SOME PERSPECTIVES ON THE POSSIBLE IMPACT OF THE RECENT FINANCIAL TURMOIL IN THE GLOBAL FINANCIAL MARKETS ON THE INDIAN ECONOMY*@

In the wake of a serious financial turmoil rocking the US and other western markets, the domestic policy-makers need to identify the possible channels through which the impact would be felt in India and put in place requisite policies, so as to mitigate the impact of the crisis. There are several possible channels of transmission through which the crisis can descend to India in terms of consequences for growth, savings, investment, volume and direction of trade, industry, infrastructure, services, exchange rate, capital flows, changes in the value of reserves, remittances, commodity prices, banking system, and financial markets, in a globalised environment. The implications of the impact depend upon the channels and the intensity of transmission. In this context, there are a number of issues that need urgent consideration, such as, evaluation of various risk factors, improving the competitiveness of the services sector, diversification of trade to other destinations, need to pursue appropriate monetary and fiscal policies, instituting suitable safety nets in various segments of the financial system, continuous monitoring of the vulnerable sectors, etc. The lessons are also clear. There is a need to ensure efficacy of the regulatory and supervisory policies being followed, avoiding importing the so called 'best practices' from abroad, putting in place early warning mechanisms to monitor and institute prompt corrective actions, and to ensure that critical internal practices in the financial institutions are regularly reviewed. It is essential to recognise that no country is perhaps immune from the impact in the long run, if the crisis persists. All concerned agree that India's conscious 'go slow' policy in introducing exotic derivatives has ensured to shield the Indian system from shocks emanating from the use of such products. In sum, the need for continued and heightened vigil has increased with an emphasis on readiness to respond swiftly to any adverse developments and initiate timely and appropriate measures to mitigate the risks.

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@ Being a quick study, admittedly, our emphasis was on putting together the relevant facts and data to identify the channels of transmission and to evaluate the possible impact of the crisis, rather than precisely estimating it.

I. INTRODUCTION

What began as a 'routine credit-quality concern' in the subprime mortgage sector of the United States (US) has soon turned out to be a full-blown financial crisis, posing significant risks to the global economic and financial stability. A downturn in the US housing market, risky practices in lending and borrowing, and excessive individual and corporate debt levels have caused multiple adverse effects on the world economy. Even before the impact of the subprime crisis on various entities has fully unfolded, the policy-makers, particularly from the emerging market economies (EMEs) had started pondering over the possible ramifications of the crisis for the global economy in general and to the individual countries in particular to evolve the requisite defense mechanisms. Among the EMEs, India is one country, which has been engaging the attention of the global financial fraternity as a 'global growth driver' in recent years. It is considered pertinent to assess what could be the impact of the crisis on the Indian economy. The domestic policy-makers are keen to identify the possible channels through which the impact would be felt in India and accordingly to put in place requisite policies, so as to mitigate the impact of the crisis.

The subprime lending originated in the US when the real estate sector was looking very attractive. Subprime lending refers to high-interest loans lent to people who would otherwise be considered too risky for a conventional loan. These include loans to the less credit-worthy borrowers who have accumulated too much debt and want to buy a house in the inflated housing market. To cover their risk, lenders charge such borrowers higher than conventional interest rates. Alternatively, they make "adjustable rate" loans, which offer low initial interest rates that jump sharply up after a few years. Subprime loans were rare till a decade ago but since 2004, such loans turned out to be dominating with more than 90 per cent of the loans having exploding adjustable rates. In this backdrop, the borrowers with a poor credit history were charged higher interest rate on the loans to compensate for risk and likelihood of default. With interest rates low, housing prices on a steady rise, and with practically no Government regulation, mortgage finance companies devised high-interest, high-fee schemes to attract customers to avail loans that traditional savings banks would not make.

The spillover of the crisis to the emerging markets and developing countries has remained relatively contained during the initial period of the crisis, since their exposure to the subprime related assets and associated structured products was limited. However, as the time passed, the impact has started to manifest its adverse consequences. Predictions of well-known observers like Nouriel Roubini and Paul Krugman, whom the rest of the world considered as a Cassandra, have started materialising in full dimensions. Roubini was possibly correct in his prediction that the present crisis is one of the worst, next only to the Great Depression. Paul Krugman, who won the Nobel prize for Economics in 2008, had insistently forewarned the world about the current financial crisis. In the context of evolving complexities in the overall economic environment, the primary objective of this study is to identify the possible channels of transmission of the impact to the domestic economy and comment on the emerging issues and policy options. Rest of the study is organised in four sections. Section II deals with the genesis of subprime crisis and its impact on the US economy. Section III examines the validity of the 'decoupling theory' in the Indian context. Section IV identifies the channels through which the financial turmoil in the US could hit the Indian economy. Finally, Section V outlines the possible lessons, emerging issues and policy options in this regard.

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Section II

SUBPRIME CRISIS - GENESIS AND IMPACT

Genesis of the Problem

The genesis of the crisis dates back to the year 2004 when the Wall Street experimented with varied loan products and mortgages. There were big players such as Housing Finance Corporations that sought extraordinary profits through unsavory means, called predatory loans. Not subject to Government regulation, they bent the rules, lowering normal banking standards, assuming rising home prices for perpetuity. But as home prices began to collapse, it created ripples in the system.

A recession begins just after the economy has reached a peak of activity and ends as the economy approaches a trough. The economy is in an expansionary mode between the trough and the peak. In theory a recession is defined as an event in which the economy experiences decline in real Gross Domestic Product (GDP) for two consecutive quarters alongwith a slowdown in the economic activity represented by a host of indicators. The National Bureau of Economic Research's (NBER) 'Business Cycle Dating Committee' maintains a chronology of the US business cycles and identifies the dates of peaks and troughs that form economic recession or expansion. According to the chronology, the most recent peak in the US occurred in March 2001, ending a record-long expansion that began in 1991. The most recent trough occurred in November 2001, inaugurating an expansion. The Committee places particular emphasis on two measures of activity across the entire economy: one, personal income *less* transfer payments in real terms and two, employment. In addition, the Committee refers to two additional indicators with a focus on manufacturing and business, *i.e.*, industrial production and volume of sales of the manufacturing and the wholesale/retail sectors adjusted for price changes. They also look at the monthly estimates of real GDP such as those prepared by the Macroeconomic Advisers. Although these indicators are the most important measures considered by the NBER in developing its business cycle chronology, there is no fixed rule and as such some other measures could also be used to contribute information to the process.

Causes of the Subprime Crisis

The reasons for the origin of the subprime crisis are varied and complex. The crisis can be attributed to a number of factors pervasive in both the housing and credit markets, which developed over a period of time. Some of these include: inability of home owners to make their mortage payments; poor judgment by the borrowers; information asymmetries, *i.e.*, serving borrowers with poor credit histories at higher interest rates; inability of the lenders to precisely determine

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their subprime exposures; speculation and overbuilding during the boom period; risky mortgage products; high personal and corporate debt levels; breakdown of the market discipline; failure of credit-rating agencies to properly assess the credit risk and financial innovation that distributed and perhaps concealed not only the default risks but also the regulation.

While interest rates were benign in the US, the risk of lending to the subprime borrowers was low, but as interest rates began to rise in June 2004, the risks worsened. The demand contracted as the economic activity slowed down and disposable incomes declined. Simultaneously, there was a rise in supply due to repayments and foreclosures arising out of higher interest rates. Until June 2004, the lending rate in the US was 1.0 per cent. By early 2007, however, the interest rates had touched 5.25 per cent.

Concurrently, after the housing prices rose by 19 per cent from 1995 to the first quarter of 2000, and by another 20 per cent to the third quarter of 2005, the housing market crashed in the US. Housing received another blow, as the subprime mortgage market began to contract in the face of rising delinquencies and foreclosures, undercutting demand at the lower end of the market.

Spillover to the Financial Markets

The credit crunch, which resulted in bursting of the housing bubble and breakdown of the mortgage market in the US turned into a 'solvency issue' in the financial markets leading to a quick spread of the subprime crisis to the other financial markets through various transmission channels. Financial innovations in terms of securitisation and off-loading of such debt in the markets outside the US led the housing crisis spilling over to the wider financial markets involving various investment banks and hedge funds. Instead of the loans remaining in the books of the original lenders and thereby contracting their ability to lend further, these were sold to off-shore buyers, thereby dispersing the risks to the broader market. Financial innovation, which propelled the crisis, adversely affected the solvency of the institutions. This led to a vicious cycle of the systemic risks wherein the assessment of the actual impact became impossible. As Chairman Ben S. Bernanke aptly stated in the Federal Reserve Bank of Kansas City's Annual Economic Symposium, Jackson Hole, Wyoming on August 22, 2008, "the effects of the crisis on the broader economy are becoming apparent in the form of softening economic activity, rising unemployment and a jump in inflation. The fears are that if we do not cushion the first-round economic impact of the financial stress, we cannot minimise the risks of a so-called 'adverse feedback loop' in which economic weakness exacerbates financial stress, which, in turn, further damages economic prospects".

US Government and Monetary Policy Response

The US President announced a $140 billion plan to avert an impending recession. This plan is for a fiscal stimulus encompassing reduction in taxes, which is expected to induce the consumers to spend more. With the beginning of the financial turbulence, the Federal Reserve undertook an increasingly expansive monetary policy by cutting policy rates and also supplying financial markets with additional liquidity. The Federal Reserve, in partnership with central banks around the world, has taken several steps to address the crisis. Chairman Bernanke stated in early 2008 that, 'Broadly, the Federal Reserve's response has followed two tracks: efforts to support market liquidity and the pursuit of macroeconomic objectives through monetary policy'.

- The target for the Federal funds rate was lowered from 5.25 per cent to 2 per cent and the discount rate was lowered from 5.75 per cent to 2.25 per cent, through six separate actions between September 18, 2007 to April 30, 2008 (Table 1).
- Confronted by a panic in the global financial markets, the US Federal Reserve further lowered its policy rates in the interim period by 75 basis points on January 22, 2008, indicating that the decision was taken in view of weakening economic outlook and increasing downside risks to growth.
- The Fed and other central banks have conducted open market operations to ensure that member banks have access to funds (*i.e.*, liquidity). These are effectively short-term loans to member banks collateralised by Government securities. Central banks have also lowered the interest rates charged to member banks (called the discount rate in the US) for short-term loans.

Table 1: Short-Term Interest Rates

End of	US	Euro Area	India
March 06	4.77	2.80	6.11
March 07	5.23	3.91	7.98
June 07	5.27	4.16	7.39
September 07	4.72	4.73	7.19
December 07	4.16	4.88	7.35
January 30, 2008 $	3.00	4.29	7.08
March 18, 2008 $$	2.25	4.61	7.37
September 13, 2008	2.25	4.96	9.00
October 9, 2008	2.09	5.39	8.83

$: Figures pertain to US Federal Funds Rate, 3 months interest rate as on January 24 for Euro Area and India.

$$: Figures pertain to US Federal Funds Rate, 3 months interest rate as on March 13 for Euro Area and India.

Source: The Economist and Reserve Bank of India.

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- The Fed is using the Term Auction Facility (TAF) to provide short-term loans (liquidity) to banks. The Fed increased the monthly amount of these auctions to $100 billion during March 2008, up from $60 billion in the prior months.
- In July 2008, the Fed finalised new rules that apply to mortgage lenders.
- The Federal Open Market Committee (FOMC) further decided on March 18, 2008 to lower its target for the Federal funds rate by 75 basis points to 2.25 per cent.
- A series of institutional failures rocked the financial system. Starting with the collapse of Bear Sterns in September 2007 and its take-over by JP Morgan; followed by conservatorship of Freddie Mac and Fannie Mae; Lehman Brothers filing for bankruptcy; Merrill Lynch buy-out by the Bank of America; AIG suffering a liquidity crisis and Washington Mutual been taken-over by JP Morgan Chase, *etc*.
- The Fed stepped in to prevent the companies collapse and announced the creation of credit facility of up to US$ 85 billion in exchange for warrants for 79.9 per cent equity stake and the right to suspend dividends to previously issued common and preferred stocks.
- The FOMC in its Press Release dated October 8, 2008 has further lowered the target for Federal funds rate by 50 basis points to 1.5 per cent, in light of weakening of economic activity and reduction in inflationary pressures.
- Recently, US$ 700 billion bailout package has been approved and is likely to ease liquidity constraints to some extent. A collective effort is being made by the central banks such as the Fed, Bank of Canada, Bank of England, European Central Banks, Sveriges Riksbank, *etc.*, to ease liquidity strains in the markets. An alternative plan in which the Government may inject capital directly into the distressed banks is also under consideration.

In sum, lower economic activity, higher unemployment, high inflation, slow growth in consumer spending, softening of wages in the labour markets have become the order of the day. Financial markets remain under considerable stress. While tightening of credit conditions and deepening of the housing contraction are likely to weigh on the economic growth over the next few quarters, the Fed expected that its policy actions, including measures to foster market liquidity, should help to promote moderate growth over time. However, risks to growth remain.

Impact on Real Economy in the US

Sliding Growth of the US Economy

The growth in GDP in real terms is regarded as a single best measure of the economic activity. Going by this yardstick, the real GDP growth of the US economy averaged at around

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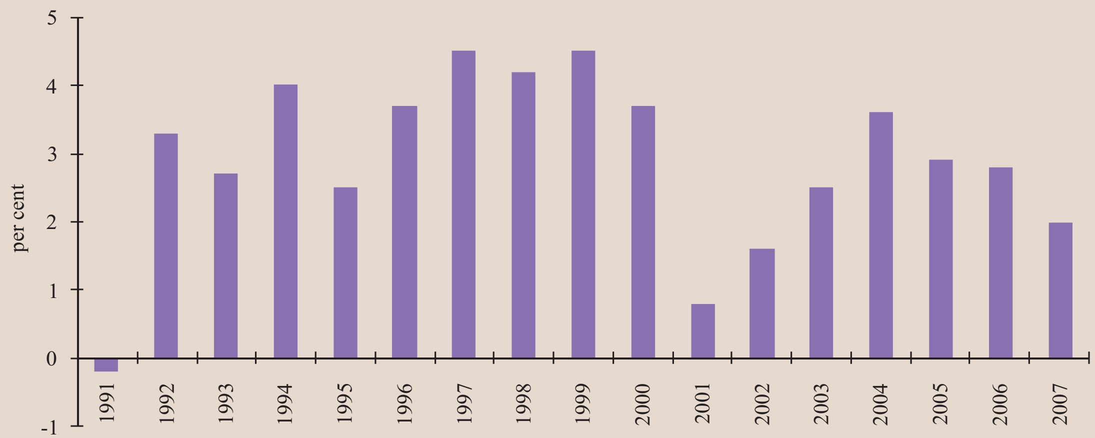
3.3 per cent during the decade of 1990s. However, with the onset of recessionary trends in 2001, growth slackened and averaged at around 2.3 per cent per annum. Although there was a recovery during 2004 when the growth touched 4 per cent, it was off-set by a slowdown subsequently (Chart 1 and Table 2). According to recent estimates released by the Bureau of Economic Analysis, the US Department of Commerce, the real GDP increased by 2.8 per cent in the second quarter of 2008, following a 0.9 per cent increase in the first quarter (Chart 2). The GDP growth in the second quarter turned out to be higher (2.8 per cent) reflecting primarily a surge in exports. Consumer spending remained weak and housing continued to act as a drag on GDP growth.

Chart 1: US Economy: Growth in Real GDP



Source: US Bureau of Economic Analysis, US Department of Commerce.

Table 2: Select Macroeconomic Indicators of US Economy

(Growth Rate - per cent)

		2007				2008	
		Q1	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**
1	Industrial Production	1.3	1.5	1.9	2.1	1.9	0.3
2	Inflation (CPI)	2.4	2.7	2.4	4.0	4.1	4.6
3	Unemployment	4.5	4.5	4.7	4.8	4.9	5.3
4	Retail Sales	0.5	0.1	0.4	0.3	0.0	0.3
5	Exports	11.1	10.8	14.3	14.6	17.5	17.8
6	Imports	4.5	5.8	4.7	8.7	11.7	11.2
7	GDP*	0.1	4.8	4.8	-0.2	0.9	2.8

* : US Bureau of Economic Analysis, GDP Release.

Source: Bloomberg.

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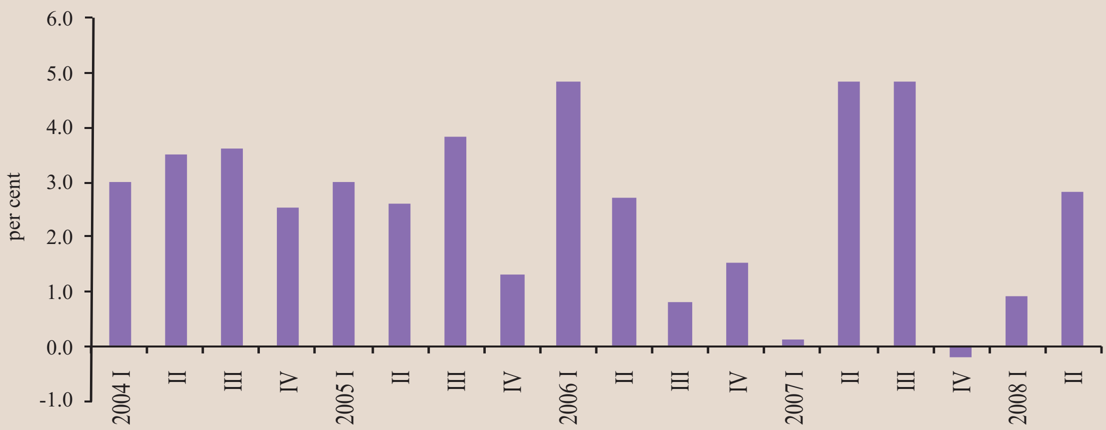
Chart 2: Quarter-to-Quarter Growth in US Real GDP



Source: US Bureau of Economic Analysis.

In the Q4, 2007 labour markets weakened with the unemployment rate touching 5.0 per cent in December 2007 and job growth at its lowest since August 2003. The home builders' housing market index stayed at 22-year low for the fourth straight month in January 2008 with mortgage delinquencies rising to the highest level since 1986. Industrial production declined by 0.2 per cent in the fourth quarter and capacity utilisation declined in December 2007 from the peak reached in August 2007. Durable goods orders were weak, reflecting sluggish investment spending.

Receding Growth in Industry and Services

Slowdown in the US economic growth has been relatively lower in terms of nominal GDP, which averaged 5.4 per cent during the 1990s and slid down subsequently to 5.0 per cent (2006 and 2007). This decline stemmed mainly from private service producing industries such as the wholesale trade, the retail trade, transportation, and other services. However, the private goods-producing industries in the agriculture, forestry, fishing and hunting, mining, construction, and manufacturing sectors recorded a marginal decline during the above period. Moreover, the contribution of the Government to the value added improved during the same period (Table 3).

Downturn in Investment and Consumption Activity

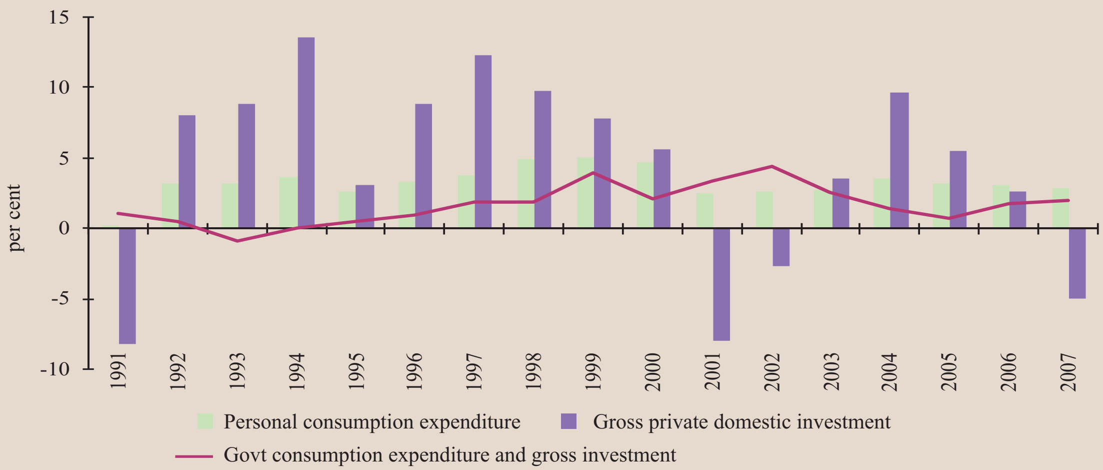
Reflecting the trends in real GDP growth, there was a slowdown in the growth rate of investment in the economy. The gross domestic private investment, which grew at the rate of over 7 per cent per annum during the 1990s registered a steep fall subsequently (2001-2007)- recording growth of a little less than 1 per cent, indicating a slump in the overall business activity. A slowdown *albeit* marginal, was also witnessed in respect of growth in expenditure (from 3.5

Table 3: Industry-wise Growth Trends		
	Average Growth Rate (per cent)	
	1991-2000	2001-2007
GDP	5.4	5.0
Private goods-producing industries*	4.2	3.4
Private services-producing industries**	6.1	5.5
Government	4.1	5.4

* : Consist of agriculture, forestry, fishing, and hunting; mining; construction; and manufacturing.
** : Consist of utilities; wholesale trade; retail trade; transportation, and other services.

to 3.0 per cent) during the same period, reflecting subdued impulses of consumption demand. However, Government consumption expenditure recouped somewhat from 1.2 to 2.3 per cent during the above period (Chart 3).

Chart 3: US Economy: Investment Trends



Source: US Bureau of Economic Analysis, US Department of Commerce.

Subdued Employment

Following the above trends in investment and GDP growth, the employment, which recorded growth of around 2 per cent during 1999 and 2000, came to register a sharp fall, averaging 0.6 per cent in the subsequent period. In fact, the growth in employment was negative in the immediate preceding years of the downturn, *i.e.*, 2002 and 2003, which might have impacted the consumer demand adversely. The latest data released by the US Department of Labor shows that the unemployment rate rose to 6.1 per cent in September 2008. The unemployment rate during the second quarter of 2008 increased to 5.3 per cent from 4.5 per cent during the corresponding quarter of 2007. Job growth declined in manufacturing, construction and retail trade, while employment growth continued in respect of health care and food services.

Housing Activity

Another important indicator of recessionary trends in the US is a slump in the housing market. The home price indices generated by S&P/Case-Shiller[1] show that home prices that accelerated during the first half of the current decade have seen a reversal in the trend since 2007. Residential investments began to decline in the first quarter of 2006, and have since continued to drop each quarter. In 2007, the residential investments were most laggard among the components of GDP. It also plummeted in the fourth quarter of 2007 - and many economic forecasts expect such investments to continue to descend at least through the first half of 2008. The S&P/Case-Shiller composite 10 monthly index, representing the average of 10 large metropolitan areas, provides more recent data and has declined by more than 11 per cent during 2008 over the last year. This is the largest drop in the 21-year history of the index (Table 4).

Previous periods when the residential investments declined for a year or more were either accompanied by or closely followed by an economic downturn (Rosengren, 2008) (refer Table 5). Most economists concede that consumers will respond to falling house prices by spending less and saving more. The Fed estimates show that consumer spending rises or falls by $ 3.75 for every $ 100 increase or decrease in the housing wealth. Some studies, however, suggest that the effect could be much larger.

Table 4: S & P/Case-Shiller Home Price Index

Ten Metro Areas and Composite

(Annual percentage variation)

Metros	2002	2003	2004	2005	2006	2007	2008*
Composite	11.05	13.48	18.27	16.91	7.36	-4.43	-11.4
Los Angeles	13.72	19.06	28.52	20.01	11.54	-5.25	-16.5
San Diego	13.75	18.2	28.25	13.17	1.1	-8.4	-16.7
San Francisco	4.63	7.85	16.16	20.74	4.43	-4.53	-13.2
Denver	3.77	1.46	3.33	4.13	2.09	-1.69	-5.1
Washington	13.07	13.83	21.02	24.02	6.19	-6.25	-10.9
Miami	13.61	15.26	19.1	29.61	17.27	-5.92	-19.3
Chicago	7.2	8.32	8.51	9.44	6.61	-1.04	-6.6
Boston	11.5	9.82	9.42	7.13	-1.86	-3.99	-3.4
Las Vegas	6.79	10.83	41.46	19.65	6.07	-6.42	-19.3
New York	12.74	14.42	13.53	14.49	7.54	-2.77	-5.8

* : Percentage change in January 2008 over January 2007.
Source : S&P/Case-Shiller/Haver Analytics.

[1] The S&P/Case-Shiller® Home Price Indices measures the residential housing market, tracking changes in the value of the residential real estate market in 20 metropolitan regions across the United States.

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Table 5: Real Residential Investments 1958-2007

(No. of quarters posting continuous declines: for three quarters or more)

Period	Number of Quarters	Cumulative Decline (per cent)
1973:Q2-1975:Q1	8	-39.6
1978:Q4-1980:Q2*	7	-31.7
1981:Q1-1982:Q3*	7	-28.5
2006:Q1-2007:03	7	-23.7
1966:Q2-1967:Q1	4	-22.7
1989:Q1-1989:Q4**	4	-6.7
1990:Q2-1991:Q1**	4	-19.4
1994:Q3-1995:Q2	4	-7.6
1960:Q2-1960:Q4	3	-11.1
1964:Q2-1964:Q4	3	-8.3
1969:Q2-1969:Q4	3	-9.1

* : Declines interrupted by just one or two quarters of growth in residential investment.
** : Declines interrupted by just one quarter of growth in residential investment.
Source: US Bureau of Economic Analysis/Haver Analytics.

Housing construction continues to plunge, while the rate of decline in house prices seems to be accelerating, with some experts forecasting a fall by 20 per cent or more in real terms in the medium-term. These developments point out that the US economy faces a vicious downward spiral of foreclosures, declining property values and mounting losses on mortgage-backed securities and related financial assets. The resetting of interest rates on more than two million subprime loans will prompt a large number of foreclosures, perhaps a million a year in both 2008 and 2009. These huge waves of foreclosures will depress the prices of residential real estate further. Plummeting real estate values and escalating foreclosures will cause additional losses on mortgage-related securities and will burden the American consumers further, who are already dealing with higher energy prices and enormous debt.

Impact on International Trade

A slowdown in domestic production, consumption and economic activity in the US has reflected more sharply in its overall international trade. The exports growth, an indicator of domestic production, registered a sharp fall from an average of over 7 per cent in the decade of 1990s to a little over 3 per cent in the subsequent period. The imports, reflective of domestic demand, worsened with the growth scaling down from 9.4 per cent to 4.6 per cent during the above period (Chart 4). The recent data show that the US goods and services deficit declined by $ 50 billion in 2007 as compared with the preceding year as exports increased more than the imports. However, the trend was reversed again in January 2008 when the rate of increase in imports was more than that in the exports.

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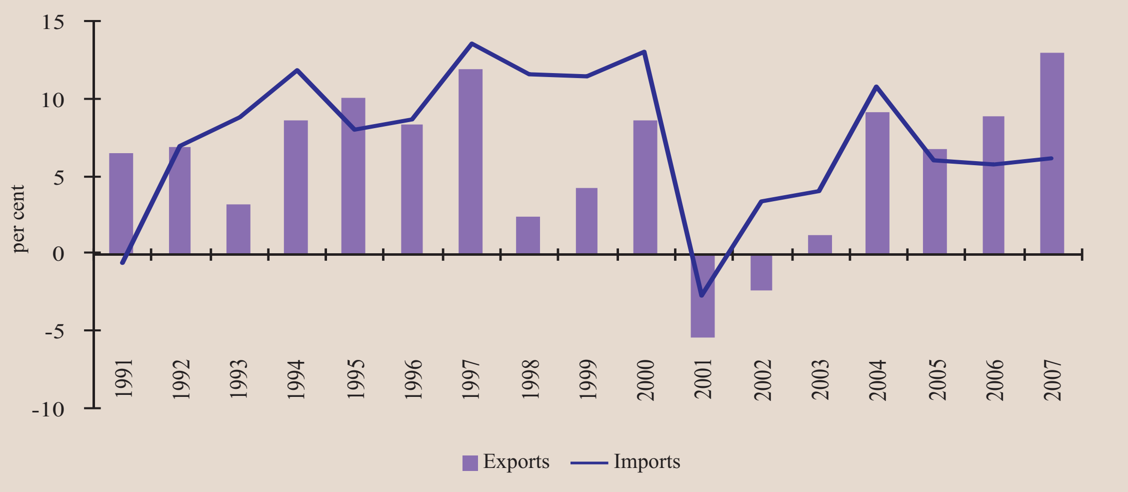
Chart 4 : Trends in US Trade



The US current account deficit, the broadest measure of the US international trade, worsened particularly since 2002 with some improvement during 2007. The US current account deficit declined to $ 172.9 billion (preliminary) in the fourth quarter of 2007 from $ 177.4 billion in the third quarter. As a proportion of the US GDP, the deficit declined to 4.9 per cent from 5.1 per cent.

International Investment Position

The US net international investment position started receding sharply particularly since 1999 as the value of foreign investments in the US exceeded the value of US investments abroad. At the year-end 2007, it was (-) $ 2441 billion (preliminary) as against (-) $ 2,225 billion at the end of 2006 largely due to net foreign acquisitions of financial assets in the US that substantially exceeded net US acquisition of financial assets abroad. The impact of this disparity was partly offset by large exchange - rate variations stemming from strong appreciation of major currencies against the US dollar, which raised the dollar value of US owned assets abroad, and by price appreciation of US held foreign stock which exceeded by a large amount of price appreciation of foreign held US stocks[3].

Retail Business

Sales at the big US retail chains, a closely watched barometer of the country's economic health, reported subdued activity. Sales fell at the chains as varied as Nordstrom, Macy's, Abercrombie & Fitch and American Eagle Outfitters, *etc.* As per the Retail Metrics, the combined average sales for November and December 2007 rose by 1.7 per cent, the weakest performance

[3] US Bureau of Economic Analysis.

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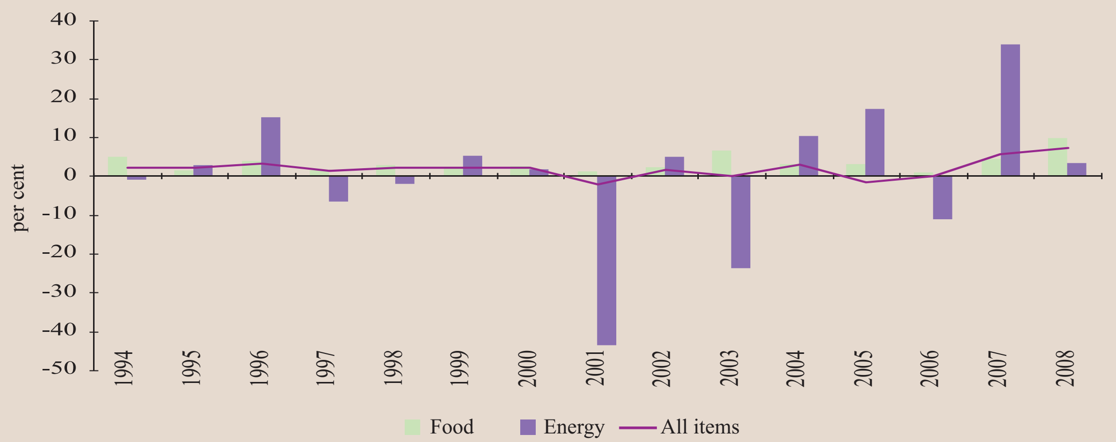
since 2002. Furthermore, the recent reports reveal that retail sales declined by 0.6 per cent in February 2008, worse than 0.2 per cent expected by the analysts. The weakness was widespread in the sales of autos, furniture and appliances, reporting a downturn and thereby indicating a continued fall in consumer spending.

Surging Food and Energy Prices

The Consumer Price Index for All Urban Consumers (CPI-U) in the case of energy increased sharply particularly since 2004, and recorded a growth of around 34 per cent in 2007- highest ever since the year 1994 (Chart 5). The food prices, after reaching a peak in 2003, declined somewhat in the subsequent years, before rising again in 2007 and recording a growth of over 4 per cent. The high food and energy prices appear to have put additional strains on consumer spending, reducing disposable incomes and eating away the real wage gains.

Chart-5 : Annual Variations in CPI-U

(Compound annual rate for 3-months ended)



Source: US Bureau of Labor Statistics.

The latest data released by the Bureau of Labour Statistics reveal that the CPI -U declined by 0.4 per cent in August 2008, before seasonal adjustment. The level of 219.08 (1982-84=100) in August 2008 was 5.4 per cent higher as compared with the corresponding period last year. However, on seasonally adjusted basis, it showed a marginal decline of 0.1 per cent in August 2008, following 0.8 per cent rise in the previous month. However, the compound annual rate for the quarter ending August 2008 showed an increase of 7.2 per cent.

Impact on Financial System: The Recent Events

Following a crisis of confidence at Bear Sterns, formal negotiations led to its acquisition by JP Morgan. This was followed by conservatorship of Freddie Mac and Fannie Mae in September

2008, enabling the US Treasury to buy these companies at a meager cost. In September 2008, Lehman Brothers and Merrill Lynch, two of the largest financial institutions booked big losses on account of their exposure to some highly risky assets. Lehman Brothers posted a loss of US $ 3.9 billion in the quarter ending June 2008, and the firm filed for bankruptcy after the US administration refused any bailout package. At the same time, Merrill Lynch posted a second quarter loss of US$ 4.65 billion. Close on the heels, the large insurer American International Group (AIG), who had underwritten many credit default swaps (CDS), suffered a liquidity crisis following a credit rating downgrade. The after-effects of the crisis are still unfolding with the events such as Washington Mutual take-over by JP Morgan Chase, *etc*. The US Treasury, subsequently approved a US $ 700 billion package to bailout the beleaguered financial sector.

Based on the economic indicators studied above, it is clear that the economic and financial conditions in the US economy have been deteriorating through the years 2007 and 2008, so far. This has implications for both short-term and long-term growth prospects of the economy. To sum up, what was dubbed as a temporary slowdown in the US economy is now recognised as a recession. The two faces of the crisis are market collapse on one side and the crisis of confidence on the other. Although the Fed has gone ahead and tried to infuse some confidence in the markets, the efficacy of the actions, understandably, has been rather limited. With the contagion spreading rapidly from mortgage markets to the financial system, ultimately hurting the real economy, there is an imperative need for strong, swift and effective steps to stabilise the US economy, so as to minimise risks for the global economy.

Section III

IS THE DECOUPLING THEORY VALID?

In order to manage the impact of the US crisis, the individual economies theoretically have two options: either to decouple from the US economy and recouple with the rest of the world or rebalance their exposures. Decoupling or rebalancing takes place through the trade and financial channels. In a globalised world, decoupling is possible only as a short-term strategy. In the medium or long-term, rebalancing remains the only option. Confronted with adversities such as the US financial turmoil, global food crisis and fuel and energy shocks, some countries resorted to 'decoupling' by adopting protectionist measures as short-term policy options. On the financial front, countries such as India placed a cap of 40 per cent on the FIIs issuing Participatory Notes (PN) through sub-accounts and completely banned any such instruments that were based on Indian stock or index derivatives, a decision which has been since reversed. The rebalancing through the investment route has also been adopted by several countries *e.g.*, big corporates in India invested in assets of the US firms. The aftermath of the US financial turmoil reflects the strong financial and trade linkages of the global economy thereby powerful 'coupling' among economies, making decoupling only a temporary phenomenon.

Share of the US in Global Economic Growth

Historically, the US has been a dominant force in the world economic growth, thereby remaining a major influencing factor in determining the direction and pace of global growth. In this backdrop, this section assesses the significance of the US economy emerging from the recent financial turmoil. With the world economic growth expected to slowdown on account of recent turbulence in the financial markets, there is an argument that world economy has 'decoupled' from the erstwhile single locomotive, *i.e.*, the US. As per the Would Econonic Outlook (WEO), October 2008, financial market turbulence remains a significant downside risk to the global growth prospects. The WEO has projected global growth to decelerate from 5.0 per cent during 2007 to 3.9 per cent in 2008 and further down to 3.0 per cent during 2009 (Table 6). Financial risks remain elevated, as rising losses in the wake of a global slowdown would add to the strains on capital and exacerbate squeeze on credit availability. Risks related to the correction of global imbalances also remain high.

The WEO, April, 2008 provides revised purchasing power parity (PPP) weights as per International Comparison Programme (ICP) survey results, 2007. It may be noted that based on new statistical calculations of PPP exchange rates published in December 2007,

Table 6: WEO Projections

						(Annual percentage variation)
			Projections		Difference (Oct. 2008 over April 2008) Projections	
	2006	**2007**	**2008**	**2009**	**2008**	**2009**
World output	5.1	5.0	3.9	3.0	-0.2	-0.9
Advanced economies	3.0	2.6	1.5	0.5	-0.2	-0.9
United States	2.8	2.0	1.6	0.1	0.3	-0.7
Euro area	2.8	2.6	1.3	0.2	-0.4	-1.0
Japan	2.4	2.1	0.7	0.5	-0.8	--
China	11.6	11.9	9.7	9.3	--	-0.5
India	**9.8**	**9.3**	**7.9**	**6.9**	**-0.1**	**-1.1**

Source : World Economic Outlook, October 2008.

the IMF revised its estimates for global growth downwards by about 0.5 percentage point each year during 2002-2007. Accordingly, the IMF estimates of global growth for 2007 have been revised down to 4.7 per cent from 5.2 per cent in October 2007. The revisions to the PPP rates resulted in a substantial reduction in the PPP-based GDP of some large fast-growing economies and have consequently reduced their estimated contribution to global growth. The participation of China in the ICP survey for the first time resulted in the downscaling of China's PPP-based GDP for 2005 by around 40 per cent (Table 7). Previous estimates were extrapolated from a bilateral comparison of 1986 prices between China and the US, which proved to be an inaccurate guide. The changes have implications for both aggregate global growth based on the PPP exchange rates and the share of global GDP accounted for by the individual countries and groups.

The downward revisions for the PPP-based GDP of the world's fastest-growing economies, *viz.*, China and India, resulted in bringing down the overall global growth estimates. For 2007, China's share of global output is now estimated at 10.8 per cent (down from 15.8 per cent) while India's share has declined to 4.6 per cent (from 6.4 per cent). Reflecting the overall reduction in GDP in PPP terms of other countries, the share of the US in global GDP has been revised up from 19.3 per cent to 21.3 per cent. This is

Table 7: Share in Real Global GDP Growth based on new PPP Weights

	2007 (Earlier)	2007 (Revised) April 2008	2007 (Revised) October 2008
China	15.8	10.9	10.8
India	**6.4**	**4.6**	**4.6**
US	19.3	21.4	21.3

Source: IMF website.

notwithstanding the fact that emerging market countries have also been the critical drivers of global growth in PPP terms - led by China, which alone contributed nearly 27 per cent to global growth in 2007. Estimates for 2007 indicate that China still ranks as the world's second largest economy, with almost 11 per cent share in the world output. India also faced a sizable downward GDP adjustment in PPP terms, but it is still the fourth largest economy contributing 4.6 per cent to the world output. To sum up, it may be stated that the US continues to occupy a significant place in the global economy by contributing over one fifth to the global output. The 'decoupling' argument, therefore, remains purely a temporary phenomenon.

US and the Global Financial System

Financial markets globally are integrated across asset classes and countries. The initial US subprime shock has uncovered and exacerbated other fragilities in the global financial system. The overall impact has been pervasive across the world. The international transmission of liquidity tensions and the interaction between market liquidity and funding liquidity have played a central role during the turmoil. Indeed, the events have illustrated vividly the strength, the complexity and the rapidity of the international transmission of liquidity shocks. Clearly, the transmission mechanism exemplifies that inter-bank markets are linked by the activity and funding needs on a large geographical scale. Liquidity conditions in the inter-bank markets are, therefore, correlated at the global level because many of the key players are subject to common shocks.

Since the very early phase of the ongoing turbulence in August 2007, the Euro system has resorted to a more pro-active liquidity management, in order to maintain a proper control of the short-term interest rates. Owing to the built-in flexibility of its operational framework for monetary policy implementation, the Euro system could address the impaired functioning of the money markets through relatively minor, technical adjustments to its normal operations, while at the same time utilising the full latitude of its liquidity management arrangements. Although, the European Central Bank (ECB) liquidity measures has had a stabilising effect on the euro money market rates at the shorter end of the term structure the market participants continued to report limited trading activity and high spreads, particularly in the unsecured inter-bank term markets. Banks seemed to be particularly reluctant to lend money in the unsecured inter-bank market due to uncertainty about their own funding needs, especially in US Dollar, and lack of confidence in the soundness of their counterparties.

The UK has not remained untouched from the broader economic impact of the crisis in the credit markets, which began over a year ago with the down-turn in the US subprime housing market. While the epicenter has remained in the US, it has already had a major impact on the structure of the banking sector in the UK. Northern Rock was among the first of the casualties. Further, a mortgage lender Bradford and Bingely has been nationalised in an unprecedented to calm the market. During 2008-09, the UK is experiencing significant consolidation within the UK banking sector, with Santander purchasing Alliance & Leicester, Nationwide absorbing two smaller building societies, and most recently the merger of Halifax Bank of Scotland (HBOS) and Lloyds TSB. The UK investment banks have suffered losses in their trading books and a wider group of banks have lost money on their treasury books because of fall in the values of structured credit of all sorts. At the same time, it was found that certain major sources of finance, notably securitisation and medium-term unsecured lending, had dried up and others, notably the short-term lending in money markets, became much more expensive. The turmoil has also affected the functioning of all central banks - from the setting of interest rates to the scale and structure of market operations - and thereby posing several challenges.

Therefore, the financial turmoil in the US economy is bound to have an impact on most of the emerging economies and India is no exception. If the downturn in the US economic activity is severe and prolonged, India's financial system also falls within the ambit of vulnerability considering the linkages India has forged with the global financial and economic structure ever since it started opening up its economy as a sequel to the economic reforms programme. There are several channels through which the crisis elsewhere can descend to India in a globalised environment. While it is well known that globalisation facilitates the free movement of factors of production across countries and thereby brings economic prosperity, it is equally known that crises transmit quickly from the origin in such a setting and bring down others ruthlessly. Therefore, not having an exposure to the complex derivative products or subprime assets cannot effectively provide a hedge against the impending associated perils.

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Section IV

IMPLICATIONS OF THE US FINANCIAL TURMOIL FOR THE INDIAN ECONOMY: POSSIBLE CHANNELS

As stated earlier, in a globalised economic environment, since the world is inter-dependent, financial crisis may impact emerging economies like India. In this context, the Reserve Bank of India in the Third Quarter Review of the Annual Policy 2007-08 has recognized that *"the unfolding of global developments in recent weeks and the responses of the monetary authorities provide an indication of the threat to growth and financial stability worldwide, bearing out the Reserve Bank's stance of enhanced vigilance to be able to respond appropriately to global financial and monetary conditions"*. Against this background, this section identifies the possible transmission channels of the effects of the US financial turmoil on the Indian economy.

Macroeconomy

The Indian economy has been one of the fastest growing economies in the recent past. It recorded historically high growth of 9.0 per cent or above for three years in succession from 2005-06 to 2007-08 for the first time since 1950-51. The GDP growth in India in recent years is characterised by strong fundamentals, which is bolstered by upsurge in savings, investment and capital inflows. During 2007-08, the growth of real GDP moderated to 9.0 per cent from 9.6 per cent in 2006-07. As per the latest CSO estimates (August 2008), the real GDP growth has been placed at 7.9 per cent in the first quarter of 2008-09, lower than 9.2 per cent *vis-à-vis* corresponding period of 2007-08. While the agriculture sector has performed well on the back of good monsoon, the industrial activity appears to be experiencing some transient and cyclical moderation affecting the manufacturing performance. The momentum of growth in the services sector is also expected to moderate due to a slowdown the various sub-sectors of the services sector. Co-terminus with a slow-down in the world economic growth, some moderation is also expected in India during 2008-09. The Reserve Bank has projected the real GDP growth during 2008-09 at around 8.0 per cent for policy purposes.

The real GDP growth is expected to moderate in the US during the years 2008 and 2009 (Table 8 and Chart 6). As per an estimate by the Asian Development Bank (ADB), one per cent point fall in the US real GDP growth would reduce Asia's (excluding Japan),

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Table 8: Trends in the Real GDP Growth

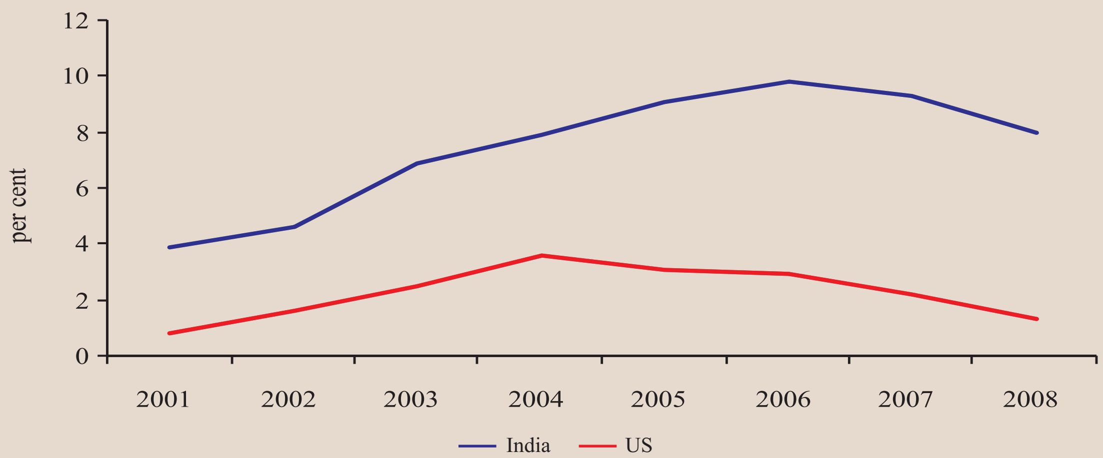
(per cent)

	2000	2001	2002	2003	2004	2005	2006	2007	2008
1	2	3	4	5	6	7	8	9	10
India	5.7	3.9	4.6	6.9	7.9	9.1	9.8	9.3	7.9
USA	3.7	0.8	1.6	2.5	3.6	2.9	2.8	2.0	1.6

Source: WEO Database, IMF.

GDP growth by 0.8 percentage point. A similar estimate by the IMF for India has placed the reduction in India's growth at 0.1 - 0.2 percentage point. This enumerates that India is relatively less affected in terms of effects of the US financial turmoil.

Chart 6 : GDP Growth - India and the US



Sectoral Impact

Impact on Agriculture

In the post-liberalisation era, the Indian economy has increasingly become integrated with the global economy. India's agricultural growth is primarily dependent on monsoon prospects and the climatic conditions in the country rather than on any external factors. In view of the fact that domestic demand for agricultural products is the major growth driver for the sector rather than export demand, the impact of the US turmoil is seen to be minimal on the sector. India's exports of agricultural commodities to the US constitute about 8 per cent of the total agricultural exports. However, growing food prices in the US in recent months have been exerting upward pressure on global food inflation, thereby excerbating risks to domestic food inflation.

Impact on Industry

The Indian industry has gained resilience in the past few years. The growth in Indian industry is primarily driven by the domestic demand. A few industries such as gems and jewellery, textiles, engineering goods, *etc*., are dependent on the external demand. The recessionary trends in the US and their impact on Indian industry is analysed under the following broad heads:

External Demand and Industrial Production

While some of the Indian industries are export driven, major part of the demand emanates from domestic consumption. The major items of export from India to the US include cut and polished diamonds and jewellery, textiles, engineering goods and machinery (including electrical machinery), organic chemicals and vehicles and parts. The recessionary trends in the US are impacting the export demand of certain industries such as software, textiles and apparel, gems and jewellery, leather, auto components, pharmaceuticals and IT segments. In general, however, the companies are gearing up to hedge against the declining demand from the US and seeking other markets. It is pertinent to note that the exports to the US have decelerated to 13.0 per cent during 2007-08 as a proportion of the total exports as compared with 14.9 per cent during 2006-07, reflecting thereby the diversification of India's exports to other destinations.

Looking specifically at the industries that have an exposure to the US market such as *leather manufacturing*, supplying footwear to Wal-Mart, JC Penney and Timberland, *etc.*, are experiencing depleting orders. The turmoil is slowly eating into the order books of the Indian firms in auto and white goods segments also. In this scenario, the key strategy for the Indian firms is to diversify to other areas in order to off-set order run-downs.

India is the world's second largest producer of textiles and garments after China. It is the world's third largest producer of cotton-after China and the US and the second largest cotton consumer after China. India's *textiles and clothing* exports to the US and the member States of the European Union, which together account for about two-third of our total textiles and clothing exports, have recorded growth of 8 per cent and 14 per cent, respectively in the year 2006 over 2005. India's exports of textiles and clothing to the US are significant and this sector has borne the brunt of Rupee appreciation. In contrast with 18.0 per cent growth set for this sector during 2007-08, the textiles exports have in fact, dropped by 8.0 per cent. The turmoil in the US is likely to dampen the prospects of this segment further unless the exporters diversify to other markets.

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The Indian *auto components* sector, which has of late become a supplier for the global giants, is looking at the slowdown as an opportunity. The recessionary trends are pushing the US companies to hunt for cheaper alternatives, thus creating an opportunity for the Indian automobiles industries to catch up with market demand. Besides, the meltdown in the US is also profitable for manufacturers of spares. As the Rupee has been depreciating of late, many of the leading global auto manufacturers are planning to set up their production units for small cars in India, a move that would turn India into a manufacturing hub.

Raw Material Imports vs Domestic Production

In recent times, the declining value of the dollar *vis-à-vis* the other major currencies is expanding the scope for the US exporters to tap the Indian markets. The major items of exports from the US to India are engineering goods and machinery including electrical machinery, precious stones and metals, organic chemicals, optical and medical instruments, aircrafts, aviation machinery and parts, *etc*. Among these items, precious stones, metals and organic chemicals are used as inputs for production of finished products for exports. The slowdown in the US is altering the pricing patterns of these commodities, and accordingly, India needs to devise a fresh strategy for its imports.

Investment Demand in Indian Industry

Global trade statistics reveal that trade in capital goods and intermediate goods is relatively more important in the overall world trade than the trade in consumer goods. This pattern is especially true in the case of US exports, where capital goods and intermediate goods represent a substantial share in terms of value, growth, and variability of exports. Increasing imports of capital goods reflect that country is expanding its production capacities in response to higher investment demand. India's imports of capital goods are on the rise and grew at 24.1 per cent during 2007-08 despite high domestic production of such goods, which posted 18.0 per cent growth during the year. The imports of capital goods such as engineering goods and electrical machinery from the US constitute a significant proportion of the total imports from the US and are certain to face adverse consequences in the aftermath of the crisis. However, in the backdrop of domestic production of the capital goods remaining strong, the impact would be mitigated substantially. However, it needs to be accepted that the output of the capital goods sector is behaving erratically of late. One needs to be wary of the problem of providing adequate credit to industry, due to possibility of a general contraction of credit.

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Mergers and Acquisitions

Till recently, the acquisition of the American or European entities by the Indian corporate was very rare. In recent times, however, the Indian companies have been acquiring foreign businesses and have become global players. Buoyant Indian economy, increasing profitability of Indian corporates, Government policies and new found dynamism of the Indian entrepreneurs have all contributed to the trend. The increasing prominence of the Indian companies in the world markets, particularly in the US, is not only an indication of the maturity of Indian industry but also the extent of their participation in the overall globalization process. In view of the likely growth in demand, the larger Indian companies would consider buying out US-based service providers, as valuations of the US-based providers tumble down due to recession. However, Indian companies - especially those with growing presence in the US - could see some new pressures on their profitability. Accordingly, the acquisition activities will slowdown in the near and medium-term.

Impact on Services Sector

The services sector is the main driver of economic growth. The financial turmoil in the US would have a two way impact on the performance of services sctor:

Impact on the Business Process Outsourcing (BPO) Activities

With a decline in the US economic activity, it is expected that the BPO orders to India will be subdued for sometime. Cost competitiveness will be very important to retain the BPO business. India's direct trading with the US in terms of hardware is limited. Besides, the supplies of hardware to India mostly come from the US subsidiaries based in Asia, rather than those based in the US. West Europe and Asia continue to be critical markets for the Indian exporters of electronics, IT components and hardware. The financially sound companies remain relatively insulated partly because of the Rupee depreciation, and also on account of prospects of gaining business from the sectors such as healthcare, telecom, and knowledge process outsourcing (KPO), *etc*. These companies are also likely to diversify to the other markets such as Europe, Middle East, and Asia, besides tapping the domestic market further. With the upward pressure on the commodity prices, more outsourcing of the telecom, IT, and automotive sectors is likely from India.

Impact on IT Enabled Services

India's Information Techonology Enabled Services and BPO (ITES-BPO) industry remains highly dependent on external market conditions as India's ITES exports account

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for about two-thirds of its ITES-BPO revenues. The impact of global slowdown on India's ITES-BPO industry, would possibly be adverse. On one hand, as the global economy slows down, companies - largely from the developed economies - in an attempt to reduce their cost of production might outsource a larger part of their operations to relatively cheaper and efficient markets such as India. On the contrary, however, as the global slowdown has percolated to the financial services industry, there might be cuts in the outsourcing activities to India, as the financial services companies reduce their geographical operations.

Impact on Tourism sector

The US financial turmoil would directly affect the tourism sector primarily due to deceleration in the business tourism. However, given the talent pool of professionals, and with a distinct cost advantage, India can be the destination for health tourism, which to some extent may mitigate the loss in business tourism from the US.

In sum, at the micro-level, certain segments of the industry and services sectors with significant exposure to the US markets might be adversely affected with the down-turn in the US in the short and medium-term. Continued growth in domestic demand and investment spending in the infrastructure sector should provide a cushion to India's growth performance. However, more recent data suggest that the growth in industry is faltering and the impact of the lower economic activity elsewhere has started impacting the Indian industry. Given the strong linkages between the industry and the services sector in India, both these sectors are expected to record subdued growth during 2008-09.

Impact on Savings and Investment

The recent high growth performance of the Indian economy is propelled by rise in savings and investment. While the buoyant trend in the gross domestic savings is driven by savings in household sector, the domestic investment activity is led by private corporates (Table 9). It is significant that the increasing trend in gross domestic savings as a proportion of GDP since 2001-02 has continued with the savings rate rising sharply from 26.4 per cent in 2002-03 to 34.8 per cent in 2006-07. The rate of Gross Domestic Capital Formation (GDCF) has concomitantly increased from 22.9 per cent in 2001-02 to 35.9 per cent in 2006-07.

Some of the salient features of saving and investment trends in India are as follows:

- More than 95 per cent of investment is funded by domestic saving.
- There is a turnaround in the public sectors saving, the rate of saving increased from (-) 2.0 per cent in 2001-02 to 3.2 per cent in 2006-07.

Table 9: Rates of Gross Domestic Savings and Investment							
							(per cent of GDP at current market prices)
Items		2001-02	2002-03	2003-04	2004-05	2005-06 (PE)	2006-07 (QE)
	1	3	4	5	6	7	8
1	Household Savings	21.8	22.7	23.8	23.0	24.2	23.8
	a) Financial assets	10.8	10.3	11.3	10.1	11.8	11.3
	b) Physical assets	10.9	12.4	12.4	12.9	12.5	12.5
2	Private Corporate Savings	3.7	4.2	4.7	6.6	7.5	7.8
3	Public Sector Savings	-2.0	-0.6	1.2	2.2	2.6	3.2
4	Gross Domestic Savings	23.5	26.4	29.7	31.8	34.3	34.8
5	Gross Domestic Capital Formation	22.9	25.2	28.0	32.2	35.5	35.9
6	Gross Capital Formation	23.8	25.0	26.6	31.6	34.5	36.0
	a) Public sector	6.9	6.1	6.3	6.9	7.6	7.8
	b) Private corporate sector	5.4	5.9	6.9	10.5	13.3	14.5
	c) Household sector	10.9	12.4	12.4	12.9	12.5	12.5
	d) Valuables	0.6	0.6	0.9	1.3	1.2	1.2

- With a rise in corporate profitability and resource base, the private corporate saving has almost doubled to 7.8 per cent in 2006-07 from 3.7 per cent in 2001-02.
- Household financial saving has increased to 11.3 per cent 2006-07 from 10.8 per cent in 2001-02. According to RBI's preliminary estimates, the rate of household financial saving is placed at 11.2 per cent for the year 2007-08.
- The private corporate investment has almost tripled to 14.5 per cent in 2006-07 from 5.4 per cent in 2001-02.

As per the estimates made by the Economic Advisory Council (EAC) in July 2008, the Gross Domestic Savings rate is placed at 36.2 per cent and 34.5 per cent of GDP respectively, for the years 2007-08 and 2008-09. The Gross Domestic Investment rate is placed at 37.4 per cent and 37.5 per cent of GDP, respectively, during the same period. Based on these estimates, the current account deficit (CAD) works out to be 3.0 per cent of GDP for 2008-09. Further, the CAD in the Q1 of 2008-09 is placed at 3.6 per cent. The cyclical co-movement between GDP growth and savings rate defines the gap in the CAD. Thus, these estimates reflect that the savings would fall marginally while the investment would continue to grow. It may be added that the investment would remain the major driver of domestic demand in the context of the emphasis on the infrastructure development (Table 10).

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Table 10: Contribution to GDP growth by expenditure classes								
(Per cent of GDP at Current Market Prices)								
	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
GDP (market prices) Growth rate	5.22	3.77	8.37	8.28	9.24	9.69	9.03	7.70
Total Investment or total GDCF	-0.70	3.78	4.98	5.41	5.94	3.63	4.51	3.62
o/w GDCF in Fixed Capital	1.66	1.52	3.22	4.66	4.73	4.41	4.21	
Domestic Final Consumption Expenditure	4.57	1.34	4.60	3.93	5.62	4.88	5.54	5.09
o/w Private Final Consumption Expenditure	3.82	1.39	4.31	3.33	5.25	4.25	4.86	
Net Exports of Goods & Services	1.34	-1.36	-1.21	-1.06	-2.32	1.18	-1.03	-1.01

Note : Data for 2007-08 are provisional based on the May 2008 release of CSO. Those for 2007-08 are EAC projections.

Source: Economic Outlook for 2008-09, Economic Advisory Council to the Prime Minister, July 2008.

Impact on Infrastructure Investment

According to the World Bank, private investment in infrastructure in India, particularly in the power and telecommunication sectors, has been on a rise in recent years (Table 11). To quote Harvard Business Online "A credit crisis in the United States might lead to a

Table 11: Private Investment in Infrastructure Projects in India		
		(US$ million)
Sector	**Number of Projects**	**Total Investment**
Electricity	73	20,007
Natural Gas	3	651
Telecom	34	35,466
Airports	6	4,514
Rail roads	3	218
Roads	104	7,077
Seaports	22	3,577
Treatment plant	1	2
Utility	3	111
Total	249	71,623

Source : World Bank.

restructuring of asset allocation at pension funds. It has been suggested that CalPERS[4] is likely to shift an additional US$ 24 billion to its international portfolio. A large portion of this is may flow into India and China. If other funds follow suit, a cascading effect can be expected." The widening spreads in the global credit markets following erosion of confidence in the wake of financial turmoil has made raising of capital a difficult proposition. The credit contraction, tight liquidity and firming up of interest rates both in the global and domestic economy might take a toll on infrastructure investments in short and medium-term.

Impact on Trade

Merchandise trade

Another critical channel, apart from the financial sector, through which the US financial turmoil could affect the Indian economy is trade. The impact of the US on India's exports would be proportional to the extent of exposure of India's exports to the US economy. In the aftermath of US subprime crisis, India's exports to the US economy might decline as the consumer confidence indices are hit, lowering the demand for imports in the US economy. At the aggregate level, the US remains the major export market for India. Nevertheless, India has equally large exports to the European Union, China, Japan and the rest of East Asia (Table 12). Thus, a greater diversification of India's exports to other trading partners would insulate the Indian economy from the financial turbulence in the US.

Table 12: India's Exports and Imports by destination - Share

(per cent)

Group / Country	Exports		Group / Country	Imports	
	1990-91	2007-08 P		1990-91	2007-08 P
EU	27.5	20.2	OPEC	16.3	31.8
OPEC	5.6	16.5	EU	29.4	13.8
U.S.A	14.7	13.0	China	0.1	11.3
Africa	2.2	7.6	U.S.A	12.1	5.5
China	0.1	6.8	Africa	2.4	4.3
SAARC	2.9	5.7	Latin America	2.3	2.6
U.K.	6.5	4.1	Eastern Europe	7.8	2.2
Latin America	0.5	3.2	U.K.	6.7	2.1
Eastern Europe	17.9	2.1	SAARC	0.5	0.9
Others	22.2	20.8	Others	22.4	25.5
Total	100	100	Total	100	100

P : Provisional.

Source: Handbook of Statistics on the Indian Economy, 2007-08.

[4] California Public Employees Retirement System.

The commodity-wise exposure to the US markets suggests that India's exports comprised of engineering goods; gems and jewellery; chemicals and allied products; readymade garments; cotton yarn, fabrics, leather products; marine products, *etc*. A downturn in the US would affect India's exports to the US market largely in respect of readymade garments, gems and jewellery, cotton yarn fabrics, marine products and engineering goods, *etc*. (Table 13).

Table 13: India's Merchandise Exports of Select Items to the US (2007-08)

	Total Exports (US $ million)	Share in India's Exports (%)	US Share in Total Exports (%)
Engineering Goods	36722.02	23.09	13.63
Gems & Jewellery	19657.38	12.36	25.28
Chemicals & Allied Products	14280.40	8.98	14.24
Readymade Garments	9491.82	5.97	29.27
Cotton yarn, Fabrics, Made-Ups, *etc.*	4511.17	2.84	19.66
Leather & Manufactures	3431.62	2.16	8.86
Marine Products	1702.57	1.07	12.93
Jute, Manufactures, including Floor Coverings	322.86	0.20	21.52

Source: Handbook of Statistics on Indian Economy, 2007-08.

Another concern emanating from the slowdown in the US pertains to possible widening of India's trade deficit and thereby the current account deficit. This is because of the fact that India enjoys a trade surplus with the US, which also happens to be its major trading partner. During 2007-08, India's exports to the US stood at $ 20.7 billion against the imports of $ 13.2 billion, creating a substantial trade surplus of $ 7.5 billion. Given the fact that bulk of India's exports go to the US economy, India's trade deficit, which has been widening, may further expand in the wake the US turmoil.

From Table 14, it is clear that India's trade surplus with the US has been responsible for keeping India's trade deficit at a lower level. Column 4 of the table reveals that had India not enjoyed trade surplus with the US, India's trade deficit would have been higher by 105.3 per cent in 2000-01. However, in the last couple of years (since 2004-05, when imports have been rising at a very rapid pace), India has witnessed a sharp rise in imports - contributed by non-oil imports. On this account, the role of the US economy in lowering India's trade deficit has diminished.

Further, an examination of column 7, shows that in 2004-05, in the absence of India's trade surplus with the US, India's total trade deficit as per cent of GDP would have

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Table 14: India's Trade Deficit and Contribution of Trade Surplus with the US therein								
	Total Trade deficit (Rs Crore)	**Trade surplus with US (Rs Crore)**	**Trade deficit in absence of surplus with the US (Rs Crore)**	**Extent of rise in Trade deficit in absence of surplus with the US (%)**	**GDP (Rs Crore)**	**Total Trade deficit as a % of GDP (%)**	**Trade deficit as % of GDP in absence of surplus with the US (%)**	**Difference in Trade deficits (%)**
	1	2	3 (3=1-2)	4 (4=3 as a % of 1)	5	6 (6=1 as a % of 5)	7 (7=3 as a % of 5)	8 (8=7-6)
1991-92	-3809	2283.7	-6092.7	60	654729	0.6	0.9	0.3
2000-01	-27301.8	28736	-56037.8	105.3	2102375	1.3	2.7	1.4
2001-02	-36181.7	25580.7	-61762.4	70.7	2281058	1.6	2.7	1.1
2002-03	-42068.6	31225.6	-73294.2	74.2	2458084	1.7	3.0	1.3
2003-04	-65740.9	29662.7	-95403.6	45.1	2765491	2.4	3.4	1.0
2004-05	-125725	30393.5	-156119	24.2	3126596	4.0	5.0	1.0
2005-06	-203991	34968.6	-238960	17.1	3275670	6.2	7.3	1.1
2006-07	-268727	32263.1	-300990	12.0	3790063	7.1	7.9	0.9
2007-08	-324678	30191.9	-354869	9.3	4303654	7.5	8.2	0.7

Source: Derived from Handbook of Statistics on the Indian Economy, 2007-08.

been higher by 160 basis points - this declined to 30 basis points in 2007-08. As per the national income identity, a surplus in balance of trade boosts a country's GDP. If the huge trade surplus amount (Rs.30,192 crore as in 2007-08), which the Indian economy enjoys *vis-à-vis* the US were to be wiped out (in the extreme case of no trade with the US), it would lower India's GDP growth.

Impact on Direction of Trade

An analysis of India's trade direction reveals that the US, Japan, the UK, Germany and Hong Kong were India's top five trading associates in terms of exports, in that order in 1995-96. The share of US, the largest trading partner was 17.4 per cent in 1995-96 (Table 15). Till 2000-01, the US continued to maintain its dominance with a share of 20.9 per cent in total exports, followed by Hong Kong, the UAE, the UK and Germany, respectively. The share of the US, however, declined steadily to 13.02 per cent in 2007-08, with the US maintaining its dominant trade associate position. The UAE improved its share to 9.7 per cent in 2007-08 and ranked second followed by People's Republic of China, Singapore and the UK, respectively. Among the major export destinations, while the growth in exports to the UAE, China and Singapore was very high, growth in exports to the US and UK was moderate.

Table 15: India's Exports by Major Countries - Share

(per cent)

		1995-96	2000-01	2004-05	2005-06	2006-07	2007-08
1	Belgium	3.52	3.30	3.00	2.79	2.75	2.64
2	Germany	6.22	4.28	3.38	3.48	3.15	3.20
3	U.K.	6.32	5.16	4.41	4.91	4.45	4.14
4	U.S.A.	17.36	20.88	16.48	16.83	14.93	13.02
5	Japan	6.97	4.03	2.55	2.41	2.27	2.25
6	Kuwait	0.43	0.45	0.50	0.50	0.49	0.43
7	Saudi Arabia	1.52	1.85	1.69	1.76	2.05	2.25
8	U.A.E.	4.49	5.83	8.80	8.33	9.52	9.66
9	Russia	3.29	2.00	0.76	0.71	0.71	0.59
10	China, People's Republic of	1.05	1.87	6.72	6.56	6.56	6.78
11	Singapore	2.84	1.97	4.79	5.26	4.80	4.31
12	South Korea	1.41	1.01	1.25	1.77	1.99	1.79
13	Malaysia	1.24	1.36	1.30	1.13	1.03	1.59
14	Hong Kong	5.73	5.93	4.42	4.34	3.70	3.96
15	Thailand	1.49	1.19	1.08	1.04	1.14	1.14
16	Switzerland	0.89	0.98	0.65	0.47	0.70	0.39

Source : Handbook of Statistics on the Indian Economy 2007-08.

In terms of imports to India, the trend has been more volatile (Table 16). The US was at the top in 1995-96 with its share in India's imports at 10.1 per cent, followed by Germany, Japan, Saudi Arabia and the UK, respectively. In 2000-01, however, the import source

Table 16: India's Imports by Major Countries - Share

(per cent)

		1995-96	2000-01	2004-05	2005-06	2006-07	2007-08
1	Belgium	4.21	5.68	4.11	3.17	2.23	1.82
2	Germany	7.63	3.48	3.60	4.04	4.06	3.99
3	U.K.	5.44	6.27	3.20	2.63	2.25	2.07
4	U.S.A.	10.14	5.97	6.28	6.34	6.32	5.51
5	Japan	7.12	3.65	2.90	2.72	2.47	2.64
6	Kuwait	5.17	0.22	0.27	0.31	3.23	3.21
7	Saudi Arabia	5.48	1.23	1.17	1.09	7.21	8.10
8	U.A.E.	5.35	1.30	4.16	2.92	4.66	5.62
9	Russia	1.76	1.02	1.19	1.36	1.30	1.03
10	China, People's Republic of	2.66	2.97	6.36	7.29	9.40	11.30
11	Singapore	3.14	2.90	2.38	2.25	2.96	3.38
12	South Korea	2.20	1.77	3.15	3.06	2.59	2.52
13	Malaysia	1.71	2.33	2.06	1.62	2.85	2.51
14	Hong Kong	1.00	1.69	1.55	1.48	1.34	1.12
15	Thailand	0.60	0.67	0.78	0.81	0.94	0.96
16	Switzerland	2.88	6.25	5.33	4.39	4.91	4.10

Source : Handbook of Statistics on the Indian Economy 2007-08.

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swung in favour of the UK which accounted for 6.27 per cent of total imports, followed closely by Switzerland, the US, Belgium and Japan, respectively. In 2007-08, China was at the top with 11.3 per cent share in India's imports, followed by Saudi Arabia, the UAE, the US, Switzerland and Germany, respectively.

India's profile of exports, thus, depicts diminishing significance of the US over the years, especially since 2000-01. The import pattern too has diversified with China emerging as India's second largest trading partner. The impact of the events in the US on India's terms of trade would be moderate to the extent of reduced involvement of the US as a trade partner and the extent to which the other economies have gained stronghold as India's trade associates. The adverse impact, however, would relatively be more pronounced on exports, as the US still commands a share of about 13.0 per cent in India's total exports.

Impact on India's ITES exports

As stated earlier, impact of the US slowdown on India's IT exports appears to be adverse, though at a margin. Either, in an effort to cut costs during the recession, the US companies may increase outsourcing of work from India or reduce outsourcing when their business shrinks in the wake of the turmoil. If former happens, it would have positive implications for the economy. On the contrary, if the latter happens, India might be impacted adversely given the increased dependence of India's IT industry on the US.

The contribution of IT industry to India's GDP has increased from 1.2 per cent in 1997-98 to 6.0 per cent in 2007-08 (Table 17). Over the years, the dependence of India's IT

Table 17: Performance of India's IT Sector

Year	Annual Revenue (US $ billion)	Growth in ITES-BPO Sector (per cent)	Share in GDP (per cent)
1	2	3	4
1997-98	4.8	..	1.2
1998-99	6.0	25.0	1.5
1999-00	8.2	36.7	1.9
2000-01	12.1	47.6	2.7
2001-02	13.4	10.7	2.9
2002-03	16.1	20.1	3.2
2003-04	21.6	34.2	3.5
2004-05	28.2	30.6	4.1
2005-06	37.4	32.6	4.8
2006-07	48.0	28.3	5.4
2007-08	64.0	33.3	6.0

Note : Revenues include both from domestic and export segments. IT includes hardware, software and related business services.

Source : NASSCOM.

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on external markets has increased from 37.5 per cent in 1998 to 63.8 per cent in 2008. Thus, the Indian IT market cannot remain insulated from the developments in the external economy. Furthermore, it is found that the US and UK remain dominant markets for IT-ITES exports. In 2007, as much as 61.4 per cent of India's ITES exports were routed to North American markets alone (Table 18).

Table 18: Markets for India's IT-ITES exports

(per cent)

Market	FY04	FY05	FY06	FY07
Americas	69.40	68.30	67.18	61.41
Europe	22.60	23.10	25.13	30.10
Rest of the World	8.00	8.60	7.69	8.50

Source: NASSCOM Factsheet 2007.

The impact of the turmoil in the US on India's trade would depend upon the resilience of India's exports, the degree of their substitutability and import elasticity of products, *etc*. Despite the fact that services sector is buoyant and diversification of the trade is growing, certain sectors which are over exposed to the US markets would be adversely affected.

Impact on Remittances to India

The inflows in the form of workers' remittances to India have stabilised around 3.0 per cent of GDP since the latter half of the 1990s (Table 19). Such inflows off-set India's merchandise trade deficit to a large extent, and facilitated in keeping the current account deficits at modest level during the 1990s. Some recent studies on the subject have observed

Table 19: Remittances (Private Transfer) to India as per cent of GDP

Year	Remittances (US$ billions)	Per cent of GDP
1990-1991	2.1	0.7
1995-1996	8.5	2.4
1999-2000	12.3	2.7
2000-2001	13.1	2.8
2001-2002	15.8	3.3
2002-2003	17.2	3.4
2003-2004	22.2	3.7
2004-2005	20.5	2.9
2005-2006 R	24.5	3.0
2006-2007 PR	27.9	3.0
2007-2008 P	40.8	3.5

R : Revised. PR : Partially Revised. P : Provisional

Source : The Reserve Bank of India Bulletin-various issues.

that the relative stability of workers' remittances can be attributed to the low interest and exchange rate sensitivity of such flows.

The remittances represented 3.5 per cent of the country's GDP in 2007-08 - a sharp rise from 0.7 percent in 1990-1991. Since India receives a substantial portion of the remittances from the US, the current financial turmoil would adversely affect India's revenues from such remittances and this might have implications for India's current account deficit that may need a careful watch.

Impact on Capital Flows

The volatile nature of emerging capital markets reflects the fact that significant flows to emerging markets can rapidly change in magnitude or even stop suddenly in the wake of information available about a debtor country's default risk. Given that a collapse in the capital flows can be costly to EMEs, it is important to identify the determinants of capital flows in order to avoid or minimise such costs. Traditionally, capital flows have been analysed in terms of so called 'push and pull' factors as in Agenor (1998), Mody, Taylor and Kim (2001) and Ferrucci, Herzberg, Soussa and Taylor (2004). Push factors refer to global determinants of flows from the world financial markets to EMEs, while pull factors refer to country specific elements that reflect domestic fundamentals and investment opportunities. Although the 'push-pull' approach is a useful framework to understand flows to EMEs, some studies have implemented a standard supply demand analysis to examine the behaviour of capital flows over time.

In the 'push-pull' factor models, the borrower GDP cycle and the lender GDP cycle are the important determinants. On the pull side, greater GDP growth of the borrower country suggests an improved credit-worthiness and greater demand for credit. Therefore, it is expected to have positive effect on the capital flows and investment. On the push side, there is uncertainty about the net effect of GDP growth of the lending country on the flows. Strong growth in the creditor country may result in greater investments abroad. But at the same time, domestic investment opportunities become more attractive. Hence, there is the uncertainty about the net impact on the flows. Bank of England has estimated a 'pull-push' model with panel data for 19 countries[5] between the period 1986 H1 to 2003 H2[6] . In the study, the effect turns out to be negative. On the basis of the above estimation the following conclusions can be drawn. If the US GDP slows down by 100 basis points, *ceteris paribus*, the capital flows to India would increase by 4 basis points.

[5] India is included in the panel.
[6] *Financial Stability Review*, June, 2004.

The capital inflows and investment might accrue to India from different channels like foreign direct investment, foreign institutional investment, ADRs/GDRs, external assistance, external commercial borrowings, short-term trade credits and NRI deposits (Table 20). It might be noted that in recent years, foreign direct investment and external commercial borrowing have in that order emerged as the two major sources of capital flows. Since foreign direct investment is a stable flow, it is expected that the increase in such flows would continue in the near future and withstand the impending US recession. Furthermore, there has been decline in the FII investments in recent months.

Table 20: Capital Flows into India

(US $ million)

Item	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08
1	2	3	4	5	6	7	8	9
Foreign Direct Investment	4029	6130	5035	4322	6051	8961	22079	32435
Investment by FIIs (net)	1847	1505	377	10918	8686	9926	3225	20328
ADRs/GDRs	831	477	600	459	613	2552	3776	8769
External Assistance (net)	427	1204	-3096	-2754	2027	1766	1787	2118
External Commercial Borrowing (net)	4308	-1588	-1701	-2928	5426	2759	16457	22181
Short-term Trade Credits (net)	551	-793	970	1419	3792	3699	6612	17683
NRI Deposits (net)	2316	2754	2978	3642	-964	2789	4321	179

Source : The Reserve Bank of India Bulletin-various issues.

The last US recession occurred during 2001, and the FDI inflows were not affected by the US recessionary pressure. The channels that were affected most by the US recession in 2001 are the external commercial borrowings and investment by the FIIs. However, in the earlier instance (2001) India's growth was also slowing down along with the US cycles. In present context, due to decoupling of the growth cycles of the two countries, it is expected that the US financial turmoil would rather boost up the FII flows to India. A country-wise disaggregation of FDI flows indicates that in recent years the share of the US in such flows has come down, whereas Mauritius, the UK and Singapore have gained prominence (Table 21). In a nutshell, there will not be any significant impact on the FDI inflows. The current data reveal that net capital flows have risen nearly three-fold and all categories, barring non-resident deposits, have recorded sizeable increases. Net FDI inflows have

Table 21: Country-wise Source of FDI to India

(US $ million)

Country	2003-04	2006-07
Mauritius	26.1	40.6
US	20.3	7.6
UK	10.7	19.4
Singapore	1.0	6.3
Germany	4.7	1.2
Netherlands	13.5	6.0
Japan	4.6	0.9
France	2.3	1.1
Switzerland	0.3	0.6
South Korea	1.5	0.7
Others	14.9	15.6
Total	**100.0**	**100.0**

Source : Ministry of Commerce and Industry, Government of India.

accelerated, primarily in the manufacturing, business and computer services. Outward FDI has more than doubled, reflecting the growing global reach of the Indian corporate sector. Net inflows on account of external commercial borrowings and short-term trade credits have also gone up sizably.

On the other hand, the FII inflows started to dry up and an outflow of US $ 3735 million occurred during Q4 of 2007-08. Although there is no possibility of any financial crisis to Indian economy in the face of the US slowdown, large FDI inflows or sudden outflows might pose challenge to the monetary and fiscal policy-making. While in the case of FDI inflows, there may not be any risk of outflows due to strong macroeconomic fundamentals, the FII inflows may need careful monitoring due to volatile nature of such flows in the backdrop of integrated stock markets.

The investor sentiment which is causing stock markets crash in the US, would also result in shift in money flows towards safer avenues, such as bonds, and away from equities. The signs of redemption pressures from the US investors spearheading withdrawal of funds from the non-US markets including India are clearly visible. The subdued investment sentiments are likely to render it difficult to raise fresh resources for productive investments.

Impact on Composition of Foreign Exchange Reserves

The US dollar continues to reign as the dominant foreign reserve currency the world over, despite the volatility in the greenback and the resulting fears that the US dollar may be losing its appeal. Since the data on currency composition of foreign exchange reserves

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are not in public domain, our observations on the issue are based on the data from the IMF on Currency Composition of Official Foreign Exchange Reserves in respect of all countries, and the developing countries (Table 22).

Table 22: Currency Composition of Official Foreign Exchange Reserves - Claims in US $ as a percentage to total Reserves

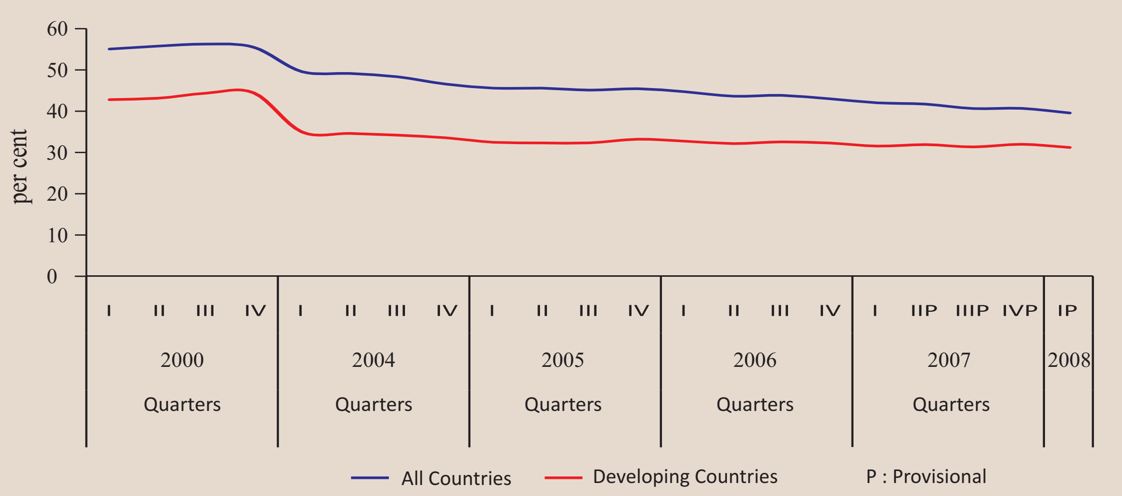
(In US $ million)

			All countries			Developing countries			
			Total foreign exchange holdings	Claims in US $	% age of 2 to 1	Total foreign exchange holdings	Claims in US $	% age of 5 to 4	% age of 5 to1
			1	2	3	4	5	6	7
Annual	1995		1,389,801	610,337	43.92	729,596	268,978	36.87	19.35
Quarters	2000	I	1,808,880	1,000,859	55.33	1,080,551	464,277	42.97	25.67
		II	1,853,084	1,038,479	56.04	1,093,185	473,442	43.31	25.55
		III	1,874,330	1,059,574	56.53	1,111,040	495,034	44.56	26.41
		IV	1,936,516	1,079,916	55.77	1,150,265	513,390	44.63	26.51
Quarters	2004	I	3,296,260	1,640,718	49.78	2,019,477	707,701	35.04	21.47
		II	3,341,124	1,647,771	49.32	2,076,392	719,968	34.67	21.55
		III	3,440,450	1,668,495	48.50	2,162,891	740,315	34.23	21.52
		IV	3,748,773	1,751,012	46.71	2,423,976	814,590	33.61	21.73
Quarters	2005	I	3,857,686	1,763,451	45.71	2,547,275	827,641	32.49	21.45
		II	3,947,844	1,804,906	45.72	2,644,691	854,677	32.32	21.65
		III	4,055,201	1,833,801	45.22	2,763,275	893,874	32.35	22.04
		IV	4,174,965	1,902,484	45.57	2,873,290	955,023	33.24	22.87
Quarters	2006	I	4,357,993	1,952,973	44.81	3,055,382	1,000,530	32.75	22.96
		II	4,586,734	2,006,151	43.74	3,253,184	1,046,318	32.16	22.81
		III	4,749,743	2,086,968	43.94	3,390,343	1,104,698	32.58	23.26
		IV	5,036,817	2,170,973	43.10	3,633,082	1,173,441	32.30	23.30
	2007	I	5,362,392	2,257,764	42.10	3,934,985	1,241,413	31.55	23.15
		IIP	5,721,669	2,391,313	41.79	4,273,206	1,363,698	31.91	23.83
		IIIP	6,043,143	2,459,044	40.69	4,556,423	1,428,384	31.35	23.64
		IVP	6,396,480	2,605,857	40.74	4,895,175	1,566,916	32.01	24.50
Quarters	2008	IP	6,873,920	2,723,029	39.61	5,306,315	1,655,989	31.21	24.09

Source : IMF Website.

There has been a gradual and steady decline in the percentage claims in the US dollars to total foreign exchange reserves for all countries as well as for the developing countries (Chart 7). The decline is quite significant since the last quarter of the year 2000 to first quarter of 2004 for both the sets of countries. The decline in the case of developing countries,

Chart 7: Claims in US $ as per cent of Total Forex Holdings



however, was somewhat restricted since 2007 onwards, signaling firmness in the value of the US dollar. Considering the claims in US dollar as a proxy to reflect the foreign currency holdings in terms of the US dollar, it is apparent that economies across the globe are diversifying their foreign exchange reserve currency composition, though the US dollar continues to maintain its dominance as the single largest reserve currency. The volatility in the US dollar raises concerns about the reserves valuation, leading to sale/purchase of dollars by the central banks, as the situation warrants. The trend of declining dollars in the reserves is attributable to a combination of cyclical and structural factors. The high productivity growth of the 1990s in the US began to erode with the information technology revolution taking place in other countries, resulting in perceptible decline in perceived relative returns on the US assets, and eventually resulted in diminishing demand for dollar. Further, emergence of Euro as an alternative strong currency has added to relatively moderated attractiveness of the US dollar. In recent years, the emerging Asian economies have been diversifying the foreign exchange reserves holdings and the share of US dollar in their reserves has fallen.

Impact on Financial Markets

Impact on Financial Institutions

Impact of the US financial turmoil on India's financial institutions depends upon the extent of exposure of the financial institutions to the failing investment banks in the US. It is widely known that India's approach to introducing exotic but now known as toxic derivatives has been very conservative. Therefore, Indian banks have virtually no exposure to complex derivatives. The exposure of domestic banks or their subsidiaries operating abroad to the subprime assets is rather negligible or nil. However, certain subsidiaries of the domestic banks operating abroad have in their investment books underlying foreign assets, which form a small fraction of their total assets. These banks are adequately capitalised and are subject to provisioning norms. Given the size of these banks, their balance sheets and their nature of the exposure, there may not be any significant impact on the overall performance of the banks, thanks to the sound prudential regulations and supervisory practices prescribed by the RBI for the financial institutions. Even where, one bank faced an isolated possibility of large cash withdrawals by the depositors due to rumours, the RBI's public statement about the financial position had the depositors' confidence restored. The credit rating agencies have also vouched for the soundness of the bank in question. In order to improve the liquidity conditions in the inter-bank money market, a series of monetary measures were announced by the RBI to uplift the market sentiment.

Impact on the Capital Market

A drop in asset prices in one country due to recessionary conditions leads to lower asset prices in the economies where the cross-linkages are high. This channel of transmission is more significant. Unlike the trade channel, the financial channel works almost without any lags. Reflecting the substantial increase in the cross border financial linkages, the IMF reports that gross external assets of industrialised economies have increased from 28 per cent of GDP in 1970 to 155 per cent in 2005, while in the case of the emerging markets including India, the same have increased from 16 per cent to 57 per cent. Moreover, the correlation between assets has been rising across the world. An IMF study showed that among the G-7 economies that the stock market correlation increased from 0.54 to 0.69 between 1995 and 1996 and the bond yields correlation coefficient increased from 0.54 to 0.80 during the same period. The domestic macroeconomic fundamentals seem to be of lower significance while pricing the assets. Hence, a turmoil in the US financial markets gets transmitted to the other markets instantaneously.

Although the emerging markets did not have as much exposure to the US mortgage markets, nevertheless the spread of the crisis to the financial markets has also had some impact on the stocks markets of the EMEs through the financial channel. Table 23 shows that advanced economies had the maximum exposure to the US mortgage markets, seconded by various tax haven islands like Cayman Islands, *etc*. These islands are home to many hedge funds who have been major investors in the mortgage backed assets (Agarwal, 2008).

Table 23: Exposure of Regions to the US debt markets				
				(per cent)
	Total debt	**Total Asset Backed**	**Mortgage Backed**	**Asset Backed**
Advanced Economies	58.8	62.2	56.7	69.6
Developing Economies	2.6	0.4	0.3	0.6
Cayman Islands	5.8	17.4	21.2	12.4
Jersey	0.7	4.6	5.1	3.8
Bermuda	2.7	4.5	4.2	4.9
British Virgin Islands	0.5	0.1	0.1	0.1
Grand Total	71.0	89.3	87.5	91.5

Source: IDBI Gilts Ltd.

The impact of the crisis on Indian stock markets has been significant. The signs of impact on the Indian stock market were first visible in January 2008 when there was a meltdown with US$ 450 billion of market capitalisation being vaporised. The losses suffered were major across all sectors and companies. The last time the bubble burst (2001-2002), the Dow Jones Index went down by 23 per cent, while the Indian Index fell by 15 per cent. The Indian stock market lost substantially since January 2008 as the Sensex crashed by over 45 per cent. In recent months, the BSE Sensex has seen marked volatility and sharp erosion in market capitalisation following the meltdown in global equity markets.

In India, the corporate debt market is not very active and as a result the price movements cannot be seen in this market. The possible impact through the finance channel could be gauged by examining the co-movement in the equity markets of the two countries. The linkages between the returns from Dow Jones and returns on the subsequent day at the BSE could be clear looking at the correlation between the two. The correlation increased when the crisis looked severe, *viz.*, in August 2007 and December 2007. This implies that in the times of crisis the markets in India tracked movements in the US markets. (Table 24). The analysis suggests that linkages between BSE-Sensex and Dow Jones have been strengthening over the years, more so in the times of crisis.

Impact on Prices

Impact on Commodity Prices

In the recent times, inflationary pressures have raised concerns in the US, UK, the Euro area and in some of the EMEs such as China, Malaysia, Indonesia and Chile. The high food and oil prices in the US and other countries pose significant inflation risks for the economies world-wide. The commodity prices, globally, moved in tandem since 2003.

Table 24: Correlation between BSE Sensex and Dow Jones

(per cent)

Period	Correlation coefficient
2005	0.31
2006	0.38
2007	0.56
Aug-07	0.48
Sep-07	0.86
Oct-07	0.05
Nov-07	0.48
Dec-07	0.53
Jan-08	0.67
Feb-08	0.21
Mar-08	0.07
Apr-08	0.74
May-08	0.89
Jun-08	0.90
Jul-08	0.51
Aug-08	0.32
Sep-08	0.79

Source: Bloomberg Database.

In 2007 the global wheat prices surged triggered by the sudden upsurge in production of corn-based bio-fuels in the US and Europe.

In the last four years, the global commodity prices (Table 25) have remained at elevated levels persistently putting pressures on inflation. Headline inflation trended up in the US, the Euro area, Japan and China at the close of 2007. In India, food and oil prices were important contributory factors to higher inflation. International crude oil prices, represented by the West Texas Intermediate (WTI), continued to rise sharply during the first quarter of 2008-09 reflecting tight supply-demand balance, geo-political tensions, weakening of the US dollar against major currencies and increased interest of investors and financial market participants. Notwithstanding a slowdown in the US and the Saudi Arabia's plans to raise production in July 2008 to its 27-year high (at 9.7 mb/d[8]), crude oil prices touched a high of US $ 145.3 a barrel level on July 3, 2008 on the back of a rise in the US crude inventories, supply disruptions in Nigeria and heightened tensions between Iran and Israel raising new concerns about future supplies. The WTI crude prices eased to below US $ 100 per barrel level by September 29, 2008. In India, inflation based on the wholesale price index (WPI) increased from 7.7 per cent at end-March 2008 to reach the peak of 12.3 per cent by August 23, 2008 and then receded to 11.99 per cent by September 20, 2008. This partially

[8] million barrels per day.

Table 25: International Commodity Prices								
Commodity	**Unit**	**Index**					**Growth in per cent**	
		2004	**2004**	**2005**	**2006**	**2007**	**June 2008 over March 2008**	**June 2008 over June 2007**
1	2	3	4	5	6	7	8	9
Energy								
Coal	$/mt	53	100	90	93	124	35.1	159.3
Crude oil (Average)	$/bbl	37.7	100	142	170	188	29.1	92.9
Non-Energy Commodities								
Rice	$/mt	237.7	100	120	128	137	30.5	139.8
Wheat	$/mt	156.9	100	97	122	163	-20.7	56.3
Sugar	c/kg	15.8	100	138	206	141	-8.1	30.6
Aluminum	$/mt	1716	100	111	150	154	-1.6	10.5
Copper	$/mt	2866	100	128	235	248	-2.1	10.5
Gold	$/toz	409.2	100	109	148	170	-8.1	35.7
Silver	c/toz	669	100	110	173	200	-11.3	29.6
Tin	c/kg	851.3	100	87	103	171	12.3	57.7
Zinc	c/kg	104.8	100	132	313	309	-24.6	-47.4

Source : World Bank actual commodity data. The year 2004 has been taken as base year.
Note : Kg : Kilogram, mt: Metric Tonnes, toz: Troy oz, bbl: Barrel.

reflected the impact of pass-through of higher international crude oil prices to the domestic prices and continued increase in the domestic prices of iron and steel, basic heavy inorganic chemicals, machinery and machinery tools, oilseeds/edible oils/oil cakes, fertilisers and raw cotton on account of strong demand, international commodity price pressures and lower rabi production of oilseeds.

Impact on Fuel and Energy Prices

As per the International Energy Agency (IEA), the forecast for global oil demand has been lowered for both 2008 and 2009 following weaker deliveries in the OECD. World demand averages 86.8 mb/d in 2008. The global oil price hike would inflate the oil pool deficit and thereby put pressures on fiscal deficit According to the IEA, demand for crude oil in 2008 will be 87.8 mb/d, which represent a 2.3 per cent rise from 2007 levels and are slightly lower than the previous estimates. As regards oil prices, concerns have been expressed that the US is the largest consumer of oil in the world. There are estimates that with slowdown in the US, the oil prices may come down to the levels of $70 barrel and recent trends reflect the cooling down of oil prices. Already the oil price per barrel has come down below US$90 per barrel.

Impact on Gold Prices

The relationship between US GDP growth and gold prices runs through several transmission mechanisms such as inflation, exchange rates and interest rates. According to statistical tests done by Macquarie Research Commodities, the correlation between changes in gold prices and changes in GDP is - 0.30 which shows that as the rate of GDP expansion declines, gold prices generally rise, and vice versa. The movement in the gold prices is determined by a combination of demand and supply factors (Box 1).

Box 1: Factors Affecting Gold Prices

Demand Factors

- Renewed investor interest in gold as an avenue for investment – bar hoarding, official coins, medals, imitation coins, other retail investments in exchange traded gold funds and related products.
- Gold is a safe-haven asset
- Gold is a dollar hedge
- Unabated consumer demand - jewellery
- Gold diversification to 18-carat fashion accessories
- Sale of gold coins
- Industrial Application - in electronic components, automotive sector apart from dental and health care industrial uses.

Supply Factors

- Global gold mine production in 2007 was expected to increase by 3 per cent to 2,587 tonnes;
- Global fabrication demand is expected to increase 4 per cent to 3,029 tonnes;
- Official sector sales by central banks – contributed to an average of 527 tonnes to annual supply flows between 2002 and 2006;
- De-hedging;
- Producer hedging;
- Recycled gold - scrap sales, old jewellery, recuperated electronics components, investment bars and coins.

The impact on domestic gold prices would depend upon the demand arising from the jewellery industry. This would affect India's jewellery exports to the US, but India is expected to get aggressive in the domestic market and explore newer overseas markets. Currently, despite record imports, the per capita consumption of gold in India is less than one gram.

The international gold prices in dollar terms reached a 27-year high at US $ 1011 on March 17, 2008 and averaged US $968 per ounce for March 2008 and showed an increase of 48 per cent over the previous years' average of US$ 655. However, in Rupee terms, the price of gold on an average increased by 35 per cent during the same period. Thus, the difference in the dollar and Rupee prices works out to 13 per cent. This reflects the appreciation of the Indian Rupee placed at 9 per cent on an average and implies that gold is held due to an assured return on the value of gold in the long term. However, since April 2008 the Rupee started depreciating against US dollar. The gold prices fell by 21 per cent in rupee terms during March 2008 to September 2008, while the gold price in dollar terms fell by 14 per cent during the same period. Taking into account the depreciation in Rupee against US dollar by 8 per cent, the net fall in domestic gold prices works out to 13 per cent, which is mainly due to low domestic demand. India has the largest gold jewellery market and the major quantity of gold is imported. However, most jewellery is fabricated within the country and India has become a major exporter of jewellery. Imports are expected to decline in the absence of good demand in short-term. The expected slump in fabrication is attributable to high prices and volatility. Further, due to higher price sensitivity of the domestic consumers, domestic demand may not rise, except during seasons. Domestic supply could also be augmented through de-hedging, scrap sales, *etc.*

In the backdrop of the US financial turmoil, gold prices in Rupee terms may not increase as much as gold prices in dollar terms. Fall in the gold prices in Rupee terms will be more pronounced with continued appreciation of the Indian Rupee. As demand for gold in India is based on domestic factors, the downside risks were earlier limited to US $ 750 an ounce and this level soon moved northwards to US $ 890 in January 2008 due to quick physical buying in India. The demand for gold is investor driven as of late gold has been being considered as a safe investment in the urban areas, where the demand is influenced for use in fashion jewellery, luxury goods, electronics and consumer services. Further, in the rural areas, where a large chunk of population lives, the demand is traditional and gold is considered as an asset and as a means of savings as well. Hence, gold prices in India are expected to see a correction in the short-term. The gold price movements in India in the near future will depend upon a combination of factors such as, demand from other fast growing emerging economies, domestic demand and Rupee-dollar exchange rates. In short, it may be stated that the US slowdown may have demand side impact on the commodity prices. The sudden negative demand shocks and abrupt adjustment of commodity prices may distort the import and trade margins and inflation expectations.

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Impact on Exchange Rate

The monetary authorities in the US have lowered the Fed rate in a sustained manner to meet the challenges arising out of the financial turmoil. Long-term effects of the crisis spreading from one market to the other have to be carefully measured and policy responses need to be framed appropriately. In lieu of the external developments, the existing foreign exchange scenarios need to be probed. The slowdown in the US economy has led the Fed Reserve to lower its discount rate to 2 per cent in April 2008. The current differentials in the global and domestic interest rates would have an impact on the exchange rate of the Indian Rupee. As stated earlier, in the past three months (August to October 2008) the FIIs have pulled out as much as US $ 10.5 billion from the Indian markets. Such sharp outflows led to the strengthening of the US dollar against Rupee.

In the recent past, the capital inflows into India were bouyant due to interest rate arbitrage, making the Indian financial markets attractive for investments. This trend resulted in the Rupee appreciating *vis-a-vis* the US dollar. The situation has, however, reversed currently with the demand for the US dollar on a rise. The US dollar has recently been appreciating across all currencies including the Indian Rupee and continues to remain a strong currency. This possibly is reflective of narrowing down of the global economic imbalances with the decline in the CAD of the US as a proportion of GDP from 2006-07 onwards.

Potential Risks to Financial Stability

The recent turmoil in the global financial markets poses several challenges to the objective of maintaining financial stability world-wide. On the concerns of disruption in the credit markets, spreads in the corporate credit and mortgage-backed securities market have widened. The credit markets have started to price for risk, with risk spreads rising on securities that have no direct connection with the troubled housing or financial sectors.

The recent chain of events has thus, impacted several banks in the international domain including those having a presence in India. In view of growing global financial market linkages world-wide, the developing countries remain vulnerable to these adverse effects in terms of downside risks to growth, upside risks to inflation, disruption in credit and equity markets, *etc.* Overall, the recent upheavals in the international financial markets, triggered by defaults in the US subprime mortgage market and heightened uncertainties point to the emerging challenges for the conduct of monetary policy, particularly for meeting the objectives of financial stability and growth. Further, the trend towards adoption of

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conglomerate banking model has its implications for financial stability. Recognizing this, the latest Annual Policy review of the Reserve Bank has highlighted that the setting of monetary policy in India has become increasingly complex in the light of some emerging challenges, notwithstanding the robust growth observed in the recent period.

Therefore, there are possible repercussions of the financial turmoil in the US for Indian financial markets, which need to be monitored carefully. The inter-sectoral linkages among various markets in India would propel the impact of adverse developments in one sector on the other sectors and the financial system as a whole. The High Level Committee of Regulators is carefully monitoring the developments in various sectors and the systemic impact. Although the corporate debt market is at a nascent stage, the financial linkages between the US equity markets and Indian equity markets seem to be increasing over the years and more so in times of crisis. The subdued investment sentiments could spread to Indian markets notwithstanding its strong domestic fundamentals. Going forward, if investment sentiments remain subdued, investment decisions are likely to be delayed and FDI and FII flows may be affected. Moreover, any price spiral in oil can put strains on the balance of payments (BoP) position. This coupled with the likely setback to capital inflows could exert pressure on the Indian Rupee. There are also lessons for the universal bankers which point towards continuous and careful monitoring of their investments. The financial soundness, ensured by prudent and pro-active monetary policy is the best insurance against any financial instability. The prudent policies followed in India by and large insulate the financial sector from the crisis elsewhere, thereby ensuring financial stability. Towards this end, the Reserve Bank of India has taken several initiatives in terms of supervisory on-site and off-site monitoring of financial conglomerates in India (Box 2).

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Box 2: Conglomerate Banking Model: Lessons from the US Crisis

The sub-prime crisis has taken a heavy toll on banks around the world. The Citibank group itself has disclosed losses of as much as $8-9 billion. Some estimates coming in from respectable bank analysts pitch possible losses at as high as $50 billion. The losses are, indeed, heavy. There were also similar crippling losses at Bear Stearns, the investment bank and the leader of bulls, Merrill Lynch, again in billions of dollars. A more material aspect of the US banking debate, which is threatening a global recession, is how valid is the US conglomerate banking model, on which India and other developing countries, barring China, are shaping their banking systems. Citibank, for instance, became a massive conglomerate employing nearly 3,00,000 people, with an insurance wing and investment bank alongwith private equity arms. Whether a universal bank model, such as Citibank, is managerially the optimal one is being hotly debated. Analysts are arguing that Citibank has become too much of a massive conglomerate effectively to manage.

According to noted columnist and former Governor of the Reserve Bank Shri Venkitaramanan, these developments do ring warning bells for some Indian banks, which are in the process of emulating the universal banking model. Should we go the same way? There are, no doubt, advantages of universal banking model. A bank, which lends money to its customers, gains access to a large market for selling insurance, mutual fund products and rendering investment advice. There is synergy between the different operations. So, the logic for selling insurance, credit card, mutual funds under the same umbrella! But management has to be appropriately strengthened. Supervision also has to be discrete and separately organised.

An important question raised in this context is whether Basle-II norms were themselves responsible, to some extent, for banks resorting to special purpose vehicle housing securitised assets formed out of their loans. In one sense, this point of view gains support from the fact that banks, which securitise loans and take them off their balance sheets, require that much less capital. But Basle-II norms also put rating agencies in the centre of the risk computation.

Once lenders sell off their securitised packages to investors, they stop taking care about the performance of their borrowers. This is partly the result of the way in which the American investment banks used securitisation. But we have to ensure that the model gets the full impact of continued monitoring of the loans disbursed even after they are packaged and sold.

The collapse of the titans of Wall Street, the heavy losses that have hurt the bankers of the US and Europe, is an eye opener to the potential potholes in the road ahead. Universal banking can be a glamorous model, but it has its risks. Securitisation may look like an easy way out of Basle-II norms, but it can lead to disasters unless the loans securitised are continually followed up. Needless to add that these aspects need to be carefully looked into by the supervisors, although the overall responsibility remains on the lender to ensure that the loans are properly disbursed and monitored and investments are properly accounted for. In India too, the RBI has consciously adopted a gradual approach for implementing the Basel II norms which are customised to suit the Indian financial system.

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Section V

LESSONS, EMERGING ISSUES AND POLICY OPTIONS

The foregoing analysis suggests that there are a number of channels through which the ongoing US financial turmoil can possibly impact India in the near term. The medium and long term effects, however, depend upon the severity and duration of the crisis. There are clear signs of this happening through the financial markets channel and to some extent through the trade channel. Over the past year, the global economy has been affected by the deepening of the crisis in financial markets in addition to surging commodity prices. The US subprime crisis, which rapidly turned into a financial crisis of such enormity, ultimately having serious repercussions for the global economy offers lessons for the policymakers. In this context, it is imperative for India to insulate itself and pro-actively take measures to put in place a comprehensive safety net so as to maintain the desired growth momentum and ensure financial stability.

Hence, certain issues, which need careful monitoring and available policy options in this regard are detailed below:

Macroeconomy

- It is certain that the turmoil would impact growth in India to some extent, though the macroeconomic fundamentals of the Indian economy continue to remain strong. The impact on Indian growth prospects seems to be benign in the short and medium term, given the virtuous cycle of saving and investment activities. Nevertheless, the magnitude of the impact depends upon India's nature of exposure to the US economy through various channels and the extent to which the US turmoil worsens and the measures that are taken by the US to straighten its system. The Eleventh Plan Approach Paper, while setting a growth target of 9.0 per cent for the plan period (2007-08 to 2011-12) has recognised that the economy would be subject to endogenous cyclical down-turn in the beginning of the Plan period, picking up towards the terminal year to touch double-digit growth and on an average would remain on target. In this context, it is imperative to keep a vigil on and evaluate the risk factors emanating from domestic and international economic environment.
- The spillover of the US slowdown on global growth scenario would also reflect on India's performance through the impact on the major trading partners of India. The IT enabled services might receive a set-back since majority of these firms receive 75 per cent of their revenue from the US. Further, adverse effects on the BoP may also be tangible in this backdrop.

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- The manufacturing sector has to expand scale economies, improve productivity and operational efficiency, thus lowering prices, in order to be able to offset the loss of revenue from the US financial crisis. Overall, the impact is expected to be limited to leather products, auto components, textiles and clothing. However, the slowdown may offer opportunities for some other industries and result in increased mergers and acquisitions.

Inflation

- The Reserve Bank of India's monetary policy has recognized that the confluence of slowdown in growth and mounting inflation alongside financial vulnerabilities has complicated the task of monetary authorities across the world and rendered the future direction of policy setting highly uncertain. In the globalised world, the surging food, fuel, energy and commodity prices have percolated to the Indian markets, emanating from demand and supply factors. The key challenge for monetary policy, thus, is to foster stability in the domestic financial system. The monetary policy response to address these challenges has been to focus on the overall financial stability, while deciding on the policy stance. Further, in recent years, a consultative approach has been followed, while increasing the frequency of policy reviews from bi-annual to quarterly for better assessment and communication. In addition, the situation is monitored continuously and steps are taken as and when the circumstances warrant action. This is a significant step forward in monetary management.
- The Reserve Bank of India continues to adopt a proactive and prudent approach in addressing these concerns and as such it would facilitate overcoming any imbalances in this context in future. Thus, Reserve Bank's approach has been not only to use direct instruments but also indirect monetary measures in combination with prudential regulation for ensuring the stability in the financial system.

Financial Markets

- In a highly inter-connected world, volatility in financial markets elsewhere could strike their domestic counterparts in no time. The financial market linkages between Indian equity markets and the US have been increasing, more so in the times of crisis. Given the correlation between the markets worldwide, the deepening of the financial turmoil in the US would have spillover effects in the Indian financial markets, with severe repercussions on the Indian capital markets and capital inflows.

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- FII inflows are slowing down on account of credit crunch in the US, which is presently about 40 per cent (in the lead segments) of the total capital market investment and 30 per cent of the total turnover. There may in fact, be a reverse flow of capital from EMEs to the developed economies keeping the credit crunch in these economies in view.
- The firming up of global oil prices, though moderating of late, resulting into higher domestic oil prices and eventually leading to widening of oil pool deficit, would have adverse implications for fiscal deficit particularly in the context of FRBM legislation.
- This may also indirectly cause firming up of the interest rates in view of increased Government borrowings to finance the oil pool deficit. Upward pressure on interest rates is also likely in case of dry down of capital flows in view of growing uncertainties.
- Though the overall impact of the ongoing US turmoil on the Indian economy appears to be moderate, the possible intensity of the impact at disaggregated level is portrayed in the Table 26.

Table 26: Likely impact of the US financial turmoil through different channels on Indian Economy

		Significance		
Sr. No.	**Channel**	**Negligible**	**Moderate**	**Severe**
1.	Growth		✓	
2.	Agriculture	✓		
3.	Industry		✓	
4.	Services Sector		✓	
5.	Savings		✓	
6.	Investment	✓		
7.	Infrastructure Investment	✓		
8.	Current Account Deficit		✓	
9.	Capital Flows		✓	
10.	Remittance Flows		✓	
11.	Merchandise Trade		✓	
12.	ITES Exports		✓	
13.	Direction of Trade		✓	
14.	Foreign Currency Assets		✓	
15.	Financial Markets		✓	
16.	Asset prices		✓	
17.	Investor Sentiment		✓	
18.	Commodity Prices		✓	
19.	Exchange Rate		✓	

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Going by the severity of the crisis and the failure of several financial institutions in the US, a number of lessons can be drawn.

Broad lessons

Efficacy of the regulatory and supervisory policies

Recent disturbances in the financial markets of the advanced countries had severely battered their respective banking sectors. The ramifications are wide-ranging like dramatic increases in credit spreads across a large number of assets, steep fall in equity prices of financial institutions, increase in volatility in most market segments, deterioration in the health of financial institutions, *etc*. These developments raise serious doubts about the strength, robustness and efficacy of the 'regulatory and supervisory policies' in place in these countries. There is a need to recheck the robustness of the financial system through various mechanisms. Though the Indian financial system is relatively stronger, there is no room for complacency. The Financial Sector Assessment Programme currently underway is expected to provide the necessary guiding path in this regard. While sustained implementation of remaining reforms in the financial sector is critical, appropriate sequencing and phasing is equally crucial.

Best practices need not be imported and adopted indiscriminately

The enormity and callousness with which the US banks expanded credit to unworthy borrowers using public deposits and borrowed funds shattered the public confidence and trust, which is the corner stone of banks' ability to raise resources from the market. It is also clear that there is no system of a genuine credit appraisal in the affected financial systems. Going by the extent of losses incurred by major US banks, prudential measures like risk weights, exposure limits or provisioning norms appear to be not effective. Therefore, it appears that it is no longer necessary for the emerging economies to look at advanced financial systems for imbibing their so-called "best practices".

Early warning mechanisms, monitoring the developments and understanding possible implications

Going by the past experience of the acute credit contractions, a credit crunch could exert a large impact on the functioning of the financial system, on aggregate spending and ultimately on economic activity. Although credit crunches come in different forms, there have been striking similarities in the underlying causes and in the financial and macroeconomic consequences. Credit crunches in the past have often, gone hand in hand with recessions. Therefore, the related indicators need to be monitored carefully. The onset of a credit crunch induced recession call for putting in place an appropriate and comprehensive 'early-warning mechanism'. There is need to develop new indicators and econometric models through which central banks could ensure effective monitoring.

Need to review the internal practices

The financial system of the emerging economies including India, though, so far insulated from the severe consequences of the subprime crisis can still learn from the other affected countries' experiences in terms of the costly trade-off between achieving reckless business targets and adhering to balanced commercial judgment. This is because the Indian financial system escaped from the current crisis with minor bruises (few banks who are now reporting their exposures) due to the strong regulatory and supervisory policies and the prudential measures that are being implemented in a well-calibrated manner over the years. Therefore, the banks need to review their own respective internal practices more carefully at frequent intervals as the financial sector reforms accorded them significant operational freedom.

No country is immune from the impact in the long run

It is generally believed that a prolonged and severe recession in the US could be transmitted to other economies through multiple channels, depending on the extent of trade and other economic relations a country shares with the US. In an integrated and globalised world, it is not necessary that a country need to have extensive commercial relations with the US to get affected and feel the impact. This is relevant to India as it is relatively safe from the impact owing to its being a domestic-demand driven economy. In the current setting of the global macroeconomic environment and the related financial architecture, no country is safe particularly in the medium to long run. The broad message is that impact could hit various countries through various channels and hence the need for keeping constant vigil and swiftly respond to the developments.

Summing up

To summarise, the current crisis in the global markets is exceptional in many ways. The subprime crisis did not evolve over night, but developed over a period of time and by the time the implications unfolded, it was too late to contain the after-effects. Well established institutions have failed and all the segments of the markets are under stress. The central banks are acting at individual levels and are also initiating concerted and unified actions. Rates are being subjected to sustained cuts and liquidity is being injected through different windows. There are calls for the International Monetary Fund to take the lead to rescue the beleaguered global markets. Federal Government in the US has conceived an otherwise inconceivable, rescue package of US $ 700 billion.

Though initially it was believed that India is immune to the after-effects of the crisis, it is increasingly being realised that it is not so. Already industry sector is showing signs of fatigue. The threat of elevated fuel and food prices on the domestic inflation is real. Overall, the GDP growth is moderating. With all these developments, India may still achieve a growth rate of about 7.5 per cent to 8.0 per cent during 2008-09. Whether India can sustain that during 2009-10 is a relevant question at this juncture. Over a period of time, the reforms that are gradually but firmly implemented in the financial sector have ensured that the Indian system is, by and large, insulated from the developments elsewhere. All concerned agree that India's conscious 'go slow' policy in introducing exotic derivatives have ensured to shield the Indian system from shocks emanating from such products. In sum, the need for continued and heightened vigil has increased with an emphasis on readiness to be able to identify the channels of transmission and take prompt and appropriate measures to mitigate the risks, while deploying all the available instruments to preserve and maintain macroeconomic and financial stability. The RBI has been closely observing the developments in both domestic and overseas financial markets. Through appropriate policy interventions and prescription of best practices to suit the Indian financial system, the RBI is in a better position to maintain orderliness in the financial markets and manage the risks arising out of the global financial market turmoil to take forward the growth story.

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Select References

Adrian, Ash (2007), 'Gold goes all Google!', Gold News Special, January, 2007 in BullionVault.com.

Agénor, P.R. (1998), 'The Surge in Capital Flows: Analysis of 'Pull' and 'Push' Factors', *International Journal of Finance and Economics*, 3, pp. 39-57.

Agrawal, A. (2008), 'Decoupling or Recoupling', *Economic Research*, IDBI Gilts.

Anderson, F. (2008), 'U.S. recession chances 50-50: Alan Greenspan predicts', Vancouver Sun, January 25.

Bank of England (2004), 'Understanding Capital Flows to Emerging Market Economies', *Financial Stability Review*, June.

Barbaro, M. (2008), 'Big U.S. retail chains report December downturn', International Herald Tribune, January 10.

Bureau of Economic Analysis, US Department of Commerce.

Bureau of Labour Statistics, US Department of Labour.

Calvo, G., L. Leiderman and C.M. Reinhart (1996), 'Inflows of Capital to Developing Countries in the 1990s', *Journal of Economic Perspectives*, 10, pp. 123-39.

Chatterjee, S. and Vora, H. (2008), MFs Chase Builders and Engineers', DNA Money, January 29.

Chicago Fed National Activity Index (CFNAI), Federal Reserve Bank of Chicago Website.

Ferrucci, Herzb erg, Soussa and Taylor (2004), 'Understanding Capital Flows to Emerging Market Economies', *Financial Stability Review*, Bank of England, June.

George P and Landberg R.V. (2008), 'Greenspan Mess Risks US Recession-Stiglitz', http://www.bloomberg.com.

GFMS Ltd., Press Release London, 13th September 2007, Publication of Gold Survey 2007 - Update 1

________ Press Release London, 17th January 2008, Publication of Gold Survey 2007 - Update 2

Government of India (2007), Economic Survey of India 2006-07.

________ (2007), Towards Faster and More Inclusive Growth: An Approach to the 11th Five Year Plan, Planning Commission, November.

________ (2008), 'Economic Outlook - 2008-09', Economic Advisory Council to the Prime Minister, July.

________ (2008), 11th Plan Document, Planning Commission, August.

IMF Country Report No. 07/63 (2007), India: 2006 Article IV Consultation — Staff Report; Staff Statement; and Public Information Notice on the Executive Board Discussion.

International Monetary Fund (2000), 'International Capital Markets: Developments, Prospects, and Policy Issues'. Washington DC.

________ (2008), IMF Intensify Work on Subprime Fallout, January, Washington DC.

________ (2008), World Economic Outlook, October.

Krishna, G. (2008), 'Danger ahead: The prospect of recession again confronts America', Financial Times, January 2.

Krishnamurthy, B V (2008), 'Impact of a Possible US Recession in India', Harvard Business, January 24.

Llewellyn John, *et al* (2007), 'India: Everything to Play for', Lehman Brothers, October.

Mody, A., M.P. Taylor and J.Y. Kim (2001) 'Modeling Economic Fundamentals for Forecasting Capital Flows to Emerging Markets', *International Journal of Finance and Economics* 6(3): 201-216.

National Accounts Statistics (2008), Central Statistical Organisation, New Delhi.

Quinn, J. (2008), 'US recession is already here, warns Merrill', January 8. http://www.telegraph.co.uk

Ranade, A., and G. Kapur (2003), 'Appreciating Rupee: Changing Paradigm?.' *Economic and Political Weekly*, February.

Randall, Dodd (2007), 'Subprime: Tentacles of a Crisis', International Monetary Fund, December.

RBI (2008), 'Third Quarter Review of Annual Monetary Policy for the year 2007-08'

________ (2008), Handbook of Statistics on the Indian Economy 2007-08.

________ (2008), Report on Foreign Exchange Reserve, 2007-08.

RBI Bulletin, various Issues.

Reinhart, Carmen M. and Rogoff, Kenneth S. (2008), 'Is the 2007 US sub-prime financial crisis so different? — An international historical comparison.', (draft) Reinhart, School of Public Policy and Department of Economics, 4105 and Van Munching Hall, University of Maryland, College Park, Maryland.

Rosengren, Erics S. (2008), 'A Historical Perspective on Housing Downturns', Connecticut Business and Industry Association's Economic Summit and Outlook, January.

Roubini, N. and B. Setser (2004), 'Bailouts or Bail-ins? Responding to financial crises in Emerging Economies', Institute for International Economics.

Scotiabank Precious Metals Quarterly, April 2007.

Taylor, M.P., and L. Sarno (1997), 'Capital Flows to Developing Countries: Long and Short-Term Determinants', *World Bank Economic Review*, 11, pp. 451-71.

The Economist (2008), 'Global Inflation: A Delicate Condition', January 19.

Tyason, L. (2007), 'Is the US Economy in Recession', International Herald Tribune, December 16.

Varma, Anil. (2007), 'Calyon foresees 6 percent drop in the rupee by 2008', Bloomberg News, Published: October 24.

Venkitaramanan, S. (2008), 'Staving off a Recession - The $140 push from Bush', The Business Line, January 28.

________ (2007), 'Lessons from US Crisis', The Business Line, November 26.

World Bank (2007), Private Participation in Infrastructure Data Base, Washington DC.

World Gold Council (2008), Gold Investment Digest, January.

________ (2007), Major changes in Central Bank reported reserves 1990-2007, June.

Web sites referred to:

http://www.businessdayonline.com

http://www.economist.com

http://www.economywatch.com

http://www.federalreserve.gov

http://www.ft.com

http://www.gft.forex.com

http://www.imf.org

http://news.bbc.co.uk

http://www.thehindubusinessline.com

http://www.wdc.org

http://www.wsws.org