Aleš Delakorda, Jure Brložnik**

Inflation affects budget directly and indirectly. Although in the short run, its effects may be favourable, they tend to become more negative the longer the inflation persists. Fiscal policy should provide targeted and temporary support to the most vulnerable households and businesses due to energy price shock while avoiding blurring the price signals and neglecting structural changes in the energy markets. However, any further fiscal support to the economy needs to be carefully balanced against monetary policy currently addressing the inflationary expectations, as well as against considerations of keeping fiscal buffers available and ensuring the medium- and long-term debt sustainability.

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Inflation may have a significant bearing on public finances. We primarily deal with its effects on the public budget, including the related responses of fiscal policy. In addition to the dilemmas faced by fiscal policy due to the tightening of monetary policy and due to multiple ongoing and future structural challenges, we also review fiscal policy measures in response to high energy prices. [1]

1. Inflation and its effects on public finances

Inflation affects public finances directly and indirectly. Further to discretionary support, direct effects relate to higher tax bases and to indexed expenditure. Negative indirect revenue effects primarily occur if inflation dampens economic activity, while there may be positive feed-back effect on revenue from measures increasing government expenditure.

Since an inflation surprise first affects tax bases while (indexation) effects on expenditure come with a lag, the initial effect on fiscal balance is positive in general, without considering measures to mitigate the consequences of higher inflation. IMF (2022a) estimates that an unexpected 1 percentage point higher inflation rate in advanced economies increases budget revenue by 0.3%, while the effect on expenditure is negligible, because these are usually pre-defined in nominal terms.[2] The longer-term fiscal effect of a temporary higher

* Analysis Service, Fiscal Council. The views expressed herein are those of the authors and do not necessarily reflect the views of the Fiscal Council.

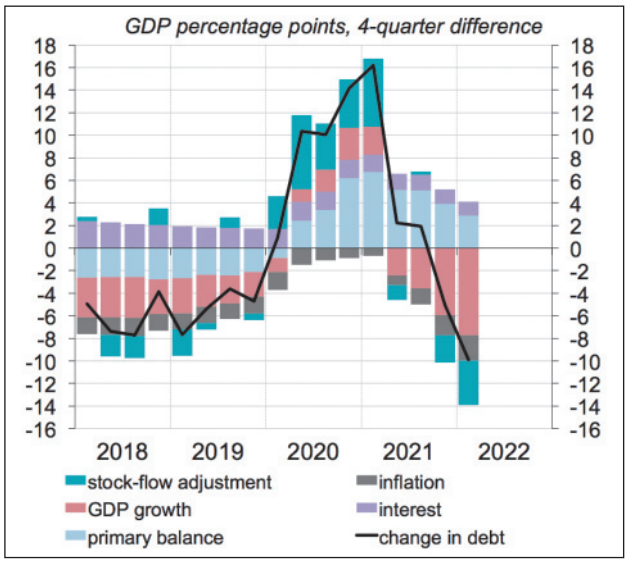
[1] Considerations of fiscal policy, presented in this article, may change due to the evolving underlying economic and geopolitical situation. The deadline for the article submission was 19 September 2022.

[2] Fiscal Council (2022) and CBO (2022) confirm low initial fiscal effects of temporary higher inflation without considering support measures. On the contrary, OBR (2022) shows strong negative budgetary consequences of higher inflation in the UK due to its immediate and strong effect on interest payments.

minflation is typically unfavourable. Since revenue does not change much while indexation may lead to a persistent increase in expenditure, it worsens the structural fiscal position. The negative effects on budget get more pronounced if inflation becomes permanently high. This leads to a slowdown in the economy and consequently lowers revenue in the long run. The negative effect is further exacerbated by the eventual tightening of monetary policy.[3]

A favourable short-run effect also applies to debt-GDP ratio via the denominator. The related inflation's effect reached around 2 percentage points of GDP in advanced and roughly 4 percentage points of GDP in emerging economies in 2021 (IMF, 2022a). In Slovenia, inflation (GDP deflator) contributed 1.8 percentage points out of 5 percentage points to the reduction in the debt-to-GDP ratio in 2021. If we assume the inflation spike will last two years, the ECB increasing interest rates in that period by 3% and considering that only 10% of GDP of Slovenia's sovereign debt matures over next two years, the short-term cost of higher interest rate may reach 0.3% of GDP. A surprise inflation at 6-8% (currently expected 8-10% minus ex-ante expected 2% by creditors when lending) with debt at 80% of GDP implies the denominator effect at 4.8-6.4% of GDP. The overall inflation effect on the lower debt ratio (assuming that in the short run budget implications of inflation are not significant) would thus be at 4.5-6.1% of GDP. However, any positive effect is generally significantly reduced in just over five years following the initial price shock with new debt issued at higher interest rates (Akitoby et al., 2014). Simulations (ECB, 2021: Box 18) show that such debt increasing effect occurs notwithstanding the continuation of a negative 'i-g'.

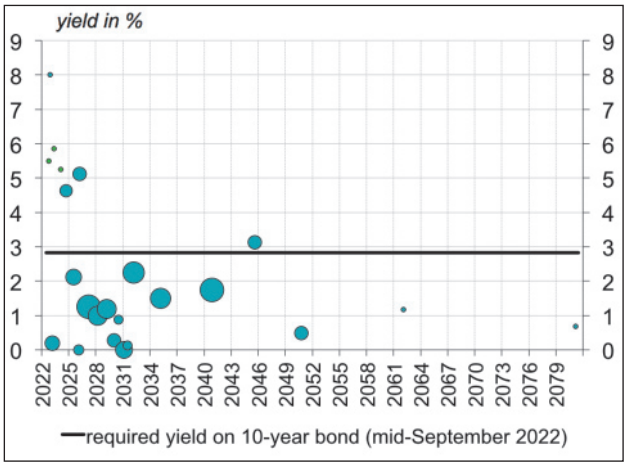
Figure 1: Change in general government debt



Source: SORS, authors' calculations.

[3] Fiscal Council (2022: Box 3.1).

Figure 2: Basic characteristics of Slovenian sovereign debt and currently required yield



Note: The size of circles reflects the amount of liabilities based on bonds, maturing in a certain year. Green colour marks bonds issued in USD.
Source: MoF, aouthors' calculations.

The effect of monetary policy response to higher inflation on sovereign debt servicing costs depends chiefly on debt profile. In addition to expected inflation and high inflation persistence as shown by Hilscher et al. (2022), short debt maturity, foreign currency denomination and floating interest rates all contribute to swifter and stronger pass-through. According to IMF (2022a), sovereign interest rates on average rise by 30 points after one year for each 100 points increase in policy rate. Attinasi et al. (2016) find that the pass-through of long-term expected inflation to long-term yield is close to unity. Since almost all Slovenian sovereign debt (99%) was issued at fixed interest rates, the share of debt in foreign currency is at 2.5% and the average maturity amounts to roughly 10 years, the effects of higher interest rates on interest expenditure shall only be gradual,[4] assuming stable future primary deficits. However, the fiscal space, created in recent years by falling interest costs, where the Eurosystem purchased a major part of the new sovereign debt in the secondary market, will not be available in the years ahead due to a higher level of post-pandemic public debt and worsening financing conditions.[5]

2. Response of fiscal policy to the recent spike in inflation

Despite of an initial positive fiscal effect of higher inflation, fiscal performance usually deteriorates in the case of energy and food price shocks. This is mainly due to measures adopted to mitigate the negative effect on house-

[4] Fiscal Council (2021a: Box 3.1) and Bank of Slovenia (2022: Chapter 9).

[5] Higher public debt also induces volatility in the operation of fiscal policy. For a response of (the volatility of) debt to shocks in 'i-g', see Fiscal Council (2021b).

holds and businesses. In the past, fiscal deficits have increased in close to one third of the advanced economies in case of such shocks, worsening by roughly 1 percentage point of GDP in two years (IMF, 2022a).

The ongoing commodity price increase represents an enormous shock to the economy. According to our estimates, in Slovenia it runs at close to 6% of GDP in 2022 compared to 2019 prices. An additional shock of 2% of GDP may follow in 2023 if energy prices remain at current levels. The response to such shocks will need to be shared among the government, corporates, and households. According to the IFI (2022), an average response of EU governments to the current inflation spike by mid-2022 amounted to 1% of GDP, thus being in line with the historical levels but considerably less than the currently estimated ongoing shock and the overall Covid-19 fiscal cost, with Slovenia at about half that figure.[6]

Based on the currently assumed nature of energy inflation, most adopted measures in EU countries are short term. Expenditure measures comprise different subsidies for households and (smaller) businesses as well as of transfers. Revenue measures were adopted in about one half of the EU countries (IFI, 2022) and include reduced or cancelled energy-related taxes (including VAT) and excise duties. Some governments have also introduced price caps.

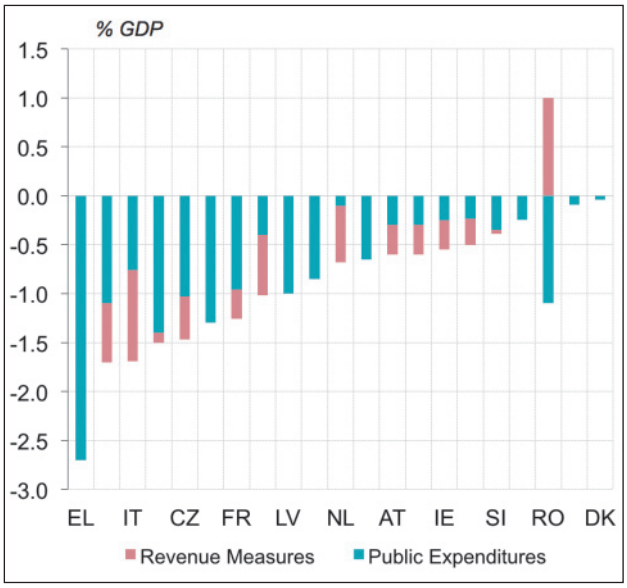
Fiscal support should preserve appropriate market incentives. Thus, income measures are preferrable to price measures.[7] Providing broad price subsidies, including via tax reductions, is costly, ineffective and increases inequality (IMF, 2022). Measures that would target the poorest fifth and the poorest two fifths of the population would cost only one and two thirds of the support oriented at total population respectively. General price subsidies may also not be passed into prices, or may lead to over consumption and inefficient use, discouraging lower use of from fossil energy.

Measures should focus on the most vulnerable households, chiefly hit by high energy prices. Ari et al. (2022) confirm that the impact of higher energy prices is mainly regressive. Simulations (Bethuyne et al., 2022) show that targeted income measures are preferred, compared to price measures (tax subsidies) and non-targeted income support measures as they lead to the strongest stabilisation of consumption and output in the short term, as liquidity constrained households spend their additional income. They are also more adequate in terms of social impact and impact on green transition over the long run.

[6] Authors' estimates in mid-September show this figure may be at around 0.8% of GDP.

[7] Eurogroup (2022) and IMF (2022a).

Figure 3: Fiscal policy measures to fight inflation in EU

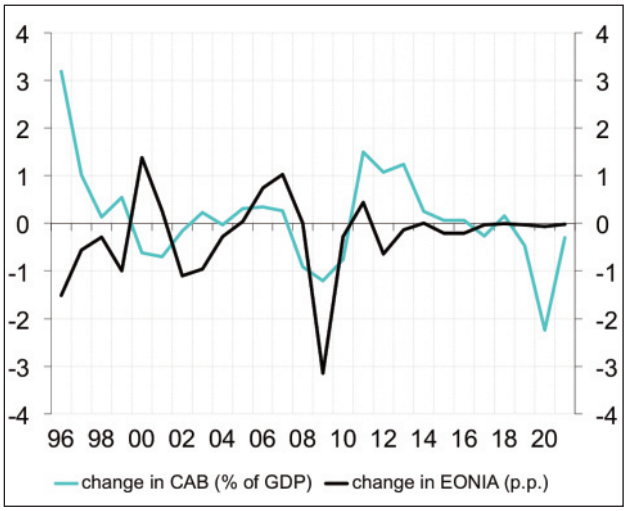


Source: European Fiscal Monitor (IFI, 2022), authors' calculations.

3. Challenges of fiscal and monetary policy normalisation

Fiscal and monetary policy have not always moved in sync in the euro area. From the global financial crisis to the outbreak of the pandemic, monetary policy was more supportive of economic activity. The trade-off between lax policy and inflation was not obvious as mainly structural factors kept inflation low. In effect, a boost to aggregate demand by fiscal policy was sought to ease the burden on monetary policy operating at the effective lower bound (ELB), a support that has not occurred to a significant extent, also because of weak economic governance during the euro area debt crisis. In the pandemic, both fiscal and monetary policy, the latter by accelerating the use of unconventional

Figure 4: "Orientation" of fiscal and monetary policies in the euro area



Sources: AMECO, ECB SDW, authors' calculations.

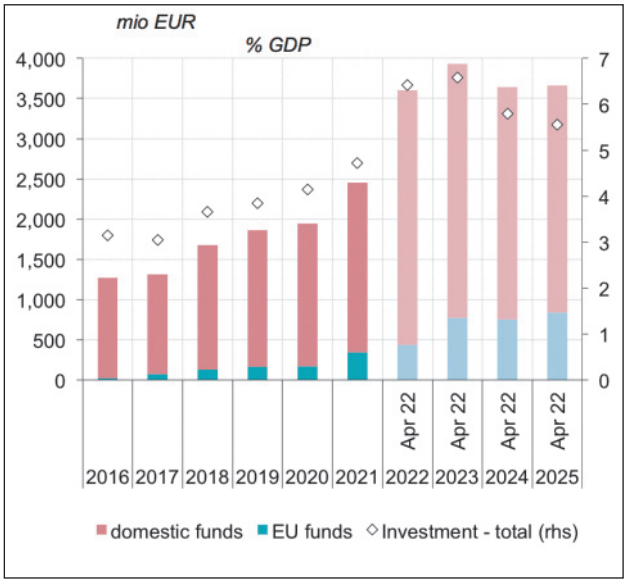
tools, turned decisively expansionary, perhaps over-influenced by an experience of the global financial crisis. In addition to setting a foundation of current inflation[8], this also generated probably unsustainable expectations of a further support.

Preventing high inflation from becoming entrenched is the main near-term challenge of economic policy (IMF, 2022b and BIS, 2022), as low and stable inflation is a precondition to durable long-term economic growth. The trade-offs between a need to contain inflation and the desire to support the economy are becoming inevitable and are faced with greater sacrifices in case of supply shocks. However, short-term costs related to fighting inflation are usually lower than costs of re-anchoring expectations and restoring policy credibility by more aggressive policy if inflation becomes entrenched.[9] There are also important intertemporal trade-offs. Short-term costs of policy normalisation are immediate and visible, manifested in higher financing costs, lower growth, and higher unemployment, while its benefits such as creating fiscal space to combat upcoming recessions and to address long-term challenges only occur with a lag and are consequently less tangible.

Fiscal policy should therefore to the largest extent possible support monetary policy to contain inflation by applying neutral or slightly restrictive policy on aggregate,[10] promoting debt sustainability. Fiscal deficits due to inflation mitigating measures should not be financed via debt but rather via tax increases (e.g. via windfall profits or via a "solidarity levy" on better-off taxpayers), while containing other than emergency spending.[11] Despite the currently expected slowdown of GDP growth, conventional demand management may not be appropriate[12] since it would not address the mainly supply-side driven origins of an activity slowdown, in many cases faced with limits in the labour market, as shown by Kalemli-Özcan et al. (2022). Broad fiscal support could instead add to inflation pressures,[13] neutralising its own actions and complicate an achievement of the monetary policy primary mandate.

On the other hand, a too restrictive fiscal policy may in addition to lowering demand and risking of being non-inclusive also have long-term implications, preventing supply to expand in terms of quantity and quality. Thus, prudent (closely tailored to economic and especially to labour market developments, while saving any revenue windfalls due to transitory higher inflation) and flexible (remaining able to respond to quickly changing circumstances by high quality spending) fiscal policy is required, simultaneously focused at achieving medium- and long-term goals of economic policy.

Figure 5: General government investment and its funding structure



Sources: SORS, Ministry of Finance (April 2022), authors' calculations.

National budgets should take full advantage of EU funds via different mechanisms to boost growth and productivity and simultaneously restrict the use of domestic funds to finance investment. The planned domestic financing of public investment is historically high in Slovenia as is public investment in aggregate. This may hamper its efficiency due to high input costs and due to the limits on administrative and absorption capacities.[14]

Heterogenous cyclical positions across countries, also reflected in a dispersed inflation in the euro area (Beynet and Goujard, 2022), make for an unclear fiscal policy orientation, together with unpredictable economic governance in the EU context. Fiscal authorities tend to get a free ride vis-à-vis centralised monetary policy as the costs associated with fiscal consolidation are incurred predominantly at the national level, while the costs associated with higher inflation (stemming from excessive national aggregate demand) tend to be shared (ECB, 2021). Also, the general guidelines by the European Commission (2022) regarding the

[8] Via the "speed effect" of an unusually fast recovery (see Gopinath, 2022).

[9] One of the key lessons of fighting high inflation in the 1960s and 1970s.

[10] Such is also a recommendation by the EFB (2022) and Eurogroup (2022) for 2023 for the euro area.

[11] IMF (2022b). This is also in line with the finding of Leeper (2021) that inflation could rise if agents do not expect monetary contraction to be followed by fiscal contraction.

[12] While fiscal multipliers rise in economic downturns, they decline when monetary policy becomes less accommodative, thus making fiscal policy less efficient.

[13] This could occur by initiating the price-wage spiral, conditional on labour market tightness. Blanchard and Pisani-Ferry (2022) propose an agreement to limit second-round effects, whereby significant direct support to households would compensate for the wage rise demands. Additional fiscal deficits would thus in effect contribute to lower inflation.

[14] Fiscal Council (2021c).

future orientation of fiscal policy do not help to put public finance on a sustainable path nor does – from an economic point of view unconvincing[15] – its decision to extend the general escape clause of the Stability and Growth Pact into 2023. Such vague decisions do not assist in achieving counter-cyclical fiscal orientation and do not provide adequate support to monetary policy in its endeavours to fight inflation.

Sound and sustainable fiscal policy will be required to gain support by monetary policy if sovereign bond markets become excessively fragmented. The use of a new Eurosystem Transmission Protection Instrument (TPI) will also be subject to compliance with the EU fiscal framework, fiscal sustainability, on the commitments included in the Recovery and Resilience Plans, and the European Commission's country-specific recommendations in the fiscal field (ECB, 2022). Both national fiscal policy and the economic governance at EU level will thus come under pressure.[16]

4. From short- to long-term orientations for fiscal policy

In the near term, fiscal policy needs to tackle challenges arising from high energy prices, allowing automatic stabilisers to fully operate while ideally simultaneously adopting measures to frontload the energy transition without endangering debt sustainability. The latter, together with actual and expected economic developments, should determine any decisions of supporting the economic agents to counter inflation. Current support may also create a prejudice for similar future actions. This is important if current measures are broad-based and since it at least part of higher energy prices may persist in the future, which cannot be addressed durably.

Over the longer horizon, economic and especially fiscal policy will need to address multiple challenges such as green transition, extreme weather events,[17] digitalisation, ageing society and low productivity. These, coupled with more frequent shocks, imply that the future will inevitably be highly uncertain ("Great Volatility Period"). A reduction of uncertainty should thus be one of the major goals of fiscal policy and can be supported by preparing sound medium-term plans, based on credible fiscal frameworks. These plans should include well-designed risk scenarios and contingency plans to address them. Together with clear communication, the credibility and transparency should reassure financial markets and limit a rise in borrowing costs in an environment of less accommodative monetary policy and high debt,[18] helping to reduce volatility faced by the private sector.

To be able to reach these goals, fiscal policy needs to rebuild and subsequently maintain – and assist monetary policy in building its own – buffers, also by enhancing growth-friendly revenue mobilisation and by prudent decisions on expenditure, prioritising its quality and efficiency instead of focusing on current expenditure to fuel short-term growth.[19] Fiscal policy can also support the economic potential by ensuring stable and foreseeable environment. Achieving a sustainable long-term growth shall provide funds for the rising public costs of seemingly inevitable stronger role of the state, while preserving debt sustainability.

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[15] This is also a view of the European Fiscal Board (EFB, 2022).

[16] See Box 12 in ECB (2021) regarding the incentive effects of monetary policy on fiscal policy behaviour.

[17] Gagliardi et al. (2022) show that sovereign debt ratio may increase by 5 pp of GDP in 10 years after including scenarios of extreme weather events, while risks to debt sustainability remain manageable. As past extreme weather events have defined stress test parameters, the results may underestimate the size and thus the effects of future shocks.

[18] Simulations (ECB, 2021) show that monetary policy in a high inflation scenario can tighten without endangering debt sustainability of high-debt countries if there are credible expectations of a return to prudent fiscal policy in the medium to long run. Bianchi and Melosi (2022) confirm that fiscal authority's credibility in stabilizing fiscal imbalances may critically affect inflation persistence. If inflation reflects fiscal imbalances, monetary tightening can cause a so called "fiscal stagflation".

[19] Eurogroup (2022).

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Slovenian public debt in a changing macroeconomic environment

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This article presents the composition and evolution of the present-day Slovenian public debt and considers its future sustainability at a time of a major shift in macroeconomic circumstances. While Slovenian public debt can be considered as sustainable in the short run, changes in the macroeconomic environment in combination with long term fiscal pressures due to the aging population and the investment needs of the green transition could pose increasing problems for its sustainability over the long run. This calls for a timely consideration of appropriate reforms and productivity enhancing investments.

JEL G21 Q01

1. Introduction

According to the relative size of its public debt expressed in terms of GDP, Slovenia is considered as a medium-indebted member of the EU. At the same time, the evolution of Slovenian public debt reveals that most of it has been accumulated in a relatively short period of time since the outbreak of the global financial crisis. Over the last several years, characterised by a low interest rate environment and, with the exception of the Covid-19 recessionary shock in 2020, by relatively high GDP growth rates, Slovenian public debt has been sustainable. However, the macroeconomic situation is changing, as the economic headwinds stemming from increasing inflation, geopolitical challenges, and the energy crisis have prompted the European Central Bank (ECB) to start raising interest rates just at the time when the economy is expected to slow down.

In the light of these circumstances, the objective of this article is to present a snapshot of Slovenian public debt in the present, its evolution from the past and possible trajectories into the future under several different scenarios. Our results show that while Slovenian public debt can be considered as sustainable at present, structural changes in the macroeconomic environment in combination with long term fiscal pressures due to the aging

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population and the investment needs of the green transition could pose increasing problems for its sustainability over the longer run.

In addition to the Introduction, the article has five sections. Section two presents the Maastricht definition of public debt, used throughout the article. Section three analyses the current composition of Slovenian public debt, its origins and evolution since 1995, as well as its alignment with EU fiscal rules. Section four focuses on comparison of Slovenian public debt with other EU member states and the EU average. Section five estimates possible future Slovenian public debt trajectories based on a simplified model of debt dynamics. Section six concludes the article.

2. Maastricht definition of public debt in the EU

Public debt of EU member states, including Slovenia, follows the so-called Maastricht definition[2] according to Council Regulation (EC) No 479/2009, which is based on the European system of national and regional accounts, ESA 2010, established by Regulation (EU) 549/2013. This definition is used to report fiscal data in the context of the EU's Excessive Deficit Procedure (Eurostat, 2019).

The Maastricht definition considers public debt as gross consolidated general government debt liabilities at nominal (face) value.[3] Government liabilities covered by this definition include debt securities, loans and currency and deposits. Some liabilities, such as financial derivatives, accrued interest and other accounts payable are excluded. Moreover, the Maastricht definition only includes actual and not potential (contingent) liabilities, such as public guarantees, which may affect public debt if they are called upon. Public guarantees become actual government liabilities only when the primary debtor fails to fulfil its obligation within the agreed time limit. At that point, the activated guarantee turns into public debt.

The general government sector referred to in the Maastricht definition covers all levels of government, as defined in the national accounts: central government, state governments, local governments, and social security funds. In addition to debt incurred by these government units directly, the definition also covers all institutional units where the government (at any level) has a significant share in financing (more than 50% of revenue from public funds), ownership (majority stake) or has substantial influence on management and decision-making and must help them in the case of negative business performance.

Liabilities between and within different government levels are consolidated, meaning that if a certain government unit (for example, a local government), incurs a liability towards another government unit (for example, the central government), this liability will be consolidated with the matching claim and not recorded as general government debt. The amount of general government debt is therefore less than the sum of liabilities of individual institutional units of different government levels.

Furthermore, the Maastricht definition implies that public debt is recorded in gross terms, without taking into consideration financial assets held by the government. Since these assets could in principle be liquidated to reduce liabilities of the government, there is an alternative concept called net public debt, which subtracts financial assets held by the government from its gross liabilities. Nevertheless, gross debt is relevant for sustainability analysis, since the government's ability to repay liabilities from recurring budgetary obligations through liquidation of financial assets is limited and may become further constrained in times of financial difficulties.

3. Public debt in Slovenia

Based on the Maastricht definition, Slovenian public debt consists of consolidated liabilities of approximately 2,700 institutional units at three government levels. The central government level includes the central budget debt ("dolg proračuna Republike Slovenije") as well as liabilities of public service providers and agencies ("javni zavodi", such as universities, high schools, or hospitals), public companies (such as the Bank Asset Management Company, Slovenian Sovereign Holding, or Slovenian Railways) and certain public funds (such as the Housing Fund, or the Eco Fund) classified at the central government level.

The local government level includes the debt of 212 municipalities ("dolg občin") and liabilities of local communities ("krajevne skupnosti"), local public service providers and agencies ("javni zavodi", such as elementary schools, kindergartens, or community health centres), as well as local public funds and public companies.

The level of social security funds includes three units, the Pension and Disability Insurance Institute (Zavod za pokojninsko in invalidsko zavarovanje or ZPIZ), the Health Insurance Institute of Slovenia (Zavod za zdravstveno zavarovanje Slovenije or ZZZS) and the Capital Fund (Kapitalska družba or KAD). The state government level is not applicable in the case of Slovenia.

[2] Named after the five Maastricht convergence criteria for entering the economic and monetary union, established by the Maastricht Treaty. Among them were two fiscal criteria, namely a budget deficit of less than 3 percent of GDP and a public debt ratio of less than 60 percent of GDP. These two fiscal criteria remained the cornerstone of the Stability and Growth Pact and the Excessive Deficit Procedure, which were established to guide prudent fiscal behaviour of EU member states inside the monetary union.

[3] The terms »public debt« and »general government debt« are used interchangeably throughout the article.

3.1 Composition of Slovenian public debt

At the end of 2021, the size of gross consolidated general government debt of Slovenia was EUR 38,877 million or 74.5 percent of GDP. As the Table 1 reveals, as much as EUR 38,129 million or 98.1 percent of this debt was due to central government debt. Within this amount, the debt of the Republic of Slovenia (central budget debt) represented by far the largest component, amounting to EUR 35,875 million, equivalent to 94.1 percent of central government debt or 92.3 percent of general government debt. The remaining liabilities of the central government level mostly belonged to public sector corporate debt according to Article 87 of the Public Finance Act.

Municipalities and other local government liabilities contributed only marginally to the overall indebtedness. Municipalities were in a way the first government units in Slovenia with their own fiscal rule in the form of limited borrowing. At the end of 2021, local government debt amounted to EUR 949 million or 2.4 percent of general government debt.

Social security funds on the other hand operate under rules that do not allow for specific borrowing, except for short-term liquidity management purposes. To cover the expected shortfall of social security contributions relative to expenditures, both main social security funds (ZPIZ and ZZZS) received substantial transfers from the central budget in 2021, amounting to EUR 1,369 million or 2.6 percent of GDP (Ministry of Finance, 2022a). The financing of social security funds' deficits therefore contributed towards the central budget debt, whereas the funds themselves technically displayed a cumulative surplus of 201 million EUR. The latter is presented as the "difference to consolidated debt" in Table 1.

In addition to composition based on government level, it is important to also understand other dimensions of Slovenian public debt for sustainability analysis and debt management, in particular instrument and interest rate type, maturity and currency composition (Ministry of Finance, 2021).

Public debt in Slovenia at the end of 2021 was predominantly financed by debt securities (bonds), accounting for 87.3 percent of general government liabilities, whereas 12.2 percent was financed by loans. Currency and deposits represented only a marginal (0.5 percent) share of general government debt. The average implied nominal interest rate on public debt (calculated as a ratio between interest payable and the nominal amount of general government debt) stood at a very low 1.7 percent in 2021.

Practically all outstanding public debt at the end of 2021 was issued with fixed interest rates, with floating rate instruments representing less than 1 percent of the total. Similar conclusions can be made regarding the currency composition, with euro denominated liabilities representing 99,9 percent of general government debt at the end of 2021, after taking into account currency swap arrangements to manage exchange rate risk. The use of currency swaps is mostly the consequence of a minor part of the central budget debt (3.6 percent at year end 2021) that was originally denominated in US dollars.

With respect to maturity, Slovenia has taken advantage of the low interest rate environment of the last several years by increasing the average maturity of its public debt. At the end of 2021, the average remaining maturity of the general government debt in Slovenia was 9.8 years. This is a substantial increase from less than a decade ago, when the average remaining maturity of debt securities, which finance most of the general government debt, was as low as 4.8 years (at the end of September 2014). Almost two thirds (64.9 percent) of outstanding general government debt at the end of 2021 was issued with original maturities of more than 10 years. At the same time, almost two thirds (66.3 percent) of outstanding general government debt at the end of 2021 will mature in the next 10 years. Table 2 gives a detailed overview of the maturity composition of Slovenian public debt based on original and remaining maturity.

Table 1: Public debt of Slovenia at the end of 2021 in million EUR

General government	**38,877**
Central government	38,129
of which: debt of the Republic of Slovenia	35,875
Local governments	949
Social security funds	-
Difference to consolidated debt (cumulative surplus)	-201
GDP (2021)	52,208
Public debt as % of GDP (2021)	74,5

Source: Statistical Office of the Republic of Slovenia

Table 2: Maturity composition of public debt of Slovenia at the end of 2021

	Original maturity	Remaining maturity
Less than 5 years	8%	29%
From 5 to 10 years	27%	38%
From 10 to 15 years	31%	13%
From 15 to 30 years	28%	19%
Over 30 years	6%	2%

Source: Eurostat

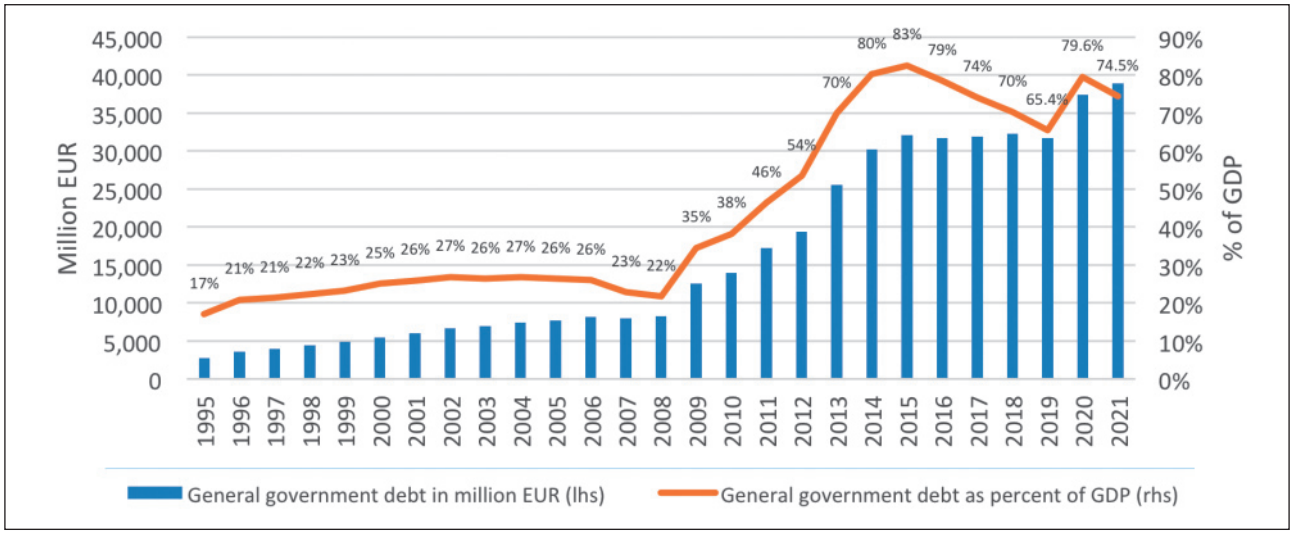
The above described characteristics of Slovenian public debt in 2021, in particular its denomination in domestic currency at fixed and low interest rates with long maturities speak in favour of short to medium run debt sustainability, because they reduce market (interest rate and exchange rate) risk and refinancing (rollover) risk, which is particularly relevant in a changing macroeconomic environment with decreasing GDP growth prospects and rising interest rates. Furthermore, concentration of Slovenian public debt at the highest (central) level of government, with strict debt limits on other levels of government improves the management of public debt. On the other hand, the intrinsic deficit of social security funds shows a structural problem that will grow larger in the future with increasing fiscal burden of an aging population. This may affect debt sustainability in the longer run.

3.2 Evolution of Slovenian public debt

Slovenia entered the EU with a very low public debt ratio of less than 30 percent of GDP. To explain the current much higher level of indebtedness, it is instructive to look at the evolution of Slovenian public debt, as shown in Figure 1. The graph reveals two major periods of increases in public debt. The first period is related to the global and euro area financial crises (2009-2015), whereas the second one is related to the Covid-19 pandemic (2020-2021).
Indebtedness of Slovenia increased substantially during the years of financial crises due to a combination of two factors. The first one was a prolonged period of negative or low growth, with a cumulative drop of real GDP of 8.9 percent by 2013 relative to 2008, in combination with elevated debt servicing costs. During 2012, reference 10-year bond yields for Slovenia reached as high as 7.3 percent.

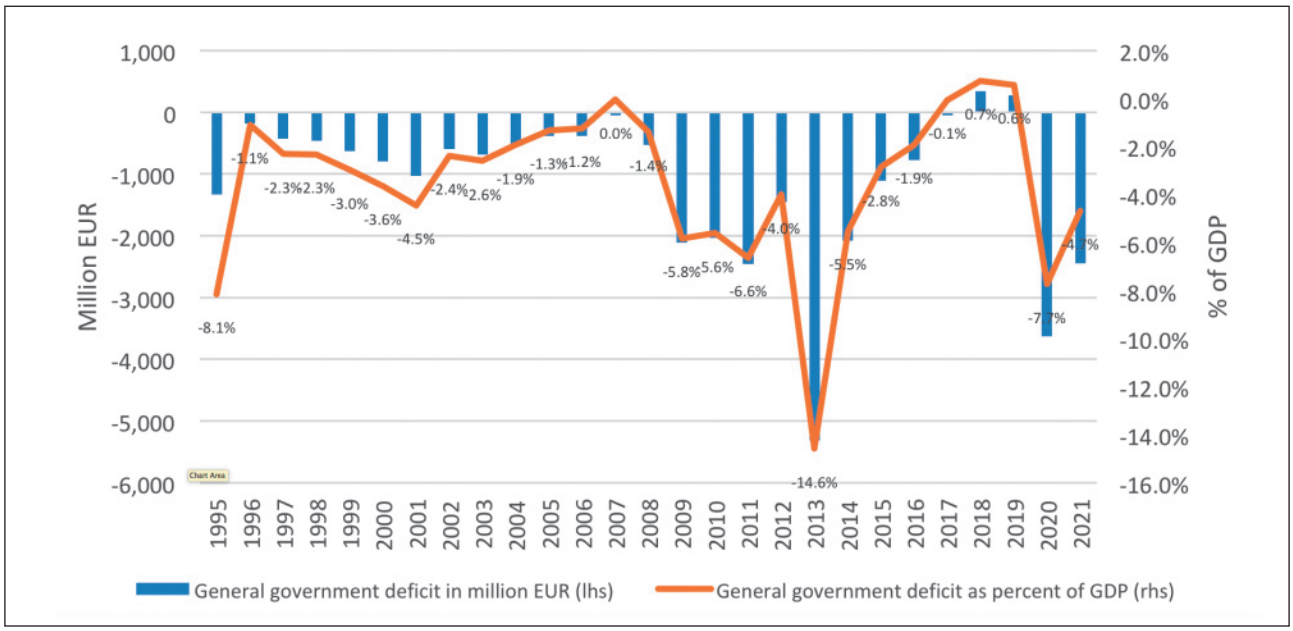
The accompanying feature of negative GDP trends were persistent general government deficits, as shown in Figure 2. The second debt increasing factor were bank recapitalizations aimed at stabilization of the banking system. These contributed to sizable headline general government deficits of 14.6 and 5.5 percent of GDP in 2013 and 2014, with one-offs of 10.7 and 1.5 percent of GDP for bank recapitalizations, respectively (Ministry of Finance, 2022b). The combined effect of these two factors meant that the absolute and relative size of Slovenian public debt nearly quadrupled during the period of financial crises, with the public debt ratio peaking at 83 percent of GDP in 2015.
After a period of favourable market conditions between 2016 and 2019 with accelerated growth and low interest rates, during which the public debt ratio dropped to 65 percent of GDP and general government debt levels even slightly decreased in absolute terms, Slovenia was faced with the economic challenge of the Covid-19 pandemic. According to the International Monetary Fund (2021) estimates, Covid-19 related fiscal policy measures in Slovenia in 2020 and 2021 amounted to 7.7 percent of 2020 GDP in terms of direct budgetary support and a further 6.9 percent of 2020 GDP in terms of liquidity measures, including government lending, equity support and public guarantees. These measures softened, but not fully prevented, a sharp recession in 2020 and paved the way to a strong recovery in 2021. At the same time, they resulted in a second substantial increase in indebtedness, which was less pronounced than the first one. The public debt ratio peaked at 80 percent in 2020 and then decreased to 74.5 percent in 2021. The main reason for this quick reversal was high GDP growth in 2021, since absolute levels of debt increased in both years.

Figure 1: Evolution of general government debt in Slovenia



Source: Eurostat

Figure 2: Evolution of general government deficit in Slovenia



Source: Eurostat

The key difference between both periods of public debt increases was the opposite behaviour of the differential between real interest rates and growth rates. During the financial crises period, Slovenia issued new debt at significantly higher interest rates against the backdrop of decreasing output and very low inflation. Deterioration of Slovenia's credit rating by major credit rating agencies contributed to the rise of interest rates during this period. As a result, the interest rate – growth differential was substantially positive, adding pressure to increases in public debt. Since financial markets in euro were practically "closed" for Slovenia at the time, bonds were issued in US dollars.

On the other hand, interest rates for newly issued debt were close to zero and even negative during the Covid-19 period, against the backdrop of a sharp, but short recession, followed by a strong, and increasingly inflationary recovery in 2021. A key reason for very low interest rates was very loose monetary policy of the ECB, which in addition to zero interest rate policy also conducted substantial asset purchase programmes (quantitative easing). This flattened the yield curve, with extremely low interest rates even for longer maturities (Slovenian reference 10-year bond yield even turned negative for an extended period between the second half of 2020 and the first months of 2021). Another reason was significant improvement in Slovenia's credit rating by all three major credit rating agencies (Moody's: A3, Fitch: A and Standard & Poor's: AA-) and thus a lower credit risk premium. As a result, the interest rate – growth differential turned negative, acting as a break to increases in debt due to Covid-19 related fiscal measures.

Based on the above-described evolution of Slovenian public debt and focusing on its most important component, the central budget debt, it is possible to construct the following picture of its origins at the end of 2021. Out of central budget debt (i.e. debt of the Republic of Slovenia) of EUR 35,875 million, as much as EUR 27,556 million (76.8 percent) is the direct result of financing of annual budget deficits and debt management. A further EUR 5,196 million (14.5 percent) is the result of bank resolutions in 2013 and 2014 as well as banking system and real economy rehabilitations of the early 1990-ties. Additional EUR 1,716 million (4.8 percent) stems from the assumption of debts of former Yugoslavia in the process of succession and the assumption of corporate debt (Slovenian ironworks, Slovenian railways and other companies). Finally, EUR 780 million (2.2 percent) is due to the financing of specific development programmes and EUR 626 million (1.7 percent) is the result of financial assistance programmes to other EU member states, which includes direct loans to Greece and assistance through the European Stability Mechanism.

3.3 Slovenian public debt and EU fiscal rules

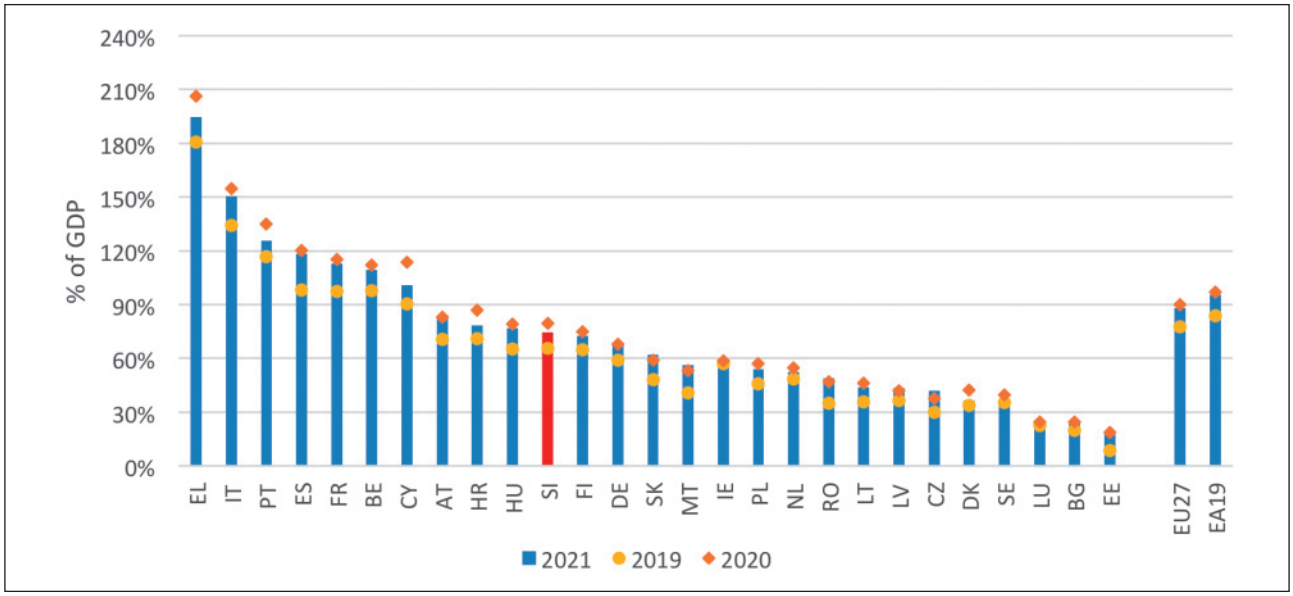
Slovenian public debt has been above the Maastricht limit of 60 percent of GDP since 2013. At the end of 2021, more than half (14 out of 27) of EU member states also did not fulfil this criterion (see Figure 3), which is a key part of EU fiscal rules, enshrined in the Stability and Growth Pact and the Treaty on Stability, Coordination and Governance (the Fiscal Pact). According to these rules, EU member states must show sufficient fiscal effort on an annual basis towards meeting their medium-term objectives, including the

60 percent public debt ratio. With respect to the debt ratio, the time horizon for meeting the threshold is 20 years.
EU fiscal rules were substantially upgraded during the period of financial crises. As a result, the principle of medium-term balance of public finances was introduced into the Slovenian constitution in 2013 by a constitutional law supplementing Article 148 of the Constitution. Two years later, the Fiscal Rule Act was adopted, which operationalized the implementation of this medium-term balance in practice. Under this law, the National Assembly has been adopting a medium-term fiscal framework since 2016, setting out expenditure ceilings and target balances of the central budget and the general government sector for the next three years. Since 2017, Slovenia also has a functioning and proactive Fiscal Council that looks at the state of the country's public finances to ensure that the constitutional principle of balanced public finances is respected.
The Covid-19 crisis has turned the EU fiscal rules upside down. The rules were suspended with the activation of the general escape clause, to allow EU member states to adopt fiscal measures substantially in excess of regular limitations. While this was seen as a temporary measure at the time, more than two and a half years later, it is becoming increasingly uncertain when the general escape clause will be deactivated. Due to a new external shock, resulting from the war in Ukraine, the associated energy crisis and the expected economic slowdown, the European Commission postponed the deactivation of the general escape clause until at least 2024.
The rules themselves are expected to change by then, to better facilitate long-term debt sustainability, investment challenges of the green and digital transitions and reduce excessive complexity and inconsistencies. To this effect, the European Commission published a communication on orientations for the reform of EU fiscal rules on 9 November, which puts debt sustainability at the very centre of the reform (European Commission, 2022).
During suspension and reform of the EU fiscal rules and in the light of a changing macroeconomic environment (in particular, rising interest rates and decreasing growth), it is important that Slovenia pays attention to prudent fiscal behaviour and long-term sustainability, to ensure sufficient fiscal space for investment needs of the green and digital transition.

4. Comparison of public debt in Slovenia with other EU member states

Slovenia has a public debt ratio below the EU and Euro Area average. As Figure 3 reveals, the average EU and Euro Area public debt ratios at the end of 2021 stood at 88 and 95 percent of GDP, respectively, against Slovenia's 74.5 percent of GDP. During the Covid-19 crisis, Slovenia was among EU member states which initially (in 2020) increased their relative level of indebtedness by more than the EU and the Euro Area average, but subsequently (in 2021) lowered it faster than the EU and the Euro Area average, mostly due to higher-than-average GDP growth. As a result, the public debt ratio in Slovenia at the end of 2021 was 9.1 percentage points of GDP above its pre-pandemic level, whereas the average EU and euro area increases of the ratio were higher at 10.4 and 11.5 percentage points of GDP, respectively.

Figure 3: General government debt in EU member states



Source: Eurostat

The main problem with public debt is interest payments, which reduce available resources for other purposes. Before the debt increases induced by financial crises, annual interest payable on general government debt in Slovenia was below EUR 500 million, or 2.4 percent of total general government expenditure. During the years of financial crises, interest payable rose sharply and reached EUR 1,252 million (6.6 percent of general government expenditure) in 2015. Since 2017, due to active debt management by swapping bonds with high coupons for bonds of longer maturity with lower coupons, annual interest payable fell below one billion euros, reaching EUR 661 million (2.6 percent of general government expenditure) in 2021. Comparison of the relative fiscal burden of interest payments in Slovenia with other EU member states is shown in Figure 4.

As Figure 4 shows, Slovenia was among the EU member states where the fiscal burden of interest payments in 2021 was close to the EU and the euro area average. The horizontal axis shows fiscal burden in terms of the share of interest payable in general government expenditure in 2021, whereas the vertical axis expresses it as the average implied interest rate, calculated as the ratio between interest payable and outstanding debt in 2021. The regression line in the graph shows that member states with a higher share of interest payments in general government expenditure on average paid higher implied interest rates on outstanding debt. Since Slovenia is slightly above the line, this implies that it was still paying slightly above average implied interest rate based on its share of interest payments in general government expenditures in 2021.

5. Sustainability of Slovenian public debt

How sustainable is Slovenian public debt? To answer this question, it is instructive to first consider what constitutes unsustainable debt. As Willems and Zettelmeyer (2022) point out, public debt is unsustainable if it cannot be repaid without altering the contractual terms of debt obligations or reneging on them through default, restructuring or hyperinflation. Fiscal policy that could result in such outcomes is also not sustainable and should be changed. As long as this change is feasible, debt trajectory can be shifted back to a sustainable path.

According to these principles, the International Monetary Fund (2013 and 2021) defines public debt as sustainable, when the primary balances[4] needed to stabilize the public debt ratio[5] are economically and politically feasible under a reasonable set of baseline and alternative scenarios. Furthermore, a sustainable public debt ratio should also be consistent with a low refinancing (rollover) risk and conducive to potential growth. To assess sustainability of Slovenian public debt we therefore estimate its possible trajectories into the future using a simplified model of public debt dynamics.

5.1 Methodology of public debt dynamics

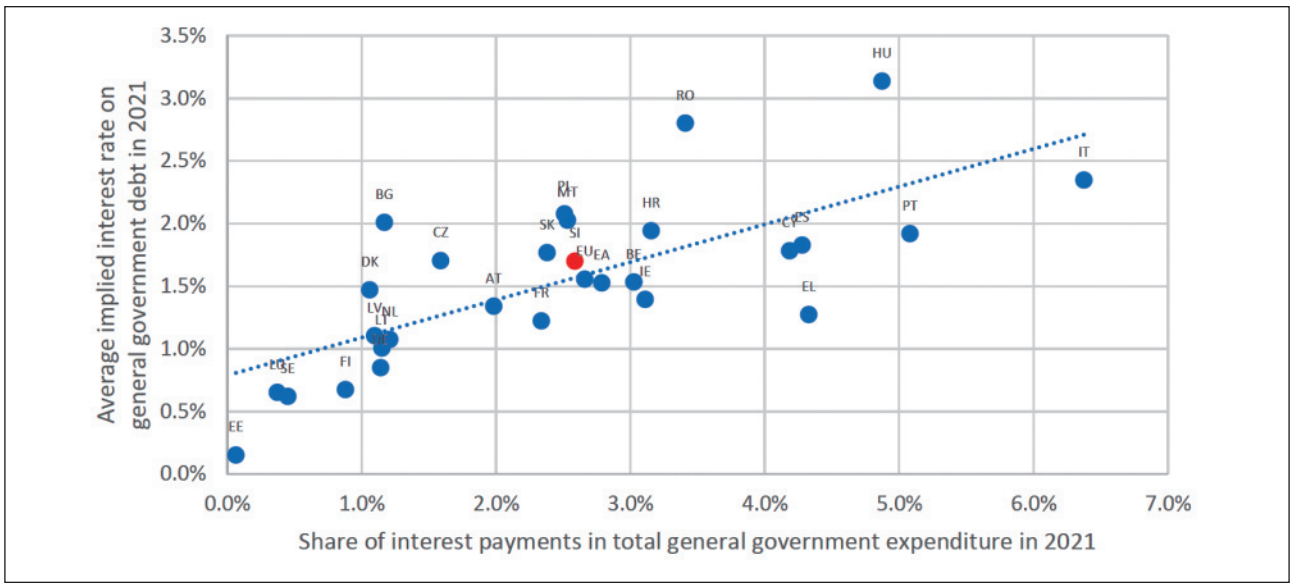
Evolution of the general government debt depends on several factors, which can be formally summarized by the following debt dynamics equation (Escolano, 2010).

$$D_t = D_{t-1} + i_t D_{t-1} - PB_t + SFA_t \qquad (1)$$

[4] Budget balances, net of interest payments.

[5] Public debt, expressed in terms of GDP.

Figure 4: Fiscal burden of interest payments on general government debt in EU member states



Source: Eurostat

The above equation implies that this year's stock of debt (D_t) equals to the past year's stock (D_{t-1}) and the amount of interest payable on outstanding debt ($i_t D_{t-1}$) at nominal interest rate . This baseline stock of debt is reduced by the amount of general government primary balance (PB_t). Primary surpluses decrease the level of debt, whereas primary deficits increase it. The stock-flow adjustments (SFA_t), which capture other factors that affect the debt level but are not included in the primary balance, further add to the level of debt.[6]

Equation (1) can be rearranged to obtain the change in the general government debt ratio. Denoting all variables expressed as ratios to with lowercase letters and considering relationships between nominal and real interest and growth rates, this can be written as:

$$\Delta d_t = \frac{r_t - g_t}{1+g_t} d_{t-1} - pb_t + sfa_t \qquad (2)$$

Equation (2) implies that the current year's change in the public debt ratio (Δd_t) depends on the real interest rate (r_t) relative to real growth rate (g) differential, the previous year's debt ratio (d_{t-1}), the primary balance ratio (pb_t) and the stock-flow adjustment ratio (sfa_t). Knowing the current public debt ratio, this equation allows future projections of the debt ratio based on assumptions made about the remaining variables.

Equation (1) can also be used to estimate average gross financing needs (GFN) of the government. To avoid default, the government must secure sufficient funding each year to refinance its maturing debt, pay interest on outstanding debt, cover any primary deficits and any net increases in financial assets (for example, due to increased ownership of enterprises or lending to other sectors) as well as other stock-flow adjustments. This can be written as:

$$GFN_t = \frac{D_{t-1}}{AM_t} + i_t D_{t-1} - PB_t + SFA_t \qquad (3)$$

Except for the first term of equation (3), all other terms are the same as in (1). The first term ($\frac{D_{t-1}}{AM_t}$) refers to refinancing needs due to maturing debt, which can be proxied on average by dividing the outstanding amount of debt at the end of the previous year by average remaining maturity of debt (AM_t).

5.2 Definition of scenarios for debt sustainability analysis

We estimate a baseline scenario and several alternative scenarios of evolution of the public debt ratio and gross financing needs over a ten-year period (2022-2031). For the purpose of a simplified debt sustainability analysis, we assume that the stock-flow adjustment is neutral (equal to zero) and focus on other variables (growth rates, real interest rates and primary balances). This is plausible, if we assume that the government does not intend to systematically change its net financial asset position over the next decade. It is furthermore plausible since public debt in Slovenia is almost fully denominated in domestic currency, and statistical discrepancies and other adjustments are small.

In the "baseline" scenario we assume the latest projections of growth rates, GDP deflators and primary balances in 2022-2024 based on the autumn 2022 forecast by the Institute for Macroeconomic Analyses and Development (IMAD, 2022) and the 2023-2024 budget proposal by the Ministry of Finance (2022c). A substantial growth slowdown (to 1.4 percent) is projected for 2023 with a gradual improvement of growth afterwards. The primary deficit is expected to peak at 2,669 million EUR (4.3 percent of GDP) in 2023, mostly due to substantial increases in budgetary reserves and investment transfers, before declining to 984 million EUR (1.5 percent of GDP) in 2024. We expect interest rates for new debt to peak at 4.5 percent in 2023 before gradually declining to 2.5 percent by 2025 and remaining constant afterwards.[7] We also take into account that the interest rate on new debt is only applied to the maturing proportion of debt. To do this, we calculate the implied interest rate on outstanding debt as a weighted average of interest rates on refinanced and non-refinanced proportions of debt. Growth projections for 2025 and beyond follow the 2021 Aging Report (European Commission, 2021a). The GDP deflator is projected to converge to the ECB price stability objective (2 percent) by 2025, whereas the primary deficit is assumed to remain constant at 1.5 percent of GDP in 2025 and beyond. This primary deficit is consistent with a headline deficit below the Maastricht limit of 3 percent of GDP, assuming that the share of interest payments in GDP, remains below 1.5 percent (in 2021, this share was 1.3 percent of GDP).

In addition to the baseline, we define five alternative scenarios. The first three scenarios test sensitivity of baseline projections to macroeconomic assumptions about growth rates, interest rates and inflation, as well as debt maturity. The last two consider the longer-term fiscal challenges of the green transition and aging population.

In the "higher real interest rate" scenario we take into account that the negative real interest rates of the past few years are a historical anomaly. We therefore assume that

[6] Stock-flow adjustments include three categories in particular, namely, net acquisitions of financial assets, adjustments (due to accrual-based accounting, valuation changes and appreciation/depreciation of foreign-currency denominated debt), and statistical discrepancies.

[7] By early November, reference 10-year bond yields for Slovenia already reached 3.5 percent.

real bond yields for Slovenia will revert back to the pre-pandemic (2007-2019) average by 2025, which stood at approximately 1.5 percent for 10-year reference bonds. To simulate this, we raise nominal interest rates on new debt by 1 percentage point from 2023 onwards. All other variables remain the same as in the baseline. This scenario could imply a geopolitically fractured world that slows down international capital flows, a general fall in savings due to persistent inflation, higher natural rate of interest, and central banks that remain actively focused on regaining control of inflation.

In the "low growth" scenario, we assume a permanent downward productivity shock by lowering GDP growth by 1 percentage point from 2023 onwards. Primary balances in this scenario react to the shock according to the budget balance semi-elasticities of EU member states, estimated by the European Commission (2019). The estimate for Slovenia stands at 0.468 percent improvement in the budget balance for every 1 percent increase of GDP above the potential. This scenario could be associated with a failure to successfully implement green and digital transitions in Slovenia as the rest of the EU and the world moves on to new technological solutions. All other variables remain the same as in the baseline.

In the "shorter maturity" scenario we test the impact of shortening debt maturity on gross financing needs. We shorten the average remaining maturity of public debt from its present- day level of 9.8 years to the minimum of 4.8 years reached during the peak of financial crises over a 5-year period between 2022 and 2027. Shorter maturities could be a plausible scenario in a higher interest rate world. All other variables remain the same as in the baseline.

In the "green transition" scenario we consider the potential impact of green transition investments. Investment needs of the green transition are substantial. The European Commission (2021b) estimates that additional investments in the order of 3 percent of GDP are needed every year on top of pre-existing levels of green investments in 2011-2020 just to deliver the 2030 European Green Deal climate objectives. A part of these investments, in particular those relating to infrastructure, will have to be financed by public means. A recent study by Batini et al (2022) has shown that green investments may be promising in terms of returns, with investment multipliers twice as large and more persistent than those on comparable non-eco-friendly investments. We take this information into account by increasing the primary deficit by 0.6 percent of GDP each year beginning with 2025 and applying Batini et al (2022) multipliers, which raises GDP by 7.9 percent above the baseline by 2029.[8] All other variables remain the same as in the baseline. This scenario is equivalent to covering approximately 20 percent of additional green investment needs by public debt.

In the "aging" scenario, assumptions behind the initial three years of projections remain the same as in the baseline. Starting with 2025, however, we begin adding incremental costs of aging to the primary deficit in each projected year, as estimated by the 2021 Aging report (European Commission, 2021a). This increases the primary deficit by about 0.2 percent of GDP in each consecutive year relative to the previous year. We consider the effect of this additional fiscal spending on GDP by taking into account the average estimates of fiscal multipliers by the International Monetary Fund (2014), reducing them by 30 percent to take into account lower marginal propensity to consume of older population (see for example, Fagereng et al., 2021). This produces GDP that is 2.3 percent higher than the baseline by 2031. All other variables remain the same as in the baseline. The logic behind this scenario is therefore to estimate the effects of unfunded costs of aging on public debt (without corresponding increases in social contributions, taxes or pension reforms). The headline deficit in this case would exceed the Maastricht limit before the end of this decade.

5.3 Results and discussion

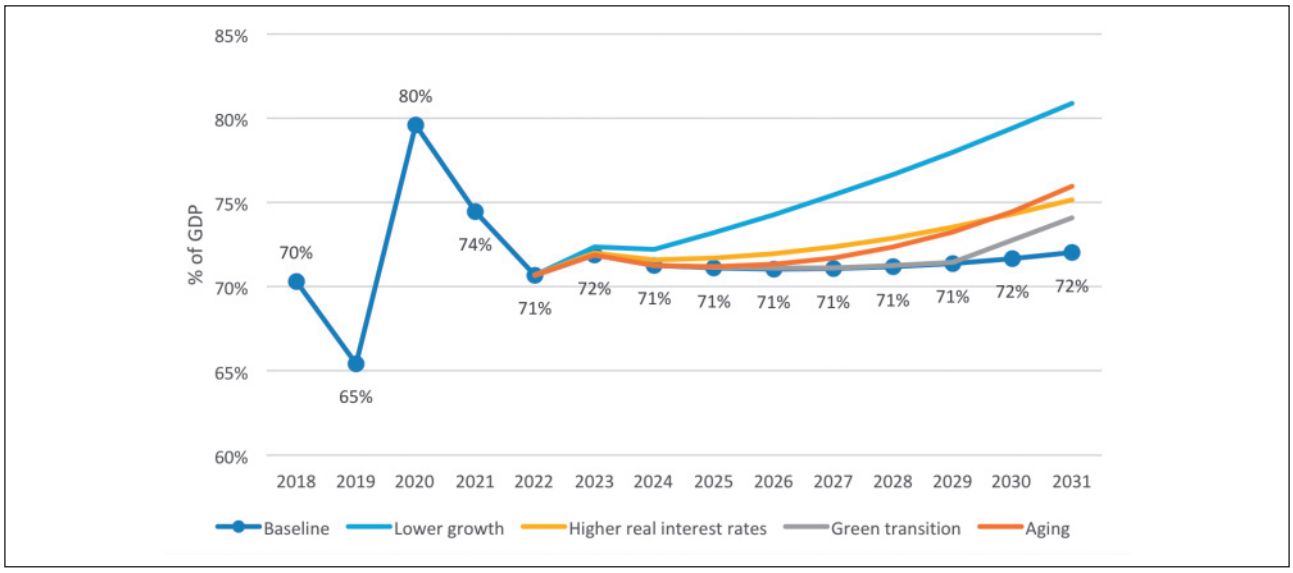
The projections of Slovenian public debt in Figure 5 show that while the debt ratio is stable in the 2022-2031 forecast period under the baseline and does not yet grow uncontrollably even under alternative scenarios, longer-term upside risks to fiscal sustainability are clearly visible.

Two problems stand out in particular. The first one is the aging population problem, which, if left unchecked due to no change in aging related policies and uncovered by contribution- or tax-based fiscal revenues, starts visibly raising the debt ratio towards the end of the forecast period. While this is not yet a substantial problem in the immediate future, debt ratio growth is exponential and would lead to increasingly higher debt ratios in the long run, which is not sustainable.

The second problem is potential growth, in combination with the green and digital transitions. With the European Green Deal, we have entered a prolonged period of increased technological transformation in the EU. The current

[8] In addition to the one-off increase in GDP level due to the multiplier effect, green investment could also have a permanent positive effect on growth through productivity increase, which we do not consider here. For possible better growth performance of the green sector relative to the rest of the economy, see European Commission (2020) factsheet.

Figure 5: Trajectories of Slovenian public debt ratio under different scenarios

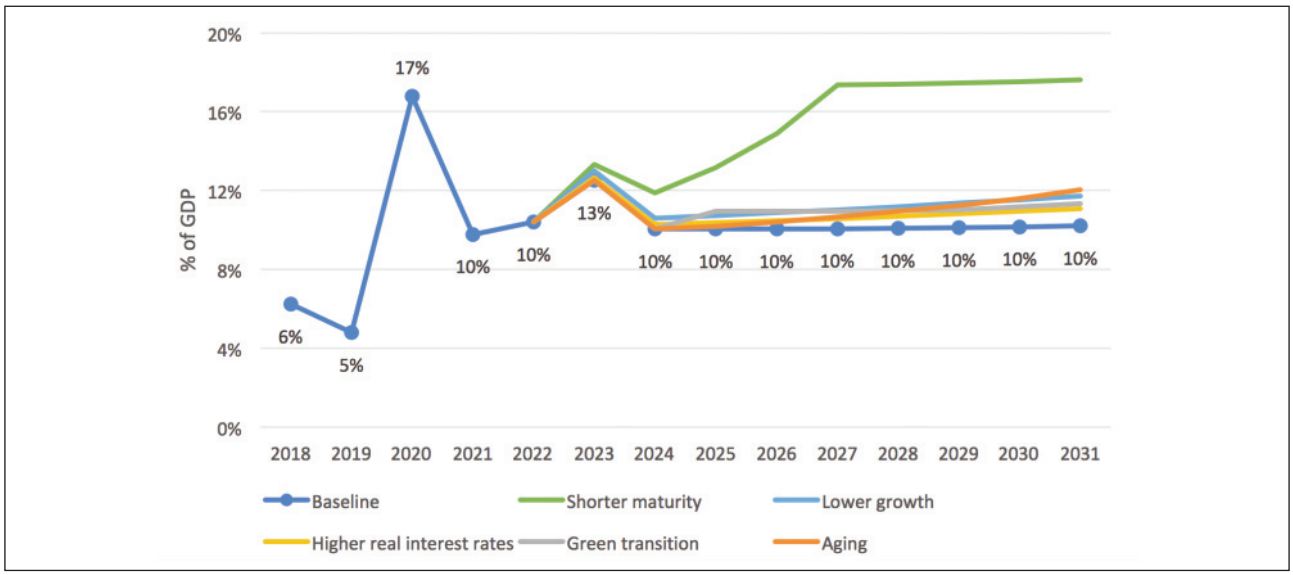


Source: EurostatSource: Authors' projections based on Eurostat data and assumptions based on IMAD (2022), Ministry of Finance (2022c), European Commission (2019, 2021a), Batini et al (2022) and IMF (2014).

energy crisis has further sharpened the focus on the need to accelerate the energy transition away from fossil fuels. These processes and corresponding investments will reshape EU supply chains and play an important role in determining long-term productivity. To remain competitive, Slovenia needs to participate in them by taking full advantage of available funds both at the EU and national level. On national level, this requires sufficient fiscal space, which could be further expanded by green investment, if multipliers are indeed substantially higher, as estimated by Batini et al. (2022). This is evident from the "green transition" scenario, which only leads to a gradually rising debt ratio at the end of the forecast period. Failure to successfully implement both transitions could lead to productivity slowdown and reduced growth, with significant upside risk for public debt sustainability, as shown by the "lower growth" scenario.

Public debt projections in Figure 5 also show that rising interest rates are less of an immediate concern for Slovenia in comparison to the other two problems described above. The debt dynamics formula clearly shows that real interest rates are relevant for debt sustainability, implying that the same level of nominal interest rates is automatically more sustainable under higher inflation. Moreover, even if real interest

Figure 6: Trajectories of gross refinancing needs of Slovenia under different scenarios



Source: Authors' projections based on Eurostat data and assumptions based on IMAD (2022), Ministry of Finance (2022c), European Commission (2019, 2021a), Batini et al. (2022) and IMF (2014).

rates revert back to the pre-pandemic average, this will only gradually feed into average debt servicing costs, due to Slovenia's policy of lengthening debt maturity during the period of very low interest rates. Nevertheless, we should be careful before making conclusions, because higher interest rates may lead to a shortening of debt maturity, accelerating the pass-through of marginal interest rates on new debt to overall debt servicing costs. At the same time, inflation could drop in the future, exposing the real costs of longer-term high-yielding debt.

Figure 6 shows the estimates of gross financing needs as a percentage of GDP. The "shorter maturity" scenario clearly stands out. While this scenario reproduces essentially the same debt ratio as the baseline and was therefore not shown in Figure 5, its effects on gross financing needs are substantial due to a shortening of debt maturity, with gross financing needs rising up to 18 percent of GDP by the end of the forecast period. On the other hand, gross financing needs in the baseline are stable at 10 percent of GDP and rise to between 11 and 12 percent of GDP in the remaining alternative scenarios, with visible upward trends at the end of the period, which are related to the trends already discussed under Figure 5. Shortening of debt maturity therefore has clear implications for gross refinancing needs, which in turn implies that the government becomes more exposed to the market sentiment.

6. Conclusion

The origins of the current level of public debt in Slovenia can largely be explained by two periods of fast increases in indebtedness. The first period corresponds to the global and euro area financial crises, whereas the second one occurred during the Covid-19 crisis. In addition to a cyclical increase in general government deficits, which occurred as a result of severe economic downturns, public debt in both periods also increased substantially due to large discretionary fiscal measures. During the period of financial crises, these measures were mostly aimed at resolution of the banking system. During the Covid-19 crisis, they were directed towards the broader economy, including non-financial enterprises and individuals, and towards specific sectors that were severely affected by the pandemic. Additionally, a small part of Slovenian public debt can also be traced to the debts of former Yugoslavia and rehabilitation of the banking system and the economy in the early 1990s.

With a public debt ratio of 74.5 percent of GDP at the end of 2021, Slovenia is below the EU and euro area average. At the same time, it is also among those EU member states that exceed the Maastricht debt ratio of 60 percent of GDP. In the environment of relatively high growth and low interest rates that preceded the pandemic, Slovenian public debt was sustainable, supported by its downward trend both in relative and (to a smaller extent) absolute terms between 2015 and 2019. While the pandemic broke this trend, favourable financing conditions remained and even improved, whereas growth returned strongly in 2021 after only a one-year recession.

By today, however, very favourable financing conditions have come to an end as macroeconomic environment is shifting. Post pandemic supply-side bottlenecks combined with a renewed surge in demand and an abundance of money supply have created inflationary pressures by the end of 2021. By 2022, Russian war in Ukraine, worsening geopolitical situation, the associated energy crisis and continued problems with supply chains have sent inflation in the EU and around the world to new heights, unseen since the inflationary period of the 1970s. As a result, a shift in global monetary policy regime towards tightening and higher interest rates, spearheaded by the US Fed and followed by the ECB and other major central banks, is now well underway. This change already has very tangible effects on Slovenian bond yields, with the 10-year benchmark yields reaching 3.5 percent in early November. At the same time, a substantial economic slowdown or even recession is expected due to the combined effect of the energy crisis and higher interest rates.

A less favourable macroeconomic environment again brings debt sustainability to the forefront. Our analysis shows that even under these conditions, barring extreme changes, Slovenian public debt can be considered as sustainable in the short-term future. An important guarantor of this sustainability is its long-term maturity and low implied interest service costs as well as denomination in domestic currency (euro). These characteristics make Slovenian public debt less sensitive to short-lasting interest rate spikes and immune to the direct effects of exchange rate changes.[9] Nevertheless, even in the short run, the Achilles heel of Slovenian public debt is GDP growth, making 2023 and 2024 fiscal plans uncertain and dependant on the actual extent of economic slowdown.

In the long run, we identified two major challenges to Slovenian public debt sustainability. The first one, related to long-term growth potential is successful implementation of green and digital transitions. If Slovenia wants to keep its debt sustainable it must keep pace with technological changes that will determine the future productivity and growth potential of its economy. To do so, sufficient fiscal

[9] Exchange rate changes may affect debt sustainability indirectly, by changing international competitiveness and GDP growth rates.

space is needed to allow the financing of green transition investments. The second major challenge is an aging population that will gradually add an increasing burden to future levels of debt, with first tangible effects already visible towards the end of the forecasting period. The fiscal costs of aging are even more problematic, since they will compete with the costs of green and digital transition investments. To avoid crowding out effects and increasing contributions and taxes, this clearly calls for new pension and health reforms.

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The international monetary system in view of growing geopolitical risks[1]

*Mojmir Mrak**

The main purpose of this paper is to analyze the IMS within the framework of geopolitical risks, which increased significantly over the last decade as consequence of various crises, especially the global financial crisis a decade ago and COVID crisis in recent years. Geopolitical risks intensified significantly this year with the outbreak of the war in Ukraine and the tightening of relations between the US and China regarding Taiwan. In addition to the Introduction and Conclusion, the paper consists of three chapters. While the second chapter provides a brief analysis of the functioning of the IMS in the period after the collapse of the Bretton Woods system, the third chapter focuses on the analysis of the dollar, which played the role of the leading currency of the international monetary system for decades and its role, for the time being, remains largely unchallenged. The main purpose of the fourth chapter is an attempt to identify the possible directions of development of the IMS in the forthcoming period.

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1. Introduction

The international monetary system (IMS) is a system of rules, mechanisms, flows, and institutions that connects national monetary systems into a global system. The key institutions in this system are the central banks, which determine the amount of money issued and therefore lay the foundations for an exchange among currencies that serve as a basis for meeting payment obligations within and between countries. A "good" IMS is expected to (i) provide stable exchange rates, (ii) stimulate the correction of the balance of payments imbalances, and (iii) ensure normal access to international liquidity. In contrast to the IMS, which is focused on the subjects of exchange rates, payment systems, and international capital flows, the international financial system (IFS) consists of the entire spectrum of (i) financial instruments, (ii) banks and other financial institutions, (iii) financial markets where these instruments are traded and priced, (iv) non-market financial transactions, such as leveraged buyouts, and many others. IMS is an important part of the international financial system which represents the institutional framework to collect savings and allocate them globally. But due to the variety of functions and complexity, the international financial system extends far beyond of the IMS (Fosler, 2011).

The main purpose of this paper is to analyse the IMS within the framework of geopolitical risks, which increased significantly over the last decade as consequence of various crises, especially the global

[1] The text is a translation from then original in the Slovenian language.

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financial crisis a decade ago and COVID crisis in recent years. This year, geopolitical risks intensified significantly due to the outbreak of the war in Ukraine and the increased tensions between the US and China regarding Taiwan. In addition to the *Introduction* and *Conclusion*, the paper consists of three chapters. While the *second chapter* provides a brief analysis of the functioning of the IMS in the period after the collapse of the Bretton Woods system, the *third chapter* focuses on the analysis of the dollar, which played the role of the leading currency of the international monetary system for decades and its role, for the time being, remains largely unchallenged. The main purpose of the *fourth chapter* is an attempt to identify the possible directions of development of the IMS in the forthcoming period.

2. The international monetary system since the collapse of the Bretton Woods until nowadays

The Bretton Woods IMS established at the end of World War II was a typical N-1 system with the dollar as the only currency exchangeable for gold and with all other currencies included in the system being pegged to the dollar. The IMS was based on three pillars: (i) fixed exchange rates, (ii) independence of central banks, and (iii) restrictions of capital flows. While the system served rather well at the beginning, roughly until the end of the 1950s, it ran into increasing problems in the following decade due to the asymmetry of pressures on the balance of payments adjustment. The European countries, whose current account position switched from deficits in the first decade in the aftermath of the World War II into surpluses started to announce openly a possibility to exchange their dollar reserves for gold. Because of geopolitical tensions in those days associated primarily with its withdrawal from NATO and the Suez Crisis, France even started to do so. On the other hand, the US faced with growing dissatisfaction with how it played the role of the leading country in the international monetary system, as well as with the growing pressure of how to finance the war in Vietnam, decided in August 1971 to suspend the convertibility of the dollar for gold. This decision de-facto meant the collapse of the Bretton Woods IMS since the convertibility of the dollar for gold was one of the key pillars of this system.

The suspension of the convertibility of the dollar into gold resulted in the initiation of two parallel IMS reform processes (Ocampo, 2017). One was the attempt to reconstruct the system of fixed exchange rates. It took place within the framework of the Group of Ten (G10) and got a temporary solution within the framework of the so-called Smithsonian Agreement from December 1971. The basic objective of this agreement was to establish a new scheme of stable exchange rates among the major global currencies. The second process took place within the framework of the International Monetary Fund and had the ambition for a more comprehensive overhaul of the IMS. Both processes were unsuccessful, so the overall result was a transition to a kind of an "ad-hoc" IMS or "no system" IMS.

None of the developed countries had either the potential or the desire to take over the leading position within the newly created "no system" IMS together with the benefits and risks associated with this role. It is for this very reason that the dollar retained its role as the main world currency also in the period when its convertibility into gold was suspended. This was a period when structural reforms implemented at the national level resulted in the establishment of an international financial architecture based on the following three pillars: (i) deep and overreaching financial liberalisation, (ii) independence of central banks, and (iii) transition from fixed to flexible exchange rates. The creation of a system of flexible exchange rates among the main global currencies accompanied by the complete liberalization of international capital flows was very suitable for achieving important goals of economic policymakers in developed countries, such as full employment, price stability, and a sustainable balance of payments position. It should be underlined, however, that these national policy goals can be achieved only in circumstances when national policies are consistent, and this means that they are well coordinated at the international level.

There are two assumptions for the functioning of the IMS in the first two decades after the collapse of the Bretton Woods IMS that eventually proved to be unrealistic. First, it was assumed that macroeconomic policies of the world's major economies would be consistent with the commitment to keep the system in balance. This assumption proved to be wrong, at least for the US, whose currency retained the leading role in the world, and consequently the privilege of financing a huge balance of payments deficit. And second, so-called "emerging economies", which in the past represented a rather small portion of the world economy, turned into its much more important component. In addition, these countries were often either unable or unwilling to follow economic policy prescriptions of developed economies based on flexible exchange rates and full liberalization of capital flows (Breugel, 2011).

In addition to these two systemic problems of the functioning of the IMS in the post-Bretton Woods period, in the decade prior to the global financial other factors of the IMS instability were becoming more and more pronounced, some of them of a highly geopolitical character.

The first and the key factor is the reduced relative weight of the US in the world economy. This trend is ongoing and will continue, and the historical experience clearly shows that monetary dominance is highly persistent. Currencies tend to retain their international importance even for some time after the real economic power of the respective country has already decreased. Over time, of course, the economic strength and performance of the country become an increasingly important determinant of the attractiveness of the currency to foreign investors. Additionally, the US situation was further aggravated by the sharp depreciation of the dollar against other world currencies, especially the euro, in the period from 2001 to 2008. The financial crisis, which had its origin in the US financial system, exacerbated this problem as foreign investors wanted to diversify their portfolios in terms of currency.

Another geostrategic factor is Asia, which, after the financial crisis in the second half of the 1990s, changed from a region of developing countries to a distinctly successful, competitive, and closely interconnected region. It is a region where trade and investment have grown at exponential rates. In that period, Asia did not yet have a clearly defined regional monetary centre, although the conditions for China to take over this role as by far the largest economy in the region were already there. At first, China was rather reluctant to assume the international role of its currency, but it nevertheless started to take first steps into this direction already at that time. This can be is confirmed by its transition to a more flexible exchange rate regime in 2005, which some interpret as a step towards a more open monetary and financial system, including the use of the renminbi for international payments in the region.

The third factor relates to the reassessment of the free capital flows narrative. Due to the dissatisfaction of many developing countries with high volatility of capital flows, the debate about advantages and disadvantages of free movement of capital was renewed. A kind of a consensus about benefits of financial globalization established in the 1990s – as a part of the Washington consensus narrative – was undermined not only because of the currency crises caused largely by the too rapid capital flows liberalization, but also because of negative effects of the rapid changes of periods of large capital inflows and outflows, and consequently of large exchange rates fluctuations. Last, but not least, some countries, a typical example are China and India, had demonstrated that countries may function pretty well even under conditions where certain capital restrictions remain in place.

There is at least one more factor worth mentioning. It is the accumulation of large foreign exchange reserves by relatively less developed countries with the objective to protect themselves for the event of rapid and large capital outflows. The accumulation of large foreign exchange reserves raises concerns for two reasons. On the one hand, these countries sacrifice their faster economic development, while on the other hand, accumulation of large foreign exchange reserves raises concerns about appropriateness of global savings allocation worldwide. Foreign exchange reserves are invested primarily in the safest and most liquid assets, which are usually government bonds of countries with a high credit rating. Such an investment strategy does not mean only reducing the growth potential of the countries holding these reserves, but it also has potential impacts on global financial stability. This strategy namely increases the pressure on the financial sector with respect to the currency diversification and maturity transformation of foreign exchange reserves. Last, but not least, countries with large foreign exchange reserves are exposed to high exchange rate risk. When foreign exchange reserves exceed certain level, they de-facto represent an unfavourable choice between risk and return, and as such they become a negative externality of the existing IMS.

The outbreak of the global financial crisis with the collapse of the Lehman Brothers investment bank shook the very foundations of the global economy. As such, it was an opportunity for a comprehensive institutional overhaul of the IMS. It is well known from history that such changes often came about under the influence of tectonic political changes and sometimes even wars. The World War I brought the collapse of Pax Britannica, which meant that the British pound no longer played a central role in international trade and finance. The World War II formally established the IMS with the dollar as the leading currency and the IMF as the guardian of exchange rate stability.

In geopolitical terms, the Bretton Woods system was a distinctly bilateral deal between the wartime allies, i.e. the US and Western European countries. This Euro–Atlantic connection was reflected in the institutional structure of the IMS that was established. Formally, the key role was played by the newly established IMF, and informally, after the collapse of the Bretton Woods system, by the G7. The established institutional structure of the IMS thus reflected the geopolitical power in the world at that time. It was dominated by industrially developed countries, while other countries had very limited influence on the IMS governance.

The four decades since the collapse of the Bretton Woods IMS in 1971 to the outbreak of the global financial crisis in 2008, have considerably changed the economic and geopolitical picture of the world. The influence of the rapid

economic development of many countries in different parts of the globe, especially the larger ones such as China, India, Russia, Brazil, and South Africa, increased significantly the relative importance of these countries in the world economy. This process, however, was not accompanied by an appropriate increase in their role in the global economic governance. The IMS's institutional structure was becoming increasingly inappropriate and not adapted to the significantly changed global reality. A typical example is the International Monetary Fund. Large "emerging economies" started to express more and more vigorously their dissatisfaction with the governance model of this main multilateral institution of the existing IMS. Let me mention three specific issues within this context. First, voting rights of the large "emerging economies" have come increasingly underestimated and do not reflect properly their economic importance in the global economy. The voting rights are namely determined by a quota a member state gets at the time when it becomes a member of the institution. As all these countries joined the International Monetary Fund at the time when they were still rather poor in economic terms, also their quotas were rather low. Second, the US has retained a veto in decision-making of the International Monetary Fund till now days, even though the dollar lost its unique position of being exchangeable for gold already in 1971. And third, in line with the gentlemen's agreement reached at Bretton Woods, the top position of the International Monetary Fund has always been filled with a European. Unfortunately, we did not take advantage of the global financial crisis for the much-needed fundamental change in the IMS. Obviously, this crisis was not deep enough for such changes. Instead, we proceeded with a kind of cosmetic adjustments of the existing IMS. The crisis did initiate some positive changes both in the governance of the IMF, where the share of the BRIC countries in the decision-making structure somewhat rose, as well as in the governance of informal structures, where the G7 expanded into the G20 by including large fast-growing "emerging economies". All this was insufficient for the IMS to adapt effectively to the newly emerging geopolitical reality in the world. This reality is marked by the transition from a unipolar world with the US as the economic and political leading power of the world, to a multipolar world, with a greater number of large players, each of which has its own economic and political priorities.

3. US dollar maintains the position of the dominant currency in the international monetary system

The US dollar has played the role of the world's leading currency since the end of World War II until nowadays, in spite of the fact that the US economy's share in the global GDP has declined significantly over the past two decades. Even though the share of the dollar-denominated debt instruments still exceeds the share of the US in the global trade, central banks around the world do not hold any more dollars in their foreign exchange reserves to the same extent as it was the case in the past. The share of the dollar in the total global foreign exchange reserves went down by 12 percentage points from the time when the euro was introduced, i.e. from 71 percent in 1999 to 59 percent in 2021. While the share of the euro has remained by and large constant at a level of around 20 percent during the same period, the share of some other currencies, including the Australian dollar, the Canadian dollar, and the Chinese renminbi, increased to around 9 percent of the total (IMF, 2022).

A reduced, but still large share of the dollar in total foreign exchange reserves is not a consequence of an increased share of other traditional reserve currencies, such as the euro, yen, or pound, but rather a consequence of an increased share of the currencies of some smaller developed countries that have traditionally not played the role of reserve currencies. Only a small increase in the share of total foreign exchange reserves was recorded by the Chinese irenminbi. This is primarily due to the fact that the country still has fairly large restrictions on the capital part of its balance of payments. With respect to the renminbi, it is worth mentioning that practically a third of the increase in foreign exchange reserves denominated in this currency is due to the increase by one country - Russia. Under the influence of geopolitics, since the annexation of Crimea in 2014, Russia has namely pursued a policy of de-dollarization of its foreign exchange reserves.

What are the reasons for the shift from the dollar to non-traditional reserve currencies? A recent IMF study mentions three main factors (IMF, 2022). The first one is the increased liquidity of the markets for these currencies. Historically, only a small number of countries had financial markets for domestic currency instruments that were sufficiently deep, liquid, and open to non-residents. The second reason are negative interest rates of key world currencies. Due to this very fact, the attractiveness of the currencies of other developed countries has increased significantly. Holding foreign exchange reserves in these non-traditional currencies namely means a portfolio where higher yields are complemented with relatively low volatility. This is precisely what managers of foreign exchange reserves are increasingly looking for. The third reason are new technologies. They not only make it cheaper but also easier to trade the currencies of those smaller countries. There are

two additional factors for an increased attractiveness of the currencies of some smaller developed countries in the last two decades. One are the swap lines that the central banks of these countries have with the US central bank, and the other, more crucial, is that those currencies are issued by countries that have fully open capital accounts of the balance of payments and, of course, a history of stable and successful management of their economic policies.
The Ukrainian crisis will probably contribute towards further currency diversification of global foreign exchange reserves. The case of Russia clearly illustrates that in future allocation of foreign exchange reserves will be under even stronger influence of geopolitical factors than this was the case in the past. It has been mentioned already that Russia has been redirecting for some time its foreign exchange reserves away from the dollar; partly towards renminbi and partly towards some of the currencies that are not included in the SDR basket of currencies (dollar, yen, euro, pound, and renminbi). Still, due to wide ranging economic sanctions imposed against Russia after its invasion of Ukraine, Russia was not able to avoid freezing about one half of its total foreign exchange reserves (with a nominal value of about 300 billion dollars). The very fact that practically all other countries, with the exception of China, have frozen the Russian foreign exchange reserves confirms rather clearly that currency diversification as such is not a guarantee that the country that owns these assets has an actual access to them.
The question arises whether countries facing this new geopolitical reality could start looking for a safe place for their foreign exchange reserves in China and its national currency? Based on the trends over the last two decades, this is not a realistic proposition, at least not in the short or medium term. There are several reasons supporting this conclusion. First, the Chinese financial market is still quite closed, and the renminbi still plays only a peripheral role in various segments of the international financial markets. Second, managers of foreign exchange reserves will not be willing to channel funds into a currency of the country whose institutions are under strong or even complete influence of its autocratic leaders. And China is this kind of a country. Third, China has the largest foreign exchange reserves in the world, and by the very definition of foreign exchange reserves, they cannot be in its own currency.
The freezing of Russia's foreign exchange reserves opens entirely new questions on how the IMS will develop in future. When searching for answers to these questions, it is important to take into consideration that countries have foreign exchange reserves for two main purposes. On the one hand, foreign exchange reserves enable countries to intervene in foreign exchange markets and thus prevent excessive fluctuations in the value of domestic currencies. On the other hand, foreign exchange reserves represent a kind of a "war chest" that may be tapped during the crises caused either by geopolitical or any other causes. In practice, foreign exchange reserves are being used for both purposes - for market operations under normal conditions and for financing emergency purchases when the country finds itself in a crisis. The experience of Russia in the last six months shows that the function of foreign exchange reserves as a reserve for mitigating crisis situation may be very questionable. A similar conclusion applies to Afghanistan, whose foreign exchange reserves were frozen in the US after the Taliban seized power in 2021. In both cases, foreign exchange reserves or their freezing became an instrument for achieving certain geopolitical goals.

4. Determinants and possible scenarios of the development of the international monetary system for the following decade or two

Given that the IMS will continue to be strongly influenced by geopolitical factors, its development in the future cannot be predicted in an accurate manner. What is feasible to do is to sketch a set of possible scenarios. When articulating these scenarios, it makes sense to start from three structural factors that are of key importance for creation of the IMS as such, from the relationship among these factors, and from evolution of each of these factors over time (Breugel, 2011).
The first of the three factor is the size of the economy. Throughout history, the correlation between a country's economic size and its monetary leadership in the world economy has been clearly observed. How direct is this correlation, however, depends on a various externalities for the country whose currency is used as an international currency. Similar patterns may be expected to apply also in the future. There is no doubt that the influence of a country's economic size on its position in the IMS will continue in the future, but, similarly as in past, it will be manifested with certain time lag. During the 19th and 20th centuries, the share of the largest economy in the world always exceeded 15 percent. This was the case with the British pound zone, it included Great Britain and its colonies, during the gold standard. During the Bretton Woods period, the US share of world GDP was consistently over one quarter. The emergence of two economic superpowers, China and India, is predicted for this century. While the shares of the US and the EU in the world GDP are expected to decrease to less than 20 and 15 percent respectively by the middle of the century, China's share is

expected to reach a quarter of the global GDP, and India is expected to overtake the EU. In the interim period, say the next 10 to 15 years, we will have a situation in which economic power will be relatively evenly distributed among a larger number of countries or regional groupings of countries.

The second factor that will shape the development of the IMS in future is the ability of a country or a group of countries to assume a leadership role in the IMS. This does not depend only on the economic size of the country, but also on the development of the financial system, the quality of the system of financial and wider economic institutions, the methods and quality of economic management, and, of course, on the political readiness and commitment of economic policyholders to assume a leading role at the global level. The dollar is a currency that still fulfils practically all the conditions necessary for a leading international currency. The only serious and growing concern is the US public debt sustainability and the associated risk of monetary financing. The dollar might face two potential competitors. One of them is the euro, which already has quite a few attributes of an international currency. For example, the share of this currency in total foreign exchange reserves and bonds issued on international financial markets. On the other hand, it has significant limitations arising from its institutional arrangement. Another potential competitor is the irenminbi. While China already has a sufficiently large economic potential, it is still far from being able to take over the role of one of the leading international currencies in a relatively short period, due to several other necessary attributes. As for the time being, the euro cannot assume an essential role as an international currency, and the renminbi is not yet capable of doing so, it is realistic to expect that the dollar will retain its role as the leading world currency for at least some time. In a more distant future, the situation will change. How quickly this change will happen depends primarily on China and its readiness that renminbi takes on a greater role in the IMS.

And a third factor with a structural impact on the articulation of the IMS in future is the question of what global financial trends will be in the future and, in that context, what will happen to the international capital flows. One possibility is, of course, that the trend of financial integration at the global level, which was very pronounced in the decades before the global financial crisis and was based on the general liberalization of capital flows, will continue in the future. Another possibility is that we are moving into a period when countries will be more cautious about liberalization of capital flows and that this process will be accompanied by controls on the free flow of capital as an instrument to prevent sudden and rapid changes in the direction of capital flows.

Starting from the structural factors presented above, it seems possible to sketch the following three scenarios for the development of the IMS in the period of the next decade or two (based on Tucker, 2016):

Predominantly unipolar IMS with the continued central role of the dollar; This is a kind of a "fix and improve" scenario. The scenario assumes that the US will remain the global center of technological development in the future, will continue with dynamic economic growth, and will avoid situations of causing financial crises such as the one in 2008. The scenario also assumes strengthened control over the management of economic policies within the framework of the IMF and its increased financial potential for intervening in member states with the balance of payments problems. Under this scenario, the international role of the world's major currencies remains more or less unchanged. The dollar retains its position as the central currency, and the role of the euro remains more or less unchanged, while the role of the renminbi increases but remains significantly smaller not only in relation to the dollar but also to the euro.

Multipolar IMS in conditions of strained geopolitical relations; This is a scenario that is conceptually based on the rivalry of two or more international currencies, i.e. the dollar, the renminbi, and/or possibly the euro. According to this scenario – due to the current characteristics of the renminbi and the euro as international currencies, it can only be assessed as possible in the long term – the IMS would develop in conditions of rivalry between the main currencies and would take place in the form of a struggle between these currencies for influence in individual geographical areas of the world. China undoubtedly can speed up the process of internationalization of the renminbi, but the eventual inability of the euro not to become an important world currency for economic and/or political reasons would turn this otherwise multipolar scenario into a bilateral one. According to this scenario, the central role of the dollar in the IMS would decrease, and there would be problems and conflicts regarding financial regulation in international business. It is realistic to expect that under this scenario international currency issuers, let assume the US and China, would reward partners in their respective sphere of influence with instruments that would provide the access of these partners to respective reserve currency and would stimulate these partners to use the respective reserve currency in their relations with third countries. This scenario would be a world of fierce competition for areas of influence and for a position in international financial institutions. A world in

which geopolitics would largely determine the development of the IMS.

Agreement-based multipolar IMS; This is a scenario in which the partners would agree on how to reform the existing IMS. In contrast to the previous scenario, which is based on the power play of competitors and on the competition of their national economic policies, this scenario is based on the principle of multilateralism. The scenario implies high level of policy coordination at the international level and readiness of the global partners to find such solutions that would prevent weaknesses of the arrangements based on individual national currency, strengthen macroeconomic discipline and, ensure international liquidity. The SDR established decades ago by the IMF can be used as a basis.

5. Conclusion

The two main reasons that have made the IMS set up after World War II so resilient to major changes over the decades, including at the time of the deep financial crisis a decade ago, are the ongoing strong economic position of the USA in the world economy, and the lack of suitable candidates to join the dollar as an international currency. t is precisely for these two reasons and despite the war in Ukraine that the scenario based on the correction and gradual improvements of the existing IMS – it is based on the continuation of the role of the dollar as the central currency– appears to be the most realistic, at least for the next decade. In the longer run and considering further aggravated geopolitical conditions, a scenario based on the rivalry of probably two currencies, the dollar and the renminbi, could become more realistic. It would take place in the form of a rivalry between these currencies for influence in individual geographical areas of the world.

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Central bank challenges: old and new[1]

*Claudio Borio**

I have been asked to talk about central bank challenges. In the time available, I would like to focus only on one. This is how best to reconcile price stability with financial and, hence, macroeconomic stability. The challenge has been highlighted by the momentous changes we have seen in the global economy over the past 50 years or so, more recently by the Covid crisis, and, of course, by the tragic war in Ukraine. In doing so, I will raise some questions about the analytical lens used to tackle the challenge.

I will necessarily have to be succinct, but I'll be drawing on work carried out over the years. I will also draw on a thematic chapter on inflation that will appear in the forthcoming *Annual Economic Report*. The report will come out in June, and I would very much encourage you to have a look at it.[2]

Despite all this, the usual disclaimer applies: the views that I'll be expressing are my own and not necessarily those of the BIS.

How did we get here?

Let me start with the major shifts in the economic environment that we have seen since roughly 50 years ago. An underappreciated one has been the change in the nature of the business cycle, from what I would call inflation-induced to financial cycle-induced – or simply "financial" – recessions. Of course, I'm leaving aside the Covid-19 recession because, as we know, it is sui generis, and was caused by an exogenous health shock.

[1] This paper is the transcript of Mr Borio's speech at the conference held on 11 May 2022 to mark the 30th anniversary of Banka Slovenije.

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[2] See BIS Annual Economic Report, June 2022.

Until the mid-1980s, recessions were triggered by an increase in inflation, which required monetary policy tightening, with rather little happening to indicators of financial expansions and contractions, such as credit, asset prices and risk-taking. Since then, however, we know that inflation has been stable. As a result, there has been little need for a tightening of monetary policy. Instead, we have seen big financial expansions turning into contractions, financial booms into financial busts. The Great Financial Crisis is the most obvious example of this phenomenon.

This shift in the nature of the business cycle has been supported by two tectonic forces. First of all, financial liberalisation has provided ample room for these financial expansions and contractions to take place. Second, globalisation, in particular that of the real economy, has exerted major disinflationary pressures worldwide, thus helping central banks to keep inflation in check.

We are now facing a unique configuration in the post-World War II era, ie an increase in inflation which has coincided with financial vulnerabilities. Financial vulnerabilities in *flow* terms: think, for example, of the aggressive risk-taking that we have seen, particularly in the non-bank financial sector, and of soaring house prices around the world. But probably, and even more importantly, financial vulnerabilities in *stock* terms: debt levels – private but also public – are the highest in history globally.

The intellectual paradigms prevailing during the post-mid-1980s phase made it hard to understand what was happening as events unfolded and to anticipate what might happen. I would highlight two such paradigms: the view that price stability was sufficient for financial and macroeconomic stability; and the view that the inflation scourge had been eradicated once and for all.

Two beliefs underpinned the paradigms. Let me stress that, in describing them, I'm going to be intentionally stylised.

The first belief is that the economy is self-stabilising, as reflected in the way economists think about the business cycle. Economists tend to view business fluctuations in terms of exogenous shocks that propagate across the economy and then give way to a slow, gradual, and above all orderly return to a steady state. In this view, there is no room for expansions that generate subsequent contractions – there is no endogenous cycle. A natural assumption here is that financial factors play only a peripheral role. Crucially, this also means that *inflation is the only signal that the economy is proceeding along an unsustainable path*.

The second belief is that the Phillips curve is a *broadly* adequate description of the inflation process. In the Phillips curve, there is really no role for structural forces – we have a role only for economic slack, for the direct impact of inflation expectations and for transitory shocks, such as big increases in the price of oil. Nor is there a role for sector-specific developments. There is a single aggregate measure of economic slack, so that we are discouraged from paying much attention to the disaggregated price dynamics that take place below the surface of aggregate inflation.

Taken together, these two beliefs have led to a certain *under*estimation of the build-up of financial vulnerabilities and of their consequences; a certain *under*estimation of the self-correcting properties of inflation when it settles at a low level, because at that level inflation tends to reflect largely idiosyncratic changes in prices; a certain *under*estimation of how hard it would be for monetary policy to raise inflation back to target, because monetary policy had to tackle powerful secular (and benign) disinflationary forces and because the idiosyncratic component of inflation is very unresponsive to monetary policy; and, more recently, a certain *under*estimation of inflationary pressures in the post-Covid landscape, not least because sectoral factors have played an important role. Let me stress that we too at the BIS didn't see inflation coming on with such virulence!

Why do I say that the two beliefs help explain where we are now? Because they reinforced the downward drift in interest rates – both nominal and real – to their lowest levels in history. The reason is that monetary policy was insufficiently countercyclical during expansions, although of course it was quite countercyclical during contractions. By the same token, this encouraged the gradual but relentless build-up in debt.

As I said before, we are now facing rather unique and very testing economic circumstances because of the unprecedented combination of higher inflation with financial vulnerabilities. The concern is that this increase in inflation may continue to prove surprisingly persistent, especially following the major shock generated by the war in Ukraine.

We could be at the cusp of a transition from a low-inflation to a high-inflation regime.

Why do I think that?

In the short term, we should not underestimate the possibility of wage-price spirals, because we don't really need an increase in inflation expectations for that to take place. The only thing we need are successful attempts to recoup losses in purchasing power and to compensate for squeezes in profit margins *that have already occurred*. This could happen at any degree of economic slack and is more likely in those countries that are experiencing terms-of-trade losses: if the pie gets smaller, the fight over it gets bigger. Remember the experience of the 1970s.

In the long term, the signs of a retreat from globalisation are quite worrying. This could restore to labour and firms part of the pricing power they lost before the current historical phase.

If the transition to a high-inflation regime does take place, its self-reinforcing tendencies will make it harder and more costly to return to a low-inflation one – the regime that we have enjoyed for so many years now. This is why Agustín Carstens drew attention to this risk in a recent speech in Geneva.[3]

Where do we go from here?

The two paradigms I mentioned earlier have come under close scrutiny in the light of the Great Financial Crisis, the post-Covid experience and now the war in Ukraine. But I would say that the progress made is not quite sufficient. There is still more to go. Let me take the two paradigms in turn.

First paradigm: the view that price stability is sufficient for financial, and hence, also macroeconomic stability.

Clearly, in those terms the paradigm has been abandoned. Yet, there are some lingering doubts concerning both analysis and policy.

Concerning analysis, in sharp contrast to frameworks for financial stability advice, there has been little change in the workhorse macroeconomic models that support monetary policy advice. Moreover, there is still surprisingly little mutual understanding between the two types of economist operating within central banks – those in the financial stability and those in the monetary stability wings.

Concerning policy, there is still a certain *under*appreciation of how hard it is for prudential authorities to do their job when interest rates are low for long, and a certain overestimation of what macroprudential policy can do on its own. For example, even where it has been used very aggressively, particularly in emerging market economies, macroprudential policy has not prevented the build-up of costly financial imbalances, or at least the build-up of the signs of those imbalances.

Second paradigm: the view that the inflation scourge has been eradicated once and for all. Again, in those terms, obviously the paradigm has been abandoned in light of the latest developments. Yet, here too, there are some lingering doubts concerning both analysis and policy.

Concerning analysis, the Phillips curve still has a rather powerful and pervasive influence, which often goes unrecognised. We see it in the dominant role of economic slack as well as in the little role of structural and sectoral forces in the prevailing understanding of inflation. If you like, the Phillips curve has become part of our intellectual furniture.

Concerning policy, we need to be alert to the risk of underestimating how shocks can trigger wage-price spirals – eg, the recent major increases in commodity prices – and how structural forces, notably deglobalisation, could entrench a high-inflation regime.

If this analysis is broadly correct, what are the implications for policy? What could be the broad direction of travel for policy frameworks? As we have argued at the BIS, it would be useful to embark on a path towards a more holistic macro-financial stability framework, one in which monetary policy, prudential policy – both micro and macro – but also fiscal policy, all have a consistent role to play. This is still very much a work in progress.

[3] See A Carstens, "The return of inflation", speech delivered at the International Center for Monetary and Banking Studies, Geneva, 5 April 2022.

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Price stability – central bank' s credibility

*France Arhar**

The primary objective of the ECB is to maintain price stability. Price stability obtains when people do not consider inflation a factor in their decisions. Price stability should be defined in terms of the inflation rate, not the price level. As a general principle, credibility facilitates interpersonal relationships. Credibility is capable of substantially reducing transaction burdens. In terms of monetary policy, this always boils down in the end to the promise of stable money. If, on the other hand, prices rise for exogenous reasons, the subsequent disinflationary policy course can actually enhance the central bank reputation. The more credible the central bank's commitment to price stability is, the more flexible monetary policy can be in responding to shocks. Sound and credible medium-term and long-term objectives are crucial for achieving and maintaining price stability.

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Introduction

Over the last year, the greater part of the world has been grappling with rising inflation for which the central banks kept saying at first that it was temporary in nature, but with the passing of time, it is becoming ever more apparent that with the prices constantly on the rise, the supposedly »transitory phenomenon« has a more persistent nature. This raises the question of what the reasons for such adverse developments might be, who or what caused them and how to restore relatively stable prices.

Milton Friedman, the world-renowned advocate of monetarism and the Nobel laureate in 1976, emphasised and warned that "inflation is always and everywhere a monetary phenomenon in the sense that it is and can be produced only by a more rapid increase in the quantity of money than in output". At the same time, he also warned that "Inflation is the only form of taxation that can be levied without any legislation". For centuries, central banks have had monopoly on money they create ex nihilo (out of nothing), exclusively at their own free will (fiat voluntas), which means that they are responsible for the excessive amount of money. Let us add to Friedman's finding or rather a warning relating to central banks exercising complete discretion also the criticism voiced by the IMF Managing Director Kristalina Georgijeva. During a panel discussion in April 2022, Ms. Georgieva conceded that central banks globally "printed too much money and didn't think of unintended consequences".

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In other words, it is common wisdom that during the COVID-19 pandemic, fiscal policy was a sister strategy to monetary policy deployed by central banks influence a nation's money supply or rather to politicise money – something they are not supposed to do – and that central banks monetised government bonds used by sovereigns to raise money in the financial markets serving to buoy the national economy, both corporates and households, and by using their power to monetise debt alongside assorted policy tools, paved the way for the growth of public debt and budget deficit.

Before we take a closer look at the present situation created by monetary policy, we should first establish what price stability means. True as it is that there is a myriad of definitions, most economists agree with the remark made by Paul Volcker, former Chairman of the Federal Reserve Board who waged war on runaway inflation levels, that price stability would be a situation in which "decision-making should be able to proceeds on the basis that 'real' and 'nominal' values are substantially the same over the planning horizon – and that planning horizons should be suitably long." For a central bank to be credible, price stability must be its long-term objective given the fact that without price stability and despite various other measures adopted by governments, no national economy could function normally and successfully . On the other hand, price stability is the most transparent and just social policy, vis-à-vis various criteria used by governments for social transfers.

Credibility of the European Central Bank

These findings become even more important when it comes to a supranational monetary institution called the European Central Bank (ECB), knowing that for its establishment, the EU Member States had to renounce their monetary sovereignty by transferring it to the ECB, while keeping their political sovereignty on the other hand. Considering the differences in economic conditions among the EU Member States, it is their political sovereignty that I find to be the tallest obstacle to surmount when setting and implementing monetary policy, so that its measures meet the needs of most members of the Economic and Monetary Union (EMU) and enable its continued operation. The 30th anniversary of the Treaty on European Union or the Maastricht Treaty was celebrated in February this year and hailed as »the foundation for the operation of the supranational central bank«. The Treaty also established the rules referred to as the Maastricht criteria to be met by the countries when joining the euro area: the level of public debt, the level of budgetary deficit, the level of inflation and the level of long-term interest rates. For the ECB to continue to carry out its tasks efficiently, the moment has arrived for the reconsideration of the convergence criteria above all in terms of meeting them, i.e. tolerance when failing to be fully compliant. The fulfilment of the convergence criteria most certainly raises the thorny issue of the influence of political sovereignty of the EU Member States on the functioning of common monetary policy.

From the viewpoint of credibility seen to be of paramount importance when money is at stake, we regret to say that already at the birth of a new currency in 1999, divergence from the set criteria was tolerated and in the case of Italy and Belgium it when and since the outbreak of the financial crisis in 2008, the divergence from the set criteria became a dominant orientation of monetary policy manifested as printing enormous quantities of new money, nearly 6 trillion euros. The U.S. Federal Reserve also resorted to printing between 5 and 6 trillion U.S. dollars and zero bound i.e. negative interest rate in the same period. Both instruments, the quantity of money and their price, the rate of interest, are solely in the hands of the central bank. To elaborate on the issue, I should say that when discussions were held o, the establishment of the European Central Bank and its monetary policy, the issue raised among other things was whether the ECB should use as a target of its monetary policy the level of nominal inflation or the growth of monetary aggregate M1 used by Bundesbank in the post-war period as the Deutsche mark was the most stable and credible currency in Europe. In the aftermath of the long discussions, most countries were in favour of the nominal inflation target of 2 per cent over the medium term, while also keeping in place the commitment that the creation of new money shall be in line with price stability.

Implementation of monetary policy

With the benefit of hindsight on the ECB's conduct of monetary policy since the global financial crisis in 2008 until the present day, we clearly see two different approaches to its implementation. When it emerged in July 2008 that the average EU inflation rate was 4.5%, the figure in Slovenia was above 7%, hence the ECB tightened interest rate policy further and by raising the key interest rate to 4.25% sent a clear message that should negative trends persist, the interest rate is poised to raise further if necessary. Triggered by the subprime mortgage crisis and the collapse of the investment bank Lehman Brothers on 15 September 2008, interest rate policy took a turn on a global scale and reached the climax with Greece's debt crisis. At that point, the ECB opted for the zero lower bound and even negative interest rate. At the same time, as savers

started to lose confidence, the EU institutions started to call Member States to adopt government guarantees for deposits from households, irrespective of the amount of their savings.

The global health crisis was yet another »contribution« to the ECB's unconventional monetary policy, given the fact that governments resorted to further borrowing in order to resolve the dire financial situation. The bulk of their new debt was monetised by the ECB's purchases of their bonds. One of the consequences of the growth of monetary base and the negative interest rate was a negative yield on numerous government bonds and there was a whopping 11 trillion euros of such bonds on the market. It is a small wonder that it posed a serious problem both for the numerous pension companies, as well as for the funds that guarantee a minimum rate of return. It is common knowledge that President Trump set up a task force with the aim to determine the level of deficit pension providers for public servants had on their balance sheets due to such monetary policy. The analysis revealed a deficit of 300 billion U.S. dollars, eventually covered from the federal budget. Such unconventional monetary policy that stimulated indebtedness had a significant impact also on the capital markets prompting a fast rise of the prices of securities for which already two years before it was concluded that they led to a gap vis-à-vis the real economy by more than 50%. Investors invested more money in shares over the past five months, than in the previous 12 years – precisely 21 billion U.S. dollars a week. At that time, a record high market quotation in the last 40 years was only three times higher: on the eve of the stock exchange crash in 1987 and on two occasions when the new economy tech stocks were hit hard – the dot.com bubble. We have already seen that shares fare well during the periods of inflation, which usually announces that a crisis is knocking on the door. At the same time, Goldman Sachs published a financial conditions index as »the most favourable financial conditions measured by the following indicators: a) the weighted average of short- and long-term interest rates; b) the exchange rate for the U.S. dollar; c) equity valuations, and d) credit spreads.

Unconventional monetary policy

Expansionary monetary policy pursued by the ECB has also had a significant impact of the operation of the banking system faced with high liquidity surplus that only in Slovenia's banking environment still this year exceeded a whopping 11 billion euros, whereas at the time of the financial crisis in 2008, this figure was one billion euros only. What makes the situation even more challenging is that banks had to pay a fee at the rate of 0.5% if they deposited their excess money into the accounts held with the central bank – something never experienced in the history of banking: that the creditor shall pay interest to the debtor. As a consequence, such monetary policy affected the net interest margin – the most important segment of a bank's earnings, despite the fact that banks introduced to a large extent even negative interest on bank deposits in excess of 100,000.00 euros. The results of such monetary policy were also reflected on the maturity of deposits. We can see that in the case of Slovenia sight deposits exceed three quarters of household assets in the domestic banking system. True as it is that the banking system is awash with excess liquidity, such a situation also means that systemic risk feeding on fear or speculations on the domestic or foreign markets looms over markets. In other words, should these events trigger a loss of confidence, it would take unlimited government guarantees to gain back that confidence – a tool the EMU resorted to back in autumn 2008 to cope with the sovereign debt crisis.

Impact of public debt on monetary policy

Alas, the present financial system is debt-based and not backed by gold or a physical commodity. Although the ECB kept saying over the past years that its expansionary monetary policy served to buy time for the governments of some countries to adopt long overdue structural reforms, the opposite happened: public debts increased, following in the Fed's footsteps, the ECB monetised national debts, which in the U.S.A. has surpassed 30 trillion U.S. dollars for the first time. As for the members of the EMU, Italy's national debt pile rose to almost 3 trillion euros and Slovenia's national debt has been growing at a quick pace to 40 billion euros. At such a growth rate of national debt, an interesting question to ask is who the creditors of indebted countries are? In the case of the USA, three quarters of the national debt is financed by domestic creditors of which the Federal Reserve's balance sheet stands at a record high 6 trillion U.S. dollars in T-bonds and other assets, followed by mutual funds (UCITS) with 3.5 trillion and pensions companies with 1.5 trillion U.S. dollars. Among creditor countries, Japan comes first with 1.3 trillion U.S. dollars, followed by China with 1.1 trillion U.S. dollars, and Switzerland, Luxemburg, Ireland, and Great Britain trailing behind. We see a similar general structure of genera public debt also in the neighbouring Italy: three quarters of creditors are domestic residents; foreign investors account for one third only. In both cases we can see that it is mostly about domestic debt-creditor relationship as opposed to the public debt structure found in Slovenia dominated by

foreign creditors, even though domestic potential resources in the non-banking sector (corporates and households) top more than 33 billion euros. The replies given by financial ministers so far have been that the price of foreign financing is lower than borrowings from domestic creditors regardless of the situation in which the country would be in the event of a debt servicing crisis and sovereign default risk. When following such logic, one always disregards the international financial practice, which indicates that as a rule, a small debtor is always treated worse by creditors vis-à-vis a larger debtor since a small debtor is required to fulfil liabilities in full and at the agreed time. Just keep in mind that since Russia defaulted on its sovereign debt in mid-August 1998, contractual provisions in international sovereign bond contracts have been amended to provide for more orderly future debt restructurings, hence the collective action clauses (CACs) have been enhanced to facilitate a restructuring process by binding creditors upon an event of the debtor's repayment problems or default work out a solution either by a partial write-off, granting addition grace period for the principal, reducing the interest rate, providing that more than 50% of creditors vote for the new terms of the debt restructuring. The ECB as the largest single creditor in many jurisdictions could own even more public debt if the CAC clause could be circumvented by adopting a " the disenfranchisement clause", even though the ECB itself would take a substantial loss on its holdings of corporate sector bonds given the fact that some issuers of those bonds went out of business. The case of Slovenia and more than three years of negotiations with foreign creditors – the so-called London Club – on the repayment of the loan foreign banks granted to the National Bank of Yugoslavia in foreign currency under the joint and several liability clause binding each and every former Yugoslav republic to repay the entire debt. Slovenia's portion of the unallocated debt was eventually determined and the agreement with the London Club was reached. At the same time, 40 percent of Poland's debt to foreign governments was. I do hope that one hands-on experience is enough and that there is still time to embrace new, safer practices in a time of rising public debt and increases in interest rates. There are a few issues we need to be aware of in relation to national debt or rather the risk associated with debt default of one or more Member States, i.e. different levels of credit risk on the financial markets. The ECB's primary concern is that due to higher sovereign risk premiums and rising interest rates, a member of the EMU would not be able to pay off the debt at maturity, so it has announced a new anti-fragmentation tool - the Transmission Protection Instrument (TPI) designed to protect highly indebted countries facing a sharper rise in their bond yield spreads than other countries, which leads to a fragmentation in the bond market. How will the new instrument function remains to be seen, knowing that differences in interest rates are integral and normal part of the capital market and the proposed »shifting money« from the jurisdiction with sound credit rating to those of questionable creditworthiness. The already announced legal actions before the European Court might be an obstacle to the TPI implementation. Ergo, it also gives rise to a fundamental question of long-term sustainability of public finances and their treatment against the backdrop of the Maastricht Treaty.

And there is also a temporary asset purchase programme of private and public sector securities – the Pandemic Emergency Purchase Programme (PEPP) with the initial envelope of 750 billion euros launched by the ECB in March 2020 and increased twice to a new total of 1.85 trillion euros. The ECB monetised the entire newly issued debt, which accounts for 35% of the total debt. At the end of 2021, it became clear that the bout of inflation at first seen as a transitory phenomenon may stick around for a long time and that net asset purchases under the PEPP would soon be phased out, surcharges on heavily indebted borrowing countries started to rise. According to the Bank for International Settlement (BIS), each percentage point of debt to GDP adds 3.2 basis points to the spreads on issued bonds. Moreover, it was concluded that a debt is sustainable, if the debt stock dynamics follow a stable or decreasing trajectory over a 10-year horizon. On the other hand it is clear that fiscal stabilisation usually translates into recession spikes as restrictive monetary policy alone with higher interest rates and decreased money supply has a direct and decisive impact. Ergo, fiscal discipline and an overall assessment of political risk, i.e. of stability, based on empirical evidence have a material impact on spreads on issued bonds. The bond market may easily crash at negative economic growth and a swelling public debt, which in turn, may lead to tensions among the governments of the EU Member States and the ECB, hence fiscal and monetary policy actions will be put to the test alongside potential threats to the stability of the euro. What will be the impact of the ECB's decision to reinvest the cash from maturing debt until the end of 2023 remains a question to which the answer is not yet known, thus leaving the markets and the risks associated with them in a limbo.

According to the so-called Modern Monetary Theory (MMT), monetary policy should not be wary about public debt and budget deficit, as long as the central bank can monetise debt. France and Italy saddled with the highest debt of all EMU members and more reliant to the ECB's

monetary policy than their peers, advocated that stance. When the euro was launched on 1 January 1999, it was a book money only, and Theo Waigel, Germany's finance minister in effort to placate scepticism Germans had concerning the new currency proclaimed that «the euro speaks German« and the ECB's monetary policy will follow in the footsteps of Bundesbank. Now the tune has change and what is often heard these days is «the euro speaks Latin« because of high inflation, as well as on account of the notoriously high debt levels of Italy and France.
Considering that the claims related to public debt account for a lion's share of the ECB assets given the fact that printing money served for its bond-buying programme, the answer to one of the fundamental questions we are still waiting to hear is what course should monetary policy take in a time of high inflation and low interest rates, knowing that the ECB has to make use of both elements: new money issuance and interest rate to curb demand, which in turn would translated into price movements across the euro area. To be more specific: the rise in inflation excluding food and energy was 4.3% in July – twice as much as the medium-term inflation target adopted by the ECB. Therefore, the question that needs to be answered is how to reduce the public debt? The most commonly cited solutions include:

1. boost economic growth;
2. declare default – the failure to pay back the debt – and combine it with the collective action clauses;
3. set up higher tax settings;
4. introduce various other restrictions on appropriation of budget resources;
5. creditors agree to debt forgiveness;
6. high inflation resulting in currency devaluation.

Most of these measures may eventually lead to destabilisation of the society, to social instability, subsequently also reflected in political instability. In that context, what Otmar Issing, the ECB's first chief economist, emphasized when speaking to the German media should be taken into consideration: when a country finds itself in such a situation, it should be excluded from the European Monetary System (EMS), as it was already done in the past when the unit of account and reference variable for exchange rates was the European Currency (ECU) and the national currencies of the Member States participated by cross-pegging their exchange rates to ECU. When due to their domestic economic woes, the fixed exchange rate could no longer be maintained, the Italian lira, the French franc, and the British pound withdrew from ECU. The Maastricht Treaty does not envisage a suspension of a Member State, even though it was a much-discussed topic before the Treaty was finalised, the majority opinion was that the Treaty would not be credible should such a possibility be envisaged already at its signing.

Zero lower bound i.e. negative interest rate

The policy of zero lower bound i.e. negative interest rates has caused a surge in debt in the non-banking sector, corporates and households. At the beginning of 2021, the Institute of International Finance (IIF) published the data that offer a snapshot of showing that corporate debt in France stood at 167% of GDP, 162% in China, 113% in Japan, 83.5% in the U.S.A., 77.7% in Great Britain, 62.8% in Germany, 47.3% and 45.2% in India and in Brazil respectively. If in that segment we look at the level of the outstanding debt the Slovenian companies owed to credit institutions in Slovenia in mid-2021, we see that it totalled more than 10 billion euros or less than 20% of the country's GDP. Household indebtedness also paints a positive picture. On the one hand, household deposits in banks add up to more than 25 billion euros and on the other, there is the aggregate household debt amounting to 11.7 billion euros. Regardless of the tightening of monetary policy due to the inflation spike, neither the corporate nor the individual borrowers in Slovenia are expected to be unable to meet the scheduled debt payments when due. We should bear in mind that the household debt levels in certain members countries of the EMU paint a rather grim picture as household debt exceeds 100% of the country's GDP and also had a significant impact on the financial crisis in 2007 and 2008.
As already stated, the level of public debt and in many jurisdictions also the level of debt in the non-banking sector have inadvertently influenced the ECB's policy stance when assessing inflationary risks and its belated decision to start raising the policy rate as a matter of urgency for the first time after nine years adopted in July this year. Whereas the ECB insisted only a year ago that the rise of inflation was temporary, a host of other central banks already took steps to adjust their monetary policies in 2021. To mention just a few examples: Russia raised its key interest rate from 4.25 to 8.5%; Hungary's rate rose to 2.4% at 7.4% inflation; Poland lifted its rate to 1.75% at 7.8% inflation; South Africa lifted its key rate to 3.75% at 5.5% inflation; Brazil's rate surged to 9.25% at 10.7% inflation; Iceland's rate increased to 2% at 5.1% inflation.
If we take a look at the benchmark rates of interest at the time of writing in following jurisdiction, then the picture is as follows: Hungary 9.35% Chile 6.75%; Poland 5%; Australia 2.25%; Norway, Sweden 0.75%; United Kingdom

1.50%; Switzerland 0.50%; Japan with unchanged -0.1% target for short-term interest rates, and 0% for the 10-year government bond yield.
Ergo, it is notoriously known that no central bank has influence on disrupted supply chains, labour shortages in certain economic sectors, energy supply, climate change causing droughts or flooding. Nevertheless, when it comes to controlling demand i.e. prices, central banks have two most important tools influence inflation: money supply, i.e. the quantity of money in circulation, and the interest rates, and they both serve to influence inflation and economic growth; therefore, in the current situation, it is quite clear what a central bank shall do: decrease monetary base and increase interest rate.

Foreign exchange reserves

The events connected with the war in Ukraine have also raised the question of the location of foreign exchange reserves. Under the international financial law, we are talking about foreign exchange, when a domestic bank holds its assets in an account opened at a foreign bank. This fact means that according to the international banking practice, the location of monetary assets held in foreign currency is always in the country in which that currency is legal tender. In other words, according to this logic, all dollars held by different banks worldwide are located at the U.S. banking system, euros are located in the banking system that belongs to the member countries of the e Economic and Monetary Union (EMU), the Norwegian crown is located in Norway, the Australian dollar is located in the banking system of Australia. If on the other hand we know what the size is of the international foreign reserves, then we get the following figures: U.S. dollar 58%; euro 23%; Japanese yen 5%, British pound 4%; Swiss franc, Chinese renminbi 2.5%. These figures illustrate the holdings of the foreign banks on which the host in which those banks are located have influence.
The sanctions against Russia adopted by different countries for Ukraine invasion have encroached upon the disposal rights of the owner of those reserves, i.e. credit balances. In concrete terms, Russia's central bank had roughly 623 billion U.S. dollars in foreign reserves in February this year at the U.S. banks when the US Treasury adopted the measure to block Russia's access to those assets. Consequently, Russia has taken steps in effort to sell its commodities for roubles and, on the other hand, to pay for the goods it needs in roubles as well. The fear resulting from the aforementioned sanctions has driven different contracting partners to demand that their respective national currencies be used as a currency of contract fulfilment, possibly also in combination with a currency clause. Most of those currencies is associated with distrust about their daily value on the global market, given the fact that their »local value« is the biggest risk and, in numerous cases, also due to the fact that in normal circumstances governments cannot influence exchange rate fluctuations, let alone trading in the domestic capital market (the example is the 1997–98 financial crisis that started in Thailand affected the so-called Asian tigers and led to foreign investors' stampede as pressures on the currencies of other countries in the region intensified. In effort to defend the baht, the Bank of Thailand, for example, imposed a limitation on foreign (private) investors wishing to retreat from the country by obliging them to keep their trading portfolio profits for one year in the local currency on a dedicated account opened with a domestic bank. During that period, the value of baht plunged dealing a hard blow to the foreign investors. Mindful of the resulting distrust foreign investors develop in the face of such restrictions, Banka Slovenije, Slovenia's central bank, introduced fiduciary accounts opened with the domestic banks for foreign-exchange inflows of foreign investors that first had to be converted in tolars and then foreign investors could trade in the Slovenian capital market. When a foreign investor took a decision to pull out of the Slovenian capital market, the central bank converted the amount in tolars back into the foreign currency held in the investor's fiduciary account.
The fact not to be ignored is that in the global foreign exchange market, the American dollar accounts for 95% transactions, i.e. it accounts for 85% of world trade. The Federal Reserve Bank of New York has recently published that 50% of international bond issuance is denominated in the U.S. currency, and the bigger portion of external debt is denominated in American dollars as well. In view of the most recent fluctuations of the U.S. currency, most countries have experienced devaluation of their local currencies of approximately 30% vis-à-vis the U.S. dollar. Such movements may eventually lead to a serious currency crisis and a new debt crisis (the British pound, as well as the Japanese yen, are traded at 37-year low against dollar, which means that 110 pounds shall be disbursed for 100 U.S. dollars).
Specific issues are also raised with regard to the currency board arrangements as the currency board solution used in Bosna and Herzegovina for its currency under which a country, i.e. its central bank can issue domestic currency to the extent that it is fully covered by the central bank's reserves of foreign exchange held on accounts at foreign banks. The U.S. dollar plays an important role also in these cases as the arrangements involve a peg to the dollar.

Given the current situation, the discussion about reserves in gold as the most plausible candidate vis-à-vis the global reserve currencies. Verbal commitments of some countries to diversify into other currencies and replace the U.S. dollar as the dominant global currency might prove a tall order. The question remains as to what will actually happen due to mistrust in certain currencies, given the fact that foreign exchange risks always loom large and have become even larger lately with the dollar getting stronger vis-à-vis most global currencies – its value has rebounded against the euro by 15%.

Concluding observations

It was in 1922, exactly 100 years ago, when the German foreign minister Walther Rathenau, who at the outbreak of the First World War headed the Allgemeine-Elektrizitäts-Gesellschaft (AEG) combine, having realised the scope and scale of the reparations payments under the Treaty of Versailles said: «Die Wirtschaft ist unser Schicksal – Trade and industry are our destiny«. A week later, he was assassinated by the extreme right-wing nationalists leading to a run on the mark and its nosediving depreciation followed by the hyperinflation that dealt a devastating blow to the country's economy and, above all, gave rise to distrust not only in money, but also mistrust of others. To cut the long story short: what stable money means for the economy and for each and every individual is well-known to those who have personally experienced such events. We note with regret that also Slovenia is among the countries, which back in 1989 when it still was only a constituent republic of the SFRJ (ex-Yugoslavia), lived the experience of the 1259% annual inflation. Subsequently, inflation went wild in Serbia where new banknotes were issued in 1993. At the meeting with the governor of the National Bank of the Federal Republic of Yugoslavia in November 1994 in Budapest, he gave me four banknotes issued at the peak of hyperinflation of which the largest denomination was a 500 billion dinar banknote worth approximately 10 German marks at the end of the year. (Also the path of Slovenia as a sovereign and independent state towards monetary independence started with high inflation that at the end of October 1991 when the Slovenian tolar was issued stood at 22% per month. In such circumstances, households looked for the ways to prevent inflation from eating away their savings and saw a safe haven in foreign currency, specifically in the D-mark, which is why the tolar was mostly used for the daily needs. At Slovenia's central bank, Banka Slovenije, we were aware of the situation on our hands and right away embarked on stabilisation policy that in the monetary field translated into the following: monetary base contraction, repayment of loans from monetary financing granted to commercial banks; restrictive benchmark policy rate back then much higher vis-à-vis foreign currencies, and management of the moving tolar exchange rate of which depreciation kept abreast with the inflation rate, which means that the tolar was constantly increasing its value. On the basis of those measure, i.e. actions, households, business partners, at home and abroad, started to believe that all those efforts were aimed at consolidation of the purchase power of the tolar and with it to general well-being a hard currency brings. Despite restrictive monetary policy, in a ten-year period, Slovenia's economy achieved a relatively solid economic growth of around 3.5% per year in real terms, whereas on the other hand, confidence was built in the new currency and the tolar gradually became a store of value replaying the D-mark.

The current situation within the framework of 19 EMU Member States bears a resemblance to the early days of the Slovenian state: inflation in excess of 9% on average, in some jurisdictions including Slovenia, it is a double-digit figure, at 40-year high in many countries taking into account the fact that until 1999, the EU Member States had their domestic currency. If before adopting the euro, national central banks were typically accountable to the legislative or executive branch of government, it does not apply to the European Central Bank – the ECB is accountable to the people of Europe through the European Parliament. It means that on the one hand the ECB enjoys more freedom has in conducting monetary policy than its members previously had. Nevertheless, there should be no doubt either that it is also responsible for financial stability. In the given situation it is quite clear that only external factors associated with food and energy are to blame for high inflation; responsibility primarily lies with the ECB's monetary policy at the zero lower bound, i.e. negative interest rates, for decades alongside pumping large amounts of money into the market to rescue debtors. It is unequivocal that monetary policy has a direct impact on prices of production materials, as well as on most manufactured products, but it has no impact on consumer goods and wages. If we put aside productivity growth and good results achieved on the basis of productivity growth that subsequently generate the basis for higher earnings, demands for a pay rise are actually connected with current inflation and inflationary expectations that may be rather difficult to supress, i.e. they decline with the conviction that prices are easing and that purchasing power of currency is rising again. Therefore, it is all about the most important trust between the market and the institution whose primary and sole concern is price stability. As already indicated, we see a general threat to credible

monetary policy in the fact that Member States have their political sovereignty, whereas they have transferred their national monetary sovereignty to the ECB. A question that spontaneously arises from such a decision is how price stability policy should be conducted against the backdrop of high debts incurred by individual members or how to resolve old claims some members have against Germany in reparations for damages and losses caused by Germany in World War II with Greece on the one hand with a claim of 289 billion euros for damage caused in World Ward II, and Poland with the claim of 1.3 trillion euros in war reparations. If we disregard these facts and many other, when deciding between economic growth and inflation, concerns regarding growth shall not prevail, since without stability, there can be no real growth. Therefore, the ECB should clearly show that it will do what it takes with the money supply, as well as with interest rate policy, in order to achieve its medium-term inflation target as soon as possible. (The U.S. Federal Reserve has announced that it will keep raising its benchmark rate also in the forthcoming months to the 4.25%-4.50% range by year-end.

If on the other hand we look at the international trade figures, then we see that Germany is the fourth biggest world's trade partner, and the main trading partner of other Member States. Nevertheless, the situation has deteriorated also in that field. In the first six months of 2021, Germany posted a trade surplus of 41.1 billion euros, as opposed to a deficit of 180 billion euros posted for the same period this year. These results will undoubtedly affect economic growth not only of Germany, but also of its trade partners. Irrespective of these and other facts and issues, the ECB's task and responsibility must remain clear and unchanged: to safeguard the value of the euro, i.e. maintain price stability. It is national fiscal policy in particular that should we aware of this objective but the same also applies to the European Commission's policy, which has managed to talk the members into partial solidarity in individual segments of the economy, without further ambitions that in the future national debts would be (re)distributed on the principle of solidarity. If it is a true wish of the EMU members to have a single European currency as it makes us stronger, we are faced with lower risks and we are more successful, each of us will do what it takes to make the much needed stabilisation policy a success, as well as to make sure that the euro remains our common currency also in the future.

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Transitioning to a business model aligned with UN SDGs and Paris Agreement - Challenges in front of NLB Group

*Lela Mélon and Alenka Recelj Mercina**

The tsunami of sustainability transition, at the global and the EU level, has not spared the banking sector. Commercial banking, which has historically been a stranger to incorporating concerns that are not purely financial, has found itself in the whirlwind of change. As with other public and private organisations, the progress in terms of sustainable conduct depended to a large extent on individual effort and drive of decision-makers in an individual organisation, until regulation changed the rules of the game for the sector at large. This article serves as an empirical account of the challenges of the NLB Group, as the most influential commercial bank in the geographical area of the Balkans, in transitioning its business model to align with the United Nations Sustainable Development Goals and the goals of the Paris Agreement, as well as a tool for a critical assessment of the quality of the EU legal framework. While the guidance offered by these instruments is welcome to start paving the way for transition, giving it shape and focus, account is being given of the need for more clarification and more detailed guidance on this path in the present article.

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1. Introduction

In today's world, banks are expected to ensure continuous movement of funds in a way that meaningfully contributes to the sustainable development of the economy by addressing environmental and social challenges[1]. The so-called "climate transition finance," understood as extent to which an issuer's financing programme supports the implementation of its climate change strategy, should clearly communicate how the issuer intends to adapt its business model to make a positive contribution to the transition to a low carbon economy. Corporate climate change strategies should respond to stakeholders' expectations by purposefully and explicitly seeking to play a positive role in achieving the goals of the Paris Agreement.[2] Disclosures regarding corporate strategies may be aligned with recognised reporting frameworks such as the recommendations of the Task Force on Climate-Related Financial Disclosures (TCFD) or similar frameworks. As to what shall be deemed "truly sustainable," the framework set by the EU sustainable finance taxonomy regulation serves as a guiding light in the dark.

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[1] See e.g. Bespalov, R.A. and Antonenko, S.V. (2019). Creation of a "green" bank in the context of "digitalization" of the economy. 2 Bulletin of the Bryansk State University, pp. 143-151.

[2] United Nations / Framework Convention on Climate Change (2015) Adoption of the Paris Agreement, 21st Conference of the Parties, Paris: United Nations. AN OFFICIAL PUBLICATION. Bell, E., Cullen, J.

The way banks have been approaching this new role was mainly through an attempt to reduce the negative impact of the environmental and climate-related factors on sustainable development by reallocating financial resources in favour of the green sectors of the economy,[3] while simultaneously being aware of their own risks related to external and internal environment, which can lead to the loss of stability of the bank as an organisation.[4] The NLB Group took a different road and embraced responsible banking as its starting point: instead of a cherry-picking approach to the challenges of sustainability, it has embarked on an ambitious path of a holistic change in their strategy and setting responsible banking as a top priority.

In 2021, the Group published the NLB Group Sustainability Framework,[5] which aligns its business model with the UN's Sustainable Development Goals on all the three pillars (contribution to society, sustainable finance and sustainable operations). NLB performed an impact analysis as a consequence of its commitment to the UN Principles for Responsible Banking and published regional sustainability targets.[6] As regards the environmental dimension of ESG, it has been addressed by upgrading its climate-related and environmental risk management, integration of EU Taxonomy regulation, and measuring the carbon footprint of the Group's own operations in 2021 and supported by the social dimension through continuous CSR activities. The NLB Group is the first Slovenian bank to commit to coal-related financial exclusion as of 2021 (and will not provide any new financing to thermal coal mining or coal-fired electricity generation capacity in any way, including eventual transitional enhancements). It is simultaneously the first financial institution in Slovenia to join UNEP FI – Principles of responsible banking (in September 2020) and Net-Zero banking Alliance (May 2022) and the first bank in Slovenia to announce sustainability-related targets (through the impact areas of climate, resource efficiency, healthy and inclusive economies).

The approach of the NLB Group towards their sustainability transition has been holistic. While such an approach is to be applauded, the process has been a challenging one especially due to this ambitious goal of an overarching change. The article outlays the path taken by the NLB Group, providing an insight and suggestions for future approaches of policymakers to facilitate such transition in the future.

2. The ambition and the struggles: the "how to" towards sustainable commercial banking

2.1 General considerations – internal challenges

The NLB Group started its journey towards a more sustainable banking model with the awareness that sustainability represents a novel concept for the financial industry, especially in the geographic area where the bank is present and as such merits a treatment of change management, as it necessarily entails a significant change to its business model and corporate culture. The main concern related to the change of business model is one of lack of financing and lending opportunities, which is true only to a certain extent, when looking through the prism of trying to fit sustainability-related risks into the traditional financial risks framework. The legislative sustainability-related tsunami at the EU level brought about a substantial demand for financing of transition to net zero by 2050 and with-it new opportunities. The downside of such a heightened demand in a short timeframe though is the demand for adaptation and building of new knowledge, capabilities and culture among internal teams, which requires becoming familiar with non-financial and non-banking topics, where CO_2 in particular becomes the new currency. While empirical data shows "sustainable finance" is outperforming traditional investments, the awareness of such overperformance is yet to become widespread across the finance industry, giving a first-mover's advantage to individual establishments in the sectors that have been first to embark on the sustainability journey.

While the change of the bank's business model has been a significant challenge, it has not been the only one: the change in the products and services banks offer to their clients has been accompanied with a significant change of bank's goals, internal and external stakeholders' expectations and processes such as data gathering and digitalisation. This presupposes whole new sets of data to be monitored and followed for the reporting to be disclosed n line with regulatory requirements as well as investors' expectations. Sustainability also influences bank's operations: the change towards responsible organization requires focus and change as regards the use of electricity and heating, revision of the space demand and possible improvements in commuting, etc.

What is indisputable is the fact that the transition to sustainable banking model represents a "learning by doing" process, which provides the best results if implemented early on. There is a first mover's advantage for any organization that

[3] See Miah, M.D., Rahman, S.M. and Mamoon, . (2020) "Green banking: the case of commercial banking sector in Oman, 23 Environ Dev Sustain, pp. 2681–2697.

[4] See Bitkina, I.K. (2018) "The influence of macroeconomic factors on the deposit operations of commercial banks" 1 Bulletin of the Moscow Humanitarian and Economic Institute, pp. 33-39

[5] See *more at* https: //www.nlb.si/nlb-sustainability-framework.pdf.

[6] See *more at* https://www.nlb.si/sustainability_report_2021.pdf.

embarks on the sustainability journey, especially given the speed of legislative changes related to sustainability requirements in diverse interconnected and interrelated sectors. The initial plan has been supported with a more extensive implementation of ESG factors, and the NLB Group chose as its guiding framework the Principles of Responsible Banking (PRB), when it became a signatory of the United Nations Environment Programme Finance Initiative (UNEP FI) in September 2020. A compass was needed for the transition itself, and the UNEP FI presented a great map for paving a way for NLB Group's sustainable operations for the future. Internally, the implementation of PRB required inclusion of colleagues from a wide variety of departments given the extent of the impact areas. This has been beneficial not only for the introduction of the PRB, but has also served as an example what the implementation of sustainability actually entails, which is a continuous cross-sectoral cooperation and regular discussions with a very broad audience, as sustainability represents a horizontal topic. To support the transition, a lot of attention has been paid to data capturing, collecting, collating, as well as facing the significant challenge of aggregate reporting, which requires process changes, IT developments and additional investments. These challenges have proved to be very constructive and helped the NLB Group to build knowledge and raise internal awareness on sustainability transition of the organization as a whole. Now the question remains if every institution will have the opportunity (in terms of time available to them) to combine the top-down and bottom-up approach, or the test-and-try approach was a privilege of first movers?

2.2 Specific challenges with ESG disclosures and standardisation of sustainability reporting – the multitude of regulative sources

The past few years a significant growing interest by financial market participants and other stakeholders in more relevant, reliable and comparable disclosures could be observed, related to the ESG factors (referred to as "non-financial information" or "sustainability reporting").[7] From 2021, the European Union regulates financial disclosure of sustainable investments with a special SFDR regulation,[8] while the US will regulate greenwashing from 2022, and other countries following the trend. The SFRD regulation lays down sustainability disclosure obligations for issuers of financial products and financial advisers vis-a-vis end-investors in relation to the integration of sustainability risks by financial market participants (i.e. asset managers, institutional investors, insurance companies, pension funds, etc.) and financial advisers in all investment processes and for financial products that pursue the objective of sustainable investment. The emphasis is on the effects of business on the climate, protection of biodiversity and respect for human rights in supply chains.

While in the early 2000s the European Commission saw corporate social responsibility as a voluntary exercise, allowing companies to engage in socially (and environmentally) beneficial activities, in the framework of shareholder primacy with a slight stakeholder orientation. That changed with the EU Directive on non-financial reporting[9] which mandated reporting from large undertakings in the EU on non-financial matters, and has been transposed in Slovene legislation through amendment of Article 70 c of the Companies Act ZGD-1J.[10] The Article 70 c of the ZGD-J has been the most relevant for the NLB Group, as well as the guidance provided by the Global Reporting Initiative (GRI) as a long-standing standard-setter in the field of sustainable finance, now serving as a basis for the development of European Financial Reporting Advisory Group's (EFRAG) sustainability reporting standards.[11]

European legislation in the area of sustainable finance in particular has provided a significant stimulus to the market demand for sustainability reporting. Subject to the acceptance of the proposal of the Corporate Sustainability Reporting Directive (CSRD),[12] amending the existing reporting requirements of the Non-Financial Reporting Directive (NFRD),[13] steps have been taken to provide a comprehensive set of European Sustainability Reporting Standards (ESRS), addressing the increased demand for common standards while acknowledging some key specificities of the European context. CSRD extends the scope to all large companies and all companies listed on regulated markets

[7] Noted also by the European Commission, see e.g. the Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, EU Taxonomy, Corporate Sustainability Reporting, Sustainability Preferences and Fiduciary Duties: Directing finance towards the European Green Deal COM/2021/188 final pp. 8-11

[8] Regulation (EU) 2019/2088 of the European Parliament and of the Council of 27 November 2019 on sustainability related disclosures in the financial services sector PE/87/2019/REV/1 OJ L 317.

[9] Directive 2014/95/EU of the European Parliament and of the Council of 22 October 2014 amending Directive 2013/34/EU as regards disclosure of non-financial and diversity information by certain large undertakings and groups OJ L 330.

[10] https://www.uradni-list.si/glasilo-uradni-list-rs/vsebina?urlurid=2017730

[11] See e.g. EFRAG [Draft] European Sustainability Reporting Standard P1 Sustainability Statements, available at: https://www.efrag.org/Assets/Download?assetUrl=%2Fsites%2Fwebpublishing%2FSiteAssets%2FESRS%2520P1%2520on%2520Sustainability%2520Statements.pdf (last accessed on 29.08.2022).

[12] Proposal for a Directive of the European Parliament and of the Council amending Directive 2013/34/EU, Directive 2004/109/EC, Directive 2006/43/EC and Regulation (EU) No 537/2014, as regards corporate sustainability reporting COM/2021/189 final.

[13] Directive 2014/95/EU of the European Parliament and of the Council of 22 October 2014 amending Directive 2013/34/EU as regards disclosure of non-financial and diversity information by certain large undertakings and groups OJ L 330.

(except listed micro-enterprises); it requires audit of reported information, introduces overall more detailed reporting requirements; it requires companies to digitally "tag" the reported information, so it is machine readable and feeds into the European single access point envisaged in the capital markets union action plan. The reports under CSRD are to be compiled and audited to account for 2024 financial year for companies, subject to NFRD; for 2025 financial year for other large firms and two years later for the remaining qualifying SMEs with a 2-year opt-out.

To facilitate meaningful sustainable transformation of organizations, active in the EU, another instrument has been issued, which will transform significantly the corporate landscape in the EU: the key new sustainability governance proposal, Draft Directive on Corporate Sustainability Due Diligence (CSDDD).[14] Its purpose is to "foster sustainable and responsible corporate behaviour and to anchor human rights and environmental considerations" in companies' activities and within their corporate governance structures. The CSDDD will apply to company's own operations, its subsidiaries and their supply chains, including direct and indirect business relationships. It introduces duties for directors to set up and oversee the implementation of due diligence processes and integrate due diligence into official corporate strategy.

What the NLB Group's experience shows is that regional standardisation, most notably in Europe, and international efforts need to go hand-in-hand to support the sustainable transition of commercial banking. If regional and global standardisation efforts do not coincide, that actually impedes the wished-for transition as it creates an unclear and loose framework for the transition. Both regional and global efforts should enable a target scenario where issuers can rely on high-quality reporting standards which are consistent, interoperable and global to the largest extent possible (and, where necessary, also region- or jurisdiction-specific). In 2022, the European Securities and Market Authority (ESMA) welcomed the International Financial Reporting Standards (IFRS) Foundation's initiative to consolidate some of the existing standard-setting and framework initiatives and strongly supports the work of the International Sustainability Standards Board (ISSB) to reach a common set of internationally accepted high-quality sustainability reporting standards which could serve as a global baseline.

The need for setting up such a comprehensive baseline in the interest of investors is simple and intuitive: the risk of greenwashing in the sustainable investment chain largely stems from claims that often have to do with alleged societal and environmental positive impacts of certain financial products or entities. To that effect, a general feeling has developed in the NLB Group that a convergence of the ISSB proposed reporting requirements with the draft European Sustainability Reporting Standards (ESRS) developed by EFRAG (currently under development), should be reached, to provide a common denominator and a fruitful and sturdy framework for sustainable transition of commercial banking and financial services in general.

While "setting the stage" with legislation, research on ESG integration into banking practices, the practices and guidelines of central banks sound appropriate and sometimes necessary to ensure or accompany the sustainable transition of banking, the multitude of sources oftentimes slows down the transition due to the lack of clarity of actual requirements for greening commercial banking. By way of example, the Bank for International Settlements (BIS) published a report in July 2022 on the topic of integrating ESG factors into risk management systems and international reserve management frameworks by central banks.[15] It acknowledged the societal challenge of managing climate change risks and the role of central banks in the fight against climate change, which through the Network of Central Banks and Supervisors for Greening the Financial System (NGFS) aim to contribute to effective climate-related risk management and the transition to a sustainable economy. While many central banks do not have a formal mandate to incorporate sustainability challenges into their mission, some have noted that doing so is consistent with their existing mandates.

The ECB has taken decisive steps to incorporate climate change into its monetary policy operations to assist the governments and legislators as the main actors in the fight against climate change.[16] Furthermore, the ECB is required to carry out annual stress tests on supervised entities in the context of its Supervisory Review and Evaluation Process. As climate change and the transition to net zero carbon emissions pose risks to households and firms, they pose risks to the financial sector. Accordingly, exposure to climate-related and environmental risks is among the ECB Banking Supervision's strategic priorities for the 2022-2024 period.[17] The 2022 ECB climate risk stress test should be seen as a joint learning exercise with pioneering

[14] Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on Corporate Sustainability Due Diligence and amending Directive (EU) 2019/1937 COM/2022/71 final.

[15] BIS Annual Economic Report 2021, available online at https://www.bis.org/publ/arpdf/ar2022e.pdf (last accessed on 29.08.2022).

[16] *See more on climate change and the ECB* at https://www.ecb.europa.eu/ecb/climate/html/index.en.html (last accessed on 29.08.2022).

[17] Ibid.

characteristics aimed at enhancing both banks' and supervisors' capacity to assess climate risk. In the case of the NLB Group a positive spill over can be noted to the non-EU countries in which it operates, as it is supervised by the ECB due to its incorporation and presence in the EU, which furthers the EU green agenda beyond the borders of the EU.[18]

While the activity of ECB in the field of sustainable transition of commercial banking is a necessary and welcome exercise with positive spill over effects, the development and existence of the EU sustainable finance taxonomy[19] sometimes represents a double-edged sword. In the context of the NLB Group sustainable transition, significant usability challenges of the implementation of the EU Taxonomy arose[20], which are of utmost importance for current and future sustainability-related reporting under the SFDR, CSRD and the EU Green Bond regulation.

The abovementioned concerns regarding the European regulation of sustainable conduct of organisations in general and commercial banking in particular are partially remedied by EU's next steps, such as the European Commission delegated regulation containing Regulatory Technical Standards (RTS) as a part of the European Supervisory Authorities' (ESA) ongoing efforts to promote a better understanding of the disclosures required under the technical standards of the SFRD ahead of the planned application of the rules on 1 January 2023. Furthermore, the European Commission puts trust in ESA for providing input on how greenwashing can be avoided, by taking actions and developing new tools to ensure adequate monitoring of greenwashing risks, alongside with considering supervisory challenges to enforce new policies.

2.3 NLB Group sustainability roadmap 2022 – 2023: developing a climate-conscious transition strategy

The recognition of capital markets having a critical role to play in enabling the climate transition by ensuring the efficient flow of financing from investors to issuers wishing to address climate change risk issuers has been present in the NLB Group for a significant amount of time now. With the aim to fulfil upcoming EU regulatory requirements, stakeholders' expectations (especially investors`), general societal developments, and commitments NLB made with regards to shifting its business model to support decarbonization goals (as a member of UNEP FI – PRB and Net Zero Banking Alliance (NZBA) initiatives), NLB Group's next step is developing a climate-conscious transition strategy of the bank or in other words the NLB net zero business strategy. By joining UNEP FI NZBA in May 2022, NLB climate-related and environmental ambitions were significantly strengthened. In line with the NLB's commitment to UNEP FI – NZBA and PBR, the NLB Group's goal is to transition all operational and attributable GHG emissions from its lending and investment portfolios to align with pathways to net-zero emissions by mid-century or sooner, including CO_2 emissions reaching net-zero at the latest by 2050, consistent with a maximum temperature rise of 1.5°C above pre-industrial levels by 2100.

3. Conclusion

The NLB Group's experience is most probably not unique, and most plausibly many commercial banks that have identified the need for sustainable reform and embarked on the journey early-on have stumbled upon similar challenges with embarking on the path of transition towards sustainability. While the EU legal framework, its policies and strategies, are aimed at providing well-made and detailed guidelines as to the content of the "how", they seem to lack the required consistency and clarity, but most importantly coherence to be able to represent efficient guidelines to that effect.

This article therefore exposed the NLB Group's motivation for a transition towards sustainable commercial banking, the steps taken, and the challenges faced, while analysing the influence of the existing and upcoming legal frameworks in the geographical areas where the bank is active. The NLB Group plans to continue the open stakeholder communication regarding its financial plans and it has publicly announced it remains committed to meaningful and increased dividend payments, in line with the ambition to grow in a sustainable manner, showing that sustainable growth can be made a reality through a holistic approach towards sustainable organizational transition.

[18] https://www.bankingsupervision.europa.eu/ecb/pub/pdf/ssm.202011finalguideonclimate-relatedandenvironmentalrisks~58213f6564.en.pdf

[19] See n10.

[20] International Capital Market Association (2022) "Ensuring the usability of the EU Taxonomy," available at https://www.icmagroup.org/assets/GreenSocialSustainabilityDb/Ensuring-the-Usability-of-the-EU-Taxonomy-and-Ensuring-the-Usability-of-the-EU-Taxonomy-February-2022.pdf (last accessed on 29.08.2022).

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