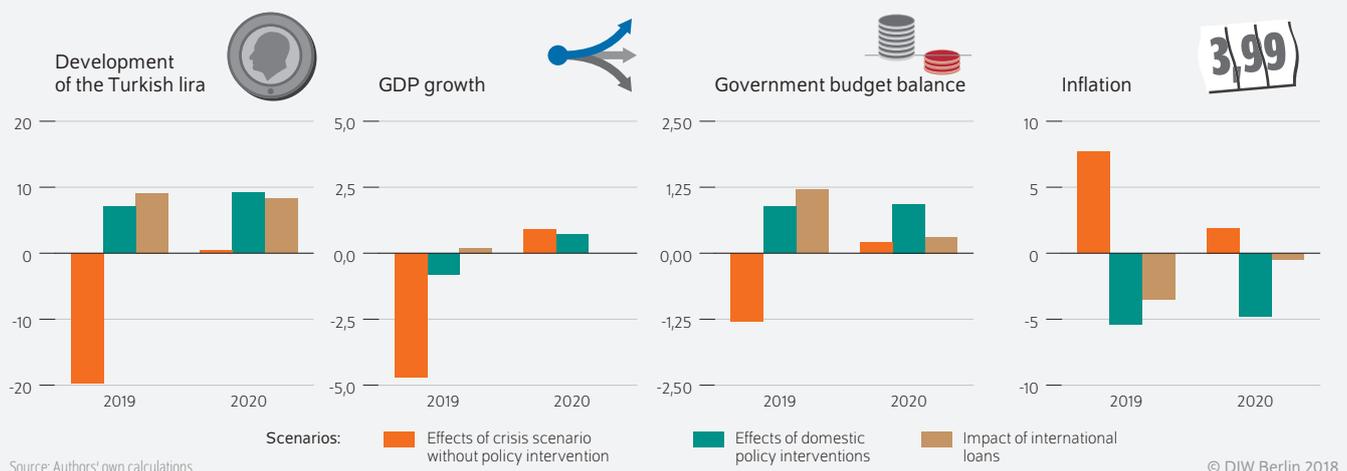# Policy responses to Turkey's crisis: independent central bank and international credit

By Alexander Kriwoluzky and Malte Rieth

- Recent devaluation of Turkish lira expected to fuel inflation and weaken growth
- DIW study shows: without countermeasures, GDP growth will drop by five percentage points
- Only a mix of measures can prevent a crisis: consolidating the public budget, raising the policy rate, and lowering the perceived inflation target
- The most effective and efficient measure would be for the central bank to comply with its inflation target, proving its independence
- Simulations show that international loans at favorable conditions would stabilize the situation further

The policy interventions stabilize the lira and the inflation rate
Change from baseline scenario (without crisis and policy interventions) in percentage points and percent

Source: Authors' own calculations.

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FROM THE AUTHORS

"Only decisive policy action by the Turkish public authorities can prevent a crisis.
Crucial for a succesful stabilisation of the Lira is restoring central bank independence."

— Malte Rieth, study author —

Policy responses to Turkey's crisis: independent central bank and international credit

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ABSTRACT

The presently tenuous situation in Turkey will worsen if the government does not take appropriate policy action. In view of foreign investors' loss of confidence, the cost of external financing is likely to rise while consumption and investment will fall, and the Turkish lira would depreciate further. The influx of foreign capital would dry up as well. Conservative estimates show that the country's growth would decline by five percent in the first year. These are the results of simulations with an equilibrium model developed by the German Institute for Economic Research. However, adopting measures such as budget consolidation, interest rate hikes, or lowering the target inflation rate could prevent a crisis. The most effective and efficient measure is lowering the perceived inflation target by restoring central bank's independence, thereby regaining investor confidence. Loans from international partners would also stabilize Turkey's currency, inflation, and economy — and support the country's reform process.

Turkey's current economic situation has the potential to become as bad as it was during the 2001 crisis. At that time, high public deficits and galloping inflation led to a massive devaluation of the lira and ultimately, an economic downturn of around 12 percent. A government default could only be averted by loans from the International Monetary Fund. In the wake of the aid, Turkey implemented a series of successful reforms that paved the way for a long upswing, interrupted only briefly by the global financial crisis. In addition to consolidation measures and structural reforms in the financial sector, the central bank gained independence. Shortly thereafter, an inflation targeting monetary framework was implemented. As a result, the inflation rate fell from around 60 percent at the beginning of 2000 to around ten percent in the following two decades.

Currently, firms, households, and foreign investors again lost confidence in Turkey's growth model, the inflation rate is climbing, and the lira is plummeting. The tenuous situation appears to be a consequence of the economic policy decisions in recent years – and therefore largely homemade. Three key reasons seem crucial for understanding the latest developments. First, the Turkish government has pursued strongly expansionary economic policies in recent years. The central bank kept interest rates low and fiscal policy stimulated domestic demand by running deficits. Second, the financial and bank supervision permitted a high loan volume in euros and dollars. The third and most important reason is probably the successive pruning of the central bank's independence, which caused it to lose credibility in the eyes of domestic firms and international investors. Turkish companies are setting increasingly higher wages and prices, and the lira's value has declined against the euro by around 40 percent since the beginning of the year (see Figure 1). This is making it significantly more expensive to finance the country's large current account deficit. Moreover, inflation is sharply increasing. In the past 12 months, it has more than doubled from around eight to 18 percent.

The devaluation of the lira is making it more difficult to repay foreign loans in euros and dollars. In turn, the likelihood that these loans will not be repaid has increased. In the case of increasing bankruptcies, banks will receive the

The model

We develop a New-Keynesian, dynamic stochastic equilibrium model for a small, open economy which explicitly considers the default risk inherent in government bonds. The default rate depends on the level of the government's deficit. Part of the resulting risk premium on Turkish government bonds is passed-through to interest rates for domestic private loans from abroad. In addition, the model contains a number of standard mechanisms and frictions from quantitative or empirical general equilibrium models, including price and wage rigidity, investment adjustment costs, habit formation in consumption, and incomplete international capital markets.

The model has a public and a private sector. The public sector consists of a government that determines fiscal policy and a central bank, which sets the domestic interest rate. The government issues bonds in domestic and foreign currency, and determines lump-sum taxes in response to the fiscal deficit. Government consumption is assumed to be exogenous. The central bank sets the policy rate within the framework of a generalized Taylor Rule. The inflation target is determined exogenously. Since the short-term interest rate contains a risk premium for government default, the central bank manages an inherently risky interest rate.

The private sector consists of households, producers of goods, and financial intermediaries. The latter provide the domestic private sector with loans from foreign countries. Households take loans or save to smooth their consumption. Companies must pay for wages in advance using loans. There is a risk premium on private loans that depends on the level of private foreign debt. The private risk premium can change exogenously, due to varying market perceptions, for example. The foreign economy is modeled as exogenous processes for demand for Turkish goods, the international risk free interest rate, and inflation.

Based on trend-adjusted data for 12 macroeconomic variables for Turkey, Bayesian methods are used to estimate the model. A series of parameters is calibrated such that specific economic variables in the model (the proportion of private and public consumption in GDP, for example) match their empirical counterparts.

brunt of the impact, which would further worsen the situation due to declining credit supply.

The consequences of the August devaluation

To estimate the consequences of the current escalation, we develop a dynamic stochastic general equilibrium model and estimate it on Turkish data. The model contains a series of nominal and real frictions and two types of risk premiums (see box). One is an endogenous risk premium on government bonds that depends on the government deficit and can be understood as a country risk premium. The other is a risk premium for private loans from foreign investors that depends on the volume of private foreign debt.

As a means of quantifying foreigners' loss of confidence in the Turkish economy, we assume that an exogenous increase in the private risk premium raises foreign financing costs of the private sector. The shock is calibrated such that it implies a devaluation of the lira of around 20 percent upon impact. This is approximately equal to the lira devaluation against the US dollar or euro in August 2018. The model determines the further course of the exchange rate and the reaction of the other variables. The responses to the shock can be understood as a forecast for Turkey for the next several quarters – assuming that no further shocks occur – and are relative to the development that would have occurred in the absence of the most recent escalation.

Consumption, investment, and wages fall

The risk premium shock leads to an immediate downturn (see Figure 2). Both consumption and investment as well as

Figure 1

Nominal exchange rate euro to Turkish lira
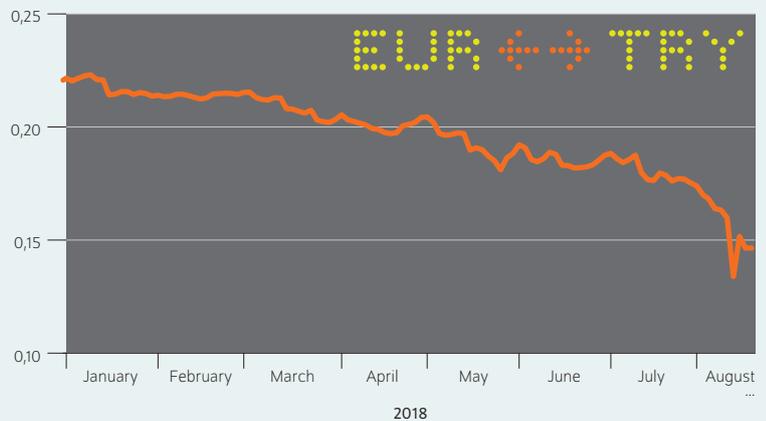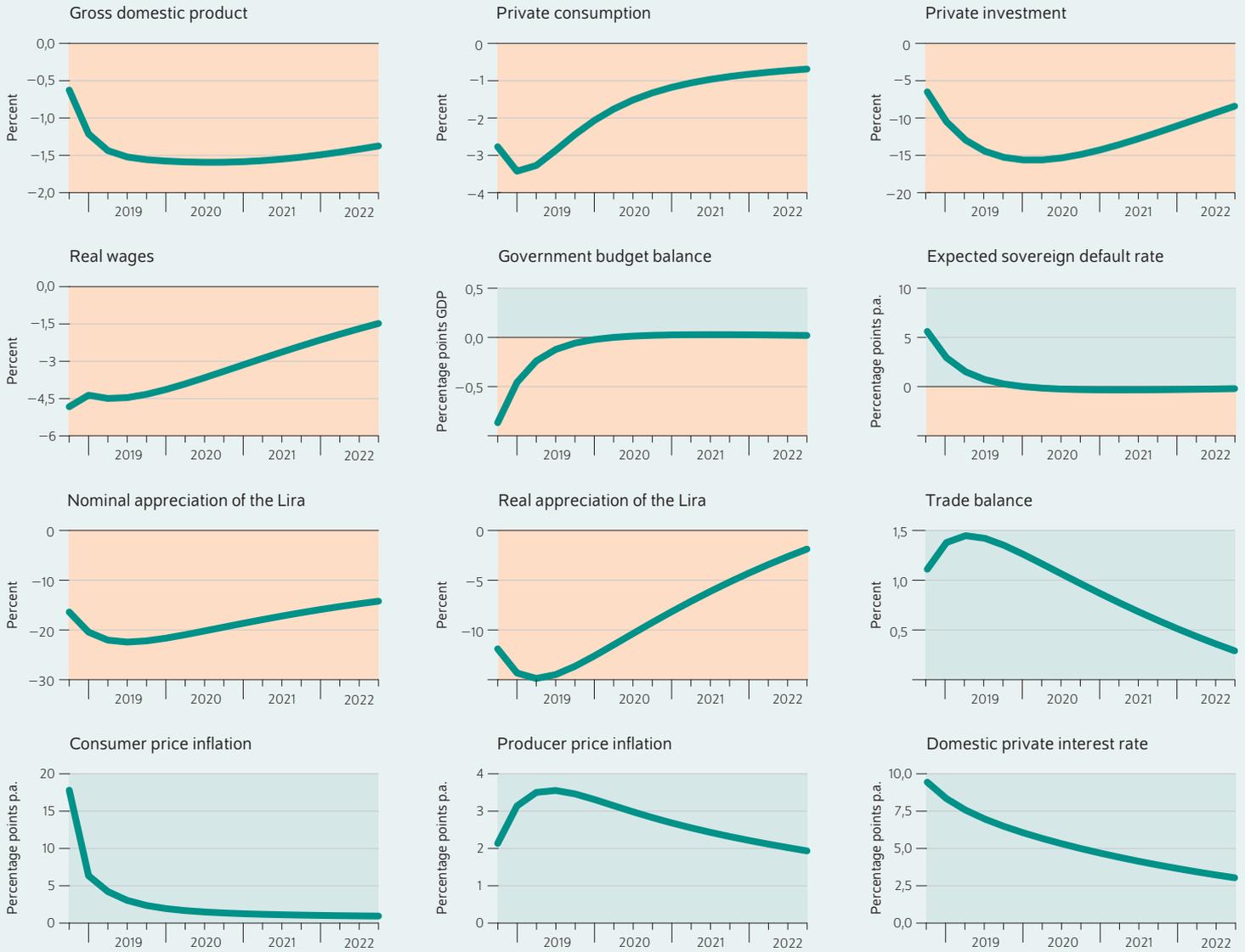

2018

Source: Bloomberg.

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The Turkish lira depreciated by about 40 percent this year.

Figure 2

Simulated effects of the lira depreciation in August 2018

Change from trend following exogenous increase in private risk premium by five percentage points

Source: Authors' own calculations.

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Over the coming quarter, the Turkish economy will suffer from the recent sharp depreciation of the lira.

real wages fall relative to their trends. Overall, output drops by 0.5 percent initially and then falls by 1.5 percent over time. As a consequence, the government budget balance deteriorates and the expected default rate for Turkish government bonds rises above its initial level by around five percentage points, in line with the current increase in the yield differential between Turkish government bonds issued in dollars and US government bonds with similar terms.

Due to low demand, the lira depreciates further, stabilizing only after about four quarters. The corresponding real depreciation improves the trade balance since Turkish products

will be cheaper abroad, but inflation rises sharply – both for consumers and producers.

From slump to crisis

If the current situation were to escalate, the influx of foreign capital would eventually dry up completely. Given the current account deficit of approximately six percent of GDP, the country would have to raise capital in the domestic market by raising the savings rate. However, the economic crisis of 2001 in Turkey and the crisis experiences of other emerging countries, such as Thailand and Argentina, showed that in such

situations the savings rate reacts sluggishly. The largest proportion of the gap between domestic demand and supply of capital is then usually filled by a decline in private investment.

Assuming that the current account deficit were cut by half and that this falls entirely on investment implies a three percentage points decline in the investment to GDP ratio. This provides a conservative estimate of the investment decline in case of a sudden stop. The history of currency crises in emerging countries typically shows significantly stronger fluctuations in current account deficits and associated drops in investment ratios. Often high deficits in one year need to be turned into surpluses in the next due to the stop of foreign capital inflows.

To estimate the overall effect of a slump in domestic investment on the Turkish economy, we calibrate an investment efficiency shock that leads to a 15-percent decline in investment upon impact.[1] To compute the effects of a crisis scenario, we add the implied impacts of this shock to those of the external risk premium shock analysed above.

The simulation shows that, in the first year after the two shocks, the government budget balance would deteriorate by more than one percentage point of GDP (see Figure 3). This would go hand in hand with a decline in growth of almost five percentage points. The nominal exchange rate would decline by roughly 20 percent and the inflation rate would jump by eight percentage points. Although the lira stabilizes in the second year after the shock, inflation would still rise by two percentage points. The public budget would be balanced in the second year and there would be a small economic recovery in which GDP growth would increase by just under one percentage point. However, this would not compensate for the production losses in the first year of the crisis. In sum, the simulation shows that the adverse economic impact of the current situation and a potential further escalation can be significant.

Can Turkey save itself?

We next address the issue of what the Turkish government and its central bank could do to counter the dramatic currency erosion and prevent the crisis from escalating. Alongside macroprudential intervention in the foreign exchange market or the banking sector, the country could use three classical instruments of domestic economic policy to restore international investors' confidence in the Turkish lira:

1. fiscal consolidation
2. contractionary monetary policy
3. restoring central bank independence

As a means of quantifying the three measures, we simulate the effects of the following three shocks: a reduction of government spending by ten percent, an increase in the policy

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[1] At an investment rate of approximately 20 percent, this corresponds to an investment slump of around three percent of GDP.

Figure 3

Overall effects of crisis scenario
Change from baseline scenario in percentage points; percent
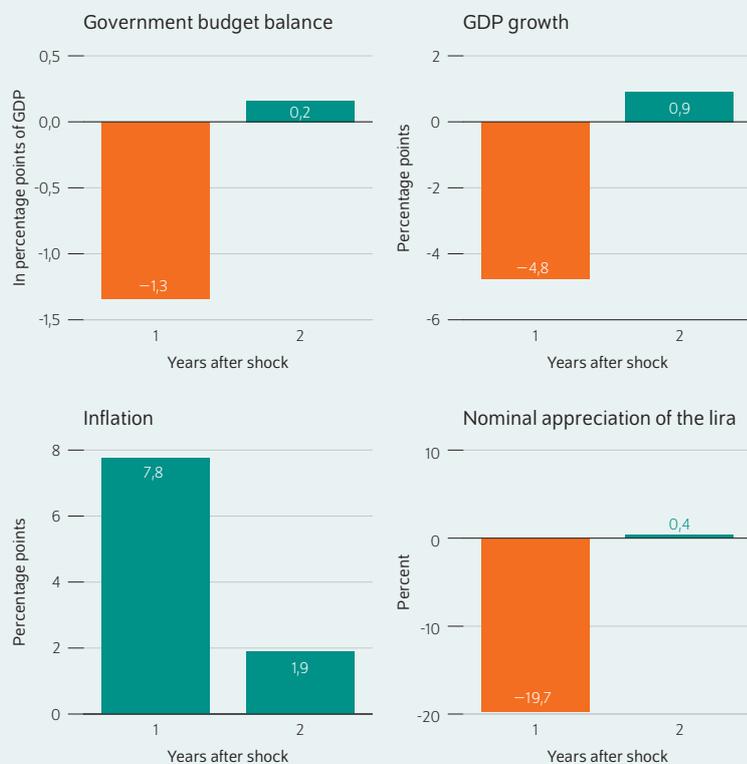
Source: Authors' own calculations.

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Without crisis measures, growth will drop sharply during the next quarters and the lira will depreciate further while the increase of the inflation rate continues.
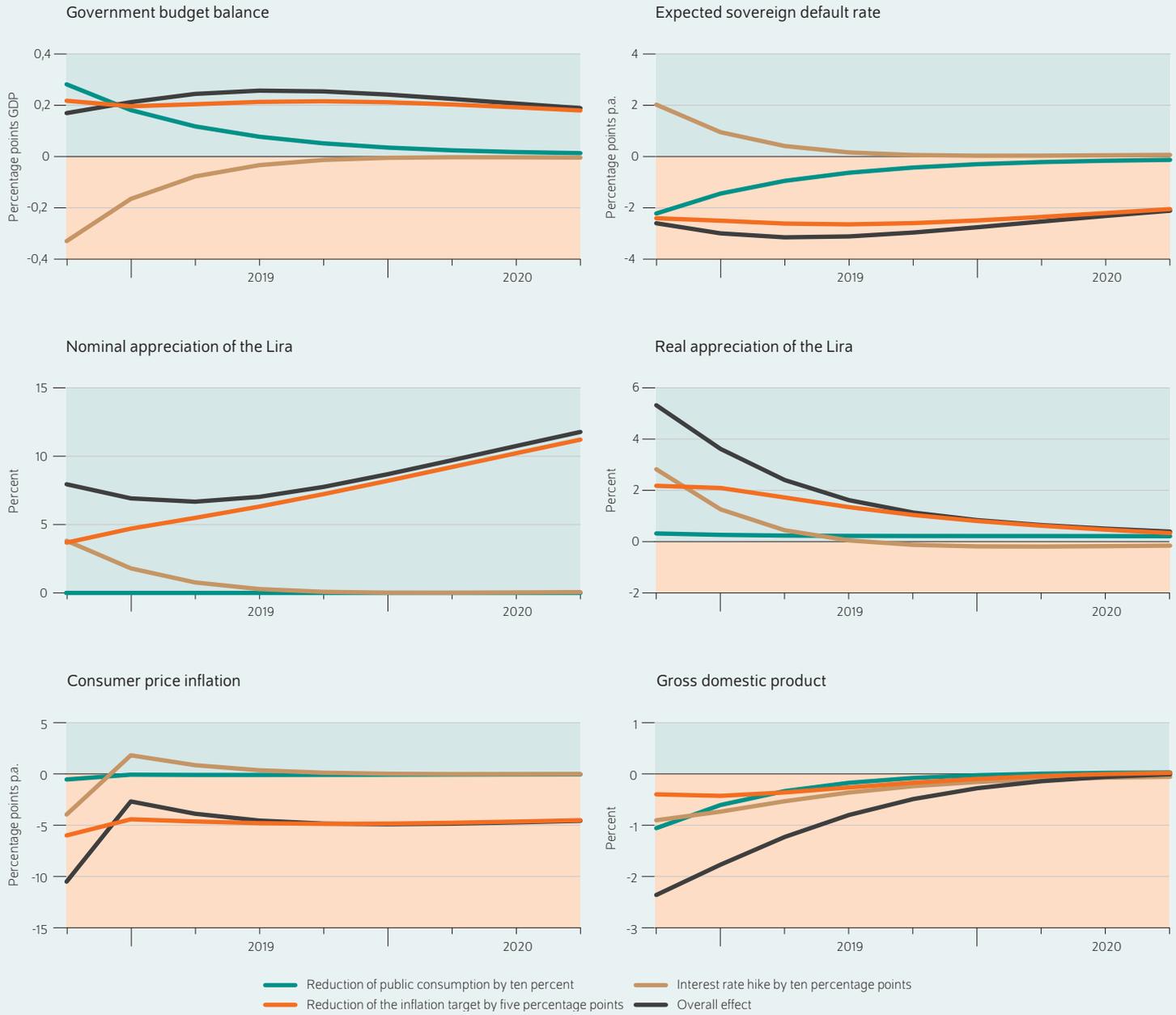
rate by ten percentage points, a lowering of the inflation target by five percentage points. The last policy measure can be interpreted as restoring the central bank's independence. Since the model is linear, halving or doubling the measures would lead to halving or doubling their effect.

All three measures directly stabilize the currency (see Figure 4). Although lowering public spending only results in a slight revaluation due to confidence effects, raising the policy rate immediately leads to an appreciation of the lira by around five percent during the first quarter after the monetary intervention. A long stabilization phase follows as a consequence of lowering the inflation target. The overall effect of the three measures is an almost 12-percent increase in the lira's value after two years.

This primarily reflects foreign investors' resurgent confidence in Turkey's currency. Measured by the expected government default rate, Turkey's sovereign risk would decrease by three percentage points because the budget balances improves. The consolidation measure and lowering the inflation target delivers the greatest relief, while raising the

Figure 4

Dynamic effects of policy interventions
In percent and percentage points, respectively

Government budget balance

Expected sovereign default rate

Nominal appreciation of the Lira

Real appreciation of the Lira

Consumer price inflation

Gross domestic product

Reduction of public consumption by ten percent

Reduction of the inflation target by five percentage points

Interest rate hike by ten percentage points

Overall effect

Source: Authors' own calculations.

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Lowering the perceived inflation target is most effective at countering the crisis.

interest rate increases public financing costs. Along with the nominal appreciation the real exchange rate also rises, and inflation falls by around ten percent. In the second year after implementing the measures, the inflation rate is five percentage points lower. At the same time, the contractionary policy package leads to an initial decrease of output by two percent. After two years, production would have completely recovered, however.

Overall, the measures improve the public balance by one percentage point in each of the first two years (see Figure 5). This is accompanied by a nominal lira appreciation of overall nine percent and a decrease in the inflation rate of around five percentage points per year. While growth in the first year after the interventions is 0.8 percentage points lower than it would have otherwise been, there is an upswing already in the second year.

The most efficient measures

We apply two criteria in order to assess which measures are most efficient. The first is used in the literature on measuring the cost of disinflations.[2] It is called the "sacrifice ratio" and defined as the cumulative production loss (relative to the trend) in such a phase relative to the inflation reduction within the same period.

Because Turkey's current crisis primarily affects its currency, and stabilizing the exchange rate is one of the goals of the measures discussed, we apply also the ratio of cumulative production losses to nominal appreciation as a second criterion. We calculate both measures for the first year after the policy interventions; a smaller number means higher efficiency.

According to both criterias reducing the inflation target produces the best results (see Figure 6). It is clearly most efficient in fighting inflation. But also when considering the goal of stabilizing the currency, it is preferred.

The impact of external help in form of loans

Turkey thus has a series of instruments that can be used to slow down the devaluation of the lira and curb the rise of inflation. This raises the question as to what international partners can do to help the country meet its goals and if necessary, to cushion the effects of the undesirable negative growth effects in the first year. To answer this question, we simulate a situation in which the foreign interest rate relevant for Turkey is exogenously reduced. It is a reference value for domestic public and private financing costs. External financing conditions could be reduced by offering loans at more favorable than current external financing rates of Turkey. In the model, such a scenario is simulated as a reduction of five percentage points in the foreign interest rate level.

Figure 5

Overall effect of policy responses to crisis[1]

Change from baseline scenario[2] in percent and percentage points, respectively
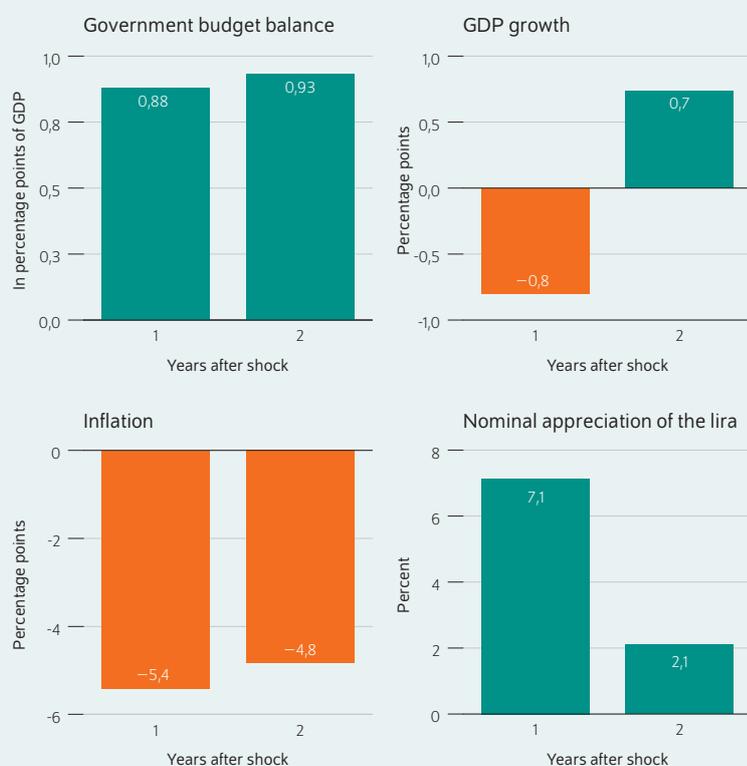
1 Budget balance, GDP growth, and inflation cumulative effects, mean exchange rate.
2 without crisis and policy interventions

Source: Authors' own calculations.

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The policy interventions have strong effects on the budget balance, GDP growth, inflation, and the exchange rate.

The calculations show that this would improve the government budget balance in Turkey immediately in the first two years after the shock (see Figure 7). The lira would increase in value – by nine percent – and the inflation rate would continue to fall. Growth would increase by around two-tenths in the first year.
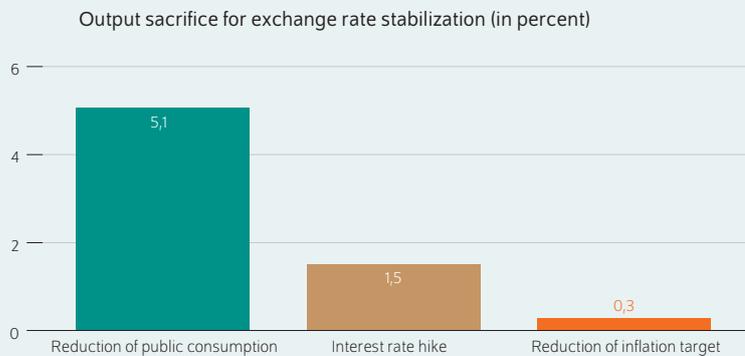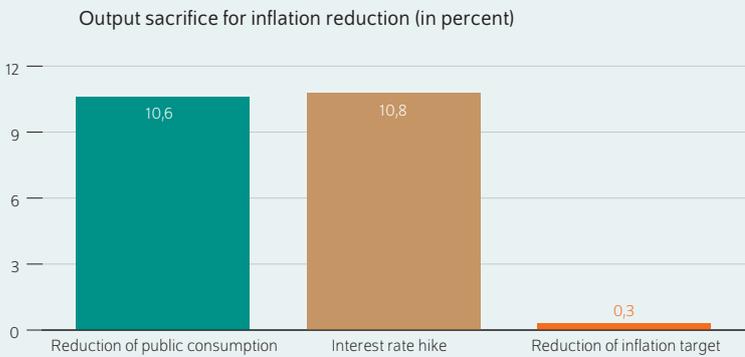
Conclusion: the most effective policy mix is an independent central bank in combination with international loans

Turkey is at a crossroads. In combination with the creeping erosion of its central bank's independence, a monetary policy that has been too expansive for too long has fueled inflation and to a great extent eroded the confidence of international investors in the country's currency. The lira has been devaluating against the dollar and the euro for several quarters, and its downturn has recently accelerated.

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2   See Laurence Ball, "What determines the sacrifice ratio," in *Monetary Policy*, ed. N. G. Mankiw (Chicago: University of Chicago Press, 1994), 155-193.

Figure 6

Efficiency of policy measures
Output costs

Output sacrifice for inflation reduction (in percent)

Output sacrifice for exchange rate stabilization (in percent)

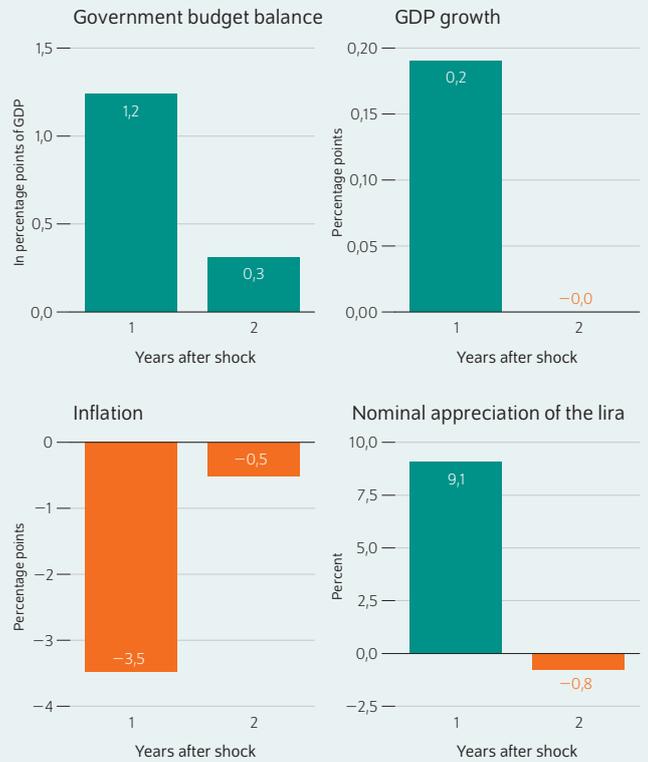Source: Authors' own calculations.

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Lower values indicate higher efficiency. Increasing the credibility of the inflation target is most efficient.

Figure 7

Impact of international loans at reduced borrowing rate by five percentage points
Change from baseline scenario[1] in percent and percentage points, respectively

1 without crisis and policy interventions

Source: Authors' own calculations.

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International support at reduced funding costs would support the Turkish economy in particular in the first year.

The model-based calculations of the present study indicate that the most recent currency erosion will significantly raise inflation and curb growth. If Turkey does not implement countermeasures, the lira will continue to lose value, and the influx of foreign capital will dry up. For this crisis case, the rather conservative estimates in the present study indicate that the loss in growth could be around five percentage points in the first year.

To prevent this from becoming reality, the Turkish government and the central bank could implement a range of policy measures. The simulations show that a combination of fiscal consolidation, raising the monetary policy rate, and restoring central bank independence and thereby credibly lowering the perceived inflation target could effectively decelerate the currency depreciation and the increase in inflation ultimately preventing another severe crisis in Turkey.

The most effective and efficient of the three measures would be to re-establish the central bank as an independent institution. The simulations also show that international loans at favorable conditions would support the country's reform process and stabilize the exchange rate, inflation, and growth.

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