The Intangible Drivers of Financial Crises. Part 2

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Abstract

The second part of the study examines the interaction of fundamental and intangible sources of financial crises at different stages of their development: their origin, spread within the economy and between countries, and the adoption of anti-crisis measures. The oil price situation is cited as one of the mechanisms considered: rising economic policy uncertainty increases oil price uncertainty, which in turn has a negative impact on the GDP of oil-producing countries such as Mexico or Russia.

The general results are used to analyze the mechanisms of the major financial crises of the last decades, including the Russian crises, as well as the Great Depression. In all cases, the crisis was the result of the interaction between fundamental and intangible factors, and sometimes supplemented by political factors.

Finally, we discuss the macroeconomic policies of the Russian government and the Central Bank during the financial crises of 1998, 2008–2009, and 2014–2015, as well as the changes in these policies following each of the crises. Challenges ahead of potential new crises are listed as well as problems that require an early response, such as the sharp rise in geopolitical tensions from the beginning of 2022

The study begins in the previous issue of the Contemporary World Economy Journal.

The Role of Intangible Factors in the Mechanisms of Financial Crises

To summarize the theoretical and empirical work on crisis analysis, we can distinguish three main components of crisis emergence and evolution: a) the source of the crisis, b) its spread (first within a single economy, then by "contagion" to other countries), and c) government and central bank responses (which may have positive results in the short term but negative consequences in the medium and long term).

Some key crisis mechanisms are common to several (or all) types of crisis, while others are specific to certain types of crises. With this in mind, we will consider the main crisis mechanisms and pathways within each stage, noting the categories of crises for which they are characteristic.

Sources of the Crisis

The primary trigger of a crisis may be an internal or external shock, for example, a sharp deterioration in trade conditions (for Russia, a fall in oil prices), the "burst of a bubble" (in the housing market or any other market), etc. This example illustrates the interplay between the roles of fundamental and intangible factors. On the one hand, an important consequence of negative shocks is an increase in macroeconomic imbalances: current account and/or budget deficits, which create the conditions for a subsequent crisis (see Allen et al. 2002). On the other hand, investors' forecasts and expectations deteriorate, increasing the risk of a self-fulfilling currency or debt crisis. Another important source of crises, the formation of credit booms or financial bubbles, can also be largely driven by intangible factors, as shown above.

Observations of the emergence of new crises and in-depth analyses of past crises have led to the development of a number of dynamic modifications of classical models that bring us closer to understanding the real mechanisms of financial crises. A relatively simple evolution is proposed by Gumus (2016). While standard first-generation models predict an inevitable speculative attack on the currency in the case of monetary financing of chronic fiscal deficits, this study considers a situation in which deficits occur only with a certain probability in the long run. It is shown that the mere possibility of a future deficit, even if it does not actually occur, is a sufficient basis for a speculative attack.

Furthermore, we can mention the "slow debt crisis" model proposed by Lorenzoni, Werning (2019), which is a dynamic version of the Calvo (1988) model. In this model, the government borrows funds necessary to cover the budget deficit at each step. As in the static case, there are several self-fulfilling equilibria; in particular, the expectation of default leads to an increase in interest rates, which accelerates the process of public debt accumulation and eventually triggers default. Corsetti, Maeng (2023) show that the two sources of self-fulfilling debt crises ("strategic default" as in the Calvo model and "liquidity crises" as in Cole, Kehoe) are closely related and may in fact represent different phases of the crisis evolution. At an average level of accumulated debt, its value gradually increases in a "slow crisis" mechanism, and then, when the debt exceeds the threshold acceptable to investors, the government loses the ability to refinance its obligations on

the capital market and, even if it remains solvent, is forced to declare default (i.e. "fast" liquidity crisis occurs).

Another dynamic model of a self-fulfilling debt crisis is proposed in Ayres et al. (2018). It describes the process of bond yield formation as a result of the interaction between the borrower government and private investors. It is shown that the equilibrium yield depends on both a fundamental factor, the government's debt burden, and investors' expectations. Their negative expectations become self-fulfilling, but the probability of pessimistic expectations increases when government debt is high. This leads to a multiplicity of equilibrium yield levels in the debt market. This model provides explanations for several paradoxical crisis situations. One relates to the period of the Argentinean debt crisis in 1998–2002, before which the public debt was not high by international standards (around 40% of GDP), but the spread of the government's dollar bonds over U.S. bonds reached 7 percentage points (p.p.). The second paradox occurred in Italy, Spain, and some other Eurozone countries in 2009–2012, when bond spreads in these countries rose sharply from close to zero to 5 p.p. The model allows for endogenous changes in investors' expectations, which provides a good explanation for the sharp fluctuations in euro area bond yields observed after the "Great Recession."

An important source of self-fulfilling crises is presented in a paper by Tamborini (2015), which also purports to describe the mechanism of the debt crisis in Western European countries in 2009–2012. In this model, the source is the lack of reliable assessments of of these countries' prospects, which leads investors to develop their own divergent perceptions of the size of the primary surplus that guarantees the solvency of the countries in question. It is shown that if a sufficiently large proportion of investors believe that a country is insolvent, the government will eventually be forced to default, even if the country is actually solvent. The paper by Stangebye (2020) also considers a self-fulfilling crisis caused by an "expectation shock." In this case, a deterioration in estimates and forecasts of the future state of the economy (for any reason) leads to an increase in the cost of borrowing, and the rational response of the sovereign is to increase borrowing and the probability of default. In summary, given the same fundamentals, more pessimistic expectations increase the probability of crisis.

Another plausible debt crisis scenario is described by Conesa, Kehoe (2017). Their model considers a state that, after experiencing a fall in budget revenues, decides between cutting spending (raising taxes) and increasing borrowing. The first option is painful for the economy but preserves the availability of the debt market, while the second option provides an opportunity to support public and private consumption and does not aggravate the economic downturn by raising taxes but requires finding additional sources of financing. Under certain conditions (e.g., if the government believes that revenues will soon recover), the latter consideration is stronger than the former, and the rational solution is to build up debt in the expectation that it will be repaid when "better times" come. If investors believe that "better times" will come, then there is no crisis, but if they do not believe that this will happen, then the government will have to default when its reserves are exhausted. Thus, in this "game of ruin" model, the source of the self-fulfilling crisis is uncertainty about the country's future budget revenues.

Crisis Proliferation

In addition to the well-known transmission mechanisms of financial shocks from one country to another (trade, financial, etc.), the contagion of uncertainty shocks also plays an important role in the spread of crises. The analysis suggests that economic uncertainty shocks are transmitted across countries and adversely affect output in the "infected" country. This type of contagion occurs through several channels (trade, financial, information, etc.), with trade being the most important contributor. An important common mechanism is related to financial globalization; for example, increased uncertainty in the U.S. leads to lower credit leverage in partner countries (especially in emerging markets). As a result, the risk premium rises in most countries and asset prices and output fall (Akinci, Kalemli-Özcan, Queralto 2022; Bhattarai, Chatterjee, Park, 2020). The negative impact of uncertainty in the largest economies on other countries is statistically significant and quite substantial. For example, according to Moramarco (2022), the international diffusion of uncertainty about economic conditions almost doubles the level of ambiguity: on average, "imported" uncertainty accounts for about 40% of the level of domestic uncertainty. Londono, Ma, and Wilson (2021) estimate that fluctuations in the uncertainty indicator studied in this paper determine about 28% of the subsequent variation in industrial production (with a particularly large impact on tradable output).

The impact of the "contagion" of uncertainty on economic conditions depends largely on the links between the source of uncertainty and the recipient country and their proximity (territorial, in terms of economic composition). However, when it comes to economic policy uncertainty, the strongest impact is felt between the major economic and financial centers: the U.S., Europe, and China. Thus, according to IMF experts, on average 2/3 of the impact of the EPU on output, investment and private consumption is explained by changes in the level of uncertainty in these three economies (See: Biljanovska, N., Grigoli, F., Hengge, M., 2021. Fear thy neighbor: Spillovers from economic policy uncertainty. *Review of International Economics*, Vol. 29, Issue 2).

Anti-crisis Measures

In times of an acute crisis, the most significant measures always involve monetary and fiscal easing. For example, to finance anti-crisis spending during the pandemic, developed countries increased their public debt by 19 percentage points of GDP in just one year, adding a total of $24 trillion in debt across all nations. This raises several interrelated questions: 1. Is a macroeconomic stimulus effective? 2. Within what limits can fiscal spending and monetary policy be increased and loosened without risking renewed destabilization (in effect, a second-order crisis)?

There is no doubt that anti-crisis programs have significantly mitigated the recent major crises (2008–2009 and 2020). In both cases, however, this was achieved at the cost of creating deferred problems, such as runaway inflation, dangerously rising budget deficits, and public debt in many countries. It is therefore important to assess whether the same objectives could have been achieved with smaller anti-crisis measures. From

this perspective, intangible factors play a crucial role. In particular, the answers to the two questions posed above largely depend on the level of confidence in the authorities' fiscal and monetary policies. The confidence that the government and the central bank will not deviate from the announced rules and objectives significantly mitigates the negative consequences of anti-crisis programs. For example, if economic agents trust the central bank, a temporary easing of monetary policy will not lead to an immediate spike in inflation. In terms of fiscal policy, confidence can be seen as the equivalent of "fiscal space," i.e. a safety margin represented by a low deficit and public debt and/or accumulated funds in the reserve fund.

An equally important point is that the increased level of uncertainty (which is always present in a crisis) greatly reduces the impact of almost all economic policy measures. Bloom (2009) notes that uncertainty makes the economy insensitive to most macroeconomic influences because there are reasons to refrain from taking immediate action in such a situation. As a result, economic activity is substantially less responsive to monetary stimulus, and investment growth in response to monetary shocks is two to five times lower when uncertainty is in the top decile than when uncertainty is in the bottom decile (Aastveit, Natvik, and Sola 2017). The work of Castelnuovo, Pellegrino (2018) also supports these findings. Jerow, Wolff (2022) show a significant (econometrically and economically) decline in size of the fiscal multipliers that characterize the impact of government spending on GDP during periods of high uncertainty.

Belke and Goemans (2022) reach an even more surprising result. After constructing a non-linear generalized impulse response function using quarterly U.S. data from 1960 to 2017, they find paradoxical results: under conditions of high uncertainty, the stimulative effect of government spending on output may not only diminish, but even reverse, with additional spending reducing output.

The Role of Intangible Factors in Specific Crises as Examples

Econometric Estimates of the Role of Crisis Mechanisms

A number of papers have attempted to identify the leading mechanisms of various crises using econometric analyses (Jeanne 1997, Tarashev 2004, etc.). Among other things, this research shows (Cuaresma, Slacik, 2008) that the dominant mechanisms of currency crises vary over time. In the 1980s, fundamental factors played a decisive role: (significant current account deficit, chronically high inflation, overvalued exchange rate, etc.). In the 1990s, on the other hand, the results suggest that self-fulfilling expectations mechanisms were more important, while the role of traditionally important factors, such as forced lending and budget deficits, was greatly reduced. Similar tests have also been introduced to analyze the individual crises discussed below.

This section examines this issue in the context of a number of specific crisis episodes.

The Great Depression

Although the events of the Great Depression (GD) in the U.S. have been extensively studied by many economists, there is still no consensus on its causes. The most common

assumption is that the main cause of the famous crisis was the excessively tight policy of the Federal Reserve during the early stages of the Great Depression. However, a number of authors (Greasley, Madsen 2006, Mathy 2020) believe that the mechanism was triggered by the successive action of several factors, including:

- Stock market boom.
- Misguided and inconsistent monetary policy.
- Sharp increase in uncertainty (as evidenced by soaring stock index volatility).

All of this triggered a collapse in fixed investment, which was observed at the beginning of the GD and ultimately became the main direct cause of the crisis. Much of this has been attributed to the economic uncertainty that emerged. Matty (2020) traces the impact of uncertainty (measured in four different ways) on the main indicators of economic activity: industrial production, employment, and hours worked. He concludes that about one-third of the output decline was due to stock market volatility shocks, and that the combined effect of all uncertainty shocks was as significant as the effect of monetary policy errors in terms of their impact on output. The impact of uncertainty on employment and hours worked was also significant.

The Mexican Financial Crisis of 1994

The Tequila crisis was notable in that it occurred against a background of apparent success in macroeconomic stabilization; between 1988 and 1993, inflation in Mexico fell from 159% to 8%, while the budget deficit was reduced. The reduction in inflation was largely due to the fixing of the peso-dollar exchange rate (the fixed exchange rate was later replaced by a currency corridor). The improved stability, together with the expected implementation of the North American Free Trade Area (NAFTA) Agreement from 1994, led to an active inflow of foreign currency into Mexico and an increase in gold and foreign exchange reserves.

However, in early 1994, severe political instability in the country led to a reversal of capital flows and a rapid decline in international reserves, which put severe pressure on the peso exchange rate in the face of a large current account deficit. On the other hand, spreads on quasi-currency (dollar-linked) government bonds and the differential between local and foreign currency bond yields remained stable almost until the devaluation, indicating that investor confidence in both the government's creditworthiness and the peso remained high. Nevertheless, on December 20, 1994, the government implemented a significant (15%) widening of the currency corridor and almost immediately announced a move to a floating exchange rate policy. As a result, the dollar exchange rate rose by almost 60% in the last two weeks of 1994 and by about 45% over the next year.

In analyzing the sequence of events that preceded the "Tequila crisis," a number of respected economists conclude that its main cause was a sharp decline in investor confidence in the government's willingness to defend the fixed exchange rate. While they agree that fundamentals played a limited role in the Tequila Crisis, they disagree on what exactly caused the change in investor sentiment and expectations. Masson, Agenor (1996) find that the "trigger" of the crisis was the widening of the exchange rate corridor, which may have been interpreted by investors as a sign that the recently elected president,

contrary to expectations, was not prioritizing the continuation of the previous exchange rate policy. Sachs, Tornell and Velasco (1996) suggest that the crisis was triggered by a sharp decline in gold and foreign exchange reserves, and support their position with the model of a self-fulfilling currency crisis. In this model, the government faces a choice at each stage between devaluation and maintaining the exchange rate. Devaluation implies inflation and partial depreciation of government debt but undermines investor confidence in the long run, while maintaining the exchange rate implies funds to repay the previous debt and finance the budget deficit. The sources of such funds may be bond issues, tax increases, or government borrowing by selling part of its foreign exchange reserves. Investors act independently, based on their expectations of future government decisions. Similar to other comparable models, under high (low) debt, there is a single equilibrium in which investors expect (do not expect) devaluation and it occurs (does not occur). In intermediate situations, expectations are uncorrelated with fundamentals, so there is a multiplicity of equilibria and the crisis becomes self-fulfilling. In this model, gold and foreign exchange reserves are essentially interchangeable with debt, so the authors believe that the fall in reserves has moved the economy from the "no devaluation" situation to the "devaluation is determined by investors' expectations" state.

It seems that the explanation of the "mystery of the Tequila crisis" (the sudden and abrupt change in investor sentiment from full confidence to panic flight from the peso) should unite both theories. A complete description of the underlying mechanism of the crisis must then include three links:

1. Sharp rise in political instability in early 1994 leads to large-scale capital outflows.

2. The rapid depletion of gold and foreign exchange reserves as a result of capital outflows shifts the situation in the market for sovereign foreign exchange debt from unambiguously stable to a zone of self-fulfilling expectations, but expectations themselves do not change.

3. The government's decision to widen the currency corridor acts as a negative signal that synchronises the change in investors' expectations. In general, the Mexican crisis of 1994 can be seen as an example of a "crisis of expectations."

The Asian Financial Crisis of 1997–1998

The crisis that began in mid-1997 was characterized by its complex nature (both monetary and banking), by the fact that it involved a large group of countries, by the combination of many mutually reinforcing elements in the mechanisms of its emergence and development, and by the seriousness and extent of its consequences. All this makes this event an excellent subject, almost a textbook, for the study of financial crises.

A. Background. The region entered 1997 with excellent economic performance. For example, the four countries soon to be hit hardest by the crisis (Indonesia, Malaysia, Thailand, and South Korea) had an average annual GDP growth of nearly 9% over the previous 10 years. At the same time, all countries in the region had balanced or even surplus budgets and were thus protected from the standard currency crises described by first-generation models.

However, as is often the case with prolonged dynamic growth, the region experienced a credit boom accompanied by bubbles in the stock and real estate

markets (as shown above, this is a typical precursor to a near-term financial crisis). Another important vulnerability was the large current account deficit, which was particularly high in Thailand (8% of the GDP in 1996). In sum, apparent successes were accompanied by serious macroeconomic vulnerabilities. Rapid and ill-prepared financial liberalization also played an important role, making Asian economies highly vulnerable to adverse shocks.

B. Currency crises. In 1997, all countries in the region experienced bankruptcy of large companies or the "deflation" of bubbles, especially in the property market. The weakest link was Thailand, where the baht fell victim to a speculative attack in the middle of the year. As a result, the dollar almost doubled against the baht by the end of the year, and the currency crisis spread to other countries in the region. In the second half of 1997, the dollar appreciated by 90% against the Korean won and the Indonesian rupiah, and by 54% against the Malaysian ringgit. The most likely mechanism for these massive depreciations seems to have been the following sequence: negative market signals, change in investor sentiment, and self-fulfilling currency crises (Radelet, Sachs 1998, Suh 2001). However, ad hoc tests (Miyao 2004) show that the crisis mechanism varied considerably across countries. In Thailand, which had the most severe macroeconomic weaknesses (mainly external deficits and overvalued real estate), fundamental problems played a leading role. In other countries in the region, where macroeconomic conditions were much better, the crisis was self-perpetuating, i.e. a change in investor sentiment was the main driver.

C. The spread of the crisis. In the immediate aftermath of the currency crisis in Thailand, investors began to withdraw capital from other countries in the region on the "analogy principle," which rapidly expanded the territory of the crisis. In addition, the crisis spread through the normal channels of financial and trade relations, involving not only immediate neighbors but also countries quite distant from East Asia. One consequence was a fall in oil prices as global growth forecasts deteriorated, which in turn triggered the Russian financial crisis of 1998.

The crisis then spread to the banking sector, leading to a sharp decline in credit to the real sector, with serious consequences for production. The fall in GDP in 1998 was particularly sharp in Indonesia (more than 13%), Thailand and Malaysia (around 7.5%), and South Korea (around 5%).

The multifaceted nature of the Asian crisis (both in terms of the sectors of the financial system affected and the variety of crisis mechanisms) shows that the prevention of financial crises requires the elimination of all potential sources and transmission mechanisms.

Russian financial crisis of 1998

A. Background. In 1995–1996 the transition from a centrally planned to a market economy was largely completed, while the first successes in macroeconomic stabilisation were achieved. By all indications, 1997 should have seen a turn towards a rapid recovery of economic activity. Indeed, after five years of deep recession, GDP began to grow (by 1.4% at the end of the year). The budget deficit was still very high (according to official statistics, it amounted to 4% of GDP for the federal budget in 1997, while according to

international standards it was even higher: 7.4% of GDP[1]), but an important achievement was that the debt was already being financed by market borrowing rather than by seigniorage. This, together with the stabilization of the rouble exchange rate, halved inflation (to 11%). As a result, investor optimism increased, as evidenced by the rapid decline in short-term government bond yields (from 35% in real terms at the end of 1996 to 8% in July-October 1997).

B. External shocks. The Asian financial crisis, which began in mid-1997, worsened investor sentiment toward emerging markets, as is usually the case. More importantly, oil prices have fallen sharply since the beginning of 1998 (by 36% year-on-year in January and then for the year as a whole). As a result, the value of hydrocarbon exports (which accounted for half of all merchandise exports) fell by a quarter, and the exchange rate of the rouble was severely dislocated from its fundamental level.

C. Government and Central Bank policies. The Central Bank was faced with the choice: to undertake a serious devaluation of the ruble or to protect it by any means necessary. Obviously, with limited gold and foreign exchange reserves, the effective exchange rate could only be maintained for a very short time without investor support. The right choice therefore depended crucially on how long the balance of payments crisis would last and, more importantly, on how long economic agents expected it to last. The central bank decided to act on the optimistic assumption that oil prices would recover soon (the officially announced position was that the terms of trade were expected to recover in 3-4 months at the latest). From January 1, 1998, the Central Bank adjusted and widened the limits of the currency corridor (as a result, the ceiling for the dollar exchange rate increased by 15%), but refused to undertake a more serious devaluation or to switch to a floating exchange rate. The problem was that the central bank's optimistic expectations were not shared by investors, who were convinced that oil prices would remain low for quite some time and so divested themselves of ruble-denominated assets. The growing pressure on the ruble was initially contained by the sale of gold and foreign exchange reserves, but the decline in these reserves could have further undermined confidence in the Russian currency, so the central bank soon switched to a policy of protecting the exchange rate by raising the cost of money. The refinancing rate was raised steadily, reaching (albeit briefly) the exorbitant level of 150% in May 1998 (compared to 21% in autumn 1997). The yield on short-term government bonds rose accordingly (to 55% in May 1998 and 81% in July 1998), and with it the real cost of servicing the public debt.

Meanwhile, the government tried to raise taxes to reduce the size of the deficit, but the Duma rejected the proposal. Thereafter, the main efforts were focused on replacing expensive short-term domestic borrowing with "cheap" long-term external borrowing and on obtaining IMF loans to restore investor confidence.

D. Mechanisms. In Russian economic history, the 1998 crisis was first and foremost a debt crisis ("default"). However, from the point of view of the mechanisms of its development, it seems more appropriate to consider two inextricably linked crises. The term "twin crisis" is widely used by economists to refer to a combination of banking and

[1] Grigoryev 1998.

currency crises.[2] Similarly, in the case of Russia in 1998, we can speak of a "double" (to distinguish it from "twin") crisis, combining currency and debt crises.

According to Gurvich and Andriakov (2006), despite a sharp rise in yields on ruble government bonds in the first half of 1998, interest rates on comparable foreign currency bonds rose only slightly: from 8–9% to 9–12%. At the same time, the share of non-residents in the short-term bond market, as well as the nominal value of short-term bonds/federal loan obligations (OFZ) in the portfolio of non-residents, increased throughout the crisis period. This suggests that, contrary to popular belief, investors were not afraid of a government default, but rather expected a significant depreciation of the ruble—quite natural in the conditions of a sharp drop in the country's export revenues. The high yields on ruble bonds reflected devaluation expectations (when bond yields were lower, they became unattractive relative to assets denominated in other currencies). At the same time, the government was unable to reduce its borrowing significantly because of the need to finance the budget deficit and to refinance large volumes (due to the predominance of short-term debt) of previously issued bonds. Until August 1998, the monthly repayments of short-term government bonds exceeded the total revenues of the federal budget.

Looking at the development of the Russian financial crisis through the prism of crisis models, it seems to be best described by the following two::

- "Slow crisis" (gradually increasing borrowing costs for the government, followed by interest costs, which increase the deficit, etc.)
- The "game of ruin" (the government hopes for a quick return to "normal" conditions, investors are more pessimistic). The Russian government hoped to survive the period of cheap oil, but did not have enough foreign currency reserves to do so. This situation illustrates how dangerous it is for the government to play such a game with investors without significant trump cards in the form of budget and currency reserves.

E. Mystery. One question that still has no clear answer is why the "default" occurred immediately after receiving over $6 billion in loans from the IMF and other international organizations in July and early August. Contrary to expectations, this support didn't just fail to alleviate the crisis, it actually brought it closer to a resolution, which came almost immediately after the loans were received. In other cases (e.g. after the European Central Bank announced its "direct monetary operations" program), the result was the opposite: investor confidence was restored and the crisis was averted.

Gurvich and Andriakov (2006) suggest that the IMF loan triggered a mechanism similar to a bank run: if depositors expect that a bank will soon be unable to pay out their deposits, they rush to withdraw their savings ahead of others before the bank runs out of liquidity. In all likelihood, the size of the loan, as assessed by investors, was insufficient to fully protect the ruble from devaluation.

To sum up, the financial crisis in Russia was caused by a combination of a number of fundamental economic weaknesses (a large budget deficit, high dependence on commodity exports, weaknesses in the banking system) and inflexible macroeconomic

[2] Known examples are the Tequila Crisis, the Asian Crisis of 1997, the Turkish Financial Crisis of 2000-2001, etc.

policies (for a variety of reasons): the central bank did not adjust the exchange rate to investors' expectations, the government had no way of reducing the budget deficit or borrowing on the short-term bond market. As a result, there was a serious divergence between the exchange rate expectations of investors and those of the government (based on different assumptions about the future dynamics of oil prices). In fact, the government's forecast was more accurate: a year after the "default," oil prices returned to the average level of 1997 and then rose many times over. This case shows that in the "game of ruin," proximity to investors' expectations and the availability of sufficient reserves are more important than the accuracy of expectations.

The International Financial Crisis of 2008

The central feature of the biggest financial crisis since the Great Depression (which is why it has been informally given the "honourable" title of the Great Recession) has been the remarkable disparity between the insignificance of the initial event—problems in the U.S. subprime mortgage market—and the enormity of the turmoil experienced by the global financial system and, by extension, the world economy. It took time to move from superficial explanations of the crisis to identifying its underlying causes. Of course, the mechanism of the crisis involved a large number of complementary and interrelated factors, but some studies have nevertheless attempted to identify the most fundamental of these.

An analysis of the impact of a broad set of 200 variables on output, the labor market, and other key macroeconomic indicators in the United States in 2007–2009 showed that the crisis downturn in output was mainly determined by two groups of factors: disruptions in the financial system and increased uncertainty (Stock, Watson 2012). The leading role of deteriorating financial conditions and uncertainty was supported by other authors. For example, Caldara et al. (2016) considered as a characteristic of financial shocks the measure of "additional corporate bond yield" proposed by Gilchrist, Zakrajsek (2012), which indicates the change in the average spread of corporate bonds in a representative sample relative to risk-free government bonds with similar payment schedules. At the same time, uncertainty was described by six indicators of different types, including stock market volatility, economic policy uncertainty, discrepancy between experts' macroeconomic forecasts and others. The analysis allows us to draw the following conclusions about the influence of the factors considered on the economic activity and financial markets of the U.S. during the Great Recession:

1. Financial shocks had a significant negative impact on industrial production and stock market indices.
2. All six uncertainty indicators showed a negative effect on the same indicators, but only one indicator significantly improved the accuracy of the description compared to using only financial shocks, developed by Jurado (2015).
3. Combined, financial shocks and uncertainty according to Jurado (2015) accounted for almost all of the decline in industrial production and stock indices observed during the Great Recession.
4. The impact of these two factors was roughly the same.

5. The impact of uncertainty on the economy is particularly large during periods of disastrous financial conditions (in other words, financial stress and uncertainty shocks have a synergistic negative effect).

In summary, we can conclude that increased uncertainty explains about half of the negative impact of the Great Recession in the United States.

Financial Crises and Evolution of Russian Macroeconomic Policy

The examination and analysis of the factors most closely associated with the subsequent onset of a crisis allows us to identify the following main triggers and conditions for the development of financial crises.

A. Significant macroeconomic imbalances (large budget or current account deficits, excessive government debt, predominance of short-term or external borrowing, overvalued exchange rate, etc.).
B. Unsound macroeconomic policies (such as senorage-financed fiscal deficits).
C. Credit booms and financial bubbles.
D. Terms of trade shocks.
E. External "contagion."
F. Self-fulfilling negative investor expectations (including panic).
G. Adverse uncertainty shocks.
H. Inflexible macroeconomic arrangements (e.g., fixed exchange rate that does not respond to external shocks or investor sentiment shifts).
I. Low confidence in the government's (central bank's) fiscal (monetary) policy.
J. Economic policy uncertainty.
K. Low stock of budget or foreign exchange reserves.
L. Banking system weaknesses (e.g. imbalance of currency assets and liabilities).

Typically, a crisis occurs when some of the "active sources" (items A–G) combine with some "favourable conditions" (H–L). Consequently, the task of preventing a financial crisis is to eliminate both the sources and the conditions for their development. The crucial point is that while the models assume that there are values of fundamental indicators at which a self-fulfilling expectations crisis is impossible, in real life there are several potential channels of crisis development operating simultaneously, so that it is impossible to provide complete protection for a country by strengthening positions in certain areas. In particular, strong fundamentals cannot compensate for a country's unsound macroeconomic policies, and investor confidence cannot protect against a crisis with weak fundamentals. This is confirmed by many of the cases discussed above, as well as by the impact of the 2008–2009 international crisis on Russia.

Let us now focus on the issues of Russia's anti-crisis policy. Which of the above mechanisms played a significant role in Russia's recent major financial crises? Between 1998 and 2019, the Russian economy experienced three major financial crises: in 1998, 2008–2009, and 2014–2015.[3] In all three cases, the initial shock was a sharp fall in oil prices. In all cases, the period between the start of the GDP decline

[3] The 2020 crisis did not have an economic root cause, which means it is not entirely comparable with the others, thus it is not included in our brief comparative analysis.

and its end was about one year. Table 3 (p. 18) summarizes the size of the external shock and the main economic consequences of the crisis within the four quarters of the crisis downturn.

Table 3. Dimensions of the oil shock experienced by the Russian economy and the consequences of the crisis

	Q1-Q4 1998	Q3 2008 – Q2 2009	Q3 2014 – Q2 2015
Urals price change*	-44%	-50%	-42%
GDP decline*	-9.1%	-11.2%	-3.1%
Range of fluctuations of USD exchange rate for the period**	246%	52%	105%

* Last quarter of the crisis period compared to last quarter before the onset of the crisis

** Maximum change during the crisis period

According to the above analysis of the 1998 crisis, the significant elements of its overall framework included items A, C, G, H, I, K. Taking into account the analysis in Gurvich, Prilepskiy (2010) and Gurvich (2016), the significant elements of the 2008–2009 crisis can be attributed to items C, D, H, I, and the third crisis, only to item H (terms of trade shock). The gradual elimination of potential sources of the crisis allowed to reduce the magnitude of the crisis GDP downturn.

A comparison of the conditions that the Russian economy faced on the eve of these three crises and their consequences proves that the government and the Bank of Russia learned some valuable lessons and implemented a number of policy changes that made the economy less vulnerable to further shocks. We will briefly summarize the changes in macroeconomic policy that were made after each of the crises.

1999–2008

- In just two years, fiscal consolidation was achieved by cutting government spending rather than raising taxes: according to the IMF, Russian budgetary expenditure fell from 39.7% of GDP in 1998 to 30.7% in 2000 (i.e. by 9 percentage points!). Instead of a deficit of 7.4% of GDP, the consolidated budget turned into a surplus of 3.1% of GDP. Subsequently, the budget deficit exceeded 4% of GDP only once (in the year of the Great Recession), while the average budget balance between 2000 and 2022 was positive at 0.9% of GDP.
- Fiscal rules have been introduced to insulate the economy from fluctuations in the external environment. This is achieved by accumulating surplus oil and gas budget revenues in the Stabilization Fund (later Reserve Fund) when oil prices are high and using them when prices are low. The budget rules though have undergone numerous changes and their application has been suspended several times during crisis periods.

- The flexibility of the exchange rate policy was increased: the currency corridor regime was replaced by a managed float.
- Public debt has been reduced substantially (from 51.5% of GDP at the end of 1997 to only 8.0% of GDP at the end of 2007).[4]
- Significant fiscal and foreign exchange reserves have been accumulated.

At the beginning of the international financial crisis in 2008, Russia seemed to have all the chances to be a "safe haven" in the midst of the storm. In reality, the economy experienced a deep recession (by 7.8% in 2009) and was among the ten worst in a sample of 172 countries in terms of GDP decline compared to its pre-crisis trajectory (Gurvich and Prilepskiy 2010). The main reason for this seems to have been the continued low flexibility of exchange rate policy in the first months of the crisis: despite a threefold drop in oil prices in August–December 2008, the central bank held back the weakening of the ruble throughout this period. This helped banks to buy foreign currency cheaply and protect their balance sheets from losses in the event of a subsequent ruble depreciation. But the downside of this policy was a credit squeeze as the "opportunity cost" of money rose. As in 1998, investors expected a subsequent devaluation. As a result, in December 2008, the estimated yield on six-month futures contracts for delivery of dollars was 29% per annum—under such conditions, the rate of lending to the real sector could not be lower than this yield on virtually risk-free speculative operations. It is difficult to assess the magnitude of the risks to the banking system, but the negative impact of the central bank's exchange rate policy on output was certainly significant, no wonder that the largest fall in output was recorded during the second crisis. In fact, despite the change of regime, the exchange rate policy was similar to that of the first crisis: the Central Bank artificially maintained an exchange rate that did not correspond to the terms of trade (Gurvich 2016). Moreover, the Bank of Russia lost a third (almost $200 billion) of its foreign exchange reserves during the crisis year. It should also be noted that the government not only covered the entire shortfall in budget revenues at the expense of the Reserve Fund, but also significantly increased expenditures. However, the budget surplus did not inspire confidence among investors, and the targets were met only by using gold and foreign exchange reserves and the Reserve Fund.

2009–2014

- The central bank announced a gradual transition to a floating exchange rate policy and inflation targeting (the transition was completed in November 2014).
- The government adjusted the fiscal rule to run the consolidated budget in surplus or with a small deficit (within 1% of GDP).
- Basel 2 standards have been gradually introduced, increasing the stability of the banking system.

[4] According to the IMF.

In 2014, financial and sectoral sanctions were imposed on Russia, and in August 2014 oil prices began to plummet, more than doubling in just six months. However, the macroeconomic policies pursued this time were radically different from those in previous crisis periods. In general, the evolution of macroeconomic policy during the crisis periods can be described as follows. In 1998, the government tried to keep the main macroeconomic indicators (exchange rate, budget deficit) stable despite a sharp drop in oil prices. In 2008–2009, the government and the Bank of Russia pursued similar goals, but the fundamental difference was that they had a large "safety margin"—budget surplus, current account surplus, and large reserves.

In 2014–2015, the authorities took a very different approach. Instead of trying to keep macroeconomic parameters unchanged despite a dramatic change in fundamental conditions, they set themselves the task of moving as quickly as possible to a new equilibrium in line with the new conditions. This approach ensured much greater investor confidence, which, as shown above, was reflected in a moderate decline in GDP compared with previous crises.

In general, macroeconomic policy has become much more prudent since 1998: it combines the maintenance of sufficient "fiscal space" with flexibility, and its objectives and approaches are actively communicated to investors. Both the government and the Bank of Russia deviate from announced policy guidelines only in exceptional circumstances, which increases the effectiveness of their measures. At the same time, the problem of the economy's continued dependence on hydrocarbon exports remains unresolved.

The start of the special military operation in 2022 and the subsequent waves of economic sanctions have significantly increased economic and political uncertainty (as illustrated by the geopolitical uncertainty estimates above). At the same time, however, the openness of Russian financial markets to cross-border transactions has declined sharply, which is not conducive to economic growth but (other things being equal) reduces the likelihood of a crisis. Thus, one of the priorities of Russian economic policy should be to restore confidence in the policies of the Ministry of Finance and the Central Bank and to reduce the increased uncertainty.

Conclusions

To prevent potential financial crises and to mitigate the impact of crises when they occur, it is crucial to consider the role of intangible factors. They complement and reinforce fundamental factors, with a particularly strong effect when financial shocks are combined with increased uncertainty. Some conclusions can be drawn from the above analysis.

- Investor confidence in government and central bank policies is no less important than improving economic fundamentals in preventing financial crises.
- This requires, in particular, that the authorities systematically pursue consistent, transparent, and predictable policies and minimize discretionary measures.
- The introduction and strict implementation of fiscal rules, monetary policy rules, the development of long-term macroeconomic forecasts, etc. can play an important role in enhancing confidence.

- The central bank should prevent "credit booms" and "bubbles" (which often occur during periods of loose monetary policy), which are the most typical sources of financial crises.
- In the event of heightened crisis risks, protecting the economy from external contagion should be a priority. It is also necessary to avoid, as far as possible, the creation of additional internal sources of uncertainty about economic conditions and economic policy.
- Strong fundamentals are important not only as a "margin of macroeconomic strength" but also as a signal to investors that speculative attacks are futile.
- Macroeconomic policy (MP) flexibility plays a key role in crisis prevention and adjustment: the use of automatic stabilizers and the ability to react quickly to external and internal shocks.
- When designing anti-crisis policies, it is important to remember that the effectiveness of MP depends crucially on the level of uncertainty and confidence of economic agents. In conditions of high uncertainty, the impact of any measures taken to support the economy is drastically reduced.
- Every effort should be made to align MP with 'investors' assessments and expectations. It is extremely dangerous to pursue a policy contrary to 'investors' expectations in a crisis period, even if there are substantial fiscal and foreign exchange reserves, and even more so if they are limited (as was the case in Russia in 1998).
- It is necessary to create a wide range of indicators characterizing the main intangible factors and, based on them, monitor the state of uncertainty of economic conditions, economic policy, confidence of economic agents, etc. Deterioration of such indicators should serve as a basis for rapid and significant response measures.

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