Factors behind the Worldwide Declines in GDP and Industrial Output under the Crisis of 2008

Ksenia Yudaeva,
Director of Sberbank's Center for Macroeconomic Studies
Konstantin Kozlov,
Leading expert of Sberbank's Center for Macroeconomic Studies

A year ago, the prevailing theory among economic analysts was decoupling. It maintained that the role of the United States in the global economy had substantially decreased in recent years and so the crisis, which had originated in the United States, would hardly affect other nations. Quite the opposite: rapid growth in the developing world and relative stability in Europe would create additional stimuli for economic growth in the US and make the crisis exercise an insignificant influence on the dampening of overall economic activity. The theory has now been discarded because it has proved absolutely untenable. The financial crisis and then the economic crisis spread from the United States to the rest of the world and the global economy is now in economic doldrums. The rapidly growing developing nations have faced a dramatic slowdown of growth rates and many have experienced an economic downturn. The developed world – both the United States and Europe - are in recession that threatens to evolve into a depression. What are the channels through which the crisis has spread from one country to another and what reforms are needed to prevent a similar crisis in the future? The article below tries to answer these questions.

> 1. Evolution of the global economic crisis

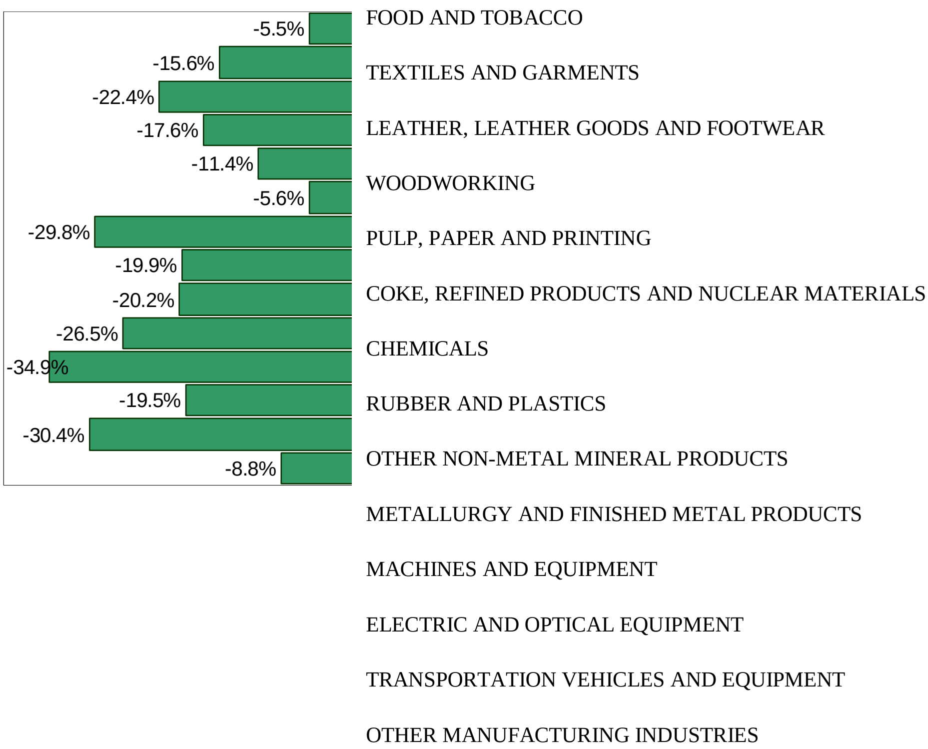
The article is based on information from 51 countries, including Europe (29 countries), Asia (14 countries), and the Americas (6 countries). In the first quarter, growth rates in most of these countries matched average performance for the last three years. The exceptions included Ireland, which had already entered a downturn (-0.5%), and Estonia and Latvia, where growth rates had dramatically slowed down. In the second and third quarters, growth rates substantially dropped in Estonia (-1.1%) and Latvia (-4.6%), with Singapore joining countries in economic downturn. The crisis had not yet affected most other countries. In the first and second quarters, growth rates in China remained more than 10%. In the United States, a slight decline in the first quarter was replaced with rapid growth in the second quarter - the result of increased exports and relatively high consumer demand supported by tax refunds. The global economy did not experience a drastic slowdown of growth rates until the third quarter and the wholesale decline began later, in the fourth quarter. But because of the lagging collection of statistics, no data about the depth of the downturn in many countries are available yet.

Industrial output statistics can help follow the developments in the global economy in the fourth quarter. The sample of countries shrinks to 47 because not all produce this indicator or because some use totally different methodologies to calculate it than what is applied in most cases. Industrial output was a part of the economy that suffered particularly in the fourth quarter and so did exports.

World trade began to contract in October when export loans were discontinued following the Lehman Brothers bankruptcy and a dramatic decrease in the demand for imports in the United States.

As a result, industrial output entered a downward spiral across the globe. It dropped by more than 25% in Taiwan and Ukraine in November and December, by more than 15% in Japan and Spain in November, and by about 20% in Japan and Sweden in December. Production growth dramatically slackened in China (5.4% in November and 5.7% in December) and in India (-0.4% in October, 1,7% in November, and -2% in December). Output decline in Russia was 8.7% in November over the same period of 2007, 10.3% in December, and 16% in January. Exporter industries suffered the most: metal, fertilizer, and timber. Like in any other recession, a profound downturn began in sectors producing investment goods and durable goods. The downturn was relatively minor only in industries manufacturing essential consumer goods and in the fuel industry (Chart 1).

Chart 1: Seasonally adjusted output decline in Russian manufacturing industries, December to August 2008



Source: Center for Macroeconomic Analysis and Short-term Forecasting, Sberbank

> 2. Analysis of the reasons for the spread of the crisis

Usually, references are made to two reasons why the crisis broke out and spread:

- Financial factor: The crisis has affected economies that have been growing rapidly thanks to capital inflows in the recent years. The banking systems of these countries raise a lot of funds in the financial markets and have a narrow deposit base.

- Foreign trade factor: The crisis has badly hit exporter countries.

We have used regressive analysis to estimate the significance of these factors in different stages of the crisis. Our analysis has shown that quarterly GDP growth rates in the sampled countries dropped by an average of 0.4 percentage points in the second quarter compared with the first quarter, by 1.6 percentage points in the third quarter, and by 5.3 percentage points in the fourth quarter.[1]

Similar calculations of industrial output indicate that statistically output began to decrease tangibly starting in August compared with the first two months of the year: in August it was -3.6 percentage points. The decline of industrial output reached unprecedented levels for the last 30 years in October (-7.1 percentage points), November (-11 percentage points) and December (-15 percentage points).

The following variables were included in the regressive equations to estimate the impact of the above factors on the magnitude of the decline:

- variables characterizing a country's financial system:
    - loans to GDP as a measure of the credit system's development level,
    - loans to deposits as a measure of the banking sector's dependence on market sources of funds
- variables characterizing the degree of integration in the global economy:
    - the current account as a measure of the economy's dependence on capital inflows
    - export focus of the economy (exports to GDP) as a measure of integration in global trade.

The regressive analysis has shown that indeed economies with greater shares of services have experienced a larger drop of both GDP and industrial output.[2] An increase of the share of services by 10 percentage points results in an additional decline of GDP by 1.2 percentage points and of industrial output by 1.4 percentage points. We believe that this can be interpreted as follows: the crisis originated in countries with more developed financial sectors and with significant shares of services in their GDPs. The measure of the banking sector size (loans to GDP) and the measure of the banking system's dependence on market sources of funds (total loans to total deposits) are inversely proportional to GDP growth. In other words, countries whose populations and/or businesses have an exceptionally high debt burden and countries whose banking sectors raise funds in the financial markets in addition to deposits have experienced larger declines of GDP, other conditions being equal. But it is not these two factors that have caused industrial output to fall. The key reason for the decline of industrial output has been the export focus of the economy, as well as an increased share of services in GDP.

> 3. Changing significance of the factors in the course of the crisis

As was said earlier, the crisis did not affect all countries at once and spread from the United States

[1] GDP growth data are available only for six countries for Q4 and for 50 countries for other quarters.
[2] Regressive dependencies can be found at:
http://www.sbrf.ru/common/img/uploaded/files/pdf/press_center/Review_5.pdf

elsewhere gradually. One can argue that financial factors wielded most of the negative impact on the real economy in the initial stages of the crisis and that the prime victims were countries whose financial systems were closely linked with the US economy or countries that strongly depended on capital inflows. Starting in September 2008, the drop in world trade caused the crisis to deepen in many countries. To confirm this hypothesis, we extended the regressive equation with monthly variable indicators reflecting the impact of some factors on the crisis (such as per capita GDP in 2007 as a characteristics of the overall development level of a country; the share of services in GDP in 2007 as an indicator of the structure of the economy; and foreign trade to GDP in 2007 as an indicator of the economy's integration in the global market).

The regressive analysis confirms our hypotheses. Countries with high per capita GDPs experienced a relatively deep decline of industrial output in June and July and achieved improvements compared with the economic situation in the developing countries with low per capita GDPs by the end of the year. A similar impact is even more visible in the changing share of services in GDP. Countries with larger shares of services experienced a greater drop of industrial output in the middle of 2008 but this impact was insignificant in October through December. In the meantime, foreign trade was not a statistically meaningful factor affecting industrial output at the beginning and middle of the year and began to gain significance toward the end of the year beginning in October. As we said earlier, the degree of the banking sector's dependence on financial markets is reflected only in GDP changes and does not exercise any impact on industrial output. The impact of this factor can be assessed only after a sufficient amount of representative data about GDP decline in Q4 2008 are available.

Conclusions

The regressive analysis cited earlier indicates that both financial factors and foreign trade factors affected the economic situation in different countries as the crisis unfolded. The first group of factors, however, exercised a significant influence in the early stages of the crisis, until Q3 and Q4 2008. The hardest hit were countries with a high degree of dependence on capital inflows and countries whose banking systems had been raising a lot of funds in the financial markets, not as deposits. The global economic crisis hit only when global trade began to disintegrate under the impact of financial factors and the shrinking aggregate demand in the developed countries. Countries focusing on exports, both developed and developing, suffered the most. A relative pickup of trade following the stabilization of the financial sector can lead to economic stabilization around the world. There has been a trend for more protectionism as evidenced by bans imposed on foreign transactions of banks receiving government bailouts and by the preferential treatment given to local products in government purchases; the same trend has also manifested itself in the labor market. This kind of protectionism can extend the crisis in time and deepen it. So one of the lessons of the crisis is a need to set up global mechanisms to stabilize foreign trade loans and capital flows, and mechanisms limiting the use of unconventional protectionist measures at a time of crisis.

Submitted: February 2009