Synchronization of Recessions in Major Developed and Emerging Economies

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Recent Global Recession: Background
Recent Global Recession

- Global economy was in the throes of the most synchronized recession on record.

- Breadth and depth was a reflection of increased globalization and strong global interdependence amongst economies, both in terms of their financial interconnections and trade linkages.

- Upshot is that the economies of virtually all major developed countries shrunk rapidly, along with many export-dependent developing economies.
Genesis of the Recession

- Recession in the US started in December 2007.
- In the first half of 2008, the US economy experienced a mild recession, thanks in part to the boost from exports.
- The US recession intensified significantly in the second half of 2008.
- The subsequent financial market mayhem worsened the economy’s outlook further, triggering dramatic cutbacks in US consumer spending.
- This virus quickly spread across the global economy.
Decouple from US?

- In the first half of 2008 the belief was that the economies of Europe, Asia or both would decouple from that of the US.
- Thus the contractionary virus was not supposed to spread this way.
- Europe was, however, hit by the slowdown in exports to the US. Plus the inflation spike played a major role in the evolution of the economic outlook for a number of economies.
- The inflation spike prompted the European Central Bank into raising rates in July 2008 although at that time every significant Eurozone economy was already in recession.
- Similarly in China and India, tight monetary policy aggravated the slowdowns. While policy has belatedly reversed, the contractionary policy took its toll.
Decouple from US?

- Cross-border financial investment – especially between Europe and North America – meant that the US credit crisis spread like wildfire.

- This led to an evaporation of trade finance as it became impossible to obtain letters of credit – important for developing economies.

- This resulted in the most synchronized global recession on record.
Recession Analysis: Meaning & Severity
Recessions and Expansions

A **recession** is the phase of the business cycle marked by pronounced, pervasive and persistent declines in the key measures of aggregate economic activity, i.e., output, employment, income and sales.

An **expansion** is the phase of the business cycle marked by pronounced, pervasive and persistent increases in the key measures of aggregate economic activity, i.e., output, employment, income and sales.

Alternating expansions and recessions make up the **business cycle**.
The Recession as a Vicious Cycle

A recession occurs when a decline in some measure of aggregate economic activity sets off cascading declines in the other coincident measures of activity.

Thus, when a dip in sales causes a drop in production, triggering declines in employment and income, which in turn feed back into a further fall in sales, a vicious cycle results and a recession ensues.

This domino effect of the transmission of economic weakness from sales to output to employment to income, feeding back into further weakness in all of these measures in turn, is what marks a recessionary downturn.
The Expansion as a Virtuous Cycle

At some point, the vicious cycle is broken and an analogous self-reinforcing virtuous cycle begins, with increases in output, employment, income and sales feeding into each other – the hallmark of a business cycle expansion.
How the Virtuous Cycle Works

Incomes Rise

Sales Rise

Employment Rises

Production Rises
Turning Points: Business Cycle Peaks and Troughs

Because recessions can be characterized as vicious cycles and expansions as virtuous cycles, the transition points between the vicious and virtuous cycles, based on the consensus of the coincident indicators (output, employment, income and sales), properly mark the start and end dates of recessions (peaks and troughs).

That is also why “two down quarters of GDP” is not an adequate definition, nor a proper criterion, for a recession.
Business Cycle Chronologies

The historical dates of business cycle peaks and troughs are thus based on the consensus of the dates of the peaks and troughs in the broad measures of output, employment, income and sales.

For 20 economies, ECRI maintains business cycle peak and trough dates based on the same approach.

The up-to-date list of business cycle dates for 20 countries including the U.S. is available here:

http://www.businesscycle.com
Growth Rate Cycle Chronologies

Growth rate cycles are made up of alternating periods of rising and falling economic growth.

They are based on the growth rates of the coincident indicators whose levels relate to business cycles. Growth rate cycles, along with business cycles, are useful for real-time monitoring of the economy.

ECRI maintains growth rate cycle chronologies for 20 countries:

http://www.businesscycle.com
Business Cycles and Growth Rate Cycles
Severity of a Recession

- Severity of a recession is measured in terms of its *diffusion, depth and duration*.
- In the context of international recessions, *diffusion* is the extent to which the recession has spread to different economies.
- In terms of *depth*, when contraction is seen in many indicators, in many geographical regions within an economy, and in many industries, it is likely to be severe.
- The longer the *duration* of a recession, the more severe it is.
Severity of Current Global Recession

- **Diffusion:** By this measure, the recent global recession was the most widespread on record.
- **Depth:** For the US, this was surely a deep recession, possibly the worst in the post war period.
- **Duration:** In terms of duration, the recession in the US was about 17 months (yet to be dated).
Synchronization (Diffusion) of Global Recession: Various Measures

- Clustering of start of recession dates
- Proportion of economies in expansion
- Co-movement of Coincident Indexes
Start Dates of Recessions

- **ECRI tracks 20 countries**: US, Canada, Mexico, Germany, France, UK, Italy, Spain, Switzerland, Sweden, Austria, Japan, China, India, Korea, Australia, Taiwan, New Zealand, South Africa, Brazil

- ECRI has established the recession start dates for almost all the economies it tracks and were recently in recession.

- Italy led the way, entering recession in August 2007, followed by New Zealand in November and the US in December 2007.

- In February 2008, Japan, Taiwan, France and Spain fell simultaneously into recession, followed by Germany and Sweden in April, UK in May and Korea in July 2008.
Start Dates of Recessions: Points to Note

- Most economies went into recession before last fall’s market mayhem.
- The global contraction was highly concerted.
- The decoupling hypothesis was misguided.
Chart 1 shows clearly how closely the recessions are clustered in the recent global downturn, as compared to the one in the early part of this decade.

Only the main economies are shown for the sake of clarity.
Chart 1
ECRI 20-country Coincident Index
Proportion of Economies in Expansion

- Proportion of economies in expansion is a measure of the diffusion of a global recession.

- Chart 2 shows that the proportion of economies (tracked by ECRI) in expansion plunged to its lowest reading on record.
Chart 2
Proportion of 19 Economies in Expansions
Diffusion Index of International Coincident Indexes

- Diffusion index of ECRI’s coincident indexes (designed to track current states of the economies) measures the proportion of the coincident indexes that are higher than they were three months ago.

- Top portion of Chart 3 shows the proportion of the coincident indexes for the Group of Seven economies (US, Japan, Germany, France, UK, Italy, Canada) that were higher at each point in time than they were three months earlier.

- The G7 diffusion index touched zero in late summer, 2008 meaning that every one of the seven economies was contracting.

- Thus the recessions in the major developed countries were as concerted as they were in the mid 1970s and early 1980s and 2001.
Bottom line in Chart 3 shows the 19-country coincident index diffusion index, which is the proportion of the coincident indexes for all 19 economies monitored by ECRI that were higher at each point in time than they were three months earlier.

This was at its worst reading in March but was not as low as the G7 index possibly due to the positive impact of economies with higher trend rates of growth such as China and India.
Chart 3
Diffusion Index of International Coincident Indexes

G7

19 Countries

Mar.

Mar.
Trade Linkages

- Exports as percentage of GDP
- Global exports of goods, growth rate
- Bullwhip Effect
Exports Growth

- Countries have become increasingly interdependent as trade has grown by leaps and bounds.
- Exports as percentage of GDP have doubled or tripled since the early 1990s in key Asian economies, as well as export-oriented countries like Germany and Mexico.
- Even economies that are less export-oriented, like the US, UK, France and Japan, saw these proportions rise to one-and-a-half times their 1990 levels.
- Meanwhile, the US economy remained a major destination for exports.
Chart 4
Exports as a Percentage of GDP in Asia-Pacific

India
Japan
Korea
China
Taiwan
Chart 5
Exports as a Percentage of GDP in Europe

Germany
France
U.K.
Italy
Chart 6
Exports as a Percentage of GDP in North America

Mexico
Canada
U.S.
Trade Linkages and Transmission of Business Cycles

- Enhanced trade linkages served as mechanism for the transmission of business cycles across the globe.
- With many countries in simultaneous recessions, the hit to exports was dramatic.
- Chart 8 presents the performance of total export growth for the 30 member economies of the OECD.
- In the world recessions of 1973-75, 1980-82 and 2001, export growth plunged well below zero, as the actual level of exports declined.
- However, the severity and rapidity of the current drop in world exports is unprecedented.
- As of January 2009, this measure had deteriorated to levels far below those seen in previous world recessions.
Chart 7
Global Exports of Goods, Growth Rate (%)
In trying to understand what made this global economic crisis so severe, we review the impact of the Bullwhip effect. The Bullwhip effect refers to the amplification of fluctuations in consumer demand up the supply chain. It is called the Bullwhip effect in analogy to the way a flick of the wrist results in a big arc at the end of a bullwhip. Even small fluctuations in consumer demand can translate into large cyclical swings in orders for suppliers, as they move up through supply chains. This time around, the shift in demand was not small since consumer spending fell precipitously in the US.
Ruth Mack, Researcher at NBER, uncovered this link in a study of shoe, leather and hides. When Mack did her study, shoes were not impulse buys but expensive products that consumers would buy in good times. In not so good times, consumers would get their shoes repaired and postpone the purchase, implying that shoe demand was moderately cyclical.
An increase in inventories of shoes due to a drop in demand resulted in shoemakers reducing production and orders for leather.

Thus slowdown in shoe demand would result in an actual decline in the demand for leather, which is made from cattle hides.

This would trigger a sharp plunge in the demand for hides.

Thus small shifts in demand growth at the consumer level are amplified through the supply chain into big swings in demand as we move up the supply chain away from the consumer.
**Bullwhip Effect**

- Chart 9 shows the impact of the Bullwhip effect in the current cycle.
  - Top line: Growth rate of US consumer spending on goods
  - Middle line: Growth rate of Global Industrial Production Index for 30 member economies of OECD plus BRIC countries
  - Bottom line: Growth rate aggregate exports of capital goods for US, Germany and Japan

- It is evident that small shifts in spending growth cause larger swings in global industrial growth, which in turn lead to greater declines in demand growth for capital goods.

- In the recent recession, both consumer spending growth and global industrial production growth were deep in negative territory, causing export growth to plummet below -65%.

- Thus, the economic and financial crisis that struck the US economy, along with the Bullwhip effect, brought on a sharp global industrial downturn.
Chart 8
The Bullwhip Effect

U.S. Consumer Spending on Goods, Growth Rate (%)

Global Industrial Production Index, Growth Rate (%)

U.S., Germany and Japan Exports of Capital Goods, Growth Rate (%)

96 97 98 99 00 01 02 03 04 05 06 07 08 09
Financial Linkages
Financial Linkages and Global Crisis

- Increased financial integration contributed to the breadth of this global recession.
- The US financial crisis, triggered by the plunge in the value of securitized subprime mortgages and exacerbated by the onset of recession in late 2007, reverberated around the world because these financial instruments were owned by investors globally.
- It is notable that in the fourth quarter of 2008, foreign entities owned almost nine times the amount of US credit market instruments as they did in 1990.
- The financial linkages are captured in the charts that follow.
**US vs UK Stock Prices**

S&P500 vs. FTSE, 1987-2001  
Correlation: 0.99

S&P500 vs. FTSE, 2002-2008  
Correlation: 0.97

**US vs Germany Stock Prices**

S&P500 vs. CDAX, 1987-2001  
Correlation: 0.97

S&P500 vs. CDAX, 2002-2008  
Correlation: 0.94
US vs Hong Kong Stock Prices

Correlation: 0.85

Correlation: 0.88

US vs India Stock Prices

S&P500 vs. SENSEX, 1990-2001
Correlation: 0.66

S&P500 vs. SENSEX, 2002-2008
Correlation: 0.86
Timing of Policy

- Pre-emptive monetary and fiscal policy actions were possible and timely action based in part on reliable leading indexes could have been taken.

- However, although there was enough time, policy measures took effect too late to head off a recession.

- In the summer of 2008, many decision makers did not believe that even the US economy was in recession.

- Therefore, most blame the global downturn on the subsequent financial market meltdown, which in fact only exacerbated the situation.
Timing of Policy

- Almost a year after ECRI’s 19-country long leading index turned down in August 2007, a global recession began, with the 19-country coincident index entering a cyclical downturn in July 2008.

- The 19CI is designed to move in step with the world business cycles.

- This makes it evident that the global recession rather than being the result of last fall’s financial turmoil, actually began two months before the failure of Lehman Brothers, at a time when central banks in Europe and Asia were still raising interest rates and the Fed was making hawkish noises about the danger of inflation.
Timing of Policy

- In the US, by the time attention moved from inflation to growth and the Fed aggressively cut rates, it was too late. These rates did not feed through to consumers and businesses. This is the reason the recession took hold.

- In Europe, the inflation spike prompted the European Central Bank into raising rates in July 2008 although at that time every significant Eurozone economy was already in recession.

- Similarly in China and India, tight monetary policy aggravated the slowdowns. While policy was belatedly reversed, the contractionary policy took its toll.
Conclusions

- The sheer extent to which international recessions were in sync added to the severity of the recent recession in the US and other economies.

- If the policy makers had followed a reliable system of leading indexes, the recession would have been less severe.
Global Recovery Underway

- Based on ECRI’s Leading Indexes, the global recovery is now underway and is expected to gain momentum in the months ahead.
Proportion of 19 Economies in Expansions