



## This Time it is Really Different: Major Industrialized Economies are Pulling Each Other into the Abyss<sup>1</sup>

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What started in the US as the sub-prime mortgage crisis in 2007 has since been transformed into a severe global financial crisis that inflicted all major advanced and emerging economies. While it is too early to decide whether the global financial crisis had already reached its climax, it is by now certain that it will have a devastating effect on global economy at least throughout 2009. Actually, the global economy is facing the threat of the worst recession in decades, perhaps the first truly global recession.

It is rather difficult for researchers to explain how the global capitalist system produced such a global economic crisis after a two and half decade long 'great moderation' of business fluctuations. As the practitioners of the dismal science we failed to predict the financial crisis and the ensuing global recession; Now, it is high time to do everything at

our disposal to forecast how the recessionary dynamics will unfold in 2009 and beyond.

Recently there have been two important studies focusing on past recessions in advanced economies, along with the episodes of financial crises in these countries since the Second World War. Analyzing 122 recessions, along with a large number of episodes of credit crunches, house price busts, and stock market busts Claessens, Kose and Terrones (2008) find evidence that although recessions accompanied with severe credit crunches or house price busts last only three months longer, they typically result in output losses two to three times greater than recessions without these financial stresses.<sup>3</sup> Reinhart and Rogoff (2009), also examine the depth and duration of the real contraction that follows severe financial crises. They show that on average output contraction reaches to over 9 percent, while unemployment rate rises an average of 7 percentage points during the slump following severe financial crises.<sup>4</sup>

By providing a careful and systematic study of the past crises and recession episodes these studies aim at contributing to a better understanding of the current global crisis and recession episode as well as the appropriate policy response. However, as they do not study the current episode along with past episodes, such studies have limited scope in helping us understand the characteristics of the current global recession. Instead, we need new studies that shed more light on the current episode using the most recent data on financial and real sectors.

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<sup>1</sup> A shorter version of this note was posted at the VOX research-based policy analysis and commentary portal, [www.voxeu.org](http://www.voxeu.org).

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<sup>3</sup> Claessens, S., M. A. Kose and M. E. Terrones, 2008, "What Happens During Recessions, Crunches and Busts?" IMF Working Paper 08/274.

<sup>4</sup> Reinhart, C. M., and K. S. Rogoff, 2009, "The Aftermath of Financial Crises," NBER Working Paper 14656, January.

## International business cycle spillover index

Towards that objective, in a recent paper I study the statistical properties of business cycle spillovers among major industrialized countries.<sup>5</sup> In my study I adopted the spillover index methodology, which was recently proposed by Diebold and Yilmaz (2009) for the analysis of stock return and volatility spillovers across stock markets around the world.<sup>6</sup> I apply Diebold-Yilmaz spillover index methodology to the seasonally adjusted industrial production indices for 6 industrialized countries (France, Germany, Italy, Japan, U.K., and U.S.A.) to study the business cycle spillovers among these countries.

The methodology basically distinguishes between idiosyncratic shocks to each country's industrial production and the spillover of shocks across countries. When an idiosyncratic negative or positive shock hits industrial production in a country, it potentially can spill over to other countries. When a shock is common to all countries, it affects their output simultaneously, and therefore is treated as a country-specific shock for all countries considered rather than as spillover of a shock from one country to others.

The spillover index framework allows one to identify how much shocks to industrial production in each of the countries considered affect the industrial production in other countries over time. It is quite simple to implement. For each five-year sample window I obtain a single index value between 0 and 100, which shows how much of the total shocks to industrial production in six countries

<sup>5</sup> "International Business Cycle Spillovers," Mimeo, Koç University, March 2009.

<sup>6</sup> Diebold, F.X. and K. Yilmaz, 2009, "Measuring Financial Asset Return and Volatility Spillovers, With Application to Global Equity Markets," *Economic Journal* 119: 158-171, January.

are due to spillover of shocks among these countries. Obviously, the difference between 100 and the value of the index is a measure of how much of the shocks to industrial production in these countries are country-specific.

The time-variation in spillovers is potentially of great interest, because the intensity of business cycle shocks as well as transmission of these shocks across countries is likely to vary over time. Rolling five-year sample windows over time and calculating the spillover index for each window, I allow the spillover index to capture any possible time variation in cross-country effects of business cycles since 1958.

## Business cycle spillovers since 1958

The spillover index is presented below. Monthly updates of the Spillover Index can be reached at <http://data.economicresearchforum.org/erf/bcs/pill.aspx?lang=en>.

There are several important results of the analysis. First, the spillover index indeed varies substantially over time. Second, the spillover index tends to increase especially during and immediately after recessions, but also during some episodes of expansion. Finally, the most rapid and significant increase in spillover index observed since September 2008 attest to the fact that in the current episode major industrialized economies are pulling each other down at an unprecedented rate.

Consistent with the first result, there is no upward or downward long-run trend in the spillover index. While there are periods of increased spillover of shocks across countries, there are also other periods during which the spillovers are lower. While it is true that the spillover index fluctuates over time, the band

within which it fluctuates moves slightly upwards since the current wave of globalization had started in earnest in the early 1990s.

From 1989 onwards the spillover index follows three complete cycles. It is interesting to note that each time the cycle lasted longer than the previous one, with an increased bandwidth. During the first cycle which lasted from 1989 to the end of 1992 the index fluctuated between 33 and 52, while in the second cycle that lasted from 1993 to 1999 the index fluctuated between 37 and 61. Finally, during the third cycle that lasted from 2000 to 2007 the index fluctuated between 41 and 72 percent.

As the US economy started to lose pace since 2005, German, Japanese, French and Italian economies gained momentum and grew faster in 2006 and 2007. As a result, production spillovers among the six countries declined sharply since 2005, with the index touching a low point at 38% in mid-2007 and staying around 40% until the end of the first quarter of 2008. From March through August 2008 the index fluctuated between 42 and 49 percent level.

### Spillover index since september 2008

Finally, I can now focus on the most important part of the results, namely the recent behavior of the index since September 2008. The index jumped the most, from 49 to 64, as the observations for September are included in the sample. After a slight decline to 58 in October, the index again jumped to 74 percent in November and to 78 percent in December, reaching the highest level since 1958.

The behavior of the index during the current episode is in stark contrast with its behavior in past recession episodes. It has increased close to 40 points in a matter of 4 months (September through

December). During the worst global recession of the post-war era following the first oil price shocks the spillover index recorded a smaller increase, from a low of 30 to a high of 64, in a matter of four years, from 1972 to 1976.

This jump in the index is an indication of how countries are pulling each other down. In the research paper I also report the directional spillovers across G-6 countries. It is clear that the United States is leading the way in the current recession. That means the shocks first take place in the US and spread to other countries. Other countries appear to be net recipients of shocks transmitted by the US.

**Coordinated policy action is the  
only way out**

When we update the business cycle spillover index with the January industrial production data there is no change in our results. Furthermore, we obtain similar results when we add Brazil, Russia and India (BRIC countries with monthly industrial production indices) in our analysis and calculate the spillover index.

The spillover plot as of December 2008 shows how different is the current global recession from past recessions. Since the collapse of Lehman Brothers, in a matter of four months all major industrialized economies of the world are pulling each other down, with the US playing a special role.

There is a desperate need for coordinated policy action to stop the free fall in industrial output around the world. G-20 countries should agree to increase the size of fiscal stimulus packages and coordinate the way these policies are implemented. Obviously, these policies cannot be

expected to have full impact unless the US government comes up with a feasible plan to clean up the balance sheets of its banks from toxic assets.

**Figure - Industrial Production Spillovers among G-6 countries**  
(%, 5-year rolling windows, Shaded bars indicate US recessions)

