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FINANCIAL CRISES: SOURCES, MANIFESTATIONS, CONSEQUENCES

The world economy has witnessed regular crises across many centuries. The earliest sovereign debt defaults were documented in England in XIV century. Later they echoed frequently. Spain is the "record holder" in terms of crisis regularity: only in XIX century Spain underwent seven sovereign defaults (during three previous centuries – six)[1]. The first international financial crisis also occurred in England. In 1825 its fund market collapsed triggering bank panic. The crisis spilled over to continental Europe, later to Latin America – the entire region felt the wave of sovereign defaults. It took the Latin American countries over 30 years to restructure their debts and reanimate foreign capital attraction.

It is crucial to study prerequisites and mechanisms of development of financial crises, since in most cases their negative impacts are not limited to losses of financial market players (domestic and/or foreign investors in case of debt defaults, depositors during a banking crisis, issuers of debt in a foreign currency during devaluation). Production also feels a considerable negative effect. According to Bordo M. et al.[2] cumulative losses of GDP average to 5 – 10%, it takes two – three years to reach the pre-crisis level. Accordingly, unemployment goes up in-the-crisis period, and the standard of living of the population goes down.

Thus, according to the International Labor Organization, during the 2007 – 2009 financial crisis, the number of the unemployed in the world increased by 20 mln persons, whereas according to the World Bank, the number of people, beyond the poverty level, rose by 64 mln during the period. However, some crises were marked with relatively more considerable unemployment and fall in the standard of living. During the 2002 Argentine crisis, unemployment jumped up to 20% (pre-crisis 14%), while the share of citizens beyond the poverty level – up to 54% (pre-crisis 27%).

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[1]*Reinhart C.,Rogoff K.* This Time Is Different: A Panoramic View of Eight Centuries of Financial Crises / / NBER Working Paper. 2008. No. 13882.
[2]*Bordo M., Eichengreen B., Klingebiel D., Martinez-Peria M.S. Is the Crisis Problem Growing More Severe? // Economic Policy, 2001. Vol. 16, Apr. P. 51 – 82.*

Consequences of the crisis do have economic and social measurements. Losses, incurred during the crisis, or compulsory measures of the government to reduce public expenditures often lead to protests and political destabilization. Fall in popularity of a country leadership in major cases result in premature elections, change of government, or even "the ruling party"[3]. Empiric researches show that a currency crisis doubles probability of overthrow of a ruling party[3]. Although in recent decades crises have not had such a catastrophic impact on a political system, as, for instance, during the Great Depression, in a number of cases they caused serious political shocks. The 2001 – 2002 Argentine crisis is an example – on the background of street riots four (!) presidents succeeded each other in just one month.

The 2007 – 2009 crisis also led to succession of power from one party to another one both in developed, and developing countries. Some experts consider consequences of the crisis (particularly high unemployment) to be one of the reasons for political instability in the Middle East in 2011. To note, in the event of such a situation there is danger that due to emerged political crisis it will take longer time to take necessary, however, non-popular decisions to remediate the economy. However, even if existing governments remain in power, they are exposed to considerable risks by crises, since governments are frequently forced to compensate for portion of losses to ease their consequences (such a situation is typical for banking crises), which later result in necessity to raise taxes and/or reduce public expenditures.

"Non-material" consequences of crises are also crucial – long term loss of confidence in a national currency, and a financial system as a whole by the population and investors, which conditions considerable interest in theories, that explain reasons for occurrence and distribution of crises followed by recommendations.

The present study tries to build an overall scheme, enabling to describe, on the one hand, prerequisites for occurrence and amplification of crisis fragility, on the other hand, mechanisms of expansion of crises, first, on segments of a financial system, and later – to the real sector, based upon the analysis of the theory of financial crises and researches, dedicated to their review on a historical horizon. The study also discusses approaches to evaluation of short- and long-run results of crises.

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[3]*Frankel J.A.* Mundell – Fleming Lecture: Contractionary Currency Crises in Developing Countries / / IMF Staff Papers. 2005. Vol. 52. No 2. P. 149 – 192.

Classification of crises and historical analysis

The term "financial crisis" is used to describe various by nature scaled disturbances of functioning of the financial system, that challenge realization of its key functions – transformation of savings to investments and allocation of risks. This definition includes the following crises:

– *sovereign defaults on domestic and external debt.* More significant examples for the recent 15 years – the Russian default of 1998 on domestic and the 2002 Argentine default on external debt;

– *currency crises.* We can mention currency crises in Thailand and Indonesia during the 1997 – 1998 Asian crisis, the 1999 Brazilian crisis.

– *crises of the banking system.* More scaled crises include the crises in North European countries in the end-1980s and early-1990s and the banking crisis of 1997 in Japan. What makes these episodes significant is that they are connected with a valuable experience (both positive and negative, as in the case of Japan) in taking measures on remediation of the banking system;

– *slump in capitalization of fund markets.* An example is the price collapse on stocks of hi-tech companies in the US in 2000.

To note, in most cases challenges may be complex in nature – for instance, currency and banking crises or currency and debt crises occur simultaneously, which confirms that the same (or similar) circumstances are capable to lead to various crisis developments. Thereby, we can speak about common mechanisms of crisis development, related to all their types.

Nearly all countries faced financial crises in one form or another, irrespective the economic growth rate, institutions and the regime of the macroeconomic policy. The global 2007 – 2009 crisis reminded that not only developing countries and emerging markets, but also developed countries might be both victims, and sources of de-stabilization. It also demonstrated that, in terms of globalization, consequences of crises may turn out to be harder not in source countries, but in the countries where they outstretch "second-run" (via trade, financial and other channels). Hence, growth rate of GDP during the period in question declined about 6 p.p. in developed countries, while in developing countries and emerging markets (excluding China and India) – over 8 p.p.

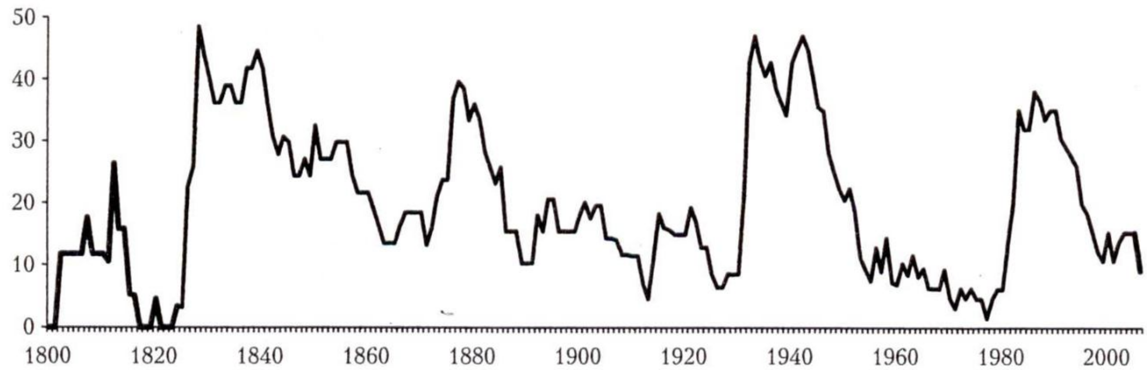
Historical analysis is the key source of data on periodicity and common mechanisms of crises. Until recently it was restricted by post-war decades, however, studies of recent years are considerably based upon wider mass data[4].

Results of these studies may be summarized thus:

– the number of crises related to the stance of the system of public funds has varied considerably over the last one and a half century, and peaks were associated with military expenditures (1940s) and episodes of free enough movement of capital (1880s, 1990s) (see Fig.1).

– the number of crises of the banking system also correlates to capital mobility (see Fig.2).

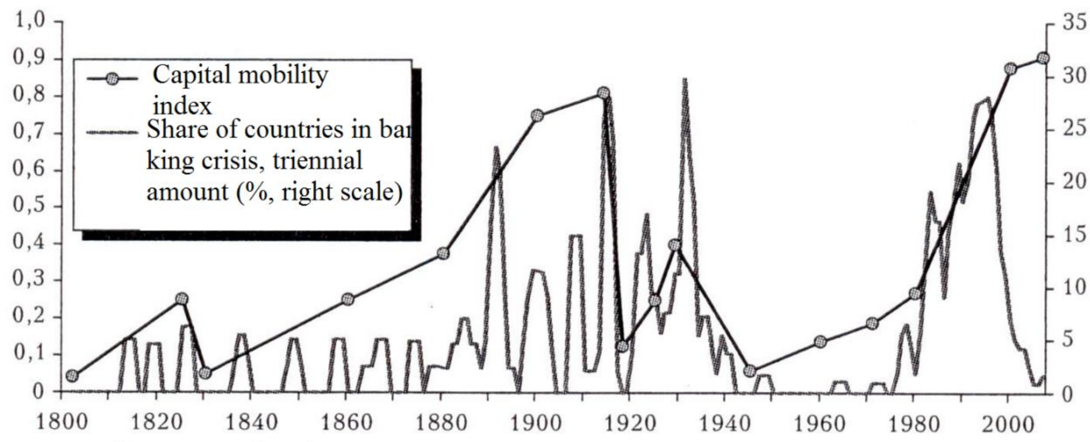
Share of countries in default or restructuring, 1800 - 2006 (%)



Source: *Reinhart C., Rogoff K.* This Time Is Different: A Panoramic View of Eight Centuries of Financial Crises.

Chart 1.

Capital mobility and banking crises, 1800 - 2007



Source: see chart 1.

Chart 2.

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[3] *Reinhart C., Rogoff K. Op.cit.; Reinhart C., Rogoff K.* Banking Crises: An Equal Opportunity Menace / / NBER Working Paper. 2008. No. 14587. *Barro R.J., Ursua J.F.,* Macroeconomic Crises since 1870 / / NBER Working Paper. 2008. No. 13940.

– the period of validity of the Buttonwood Agreement is of specific importance. When the banking system was toughly regulated and capital flow controlled, bank crises were rare; stable growth of the economy in most countries promoted a firm fiscal position. However, this period was marked with a significant number of currency crises, associated with the system of quasi-fixed courses;

– no defaults have occurred in developed countries since 1950s. As a whole, financial crises occurred much more occasionally in developed countries than in developing ones. Thus, out of 394 crisis episodes from 1970 through 2007 only 17 went to the share of developed countries[5].

– complex crises take a considerable share out of the total number of crisis episodes (32% in 1970 – 2007) and are associated with more output losses.

Let us consider more known complex crises.

The Great Depression in the US in 1929 – 1939. It was directly triggered by the collapse of the fund market in the US in October 1929 ("Black Tuesday"). The real reasons for the Great Depression include correction after economic boom of 1920s, sharp weakening of standards of lending and marginal requirements in the previous period, which led to an extremely high leverage ratio. What made this depression different was that the anti-crisis measures, which followed upon its onset, might have had a more negative impact on the economy than shortcomings of the prior public policy (weak regulation, lack of social and financial insurance network etc).

Thus, the US Federal Reserve implemented a hard monetary policy and did not support more fragile systemic banks in 1929 – 1931, which caused a wave of bankruptcies and panic in financial markets; resulting in sharp shrinkage of lending (aggregate M2 declined by 33% during this period). The government, in its turn, at the beginning of the depression pressed on business with an eye to maintain the level of nominal wages and salaries. During deflation it led to high real wages and salaries and accordingly to sharp increase in unemployment (which, as a result, was over 22%) and decrease in consumption. Moreover, protective measures taken invoked an analogous response of countries – trade partners and the scale of external trade dramatically diminished. Only kick-off of the New Course policy in 1933, which supported the real sector and promoted low risks in the financial sector, refined negative tendencies in the economy.

[5] *Laeven L., Valencia F.* Systemic Banking Crises: A New Database / / IMF Working Paper. 2008. No. 08/224.

Mexico, currency and banking crises of 1994 – 1995. The reasons were extremely soft fiscal policy in the pre-election period of 1994 and maintenance of the quasi-fixed course regime, which conditioned high budget deficit and deficit of current operations account. At that, the budget deficit was progressively financed at the expense of so-called Tesobonos – bonds, denominated in peso, but indexed at the exchange rate of the dollar, which led to additional accumulation of currency risk. Deterioration of the internal political situation in the country and high interest rates in the US in aggregate with the low level of international reserves provoked an attack on the national currency, finalized with its 40% devaluation.

On the background of high dollarization of the economy, it was hard for the financial sector and government to refinance their liabilities. The country was on the edge of default, which was avoided exceptionally through financial support by the US, the IMF and the BIS, which issued credit lines equal to USD 49 billion. The banking sector incurred high losses: 9 out of 34 banks (that owned 19% of total assets) de-facto went bankrupt; 11 needed recapitalization; the share of problem loans in bank balances reached 19%. Slump of GDP was 6.2%; fiscal expenses on the way out of the crisis are estimated to be 19.3% of GDP.

South-East Asia, currency and banking crises of 1997 – 1998. Thailand, Malaysia, South Korea and Indonesia were affected most (the last also defaulted in 1998). The reason for crises was accumulated risks in the financial sector amid overheating of the economy, which manifested itself in steady deficit of current account, bubbles in fund markets and real estate market. Thus, the average value of negative balance of the current account within five pre-crisis years constituted 1.2% of GDP in South Korea and 6.3% of GDP in Thailand. The factors of overheating of the economy included: 1) the policy of fixed (to dollar) exchange rates, that promoted inflow of short-term capital; 2) imperfection of the regulatory system – weak prudential measures, insufficient transparency, that did not allow to adequately evaluate risks; 3) pressure by governments on banks with an eye to increase lending of large, politically related corporations.

As a result, Thailand – the most sensitive country of the region in terms of domestic and external imbalances (deficit of current account, extreme strengthening of the exchange rate owing to depreciated yen to dollar, deterioration of the fiscal situation) – was exposed to the attack on the national currency - baht in 1997. The devaluation of baht, that followed, forced investors to radically re-evaluate accumulated risks not only for the Thailand economy, but also for neighboring countries. On the background of relatively small international reserves it led to pressure on other currencies of the region and sharp shrinkage of the capacity of refinancing of liabilities, i.e. the effect of crisis contagion was on the air. South Korea, Thailand and Indonesia accosted the IMF for assistance to reduce risks, related to insufficient foreign liquidity, and overall uncertainty, which, however, failed to overcome devaluation, banking crises and recession. Malaysia, that used a number of unconventional anti-crisis measures, including restrictions on outflow of capital, could not escape as well. In all mentioned countries the crisis caused growth of the share of problem assets beyond 50%, as well as the wave of bankruptcies and forced mergers of banks and other financial institutions. Cumulative losses of GDP[6] per country exceeded 50%; slump in production in some years varied from 6.9% in South Korea up to 13.1% in Indonesia. Fiscal expenses of the crisis made from 16.4% of GDP in Malaysia to 56.8% of GDP in Indonesia.

Russia, the 1998 crisis. Chronic budget deficit and the policy of quasi-fixed course nurtures high crisis sensitivity. On the first half of 1998 due to consequences of the Asian crisis the Russian economy was exposed to trade (oil prices went down twice as much compared to the level of 1997) and financial shocks (amid high common fears of investors with respect to investments to activities of emerging markets and expectations of devaluation of rouble, interest rates on government bills sharply went up). Incapability of the government to remediate the financial situation and insufficiency of foreign exchange reserves (that failed as of the end of the first half of the year to cover the volume of import even for a month) conditioned further growth of interest rates and devaluation expectations, which could not avert issue of a credit line by the IMF and the World Bank. It resulted in collapse of the forex market and the market of government bills (state treasury bills/federal loan bonds).

On 17 August 1998 the government and the Central Bank announced default on state treasury bills, declared moratorium on repayment on certain types of liabilities of the banking system and highly expanded currency corridor. A high level of currency imbalances and low level of management resulted in a scaled banking crisis: about half of all banks (that owned 32% of deposits of individuals) went bankrupt, and the share of problem assets reached 40%. However, from the standpoint of the real economy and fiscal expenses, negative consequences of the crisis turned out to be relatively small due to decrease in the share of remuneration of labor and stimulating effect of devaluation. Thus, the minimum growth rate was 5.3%, cumulative losses of GDP were null; fiscal expenses did not exceed 5.3% of GDP.

Argentine, currency and banking crises and default of 2001 – 2002. The reason for the crisis was an extremely accommodative fiscal policy, which led to high foreign borrowings: albeit high economic growth in 1992 – 1998, the public debt during this period went to 41% from 31%. Economic slump started in 1998, upon devaluation in the largest trade partner – Brazil, required fiscal and monetary stimulation measures. The first was impossible due to a high level of the public debt, and the second – due to existing the currency board regime. The lasting crisis caused decline in budget expenditures and seriously hindered refinancing of the public debt. As a result, confidence in the currency board regime was broken, there was run to banks

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[6] Cumulative slump is defined as total deviations of GDP in the crisis year and three post-crisis years from the conditional indicator of the GDP (that corresponds to the pre-crisis trend), expressed in percentage of the latter (see *Laeven L., Valencia F.)*.

(that was added up by deficit of the budget covered at the expense of bank lending).

Early in 2002 dollar peg of Argentine currency was aborted, and the government, not capable to refinance dollar obligations, announced default – the largest in history in nominal expression (USD 93 billion). It allowed to restrict fiscal expenses of the crisis (9.6% of GDP), however, closed access of the government to international capital markets. During the crisis, three banks were nationalized, another bank went bankrupt; the share of problem assets in banks balances exceeded 20%. Minimum growth rate of GDP was 10.9% of GDP; cumulative losses of GDP – 42.7%.

Table 1 represents estimation of results of more scaled crises for recent 30 years.

Results of historical analysis suggest a high role of deficiencies of the macro-economic policy and regulation in "run-up" to financial crises. Sustainable budget deficit and deficit of current account, inflexible policy (e.g. fixed exchange rate) in the environment of strong external shocks and insufficient volume of reserves, financial liberalization at a low level of prudential regulation and corporate governance in the financial sector are significant predictors of crises. Analysis of separate inherent episodes and results of empiric studies also confirm the fact.

Theories of financial crises occurrences

Existing economic theories, that explain "birth" of financial crises and their relation to the above factors of fragility, may be conditionally divided into the following classes.

Table 1

Negative impact of large crises

Effect	Crisis	Sizes
Devaluation	Argentine, 2002 (rejection of the currency board regime)	48% devaluation within one quarter
Default	Argentine, 2002	Absolute record size of default (USD 93 bln) and relative loss of investors (74% from the nominal value of the public debt)*
Slump of production	Chile, 1981 (price slides on copper, stoppage of capital inflow)	One-off 13.6% Cumulative 92 p.p.
	Thailand, 1997 (the Asian crisis)	One-off 10.5% Cumulative 98 p.p.
Banking crisis	Bulgaria, 1996 (low level of risk management in 1991 – 1995)	Share of problem loans 75%; Activity of banks with the 33% share in total assets terminated.
Crisis in a fund market	US and other developed countries, 1987 (Black Tuesday)	Within one day the Dow Jones index went down 22.6% as a result of inadequate operation of automated programs on assets trade amid fears of investors on toughening of the

		monetary policy in the US
Fiscal expenses of the crisis	Indonesia, 1997 – 1998 (the Asian crisis)	56.8% of GDP

Sources: compiled on the basis of the data *Laeven L., Valencia F.* Op.cit,; *SturzeneggerF., Zettelmeyer J.* Haircuts: Estimating Investor Losses in Sovereign Debt Restructurings, 1998 – 2005 / / IMF Working Paper, 2005. No 05/137.

Models of crises, stipulated by dwelling external and domestic imbalances. The model of currency crisis by P.Krugman is a classic example[7]. In the event the government finances steady budget deficit through seigniorage, and a central bank supports a fixed exchange rate, it is accompanied with decline in foreign exchange reserves (as it comes from the Mundell – Fleming model). Rational agents will expect devaluation of the exchange rate at exhaustion of reserves, at that, the optimum strategy for them is implementation of anticipatory speculative attack on the exchange rate, when there are still certain reserves lingering. Correspondent “critical level” of reserves may be quite considerable – enough to cover several years of demand for currency under “ordinary” circumstances. It is obvious, that analogue logic is operational in case of external imbalances, which manifest themselves in steady deficit of current account.

Later studies showed that with ongoing imbalances, high interest rates are capable to hold a crisis away, however, opportunities of such a policy are restricted[8]. Indeed, it leads to slowdown in the economy and rise in interest repayments, while high sensitivity of public funds may, on the contrary, accelerate a speculative attack.

Another example of impact of imbalances on increase in probability of financial crises – high default risks in case of steady budget deficits. When debt accumulates beyond a certain limit, an interest rate on state treasury bills requested by investors turns out to be prohibitively high, the government is deprived of a capital market (in case of lack of international assistance) and obliged to announce default. The “maximum debt” indicator depends on structural growth rates of the economy, risk-free interest rates, the response function of a fiscal policy of a government to a level of sovereign debt. In one of the recent studies this indicator is considered for a wide range of countries[9].

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[7] *Krugman P.* A Model of Balance-of-Payments Crises / / Journal of Money, Credir and Banking. 1979. Vol.11, No 3. P. 311 - 325.

[8] See, e.g. *Lahiri A., Vegh C.* Delaying the Inevitable Optimal Interest Rate Policy and BOP Crises / / NBER Working Paper, 2000. No 7734.

[9] *Ghosh A. et al.* Fiscal Fatigue, Fiscal Space and Debt Sustainability in Advanced Economies / / NBER Working Paper. 2011. No 16782.

Models of crises, where a combination of shocks and non-flexible policy play a key role. The models of the kind are primarily applied for research of economies with the fixed exchange rate regime. For instance, B. Daniel harmonized currency crises with fiscal shocks (easing of the budget policy); S.Kitano studied a currency crisis mechanism in case of decline in world interest rates, that conditions capital outflow; G.Kaminsky and K.Reinhart mentioned the role of shocks of terms of trade, connected with, e.g., price fall for the key export commodities or devaluation in the country – trade partner[10].

Behavioral theories, that put down crises to synchronization of expectations of economic agents. Models of the given group suggest an ordinary mechanism of description of banking crises (runs on banks) and fluctuations of a fund market based upon the idea of complementarity: if a certain number of economic agents choose a "negative" strategy of behavior (premature withdrawal of deposits or sale of shares) it becomes beneficial for other agents as well. The effect of "self-fulfilling expectations" may also condition a currency crisis: if a considerable group of agents begins to buy up foreign currency in expectation of devaluation, then such a strategy becomes optimal for the remainder as well. We can suggest an analogue explanation for debt crises. Thus, the economic dynamics is characterized with plurality of equilibriums: certain equilibriums correspond to the situation of stability, while some – to panic.

The question of behavioral theories is the mechanism of synchronization of expectations. A number of scientists conclude that it is accidental ("synchronization under influence of sunspots"). It decreases their value to provide a normative analysis, since they fail to deliver information on measures, necessary to achieve "desired" equilibrium (except for separate measures that decrease a coordinated effect, e.g. introduction of insurance deposits). As a whole, results of the empiric analysis (at least for the recent period) do not confirm these theories[11]. The theories, which relate probability of "negative" synchronization to obtaining information on current and (expected) future values of macroeconomic and financial sensitivity indicators, are widespread and empirically proven. Corresponding models may assume entirely deterministic dynamics: when certain threshold of sensitivity exceeds, all agents utilize a "negative" strategy and crisis advances. Reasons may be

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[10] *Daniel B.* Exchange Rate Crises and Fiscal Solvency / University at Albany, SUNY, Department of Economics // Discussion Paper. 2010. No 08 – 09. *Kitano S.* A Model of Balance-of-Payments Crises due to External Shocks: Monetary vs. Fiscal Approaches // Bulletin of Economic Research. 2004. Vol.56, No 1. P. 53 –66; *Kaminsky G.L., Reinhart C.M.* The Twin Crises: The Causes of Banking and Balance-of-Payments Problems / / FRS International Finance Discussion Papers. 1996. No. 544.

[11] *Allen F. et al.* Financial Crises: Theory and Evidence / / Annual Review of Financial Economics. 2009. Nov. P. 97 – 116.

exemplified through a banking crisis. Agents realize that such high sensitivity increases probability of decline in the value of bank assets. Accordingly, the risk of non-reimbursement of deposits goes up, that leads to "run to banks" (nowadays – frequently to rejection to refinance bank liabilities)[12]. Often the situation is aggravated with the fact that agents are not capable to differentiate "problem" and "more sustainable" banks and the crisis spills over the entire banking system[13].

Alternative models assume existence of an "interim" zone of sensitivity indicators, along with the "crisis" zone, characterized with dwelling both "crisis" and "non-crisis" equilibrium[14]. In this case, strategies are likely to be randomly synchronized.

Formation and distribution of crises: overall pattern

Based upon the summary of models of crisis occurrence and accumulated empiric experience we can conclude that financial crises are combined of several elements.

1. *Objective prerequisites.* As a rule, they include unsatisfactory macroeconomic indicators: availability of stable budget, or current account deficit; imbalances in a foreign position of a country; low volume of international reserves. Prerequisites may be associated with strong dependency of the economy on raw materials export (amid high price volatility, it is inherent to raw material markets); overload of the banking system with bad assets; overheating of the real estate or fund market etc. Macroeconomic and structural weaknesses and risks make a country fragile to various shocks.
2. *Internal or external shocks.* Shocks may include change in objective (external demand, prices for export commodities) or subjective conditions (change in readiness of investors to invest to developing countries).
3. *Specifics of the economic policy of the government and monetary authorities.* This group of factors include constant rules (e.g. exchange rate regime or rules of management of oil revenues) and decisions, taken prior to or during the crisis.
4. *Activities of economic agents.* This category, first of all, include decisions of market players (investors or bank depositors), related to confidence in the public or private financial system. Crisis development is often determined by refusal of

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[12] *Allen F. et al.* Financial Crises: Theory and Evidence / / Annual Review of Financial Economics. 2009. Nov. P. 97 – 116.

[13] *Mishkin F.* Understanding Financial Crises: A Developing Country Perspective / / NBER Working Paper. 1996. No 5600.

[14] *Disyatat P.* Currency Crises and Foreign Reserves: A Sample Model / / IMF Working Paper. 2001. No. 01/18

investors to refinance debt of the government or banks, decision of depositors to withdraw deposits placed with banks etc. not skipping planned actions of economic agents, e.g. speculative attacks on the national currency.

5. *Mechanisms of amplification and distribution of crisis occurrences.* Unexpectedly large scales of the 2007 – 2009 global crisis were to a considerable degree determined with mechanisms of multiplication of emerged problems and their spillover between financial markets and countries.

The above elements are closely interrelated: errors in an economical policy can elevate sensitivity of a country to external shocks. Confidence of investors and depositors depend both on external conditions and macroeconomic resilience of the country and the policy of authorities. Extremely accommodative monetary policy can lead to overheating of the economy and accumulation of risks in the financial system; on the contrary, with robust fundamental indicators no negative expectations may emerge, whose accumulation may trigger “run to banks” and other destabilizing activities.

However, the capacity of mutual compensation of crisis factors is limited. Thus, an erroneous macroeconomic policy can create a crisis situation irrespective other factors. At that, the value of separate elements (e.g. policy of authorities) frequently depends on the stance of other elements. For instance, the exchange rate regime worth a positive assessment in “normal” circumstances can be a shortcoming during crisis shocks.

As a rule, a crisis occurs if several elements are present; however, their configurations may vary. Availability of prerequisites is a mandatory condition (weaknesses or risks). Thus, a currency attack may be a shock; amid macroeconomic imbalances and external shocks the crisis is capable to develop without negative input of authorities. Let us logically consider “construction bricks” of crises.

Prerequisites of crises

Prerequisites of crises include, first of all, the role of stable fiscal deficit and current account deficit. In the first case, the cost of borrowings, including refinancing of issued bonds constantly goes up. In the second case, risks of devaluation gradually elevate due to deterioration of the net foreign position. It goes without saying that it is essential to define what “stable” deficit is. Within a certain period of time it may be justified, e.g. by public investments to physical and human capital and/or demand for increase in competitiveness of the economy through inflow of foreign investments. However, the experience of the 1997 – 1998 Asian crisis, of many countries of eastern Europe during the 2007 – 2009 crisis, countries of South Europe in the current period witnesses that arguments of the kind should be employed with care.

In addition to risks, characterizing the stance of public funds and the economy as a whole, a significant prerequisite for crises is accumulation of vulnerabilities in the financial system itself. Reasons may be problems of moral risks and price bubbles. The first is associated with widespread of schemes of deposits insurance after the Great Depression. It reduced the risk of the banking crisis, related to “run to banks”, however, the policy of the kind decreases incentives of investors to monitor banks performance. Accordingly, the challenge of *moral risk* surfaces – banks apply extremely risky strategies in the circumstances when the disciplinary effect of mass withdrawal of deposits disappears. Insurance of banks against deposits withdrawal additionally leads to the effect of negative selection, in harmony with which entrepreneurs who prefer risks will flow to the sector.

The reason for the challenge of moral risk for large banks may be so-called “Too big to fail” effect, along with decline in the risk of deposits withdrawal. It assumes that both institutions of the kind and all their creditors (not only deposit holders) understand that in case of problems the government will help resolve them. Indeed, it may have similar incentives, otherwise the system is likely to undergo scaled destabilization possible to make the government incur much larger expenses. The given effect occurred not only on the eve of the global crisis of 2007 – 2009, but also during prior decades[15].

As experience shows, *price bubbles* factor in accumulation of imbalances in the financial system. The bubble is defined as a long-run deviation of an asset price from its value, determined through fundamental factors. Bubbles are more widespread in real estate and stock markets, however, recently the problem of speculative bubbles in the oil market has been actively debated, promoted by a rapid growth of the market of corresponding derivative financial instruments.

Financial bubbles have had a long history, starting from the Dutch Tulip Bubble in XVII century and the South Sea Bubble (1720) in England. In practice, bubbles often were essential predictors of large crises, although only about ¼ of booms in housing and fund markets ended up with financial crises[16]. Bubbles in real estate markets often lead to financial crises (40% cases), and more scaled ones. Thus, “the big five” of bank crises (Spain 1977; Norway 1987; Finland 1991; Sweden 1991, Japan 1992) and the global crisis of 2007 – 2009 were preceded by typical dynamics of housing prices (in the last instance – in the US): within five pre-crisis years they on average rose for over 30%, peaking six quarters prior to the onset of the crisis.

There is no single opinion on the reasons for price bubbles. One approach underlines their “irrational” nature. According to these statements, price hike for a certain type of assets attract greater number of new investors to the relevant segment. As a rule, they are badly informed on specifics of the given segment and often employ strategies, based upon a simple extrapolation of price dynamics. Minority of better informed investors, who apply strategies, considering fundamental factors, become losers and also switch to extrapolation, that leads to further bubble rise. In its turn, high asset prices trigger growth of lending, investments and consumption. However, opposite negative coordination of expectations of investors takes place at a certain moment (e.g. the ratio of total value of assets to output exceeds certain threshold), that stipulates “negative” extrapolation and fall of asset prices up to or below the fundamental level, i.e. “burst” of bubble.

It is obvious that the hypothesis of irrationality has a number of normative aspects. They apply, e.g. to raising awareness of agents through pushing requirements on data disclosure, as well as hazard of maintaining low interest rates due to high incentives to investments to “fast growing” segments of assets.

The alternative point of view is that price bubbles may be “rational”: market players understand the price is exaggerated compared to fundamental values, but it

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[15] *Mishkin F.* Op.cit.

does not stop its incremental trend. The reason is that the value of the asset is not in associated monetary payments (e.g. dividends), but in potential of its price to grow. According to some researchers[17], the approach of the kind realistically reflects moods on investors when bubbles are formed. In this case, it goes without saying that, macroeconomic authorities should not influence asset prices. We should note that, at weaker prerequisites an analogue recommendation is fair: if macroeconomic authorities do not have additional information or are not “more rational” versus private investors, their interference in the price formation process will be counter-productive.

Crisis Shocks

External and internal shocks may both play the role of the “trigger” of crises, that makes dwelling imbalances obvious or leads to revaluation of risks by investors, and the source of such imbalances and problem in the real sector, which, in future, spillover to the financial sector. The first effect was observed, e.g. in the case of Mexico, when political instability resulted in intensification of a country risk and in the case of the Asian crisis, when after the attack on baht overall tendency of investors to investments to regional assets went down. In the case of the Russian crisis, shock of oil prices in 1998 conditioned amplification of the “double deficit” problem, meanwhile increasing crisis vulnerability. In the case of the Argentine crisis devaluation in Brazil led to decline in competitiveness of production, which triggered growth of “double deficit”, fall of output and deterioration of the situation with budget revenues.

Specifics of the economic policy

The economic policy of the government and monetary authorities is likely to cause crisis vulnerability, as well as lead to deepening of crises due to inadequate anti-crisis measures. For instance, in the cases of Mexican, Russian, Argentine crises the first effect prevailed – application of the fixed exchange rate regime factored in accumulation of currency risks in the banking system, while expansionary fiscal policy (in all cases, except for the Asian) elevated default risks and led to high risks in the real sector as a result of extreme strengthening of the exchange rate (including on inflationary channel). During the Great depression, on the contrary, the second effect dominated – initially tough monetary policy and weak response of the fiscal policy

[16] *Claessens S. et al*. The Global Financial Crisis: How Similar? How Different? How Costly? // Tusiad-Koc University Economic Research Forum Working Paper. 2010. No.1011.
[17] *Lansing K.J.* Rational and Near Rational Bubbles without Drift / / FRBSF Working Paper. 2007. No. 2007 – 10.

to the first manifestations of the crisis promoted its outgrowth. However, a number of researchers mention underdevelopment of anti-crisis measures, prescribed by the IMF in the Asian and Argentine crises environment: cost saving (actually pro-cyclic fiscal policy) failed to avert deterioration of investors mood and caused decline in internal demand, deepening and prolonging recession.

Actions of economic agents

No matter what kind of imbalances exist in the economy, no matter how hard external shocks are, no matter what the policy of authorities is, crises always occur and develop in the market economy as a result of decisions and actions of economic agents. It may largely be spontaneous (and accidental in terms of time) deterioration of expectations of investors, triggering "run to banks" or sale of assets, as, e.g. at the onset of the Great Depression. These may be targeted actions: to exemplify we can mention speculative attacks on baht that "initiated" the Asian crisis or another more known attack on pound sterling in 1992. After onset of the crisis high uncertainty in the economy and non-related exaggerated risk perception often lead to irrational actions of agents from the standpoint of maintaining systemic stability, which stipulates spread of crisis (see below).

Amplification and spread of crises

The key question from the standpoint of aversion of financial crises and implementation of the anti-crisis policy is identification of mechanisms of their amplification and spread. One of the paramount specifics of the 2007 – 2009 crisis is that relatively a little initial shock – problems of the subprime crisis in the US – unexpectedly led to global consequences.

Some of the appropriate channels are obvious – e.g. direct interrelation of financial institutions. Thus, if a portfolio of any bank has liabilities of a “problem” bank, company or government, then it automatically faces threat of losses. However, empiric studies, based upon scenario modeling point to sustainability of the system to shocks, that are spread through this channel[18].

One of the alternative mechanisms of transmission of shocks is associated with indirect interrelation of balances. It may be illustrated thus:

– when certain institutions face liquidity problems, they sell their assets;

– it pushes occurrence of so-called “negative” bubble – avalanche-like fall of asset prices up to the values much lower than an objectively specified level. The mechanism of depreciation of assets is that markets perceive their active sale as a signal about low quality of these types of assets, which result in their low demand. Consequently, balances of all institutions with such assets in their portfolios worsen;

– given institutions, in their turn, are also forced to sell these assets, contributing to their price fall;

Within the frames of the process in question the type of assets under sale may expand and bubble will further enlarge on the “classification” of assets; with an eventual “spiral of losses”[19]. The effect may additionally amplify against increase in marginal requirements, leading to necessity to rapidly decrease the leverage and accordingly further sell assets. Such a rise is the result of two factors: first, dependency of marginal requirements on risks values (Value at Risk) and volatility of asset prices which hike as a result of a shock; second, aggravation of the problems, related to informational asymmetry – creditors request to increase collateral, since with shocks in the air it is hard to appraise pledged collateral.

Another channel for contagion of shocks is associated with high uncertainty. First, shocks are capable to reduce inclination of investors to risk and result in “run to quality”, meanwhile aggravating liquidity related problems. This effect is particularly pronounced if investors perceive the original shock as highly improbable, or it was associated with new types of financial instruments[20]. Second, institutions may start maintaining free resources as “safety cushion” in case the situation worsens, which adds up to a low level of liquidity in the system.

Problems in the interbank market of the US in 2007 – 2008 are a typical example of the given effect. Indeed, during that period uncertainty went up both versus the required level of attraction of funds amid losses on positions, associated with derivative instruments, and possibility of this attraction. The tendency of other banks to lend went down as a result of which interest rates dramatically went up,

Finally, third, high uncertainties may stipulate dramatic variations in the value of derivative financial instruments (the price of which in most cases depends on shocks dispersion). It is an additional factor for instability of balances.

In practice, in a historical horizon, both direct bilateral exposures of balances and high uncertainty were significant crisis channels. Thus, a wave of sales of “loss” assets and “run to quality” resulted in spillover of the banking crisis during the Great Depression[21]. At the same time, these channels undergo certain evolution: over the recent decade the role of the variation factor of prices for financial derivatives has elevated.

[18] *Furfine C.* Interbank Exposures: Quantifying the Risk of Contagion / / Journal of Money. Credit and Banking. 2003. Vol. 35 P.111-128; *Upper C., Worms A.* Estimating Bilateral Exposures in the German Interbank Market: Is there a Danger of Contagion? / / European Economic Review. 2004. Vol.48. P. 827 – 849.

[19] *Brunnermeier M.K.* Deciphering the Liquidity and Credit Crunch 2007 – 08 / / Journal of Economic Perspectives. 2009. Vol. 23, No 1. P. 77 – 100.

[20] *Krishnamurthy A.* Amplification Mechanisms in Liquidity Crises / / NBER Working Paper. 2009. No 15040.

[21] *Allen W.A., Moessner R.* The International Propagation of the Financial Crisis of 2008 and a Comparison with 1931 / / BIS Working Paper. 2011. No 348.

Summarizing discussion of mechanisms of birth and growth of crises, we should mention that for every country and every crisis episode prevailing channels depend on the level of economic and institutional development. Nevertheless, the reviewed classification may be useful, in particular, for description of complex crises (see Table 2).

Impact of financial crises on output and fiscal indicators

As was mentioned above, in practice, consequences of financial crises often go beyond the financial system. It is usually observed, when contagion of shocks within the system lead to a liquidity crisis. The liquidity crisis may be defined as sudden and long-run worsening of the situation with market (perceived as the possibility to quickly dispose assets with slight consequences for their prices) and attracted (perceived as the possibility to acquire cash funds or their equivalents through sale of assets or borrowings) liquidity[22]. During the liquidity crisis the financial system is less capable to perform functions of the source of borrowings for investments. This, in its turn, is one of the reasons for the crisis spillover to the real sector via a number of channels.

Financial crises are traditionally accompanied with *high borrowing costs.* As a rule, during the crisis interest rates on loans to the private sector go considerably up (even if economic authorities reduce base rates). Price slides in the fund market, in its turn, sharply rises financing cost at the expense of issue of shares. High interest rates reduce the number of potentially profitable investment projects and, moreover, may increase the cost of debt servicing. Thereby, the volume of surplus funds, which could be invested, goes down. The last effect is observed in practice, since in most countries a considerable portion of the corporate debt when issued has a floating exchange rate or is a succession of short-term refinancing debts[23]. In addition to negative impact on investments, high interest rates may trigger low consumption due to high mortgage repayments. Crises are accompanied not only with "price" (high interest rates), but also with "volumetric" effect – *low supply of borrowed funds.* Lending standards are toughened due to high uncertainty, which creates additional downward pressure on investments.

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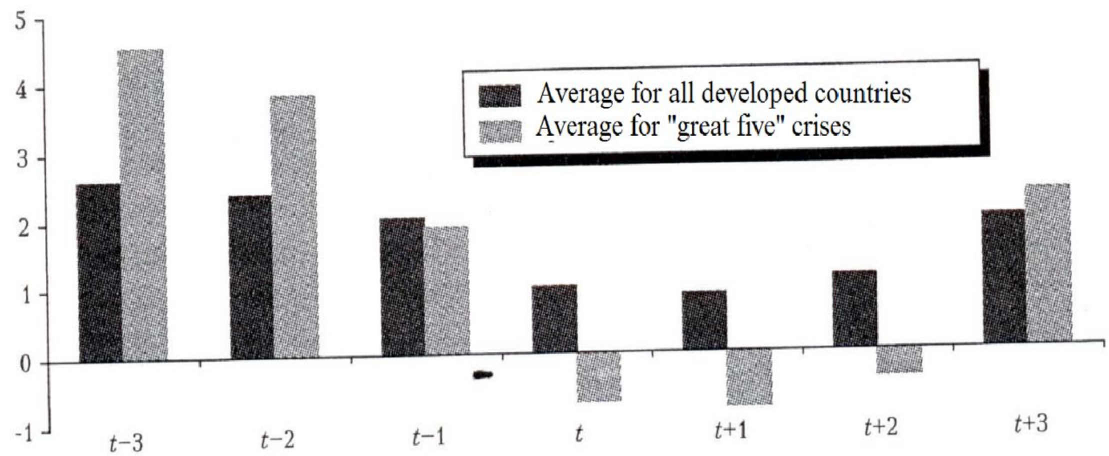
[22] *Borio C.* Ten Propositions about Liquidity Crises / / BIS Working Paper. 2009. No 293.
[19] *Cecchetti S.G. Kohler M., Upper C.* Financial Crises and Economic Activity / / NBER Working Paper. 2009. No 15379

Low asset prices are the key channel for crisis spillover to the real sector. For non-financial companies it means additional reduction of scales of lending due to decrease in potential size of debt. Households end up with low consumption (because of worsening of expectations of future income; restrictions of capacity of consumer lending as a result of fall on housing prices as a potential collateral; in some countries – also via the channel of pension savings and asset prices).

Additional factor for low access to borrowed funds during crises – *investors are not prone to risk.* It leads to high risk reward and the "run to quality" effect (e.g. high investments to state treasury bills of developed countries). Moreover, as a rule, crises are *accompanied with low consumer and business confidence indices,* conditioning low growth rates of GDP due to Keynesian reasons (under-consumption, under-investment). Finally, financial crises often trigger *devaluation,* capable to dramatically deteriorate balances of companies with dwelling non-hedged currency risks and lead to additional decrease in the volume of investments.

In practice, low growth rates of GDP after financial crises are observed both in developed and developing countries (see Fig. 3 – 4), at that, the more pronounced pre-crisis boom in the fund and housing markets as well as high lending were, the higher the lifetime and depth of slump are. Results of the econometric analysis also prove this[24].

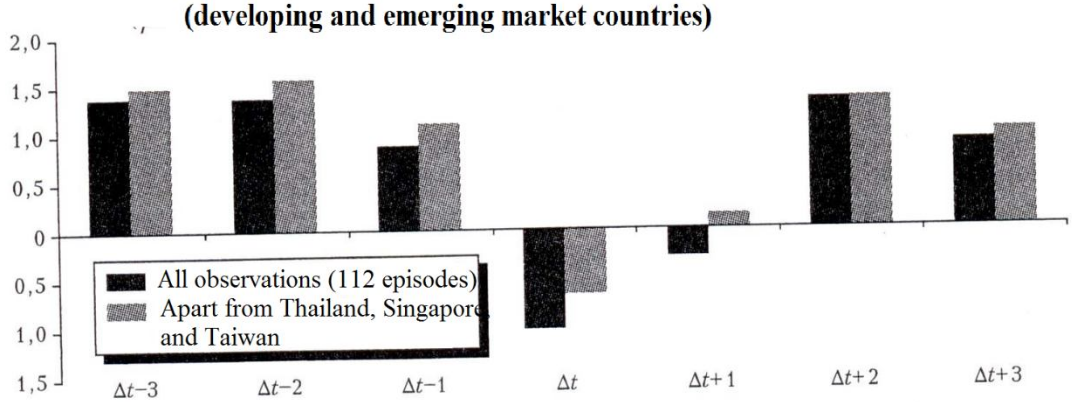
Per capita GDP growth and banking crises (developed countries, %)



Source: *Reinhart C., Rogoff K.* Banking Crises: An Equal Opportunity Menace.

Chart 3.

Deviation of GDP growth from trend and banking crises (developing and emerging market countries)



Source: see chart 3.

Chart 4.

[24] *Cecchetti S.G. Kohler M., Upper C.* Op.cit.

Along with negative impact on growth, the key consequence of banking crises is often a considerable deterioration of the fiscal position. To a certain degree it is related to expenses on “saving” large problem financial institutions (which may include recapitalization, buyout of bad assets etc). Corresponding valuations are hard to make due to methodological challenges. For instance, for the Norwegian crisis of 1987 “static” estimated cost of crisis constitutes 2 – 4% of GDP, while “dynamic” cost, which considers followed re-privatization of banks and sale of bought out assets witness that public funds as a whole won from rescue of the banking system. Valuations of impact of crises on budget revenues and sovereign debt are less contradictory. Thus, it was proved that decrease in public revenues is observed on average within two-three post-crisis years and as a whole make about 2.5% of GDP in real terms. In its turn, the sovereign debt for three post-crisis years on average gains 86% in real terms[25].

High level of sovereign debt may cause high long-term interest rates and crowding out of investments, which is one of the possible channels of effect of financial crises on long-term economic dynamics. Other channels include possible high interest rates due to high risk reward, maintenance of extremely tough lending standards, high level and volatility of inflation as a result of an expansionary anti-crisis monetary policy. Results of empiric studies reveal considerable inter-country variation in medium- and long-run post-crisis economic dynamics. The negative change of the level of GDP is observed in roughly half of the cases; however, it is considerable only in 20% of cases[26]. In its turn, changes to growth rates of GDP may be both negative and positive, while the second effect is usually observed in the countries with the negative change in its level (whose compensation against higher growth rate on average takes over five years).

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[25] *Reinhart C., Rogoff K.* Banking Crises: An Equal Opportunity Menace.
[24] *Cecchetti S.G. Kohler M., Upper C.* Op.cit.

There are potentially positive channels of impact of crises on long run dynamics of output. First, a crisis, as a rule, is accompanied with bankruptcy of a considerable number of financial and non-financial institutions. In "ideal" conditions (e.g. in absence of politically motivated support of separate sectors) the crisis sieves less competitive companies or institutions pursuing much riskier policy. So, it helps fundamental powers of "originative destruction" for capitalism surface, assisting in more effective allocation of resources and elaboration of optimum growth strategies.

Second, the crisis helps understand existing challenges and conduct reforms, aimed at increase in and stabilization of a long-run debt. It may concern not only taking unconventional measures of the macroeconomic policy (e.g. cuts of public expenditures to limit the sovereign debt, but also pension reforms, rise in flexibility of the labor market, de-monopolization of the economy and so on. In practice, as empiric studies show, the effects of the kind indeed happen, but for the countries with highly developed democratic institutions[27]. Otherwise, the anti-crisis policy and post-crisis reforms will be determined by interests of lobby groups, as a rule not promoting high public welfare. Let us add that the above positive effects are realizable even when there is no crisis, so they cannot be used as an argument against the policy aimed at lowering volatility of economic growth rates.

* * *

Economists have been studying prerequisites and mechanisms of crisis development. However, every new scaled crisis leads to changes to visions on significance of particular factors of crisis vulnerability and crisis channels. To this extent, the "scheme" of a financial crisis, delivered in the present study, includes both "classic", long known components (e.g. fiscal and external imbalances), and the components, the interest to which was conditioned with the 2007 – 2009 crisis (e.g. related to growth of the sector of derivative instruments). Within the frames of the given scheme, we can analyze all large crises of the recent decades. It goes without saying that, it has common enough nature, and for every particular crisis significance of this or that component can considerably vary (e.g. with respect to the 2007 – 2009 crisis it is hard to speak about “external” nature of the shocks it was triggered by). Nevertheless, such a systematic approach may be useful both for retrospective analysis, and at formation of the policy, aimed at reduction of probability of financial crises in future.

[27] *Cavallo A.F., Cavallo E.A.* Are Crises Good for Long-term Growth? The Role of Political Institutions // Onter-American Development Bank Research Department Working Paper. 2008. No. 643.