THE GLOBAL FINANCIAL CRISIS AND ITS IMPACT ON INDIA

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I. INTRODUCTION

The world has witnessed several financial crises in the past few decades, such as the OPEC oil crises of the 1970s, the United States Savings and Loan crisis of the 1980s, the prolonged economic downturn in the Japanese economy in the 1990s, the Asian financial crisis in the latter part of the 1990s, and the problems following the crash of the dot com bubble in the early part of the last decade. Each of these events had been accompanied by shocks to the economies of one or more markets or regions and it took several years of concerted economic and regulatory policy adjustments for the affected markets to return to stability. While it is normal for financial crises to occur frequently and the affected economies to recover subsequently, it nevertheless results in economic losses for the countries involved and for the people, businesses and institutions in those countries.

The Global Financial Crisis, which started in 2008, is the latest in the series of economic crises to adversely impact world economies. Unlike the past few crises, the current crisis has not spared any of the countries or market sectors, and has devastated economies that were traditionally strong. While the world is slowly seeing an end to the crisis, it is widely acknowledged that among the financial crisis of the past hundred years, only the Great Depression of the 1930s had a more severe and protracted effect on the world economy compared to the current economic upheaval. What started as an excessively loose monetary policy in the 1990s in major developed economies transformed into global imbalances and a full-blown financial and economic crisis for all the economies of the world.[1] The problems that were first noticed in the US sub-prime mortgage market quickly spilled over into the real estate and banking

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[1] Mohan, Rakesh (2009), "Global Financial Crisis: Causes, Impact, Policy Responses and Lessons", Working Paper 407, Stanford University, Stanford, CA, USA. Taylor, John (2008), "The Financial Crisis and the Policy Responses: An Empirical Analysis of What Went Wrong," Working Paper 14631, *National Bureau of Economic Research,* Washington D.C., USA.

sectors. From the financial sector, it moved on to the real sector in the US market and then into the international markets. The contagion effect impacted both the advanced economies and the emerging market economies (EME).

II. CAUSES AND MAGNITUDE OF THE CRISIS

Beginning in the 1990s, countries had been following relatively loose monetary policies which continued in the period following the dot com bubble. During this period, the United States faced a growing current account deficit which was financed by capital flows from exporting countries. This global imbalance contributed to the low interest rates in the United States and the resulting real estate asset bubble. In addition, lenders relaxed their standards for mortgage loans and financial innovations allowed them to mask the risk of their portfolios. Beginning in 2004, the United States Federal Reserve Bank started tightening the credit markets by raising interest rates in response to rising inflation, which caused the crisis in the sub-prime mortgage market. This quickly spread to the entire banking sector in the United States and other advanced economies, resulting in the liquidation of several major banks. The banking sector in the advanced economies is estimated to have lost up to $2.8 trillion between 2007 and 2010. The contagion in the banking sector caused a near shutdown of the credit markets and the United States economy went into a severe recession which was reflected in the securities markets. The crisis was not limited to the United States market – it quickly spread to all other markets, including emerging markets, through both financial channels (i.e., flow of funds) and real channels (i.e., foreign trade).

Table 1 shows the economic indicators for selected markets during 2005-2010. The deterioration in the economic conditions is evident in all the indicators and in all markets. The world economy, represented by the change in Gross Domestic Product (GDP), was growing at a healthy rate of about 5% from 2005 to 2007. In 2008, the year when the financial crisis started, the GDP grew at a rate of only 3%. In 2009, when the crisis was at its peak, the world economy contracted by 0.8%. For 2010, the growth rate is projected to be 3.10%, well below the average growth rate that existed prior to the crisis. Similar trends are evident in all the markets shown in the table. The advanced economies, including United States, United Kingdom and Germany, were growing steadily prior to the crisis, but deteriorated significantly in 2008 and 2009. These economies are projected to grow in 2010, but at a very small rate. The emerging economies as a group and developing Asian countries were growing at impressive rates in the years leading up to the financial crisis, but the growth rates were curtailed in the subsequent periods. Although they are projected to grow faster than the advanced economies in the next few years, it will be some time before they can match the growth rates they had prior to the crisis.

Table 1. Economic Indicators for Selected Markets: 2005-2010

	2005	**2006**	**2007**	**2008**	**2009[s]**	**2010[e]**
GDP (annual % change)						
World	4.48	5.09	5.17	3.00	-0.80	3.10
Advanced economies	2.63	2.99	2.72	0.56	-3.20	1.32
Emerging and developing economies	7.09	7.94	8.31	5.99	2.10	5.08
Developing Asia	9.03	9.83	10.59	7.50	6.50	7.35
Germany	0.73	3.18	2.52	1.25	-4.80	0.34
United Kingdom	2.17	2.85	2.56	0.74	-4.80	0.91
United States	3.05	2.67	2.14	0.44	-2.50	1.52
Current Account Balance (% of GDP)						
Advanced economies	-1.18	-1.26	-0.92	-1.26	-0.66	-0.40
Emerging and developing economies	4.18	5.20	4.30	3.88	2.02	2.84
Developing Asia	4.16	6.09	7.03	5.90	4.99	5.24
Germany	5.15	6.13	7.52	6.41	2.91	3.61
United Kingdom	-2.62	-3.31	-2.70	-1.73	-2.04	-1.95
United States	-5.92	-6.00	-5.16	-4.89	-2.59	-2.21
Unemployment (% of total labor force)						
Advanced economies	6.20	5.79	5.40	5.80	8.20	9.29
Germany	10.62	9.83	8.38	7.40	8.02	10.69
United Kingdom	4.79	5.39	5.40	5.55	7.65	9.33
United States	5.08	4.62	4.63	5.81	9.26	10.15
Trade Volume of Goods and Services (annual % change)						
World	7.80	9.10	7.33	2.95	-12.30	2.47

Source: International Monetary Fund. World – *World Economic Outlook Database*, October 2009, January 2010.

[s] GDP and Trade Volume are actual values; Current Account Balance and Unemployment are IMF estimates as of October 2009.

[e] IMF estimates.

The volume of trade in goods and services across the world was significantly affected by the crisis. It was growing at a rate of 9.1% in 2006. It fell to 2.95% in 2008, and shrank by 12.30% in 2009. Contraction in trade volume across countries can exacerbate global imbalances and cause financial distress in firms that depend on international trade for selling their output and for sourcing their resources. This is also reflected in the unemployment numbers reported for the different markets. The unemployment rate for the advanced economies was projected to rise to 8.20% in 2009, and 9.29% in 2010. Such high unemployment rates for protracted periods in the US and the UK are unprecedented in the post-world war period. The unemployment rates among EMEs (not shown in Table 1) also deteriorated, but to a lesser extent. For example, the unemployment rate for India increased from 10.4% to 10.7% between 2008 and 2009. In China and Russia, the corresponding increases were from 4.2% to 4.3% and 6.5% to 8.9%, respectively.[2] The current account balance expressed as a percentage of the GDP shows that while EMEs, developing Asian countries and some advanced economies, such as Germany, continue to be positive, it remains negative for United States, United Kingdom and other advanced economies.

III. IMPACT OF THE CRISIS ON EMERGING MARKETS

Several emerging market economies were severely impacted by the financial crisis that originated in the advanced economies. Nanto claims that the impact of the crisis on EMEs was more severe than that of the Asian financial crisis of 1997-98 and the Latin American crisis of 2001-02.[3] EMEs had been growing at very high rates prior to the crisis. They were able to finance their growth by borrowing in global capital markets, and by exporting a growing part of their output to the advanced economies. This made them very vulnerable to the availability of credit and the demand for their output. When the crisis started and a severe credit crunch ensued in the advanced economies, it became difficult for the EMEs to continue to finance their foreign debt. Eventually, the liquidity crisis transferred from the advanced economies to the domestic sector of the EMEs and many of them had problems borrowing in the domestic capital markets. In addition to causing a liquidity crisis in the EMEs, the financial crisis had adverse effects in the real sectors in all of them. As the advanced economies contracted, the EMEs experienced a decline in the growth of their exports. Export revenues are a significant component of the GDP of EMEs and

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[2] The computation procedures of unemployment rates differ across countries and levels cannot be meaningfully compared to one another.

[3] Nanto, Dick (2009), "The Global Financial Crisis: Analysis and Policy Implications", *Congressional Research Service* 7-5700.

a slowing down of the exports led to socio-economic problems in the affected countries.[4]

Previously, it was assumed that EMEs had sufficiently decoupled from the rest of the world and that they could withstand downturns in the advanced economies. But the events of the last two years have shown that EMEs and developing countries are still linked to the advanced economies of the world, albeit to a lesser extent compared to the economic interdependence among the more advanced economies. Dooley and Hutchinson find that while the emerging markets were decoupled from the US at the beginning of the crisis and were sufficiently insulated, the economic and financial linkages reappeared subsequently and adversely affected them in both the real and financial sectors.[5] Following the Asian financial crisis of 1997-98, many EMEs had accumulated foreign reserves to withstand any pressure on their currencies.[6] In the second half of 2008, many of them drew down their reserves to protect their currencies and to dampen the contagion effects of the crisis.[7] But, this did not prevent the financial crisis from spreading from the advanced economies to the EMEs.

IV. GLOBAL RESPONSE TO THE CRISIS

In response to the shocks caused by the crisis, world economies have been adopting reforms to their economic policies and have implemented several fiscal and monetary stimulus initiatives to recover from the crisis. Some of these initiatives include tax rebates and tax cuts at both the corporate level to spur investment, and at the personal level to increase consumption and to bail out households with diminished wealth and income. Other initiatives provide incentives to invest in infrastructure and public works projects. Though difficult to measure accurately, Saha and Weizsacker estimate the size of the stimulus package for the European Union for 2009 at 0.9% of the GDP, while the corresponding figures for the United States and China are 2% and 7.1%, respectively.[8] Nanto estimates the size of the stimulus package in Japan at

[4] Ghosh, Jayati (2009), "Global Crisis and the Indian Economy", in *'Global Financial Crisis: Impact on India's Poor'*, United Nations Development Programme (India).

[5] Dooley, Michael and Michael Hutchinson (2009), "Transmission of the U.S. Subprime Crisis to Emerging Markets: Evidence on the Decoupling-Recoupling Hypothesis", *Journal of International Money and Finance*, Volume 28, pp. 1331-1349.

[6] For example, the foreign reserves holding of India in June of 2008 was over $312 billion. The corresponding amount for China in September of 2008 was $585 billion.

[7] The *Wall Street Journal* reported that Brazil, Russia, India and Mexico used $75 billion of their foreign reserves in October of 2008 to support their currencies. Wall Street Journal (2008), "Currency-Price Swings Disrupt Global Markets", October 25, 2008.

[8] Saha, David and Jakob von Weizsacker (2009), "Estimating the Size of the European Stimulus

about 5% of its GDP in 2009.[9] In addition to the fiscal stimulus initiatives, many countries adopted a more accommodative monetary policy to ease the liquidity tightening in the credit markets.[10]

While most of the economic indicators portended a bleak outlook for the world economy and for individual markets, the severity of the crisis in the affected countries and their responses to tackle the problems were not uniform. While the advanced economies either contracted or had no growth during the crisis, the emerging market economies continued to grow, although at a lower rate. The impacts of the crisis on the financial and real sectors of the economy were also not uniform across the countries. While some economies that were structurally strong were able to better withstand the crisis, others had to be bailed out with extensive and multiple stimulus packages to overcome the adverse effects on the domestic economies. The consensus opinion is that countries that curtailed the use of risky assets and encouraged domestic investment and savings were less affected by the crisis. The countries that did not adequately penalize risky behavior and those that had high rates of consumption were more severely affected.

One of the EMEs that performed relatively well during the financial crisis and recovered quickly from its effects was India. The strength of the economy, the structure of regulation in the financial markets, and the timely and appropriate responses to the financial crisis by the monetary authorities in India allowed the country to contain the adverse effects of the crisis and continue on the expansionary path it was on prior to the crisis. In the following sections, the impact of the financial crisis on the Indian economy and some of the strategies adopted by it to manage the crisis are detailed.

V. IMPACT OF THE CRISIS ON INDIA

A. Indian Economy prior to the Crisis

In 1991, India started implementing a policy of economic liberalization, which has been opening up the Indian market to the outside world in different areas. Over the last nineteen years, the country has witnessed

Packages for 2009: An Update", *Bruegel Policy Contribution*, Issue 2009/02, April.

[9] Nanto, Dick (2009), "The Global Financial Crisis: Analysis and Policy Implications", *Congressional Research Service* 7-5700.

[10] For example, OECD estimates that the net effect of the fiscal and monetary policy initiatives in the US amounts to about 5.6% of the 2008 US GDP, and the corresponding number for OECD countries is 3.3%.

dramatic changes in economic policy and market regulation which has made it one of the fastest growing economies among emerging markets. The bilateral trade with the rest of the world has grown significantly during this period and is now a significant component of the GDP. A major part of the export revenues is in the Information Technology and Textiles sectors. The liberalization policy has attracted growing foreign direct investments (FDI) in the various industry sectors and portfolio investments in the Indian capital markets.[11] Regulatory reforms introduced in the capital markets have increased transparency which helped attract portfolio investments from foreign investors. Meanwhile, in the domestic market, the market reforms allowed the private sector to successfully challenge the dominance of the state-owned and state-sponsored business organizations. In a recent study using various operating and financial performance measures, Viswanathan finds that the private sector firms in India, which include family-owned and non-family-owned firms, have outperformed state-owned firms since the implementation of the economic liberalization policies.[12] Banking reforms have ensured continued access to credit and capital for household consumption and for businesses.

The macroeconomic and financial indicators predominantly pointed to a strong and vibrant Indian economy prior to the financial crisis. Table 2 presents selected macroeconomic and financial indicators for India for 2004 to 2009.[13] The GDP was growing at the rate of 7.5%, 9.5%, 9.7% and 9%, respectively, for the four years leading up to the crisis. The original consensus estimate for 2008-09 was also around 9%. The impressive growth in the Indian economy is further validated by the growth rates in industrial production which ranged from 8.2% to 11.5% over the four years. The optimism in the economy was reflected in the stock markets. The Bombay Stock Exchange (BSE) Index representing 30 large companies in India increased by 16.1%, 73.7%, 15.9% and 19.7%, respectively, during the same period. The average inflation (computed using the Wholesale Price Index) during this period was a manageable 5.2%.[14]

[11] Foreign portfolio investment in India is primarily conducted by Foreign Institutional Investors (FII); the foreign individual investor market is practically non-existent.

[12] Viswanathan (2009), "Financial and Operating Performance of State-Owned, Family-Owned and Publicly-Owned Firms in India", Paper presented at Seventh Annual AIMS Conference, Bangalore, India, December 2009.

[13] The fiscal year for India starts in April and ends in the following March. The first four columns in Table 2 cover the period leading up to the global financial crisis. The last column shows the values for the indicators during the crisis.

[14] Although high by the standards of industrialized countries, this range of inflation is normal for emerging markets.

Table 2. Selected Macroeconomic and Financial Indicators for India: 2004-2009

Item	2004-05	2005-06	2006-07	2007-08	2008-09
GDP (Annual % change)	7.5	9.5	9.7	9.0	6.7
Industrial Production (Annual % change)	8.4	8.2	11.5	8.5	2.7
BSE Index (Annual % change)	16.1	73.7	15.9	19.7	-37.9
Inflation (% change)	6.4	4.4	5.4	4.7	8.3
Export Growth (Annual % change)	28.5	23.4	22.6	28.9	5.4
Export/GDP (%)	12.1	13.0	14.1	14.2	15.1
Foreign Reserves (US $ Billions)	141.5	151.6	199.1	309.7	252.0
Current Account (% of GDP)	-0.4	-1.2	-1.1	-1.5	-2.6
External Debt (US $ Billions)	133.0	138.1	171.3	224.6	229.9
Foreign Debt-GDP Ratio (%)	18.5	17.2	18.1	19.0	22.0

Source: Compiled from various tables in Reserve Bank of India 2009 Annual Report and Central Statistical Organization database

Note: The fiscal calendar year for India starts in April and ends in March of the following year.

A significant component of the growth in the Indian economy was the export sector. In the four years leading up to the crisis, India's exports grew by more than 22% each year, averaging 25.8% during that period. The significance of the external trade to the economy is further evidenced by the increasing contribution of exports to the GDP each year. The exports, as a percentage of GDP, increased each year, from 12.1% in 2004-05 to 14.2% in 2007-08. At the same time, India was building its foreign reserves, which increased from $141.5 billion in 2004-05 to $309.7 billion in 2007-08. However, the current account, as a percentage of GDP, was negative and growing in size – from -0.4% in 2004-05 to -1.5% in 2007-08. Finally, Table 2 also shows that India was increasingly financing its growth by borrowing in the external markets. External debt increased from $133 billion to $224.6 billion, a 69% change over the four year period. As a percentage of GDP, foreign debt was close to 20%.

B. Indian Economy during the Crisis

Dooley and Hutchinson has identified that prior to May 2008, the EMEs were insulated from the financial crisis that had been severely affecting the industrialized countries for more than sixteen months.[15] The decoupling of the EMEs from the advanced economies broke down in May 2008 as the crisis spread to the rest of the global economy. This is apparent in the case of India, as evidenced by the deterioration of all the macroeconomic and financial indicators in 2008-09. Industrial production increased by 2.7%, a significant drop from the 9.2% average growth in the previous four years. This contributed to the economy growing at only 6.7%. The BSE Index, which had been rising over a protracted period, lost 37.9% of its value, adversely affecting household wealth and the ability of businesses raising money in the capital market. At the same time, rising commodity prices in world markets contributed to a sharp increase in inflation rates. As the advanced economies started growing at slower rates and in some cases contracted, India's bilateral trade stagnated in 2008-09, with exports growing at only 5.4% and current account deficit increasing to 2.6%. The tightening in the credit markets in advanced economies made it more difficult for Indian businesses to continue borrowing in external markets. The size of the external debt did not change much from 2007-08 to 2008-09. In fact, the Indian Rupee had depreciated against many of the major foreign currencies and the debt service cost was rising. To rectify the problem, India intervened in the foreign exchange market to support its currency using its foreign reserves, which declined from US$ 309.7 billion in 2007-08 to US$ 252 billion in 2008-09.

C. Transmission of the Crisis to the Indian Economy

The global financial crisis which originated in the advanced economies, spread to India and other EMEs through financial and real channels. Given the strength of its economy, India should have been able to withstand the adverse effects of the financial crisis and avoid any serious and long-term consequences to its economic growth. However, its increasing dependence on bilateral trade with other countries and on financing from external markets makes it vulnerable to economic shocks in the global economy. Although India was not immune to the contagion effects of the global financial crisis, it was one of the few countries to recover quickly from the slowdown in the economy and appears to be back on the growth trajectory it was on prior to the crisis. In its latest report, IMF estimates that India's GDP will grow by 7.7% in 2010 and by 7.8% in 2011.[16] This compares very favorably with IMF's estimates for the

[15] Dooley, Michael and Michael Hutchinson (2009), "Transmission of the U.S. Subprime Crisis to Emerging Markets: Evidence on the Decoupling-Recoupling Hypothesis", *Journal of International Money and Finance*, Volume 28, pp. 1331-1349.

[16] International Monetary Fund, World Economic Outlook Update, January 26, 2010.

world output to grow by 3.9% in 2010 and 4.3% in 2011. To understand India's response to the crisis and the resiliency of the Indian economy, it is helpful to analyze the channels through which the real and financial shocks are transmitted from the advanced economies to India.

The contagion effects of the financial crisis spread from the advanced economies to the Indian market in three distinct channels – the financial channel, the real or trade channel, and the confidence channel.[17]

1. Financial Channel

The losses in the subprime mortgage markets in the US and the consequent exposure on the part of the banking sector in the advanced economies resulted in a liquidity crisis. The heightened risk aversion on the part of investors resulted in a credit crunch which directly impacted the financial markets in India in three ways. First, the ability of Indian businesses to use the external markets to finance their operations was severely curtailed by the credit crunch in global markets. As shown in Table 2, the size of the external debt, which had increased by 69% over the previous four years, remained stagnant in 2008-09. Funds raised through American Depositary Receipts and Global Depositary Receipts in 2008-09 had dropped by 63% from the previous year.[18] This was exacerbated by the fact that the cost of borrowing funds in the domestic markets had also spiked. Gupta reports that the call money rates in October of 2008 was above 20%, and that credit default spreads for some Indian banks increased suddenly, indicating a greater degree of risk aversion on the part of the investors.[19] Second, businesses with existing foreign debt started borrowing in the domestic market to meet debt service payments in foreign currencies. This caused a sharp depreciation in the value of the Indian Rupee, which made the debt service burden even larger. To support its currency, India intervened in the foreign exchange markets, which resulted in a decline of foreign reserves from US$ 309.7 billion in 2007-08 to US$ 252 billion in 2008-09. The third way in which the financial markets were affected by the global liquidity crisis was through the reduction in capital flows in the equity markets. Table 3 shows the flow of external funds in India for 2000 to

[17] Subbarao, Duvvuri (2009), "Impact of the Global Financial Crisis on India – Collateral Damage and Response," Speech delivered at the Symposium on '*The Global Economic Crisis and Challenges for the Asian Economy in a Changing World'*, Institute for International Monetary Affairs, 18 February 2009.

[18] As reported in the Reserve Bank of India Annual Report, 2009.

[19] Gupta, Abhijit (2009), "India's Tryst with the Global Financial Crisis", *Review of Market Integration,* Volume 1, Number 2, pp. 171-197.

2010. During this ten year period, the foreign direct investment into India had been increasing and remained strong even during the crisis. The size of the FDI was US$ 4 billion in 2000-01. By 2008-09, it had grown into US$35 billion. This segment of the capital flows was not affected by the liquidity crisis. However, the net Foreign Institutional Investment, which had been growing from US$ 1.847 billion in 2000-01 to US$ 20.328 billion in 2007-08, suddenly became a deficit in 2008-09. In that year, foreign investors withdrew a net amount of US$ 15.017 billion from the equity markets in India. This was a reflection of the heightened risk aversion on the part of the investors, and the liquidity crunch in the credit markets. The result was a decline in the equity prices in India – the BSE Index lost 37.94% in 2008-09, after posting gains in each of the previous six years.

Table 3. Flow of External Funds in India: 2000 – 2010

Fiscal Year

	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10*
Foreign Direct Investment (US$ millions)	4029	6130	5035	4322	6051	8961	22826	34835	35180	26506
Growth in FDI (% change from year to year)	+87	+52	-18	-14	+40	+48	+146	+53	+1	0[P]
Net Foreign Institutional Investment (in US$ millions)	1847	1505	377	10918	8686	9926	3225	20328	15017	20518

Change in BSE Sensex Index(% change from year to year)	-27.9	-3.7	-12.1	+83.37	+16.13	+73.73	+15.89	+19.68	37.94	+79.88

Source: Securities and Exchange Board of India (SEBI) Annual Reports, SEBI Handbook of Statistics, and Reserve Bank of India Annual Report
Note: The fiscal calendar year in India starts in April and ends in March of the following year
* 2009-2010 fiscal year data is for the period ending in December 2009.
P Computed using prorated FDI based on the first nine months of the fiscal year.

Despite the negative impact of the liquidity crisis on its financial markets, India was able to contain the effects and implement a quick recovery, as shown in the Table 3. The net Foreign Institutional Investment for the first three quarters of 2009-10 has exceeded that of any of the prior fiscal years. As noted previously, IMF estimates the growth rates in GDP and industrial production to rebound in the near future to levels that existed prior to the crisis. The optimism in the Indian economy is also reflected in the BSE Index, which rose by 79.88% in the first three quarters of the last fiscal year.

Several factors contributed to the quick recovery of the financial markets in India. Although the economic liberalization policies were initiated in 1991, the transformations in the markets have been implemented cautiously, and the markets are still highly regulated relative to the standards of advanced economies. Stringent regulation of banks has limited their exposure to complex derivatives and off-balance sheet activities. The exposure of the banks in India to the United States subprime mortgage and credit default swaps markets was negligible and indirect.[20] Further, the share of bank assets held by foreign banks in India is only 5%, one of the lowest among all EMEs, which limits the transmission of the crisis through the banking sector. This contrasts with the high foreign ownership of bank assets in East European and Latin American EMEs, which made them more vulnerable to contagion effects. The banks in India were also prudent in their lending practices in the real estate sector.

[20] Although Lehman Brothers had 14 offices in India, its operations did not materially affect the banking sector. Only ICICI Bank had some exposure to the US subprime mortgage market, but it was able to absorb the losses due to its strong capitalization.

Unlike in the United States, subprime mortgages are non-existent in India and the mortgage loans generally have shorter maturities. In response to the crisis, the Reserve Bank of India had raised the capital adequacy ratio from 8% to 9% for existing banks, and to 10% for new private sector banks and banks undertaking insurance business. This exceeds the 8% requirement imposed by Basel II on commercial banks. Table 4 shows selected monetary policy measures in India for 2000-10.

Table 4. Selected Monetary Policy Measures in India: 2000 – 2010 Fiscal Year

	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10*
Gross Domestic Savings (% of GDP)	23.5	23.4	26.1	28.1	31.7	34.2	35.7	37.7	na	na
Capital Adequacy Ratio (% capital to assets)	11.4	12.0	12.7	12.9	12.8	12.3	12.4	13.1	na	na
Net Nonperforming Assets Of Commercial Banks (% of assets)	2.5	2.3	1.8	1.2	0.9	0.7	0.6	0.6	na	na
Net Nonperforming Assets Of Public Sector Banks (% of assets)	2.7	2.4	1.9	1.3	1.0	0.7	0.6	0.6	na	na
Gross Fiscal Deficit (% of GDP)	5.65	6.19	5.91	4.48	3.99	4.08	3.45	2.69	6.14	6.85
Call Money Rate (%)	9.15	7.16	5.89	4.62	4.65	5.60	7.22	6.07	7.06	3.22

Cash Reserve Ratio (CRR) (%)	8.0	5.5	4.75	4.5	5.0	5.0	6.5	7.5	5.0	5.0

Source: Securities and Exchange Board of India (SEBI) Annual Reports, SEBI Handbook of Statistics, and Reserve Bank of India Annual Report.
Note: The fiscal calendar year in India starts in April and ends in March of the following year.
* 2009-2010 fiscal year data is for the period ending in December 2009.

The capital adequacy ratio (that is, the capital as a percentage of the risk-weighted assets of the bank) had been rising steadily from 11.4% in 2000-01 to 13.1% in 2007-08. Further, all 79 commercial banks in 2007-08 surpassed the 9% requirement, and 56 of them had capital adequacy ratios that exceeded 12%. The net nonperforming assets as a percentage of all assets, which is an indication of problem loans in the asset portfolio, of both commercial banks and public sector (or government sponsored) banks have been declining in each year from 2000-01 to 2007-08. For both groups of banks, this ratio had dropped to 0.6% in 2007-08, which is less than one-fourth of that in 2000-01. The gross domestic savings rate as a percentage of the GDP has also been rising from 23.5% in 2000-01 to 37.7% in 2007-08, which again, contributed to the investment component of the India's economic output. Lastly, the direct participation of households and retirement portfolios in the equity markets was relatively small. Most of the household wealth and pension funds were invested in fixed income and secured investments. Consequently, the sharp decline in the equity markets in 2008-09 did not result in significant losses in household wealth. Although the real estate market did stagnate for some time, it has since recovered and has been growing.

2. Trade Channel

The effects of the crisis in the real sector of the Indian economy were transmitted through the external trade channels, that is, exports and imports. Although India's exports are a relatively small fraction of the GDP (15.1% in 2008-09), it had been growing steadily since 2004-05 (Table 2). The two-way trade (sum of exports and imports) as a fraction of the GDP was about 34% in 2008-09. As shown in Table 1, in Section II, the global volume of trade in goods and services declined by 12.30% in 2009. The advanced economies' imports did not grow in 2008 and declined sharply in 2009. Gupta reports that India's exports in the second half of 2008-09 shrunk by 15% mainly due to the economic contraction in its trading partners and partly due to the threats of protectionism.[21] Specifically, export oriented sectors, such as textiles, gems and jewelry, leather, chemicals and information technology, experienced declines in export growth. Software and IT enabled services, whose exports to the United States accounted for 60% of its total exports, witnessed revenue declines as United States firms cut back on their purchases from India. At the same time when its exports were declining, India's imports were rising, primarily due to higher prices for oil, fertilizers and other commodities. Inflation (measured by wholesale price index) had been falling from 6.4% in 2004-05 to 4.7% in 2007-08 (Table 2). In 2008-09, due to higher commodity prices, it climbed steeply to 8.3%, affecting sales and profit margins of businesses. The declining exports and rising imports resulted in a larger current account deficit in 2008-09. In the domestic market, the liquidity crisis in the financial sector, along with rising inflation rates, resulted in lowering the demand for goods and services. The rising current account deficit and the declining demand in the domestic market contributed to labor retrenchment in the affected industries.

Another consequence of the declining demand for India's output was a fall in direct and indirect tax revenues for the government. Political exigencies limited the government's ability to completely pass-through the higher commodity import costs to the consumers. Along with the reduced tax revenues, this put pressure on India's fiscal deficit. Table 4 shows the gross fiscal deficit as a percentage of GDP for the last ten years. Prudent policies on the part of the government helped reduce the fiscal deficits from 5.65% in 2000-01 to 3.45% in 2006-07 and 2.69% in 2007-08. As a direct consequence of the global financial crisis, the fiscal deficit more than doubled to 6.14% in 2008-09. It is projected to rise to 6.85% for 2009-10. In view of the problems in the real sector and the high fiscal deficit faced by the government, Standard and Poor's lowered its long-term sovereign credit rating of India from 'stable' to 'negative' in February 2009. The downgrade of the sovereign ratings raises the cost of borrowing for firms in the external markets.

The effects of the global financial crisis transmitted through both the financial and trade channels impacted the real estate market in India in 2008-09, which did not post any growth for the first time in many years. According to Gupta, private investment in India, which accounted for 28.5% of GDP in 2007-08, declined from a growth rate 29.9% in 2004-05 to 5.9% in 2007-08.[22]

Although India's export to GDP ratios has been steadily rising in the past five years, it is still lower than that of many of the East Asian countries.

[21] Gupta, Abhijit (2009), "India's Tryst with the Global Financial Crisis", *Review of Market Integration,* Volume 1, Number 2, pp. 171-197.
[22] Gupta, Abhijit (2009), "India's Tryst with the Global Financial Crisis", *Review of Market Integration,* Volume 1, Number 2, pp. 171-197.

Consequently, the adverse effects of shrinking imports by advanced economies were not as severe on India as that of other EMEs with higher exports to GDP ratios. As soon as the financial markets around the world recovered, India's exports, employment and real estate market rebounded. Service exports are generally more resilient than merchandise exports as they are less reliant on external finance and are necessities for the buyers even during economic downturns.[23] Currently, exports and employment in the software and information technology industries are on the rise again. Several fiscal and monetary policy initiatives (listed in the next section) were successfully implemented by the government to tackle the problems posed by the financial crisis.

3. Confidence Channel

The third channel through which the financial crisis spread from the advanced economies to the Indian economy is through the confidence channel, that is, the impact of the crisis on the sentiment of investors and consumers in India. Regardless of whether the financial crisis in the United States and Europe had any direct or indirect bearing on the Indian market, and the size of the effect, if any, consumers, investors and businesses became more risk averse and cut back on their consumption and investment. Mishra reports that banks became more cautious about lending to borrowers in 2008-09 and credit growth declined to 17.3% from 22.3% in the previous year.[24] Similarly, consumers in India cut back on their demand for goods and services after being spooked by the sharp decline in the equity markets. Unsure about the demand for their output in both domestic and external markets, businesses cut back on their investments and labor resources. Gupta documents decline in employment in several industries and in wage earnings of the labor force.[25] The pessimistic sentiment of businesses, consumers and investors were reflected by the 41% decline in the National Council of Applied and Economic Research (NCAER) Business Confidence Index in January 2009, compared to the previous year. Several other indicators, such as ABN Amro's Purchasing Managers' Index, Dun and Bradstreet Business Optimism Index and UBS Lead Economic

[23] Ghosh, Jayati (2009), "Global Crisis and the Indian Economy", in *'Global Financial Crisis: Impact on India's Poor'*, United Nations Development Programme (India).

[24] Misra, B. M. (2009), "Global Financial Crisis and Monetary Policy Response: Experience of India", Paper presented at the workshop on *'Strengthening the Response to the Global Financial Crisis in Asia-Pacific: The Role of Monetary, Fiscal and External Debt Policies'*, United Nations Economic and Social Commission for Asia and the Pacific, Dhaka, Bangladesh, July 2009.

[25] Gupta, Abhijit (2009), "India's Tryst with the Global Financial Crisis", *Review of Market Integration*, Volume 1, Number 2, pp. 171-197.

Indicator exhibited similar declines in sentiment in the manufacturing sector.

Economies can adopt measures to insulate themselves from the contagion effects of financial crises in foreign markets through the financial and trade channels. However, the crisis can still spread through the confidence channel. In the stated opinion of the monetary policy makers (that is, the Reserve Bank of India), financial markets in India continued to function in an orderly manner even when most of the world economies were experiencing a severe liquidity crisis. Although India was well positioned to manage the spread of the global financial crisis from the advanced economies, it could not deflect the effects on the confidence level of the investors, consumers and businesses. In the domestic economy, the primary impact was a sharp reduction in consumption by both households and businesses. As a consequence, business investment slowed down during the crisis, and it was reflected in the domestic component of the growth in GDP. It was also reflected in the higher rates of unemployment in some of the sectors of the market. This translated into an increased aversion and higher premium for risk among private and institutional investors. The lack of confidence in the financial markets was reflected by the 37.9% decline in the BSE Index.

D. India's Policy Response to the Crisis

Subbarao, Misra and Thorat present the various monetary and fiscal policy initiatives implemented by the Indian government and its agencies in response to the global financial crisis and its effects on the domestic economy.[26] In its role as the principal regulator of the financial markets in India, the primary responsibility of the Reserve Bank of India (RBI) is to ensure the orderly functioning of the credit and foreign exchange markets in India. The monetary policy response of the RBI was aimed at containing the contagion effects of the financial crisis from the advanced economies by ensuring sufficient liquidity in

[26] Dr. Duvvuri Subbarao, Ms. Usha Thorat and Mr. B.M. Misra are, respectively, the Governor, the Deputy Governor and Economic Adviser of the Reserve Bank of India. Subbarao, Duvvuri (2009), "Impact of the Global Financial Crisis on India – Collateral Damage and Response", Speech delivered at the Symposium on *'The Global Economic Crisis and Challenges for the Asian Economy in a Changing World'*, Institute for International Monetary Affairs, 18 February 2009. Misra, B. M. (2009), "Global Financial Crisis and Monetary Policy Response: Experience of India", Paper presented at the workshop on *'Strengthening the Response to the Global Financial Crisis in Asia-Pacific: The Role of Monetary, Fiscal and External Debt Policies'*, United Nations Economic and Social Commission for Asia and the Pacific, Dhaka, Bangladesh, July 2009. Thorat, Usha (2009), "Impact of Global Crisis on Reserve Bank of India (RBI) as a National Regulator", Paper presented at the 56th EXCOM Meeting and FinPower CEO Forum, APRACA, Seoul, Korea, June 2009.

the credit markets. On the fiscal side, the government's policy responses were aimed at protecting businesses and groups that were directly affected by the crisis. This was accomplished through relaxation of some onerous restrictions, tax subsidies and strengthening of social safety-nets.

1. Monetary Policy Responses

The goals of the monetary policy initiatives were three-fold: to provide sufficient liquidity in the domestic market, to provide dollar liquidity for businesses financing in the external markets, and to ensure flow of credit to those industry sectors that were productive.

Following the rapid expansion in the first half of the decade, the monetary policy was tightened in the second half. This policy had been in place till August 2008 when the initial effects of the crisis started impacting India in the form of reduced credit availability. Banks became cautious and started cutting back on their new loan offerings. To provide more liquidity to the credit markets, the RBI gradually reduced the repo rate from 9% (in August 2008) to 4.75%, and the reverse repo rate from 6% to 3.25%.[27] Table 4 shows the call money rates (an indicator of the borrowing rates) in India for the last ten years. From 2000-01 to 2004-05, the rates were declining during the expansionary phase. To moderate the expansion, monetary tightening was put into effect between 2005-06 and August of 2008, when the rates increased. In 2009-10, the call rate was reduced sharply to 3.22%, reflecting the RBI's injection of liquidity into the market. In effect, this expanded the money supply in India by providing incentives to banks to increase their loan portfolios. The cash reserve ratio (or reserve requirement), which had been at 7.5% in 2007-08, was also reduced to 5%, allowing the multiplier effect to expand the money supply. Along with this, the Statutory Liquidity Rate, a liquidity requirement for commercial banks, was also relaxed to allow them to provide more credit.

To facilitate availability of sufficient dollar liquidity, the RBI intervened in the foreign exchange markets to support the Indian Rupee. In the process, the foreign reserves held by India declined from US$ 309.7 billion in 2007-08 to US$ 252 billion in 2008-09. The rising dollar had been increasing the debt service costs for businesses that had been using external financing. By stabilizing the value of the Indian Rupee, RBI was attempting to manage the exchange rate risks by the borrowers. Further, it initiated currency swaps with businesses that were exposed to United States dollar payables, and extended

[27] The repo rate is the discount rate at which the RBI buys government securities from commercial banks, and the reverse repo rate is the interest rate at which RBI borrows money from commercial banks.

export credit finance to them. With the limited availability of United States dollar funding in external markets and increased risk aversion on the part of lenders, ceilings on rates at which businesses could borrow in external markets were relaxed. Finally, the rates on Eurodollar deposits in India were raised to attract more funds from foreign individual investors.

The RBI, in conjunction with the government, implemented policies that provided additional credit facilities specifically for Small and Medium Enterprises (SMEs) that were particularly affected by the non-availability of credit. Banks were allowed to reclassify certain nonperforming assets in a way that allowed them to refinance borrowers who were behind in their debt service payments. A bailout package was implemented in the agriculture sector in the form of a farm-loan waiver that allowed farmers to continue operations facing a mounting debt burden.

2. Fiscal Policy Responses

The focus of the fiscal policy responses of the Indian government to the financial crisis was to stimulate demand for the country's output and to bailout those industries and groups that were most vulnerable to the crisis. Starting in December 2008, the government introduced three stimulus packages in the span of four months that lowered tax rates and increased tax subsidies, increased capital expenditures and government spending, and provided incentives that encouraged growth in consumption and demand. Specifically, the government announced plans for additional public spending in capital expenditure projects, provided government guarantees for infrastructure spending, and expanded credit for SMEs and exporters. The agriculture industry, which supports a majority of the population, was particularly affected due to rising oil and fertilizer prices, and due to failed monsoons. The loans that were in default in the farming sector were waived by the government. The stimulus packages also included tax rebates and subsidies for some of the affected sectors of the market. Finally, a revised pay structure for all government employees implemented salary increases that raised the disposable income for a significant part of the labor force. Subbarao estimates the size of the fiscal stimulus amounted to about 3% of the GDP.[28]

[28] Subbarao, Duvvuri (2009), "Impact of the Global Financial Crisis on India – Collateral Damage and Response", Speech delivered at the Symposium on '*The Global Economic Crisis and Challenges for the Asian Economy in a Changing World'*, Institute for International Monetary Affairs, 18 February 2009.

E. Evaluation of Policy Responses

Starting in 1991, India had been implementing economic reforms that were aimed at moving from a centrally-planned economy to a market based economy. In the process, it had been cautious in opening up its markets and allowing risky innovations in the financial markets. While encouraging the private sector to play a more dominant role in the economy, it was also in the process of strengthening and streamlining the regulation of markets. The banking sector, which plays a pivotal role in the savings and capital formation functions in India, was heavily regulated to limit overly risky behavior by the participants. Consequently, while the global financial crisis is having a protracted and devastating effect on most of the economies of the world, its impact on the Indian economy is not that severe. The strength of the Indian economy along with the timely and appropriate monetary and fiscal policy responses by the government helped manage the adverse effects of the crisis. Mohan estimates the monetary policy responses to the crisis injected liquidity that amounted to about INR 4,900 billion or 9% of GDP.[29] On the fiscal side, the spending initiatives amounted to INR 2,928 billion, and tax subsidies cost INR 1,600 billion. These policy responses stabilized the financial markets and facilitated a quick recovery of the economy. One negative consequence of the various stimulus packages is that the fiscal deficit is at 11 percent of GDP and will continue to be at this level for some time. This limits the policy options available to the RBI to manage future shocks to the economy in the near term.

VI. CONCLUSION

Recent economic history has taught us that financial crises that simultaneously affect several economies occur frequently, and that prudent policies and appropriate responses by monetary authorities help in managing the crises. However, the task of containing the adverse effects becomes more challenging when all the economies of the world are affected by the crisis. The current global financial crisis, which started in 2008, has been adversely affecting all the world economies and the magnitude of its impact is exceeded only by that of the Great Depression of 1930s. In response to the crisis, the various national monetary authorities and international financial organizations have implemented fiscal and monetary policy initiatives to alleviate the problems and soften the impact on the affected sectors. While all economies were adversely affected by the crisis, the impacts were not uniform across

[29] Mohan, Rakesh (2009), "Global Financial Crisis: Causes, Impact, Policy Responses and Lessons", Working Paper 407, Stanford University, Stanford, CA, USA.

countries. Consequently, the responses by the governments in individual countries varied.

The global financial crisis has had a more severe impact on the advanced economies compared to the rest of the world. The economic indicators in the United States and the European Union countries point to a severe contraction in these markets. At the same time, the slowdown in the emerging markets has been smaller. Within the emerging markets, countries such as India, China and Brazil have even managed to expand during the crisis, albeit at a lower rate compared to their growth prior to the crisis. They have also successfully avoided a protracted slowdown and are projected to achieve higher growth rates. This paper detailed the impacts of the global financial crisis on the Indian economy, and the responses of the Indian government in managing the crisis.

The proactive policies of the RBI have ensured the availability of adequate liquidity in the markets. In the credit and consumer markets, interest rates and inflation rates have stabilized. In the foreign exchange market, the Indian Rupee has rebounded against currencies of the major trading partners. The fiscal stimulus provided by the government has helped cushion the decline in private investment and consumption in the real sector. Although preliminary estimates of the nonperforming assets of banks have been rising, they are still at manageable levels. In the meantime, industries that were facing rising unemployment in 2008-09 have been reversing the trend. The stock market, which is an indicator of the strength of the economy, has risen by 80% in the first three quarters of the current fiscal year (2009-10), after falling by 38% in the previous year. The current figures for the Purchasing Managers' Index, the RBI's Business Expectations Index and the Neilsen Global Consumer Confidence Index for India indicate optimism about the economy on the part of businesses and consumers in India. Finally, IMF's consensus estimate for the GDP of 7.7% and 7.8% for 2010 and 2011, respectively, is evidence that India has recovered from the global financial crisis and is back on the growth trajectory.

Although India has been liberalizing its markets since 1991, it has adopted a cautious approach by opening up its markets slowly and implementing reforms after studying their effects on the domestic market. Unlike many other emerging economies, the banking sector in India is still highly regulated and continuously monitored. The Reserve Bank of India has at its disposal a number of tools to control the money supply and to infuse liquidity as needed. The size of its foreign reserves allows India to intervene effectively in the foreign exchange market to support its currency. Consequently, businesses can manage their exchange rate risk when trading with foreign countries and when borrowing in the external markets. Although

India has expanded its foreign trade sector, which is now a major component of its GDP, the domestic sector is large enough to cushion any shocks in the real sector of the global economy. This contrasts with several EMEs that have implemented strategies to expand their external trade sector at the expense of the domestic markets, making them vulnerable to external shocks. Finally, the government in India has been expanding investments in social safety-nets to soften the impact on the groups most vulnerable to economic shocks and contagion in free markets.