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The Medium-Term Impacts of the Global Financial Crisis

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The Medium-Term Impacts of the Global Financial Crisis

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ABSTRACT

Seven years after the Global Financial Crisis (GFC), we investigate how the recoveries are affected by policies and pre-crisis conditions. We find that the macroeconomic and credit-enhancing policies are not beneficial, perhaps detrimental, to the recovery from the GFC, based on the cross-country regression study using 38 countries. However, sound pre-crisis conditions help countries to recover from the crisis more quickly, especially, the low government debt to GDP ratio, the ample foreign reserves, and the absence of a real estate boom. Thus, monitoring those variables is a key to preventing a future crisis or to getting out of it more quickly.

JEL Classification Numbers: E63, F34, G01 Keywords: Global Financial Crisis, recovery from crisis, fiscal policy, monetary policy, credit-enhancing policy, credit boom

^{*}This paper is based on Uzui's senior thesis at the University of Tokyo.

I. INTRODUCTION

We find that the macroeconomic and credit-enhancing policies are not beneficial, perhaps detrimental, to the recovery from the Global Financial Crisis (GFC), based on the cross-country regression study using 38 countries, which are G20 and OECD countries with key partners. However, the sound macroeconomic policies in the pre-crisis period are important to help countries recover from the crisis more quickly, especially, the low debt to GDP ratio and the ample foreign reserve.

We confirm that the degree of recoveries from the GFC varied across countries. Seven years after the GFC, we measure the degree of recoveries in two criteria, the output level and the growth rate, relative to pre-crisis trends. There are essentially four types of recoveries: fully recovered in both criteria; recovering only in the growth rate, but on course to a full recovery; recovering only in the growth rate without any signs of a recovery in the output level; and no signs of recoveries in the two criteria.

Characteristics of the GFC vary among countries. Apparently, the pre-conditions (i.e., pre-crisis macroeconomic policies and pre-crisis booms) matter. Also, the exchange rate related factors (e.g., fixed versus floating regimes and the reserve accumulations) play an important role. Moreover, the immediate impacts are different across the countries.

The Global Financial Crisis (GFC) started as a decline in real estate prices in the US and Europe, leading to the Paribas Shock in August 2007. Then came the collapse of Lehman Brothers, a major US securities firm, in September 2008. Major financial institutions went bankrupt or were rescued by the government, and the financial market appeared to malfunction. The crisis was not limited to the US, spreading to Europe and other advanced countries, as well as to emerging market economies. Reinhart and Rogoff (2009) claim that "banking crises are an equal opportunity menace."

In the US, the dramatic fall in prices of subprime mortgage based synthetic securities lay at the core of the crisis. However, the subprime mortgage crisis was only the trigger for a wider financial crisis. The spread of the crisis was caused by the complex international financial markets. The mortgage securities and their securitized products were sold to investors around the world through securities houses and investment banks. Furthermore, excessive investments prevailed not only in subprime loan-related products but also in various credit products, and the financial market was expanding on a scale that exceeded that of the real economy. Such a bloated financial system, combined with some delays in policy responses, made the GFC even more complex and serious.

In Europe, the economic and asset price booms after the Euro adoption in 1999 were ended soon after the US crisis spread across the world. Some countries experienced a severe burst of real estate prices, prompting a banking crises. Other countries experienced fiscal crises, due to an increase in fiscal deficits stemming from the recession, as well as, soaring interest payments associated with the spike in risk premia in the sovereign debt markets. Banking crisis and sovereign debt crisis then reinforced each other in several countries.

In other parts of the world, many countries experienced severe recessions, for example, due to the acute decline in international trade and financial flows. Some countries were already in their own crises, which occurred prior to the GFC, and others did not experience crises at all.

There are many studies that examine the short-term impacts of financial crises. For example, Berkmen et al. (2009) explain the differences an in the short-term impacts of the GFC across emerging market economies based on cross-country regressions. They find that countries with higher leverage and credit growth suffered greater losses in the short run after the GFC. Blanchard et al. (2010) is another example that examines the transmission of the GFC from advanced countries to emerging-market economies. They find empirical evidence that showed both a sharp decline in exports and a sharp increase in capital outflows played an important role in the transmission of the shock.

Several papers study the medium-term impact of financial crises. First, Abiad et al. (2009) examine the medium-term impacts of banking crises before the GFC. In the next section, we follow them as to the definition of the medium-term output and growth losses. Second, Chen et al. (2019) analyze the medium-term impacts of the GFC, three to five years after the crisis. In contrast, we evaluate the losses in the longer run, that is, seven years after the crisis. In addition, our choice of regressors are different from those in Chen et al. (2019).

II. CRISIS TYPES

A. Output and Growth Losses

We investigate the impact from the GFC on the levels and growth rates of real GDP per capita of major countries, namely 44 countries, which are G20 and OECD countries with key partners. Following Abiad et al. (2009), we measure the output effects of the GFC against pre-crisis trends. We construct the pre-crisis trend based on log-transformed real GDP per capita for seven years from T - 9 to T - 3, where T denotes the peak year of the real GDP per capita for each country before the GFC. T is either 2007 or 2008 in the sample. We use data up to three years before the crisis because we would like to eliminate the influence of possible excessive booms, often preceding the crisis. Note, however, that we set the pre-crisis trends somewhat differently for Argentina, Brazil, and Israel, where other crises occured within ten years prior to the GFC. Specifically, we use the period from 1988 to 2001 for Argentina's pre-crisis trend, due to its soverign debt crisis in 2001; the period from 1988 to 1998 for Brazil, due to its currency crisis in 1998; and the period from 1988 to 2001 for Israel, due to its severe IT bubble burst in 2001.

For dependent variables in our regression analysis, we use two output-related variables: the loss in the medium-term output level and the loss in the medium-term growth rate. We define the medium-term output loss as the percentage deviation of the output from the pre-crisis trend seven years after the GFC, that is, in year T + 7. The output loss takes a negative value if the output at seven years after the GFC did not catch up with the one implied by the pre-crisis trend. On the other hand, we define the medium-term growth loss as difference between the pre-crisis trend growth rate and the actual four-year growth rate around seven years after the GFC, that is, from T + 5 to T + 9. The growth loss takes a negative value if the country's growth rate at seven years after the GFC remains lower than the pre-crisis trend.

Table 1 shows the crisis year, the medium-term output loss, and the medium-term growth loss for each country, based on the World Bank database. Apparently, each country has a particular experience. We

categorize them into six groups depending on the medium-term recovery in levels and growth rates from the GFC evaluated in T+7. Table 1 also shows which group each country falls into, and Figure 1 presents an example of each group.

First, there are four countries that were not affected by the GFC (Type I): China, India, Indonesia, and Poland. This group is defined as the countries whose growth rates from T to T + 1 were higher than 1% for T (i.e., 2007 or 2008). Figure 1, Type I, presents China as an example. They are excluded from the regression analysis below.

The second group, Type II, is a set of countries that had not recovered from other crises they experienced within the decade before the GFC. Among our sample, we only have Argentina in this category. Argentina experienced a soverign debt crisis in 2001 (Figure 1, Type II). We exclude Argentina from the regressions because we cannot tell whether the output loss is the result of the GFC or the preceding crisis.

Countries that are not classified as Type I or Type II constitute the sample of our empirical investigation. The third group, Type III, is a set of countries that recovered fully to the pre-crisis trend in levels. In other words, their medium-term output gain is greater than or equal to zero. For example, the output of Mexico caught up with the pre-crisis trend in T + 7 (Figure 1, Type III). Countries in this category are Germany, Israel, Mexico, Saudi Arabia, Switzerland, and Turkey.

The fourth group, Type IV, is a set of countries that are on course to a full recovery in T + 7. They experienced lower output in T + 7, relative to the pre-crisis trend, but grew faster to return to the trend levels more quickly. In other words, they record a negative value in terms of the medium-term output level but show a positive value in terms of the medium-term growth rate. For instance, while it produced lower output in T + 7 than the pre-crisis trend, the Netherlands fully recovered in T + 9 (Figure 1, Type IV). Countries in this category are Denmark, Iceland, Ireland, Japan, Netherlands, and Portugal.

The fifth group, Type V, refers to the countries whose actual output was lower at T + 7 but moved in parallel (i.e., at the same growth rate) with the pre-crisis trend. In T + 7, those countries experience the output levels strictly lower than the pre-crisis trend lines but the growth rates are almost the same as the pre-crisis trends, differing within [-1, 0] percent range. For example, while the output did not recover, the growth rate of the US became the same level as its pre-crisis trend by T+7 (Figure 1, Type V). Countries in this category are Austria, Belgium, the Czech Republic, France, Hungary, Slovenia, Spain, and the United States.

The last group, Type VI, represents the worst case and consists of the countries whose outputs and growth rates did not recover to the pre-crisis level by T + 7. That is, their output levels are strictly lower than the pre-crisis levels, and their growth rates decline is more than 1 percent from the pre-crisis trends. For example, Greece experienced both the output and growth loss in T + 7 (Figure 1, Type VI). Countries in this category are Australia, Brazil, Canada, Chile, Estonia, Finland, Greece, Italy, Korea, Latvia, Lithuania, New Zealand, Norway, the Russian Federation, the Slovak Republic, South Africa, Sweden, and the United Kingdom.

III. ESTIMATION

For the Type III-VI countries, a total of 38 countries, we conduct simple cross-country regressions, reporting with robust standard errors, to examine how the recoveries from the GFC are affected by post-crisis policies and pre-crisis conditions, controlling for immediate crisis impacts:

$$Y_{i} = \beta_{0} + \beta_{1}PostGovnExp_{i} + \beta_{2}PostMonetaryPolicy_{i} + \beta_{3}PostTotalReserve_{i} + \beta_{4}BankingCrisis_{i} + \beta_{5}PreGovnDebt_{i} + \beta_{6}PreTotalReserve_{i} + \beta_{7}HousePriceBoom_{i} + \beta_{8}CreditBoom_{i} + \beta_{9}OutputBoom_{i} + \varepsilon_{i}.$$
(1)

First, we examine the effects of post-crisis policy measures. Specifically, for fiscal policies, we use the three-year average of post-crisis annual growth rates in government expenditure from T to T + 3. Regarding monetary policies, we consider three alternative measures: the short-term interest rate change, the long-term interest rate change, and the growth rate of the central bank balance sheet. For interest rates, we use the change from T to T + 3 divided by three. For a central bank's balance sheet, we use the average annual growth rate from T to T + 3.

Second, for immediate crisis impacts, we use a banking crisis dummy, according to the identification of banking crises in Laeven and Valencia (2020). This dummy takes value one if a country experiences a systemic baking crisis that started between 2007 and 2009.

Third, we investigate the effects of a pre-crisis policy stance. Specifically, we consider the government debt level in T and the three-year average of the total reserve from T - 2 to T. Those variables represents the pre-crisis soundness of the macroeconomic policies and the policy rooms to contain a crisis.

Lastly, we include the pre-crisis financial boom by the house-price growth and the credit growth. These pre-crisis growth rates are defined as a three-year average of the annual growth rates from 2004 to 2007. The output boom, defined as the difference between the compound annual growth rate of output from T - 3 to T and the pre-crisis trend from T - 9 to T - 3, is similarly added as a regressor.

All the variables are defined in the local currency unit. Table 2 shows the descriptive statistics with the data sources.

IV. BENCHMARK RESULTS

A. Asset Prices and Credit

Since our sample size is relatively small, we cannot include many variants of regressors for (1). Here, we examine how important the pre-crisis booms of asset prices are in determining the medium-term output levels and growth rates, relative to the pre-crisis trend without post-crisis policies. We then only include important pre-crisis boom variables when conducting regressions according to (1).

The pre-crisis house price boom has a persistent negative impact on the output in the medium-run (Table 4, Row (1)). A one percent higher pre-crisis house price growth implies 0.14% lower outputs (Table 4, Column (1)). This seems quite intuitive, as the initial turnoil of the GFC stems from the bubble burst in the US subplime market. In contrast, the pre-crisis booms in the equity prices and the credits are not very important (Table 4, Row (2) and (3)). These contrasting results may reflect the fact that only rich people participate in the stock and bond markets, while many people purchase houses¹. Since the booms in the house prices and the credits have predictive powers, we include them in the regressions below but drop the equity price boom.

The pre-crisis output growth relative to the past trend is statistically significantly positive, which is measured by the difference between the growth rate for three years before the crisis (T - 3 to T) and the past trend growth rate (T - 9 to T - 3) (Table 4, Row (4)). This implies that the relative macroeconomic conditions just before the crisis continue to influence the outputs in the medium run. A one percent higher pre-crisis growth rate relative to the trend is associated with 0.99% higher outputs (Table 4, Column (4)). Moreover, this result shows that the pre-crisis output boom itself is not harmful after controlling for the asset price booms. We regard it as a key variable and keep it in all the regressions below.

On medium-term growth losses, Table 5 shows the significant impacts of the pre-crisis booms in the asset prices and credits. Countries that experience larger pre-crisis house price booms face larger growth losses in the medium-run (Table 5, Row (1)). A one percent higher pre-crisis house price growth implies a 0.15% lower growth rate (Table 5, Column (1)). On the contrary, the pre-crisis booms in the equity prices and the credits are not very important (Table 5, Row (2) and (3)). Again, these imply that the overall credit expansion is not harmful to the output growth rate if it does not lead to a house price bubble. Although credit and output booms do not have predictive powers, we include them in the following regressions to use the same regressors as in the case with output losses.

B. Initial Conditions and Post-Crisis Policies

With important pre-crisis variables identified in the previous subsection, we conduct a regression analysis based on (1). As noted, we adopt this two-step approach due to the relatively small number of observations.

Table 6 shows how much the medium-term output loss is explained by post-crisis policy measures. It shows our benchmark regressions, with three variations of the monetary policies in columns (1)-(3). To begin with, the countercyclical fiscal policy with the short-term interest rate policy seems effective, although the results are not robust with other monetary policy variables (Table 6, Row (1)). The post-crisis monetary policies themselves show mixed results. The short-term interest rate policy seems effective, but the expansion of the central bank's balance sheet and the long-term interest rate policy are not statistically significant (Table 6, Rows (2)-(4)). In other words, the evidence is week for the effectiveness of both post-crisis fiscal and monetary policies on the medium-term output level. Also, the post-crisis change in total reserve is not statistically significant (Table 6, Row (5)).

¹This feature is pointed out by Claessens et al. (2012) for many crises before the GFC.

In contrast, Table 6 suggests that pre-crisis conditions matter in explaining the medium-term output losses. Higher government debt/GDP and a smaller total reserve are associated with more severe output losses (Table 6, Row (7) and (8)). A one percent higher debt/GDP ratio is associated with 0.02% lower outputs, while one less reserve in months of imports implies 0.27% lower outputs (Table 6, Column (3)). This implies that the unsound macroeconomic policy stance makes the crisis worse by limiting the space for post-crisis policy actions. Moreover, the pre-crisis house price boom leads to larger output losses, while the pre-crisis output growth relative to the trend is associated with smaller output losses (Table 6, Row (9) and (11)). A one percent higher pre-crisis house price growth implies 0.12% lower outputs, while a one percent pre-crisis growth rate relative to the trend is associated with 0.81% higher outputs (Table 6, Column (1)). It, therefore, seems to be key to generate structural growth while keeping an eye on financial booms.

As for the medium-term growth rate losses, Table 7 presents how much the initial conditions and the post-crisis policy actions matter to predicting them (Table 7, Row (1)). First, in contrast to the case for output losses, the expansion of government expenditure after the crisis does lower the growth rate in the medium-run. A one percent higher growth in fiscal expenditure seems to cause a 0.55% lower growth rate (Table 7, Column (2)). This adverse effect might stem from unwise government spendings, such as supporting unprofitable (zombie) companies. Second, larger government debt and smaller total reserves before the crisis are associated with larger medium-term growth losses (Table 7, Row (7) and (8)). A one percent higher debt/GDP ratio is associated with a 0.03% lower growth rate, while one less reserve in months of imports implies a 0.35% lower growth rate (Table 7, Column (3)). Obviously, these unsound macroeconomic policy stance hurts the economy in terms of growth rate, not just for the level. Furthermore, strangely, countries that experienced banking crises had a smaller growth loss (Table 7, Row (6)). We conjecture that banking crises might promote the restructuring of non-performing loans and the shutting down of unprofitable firms. We will discuss this further below.

V. ROBUSTNESS CHECKS

During the GFC, many governments took extraordinary measures to address the possible credit crunch. Using the index developed by the International Monetary Fund (2013), we include finer categories of credit enhancing policies, that is, post-crisis policies that are supposed to enhance the credit supply and also post-crisis policies that are supposed to support credit demand (Table 8 and 9). Those policies directly target credit market constraints and are not considered as general fiscal and monetary policies. Note that the index variables are calculated by dividing the number of policies in place by the number of possible measures, that is, we control the number of policies, not the size of the credit policies².

Implementation of such credit policies is associated with larger output losses (Table 8, Row (6), (7), and (8)) compared to the benchmark case (Table 6). One percent more credit supply policies imply 0.03% larger output losses, One percent more credit demand policies imply 0.05% larger losses, and One percent more combined credit enhancing policies imply 0.03% larger losses (Table 8, Column (3), (6), (9)). This is probably because the policies distorted resource allocation among firms and

²To ensure sufficient degrees of freedom, we keep pre-crisis house price growth but exclude pre-crisis credit growth.

lowered the aggregate TFP, as discussed in Hsieh and Klenow (2009). Moreover, countries with a banking crisis experience less output losses, although it is not robust (Table 8, Row (9)). Therefore, it does not seem optimal to avoid a banking crisis by massive credit supply policies when the economy is hit by a severe shock, such as a financial crisis.

For the growth losses, Table 9 shows post-crisis policies enhancing the credit supply and those supporting the credit demand are not statistically significant (Table 9, Row (6), (7), and (8)). The other results are similar to the benchmark case (Table 7).

Moreover, we add pre-crisis conditions of the financial and labor market to the benchmark case. For the financial market, we use the financial development index from the IMF database, which is not statistically significant (Table 10, Row (9))³. For the labor market, we use the rigidity of the employment index from the World Bank, which measures the rigidity of working hours and difficulty of firing. A higher value of this index indicates more rigid regulations. Indeed, a one standard deviation increase in the index leads to 0.19% larger output losses in the medium run (Table 10, Row (10) and Column (5)). In other words, a flexible labor market appears important for a country to recover quickly from a crisis.

Similarly, for the growth loss, we add the pre-crisis financial development index and the rigidity of employment index to the benchmark case, although they are not statistically significant (Table 11, Row (9) and (10)). The other results are similar to the benchmark case (Table 7).

Next, as the external sector variable, we include post-crisis changes in exchange rates instead of postcrisis changes in total reserves (Table 12 and 13, Row (5)). All the results shown in Table 12 and 13 are essentially the same as the benchmark case (Table 6 and 7). Perhaps the initial conditions of the economy, such as government debt, total reserve, and house price booms matter more for the output level (Table 12 and 13, Row (7), (8), and (9)).

Also, we add the real GDP growth rate of the first year of the crisis to the regressions to the benchmark regression for the output level (Table 14, Row (6)), hoping to control the very short-term impact of the crisis. It is statistically significant, although it is not robust. The results show that countries with larger short-term losses suffer more in the medium run. This is consistent with a belief that the impact of the crisis is persistent, compared to a typical recession. Note that pre-crisis economic conditions, such as government debt, total reserves, and house price booms, are still statistically significant (Table 14, Row (8), (9), and (10)) and not much different from the benchmark case (Table 6).

Similarly, for the growth loss, Table 15 shows the results of the regression with the growth rate of the first year of the crisis, which is not statistically significant (Table 15, Row (6)). The other results are similar to the benchmark case (Table 7).

In Tables 16 and 17, we check the robustness regarding the pre-crisis trend. Unlike the benchmark case, we use the potential outputs to compute the pre-crisis trends using the following steps. First, we define the potential outputs for 2000 as the five-year averages of actual outputs from 1998 to 2001.

³The IMF publishes nine indices that summarize how developed financial institutions and financial markets are in terms of their depth, access, and efficiency. These indices are aggregated into the financial development index. See https://data.imf.org/?sk=F8032E80-B36C-43B1-AC26-493C5B1CD33B.

Then, we calculate the potential outputs from 2001 until the GFC, using the potential output growth rate data from 2001, provided by the World Bank (2018). Finally, we define the pre-crisis output trends as the linear trend of potential outputs during seven years before the crisis. Medium-term output and growth losses are calculated from this alternative definition of the pre-crisis trend.

Here, we compare the medium-term output losses estimated using the potential outputs (Table 16 and Table 17, Column (1), (2), and (3)) and the actual output but with different sample from the benchmark case (Table 16 and Table 17, Column (4), (5), and (6)), respectively. We conduct the regressions by using the same sample and explanatory variables. The results are almost the same, which implies that our findings do not depend on definitions of the pre-crisis trend.

Finally, Table 18 and 19 show the results when evaluating the medium-term output and growth loss in US dollar, not in the local currency. The results are almost the same as those of benchmark cases, that is, the model is robust to the currency unit.

VI. CONCLUSION

We find the macroeconomic and credit-enhancing policies are not beneficial, perhaps detrimental, to the recovery from the GFC. For 38 major countries, we investigate which factors can explain cross-country differences in the recovery, in terms of both output levels and growth rates as of seven years after the crisis.

First, we notice heterogeneity in medium-term output dynamics after the GFC. While some countries had fully recovered, or were on course to a full recovery, others were suffering losses in level or growth rate in the medium run. Moreover, even seven years after the GFC, about half of the countries of our sample did not recover to the pre-crisis trends in terms of both output levels and growth rates.

Second, we confirm that sound pre-crisis conditions of the economy are crucial to mitigate the medium-term output and growth losses. Important factors are a low outstanding government debt, adequate foreign reserve accumulation, and the absence of a real estate boom. In other words, monitoring those variables is key to preventing a future crisis or to get out of it quickly.

Third, we find that generous fiscal expenditure lowers the growth rates in the medium run. It apparently increases the government debt level, which would sow seeds for a future crisis. These imply that the government needs to be careful about employing fiscal policies too much in the aftermath of the crisis.

Lastly, we find that policies encouraging credit supply and demand are associated with larger output losses in the medium run. This is consistent with the zombie firm problem (Caballero et. al., 2008): Unviable firms and banks might stay in the economy only with government assistance and would damage the productivity of the entire economy due to the congestion in the product market. On these credit enhancing policies, the government also needs to be cautious about employing them from the viewpoint of the recovery from the crisis.



Notes: The red and blue line denote T and T + 7, respectively. The vertical axis is normalized to the trend value of output in T + 7.

Table 1.

Countries whose first-year output change is greater that 1% are in Type I. Argentina is in Type II because it was in the midst of recovery from the currency crisis in 2001. Countries that are in neither Type I nor II are classified further, as follows. Countries whose medium-term output loss is greater than 0% are in Type III. Countries whose medium-term output loss is less than 0% and medium-term growth loss is greater than 0% are in Type IV. Countries whose medium-term output loss is less than 0% and medium-term growth loss is between -1% and 0% are in Type V. Countries whose medium-term output loss is less than -1% are in Type VI. We exclude Luxembourg from the entire analyses because of its characteristics as a financial center.

Country	Year of Crisis	First-year Output Change (%)	Medium-term Output Loss (%)	Medium-term Growth Loss (%)	Туре
Argentina	2008	-7.10	-0.87	-2.93	П
Australia	2008	-0.14	-0.72	-1.14	 VI
Austria	2008	-4.10	-0.63	-0.74	v
Belgium	2007	-0.34	-1.07	-0.95	v
Brazil	2008	-1.09	-0.68	-4.45	VI
Canada	2007	-0.08	-0.67	-1.68	VI
Chile	2008	-2.64	-0.34	-2.93	VI
China	2008	8 4 9	0.36	-2 14	T
Czech Republic	2008	-5.49	-1.38	-0.28	v
Denmark	2007	-1.10	-0.76	0.13	īv
Estonia	2007	-4.95	-3.97	-4.36	VI
Finland	2008	-8.90	-2.34	-1.43	VI
France	2007	-0.30	-1.04	-0.93	v
Germany	2008	-5.61	0.88	0.91	Ш
Greece	2007	-0.60	-5.61	-4.05	 VI
Hungary	2008	-6.78	-2.22	-0.73	v
Iceland	2008	-7.36	-1.08	0.11	īV
India	2008	6.16	1.13	2.12	I
Indonesia	2008	3.20	0.59	0.42	I
Ireland	2007	-6.62	-3.98	3.37	īV
Israel	2008	-1 47	0.33	0.18	π
Italy	2007	-1.63	-2 31	-1.68	vi Vi
Japan	2007	-1.15	-0.12	0.26	N
Korea	2008	0.27	-1 09	-2.31	VI
Latvia	2007	-2.35	-3.86	-4.21	VI
Lithuania	2008	-14.92	-4.11	-3.80	VI
Luxembourg	2007	-3.08	-2.31	-1.23	-
Mexico	2007	-0.36	0.37	0.97	ш
Netherlands	2008	-4.25	-0.23	0.65	īV
New Zealand	2007	-1.88	-1.67	-1.07	VI
Norway	2007	-0.77	-0.89	-1.08	VI
Poland	2008	2.71	0.60	0.46	I
Portugal	2008	-3.27	-0.67	1.73	IV
Russian Federation	2008	-8.15	-3.16	-7.13	VI
Saudi Arabia	2008	-4.91	0.09	-1.49	ш
Slovak Republic	2008	-5.74	-0.73	-1.45	VI
Slovenia	2008	-8.75	-2.46	-0.25	v
South Africa	2008	-2.94	-1.01	-2.68	VI
Spain	2007	-0.71	-2.99	-0.73	v
Sweden	2007	-1.23	-1.20	-1.12	VI
Switzerland	2008	-3.50	0.10	-0.11	Ш
Turkey	2007	-0.35	3.35	2.60	Π
United Kingdom	2007	-1.07	-1.88	-1.01	vī
United States	2007	-1.08	-0.83	_0.28	v

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	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	N	mean	sd	min	max	source
		1.10	1.05	F (12	2 249	World Deels
(1) Medium-term output loss (LCO)	44	-1.16	1.05	-5.613	3.348	
(2) Medium-term growth loss (LCU)	44	-1.06	2.02	-/.12/	3.372	World Bank
(3) Medium-term output loss (potential output)	27	-1.34	1.12	-4.442	0.642	World Bank (2018)
(4) Medium-term growth loss (potential output)	27	-1.59	1.61	-5.122	1.448	World Bank (2018)
(5) Post-crisis government expenditure change (LCU)	43	1.89	2.54	-5.294	8.648	World Bank
(6) Post-crisis short-term interest rate change	39	-1.12	0.66	-3.856	0.369	OECD
(7) Post-crisis long-term interest rate change	34	-0.14	0.66	-1.697	1.906	OECD
(8) Post-crisis central bank balance sheet change	41	13.73	12.69	-13.92	59.25	IMF/ECB
(9) Post-crisis total reserve change	44	16.22	15.82	-19.58	68.24	World Bank
(10) Post-crisis exchange rate change	44	0.66	6.45	-32.06	11.44	IMF
(11) Post-crisis relative number of credit supply policies	32	0.17	0.13	0	0.5	IMF (2013)
(12) Post-crisis relative number of credit demand policies	32	0.08	0.11	0	0.316	IMF (2013)
(13) Post-crisis relative number of credit policies	32	0.25	0.19	0	0.621	IMF (2013)
(14) Banking crisis dummy	44	0.48	0.51	0	1	Laeven and Valencia (2020)
(15) First-year output change (LCU)	44	-2.64	4.07	-14.92	8.487	World Bank
(16) Pre-crisis government debt level (% of GDP)	44	45.93	32.94	3.8	175.3	World Bank
(17) Pre-crisis total reserve in months of imports	44	4.05	5.11	0.016	25.2	World Bank
(18) Pre-crisis financial development index	44	0.62	0.20	0.277	0.934	IMF
(19) Pre-crisis rigidity of employment index	44	183.50	94.15	2	366	World Bank
(20) Pre-crisis house price growth	32	6.95	7.33	-8.288	25.28	OECD/ECB
(21) Pre-crisis equity price growth	41	23.48	9.22	5.257	54.19	OECD
(22) Pre-crisis credit growth	40	250.70	1516.00	-15.58	9,601	World Bank
(23) Pre-crisis GDP growth relative to pre-crisis trend (LCU)	44	0.82	1.46	-2.661	4.267	World Bank
(24) Pre-crisis GDP growth relative to pre-crisis trend (potential output)	27	0.24	1.44	-2.356	3.671	World Bank (2018)

(11) (12) (13) (14) (15) (16) (17) (18) (19) (20) (21) (22) (23) (24)										14	1.00	0.59 1.00	0.81 0.95 1.00	0.42 0.35 0.41 1.00	0.26 0.23 0.27 0.24 1.00	0.24 0.65 0.56 -0.05 0.10 1.00	-0.13 0.37 0.21 -0.51 0.17 0.76 1.00	0.47 0.56 0.58 0.31 0.46 0.16 -0.05 1.00	0.03 -0.24 -0.16 0.13 -0.12 0.08 -0.10 -0.27 1.00	-0.20 -0.51 -0.45 0.03 0.20 -0.62 -0.34 -0.53 0.27 1.00	-0.47 -0.71 -0.7 -0.5 -0.13 -0.36 0.09 -0.69 0.355 0.586 1.00	0.05 -0.47 -0.32 -0.08 0.31 -0.69 -0.48 -0.02 0.235 0.729 0.32 1.00	-0.52 -0.3 -0.42 -0.14 -0.46 0.086 0.2 -0.5 -0.07 -0.19 0.36 -0.61 1.00	
																		1.00	-0.27 1.00	-0.53 0.27 1.00	0.69 0.355 0.586 1.0	-0.02 0.235 0.729 0.3	-0.5 -0.07 -0.19 0.3	-0.51 0.133 -0.23 0.1
															0	0 1.00	7 0.76 1.00	5 0.16 -0.05	2 0.08 -0.10 -	0 -0.62 -0.34 -	3 -0.36 0.09 -	1 -0.69 -0.48 -	6 0.086 0.2	7 0.322 0.28 -
													0	11 1.00	27 0.24 1.00	56 -0.05 0.10	21 -0.51 0.17	58 0.31 0.46	16 0.13 -0.12	45 0.03 0.20	7 -0.5 -0.13	32 -0.08 0.31	42 -0.14 -0.46	24 -0.05 -0.57
											.00	0.59 1.00	0.81 0.95 1.0	0.42 0.35 0.4	0.26 0.23 0.2	0.24 0.65 0.5	0.13 0.37 0.2	0.47 0.56 0.5	0.03 -0.24 -0.3	0.20 -0.51 -0.4	0.47 -0.71 -0.	0.05 -0.47 -0.3	0.52 -0.3 -0.4	0.54 -0.05 -0.3
(nt) (c)									1.00	0.18 1.00	0.24 0.07 1	0.04 0.08 0	0.12 0.08 0	0.68 0.62 0	0.06 -0.14 0	-0.26 -0.40 0	-0.44 -0.68 -(-0.05 0.09 0	-0.17 0.19 0	0.20 0.25 -(-0.29 -0.15 -(0.019 0.148 0	0.113 -0.23 -(-0.07 0.108 -(
(2) (2)							1.00	-0.37 1.00	-0.08 0.25	-0.45 0.51	0.46 0.29	0.14 0.34	0.28 0.36	-0.17 0.55	0.22 0.07	0.30 -0.05	0.29 -0.28	0.05 0.15	0.40 -0.15	0.01 0.06	0.05 -0.33	0.26 -0.16	-0.31 -0.14	-0.38 0.05
(a) (c)					1.00	-0.12 1.00	0.31 0.20	-0.25 -0.51	0.09 -0.29	-0.25 -0.59	0.10 -0.24	-0.33 0.07	-0.20 -0.04	-0.13 -0.39	0.44 0.08	-0.45 0.51	-0.08 0.68	-0.01 0.15	-0.02 0.10	0.46 -0.42	0.52 0.06	0.51 -0.28	0.01 0.15	-0.53 0.22
(+) (c)			1.00	0.69 1.00	-0.48 -0.51	0.35 0.43	-0.50 -0.37	0.04 0.13	-0.16 0.10	-0.06 0.21	-0.57 -0.08	0.07 0.52	-0.17 0.34	-0.08 0.32	-0.24 -0.19	0.46 0.51	0.47 0.31	-0.26 0.17	-0.14 -0.03	-0.38 -0.52	0.048 -0.32	-0.8 -0.75	0.704 0.35	0.876 0.65
(7) (T)	1.00	0.57 1.00	0.75 0.48	0.37 0.83	0.06 -0.08	0.30 0.41	-0.41 -0.30	-0.12 0.01	-0.01 0.27	-0.38 -0.03	-0.47 0.05	-0.10 0.46	-0.25 0.35	-0.13 0.34	0.00 0.01	0.25 0.36	0.38 0.25	-0.09 0.36	-0.37 -0.22	-0.38 -0.56	0.111 -0.33	-0.64 -0.66	0.806 0.42	0.489 0.33
	(1) Medium-term output loss (LCU)	(2) Medium-term growth loss (LCU)	(3) Medium-term output loss (potential output)	(4) Medium-term growth loss (potential output)	(5) Post-crisis government expenditure change (LCU)	(6) Post-crisis short-term interest rate change	(7) Post-crisis long-term interest rate change	(8) Post-crisis central bank balance sheet change	(9) Post-crisis total reserve change	(10) Post-crisis exchange rate change	(11) Post-crisis relative number of credit supply policies	(12) Post-crisis relative number of credit demand policies	(13) Post-crisis relative number of credit policies	(14) Banking crisis dummy	(15) First-year output change (LCU)	(16) Pre-crisis government debt level (% of GDP)	(17) Pre-crisis total reserve in months of imports	(18) Pre-crisis financial development index	(19) Pre-crisis rigidity of employment index	(20) Pre-crisis house price growth	(21) Pre-crisis equity price growth	(22) Pre-crisis credit growth	(23) Pre-crisis GDP growth relative to pre-crisis trend (LCU)	(24) Pre-crisis GDP growth relative to pre-crisis trend (potential output)

Table 3.

Table 4.

The dependent variable is the medium-term output loss, which is defined as the percentage deviation of output in T+7 from the pre-crisis trend. Pre-crisis house price growth denotes the average annual growth rate of house prices from 2004 to 2007. Pre-crisis equity price growth and pre-crisis credit growth are calculated in the same way. Finally, pre-crisis GDP growth relative to pre-crisis trend is defined as the difference between the compound annual growth rate of output from T-3 to T and the pre-crisis trend from T-9 to T-3.

	(1)	(2)	(3)	(4)
	Output loss	Output loss	Output loss	Output loss
	(LCU)	(LCU)	(LCU)	(LCU)
(1) Pre-crisis house price growth	-0.141***			-0.059
	(0.024)			(0.036)
(2) Pre-crisis equity price growth		-0.026		-0.015
		(0.032)		(0.032)
(2) D 11 11 11			0.000***	0.000***
(3) Pre-crisis credit growth			-0.000	-0.000
			(0.000)	(0.000)
(4) Pre-crisis GDP growth relative to pre-crisis trend (LCU)	0.586**	0.509*	0.752***	0.990***
	(0.224)	(0.295)	(0.240)	(0.278)
(F) Complete	0 746**	1.095*	1 510***	0.097**
(5) Constant	-0.746	-1.085	-1.512	-0.987
	(0.276)	(0.619)	(0.230)	(0.424)
Ν	30	36	35	28
R^2	0.558	0.198	0.391	0.635

Robust standard errors in parentheses

* p < 0.1, ** p < 0.05, *** p < 0.01

Table 5.

The dependent variable is the medium-term growth loss, which is defined as the difference between the four-year average growth rate from T + 5 to T + 9 and that of the pre-crisis trend. Pre-crisis house price growth denotes the average annual growth rate of house prices from 2004 to 2007. Pre-crisis equity price growth and pre-crisis credit growth are calculated in the same way. Finally, pre-crisis GDP growth relative to the pre-crisis trend is defined as the difference between the compound annual growth rate of output from T - 3 to T and the pre-crisis trend from T - 9 to T - 3.

	(1)	(2)	(3)	(4)
	Growth loss	Growth loss	Growth loss	Growth loss
	(LCU)	(LCU)	(LCU)	(LCU)
(1) Pre-crisis house price growth	-0.154***			-0.121
	(0.048)			(0.086)
(2) Pre-crisis equity price growth		-0.072		-0.066
		(0.052)		(0.044)
(0) P			0.000	0.000*
(3) Pre-crisis credit growth			0.000	0.000*
			(0.000)	(0.000)
(4) Pre-crisis GDP growth relative to pre-crisis trend (LCU)	-0.023	0.050	0.132	0.057
	(0.368)	(0.324)	(0.366)	(0.533)
(E) Constant	0.027	0.400	1.04/**	1.040
(5) Constant	0.027	0.488	-1.046	1.049
	(0.450)	(1.014)	(0.386)	(0.977)
N	30	36	35	28
R^2	0.297	0.070	0.011	0.264

Robust standard errors in parentheses

Table 6.

The dependent variable is the medium-term output loss, which is defined as the percentage deviation of output in T + 7 from the pre-crisis trend. The post-crisis government expenditure change denotes the average annual growth rate of government expenditure from T to T + 3. The post-crisis central bank balance sheet change and the post-crisis total reserve change are calculated in the same way. Post-crisis interest rates are defined as the change of interest rates from T to T + 3 divided by three. The banking crisis dummy is a binary variable, taking the value of one if a banking crisis happened in that country, depending on Laeven and Valencia (2020). The pre-crisis government debt level is defined as the ratio of government debt to GDP in T. The pre-crisis total reserve in months of imports is calculated as the three-year average from T - 2 to T. The pre-crisis house price growth denotes the average annual growth rate of house prices from 2004 to 2007. The pre-crisis credit growth is calculated in the same way. Finally, the pre-crisis GDP growth rate of output from T - 3 to T and the pre-crisis trend from T - 9 to T - 3.

	(1)	(2)	(3)
	Output loss	Output loss	Output loss
	(LCU)	(LCU)	(LCU)
(1) Post-crisis government expenditure change (LCU)	0.316**	0.033	0.058
	(0.144)	(0.122)	(0.136)
	0 (10**		
(2) Post-crisis short-term interest rate	-0.648**		
	(0.284)		
(3) Post-crisis long-term interest rate		-0.461	
(b) I ost-clisis long-term interest rate		(0.364)	
		(0.004)	
(4) Post-crisis central bank balance sheet change			-0.001
()			(0.009)
(5) Post-crisis total reserve change	0.007	-0.014	-0.014
	(0.008)	(0.008)	(0.009)
	0.020	0.040*	1.00/*
(6) Banking crisis dummy	-0.020	0.849*	1.006*
	(0.426)	(0.455)	(0.511)
(7) Pre-crisis government debt level (% of CDP)	-0.002	-0.017*	-0.020*
(7) He-chisis government debt level (70 of GDF)	(0.002)	(0.008)	(0.010)
	(0.007)	(0.000)	(0.010)
(8) Pre-crisis total reserve in months of imports	0.062	0.221**	0.265**
	(0.061)	(0.078)	(0.098)
(9) Pre-crisis house price growth	-0.115**	-0.076***	-0.054**
	(0.042)	(0.021)	(0.025)
	2 2 2 2	0.000***	0.000***
(10) Pre-crisis credit growth	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)
(11) Pre-crisis CDP growth relative to pre-crisis trend (I CU)	0 808***	0.961***	1 079***
(1) The clisis GDT growth feature to pre clisis tient (ECO)	(0.172)	(0.172)	(0.205)
	(0.172)	(0.17 2)	(0.200)
(12) Constant	-2.359***	-1.109	-1.230**
	(0.630)	(0.655)	(0.541)
N	28	27	27
R^2	0.784	0.864	0.832

Robust standard errors in parentheses

Table 7.

The dependent variable is the medium-term growth loss, which is defined as the difference between the four-year average growth rate from T + 5 to T + 9 and that of the pre-crisis trend. The post-crisis government expenditure change denotes the average annual growth rate of government expenditure from T to T + 3. The post-crisis central bank balance sheet change and the post-crisis total reserve change are calculated in the same way. Post-crisis interest rates are defined as the change of interest rates from T to T + 3 divided by three. The banking crisis dummy is a binary variable, taking the value of one if a banking crisis happened in that country, depending on Laeven and Valencia (2020). The pre-crisis total reserve in months of imports is calculated as the three-year average from T - 2 to T. The pre-crisis house price growth denotes the average annual growth rate of house prices from 2004 to 2007. The pre-crisis trend is defined as the difference between the compound annual growth rate of output from T - 3 to T and the pre-crisis trend from T - 9 to T - 3.

	(1)	(2)	(3)
	Growth loss	Growth loss	Growth loss
	(LCU)	(LCU)	(LCU)
(1) Post-crisis government expenditure change (LCU)	-0.154	-0.552**	-0.528**
	(0.332)	(0.240)	(0.228)
(2) Post-crisis short-term interest rate	-0.105		
	(0.709)		
(2) De et enicie levre terre internet este		0.045	
(3) Post-crisis long-term interest rate		-0.045	
		(0.518)	
(4) Post-crisis central bank balance sheet change			-0.013
(4) I Ost-crisis central bank balance sheet change			(0.013)
			(0.014)
(5) Post-crisis total reserve change	0.037	-0.009	-0.010
(-)	(0.028)	(0.024)	(0.024)
	()	()	()
(6) Banking crisis dummy	-0.343	1.877^{*}	2.118^{*}
	(0.768)	(0.944)	(1.051)
(7) Pre-crisis government debt level (% of GDP)	0.006	-0.033*	-0.034*
	(0.017)	(0.017)	(0.019)
(8) Dra anisis total measure in months of immonte	0.151	0 244**	0.254*
(8) Pre-crisis total reserve in months of imports	-0.151	(0.152)	(0.354)
	(0.150)	(0.152)	(0.179)
(9) Pre-crisis house price growth	-0.139	-0.095	-0.097*
()) The ensis house price growth	(0.098)	(0.063)	(0.051)
	(0.050)	(0.000)	(0.001)
(10) Pre-crisis credit growth	0.000^{*}	-0.000	-0.000
	(0.000)	(0.000)	(0.000)
		. ,	, ,
(11) Pre-crisis GDP growth relative to pre-crisis trend (LCU)	-0.049	0.452	0.466
	(0.443)	(0.364)	(0.419)
(12) Constant	-0.349	0.613	0.694
	(1.635)	(1.065)	(0.985)
N _2	28	27	27
R ²	0.422	0.494	0.509

Robust standard errors in parentheses

Table 8.

The dependent variable is the medium-term output loss, which is defined as the percentage deviation of output in T + 7 from the pre-crisis trend. The post-crisis government expenditure change denotes the average annual growth rate of government expenditure from T to T + 3. The post-crisis central bank balance sheet change and the post-crisis total reserve change are calculated in the same way. Post-crisis interest rates are defined as the change of interest rates from T to T + 3 divided by three. The post-crisis relative number of credit policies is calculated by dividing the number of policy measures in place to support the supply of or demand for credit in each country by the total number of possible measures, as in International Monetary Fund (2013). The banking crisis dummy is a binary variable, taking the value of one if a banking crisis happened in that country, depending on Laeven and Valencia (2020). The pre-crisis government debt level is defined as the tratio of government debt to GDP in T. The pre-crisis total reserve in months of imports is calculated as the three-year average from T - 2 to T. The pre-crisis house price growth denotes the average annual growth rate of house prices from 2004 to 2007. Finally, the pre-crisis GDP growth relative to the pre-crisis trend is defined as the difference between the compound annual growth rate of output from T - 3 to T and the pre-crisis trend between T - 9 and T - 3.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Output loss								
	(LCU)								
(1) Post-crisis government expenditure change (LCU)	0.416***	0.219**	0.387***	0.315**	0.171*	0.208**	0.381***	0.177*	0.284***
	(0.109)	(0.089)	(0.100)	(0.113)	(0.095)	(0.092)	(0.112)	(0.084)	(0.090)
(2) Post-crisis short-term interest rate	-0.605**			-0.572**			-0.567**		
	(0.281)			(0.222)			(0.263)		
(3) Post-crisis long-term interest rate		-0.780**			-0.525			-0.5/4	
		(0.300)			(0.417)			(0.363)	
(4) Post-crisis central bank balance sheet change			0.010			0.004			0.008
			(0.009)			(0.010)			(0.013)
(E) Post minis total meaning share as	0.022	0.004	0.021	0.028*	0.022	0.021	0.022	0.005	0.014
(5) Fost-crisis total reserve change	(0.023	-0.004	(0.021	(0.028	(0.025	(0.023)	(0.023	(0.015)	(0.014)
	(0.020)	(0.010)	(0.020)	(0.010)	(0.010)	(0.020)	(0.010)	(0.010)	(0.022)
(6) Post-crisis relative number of credit supply policies	-1.031	-3.871**	-3.187**						
	(1.477)	(1.371)	(1.485)						
(7) Post-crisis relative number of credit demand policies				-3.063*	-2 462	-4 972**			
(7) I ost-clisis felative number of creat demand policies				(1.602)	(1.814)	(2.202)			
				(()	·/			
(8) Post-crisis relative number of credit policies							-1.305	-2.431**	-3.233**
							(0.926)	(1.117)	(1.341)
(9) Banking crisis dummy	-0.139	1.466**	0.729	-0.174	0.478	0.619	-0.038	1.309*	1.331*
(*)	(0.479)	(0.647)	(0.721)	(0.359)	(0.515)	(0.643)	(0.431)	(0.662)	(0.751)
(10) Pre-crisis government debt level (% of GDP)	-0.001	-0.013	-0.007	-0.002	-0.009	-0.011	-0.001	-0.013	-0.013
	(0.008)	(0.009)	(0.011)	(0.007)	(0.007)	(0.010)	(0.008)	(0.008)	(0.011)
(11) Pre-crisis total reserve in months of imports	0.076	0.257**	0.203*	0.062	0.148^{*}	0.182	0.076	0.244**	0.271*
	(0.047)	(0.093)	(0.112)	(0.054)	(0.076)	(0.109)	(0.056)	(0.095)	(0.127)
(10) D	0.10.0000	0.1(2***	0.120334	0.101.000	0.120000	0.120334	0.10(***	0.150	0.1.10****
(12) Pre-crisis house price growth	-0.134***	-0.163***	-0.130***	-0.131***	-0.128***	-0.120***	-0.136***	-0.152***	-0.143***
	(0.036)	(0.043)	(0.033)	(0.038)	(0.041)	(0.039)	(0.037)	(0.042)	(0.036)
(13) Pre-crisis GDP growth relative to pre-crisis trend (LCU)	0.758***	0.528***	0.652***	0.722***	0.669***	0.609***	0.722***	0.523***	0.504**
	(0.209)	(0.140)	(0.210)	(0.168)	(0.150)	(0.156)	(0.199)	(0.161)	(0.183)
(14) Complete	2 266***	1.040	1 020###	2 107***	1 507**	1 (0(**	2 142***	1.002	1.270**
(14) Constant	-2.366	-1.040	-1.656	-2.107	-1.507	-1.606	-2.142	-1.095	-1.570
Ν	25	24	24	25	24	24	25	24	24
R^2	0.818	0.892	0.795	0.844	0.858	0.829	0.833	0.885	0.837
Robust standard errors in parentheses									
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$									

Table 9.

The dependent variable is the medium-term growth loss, which is defined as the difference between the fouryear average growth rate from T + 5 to T + 9 and that of the pre-crisis trend. The post-crisis government expenditure change denotes the average annual growth rate of government expenditure from T to T + 3. The post-crisis central bank balance sheet change and the post-crisis total reserve change are calculated in the same way. Post-crisis interest rates are defined as the change of interest rates from T to T+3 divided by three. The post-crisis relative number of credit policies is calculated by dividing the number of policy measures in place to support the supply of or demand for credit in each country by the total number of possible measures, as in International Monetary Fund (2013). The banking crisis dummy is a binary variable, taking the value of one if a banking crisis happened in that country, depending on Laeven and Valencia (2020). The pre-crisis government debt level is defined as the three-year average from T - 2 to T. The pre-crisis house price growth denotes the average annual growth rate of house prices from 2004 to 2007. Finally, the pre-crisis GDP growth relative to the pre-crisis trend is defined as the difference between the compound annual growth rate of output from T - 3 to T and the pre-crisis trend between T - 9 and T - 3.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Growth loss	Growth loss	Growth loss	Growth loss	Growth loss	Growth loss	Growth loss	Growth loss	Growth loss
(1) Post-crisis government expenditure change (LCU)	-0.091 (0.214)	-0.214 (0.183)	(LCU) -0.088 (0.181)	(LCU) 0.078 (0.234)	-0.190 (0.194)	(LCU) -0.147 (0.187)	(LCU) 0.040 (0.214)	(LCU) -0.200 (0.179)	(LCU) -0.071 (0.178)
(2) Post-crisis short-term interest rate	0.103 (0.656)			0.236 (0.708)			0.118 (0.684)		
(3) Post-crisis long-term interest rate		-0.521 (0.489)			-0.642 (0.549)			-0.592 (0.526)	
(4) Post-crisis central bank balance sheet change			-0.022 (0.012)			-0.022 (0.014)			-0.020 (0.012)
(5) Post-crisis total reserve change	0.106*	0.038	0.048	0.085	0.030	0.029	0.095*	0.036	0.035
	(0.051)	(0.050)	(0.044)	(0.052)	(0.042)	(0.040)	(0.048)	(0.045)	(0.038)
(6) Post-crisis relative number of credit supply policies	6.109 (3.533)	1.171 (3.472)	2.234 (3.077)						
(7) Post-crisis relative number of credit demand policies				3.336 (3.352)	1.344 (3.658)	-2.342 (3.123)			
(8) Post-crisis relative number of credit policies							3.411 (2.145)	0.893 (2.149)	0.078 (1.765)
(9) Banking crisis dummy	-1.387	1.708	1.684	-0.539	1.924*	2.821**	-1.096	1.679	2.357**
	(0.856)	(1.172)	(1.080)	(0.879)	(0.962)	(1.157)	(0.831)	(1.056)	(0.974)
(10) Pre-crisis government debt level (% of GDP)	-0.004	-0.030	-0.028	-0.000	-0.030	-0.036	-0.002	-0.029	-0.031
	(0.016)	(0.021)	(0.021)	(0.018)	(0.020)	(0.022)	(0.016)	(0.020)	(0.022)
(11) Pre-crisis total reserve in months of imports	-0.165	0.265	0.236	-0.110	0.288	0.371	-0.136	0.260	0.318
	(0.104)	(0.224)	(0.231)	(0.144)	(0.190)	(0.214)	(0.115)	(0.204)	(0.220)
(12) Pre-crisis house price growth	-0.124*	-0.215**	-0.188**	-0.150**	-0.225***	-0.218***	-0.134**	-0.217***	-0.208***
	(0.062)	(0.075)	(0.065)	(0.066)	(0.067)	(0.065)	(0.059)	(0.069)	(0.064)
(13) Pre-crisis GDP growth relative to pre-crisis trend (LCU)	0.452	-0.082	-0.061	0.347	-0.102	-0.293	0.447	-0.065	-0.180
	(0.380)	(0.382)	(0.393)	(0.415)	(0.383)	(0.374)	(0.404)	(0.390)	(0.373)
(14) Constant	-1.313	-0.102	-0.498	-0.799	-0.009	0.171	-1.354	-0.126	-0.186
	(1.476)	(1.333)	(1.277)	(1.257)	(1.097)	(1.195)	(1.265)	(1.242)	(1.189)
R ²	25	24	24	25	24	24	25	24	24
	0.643	0.601	0.594	0.576	0.601	0.593	0.624	0.602	0.583

Table 10.

The dependent variable is the medium-term output loss, which is defined as the percentage deviation of output in T + 7 from the pre-crisis trend. The post-crisis government expenditure change denotes the average annual growth rate of government expenditure from T to T + 3. The post-crisis central bank balance sheet change and the post-crisis total reserve change are calculated in the same way. Post-crisis interest rates are defined as the three-year average of annual interest rates from T to T + 3. The banking crisis dummy is a binary variable, taking the value of one if a banking crisis happened in that country, depending on Laeven and Valencia (2020). The pre-crisis government debt level is defined as the ratio of government debt to GDP in T. The pre-crisis total reserve in months of imports is calculated as the three-year average from T-2 to T. The pre-crisis financial development index denotes the three-year average of the financial development index by the IMF from T-2 to T. The pre-crisis rigidity of employment index denotes the three-year average of rigidity of employment index by the World Bank from T-2 to T. The pre-crisis house price growth denotes the average annual growth rate of house prices from 2004 to 2007. The pre-crisis credit growth is calculated in the same way. Finally, the pre-crisis GDP growth relative to the pre-crisis trend is defined as the difference between the compound annual growth rate of output from T-3 to T and the pre-crisis trend between T - 9 and T - 3.

	(1)	(2)	(3)	(4)	(5)	(6)
	Output loss					
	(LCU)	(LCU)	(LCU)	(LCU)	(LCU)	(LCU)
 Post-crisis government expenditure change (LCU) 	0.280^{*}	0.024	0.042	0.304**	0.051	0.079
	(0.135)	(0.134)	(0.147)	(0.126)	(0.093)	(0.099)
(2) Post crisis short term interest rate	0.696**			0.497		
(2) Post-crisis short-term interest rate	-0.696			-0.497		
	(0.309)			(0.292)		
(3) Post-crisis long-term interest rate		-0.455			-0.321	
		(0.370)			(0.358)	
			0.004			
(4) Post-crisis central bank balance sheet change			-0.001			-0.005
			(0.009)			(0.005)
(5) Post-crisis total reserve change	0.007	-0.014	-0.014	0.002	-0.019*	-0.021**
(0)	(0.009)	(0.009)	(0.009)	(0.009)	(0.010)	(0.010)
	(,	(,	(,	(,	((
(6) Banking crisis dummy	-0.165	0.811*	0.937*	0.156	1.060**	1.297**
	(0.466)	(0.434)	(0.452)	(0.418)	(0.442)	(0.508)
(7) Pro arisis accomment debt level (% of CDP)	0.002	0.017*	0.020*	0.001	0.016**	0.018**
(7) Fie-chsis government debt level (% of GDF)	-0.003	-0.017	-0.020	-0.001	-0.016	-0.018
	(0.007)	(0.005)	(0.011)	(0.000)	(0.000)	(0.000)
(8) Pre-crisis total reserve in months of imports	0.068	0.221**	0.265**	0.051	0.225***	0.254***
	(0.063)	(0.081)	(0.099)	(0.061)	(0.073)	(0.084)
(9) Pre-crisis financial development index	1.340	0.317	0.536			
	(1.561)	(0.947)	(1.216)			
(10) Pre-crisis rigidity of employment index				-0.002	-0.002*	-0.003**
(10) The entry of entry of entry internation				(0.002)	(0.001)	(0.001)
				()	(,	(,
(11) Pre-crisis house price growth	-0.110**	-0.074***	-0.051**	-0.099**	-0.063***	-0.047*
	(0.041)	(0.018)	(0.022)	(0.042)	(0.019)	(0.025)
(12) Pro pricio gradit graduth	0.000	0.000***	0.000***	0.000	0.000***	0.000***
(12) Fre-crisis credit growth	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
(13) Pre-crisis GDP growth relative to pre-crisis trend (LCU)	0.829***	0.967***	1.087***	0.782***	0.956***	1.025***
	(0.189)	(0.183)	(0.215)	(0.154)	(0.160)	(0.161)
(1) (2) (3) (3)	0.04/85	1 210*	1 5/03	1.007285	0.0/2	0.02/*
(14) Constant	-3.246	-1.310	-1.568"	-1.907***	-0.862	-0.826*
N	(1.329)	(0.746)	(0.831)	(0.655)	(0.559)	(0.448)
R ²	0 794	0.865	0.834	0.803	0.887	0.875
IX	0.794	0.000	0.034	0.003	0.007	0.075

Robust standard errors in parentheses * p < 0.1, ** p < 0.05, *** p < 0.01

Table 11.

The dependent variable is the medium-term growth loss, which is defined as the difference between the four-year average growth rate from T+5 to T+9 and that of the pre-crisis trend. The post-crisis government expenditure change denotes the average annual growth rate of government expenditure from T to T + 3. The post-crisis central bank balance sheet change and the post-crisis total reserve change are calculated in the same way. Post-crisis interest rates are defined as the three-year average of annual interest rates from T to T + 3. The banking crisis dummy is a binary variable, taking the value of one if a banking crisis happened in that country, depending on Laeven and Valencia (2020). The pre-crisis government debt level is defined as the ratio of government debt to GDP in T. The pre-crisis total reserve in months of imports is calculated as the three-year average from T-2 to T. The pre-crisis financial development index denotes the three-year average of the financial development index by the IMF from T-2 to T. The pre-crisis rigidity of employment index denotes the three-year average of rigidity of employment index by the World Bank from T-2 to T. The pre-crisis house price growth denotes the average annual growth rate of house prices from 2004 to 2007. The pre-crisis credit growth is calculated in the same way. Finally, the pre-crisis GDP growth relative to the pre-crisis trend is defined as the difference between the compound annual growth rate of output from T - 3 to T and the pre-crisis trend between T - 9 and T - 3.

	(1) Crowth loss	(2) Croswth loss	(3) Crearyth loss	(4) Crewith loss	(5) Crearth loss	(6) Creavith loss
	(LCU)	(LCU)	(LCU)	(LCU)	(LCU)	(LCU)
(1) Post-crisis government expenditure change (LCU)	-0.272	-0.652**	-0.631**	-0.169	-0.534**	-0.510**
	(0.315)	(0.249)	(0.240)	(0.336)	(0.244)	(0.239)
(2) Post-crisis short-term interest rate	-0.259			0.084		
	(0.732)			(0.758)		
(3) Post-crisis long-term interest rate		0.026			0.098	
(-)		(0.437)			(0.460)	
(4) Post-crisis central bank balance sheet change			-0.012			-0.017
(1) i ost elisis central sum summer sheet elimige			(0.016)			(0.012)
(5) Post-crisis total reserve change	0.036	-0.009	-0.010	0.021	-0.014	0.016
(5) i osterisis total reserve change	(0.034)	(0.029)	(0.028)	(0.029)	(0.027)	(0.027)
(C) Paral-line and the larger	0.020	1.455	1 ///*	0.104	2 002**	2 270**
(6) Banking crisis dummy	-0.820	(0.834)	(0.889)	-0.124 (0.892)	(0.927)	(1.090)
	(0.)_0)	(0.00 1)	(0.0057)	(0.072)	(01)=1)	(1070)
(7) Pre-crisis government debt level (% of GDP)	0.002	-0.035**	-0.035*	0.007	-0.032*	-0.032*
	(0.017)	(0.010)	(0.017)	(0.017)	(0.010)	(0.010)
(8) Pre-crisis total reserve in months of imports	-0.130	0.350**	0.353**	-0.165	0.348**	0.345**
	(0.146)	(0.138)	(0.151)	(0.147)	(0.137)	(0.156)
(9) Pre-crisis financial development index	4.383	3.571	3.506			
	(3.758)	(2.462)	(2.582)			
(10) Pre-crisis rigidity of employment index				-0.003	-0.002	-0.003
				(0.004)	(0.002)	(0.003)
(11) Pre-crisis house price growth	-0.122	-0.070	-0.075*	-0.119	-0.082	-0.091*
	(0.089)	(0.051)	(0.043)	(0.099)	(0.060)	(0.050)
(12) Pre-crisis credit growth	0.000**	-0.000	-0.000	0.000*	-0.000	-0.000
()	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
(13) Pro-crisis CDP growth relative to pro-crisis trend (I CL)	0.020	0.521	0.516	-0.080	0.446	0.419
(15) The class ODT grown relative to pre-class trend (ECO)	(0.452)	(0.342)	(0.384)	(0.439)	(0.365)	(0.395)
(11) Constant	0.051	1 (17	1 510	0.015	0.9/5	1.046
(14) Constant	-3.251 (3.064)	-1.647 (1.713)	(1.761)	(1.758)	(1.188)	(1.160)
N	28	27	27	28	27	27
R^2	0.479	0.559	0.573	0.438	0.514	0.537

Robust standard errors in parentheses * p < 0.1, ** p < 0.05, *** p < 0.01

Table 12.

The dependent variable is the medium-term output loss, which is defined as the percentage deviation of output in T + 7 from the pre-crisis trend. The post-crisis government expenditure change denotes the average annual growth rate of government expenditure from T to T + 3. The post-crisis central bank balance sheet change and the post-crisis exchange rate change are calculated in the same way. Post-crisis interest rates are defined as the change of interest rates from T to T + 3 divided by three. The banking crisis dummy is a binary variable, taking the value of one if a banking crisis happened in that country, depending on Laeven and Valencia (2020). The pre-crisis government debt level is defined as the ratio of government debt to GDP in T. The pre-crisis total reserve in months of imports is calculated as the three-year average from T - 2 to T. The pre-crisis house price growth denotes the average annual growth rate of house prices from 2004 to 2007. The pre-crisis credit growth is calculated in the same way. Finally, the pre-crisis GDP growth rate of output from T - 3 to T and the pre-crisis trend from T - 9 to T - 3.

	(4)	(2)	(2)
	(1)	(2)	(3)
	Output loss	Output loss	Output loss
	(LCU)	(LCU)	(LCU)
Post-crisis government expenditure change (LCU)	0.302^{*}	0.076	0.128
	(0.146)	(0.109)	(0.126)
(2) Post-crisis short-term interest rate	-0.742**		
	(0.334)		
(2) Post misis long terms interest rate		0.421	
(5) Post-crisis long-term interest rate		-0.451	
		(0.449)	
(4) Post-crisis central bank balance sheet change			-0.003
(4) I OSC-CHISIS CENTIAL DATIK DATALCE SHEET CHANge			(0.010)
			(0.010)
(5) Post-crisis exchange rate change	-0.029	0.016	0.050
(o) Foot enois exerninge rate enange	(0.029)	(0.038)	(0.032)
	(0.02))	(0.000)	(0.002)
(6) Banking crisis dummy	0.137	0.557	0.661
	(0.398)	(0.365)	(0.390)
	()	()	(0.000)
(7) Pre-crisis government debt level (% of GDP)	-0.003	-0.014^{*}	-0.016*
	(0.007)	(0.007)	(0.008)
(8) Pre-crisis total reserve in months of imports	0.060	0.200**	0.249**
	(0.063)	(0.076)	(0.086)
(9) Pre-crisis house price growth	-0.120**	-0.074***	-0.059***
	(0.043)	(0.022)	(0.020)
(10) Proveninie and it amount	0.000	0.000***	0.000***
(10) Pre-crisis credit growth	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)
(11) Pre-crisis CDP growth relative to pre-crisis trend (ICU)	0.816***	0 918***	1 028***
(11) Tre-crisis GDT growul relative to pre-crisis tiend (LCO)	(0.170)	(0.169)	(0.180)
	(0.170)	(0.109)	(0.100)
(12) Constant	-2.279***	-1.414**	-1.577***
(/	(0.629)	(0.566)	(0.534)
N	28	27	27
R^2	0 784	0.855	0.833
Λ	0.704	0.000	0.055

Robust standard errors in parentheses

Table 13.

The dependent variable is the medium-term growth loss, which is defined as the difference between the four-year average growth rate from T + 5 to T + 9 and that of the pre-crisis trend. The post-crisis government expenditure change denotes the average annual growth rate of government expenditure from T to T + 3. The post-crisis central bank balance sheet change and the post-crisis exchange rate change are calculated in the same way. Post-crisis interest rates are defined as the change of interest rates from T to T + 3 divided by three. The banking crisis dummy is a binary variable, taking the value of one if a banking crisis happened in that country, depending on Laeven and Valencia (2020). The pre-crisis total reserve in months of imports is calculated as the three-year average from T - 2 to T. The pre-crisis house price growth denotes the average annual growth rate of house prices from 2004 to 2007. The pre-crisis trend is defined as the difference between the compound annual growth rate of output from T - 3 to T and the pre-crisis trend from T - 9 to T - 3.

	(1)	(2)	(3)
	Growth loss	Growth loss	Growth loss
	(LCU)	(LCU)	(LCU)
(1) Post-crisis government expenditure change (LCU)	-0.209	-0.558*	-0.513*
	(0.365)	(0.282)	(0.276)
(2) Post-crisis short-term interest rate	-0.398		
	(0.831)		
(2) Post misis long terms interest rate		0.120	
(5) Post-crisis long-term interest rate		-0.150	
		(0.595)	
(4) Post-crisis central bank balance sheet change			-0.012
(4) I Ost-Clisis central bank balance sheet change			(0.012)
			(0.014)
(5) Post-crisis exchange rate change	-0.092	-0.031	-0.008
	(0.086)	(0.084)	(0.082)
			(
(6) Banking crisis dummy	0.334	1.735**	1.918**
	(0.714)	(0.735)	(0.777)
(7) Pre-crisis government debt level (% of GDP)	-0.000	-0.031*	-0.031*
	(0.018)	(0.016)	(0.017)
(0) Draganisis to tal magnetic manths of immedia	0.174	0.211**	0.222*
(8) Pre-crisis total reserve in months of imports	-0.164	(0.311^{++})	0.332^{*}
	(0.162)	(0.129)	(0.164)
(9) Pre-crisis house price growth	-0.161	-0.092	-0.093*
()) He-chisis house price growth	(0.100)	(0.052)	(0.053)
	(0.100)	(0.000)	(0.000)
(10) Pre-crisis credit growth	0.000	-0.000	-0.000
()	(0.000)	(0.000)	(0.000)
		((
(11) Pre-crisis GDP growth relative to pre-crisis trend (LCU)	0.007	0.394	0.427
	(0.432)	(0.334)	(0.370)
(12) Constant	0.217	0.503	0.497
	(1.941)	(1.245)	(1.182)
N	28	27	27
R^2	0.389	0.494	0.505

Robust standard errors in parentheses

Table 14.

The dependent variable is the medium-term output loss, which is defined as the percentage deviation of output in T + 7 from the pre-crisis trend. The post-crisis government expenditure change denotes the average annual growth rate of government expenditure from T to T + 3. The post-crisis central bank balance sheet change and the post-crisis total reserve change are calculated in the same way. Post-crisis interest rates are defined as the change of interest rates from T to T + 3 divided by three. First-year GDP growth is defined as the growth rate from T to T + 1. The banking crisis dummy is a binary variable, taking the value of one if a banking crisis happened in that country, depending on Laeven and Valencia (2020). The pre-crisis government debt level is defined as the ratio of government debt to GDP in T. The pre-crisis total reserve in months of imports is calculated as the three-year average from T-2 to T. The pre-crisis house price growth denotes the average annual growth rate of house prices from 2004 to 2007. The pre-crisis credit growth are calculated in the same way. Finally, pre-crisis GDP growth relative to pre-crisis trend is defined as the difference between the compound annual growth rate of output from T-3to T and the pre-crisis trend from T - 9 to T - 3.

	(1)	(2)	(3)
	Output loss	Output loss	Output loss
(1) Post arisis covernment comenditure shan as (I CI I)	0.102	(LCU)	(LCU)
(1) Post-crisis government expenditure change (LCU)	(0.226)	-0.174	-0.003
	(0.236)	(0.147)	(0.199)
(2) Post-crisis short-term interest rate	-0.737**		
(2) Fost chois short term interest fute	(0.265)		
	(0.200)		
(3) Post-crisis long-term interest rate		-0.633	
		(0.368)	
			0.001
(4) Post-crisis central bank balance sheet change			-0.001
			(0.009)
(5) Post-crisis total reserve change	0.008	-0.013	-0.014
(o) rost crisis total reserve change	(0.009)	(0.009)	(0.009)
	(0.005)	(0.00))	(0.0057)
(6) First-year GDP growth in crisis (LCU)	0.099	0.143*	0.044
	(0.099)	(0.069)	(0.099)
(7) Banking crisis dummy	-0.066	0.750*	0.999*
	(0.435)	(0.412)	(0.521)
(8) Pro-crisis government dobt level (% of CDP)	-0.007	-0.024**	-0.022**
(b) The ensis government debt level (78 of GDT)	(0.006)	(0.009)	(0.010)
	(0.000)	(0.00))	(0.010)
(9) Pre-crisis total reserve in months of imports	0.084	0.236***	0.275**
	(0.057)	(0.077)	(0.097)
(10) Pre-crisis house price growth	-0.129***	-0.095***	-0.058*
	(0.037)	(0.024)	(0.028)
(11) Pre-crisis credit growth	-0.000	-0.000**	-0.000***
(11) Tie-crisis creait growin	(0.000)	(0.000)	(0,000)
	(0.000)	(0.000)	(0.000)
(12) Pre-crisis GDP growth relative to pre-crisis trend (LCU)	0.901***	1.065***	1.125***
	(0.195)	(0.178)	(0.198)
(13) Constant	-1.731	-0.006	-0.900
	(1.011)	(0.751)	(0.907)
N	28	27	27
K*	0.794	0.883	0.835

Robust standard errors in parentheses p < 0.1, p < 0.05, p < 0.01

Table 15.

The dependent variable is the medium-term growth loss, which is defined as the difference between the four-year average growth rate from T + 5 to T + 9 and that of the pre-crisis trend. The post-crisis government expenditure change denotes the average annual growth rate of government expenditure from T to T + 3. The post-crisis central bank balance sheet change and the post-crisis total reserve change are calculated in the same way. Post-crisis interest rates are defined as the change of interest rates from T to T + 3 divided by three. First-year GDP growth is defined as the growth rate from T to T + 1. The banking crisis dummy is a binary variable, taking the value of one if a banking crisis happened in that country, depending on Laeven and Valencia (2020). The pre-crisis total reserve in months of imports is calculated as the three-year average from T - 2 to T. The pre-crisis house price growth denotes the average annual growth rate of house prices from 2004 to 2007. The pre-crisis credit growth are calculated in the same way. Finally, pre-crisis GDP growth rate of output from T - 3 to T and the pre-crisis trend from T - 9 to T - 3.

	(1)	(2)	(3)
	Growth loss	Growth loss	Growth loss
	(LCU)	(LCU)	(LCU)
Post-crisis government expenditure change (LCU)	-0.086	-0.522	-0.508
	(0.453)	(0.335)	(0.315)
(2) Best misis short term interest rate	0.056		
(2) Post-crisis short-term interest rate	-0.056		
	(0.714)		
(3) Post-crisis long-term interest rate		-0.020	
(-)		(0.540)	
(4) Post-crisis central bank balance sheet change			-0.013
			(0.014)
(E) Post avisis total reserve shan se	0.027	0.000	0.010
(5) Post-crisis total reserve change	(0.037	-0.009	-0.010
	(0.029)	(0.023)	(0.023)
(6) First-year GDP growth in crisis (LCU)	-0.054	-0.021	-0.015
(0)) 8 8 ()	(0.231)	(0.171)	(0.163)
	()	()	()
(7) Banking crisis dummy	-0.318	1.892*	2.120*
	(0.804)	(1.004)	(1.104)
	0.000	0.0001	0.000**
(8) Pre-crisis government debt level (% of GDP)	0.008	-0.032	-0.033
	(0.016)	(0.016)	(0.014)
(9) Pre-crisis total reserve in months of imports	-0.163	0.342**	0.351**
()) The crisis total reserve in months of importo	(0.146)	(0.154)	(0.164)
	(0.000)	(0.20 2)	(00000)
(10) Pre-crisis house price growth	-0.132	-0.092	-0.096*
	(0.091)	(0.062)	(0.050)
(11) D 11 11 11	0.000	0.000	0.000
(11) Pre-crisis credit growth	0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)
(12) Pre-crisis GDP growth relative to pre-crisis trend (LCU)	-0.100	0.436	0.450
(12) The choice opting growth remarked to pre-choice define (200)	(0.500)	(0.436)	(0.446)
	(0.000)	(0.100)	(0.110)
(13) Constant	-0.692	0.450	0.585
	(1.980)	(1.430)	(1.272)
N	28	27	27
R ²	0.424	0.495	0.509

Robust standard errors in parentheses

Table 16.

The dependent variable from column (1) to (3) computes the medium-term output loss using the pre-crisis trend estimated from potential output. The dependent variable from column (4) to (6) is the medium-term output loss, which is defined as the percentage deviation of output in T + 7 from the pre-crisis trend. We only use countries whose potential output is provided in the database. The post-crisis government expenditure change denotes the average annual growth rate of government expenditure from T to T + 3. The post-crisis central bank balance sheet change and the post-crisis total reserve change are calculated in the same way. Post-crisis interest rates are defined as the change of interest rates from T to T + 3 divided by three. The banking crisis dummy is a binary variable, taking the value of one if a banking crisis happened in that country, depending on Laeven and Valencia (2020). The pre-crisis government debt level is defined as the three-year average from T - 2 to T. The pre-crisis house price growth denotes the average annual growth rate of house prices from 2004 to 2007. The pre-crisis credit growth is calculated in the same way. Finally, the pre-crisis GDP growth relative to pre-crisis trend is defined as the difference between the compound annual growth rate of output from T - 3 to T and the pre-crisis trend from T - 9 to T - 3.

	(1)	(2)	(3)	(4)	(5)	(6)
	Output loss	Output loss	Output loss	Output loss	Output loss	Output loss
	(potential output)	(potential output)	(potential output)	(LCU)	(LCU)	(LCU)
(1) Post-crisis government expenditure change (LCU)	0.040	0.050	-0.025	0.222	0.168	0.029
()	(0.222)	(0.166)	(0.227)	(0.268)	(0.218)	(0.268)
	()	()	()	()	()	()
(2) Post-crisis short-term interest rate	0.072			-0.004		
	(0.433)			(0.515)		
	, ,			. ,		
(3) Post-crisis long-term interest rate		-2.898*			-2.219	
		(1.543)			(1.435)	
(4) Post-crisis central bank balance sheet change			0.003			-0.002
			(0.007)			(0.010)
(5) Post-crisis total reserve change	-0.005	-0.013**	-0.013**	0.004	-0.006	-0.012**
	(0.011)	(0.006)	(0.006)	(0.010)	(0.007)	(0.005)
	0.100	0.415	0.000	0.071	0.442	0.550
(6) Banking crisis dummy	0.132	0.417	0.608	-0.061	0.442	0.773
	(0.621)	(0.360)	(0.528)	(0.617)	(0.462)	(0.506)
(7) Pro-prior government debt level (% of CDP)	0.003	0.006	0.015**	0.001	0.007	0.015**
(7) Fle-clisis government debt level (% of GDF)	-0.003	-0.000	-0.013	(0.001	-0.007	-0.015
	(0.004)	(0.000)	(0.000)	(0.000)	(0.007)	(0.000)
(8) Pre-crisis total reserve in months of imports	0.068	0.169***	0.203***	0.011	0.156**	0.192***
(b) The crisis total reserve in months of imports	(0.041)	(0.046)	(0.050)	(0.056)	(0.048)	(0.054)
	(0.041)	(0.040)	(0.050)	(0.000)	(0.040)	(0.034)
(9) Pre-crisis house price growth	-0.073*	-0.045*	-0.074**	-0.080*	-0.053*	-0.071***
())	(0.039)	(0.022)	(0.022)	(0.038)	(0.024)	(0.018)
	(0.0007)	(0.0)	(0.0)	(0.000)	(01023)	(01020)
(10) Pre-crisis GDP growth relative to pre-crisis trend (potential output)	0.739***	0.686***	0.917***			
	(0.146)	(0.139)	(0.147)			
(11) Pre-crisis GDP growth relative to pre-crisis trend (LCU)				0.721**	0.722***	0.961***
				(0.266)	(0.169)	(0.196)
(12) Constant	-1.140	-2.565**	-0.929	-1.504	-2.336	-0.973
	(0.948)	(1.011)	(0.895)	(1.199)	(1.268)	(1.027)
N	18	17	17	18	17	17
R^2	0.824	0.918	0.854	0.731	0.851	0.806
Polyest standard among in parentheses						

Robust standard errors in parenthes * p < 0.1, ** p < 0.05, *** p < 0.01

Table 17.

The dependent variable from column (1) to (3) computes the medium-term growth loss using the pre-crisis trend estimated from potential output. The dependent variable from column (4) to (6) is the medium-term growth loss, which is defined as the difference between the four-year average growth rate from T + 5 to T + 9 and that of the pre-crisis trend. We only use countries whose potential output is provided in the database. The post-crisis government expenditure change denotes the average annual growth rate of government expenditure from T to T + 3. The post-crisis central bank balance sheet change and the post-crisis total reserve change are calculated in the same way. Post-crisis interest rates are defined as the change of interest rates from T to T + 3 divided by three. The banking crisis dummy is a binary variable, taking the value of one if a banking crisis happened in that country, depending on Laeven and Valencia (2020). The pre-crisis government debt level is defined as the three-year average from T - 2 to T. The pre-crisis house price growth denotes the average annual growth rate of house prices from 2004 to 2007. The pre-crisis credit growth is calculated in the same way. Finally, the pre-crisis GDP growth relative to pre-crisis trend is defined as the difference between the compound annual growth rate of output from T - 3 to T and the pre-crisis trend from T - 9 to T - 3.

	(1)	(2)	(2)	(4)	(5)	(6)
	Crowth loss	Crowth loss	Crowth loss	Crowth loss	Crowth loss	Crowth loss
	(notantial autnut)	(notontial output)	(notontial output)	(LCII)	(I CII)	(I CII)
(1) Post misis severement summa diture shan as (I CII)	(potential output)	(potential output)	(potential output)	0.126	0.272	0.278
(1) Post-crisis government expenditure change (LCU)	-0.341	-0.438	-0.450	0.136	-0.272	-0.278
	(0.311)	(0.218)	(0.190)	(0.267)	(0.285)	(0.210)
(2) Post crisis short torm interest rate	1.062			0.705		
(2) FOST-CHSIS SHOTT-TEHIN INTEREST FATE	(0.720)			(0.820)		
	(0.720)			(0.839)		
(2) Post-grisis long term interest rate		-0.020			0.310	
(5) I OSI-CHSIS IONG-TETHI INTELEST TATE		(2,208)			(2.400)	
		(2.208)			(2.409)	
(4) Post-crisis central bank balance sheet change			-0.018			-0.019
(4) I ost-erisis central bank balance sheet change			(0.012)			(0.015)
			(0.012)			(0.015)
(5) Post-crisis total reserve change	-0.011	-0.026**	-0.030***	0.012	-0.018	-0.022*
(o) rost erisis tour reserve erunge	(0.015)	(0.010)	(0.008)	(0.024)	(0.015)	(0.012)
	(0.010)	(0.010)	(0.000)	(0.024)	(0.010)	(0.012)
(6) Banking crisis dummy	0.648	1.871**	2.322***	0.054	1.783**	2.219***
(0)	(0.558)	(0.612)	(0.574)	(0.867)	(0.667)	(0.542)
	(0.000)	(0.012)	(0.07 1)	(0.007)	(0.007)	(01012)
(7) Pre-crisis government debt level (% of GDP)	0.017	-0.011	-0.014	0.022	-0.014	-0.015
(.)	(0.011)	(0.011)	(0.011)	(0.015)	(0.013)	(0.012)
	(01011)	(0.011)	(01011)	(01010)	(01010)	(01012)
(8) Pre-crisis total reserve in months of imports	-0.152	0.221**	0.232*	-0.233*	0.218^{*}	0.223*
(-)	(0.090)	(0.092)	(0.102)	(0.116)	(0.108)	(0.113)
	(01070)	(0.07=)	(01101)	(01110)	(01200)	(01110)
(9) Pre-crisis house price growth	0.008	-0.023	-0.030	-0.039	-0.042	-0.045
(·)	(0.097)	(0.058)	(0.047)	(0.099)	(0.056)	(0.048)
	()	()	()	()	()	()
(10) Pre-crisis GDP growth relative to pre-crisis trend (potential output)	0.037	0.528*	0.568**			
() 0	(0.337)	(0.241)	(0.202)			
	()	()	()			
(11) Pre-crisis GDP growth relative to pre-crisis trend (LCU)				-0.067	0.521	0.517
.,				(0.582)	(0.395)	(0.288)
				·/	()	()
(12) Constant	-0.240	-0.852	-0.552	-0.937	-0.712	-0.604
	(0.728)	(1.164)	(0.589)	(0.708)	(1.439)	(0.609)
N	18	17	17	18	17	17
R^2	0.613	0.801	0.845	0.663	0.606	0.695
					2	2.070

Robust standard errors in parenthese * p < 0.1, ** p < 0.05, *** p < 0.01

Table 18.

The dependent variable is the medium-term output loss, which is defined as the percentage deviation of output in T + 7 from the pre-crisis trend. The post-crisis government expenditure change denotes the average annual growth rate of government expenditure from T to T + 3. The post-crisis central bank balance sheet change and the post-crisis total reserve change are calculated in the same way. Post-crisis interest rates are defined as the change of interest rates from T to T + 3 divided by three. The banking crisis dummy is a binary variable, taking the value of one if a banking crisis happened in that country, depending on Laeven and Valencia (2020). The pre-crisis government debt level is defined as the ratio of government debt to GDP in T. The pre-crisis total reserve in months of imports is calculated as the three-year average from T - 2 to T. The pre-crisis house price growth denotes the average annual growth rate of house prices from 2004 to 2007. The pre-crisis credit growth is calculated in the same way. Finally, the pre-crisis GDP growth rate of output from T - 3 to T and the pre-crisis trend from T - 9 to T - 3.

	(1)	(2)	(3)
	Output loss	Output loss	Output loss
	(USD)	(USD)	(USD)
(1) Post-crisis government expenditure change (USD)	0.305**	0.031	0.054
	(0.144)	(0.109)	(0.115)
	0.510*		
(2) Post-crisis short-term interest rate	-0.512*		
	(0.292)		
(3) Post-crisis long-term interest rate		-0.385	
(b) I ost-crisis long-term interest rate		(0.318)	
		(0.010)	
(4) Post-crisis central bank balance sheet change			-0.002
0			(0.009)
(5) Post-crisis total reserve change	0.008	-0.014	-0.015
	(0.009)	(0.009)	(0.009)
(() P -plip a minimum	01//	0.005*	0.0/0*
(6) Banking crisis dummy	-0.166	0.805	0.960*
	(0.440)	(0.429)	(0.488)
(7) Pre-crisis government debt level (% of GDP)	0.002	-0.015*	-0.017*
()) The choice government dept level (% of GDT)	(0.002)	(0.008)	(0.010)
	(0.0007)	(0.000)	(0.010)
(8) Pre-crisis total reserve in months of imports	-0.007	0.183**	0.220**
•	(0.068)	(0.073)	(0.092)
(9) Pre-crisis house price growth	-0.116**	-0.081***	-0.063***
	(0.045)	(0.022)	(0.020)
(10) Provension and it encouth	0.000	0.000***	0.000***
(10) Pre-crisis credit growth	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)
(11) Pre-crisis GDP growth relative to pre-crisis trend (USD)	0 792***	0 974***	1 072***
(1) The clisic obt growth female to pre clisic dena (00D)	(0.186)	(0.163)	(0.198)
	(01100)	(01100)	(011)0)
(12) Constant	-2.236***	-1.136*	-1.227**
	(0.640)	(0.612)	(0.524)
Ν	28	27	27
R ²	0.775	0.861	0.838

Robust standard errors in parentheses

Table 19.

The dependent variable is the medium-term growth loss, which is defined as the difference between the four-year average growth rate from T + 5 to T + 9 and that of the pre-crisis trend. The post-crisis government expenditure change denotes the average annual growth rate of government expenditure from T to T + 3. The post-crisis central bank balance sheet change and the post-crisis total reserve change are calculated in the same way. Post-crisis interest rates are defined as the change of interest rates from T to T + 3 divided by three. The banking crisis dummy is a binary variable, taking the value of one if a banking crisis happened in that country, depending on Laeven and Valencia (2020). The pre-crisis total reserve in months of imports is calculated as the three-year average from T - 2 to T. The pre-crisis house price growth denotes the average annual growth rate of house prices from 2004 to 2007. The pre-crisis trend is defined as the difference between the compound annual growth rate of output from T - 3 to T and the pre-crisis trend from T - 9 to T - 3.

	(1)	(2)	(3)
	Growth loss	Growth loss	Growth loss
	(USD)	(USD)	(USD)
(1) Post-crisis government expenditure change (USD)	-0.154	-0.552**	-0.528**
	(0.332)	(0.240)	(0.228)
(2) Post-crisis short-term interest rate	-0.105		
	(0.709)		
		0.045	
(3) Post-crisis long-term interest rate		-0.045	
		(0.518)	
(4) Post-crisis central bank balance sheet change			-0.013
(4) I Ost-crisis central bank balance sheet change			(0.013)
			(0.014)
(5) Post-crisis total reserve change	0.037	-0.009	-0.010
(0) - 000 - 000 - 000 - 000 - 000 - 000	(0.028)	(0.024)	(0.024)
	(0.020)	(0.02.1)	(01021)
(6) Banking crisis dummy	-0.343	1.877^{*}	2.118*
	(0.768)	(0.944)	(1.051)
(7) Pre-crisis government debt level (% of GDP)	0.006	-0.033*	-0.034*
	(0.017)	(0.017)	(0.019)
	0.454	0.044**	0.054
(8) Pre-crisis total reserve in months of imports	-0.151	0.344**	0.354*
	(0.150)	(0.152)	(0.179)
(0) Pro cricis house price growth	0 120	0.005	0.097*
(9) He-chisis house price growth	-0.139	-0.095	(0.051)
	(0.098)	(0.003)	(0.051)
(10) Pre-crisis credit growth	0.000*	-0.000	-0.000
(10) The choice create growth	(0.000)	(0.000)	(0,000)
	(0.000)	(0.000)	(0.000)
(11) Pre-crisis GDP growth relative to pre-crisis trend (USD)	-0.049	0.452	0.466
	(0.443)	(0.364)	(0.419)
(12) Constant	-0.349	0.613	0.694
	(1.635)	(1.065)	(0.985)
N	28	27	27
R^2	0.422	0.494	0.509

Robust standard errors in parentheses

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