Prices and Monetary Management

4
CHAPTER

Wholesale price index (WPI) inflation, after remaining in an elevated zone at over 9 per cent through the year, has been falling sharply since December 2011, aided by lower food prices, a global economic slowdown, and the impact of nearly two years of domestic monetary policy tightening and other measures put in place by the government. Monetary policy remained focused on controlling inflation and anchoring inflationary expectations, with 13 adjustments in policy rates since March 2010, which has slowed growth. These effects, coupled with a favourable base effect in prices and continued global slowdown, are expected to moderate inflation to around 6.5 to 7.0 per cent by March 2012; inflation is expected to come down further during 2012-13. The global economy witnessed fresh spells of crisis during 2011-12, with domestic business and consumer confidence dampening on the back of the deepening sovereign debt crisis in Europe. Global commodity prices, particularly those of food and metals, softened from high levels, even as crude oil prices remain elevated and are a major source of uncertainty and risk. All emerging and developing economies (EDEs) witnessed higher inflationary pressures with consumer price inflation for EDEs rising to 7.2 per cent for 2011, while that for advanced economies (AEs) was 2.7 per cent. Looking ahead, vigilance is called for in getting back to a low-inflation/sustained high-growth path in India, by renewed focus on supply-side measures and improved fiscal consolidation, including stepped-up regular adjustments in domestic energy prices. High levels of food stocks and producer responses to higher protein and other food prices should help maintain overall price stability ahead.

Prices

4.2 Headline year-on-year WPI inflation after remaining persistently high over the past two years has started to show signs of moderation lately. Financial year 2011-12 started with a headline inflation of 9.7 per cent, which briefly touched double digits in September 2011 before coming down to 6.6 per cent in January 2012. Consumer price inflation (CPI) for the major indices declined to below 7 per cent in December 2011, and fell further in January 2012 (Table 4.1).

4.3 Headline WPI inflation remained relatively sticky at around 9 per cent during the calender year 2011.The factors contributing to this situation and their relative importance have, however, been changing over time. Some of the contributory factors during this period include (a) higher primary articles prices driven by vegetables, eggs, meat, and fish due to changing dietary pattern of consumers; (b) increasing global commodity prices especially metal and chemical prices which ultimately led to higher domestic manufactured prices; and (c) persistently high international crude petroleum prices in the last two years averaging around US $ 111 per barrel in 2011 (Jan.-Dec.) as compared to US $ 80 per barrel (Jan.-Dec.) in 2010.

4.4 Inflation in primary articles has declined drastically, falling to 2.25 per cent by January 2012, after remaining in double digits for almost two years

Table 4.1 Annual Inflation as per Different Price Indices

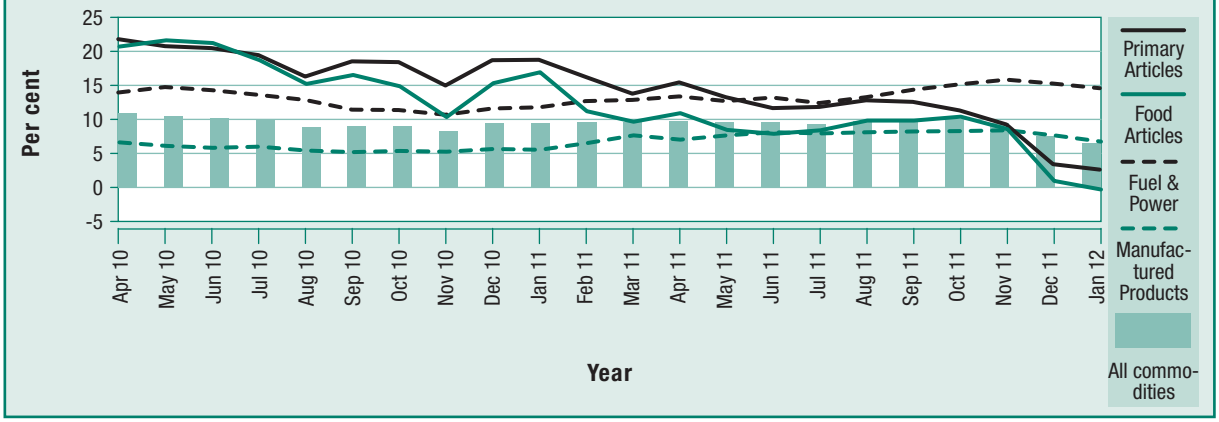
(per cent)

	WPI		CPI-IW		CPI-AL		CPI-RL	
Month	2010-11	2011-12	2010-11	2011-12	2010-11	2011-12	2010-11	2011-12
April	10.88	9.74	13.33	9.41	14.96	9.11	14.96	9.11
May	10.48	9.56	13.91	8.72	13.68	9.63	13.68	9.63
June	10.25	9.51	13.73	8.62	13.02	9.32	13.02	9.14
July	9.98	9.36	11.25	8.43	11.02	9.03	11.24	9.03
Aug.	8.87	9.78	9.88	8.99	9.65	9.52	9.66	9.71
Sept.	8.98	10.00	9.82	10.06	9.13	9.43	9.34	9.25
Oct.	9.08	9.87	9.70	9.39	8.43	9.36	8.45	9.73
Nov.	8.20	9.46	8.33	9.34	7.14	8.95	6.95	9.14
Dec.	9.45	7.47 P	9.47	6.49	7.99	6.37	8.01	6.72
Jan.	9.47	6.55 P	9.30	5.32	8.67	4.92	8.69	5.27
Feb.	9.54		8.82		8.55		8.55	
Mar.	9.68		8.82		9.14		8.96	
Average	**9.56**		**10.45**		**10.00**		**10.01**	

Source **: The Office of the Economic Adviser (OEA), Department of Industrial Policy and Promotion (DIPP).**

Note **: P : Provisional; CPI : Consumer Price Index; IW : Industrial Workers; AL : Agriculture Labour; RL : Rural Labour**

Figure 4.1 Year-on-year inflation for major groups in WPI



(Figure 4.1). However, inflation in fuel has continued to remain high during the last two years. Inflation in manufactured products had started to accelerate since January 2011, remaining range-bound between 7 and 8 per cent in 2011, due to a surge in metal and chemical prices, but it has also recently started to moderate.

4.5 Compared to a relatively benign and stable inflationary period in the earlier part of the last decade, average headline WPI inflation started to rise in 2008-9 and persisted. The pressure was mainly from primary and fuel products with the average inflation in these commodities remaining persistently in double digits for a major period since 2008-9. In comparison, inflation in manufactured products remained relatively stable, dropping sharply in 2009-10 because of the global economic crisis and impacts in India, before it started to pick up and exceed its long-run average of around 5 per cent in early 2011-12. Among individual product groups, inflation in food products, beverages, textiles, chemicals, and basic metals remained elevated mainly on account of high global commodity prices and cost push pressures (Table 4.2).

Table 4.2: Annual Average Inflation by Major Heads in WPI

(per cent)

Commodities	Weight	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11 (Apr.-Jan.)	2011-12 (Apr.-Jan.)P
All commodities	**100.00**	**4.47**	**6.59**	**4.74**	**8.05**	**3.80**	**9.55**	**9.11**
Primary articles	**20.12**	**4.30**	**9.62**	**8.33**	**11.05**	**12.66**	**18.41**	**9.91**
Food articles	14.34	5.38	9.62	6.97	9.09	15.27	16.75	7.15
Non-food articles	4.26	-3.32	5.80	11.86	12.87	5.47	20.49	12.27
Minerals	1.52	15.15	18.64	11.84	22.08	8.79	26.74	24.15
Fuel & power	**14.91**	**13.58**	**6.46**	**0.03**	**11.57**	**-2.11**	**12.24**	**13.67**
Coal	2.09	17.60	0.09	3.38	24.30	3.43	5.07	13.26
Mineral oils	9.36	16.73	9.14	-0.90	12.35	-4.29	16.03	17.12
Electricity	3.45	2.57	2.66	0.84	0.19	0.96	5.74	1.17
Manufactured products	**64.97**	**2.42**	**5.66**	**4.78**	**6.16**	**2.22**	**5.46**	**7.58**
Food products	9.97	1.19	5.29	3.54	8.69	13.49	4.26	7.35
Beverages, tobacco & products	1.76	4.66	5.10	6.52	9.52	6.11	7.08	11.81
Textiles	7.33	-1.06	1.88	0.73	1.62	3.43	11.05	9.51
Wood & wood products	0.59	5.74	5.84	6.69	9.49	9.60	4.03	8.00
Paper & paper products	2.03	3.63	4.60	2.96	4.20	2.20	4.84	5.94
Leather & leather products	0.84	4.25	7.95	3.06	5.47	4.93	-0.92	1.76
Rubber & plastic products	2.99	1.91	5.61	4.28	4.53	0.74	5.98	6.82
Chemicals & their products	12.02	3.79	4.96	3.57	4.64	-0.26	5.00	8.74
Non-metallic mineral products	2.56	3.41	11.58	11.19	2.63	6.97	2.59	5.52
Basic metals, alloys & products	10.75	2.23	9.28	10.29	11.96	-6.12	8.10	11.12
Machinery & machine tools	8.93	3.58	6.31	3.65	2.89	0.46	2.73	3.11
Transport, equipment/parts	5.21	2.69	2.22	2.47	5.36	3.08	2.96	3.54

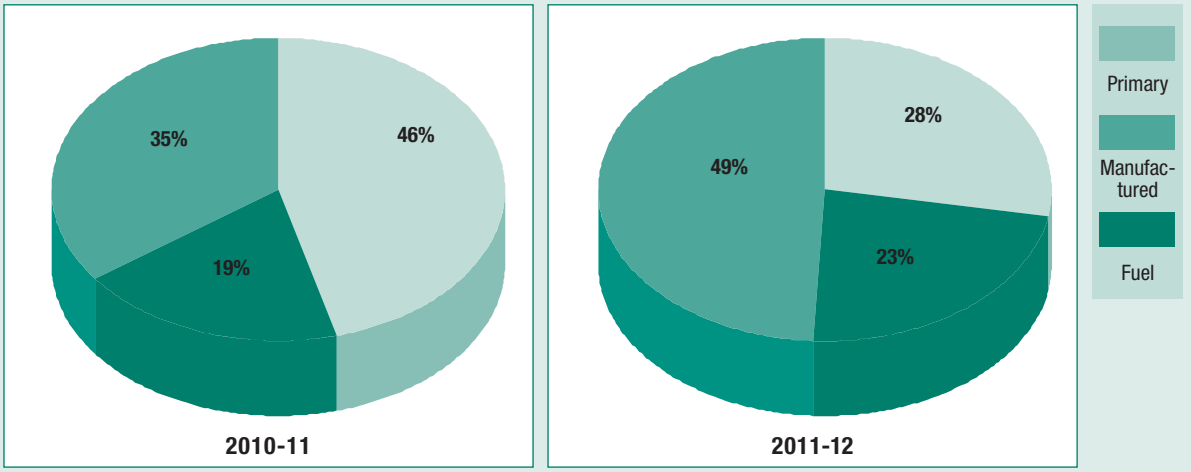
Source **: OEA, DIPP.** **P: Provisional**

Change in Reporting of Inflation

4.6 At present the WPI for all commodities including manufactured products is released only on a monthly basis. However, until recently WPI for primary articles and the fuel group was also being released on a weekly basis. This practice was intended to help in analysing the trends for policy-making as these commodities are essential in nature. But it was observed over a period of time that there was a tendency for upward revisions in the indices reported once the final numbers were later released. The higher frequency weekly reporting was thus prone to more statistical 'noise' and sometimes provided a misleading picture, so the trade-off was between the more frequent and less reliable data and less frequent but more reliable data. International practice for reporting CPI inflation is also on a monthly basis.

4.7 In view of this, the Cabinet Committee on Economic Affairs (CCEA) in its meeting held on 24 January 2012, agreed to discontinue the weekly release of WPI for the commodities/items under the groups 'primary articles' and 'fuel and power' with immediate effect. The last weekly WPI for the week ending 14 January 2012 was released on 27 January 2012. WPI shall, henceforth, be released on a monthly basis only.

Figure 4.2 Contribution to WPI inflation by major groups (per cent)



Main drivers of Headline WPI Inflation

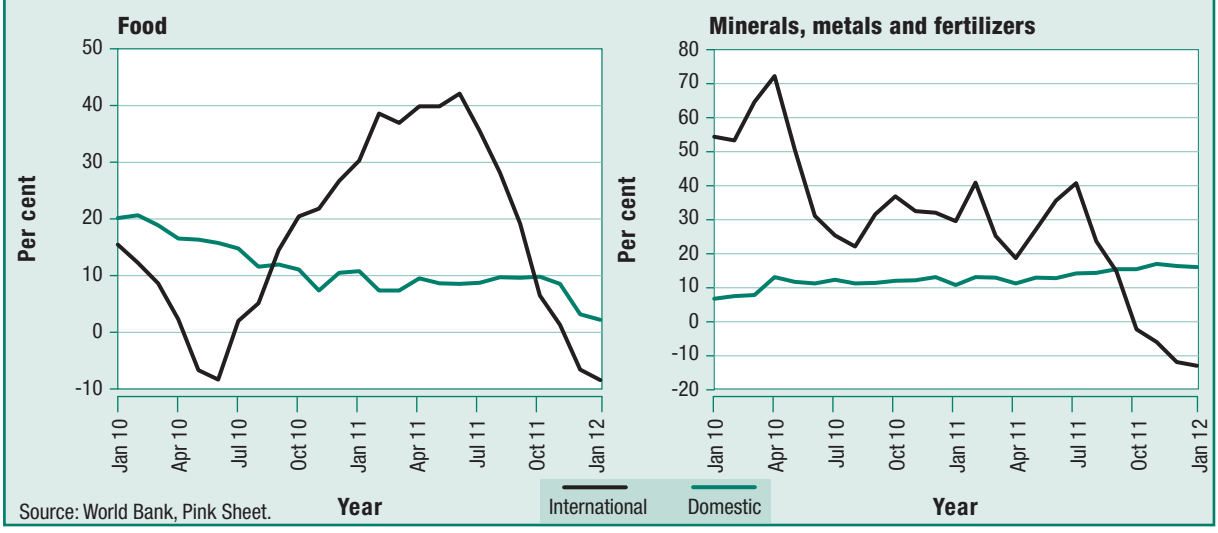
4.8 Looking at the weighted contribution of major product groups to WPI inflation, it can be seen that the contribution of primary articles has significantly declined from about 46 per cent in 2010-11 (April-January) to 28 per cent in 2011-12 (April-January) (Figure 4.2). On the other hand, that of manufactured products has gone up from 35 per cent in 2010-11 to about 49 per cent in 2011-12. The contribution of fuel has remained relatively stable at around 19 per cent in 2010-11 and 23 per cent in 2011-12.

The Impact of Global Commodity Prices

4.9 The major source of inflation in the recent past has been price rise in non-food raw materials dependent manufactured products, much of which has been due to imported global commodity inflation. The high inflation in several commodities globally has led to increase in price level of these commodities domestically. For example, international prices of silver in the last one year (January-December 2011) is up 75 per cent, coconut and copra by 54 per cent, cotton by 45 per cent, fertilizers by 43 per cent, groundnut oil by 41 per cent, coffee by 38 per cent, gold by 28 per cent, and iron by 15 per cent. As a result, domestic manufacturing inflation has also started to pick up from about 5.5 per cent in 2010-11 (April to January) to 7.6 per cent in 2011-12 (April to January) (Table 4.2 and Box 4.1). Minerals and metal inflation remained at elevated levels.

4.10 International food inflation was also well above domestic food inflation and started accelerating from

Figure 4.3 Year-on-year Inflation: domestic vs international



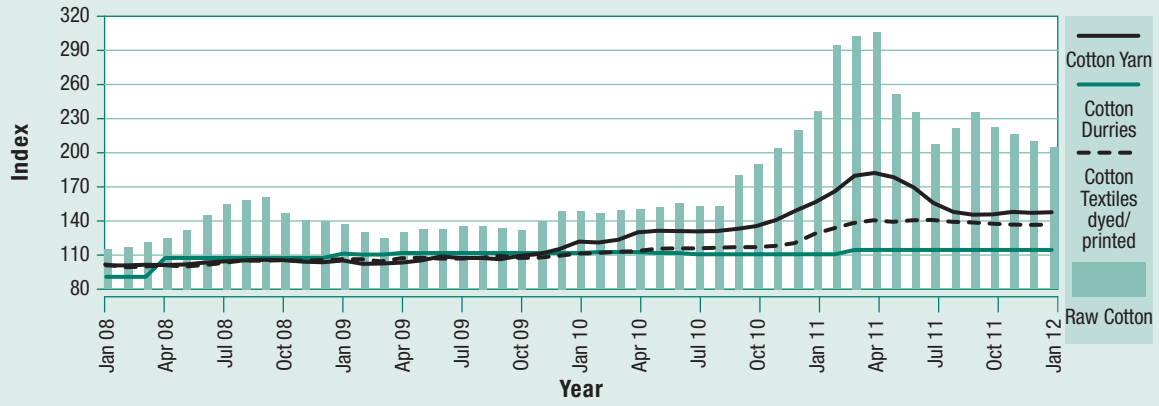
Box 4.1 : Disentangling Drivers of Manufacturing Inflation: Cotton Textiles

Manufacturing occupies an unusually large weight (65 per cent), relative to its share in national output (and omitting services), in the WPI, and hence has exaggerated bearing on inflation measurement in India. A particular policy focus is on 'core inflation' in non-food manufacturing (Reserve Bank of India: RBI). The reason that 'core manufacturing inflation' occupies importance is because it is thought to be less prone to supply shocks and a more accurate gauge of demand-side pressures. A standard demand-side inflation explanation: if output growth is above some sustainable potential output (supply capacity), then inflation results. This 'Phillips-curve' explanation of a short-term inverse relationship between output (employment) and prices (wages) is widely used by policymakers to gauge inflation, and take demand-side policy measures, such as tighter monetary and fiscal policy to manage inflation. This is also sometimes invoked more broadly to explain why core inflation in emerging countries such as India, China, and Brazil is recently much higher (6-9 per cent) because of their faster growth (signs of possible 'overheating'), versus low inflation (2-3 per cent) in developed countries.

While this demand-side focus may be appropriate, a complicating factor in emerging markets such as India is also the influence of unprecedented international commodity price rises in recent years as a 'cost-push' cause of manufacturing inflation. The recent rise in global commodity prices, in turn, is judged to be, at least partly, the result of very loose monetary policies in developed countries. Consider textiles, a major manufacturing sector in India. Cost-push pressures start with raw cotton prices, which spill over to yarn costs, then to woven cloth, and finally the finished products: textiles, garments, and others. A closer look at this sector would hence be useful.

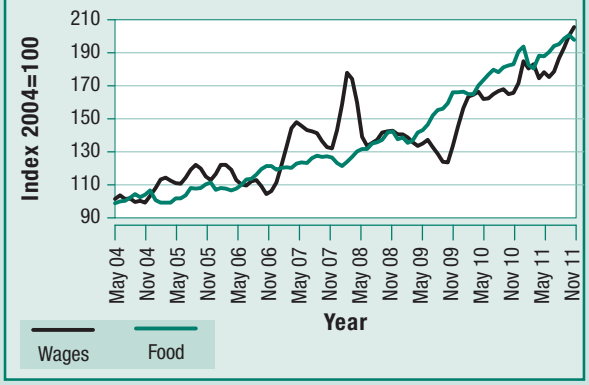
The following chart shows the broad picture of what has been happening to different components of cotton textile prices (January 2008-January 2012). As is evident, raw cotton prices, which ballooned in global markets in August 2010 and reached a peak in March-April 2011 and have since been moderating, although still well above historical levels, have been a major influence on subsequent manufacturing stages' prices. What happens to prices of the output of spinning mills, cotton yarn, is heavily influenced by cotton prices. In turn, these heavily influence all subsequent stages such as cotton textiles and garments. Formal econometric tests confirm that. The point: even traditional 'core' manufacturing inflation is not without large 'supply-side' shocks from world markets in key manufacturing sectors in India (and other emerging countries); accordingly, we need to be appropriately cautious about unhesitatingly using traditional developed country theories and measures of demand-side pressures as causes of core inflation.

Prices of cotton textiles: Global input shocks vs domestic demand pressures and wages



A further analytical question: can we disentangle raw material cost-push price pressures from, say, labour costs? Later stages of cotton textile manufacturing are especially interesting, because after raw material costs, labour costs dominate. Indeed, visually one can see that the influence of raw cotton costs drops the further down the chain one goes—say cotton textiles dyed or printed or artisanal cotton durries. The following chart shows the results of an exercise: imputed labour (and other) cost movements in textiles, using the (econometric) residuals after taking out raw material costs (raw cotton, yarn, or cloth, as the case may be, at each stage). The results are also compared to food price movements. They suggest two conclusions: (1) nominal labor-cost pressures were rising prior to the global crisis in 2008, but fell sharply after the crisis (till late 2009) and have since started to rise again; and (2) real wage movements are, however, much more moderate, as labour costs appear to track food prices (with a lag). The analysis was cross-checked with other labour-intensive industries (leather, wool). One further key analytical insight: traditional artisanal industries (carpet making, weaving), which employ massive numbers, are faring worst in imputed earnings with sharply rising raw material input costs and rising market costs outside.

Imputed textile wage/labour-cost pressures and food prices



Predicting imputed textile labour costs (from food prices and crisis impact)

Three broad conclusions: (a) recent very high inflation episode in India was influenced heavily by global commodity price shocks, even in 'core' manufacturing, as in textiles; (b) imputed nominal wage inflation, from labour-intensive industries, has been recovering and rising, but is influenced by rising food price inflation; and (c) whether Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) and other pressures have independently contributed to this or were simply following food prices cannot be easily disentangled; the latter explanation is preferable. A domestic demand-side explanation of recent 'core' inflation in India may merit caution and warrants further analytical work.

near zero per cent in June 2010 to about 42 per cent in June 2011; thereafter it stabilized and turned negative in December 2011 (Figure 4.3). However, domestic food inflation remained relatively flat in the last one year, before dropping recently. The food price index (base 2002-04 = 100) of the Food and Agriculture Organization (FAO), which touched an all-time high of 238 in February 2011, has since declined to 214 in January 2012. This has been facilitated by a slowdown in demand besides improvement in global supply of agricultural commodities. Nevertheless, price levels and volatility continue to remain a cause for concern and are expected to continue to be impacted globally by increased incomes, diversification of dietary patterns, attraction of bio-fuels as alternative sources of energy, and weather disturbances.

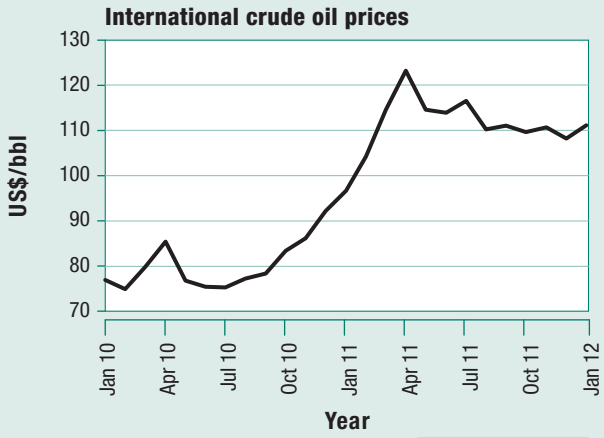
4.11 As a consequence of these developments, during the year 2011-12, inflationary pressures were witnessed particularly in the EDEs even though the outlook for global growth remained weak. However, the renewed sluggishness in the global economy has led to some moderation in commodity prices - particularly those of metals. Overall, going forward, global commodity prices are expected to decline in 2012, as per World Bank projections, due to slowdown in demand and improved supply prospects.

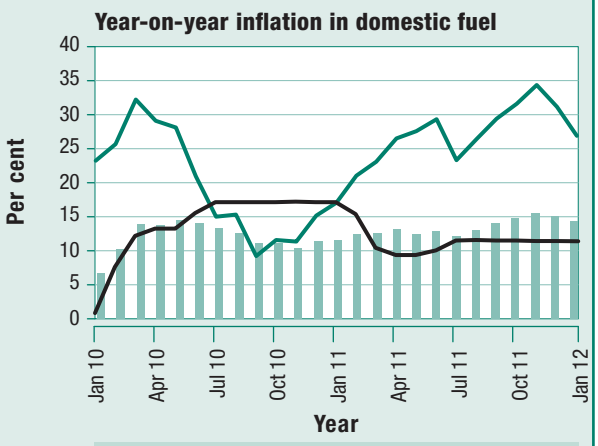
Fuel

4.12 Fuel was another contributory factor behind high headline inflation in the last two years. The sharp rise and volatility of prices of oil and petroleum products in international markets has become a matter of global concern. Crude oil prices remained volatile during financial year 2011-12 due to political upheaval in the major oil-exporting countries coupled with increasing uncertainly in the global economic environment. Crude oil prices have steadily been increasing since December 2008. International crude oil (Brent) prices have moved up very sharply from US $ 75 per barrel to over US $ 114 per barrel in June 2011, a 52 per cent year-on-year increase.

4.13 Simultaneously, the average price of the Indian basket of crude oil which was US $ 69.76 per barrel in 2009-10 has gone up to US $ 85.09 per barrel in 2010-11 and further to US $ 109.97 per barrel in 2011-12 (up to December 2011). The pass through of higher international crude oil prices on the domestic front was clearly evident as inflation in non-administered mineral oil, which consists of aviation turbine fuel, bitumen, furnace oil, and naphtha, recorded an increase of 41 per cent between September 2010 and January 2011 (Figure 4.4). In comparison, inflation in administered mineral oil prices (liquefied petroleum gas [LPG], kerosene, and diesel) recorded an increase of only 11 per cent in the same period.

Figure 4.4 International vs Domestic price movement in energy





Source: OEA, DIPP. World Bank, Pink Sheet.

4.14 Global prices of crude oil and petroleum products play a decisive role in the domestic pricing of petroleum products since more than 75 per cent of the country's crude oil requirement is met through imports. Therefore the price of crude oil and petroleum products in the international oil markets has considerable impact on domestic prices of petroleum products. With the dismantling of administered petrol prices (with effect from 26 June 2010), prices of petrol have risen by 12.46 per cent during 2011-12 (April- December) from ₹ 58.37 per litre (April 2011) to ₹ 65.64 per litre (December 2011).

4.15 Despite the increase in international oil prices, Indian consumers have been partially insulated from the adverse impact of price rise, as the prices of three important petroleum products, namely public distribution system (PDS) kerosene, LPG, and diesel continued to be administered by the government and the price rise has been passed on only partially. During April-December 2011-12 with the increasing subsidy burden and mounting under-recoveries of oil marketing companies (OMCs), the prices of PDS kerosene were moderately revised upwards from ₹ 12.73 per litre to ₹ 14.83 per litre, i.e. an increase of 16.50 per cent, and diesel from ₹ 37.71 per litre (April 2011) to ₹ 40.91 per litre, i.e. 8.49 per cent increase. The prices of domestic LPG cylinders have also been increased by 15.53 per cent from ₹ 345.35 per cylinder to ₹ 399 per cylinder. As a result, domestic fuel inflation was 14.21 per cent in January 2012.

4.16 But even after these increases, the products remain heavily subsidized, with prices lower than in most countries, including among regional neighbours such as Sri Lanka and Bangladesh. The OMCs are incurring huge under-recoveries owing to non-revision of selling prices of diesel, domestic LPG, and PDS kerosene in line with their prevailing international prices. During the current financial year (April-September), the OMCs have incurred under-recoveries of ₹ 64,900 crore against total under-recoveries of ₹ 78,190 crore during 2010-11 and ₹ 46,051 crore in 2009-10.

4.17 To reduce the adverse impact of rising crude oil prices on the consumer, the government also removed the 5 per cent custom duty on crude oil, brought down import duty on petrol and diesel from 7.5 per cent to 2.5 per cent, and reduced excise duty on diesel by ₹ 2.60 per liter (with effect from 25 June 2011). Further, in view of the importance of the household fuels, namely PDS kerosene and domestic LPG, the Government decided that the subsidies on these products will be continued. The PDS Kerosene and Domestic LPG Subsidy Scheme 2002 as well as the Freight Subsidy (for far-flung areas) Scheme 2002 have also been extended till 31 March 2014.

Food Inflation

4.18 The food price index consists of two sub-components, namely primary food articles and manufactured food products. The overall weight of the composite food index in the WPI is 24.31 per cent, (primary food articles: 14.34 per cent and manufactured food products: 9.97 per cent). The primary food article inflation has been a cause of serious concern for the government during 2009-11.

Table 4.3 : WPI-based Year-on-Year Inflation in Major Subgroups

(per cent)

	Food-grains	Fruits & vegetables	Milk	Eggs, meat, & fish	Sugar	Edible oils
Weight	**4.09**	**3.84**	**3.24**	**2.41**	**1.74**	**3.04**
Apr. 2010	**11.05**	**14.32**	**27.91**	**38.61**	**24.55**	**0.09**
Apr. 2011	2.15	26.48	2.87	11.14	3.45	13.47
May 2011	2.61	15.23	6.11	6.59	5.53	15.47
Jun. 2011	2.08	7.49	11.52	9.88	7.53	15.80
Jul. 2011	2.53	11.62	10.77	9.56	3.96	14.76
Aug. 2011	3.33	18.29	9.41	10.42	6.28	14.72
Sept. 2011	3.91	15.06	10.28	11.88	7.38	13.87
Oct. 2011	5.48	13.48	11.12	12.43	7.31	12.93
Nov. 2011	4.59	8.96	10.91	11.40	6.18	11.82
Dec.-2011^P	4.11	-14.89	11.02	11.88	4.34	11.52
Jan. 2012^P	4.08	-21.83	12.16	18.63	2.25	9.59

Source **: OEA, DIPP.** **P : Provisional.**

It remained at an average level of 16.75 per cent in 2010-11 and 15.27 per cent in 2009-10 (April-January) mainly due to surge in (a) fruits and vegetables prices and (b) prices of protein-rich items such as milk, eggs, fish, and meat. However, in the current financial year (April-January 2011-12), average inflation in food articles has significantly declined to 7.15 per cent (Table 4.2). This was mainly on account of sizeable drop in fruits and vegetables prices, as a result of which inflation in these commodities has now turned negative in December 2011 and January 2012 (Table 4.3).

4.19 Inflation for 31 essential commodities (which include pulses, cereals, milk, fish, meat, edible oils, kerosene oil etc) for both WPI and CPI tracked each other closely. Year-on-year inflation in this particular category has declined from about 24 per cent in January 2010 to about 5 to 6 per cent in November and December 2011 (Figure 4.5).

Main drivers of food inflation

4.20 The major drivers of food inflation during the current financial year were milk, eggs/ meat/ fish, and edible oils. In comparison with last year when cereals, vegetables, and sugar were the main contributors to food inflation, 2011-12 witnessed higher contribution from manufactured food products especially edible oils due to higher global prices of soyabean oil, palm oil, etc. India's edible oil requirement is estimated at 16-17 million tonnes, about 50 per cent of which is met through imports of crude palm oil, sunflower oil, soyabean oil, and Refined, Bleached and Deodorised (RBD) palmolein. As a result, a spurt in global prices has led to higher domestic prices of these commodities.

4.21 Within food articles, the major areas of concern have shifted from foodgrains to other commodities. It can be seen from Figure 4.6 that inflationary pressure from foodgrains have eased

Figure 4.5 Movement of 31 essential commodities in WPI and CPI-IW

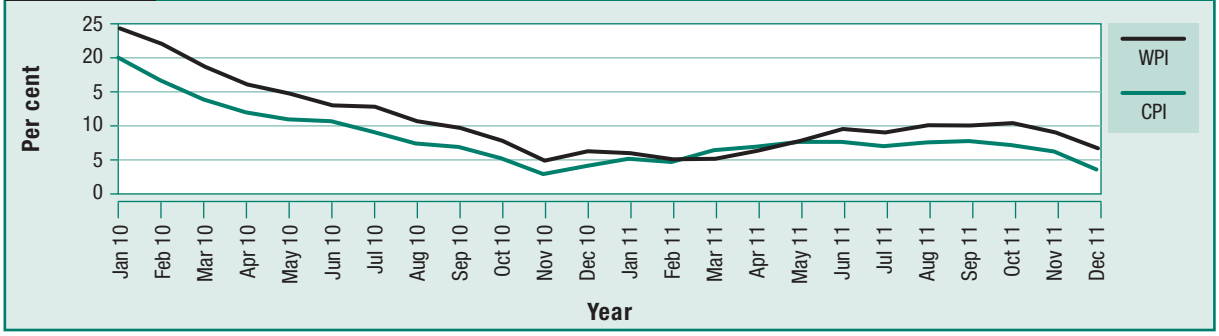
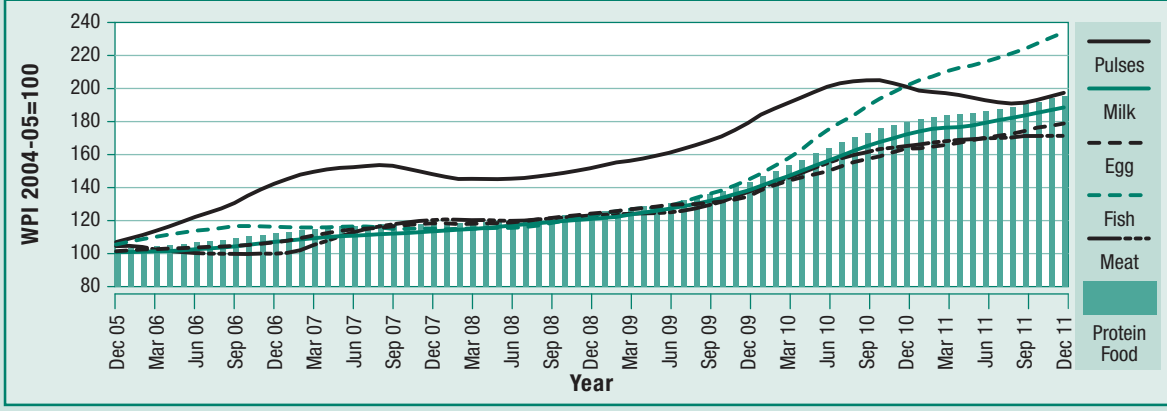


Figure 4.6 Weighted contribution of food articles & its components to headline inflation

Box 4.2 : What is Driving Protein Food Prices Higher in India?

Some recent articles suggest that a change in dietary habits towards protein-rich foods has been a key driver of high food price inflation in India (Subbarao 2011, Gokarn, 2011); they also suggest that this is a result of (a) rising nominal rural wages helped by the expansion of the Mahatma Gandhi National Rural Employment Guarantee (MGNREGA) scheme; (b) inadequate producer supply responses relative to demand; and (c) shocks from global food inflation, as India integrates with the world. A more nuanced view is possible on each factor.

Twelve months moving average in protein food item in WPI

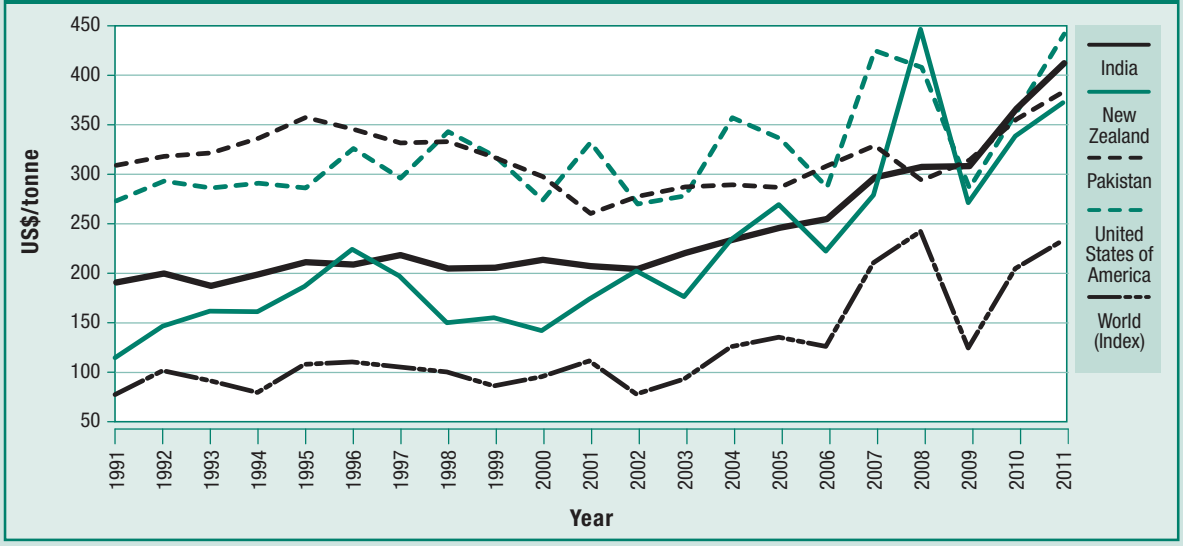


Protein inflation—rising prices of pulses, fish, meats, eggs, and milk—is evident (figure above). But the causes are more complicated than rising spending among low-income rural households. First, the shift to more expensive proteins is very unlikely to be from rising incomes in rural areas from income groups benefited by the MGNREGA. Incomes of average rural households in the bottom two deciles (MGNREGA target beneficiaries), for example, would have to jump to those of the rich farmer category, the sixth decile in rural areas, for a modest ₹ 100 monthly increase in per capita spending on protein-rich items by those households. The average (5th decile) urban household, by contrast, spends as much as seven times more than the bottom rural decile on protein-rich foods, and could achieve the same increase with a much more modest increase in incomes. Fast-growing urban consumers benefiting, for example, from the government's sixth pay commission pay hikes in 2008-9 and even larger private-sector salary hikes after a spectacular urban growth spurt during 2004-8, are a far more likely source of rising demand. Consider milk consumption. Monthly per capita liquid milk consumption in urban areas (from National Sample Survey [NSS] data) is far higher (5.4 litres) than in rural (4 litres); milk products (powder, solids, paneer, cheese, others) consumption is overwhelmingly urban and fastest growing (over 12 per cent per annum)-- a pattern seen worldwide--whereas much of rural consumption is in own use, non-market forms that only affect market prices from a distance.

Second, we turn our attention to supply-demand imbalances. Milk happens to have the biggest weight (52 per cent) in consumption expenditures on protein-rich items in India and a closer look is useful. It turns out that inability to produce milk is not necessarily the problem. India is the world's largest milk producer, milk production has been growing by over 4 per cent per annum, twice as fast as general agriculture and world production, and as rapidly as rising demand, raising per capita consumption successfully from 217 g to 263 g per day during 2000-10. Exports of milk products are also growing. Thanks to the 'white' revolution, the sector is relatively better organized, a success story worldwide, by helping smallholders into cooperatives and arranging an efficient collection, storage, and distribution system. Less well-developed but similar systems also operate in egg, poultry, and fisheries, whose production has also grown apace. Despite weaker and more volatile production, pulses, the poor-man's protein, have seen a lower price rise.

Third, the following chart shows how Indian milk prices have fared, relative to global trends. Two things stand out: (1) global milk prices have surged, helping Indian milk prices rise higher; the decline of the EU's milk mountains has been a key factor, as important as rising appetites among richer urban classes in emerging markets; (2) Indian milk prices have, however, grown even faster, doubling from US$200 a tonne in 2002 to well over US$400, catching up with the USA, the world's richest big producer, and matching New Zealand. Notice also the smoother price rise in India, which is characteristic of more 'organized' market processes. Such higher prices are expected to lead to rapid production response, although rising feed costs (fodder) for smallholders are a major factor in a land-scarce country.

Producer price of milk: India catching-up with world (1991-2011)



Sources : **(1) FAO Food Stats and Country Data; (2) Duvvuri Subbarao, 2011. The Challenge of Food Inflation, Presidential Address, Annual Conference of the Indian Society of Agricultural Marketing, Hyderabad, 22 November. (3) Subir Gokarn, 2011. Kale Memorial Lecture, Gokhale Institute of Politics and Economics, Pune, 9 December. (4) Dipak Dasgupta et al., 2011. Domestic Wheat Price Formation and Food Price Inflation in India, Ministry of Finance Working Paper. (5) Nancy Morgan, 2009. Dairy Prices, Policies and Potential Opportunities for Smallholders in Asia, Asia-Pacific Dairy Strategy project. (6) Wayne Arnold, 2007. A Thirst for Milk Bred by New Wealth Sends Prices Soaring, New York Times, September 4. (7) Jesper Stage, Jorn Stage, and Gordon McGranahan, 2009. Is Urbanization Contributing to Higher Food Prices? UNFPA. (8) Milk Prices up 35%, CCI targets 'cartel'. The Financial Express, 2011. (9) Shalini Gupta, 2012. Food Expenditure and Intake in the NSS 66th Round, Economic and Political Weekly, 14 January, Vol. XLVII, No. 2.**

sharply during 2011-12 due to robust production of cereals, as the weighted contribution of foodgrains to headline WPI inflation has declined from 11.06 per cent in January 2010 to 3.04 per cent in January 2012. This has helped bring down the weighted contribution of food articles from 36.7 per cent in January 2010 to just 1.8 per cent in December 2011 and further to a negative 1.48 per cent in January 2012. However, commodities such as eggs/ meat/ fish and milk have continued to witness higher double-digit inflation (Table 4.3) due to complicated structural factors (Box 4.2), including sharply higher producer prices.

4.22 As indicated by National Sample Survey Organization (NSSO) surveys, and consistent with worldwide experience, there has been a structural (Engel's law) shift in the consumption pattern of consumers as they become richer, with an increase in consumption of protein-rich commodities like fish, meat, eggs, and milk, an ongoing long-term process. This will require long-term solution, which is already in process, enhancing farm production

and productivity of these commodities. Another major related issue is the strengthening of the supply chain so as to avoid wastage of perishable products. One suggestive measure in this regard could be the expeditious completion of the Agriculture Produce Marketing Committee (APMC) Acts reforms in different states so that enough flexibility is imparted to farmers to sell their produce. Further, it is important to develop a robust agricultural marketing system through adequate investment - domestic and/or foreign - so as to strengthen the back end infrastructure and reduce wastages. Overall, any strategy for strengthening agricultural marketing needs to have a three-pronged objective: first, of providing remunerative prices to farmers; second, strengthening efficiencies of supply chain; and third, ensuring that end consumers are charged fair and reasonable prices (Box 4.3).

4.23 To arrest the adverse impact of food inflation on the common man, the policy of the government has continued to lay emphasis on the PDS, import-export policy, distribution of essential commodities at below market prices through state public-sector units (PSUs), anti-hoarding operations, and strengthening of supply chain efficiency. Even more important, the response of farmers to better prices and two consecutive years of good monsoons has resulted in increased production. This, with continued efforts of the government and Reserve Bank of India (RBI), supported by high agricultural production, led to year-on-year combined food inflation (primary food articles + manufactured food products) gradually moderating from a peak of 20.22 per cent in February 2010 to 8.95 per cent in April 2011 and thereafter falling sharply to 1.58 per cent in January 2012.

Food Production and Prices

4.24 Food production trends are reviewed in Chapter 8; the purpose here is to highlight the relationship between prices and changes in production (and hence stocks). Cereal production for 2011-12 is estimated to reach an all-time high of 233.14 million tonnes (as per second advance estimates), largely on the back of record wheat and rice output for the second year running. The WPI annual inflation in cereals has consequently dropped to a comfortable level. Lower production of edible oilseeds and raw cotton could, however, be a cause for concern next year, although international prices have a major impact on these commodities and sugarcane. The long-term movement of production and inflation for some important agricultural commodities is given in Figure 4.7.

Inflation based on the CPI Vs WPI

4.25 Inflation in all major indices largely followed each other. The gap between the WPI and CPIs had widened in 2009-10 due to higher food inflation, as food items have a much larger weight in the CPI vis-à-vis the WPI. Food items contribute a weight of 46.20 per cent in the CPI-IW and 69.15 per cent in the CPI-AL as against 24.31 per cent

Box 4.3 : Inter-Ministerial Group (IMG) on Inflation

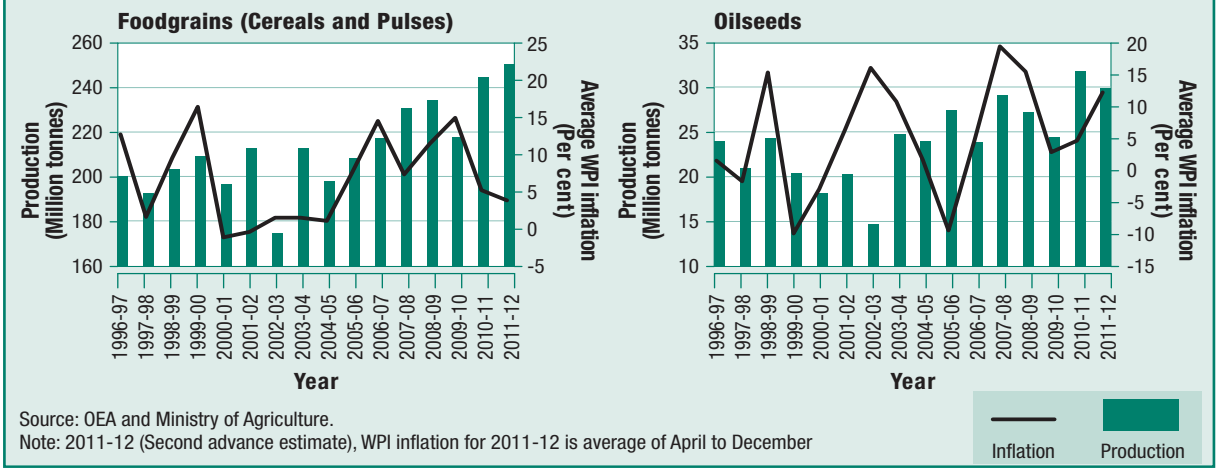
On the recommendation of the Prime Minister, an IMG, chaired by the Chief Economic Adviser, Ministry of Finance, was constituted on 2 February 2011, to review the overall inflation situation with particular reference to primary food articles and suggest corrective measures. Till date there have been five meetings of the IMG covering information system on all aspects of price monitoring, food inflation and flaws in marketing, macroeconomic demand management, the APMC Act, and multi-product retail reform.

Based upon deliberations in its meetings, the IMG has recommended two important policy changes that can have multiplier effect and large benefits to manage inflation: reforms in the APMC Acts and foreign direct investment (FDI) in multi-brand retail. Agriculture markets are regulated in India through the APMC Acts. According to the provisions of the APMC Acts of the states, every APMC is authorized to collect market fees from the buyers/traders in the prescribed manner on the sale of the notified agricultural produce. The relatively high incidence of commission charges on agricultural / horticultural produce renders their marketing cost high, an undesirable outcome.

This suggests that a single-point market fee system is necessary to facilitate the free movement of produce, bring price stabilization, and reduce price differences between the producer and consumer market segments. As the APMCs were created to protect the interest of farmers it would be in the fitness of things to secure farmers the choice to go to the APMC or not. In the light of this, the IMG recommended that the APMC Act be revisited. Secondly, the IMG recommended that leveraging FDI in multi-brand retail could be one of the means available for addressing issues relating to high rates of food inflation, low prices realized by Indian farmers, developing a 'farm-to-fork' retail supply system, and addressing the investment gaps related to post harvest infrastructure for agricultural produce.

While the reform in the APMC Act is under consideration of the Department of Agriculture and Cooperation, on FDI in multi-brand retail, the DIPP is in the process of creating consensus among various stakeholders.

Figure 4.7 Annual average inflation and production



Source: OEA and Ministry of Agriculture.
Note: 2011-12 (Second advance estimate), WPI inflation for 2011-12 is average of April to December

in the WPI. However, in the current financial year (2011-12), the gap has significantly narrowed due to drastic fall in food inflation, and the CPI-IW and WPI are tracking each other closely (Figure 4.8). CPI-IW inflation, after remaining in single digit from August 2010 to August 2011, briefly touched double digits at 10.06 per cent in September 2011 (Table 4.2). Food inflation for all CPIs and the WPI was about 2 per cent in December 2011 (Table 4.4); and dropped further in January 2012. WPI food articles (weight: 14.34 per cent) inflation turned negative in January 2012.

Introduction of New Series of CPI (R+U)

4.26 The Central Statistics Office (CSO), Ministry of Statistics and Programme Implementation has introduced a new CPI series on base 2010=100 for all-India and states/union territories (UTs) separately for rural, urban, and combined with effect from January 2011. CPI (urban) covers 310 towns while CPI (rural) covers 1,181 villages across the country. The weighting diagrams for the new CPI series have been derived on the basis of average monthly consumer expenditure of an urban/rural household obtained from the NSS 61st round Consumer

Figure 4.8 Movement of WPI and CPI-IW inflation since April 2009

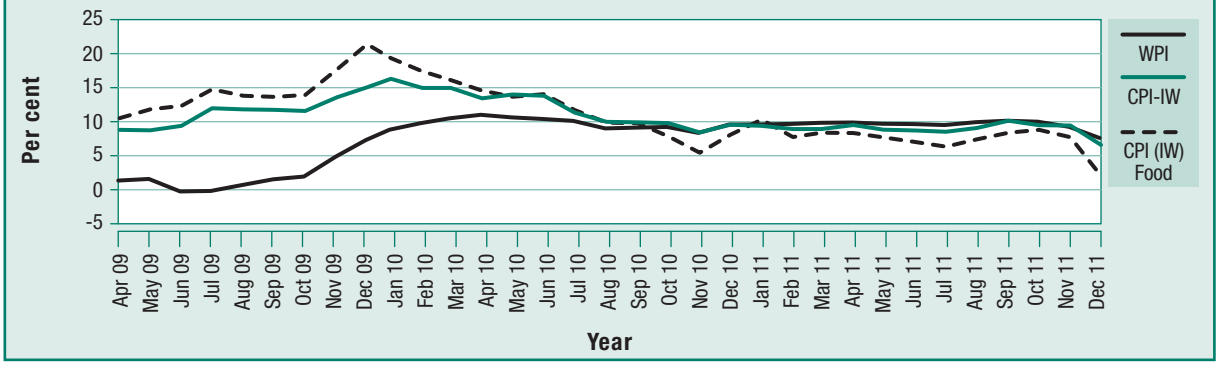


Table 4.4: Food Inflation based on the WPI and CPI-IW/AL/RL

(per cent)

	Weight (%) 2011	Jan. 2011	Feb. 2011	Mar. 2011	Apr. 2011	May 2011	Jun. 2011	Jul. 2011	Aug. 2011	Sep. 2011	Oct. 2011	Nov. 2011	Dec. 2011	Jan. 2012
WPI	**24.31**	10.3	6.8	6.8	9.0	8.1	8.0	8.2	9.2	9.1	9.3	7.9	2.6^{P}	1.6^{P}
CPI-IW	**46.20**	10.2	7.7	8.3	8.2	7.6	6.9	6.3	7.3	8.3	8.7	7.6	2.0	0.5
CPI-AL	**69.15**	7.5	7.1	7.2	7.3	7.5	6.8	6.4	7.1	6.5	6.8	5.9	2.4	0.3
CPI-RL	**66.77**	7.5	6.9	7.3	7.1	7.5	6.8	6.4	6.9	6.7	6.8	5.9	2.4	0.5

Source **: OEA, DIPP, Labour Bureau.** **P : Provisional**

Expenditure Survey data (2004-5). The year-on-year inflation for CPI-CSO (urban), CPI-CSO (rural) and CPI-CSO (combined) was 8.25 per cent, 7.38 per cent and 7.65 per cent respectively in January 2012. While a strict comparison is not possible, and the new series is yet to be tested over time, the inflation rate for January 2012 with CPI-CSO (rural) (7.38 per cent) is reported to be higher than with CPI-Labour Bureau (rural labour) (5.27 per cent)—due to differences in coverage and weighting (consumption) patterns. The weighting pattern for CPI-Labour Bureau (rural labour) is based on 1983 NSS consumer expenditure survey as compared to the use of 2004-5 consumer expenditure survey for CPI-CSO (rural).

4.27 The inflation momentum, as examined by month-over-month annualized headline inflation for all the major categories viz, rural, urban, and combined (rural+urban) has shown significant moderation since July, helped by seasonality (Figure 4.9). Similar decline has been experienced across the board for other indices as well, mainly on account of fall in food inflation.

Private Final Consumption Expenditure Deflator (PFCED)

4.28 Movement of the consumption pattern of a country can be analyzed through its deflator generated by private final consumption expenditure (PFCE) at current prices over constant prices base 2004-5. Annual price indices data for the CPI-RL, CPI-IW (represents urban area), and PFCED from 2004-5 onwards indicate an upward swing in the cost of living (Figure 4.10).

4.29 Price changes may cause consumers to switch from one good to another. Whereas the fixed basket CPI does not account for altered spending habits caused by price changes, the PFCED's ability to account for such substitutions makes it an alternative preferred measure of inflation. The CPI-RL represents rural areas, where price indices are reigning higher than the CPI-IW in response to improvements in purchasing power and consumption pattern.

Figure 4.9 Month-over-month annualized inflation for new CPI series

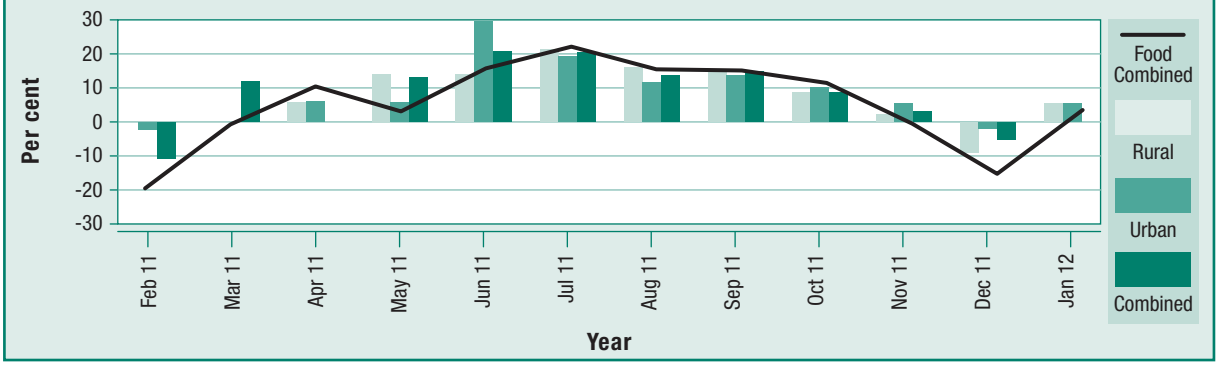
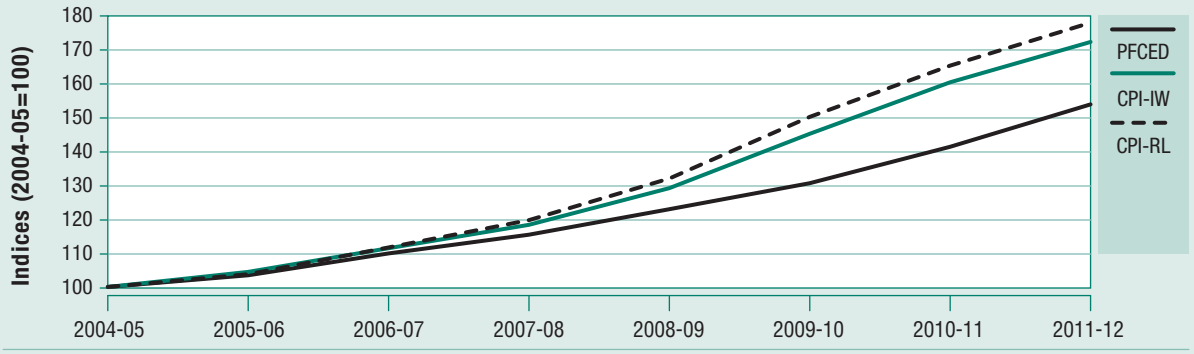


Figure 4.10 Annual trend in price indices and PFCED



	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
PFCED	100	103.4	109.9	115.4	122.8	130.5	141.2	153.7
CPI-IW	100	104.4	111.4	118.3	129.1	145.0	160.2	172.0
CPI-RL	100	103.7	111.7	119.7	131.9	150.0	165.0	177.7

Sources: Office of the Economic Adviser , Labour Bureau and CSO.
Note: The PFCED for 2011-12 (Advance Estimates (AE); CPI-IW and CPI-RL for 2011-12 (April-December 2011).

Housing Price Index (NHB RESIDEX)

4.30 India is witnessing increasing levels of urban population. Nearly 30 per cent of the country's population lives in cities and urban areas and the figure is projected to reach 50 per cent in 2040. While cities are regarded as 'engines of growth', they continue to face enormous challenges. Increasing urbanization has led to tremendous pressure on urban land, civic infrastructure, transport, open spaces, etc. resulting in increase in proliferation of slum and squatter settlements.

4.31 A major policy concern, therefore, is the widening gap between demand and supply of housing units resulting from inadequate housing, and housing finance solutions. Though the housing finance sector in India has experienced buoyant growth over the past several years, homelessness amongst the lower segments of population has continued to increase. Despite significant growth of the housing loan portfolio in the sector, access to formal credit was mostly available to people in the formal sector. Sizeable segments of the informal segment market still remain untouched. To encourage lending institutions to expand their operations in meeting the housing credit needs of this segment, the Hon'ble Finance Minister in his Budget speech for financial year 2011-12 has proposed creation of a Mortgage Risk Guarantee Fund under the Rajiv Awas Yojana (RAY) to enable provision of credit to economically weaker sections (EWS) and low-income group (LIG) households. The major objective of this Fund will be to provide default guarantee for housing loans up to ₹ 5 lakh sanctioned and disbursed by the lending institutions without any collateral security and/or third party guarantees to new or existing borrowers in the EWS/LIG categories. The proposed will be managed and administered by the National Housing Bank.

4.32 The NHB RESIDEX is an Initiative of the National Housing Bank (NHB) to provide an index of residential prices in India across cities and over time. The NHB began this initiative in the year 2005-6 and undertook a pilot study for examining the feasibility of preparing such an index at national level. It launched RESIDEX for tracking prices of residential properties in India in July 2007, covering data up to 2005 with 2001 as the base year. The NHB RESIDEX now covers 15 cities and is updated and released on a quarterly basis with 2007 as base year. It has been updated and released for the quarter ended December, 2011 (October - December 2011).

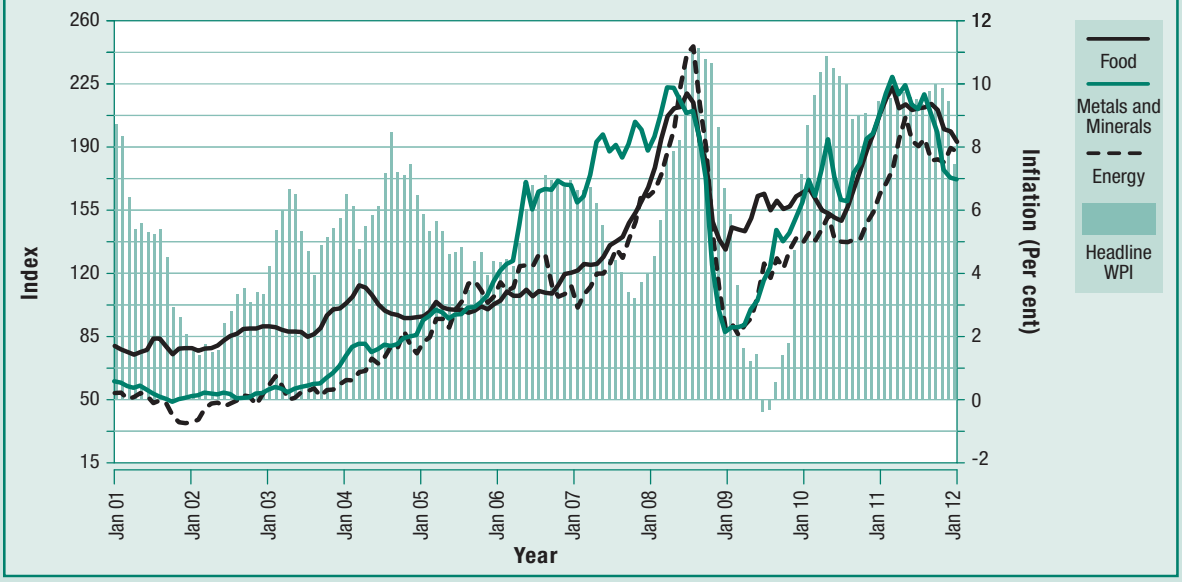
4.33 The prices of residential properties during the period 2007 to 2011 have witnessed increases in 11 cities with maximum increase in Chennai (166 per cent) followed by Bhopal (117 per cent), Faridabad (116 per cent), Kolkata (92 per cent), Mumbai (87 per cent), Ahmedabad (67 per cent), Pune (63 per cent), Lucknow (60 per cent), Delhi (54 per cent), Surat (47 per cent), and Patna (43 per cent), whereas 4 cities have witnessed decline in prices with maximum decrease observed in Jaipur (36 per cent) followed by Hyderabad (14 per cent), Bengaluru (6 per cent), and Kochi (2 per cent) (Figure 4.11). The possible reasons for increase in prices could be overall increase in inflation rate particularly relating to building materials, improvement in

Figure 4.11 Change in residential prices in major cities (Base 2007=100)

Box 4.4 : Inflation Forecasting

Price stability is a major objective of macroeconomic policy and improved forecasts make for better understanding and policy. Many studies show low and stable inflation as conducive to long-term growth. Maintaining low inflation and pushing growth in the short run is, however, often a knife-edge problem. The price of a good in a free market should be determined by its relative scarcity, i.e. supply relative to demand. But in a high-inflation environment, relative price shifts may not reflect underlying demand-supply conditions of different goods and services. As a result, dispersion in relative price increases lead to distortion in price signals. High inflation has adverse impact on growth through a variety of channels. First, high inflation leads to uncertainty which impacts investment and growth. As it is, investment decisions are subject to a lot of uncertainties. High and volatile inflation adds to these uncertainties. Second, high inflation results in movement of savings from financial assets to physical and other unproductive activities. Therefore, low and stable inflation is desirable from a number of perspectives. In that context, for monetary policy to be effective it is vital for central banks and macroeconomic policymakers to have reasonable forward-looking short-term forecasts of inflation on which to base decisions.

Global commodity price indices vs WPI inflation



Forecasting nevertheless remains difficult because of the possibility of exogenous shocks (and multiple channels)--demand and supply shocks, global prices, exchange rate movements and weather-related variables. Yet it is vital when inflation is high and volatile. It is useful to break up the problem by sources of price pressures:

(1) Primary food articles: the first step is a forecast of primary food article prices because they are central and drivers are primarily supply side. The size and monthly distribution of rainfall during June-September are a key determinant of output and prices; global commodity prices also have influence with a lag on domestic prices. Ministry of Finance (Working Paper No. 1, 2011) and RBI (Working paper, Jan. 2012) papers both validate this; the latter found that an increase of 10 per cent in global non-fuel commodity prices increases headline inflation by 70-90 basis points in the same quarter.

(2) Food and primary article's prices also tend to have a 'cost push' impact on manufacturing products. Wages and price expectations in a developing country tend to 'anchor' strongly around food prices. Therefore forecasts of food prices are essential not just in terms of their weight, but as an alternate sense of 'core' inflation.

(3) Forecasts of manufacturing inflation, the 'core' usually used in India by the RBI and others, can usefully incorporate three elements (a) expected food prices; (b) global raw material commodity prices; and (c) an index of demand conditions such as the index of industrial production (IIP) (suitably averaged to avoid high-frequency data noise).

(4) Needless to add, monetary and fiscal policies also impact on inflation although with substantial time-lags.

(5) All forecasts, especially near term, also benefit from and rely greatly on judgments. To quote from the US Fed Chairman, 'the forecasts of inflation…. that are provided to the Federal Open Market Committee are developed through an eclectic process that combines model-based projections, anecdotal and other "extra-model" information, and professional judgment. In short, for all the advances that have been made in modeling and statistical analysis, practical forecasting continues to involve art as well as science.'-Ben Bernanke (Inflation Forecasting, 10 July 2007)

Forecasts are, nevertheless, only a guide to policymakers and market participants and are based on a number of assumptions, which may turn out different and cause actual outcomes to diverge. Differences also arise as data used to make projections are provisional for most recent months and at times undergo large revisions. Finally, as mentioned earlier, it is important to account for country specifics and economic structures, both for forecasting and policy formulation.

infrastructural facilities like metro connectivity resulting in increased demand for housing, favourable political and economic environment, and increased business and employment opportunities.

Measures to contain inflation

4.34 The government monitors the price situation regularly as price stability remains high on its agenda. Measures taken to contain prices of essential commodities include selective ban on exports and futures trading in foodgrains, zero import duty on select food items, permitting import of pulses and sugar by PSUs, distribution of imported pulses and edible oils through the PDS, and release of higher quota of non-levy sugar. In addition, state governments are empowered to act against hoarders of food items by holding in abeyance the removal of restrictions on licensing, stock limits, and movement of food articles under the Essential Commodities Act 1955. Some of the important anti-inflationary measures taken are given in Box 4.5.

Box 4.5 : Measures to Contain Inflation, Particularly Food Inflation

A. Fiscal Measures

- Reduced import duties to zero for rice, wheat, onion, pulses, edible oils (crude) and to 7.5 per cent for refined and hydrogenated oils and vegetable oils.
- Permitted National Dairy Development Board (NDDB) to import 50,000 tonnes of skimmed milk powder and whole milk powder and 15,000 MT of butter, butter oil, and anhydrous milk fat at zero duty under tariff rate quota.
- Permitted the State Trading Corporation of India (STC)/Minerals and Metals Trading Corporation (MMTC)/Project Equipment Corporation (PEC) and National Agricultural Cooperative Marketing Federation of India (NAFED) to import duty-free white/refined sugar initially with a cap of 1 million tonnes. Later duty-free import was also allowed by other central / state government agencies and private trade without any cap on quantity.

B. Administrative Measures

- Removed levy obligation in respect of all imported raw sugar and white/refined sugar.
- Banned export of edible oils (except coconut oil and forest-based oil) and pulses (except Kabuli chana and organic pulses up to a maximum of 10,000 tonnes per annum).
- Imposed ban on export of non-basmati rice and wheat for short period of time.
- Permitted export of edible oils in branded consumer packs of up to 5 kg subject to a limit of 10,000 tonnes.
- Prohibited export of milk powders (including skimmed milk powder, whole milk powder, dairy whitener, and infant milk food), casein and casein products.
- Effected no change in tariff rate values of edible oils.
- Ban on export of onion was imposed for short period of time whenever required. Exports of onion were calibrated through the mechanism of minimum export prices (MEP) of onion.
- Maintained the central issue price (CIP) for rice (at ₹ 5.65 per kg for below poverty line [BPL] and ₹ 3 per kg for Antyodaya Anna Yopjana [AAY]) and wheat (at ₹ 4.15 per kg for BPL and ₹ 2 per kg for AAY) since 2002.
- Suspension of futures trading in rice, urad, and tur.
- Ten lakh tonnes of wheat and 10 lakh tonnes of rice allotted under the Open Market Sale Scheme (OMSS) and 15 lakh tonnes of wheat for bulk sale, including sale to small traders for the period October 2011to September 2012.
- An additional ad hoc allocation of 50 lakh tonnes of foodgrains made on 16 May 2011 to all states/UTs for BPL families at BPL issue price for distribution during the current year up to March, 2012.
- In addition, ad hoc allocation of 50 lakh tonnes of foodgrains made on 30 June 2011 to above poverty line (APL) families raising thereby monthly APL allocation up to 15 kg per family per month in 20 states and 35 kg per family per month in 4 north-eastern states, Sikkim, and 2 hilly states of Himachal Pradesh and Uttarakhand where it was less than that quantity for a period of ten months from June 2011 to March 2012.
- Extended the Scheme for distribution of subsidized imported edible oils through state governments/UTs with subsidy of ₹ 15 per kg for distribution to ration card holders at 1 litre per ration card per month.

C. Monetary Measures

As part of the monetary policy review stance, the RBI has taken suitable steps with 13 consecutive increases in policy rates and related measures to moderate demand to levels consistent with the capacity of the economy to maintain its growth without provoking price rise. As per the most recent announcement of the RBI on 24 January 2011, the cash reserve ratio (CRR) has been cut by 50 basis points (bps) from 6 per cent to 5.50 per cent and repo rate and reverse repo rate have remained unchanged at 8.5 per cent and 7.5 per cent respectively.

Monetary Developments During 2011-12

4.35 The monetary policy focus during 2011-12 has been on controlling inflation and containing inflationary expectations. As an indication of strong anti-inflationary stance, the Reserve Bank of India (RBI) has raised policy rates 13 times since March 2010. The measures have helped contain inflation and anchor inflationary expectations, although both remain at elevated levels. The task was rendered difficult due to supply-side factors contributing to food inflation, low interest rates and repeated liquidity injections by industrial nations battling recessionary tendencies, and rise in international commodity prices. High inflation and some of the measures to control liquidity have also had detrimental effect on growth in the short run. The priority, however, has been to contain price rise so that long-term growth prospects are not affected. With inflation projected to follow a downward trajectory and downside risks to growth increasing, the RBI in the Third Quarter Review of Monetary Policy 2011-12 on 24 January 2012, has lowered the Cash Reserve Ratio (CRR) by 50 bps from 6.0 per cent to 5.5 per cent of net demand and time liabilities (NDTL) of scheduled banks to ease the liquidity situation in the banking system and revive growth.

4.36 Liquidity conditions for a large part of 2011-12 remained broadly around the comfortable level of liquidity deficit (1 per cent of NDTL of the banking system), with occasional stress on account of quarterly tax flows or divergence between deposit and credit mobilization. There has, however, been rapid tightening of liquidity since November 2011. This was on account of pressure created by foreign exchange outflows and quarterly advance tax collections in December. The RBI responded with a number of measures aimed at addressing the tightness in the foreign exchange market, including the conduct of open market operations (OMOs) to address rupee liquidity concerns.

Trends in Monetary Aggregates

4.37 During the year 2011-12, the growth rates of reserve money (M_0) and narrow money (M_1) have been lower than in the preceding year while broad money (M_3) growth has been higher (Table 4.5). The moderation in growth of M_1 as against M_3 is on account of decline in the growth of demand deposits and currency, while time deposits have accelerated in response to hike in the deposit rates of banks. Box 4.6 lists some measures of money supply and liquidity aggregates.

Reserve Money (M_0)

4.38 M_0 registered a growth of 19.1 per cent in 2010-11 as compared to 17.0 per cent in 2009-10. Net domestic assets (NDA), led largely by net RBI credit to the centre, were the main driver of increase in M_0 during 2010-11. Net RBI credit to the central government increased by ₹1,82,454 crore in 2010-11, as compared to an increase of ₹1,49,820 crore during 2009-10. The expansion in net RBI credit to the centre in 2010-11 reflected the combined effects of monetary operations conducted through OMOs, including liquidity adjustment facility (LAF) operations. The RBI's net foreign assets (NFA) increased by 7.8 per cent during 2010-11 as against a decrease of 3.7 per cent during 2009-10.

4.39 During 2011-12, on financial-year basis, reserve money increased marginally by 0.7 per cent (up to 2 December 2011), as compared to an increase of 6.4 per cent during the corresponding period of the preceding year (Table 4.6). The NFAs of the RBI increased by 16.2 per cent during this period, as against an increase of 6.2 per cent during the corresponding period of the previous year. The

Table 4.5 : Movement of Select Monetary Parameters

(per cent)

Parameters	Yearly variation		Growth rates as on 2 December 2011			
			Financial-year basis		Year-on-year basis	
	2009-10	2010-11	2010-11	2011-12	2010-11	2011-12
M_0	17.0	19.1	6.4	0.7	22.3	12.8
M_1	18.2	9.8	4.0	-0.5	17.0	5.0
M_3	16.8	16.0	8.5	8.8	15.7	16.3

Source **: RBI.**

Box 4.6 : Measures of Money Supply and Liquidity Aggregates

Reserve Money (M_0) = Currency in Circulation + Bankers' deposits with the RBI + 'Other' deposits with the RBI.

Narrow Money (M_1) = Currency with the Public + Demand Deposits with the Banking System + 'Other' Deposits with the RBI.

M_2=M_1 + Savings Deposits of Post-office Savings Banks.

Broad Money (M_3) = M_1 + Time Deposits with the Banking System.

M_4 = M_3 + All deposits with Post Office Savings Banks (excluding National Savings Certificates).

While measures M_0, M_1 and M_3 are widely used in India, M_2 and M_4 are rarely used. The RBI initiated publication of a new set of monetary and liquidity aggregates as per the recommendations of the *Working Group on Money Supply: Analytics and Methodology of Compilation*. Following the submission of its report in June 1998, while no changes were made in the definitions of M_0 and M_1, new monetary aggregates NM_2 and NM_3 as well as liquidity aggregates L_1, L_2, and L_3 were introduced, the components of which are elaborated as follows.

NM_1 = Currency with the Public + Demand Deposits with the Banking System + 'Other' Deposits with the RBI.

NM_2 = NM_1 + Short Term Time Deposits of Residents (including and up to the contractual maturity of one year).

NM_3 = NM_2 + Long-term Time Deposits of Residents + Call/Term Funding from Financial Institutions.

L_1 = NM_3 + All Deposits with the Post Office Savings Banks (excluding National Savings Certificates)

L_2 = L_1 +Term deposits with Term Lending Institutions and Refinancing Institutions (FIs) + Term Borrowing by FIs + Certificates of Deposit issued by FIs

L_3= L_2 + Public Deposits of Non-banking Financial Companies.

Data on M_0 are published by the RBI on weekly basis, while those for M_1 and M_3 are available on fortnightly basis. Among liquidity aggregates, data on L_1 and L_2 are published monthly, while those for L_3 are disseminated once in a quarter.

large increase in NFAs witnessed in 2011-12 is primarily on account of the currency valuation effect. On year-on-year basis, as on 2 December 2011, the NFAs of the RBI increased by 18.0 per cent as compared to 0.7 per cent a year earlier. Net RBI credit to the central government increased by ₹12,019 crore during the financial year (up to 2 December 2011). This increase was primarily on account of open market purchases and increase in loans and advances to the central government, partially offset by decrease in repo operations under the LAF. On a year-on-year basis, increase in net

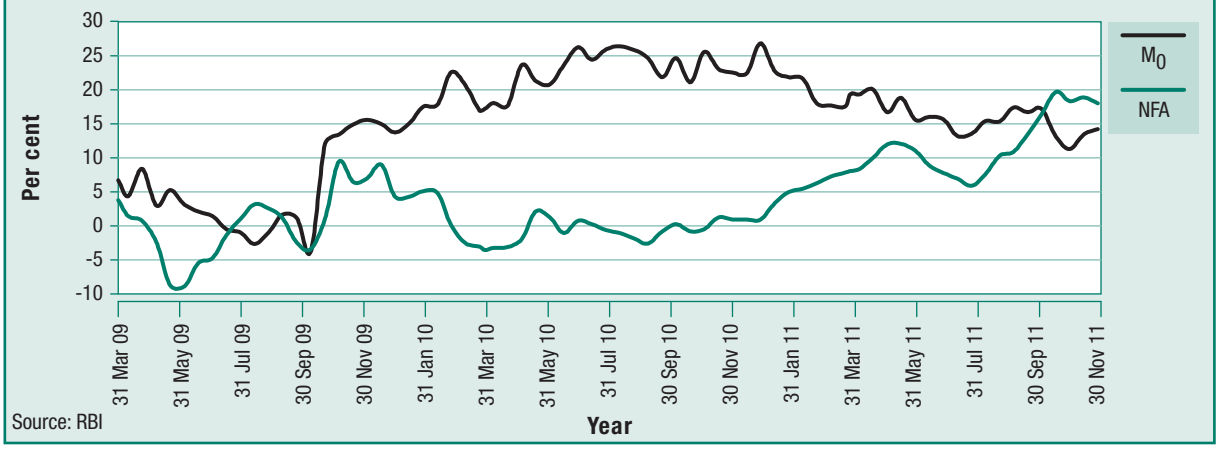
Table 4.6 : Sources of change in M_0

(per cent)

	Growth rate				
		Financial-year basis		Year -on-Year	
	2010-11	3 Dec. 2010 over 31 March, 2010	2 Dec. 2011 over 31 March, 2011	3 Dec. 2010 over 4 Dec. 2009	2 Dec. 2011 over 3 Dec. 2010
M_0	19.1	6.4	0.7	22.3	12.8
A. Components					
a) Currency in Circulation	18.8	13.0	6.8	19.1	12.3
b) Bankers' deposits with RBI	20.2	-8.7	-12.8	32.2	14.8
c) 'Other' deposits with RBI	-3.3	11.6	-29.6	16.0	-39.0
B. Select sources of M_0					
1. Net foreign exchange assets of RBI	7.8	6.2	16.2	0.7	18.0
2. Government's currency liabilities to the public	12.9	8.7	4.6	13.2	8.6
3. Net non-monetary liabilities of the RBI	22.1	16.7	57.9	-7.8	65.1

Source **: RBI**

Figure 4.12 Reserve money and RBI net foreign exchange assets-annual growth rate



Source: RBI

RBI credit to the central government (as on 2 December 2011) has been ₹1,49,994 crore vis-a-vis an increase of ₹1,83,896 crore a year earlier.

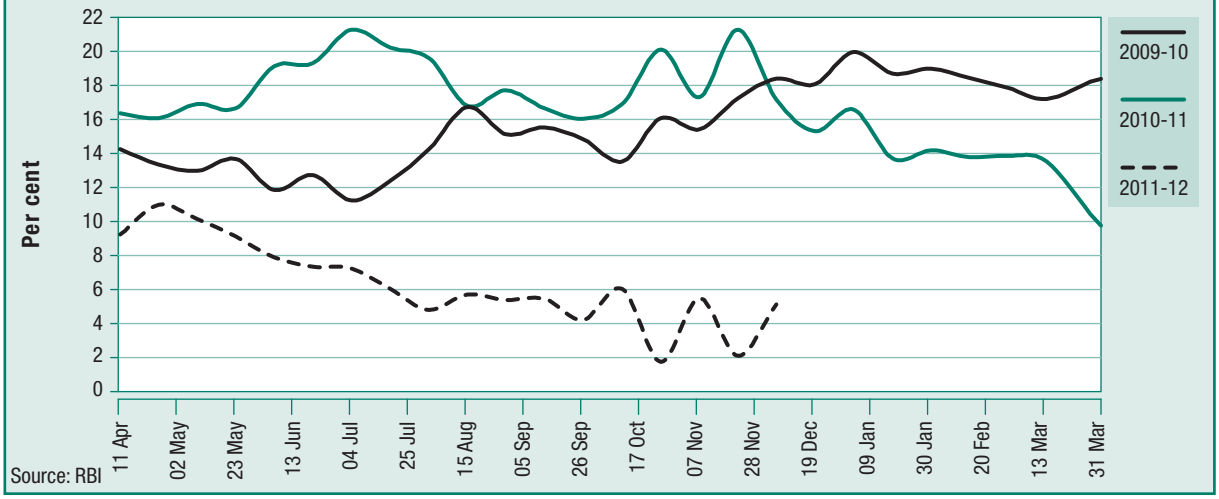
Narrow Money (M_1)

4.40 During 2011-12, the growth in M_1 has been generally lower compared to that in 2010-11. On financial-year basis, M_1 declined by 0.5 per cent during the current year (up to 2 December 2011) compared to an increase of 4.0 per cent during the corresponding period of the previous year. On year-on-year basis, as on 2 December 2011, M_1 growth was 5.0 per cent as compared to 17.0 per cent a year earlier (Table 4.7 and Figure 4.13). During the current financial year (up to 2 December 2011), growth in 'currency with the public' decelerated to 6.4 per cent (₹58,262 crore), compared to an increase of 13.0 per cent (₹1,00,092 crore) during the corresponding period of the previous year. The other important component of M_1, namely demand deposits with banks, registered a decline of 9.2 per cent during the current financial year (up to 2 December 2011) as against a decline of 5.7 per cent during the corresponding period of the previous year. On year-on-year basis, as on 2 December 2011, the growth in 'currency with the public' was lower at 12.1 per cent as compared to 18.8 per cent during the corresponding period of the previous year. Over the same period, demand deposits registered a decline of 3.7 per cent as compared to a growth of 14.9 per cent a year earlier.

Broad money (M_3)

4.41 M_3 increased by 16.0 per cent during 2010-11, which was lower than the 17.0 per cent indicative growth envisaged in the Annual Policy Statement of the RBI for 2010-11. During 2011-12 (up to 2 December 2011), growth in M_3 was 8.8 per cent as compared to 8.5 per cent during the corresponding period of the previous year. On year-on-year basis, M_3 grew by 16.3 per cent on 2 December 2011, as compared to a growth of 15.7 per cent on the

Figure 4.13 Narrow money (M_1) - annual growth rate



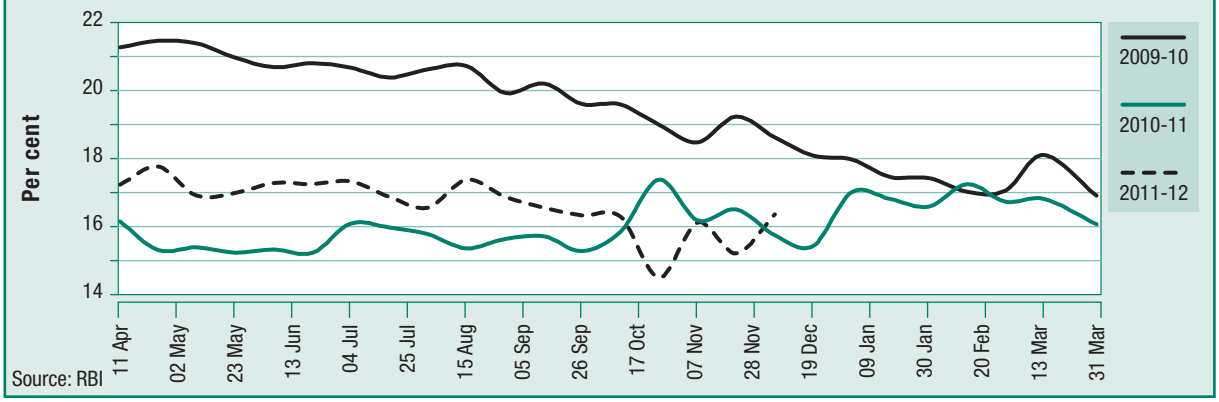
Source: RBI

Table 4.7 : Sources of Change in Money Stock (M_3)

	Growth Rate (per cent)				
	31 March 2010 to 31 March 2011	31 March 2010 to 3 December 2010	31 March 2011 to 2 December 2011	4 December 2009 to 3 December 2010	3 December 2010 to 2 December 2011
I. M_1 (1+2+3)	9.8	4.0	-0.5	17.0	5.0
1. Currency with the public	19.1	13.0	6.4	18.8	12.1
2. Demand deposits with banks	0.0	-5.7	-9.2	14.9	-3.7
3. 'Other' deposits with RBI	-3.3	11.6	-29.6	16.0	-39.0
II. M_3 (M_1+4)	16.0	8.5	8.8	15.7	16.3
4. Time deposits with banks	18.2	10.2	12.0	15.2	20.2
III. Sources of change in money stock (M_3)					
1. Net bank credit to government	18.8	9.3	12.6	19.7	22.3
of which: Other banks credit to government	8.8	7.6	15.0	8.0	16.3
2. Bank credit to commercial sector	21.3	11.0	7.0	22.6	17.0
of which: Other banks' credit to commercial Sector	21.3	11.0	7.1	22.8	17.0
3. Net foreign exchange assets of the banking sector	8.7	7.0	13.7	1.7	15.6
4. Government's currency liabilities to the public	12.9	8.7	4.6	13.2	8.6
5. Banking sector's net non-monetary liabilities	32.2	18.1	14.7	27.4	28.5
IV. *Memo Items:*					
1. Money multiplier (M_3/M_0)	4.72				
2. Velocity of money	1.21				
3. Net domestic assets	18.2	9.0	7.5	20.5	16.6
4. Net domestic credit	20.5	10.5	8.8	21.7	18.7

Source **: RBI**

Figure 4.14 Broad money (M_3) - annual growth rate



corresponding date of the previous year (Table 4.7 and Figure 4.14). M_3 growth was thus higher than the indicative projection of 15.5 per cent set out in the First Quarter Review of Monetary Policy 2011-12. Among the sources of M_3, bank credit to the commercial sector has been decelerating for most part of 2011-12 (Figure 4.15).

4.42 Time deposits with banks during 2011-12 grew at a higher rate of 12.0 per cent (up to 2 December 2011) as compared to 10.2 per cent during the corresponding period of the previous year. On year-on-year basis, as on 2 December 2011, the growth in time deposits increased to 20.2 per cent from 15.2 per cent a year earlier (Table 4.7).

Money Multiplier

4.43 The higher rate of expansion in 'currency with the public' and reserves as compared to that in deposits, led to a decrease in the money multiplier during 2010-11. At end March 2011, this ratio was 4.7, marginally lower than the 4.8 registered at end March 2010. During 2011-12, the money multiplier has generally shown an increasing trend on account of M_0 registering a lower growth vis-a-vis M_3 (Figure 4.16).

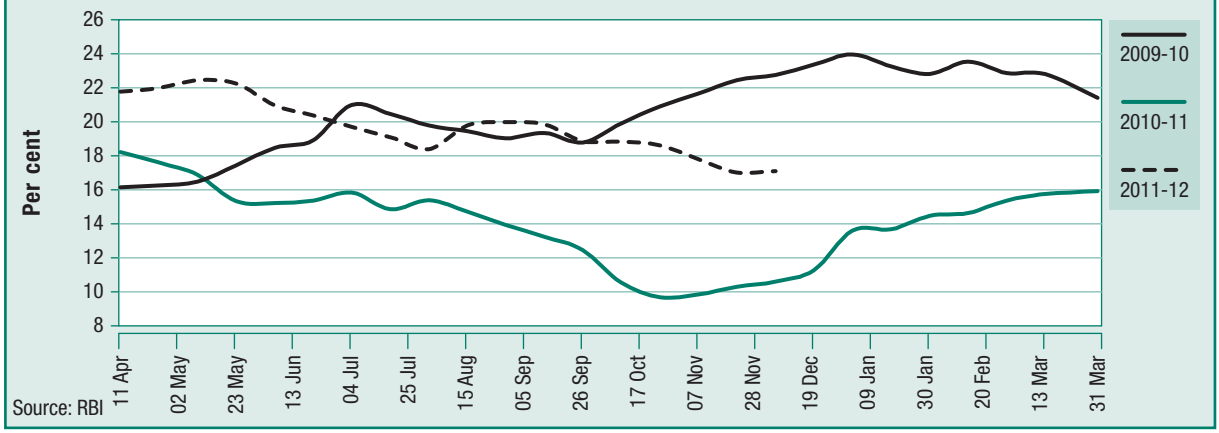
Movement in Other Monetary Indicators

4.44 Monetary deepening (as measured by the ratio of average M_3 to GDP) registered a rise from 42.6 per cent in 1990-91 to 78.4 per cent in 2010-11. The rise may be attributed to the spread of banking services in the country and development of the financial sector. The monetization of the economy (as measured by the ratio of average M_1 to GDP) has also shown an upward trend, albeit at a slower rate, over the same period. In 1990-91, this ratio was 14.9 per cent and it increased to 20.1 per cent in 2010-11 (Table 4.8 and Figure 4.17).

Liquidity Management

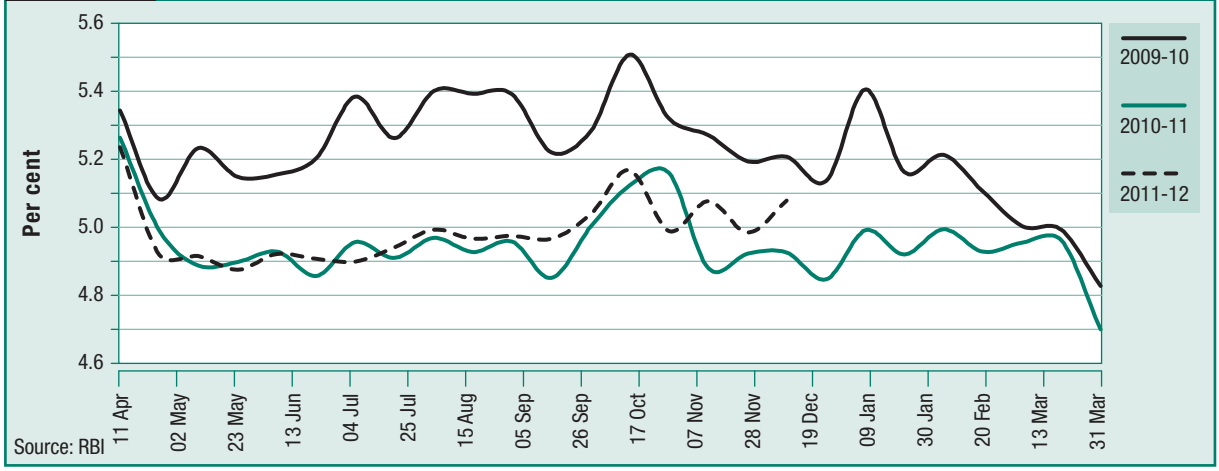
4.45 With the aim of containing inflation and anchoring inflationary expectations, the RBI actively managed liquidity through the appropriate use of LAF and OMOs, to ensure that it remained in

Figure 4.15 Bank credit to commercial sector - annual growth rate



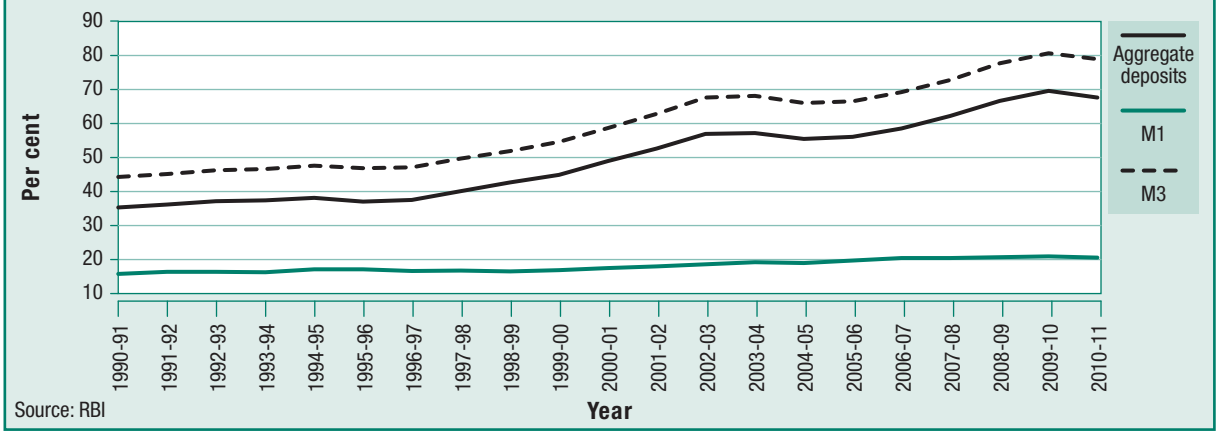
Source: RBI

Figure 4.16 Movements in money multiplier



Source: RBI

Figure 4.17 Select monetary aggregates as per cent of GDP



Source: RBI

Table 4.8 : Select Monetary Aggregates

Year	As per cent of GDP at Market Prices					
	Currency with public	Demand deposits with banks	Time deposits with banks	Aggregate deposits	M_1	M_3
1990-91	8.5	6.2	27.7	33.9	14.9	42.6
1991-92	8.5	6.7	28.0	34.7	15.4	43.4
1992-93	8.3	6.7	28.9	35.6	15.5	44.4
1993-94	8.6	6.4	29.5	35.8	15.3	44.8
1994-95	8.8	7.0	29.6	36.6	16.2	45.7
1995-96	9.1	6.5	28.9	35.5	16.2	45.1
1996-97	8.9	6.3	29.7	36.0	15.6	45.3
1997-98	9.0	6.5	32.0	38.5	15.8	47.8
1998-99	8.8	6.5	34.5	41.0	15.5	50.0
1999-00	9.2	6.6	36.5	43.1	15.9	52.5
2000-01	9.3	7.0	40.0	47.0	16.4	56.4
2001-02	9.7	7.1	43.5	50.7	16.9	60.5
2002-03	10.2	7.3	47.5	54.8	17.6	65.1
2003-04	10.4	7.6	47.5	55.1	18.1	65.6
2004-05	10.4	8.0	46.9	54.9	18.5	65.4
2005-06	10.4	8.8	47.0	55.8	19.3	66.3
2006-07	10.5	9.4	48.7	58.1	20.0	68.7
2007-08	10.4	9.5	52.3	61.8	20.0	72.3
2008-09	10.9	9.2	56.9	66.1	20.2	77.2
2009-10	11.0	9.3	59.7	69.1	20.4	80.2
2010-11	11.1	8.9	58.3	67.2	20.1	78.4

***Source* : RBI**

moderate deficit, consistent with effective monetary transmission.

4.46 Liquidity conditions changed course significantly during 2011-12. The LAF window that was in absorption mode briefly at the commencement of 2011-12, reverted to deficit mode from the second week of April 2011. Although the liquidity deficit generally persisted in April 2011, the average daily net outstanding liquidity injection declined significantly on account of high ways and means advances (WMA) /overdraft (OD) availed of by the central government from the RBI. The average

daily net outstanding liquidity injection under the LAF declined to around ₹ 19,000 crore for the entire month (as compared to around ₹ 81,000 crore in March 2011), notwithstanding the rise in currency in circulation by around ₹ 32,000 crore during the month (Table 4.10).

4.47 Based on the recommendations of the Working Group to Review the Operating Procedure on Monetary Policy, the RBI (in its Annual Monetary Policy Statement for 2011-12 released on 3 May 2011) decided to effect changes to the operating procedure of monetary policy, the details of which are outlined in Box 4.7.

4.48 Some stress in liquidity conditions emerged in June 2011 on account of quarterly advance tax outflows. The liquidity deficit in the system increased significantly during the second half of the month, with the central government balance with the RBI turning into surplus. During June 2011, the liquidity deficit was around ₹ 74,000 crore of average daily net liquidity injection under the LAF, as compared to around ₹ 55,000 crore in May 2011 (Figure 4.18).

4.49 However, liquidity conditions eased in early July 2011, reflecting the drawdown of central government cash balances, *inter alia* through redemption of a security amounting to around ₹ 37,000 crore on 2 July 2011. The currency in circulation also decreased by around ₹ 16,000 crore during the month. Under the cumulative impact, the average daily net liquidity injection under the LAF declined to around ₹ 44,000 crore taking into consideration the entire month of July 2011.

4.50 Liquidity conditions continued to remain tight during August 2011 and eased at the beginning of September 2011. However, the deficit in liquidity conditions increased subsequently, as the balance of the central government with the RBI turned into surplus on account of second quarterly advance tax outflows. During September 2011, it remained around ₹ 56,000 crore of average daily net liquidity injection under the LAF as compared to ₹ 41,000 crore in August 2011.

4.51 During the first half of 2011-12, the deficit in liquidity conditions remained generally within the comfort zone. Over this period the injection of liquidity under the MSF was limited to two occasions (₹100 crore on 10 June 2011 and ₹ 4,105 crore on 15 July 2011).

4.52 Liquidity conditions eased significantly at the beginning of October 2011 on account of high WMA/OD availed of by the central government and drawdown of cash reserves maintained by the banks. However, liquidity conditions tightened again from 7 October 2011 with decline in the level of WMA/OD and rise in currency in circulation due to demand generated in the festive season. The currency in

Table 4.9 : Liquidity Management

(₹ crore)

Outstanding as on last Friday	LAF	MSS#	Centre's surplus[1]	Total
2011				
January	-76730	0	118371	41641
February	-72005	0	77397	5392
March*	-106005	0	16416	-89589
April	-39605	0	-35399	-75004
May	-75795	0	-9544	-85339
June	-96205	0	8339	-87866
July	-48555	0	-25983	-74538
August	-49215	0	-21192	-70407
September	-82645	0	-24387	-107032
October	-58445	0	-36153	-94598
November	-98760	0	-21325	-120085
December	-101395	0	-10986	-112381

Source **: RBI**

Notes **: # MSS stands for Market Stabilization Scheme.**

1. Excludes minimum cash balances with the RBI in case of surplus

*** Data pertain to 31 March 2011.**

(-)ve sign under LAF indicates injection of liquidity through the LAF.

(-)ve sign under the Centre's surplus indicates WMA/OD availed of by the central government.

Box 4.7 : Major Monetary Policy Tools and Operating Procedure

a. The Call Money Market

The call money market is an important segment of the money market where uncollateralized borrowing and lending of funds take place on overnight basis. Participants in the call money market in India currently include scheduled commercial banks (SCBs) (excluding regional rural banks), cooperative banks (other than land development banks), and primary dealers, both as borrowers and lenders (RBI's Master Circular dated 1 July 2011). Prudential limits in respect of both outstanding borrowing and lending transactions in the call money market for each of these entities are specified by the RBI.

b. Open Market Operations

OMOs are conducted by the RBI via the sale/purchase of government securities to/from the market with the primary aim of modulating rupee liquidity conditions in the market. OMOs are an effective quantitative policy tool in the armoury of the RBI, but are constrained by the stock of government securities available with it at a point in time.

c. The Liquidity Adjustment Facility

The LAF is the key element in the monetary policy operating framework of the RBI. On daily basis, the RBI stands ready to lend to or borrow money from the banking system, as per the latter's requirement, at fixed interest rates. The primary aim of such an operation is to assist banks to adjust to their day-to-day mismatches in liquidity, via repo and reverse repo operations.

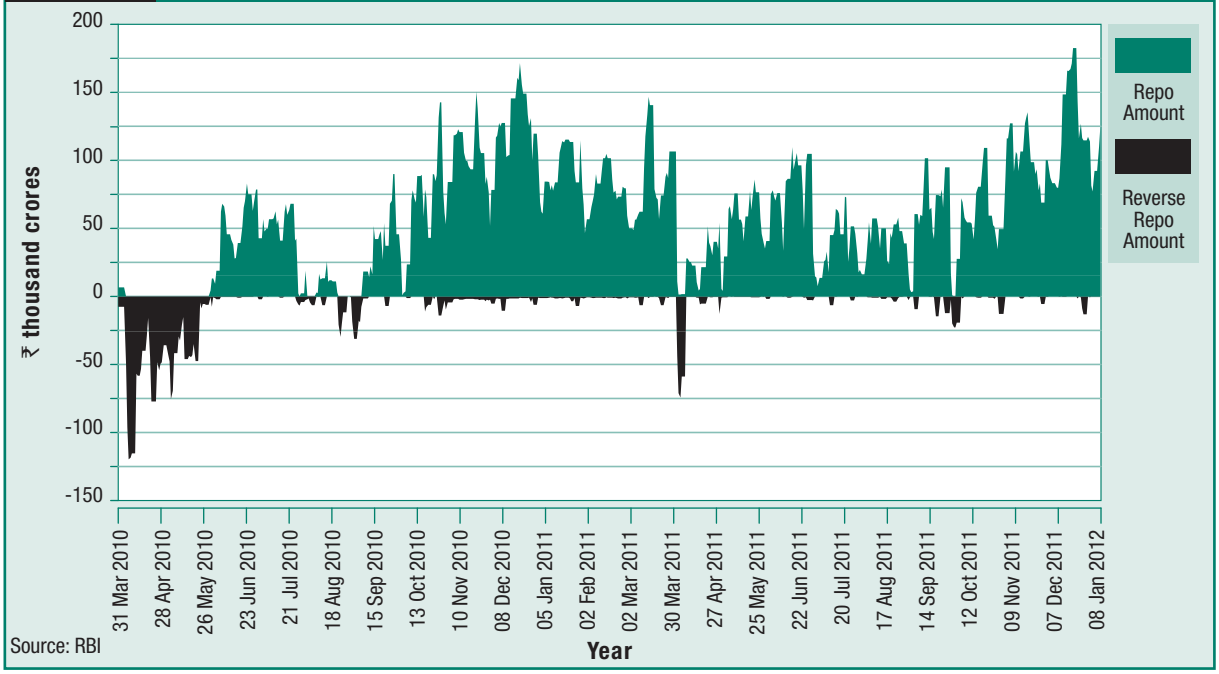
Under the repo or repurchase option, banks borrow money from the RBI via the sale of securities with an agreement to purchase the securities back at a fixed rate at a future date. The rate charged by the RBI to aid this process of liquidity injection is termed as the repo rate. Under the reverse repo operation, the RBI borrows money from the banks, draining liquidity out from the system. The rate at which the RBI borrows money is the reverse repo rate. The interest rate on the LAF is fixed by the RBI from time to time (with crucial changes introduced recently in the operating procedure of Monetary Policy detailed in the next paragraph). LAF operations help the RBI effectively transmit interest rate signals to the market.

d. Changes in the Operating Procedure of Monetary Policy

Effective 3 May 2011, based on the recommendations of the *Working Group on Operating Procedure of Monetary Policy,* the operating framework of monetary policy has been refined. The repo rate has been made the only independently varying policy rate. A new marginal standing facility (MSF) has been instituted, under which SCBs have been allowed to borrow overnight at their discretion, up to 1 per cent of their respective NDTL, at 100 bps above the repo rate. The revised MSF reverse repo corridor has been defined with a fixed width of 200 bps with the repo rate placed in the middle of the corridor. The reverse repo rate has been placed 100 bps below and the MSF rate 100 bps above the repo rate.

It is expected that the fixed interest rate corridor, set by the MSF rate and reverse repo rate, by reducing uncertainty and avoiding difficulties in communication associated with a variable corridor, will help in keeping the overnight average call money rate close to the repo rate.

Figure 4.18 Repo - Reverse repo volume



Source: RBI

Note : The injection of liquidity through the Marginal Standing Facility has been included in the repo amount.

Table 4.10: Money Market Volumes (in ₹ crore)

Year/Month	LAF	Call money	Market repo	CBLO#	CP# Outstanding	CD# Outstanding
March 2010	37640	8812	19150	60006	75506	341054
December 2010	-120495	9436	12989	43784	82542	361408
January 2011	-92933	7758	11546	44815	101752	377640
February 2011	-78639	10356	13150	42292	101291	418524
March 2011	-80963	11278	15134	43201	80305	424740
April 2011	-18809	13383	14448	56160	124991	447354
May 2011	-54643	10973	15897	40925	121221	433287
June 2011	-74125	11562	16650	41313	104689	423767
July 2011	-43759	11513	11748	41006	133691	412189
August 2011	-40712	11290	14793	39131	148812	405685
September 2011	-55920	13782	13893	45119	144621	383472
October 2011	-54088	12858	13204	41649	168769	385936
November 2011	-91616	11048	13251	32906	173476	378433
December 2011p	-116662	14880	9947	26493	-	382589*

Source **: RBI**

Notes **: *As on 2 December 2011.**
P is provisional.
 # CBLO stands for collateralized borrowing and lending obligation.
CD stands for certificates of deposit.
CP stands for commercial paper.
(-)ve figure under the LAF indicates injection of liquidity.

circulation increased by around ₹ 36,000 crore during the month.

4.53 During November 2011, liquidity conditions continued to remain in deficit mode. Anticipating liquidity stress, the RBI initiated liquidity injection via outright OMO purchases effective from 24 November 2011. The average daily net liquidity injection under the LAF, during November 2011, increased to around ₹ 92,000 crore vis-a-vis around ₹ 54,000 crore in October 2011, with a decline in WMA/OD availed of by the central government and foreign exchange market operations by the RBI (Table 4.10).

4.54 However, in December 2011, the liquidity deficit escalated partly on account of third quarterly advance tax outflows. Keeping in view the prevailing overall liquidity conditions, OMO purchases continued. In order to provide flexibility to SCBs in their liquidity management, the RBI conducted additional repo operations under the LAF on 16 December 2011 (over and above the existing LAF and MSF arrangements). Furthermore, the RBI decided (on 21 December 2011) to permit banks to avail of funds on overnight basis, under the MSF, against their excess statutory liquidity ratio (SLR) holdings, in addition to the existing facility under which they are already allowed to avail of funds (on overnight basis below the stipulated SLR) up to 1 per cent of their respective NDTL.

4.55 In December 2011, recourse was taken to the MSF, after a gap of almost five months, six times. The average daily net outstanding liquidity injection was around ₹ 1,17,000 crore. The deficit liquidity conditions persisted in January 2012 with average daily net liquidity injection around ₹ 1, 00,000 crore during 1-10 January 2012. In order to manage evolving liquidity conditions more effectively, ₹ 49,682 crore has been injected under OMO purchase auctions for government securities during the current year (up to 9 January 2012).

Money Market

4.56 The money market generally remained orderly during 2011-12. The call rate declined at the commencement of the financial year with improvement in liquidity conditions. It, however, increased subsequently with tightening of liquidity and hikes in policy rates and generally hovered around the repo rate during the first half of 2011-12. The call rate firmed up further to average 8.26 per cent and 8.58 per cent respectively in the months

of October and November 2011. Thereafter, it continued to harden, averaging 9.04 per cent during December 2011 (Figure 4.19).

4.57 The rates in the collateralized segments (i.e. CBLO and market repo) have moved in tandem with the call rate, but have generally remained below it during the financial year 2011-12. Broad trends noticed in 2010-11 in key segments, continued in the current fiscal with banks and primary dealers the major groups of borrowers in the collateralized segments; Mutual Funds being the major group of lenders in CBLO and market repo in the current financial year (though foreign banks were the major group in market repo in some of the recent months); and the collateralized segment of the money market remaining dominant, accounting for more than 80 per cent of total money market volume. The shares of call money, CBLO and market repo in total money market volume stood at 19 per cent, 60 per cent and 21 per cent respectively during 2011-12 (up to December 2011) vis-a-vis 14 per cent, 64 per cent and 22 per cent respectively, compared to the same period of the previous year.

Certificates of Deposit

4.58 The average gross issuance of CDs[1] remained high during 2011-12. However, the amount of CDs outstanding witnessed a fall, indicating a decline in net issuances. The amount of outstanding CDs issued by SCBs declined from around ₹ 4,25,000 crore at the fortnight ended 25 March 2011 to around ₹ 3,83,000 crore at the fortnight ended 2 December 2011. The outstanding amount constituted 7.23 per cent (as on 2 December 2011) of aggregate deposits of CD-issuing banks with significant inter-bank variation. During the current financial year (2 December 2011), the average issuances remained at around ₹ 33,000 crore vis-a-vis around ₹ 23,000 crore during the same period of the previous year. The weighted average effective interest rate (WAEIR) of CDs declined from 9.96 per cent at the fortnight ended 25 March 2011 to 9.54 per cent at the fortnight ended 2 December 2011 (Table 4.11).

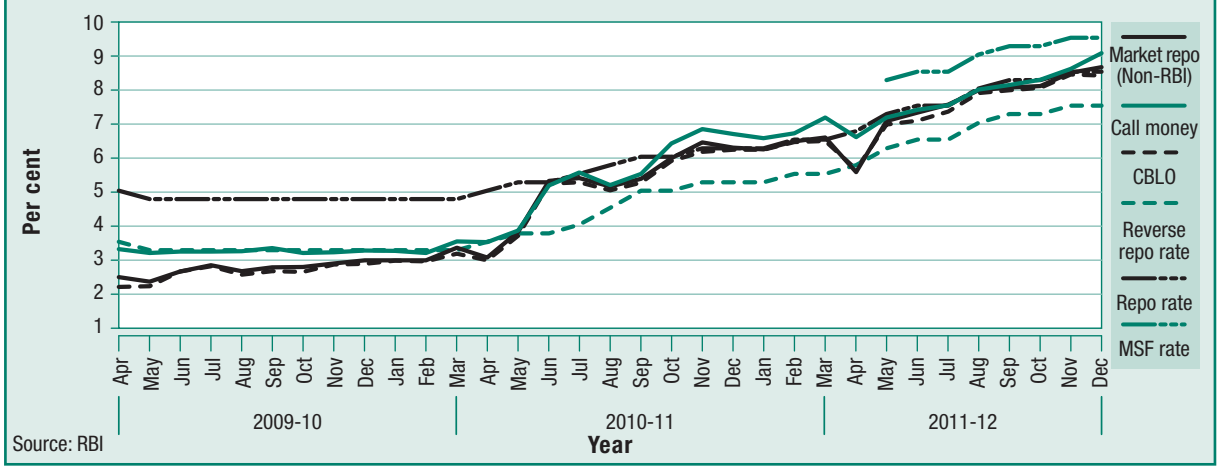
Commercial Paper

4.59 During 2011-12 so far, the CP[2] market has picked up with the size of fortnightly issuance increasing significantly. The outstanding amount of CP rose from ₹ 80,305 crore at end March 2011 to ₹ 1,73,476 crore at end November 2011 (Table 4.10). The average issuance of CPs increased to around ₹ 24,000 crore in the current financial year (till end November 2011) as compared to around ₹16,000 crore during the same period of the previous year. The weighted average discount rate (WADR) in respect of aggregate CP issuances decreased to around 10.03 per cent at end November 2011, from 10.4 per cent at end March 2011 (Table 4.11). 'Leasing and finance' and 'manufacturing companies' continued to be the major issuers of CPs.

Treasury Bills

4.60 The issuances of treasury bills (TBs) during the year 2011-12 were modulated keeping in view the deficit cash position of the Government of India. During 2011-12, the total amounts raised through 91-day, 182-day, and 364-day TBs were ₹ 3,22,193.2 crore, ₹ 65601.3 crore, and ₹ 66,371.4 crore

Figure 4.19 Movement of money market rates



1. A certificate of deposit is a negotiable money market instrument and is issued in dematerialized form (or as a usance promissory note) against funds deposited at a bank or other eligible financial institutions for a specified time period.
2. A commercial paper is an unsecured money market instrument issued in the form of a promissory note.

Table 4.11 : Rates in Domestic Financial Markets

(per cent)

Year/month	Call money	Market repo (non-RBI)	CBLO	CP WADR	CD WAEIR
March 2010	3.51	3.32	3.15	6.29	6.07
December 2010	6.67	6.27	6.20	10.1	9.15
January 2011	6.54	6.21	6.20	8.81	9.42
February2011	6.69	6.45	6.43	9.05	10.04
March 2011	7.15	6.56	6.46	10.4	9.96
April 2011	6.58	5.55	5.63	8.62	8.66
May 2011	7.15	7.05	6.94	9.49	9.30
June 2011	7.38	7.30	7.06	9.71	9.61
July 2011	7.51	7.53	7.33	9.33	9.19
August 2011	7.97	7.95	7.87	9.56	9.19
September 2011	8.11	8.04	7.95	9.90	9.30
October 2011	8.26	8.08	8.03	9.84	9.35
November 2011	8.58	8.47	8.42	10.03	9.47
December 2011	9.04	8.63	8.39	-	9.54*

Source : RBI. *Note* : *: As on 2 December 2011.

respectively (up to December 2011). The notified amount of TBs was increased by ₹ 65,000 crore during the fourth quarter after factoring in redemptions of dated securities to the extent of ₹ 59,000 crore. As a result, the net increase of TBs worked out to ₹ 1,17,000 crore as compared to the budget estimate of ₹ 15,000 crore. The primary market yield for 91-day, 182-day, and 364-day TBs increased gradually to 8.48 per cent, 8.27 per cent, and 8.35 per cent respectively in the auction held in December 2011 (Figures 4.20, 4.21, and 4.22).

Cash Management

4.61 The Government of India started the year 2011-12 with a positive cash balance of ₹ 14,748 crore, that turned into WMA position on 5 April 2011. Up to December 2011, the Government of India was in WMA for 235 days and availed OD on eleven occasions. During 2011-12, cash management bills (CMBs) to the tune of ₹ 93,000 crore (face value) were issued (up to December 2011) to finance temporary mismatches in the cash position of the Government of India. CMBs are non-standard, discounted instruments issued for maturities of less than 91 days. During 2011-12, the initial WMA limit fixed at ₹ 30,000 crore for the first half, was revised to ₹ 45,000 crore for the period 21 April to 30 June. Similarly, the WMA limit fixed at ₹ 10,000 crore for the second half was revised to ₹ 20,000 crore for the period 1 October to 31 December.

Figure 4.20 Auction cut-off yield in 91-day T-bills

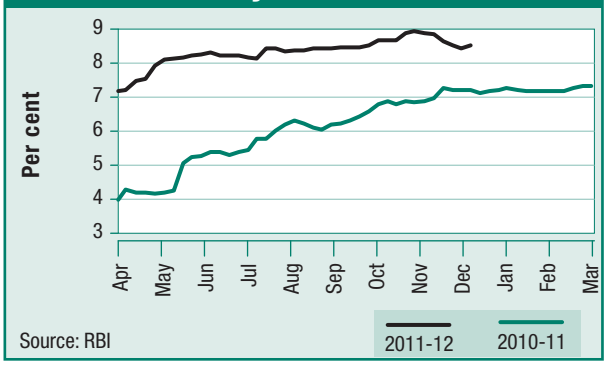


Figure 4.21 Auction cut-off yield in 182-day T-bills

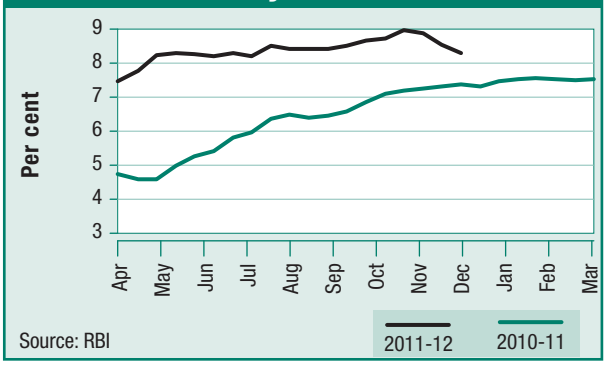
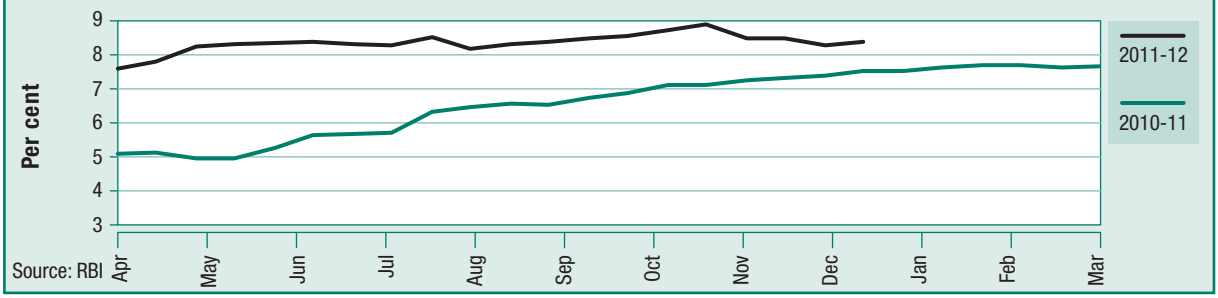


Figure 4.22 Auction cut-off yield in 364-day T-bills



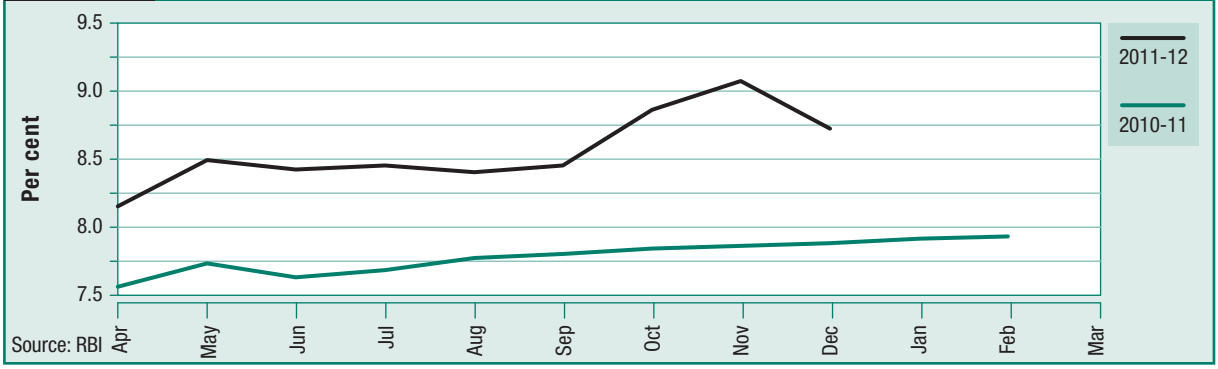
Central Government's Market Borrowings

4.62 The gross market borrowings by the Government of India were originally budgeted at ₹ 4,17,128 crore (net ₹ 3,43,000 crore) that have been revised to ₹ 5,10,000 crore (net ₹ 4,35,872 crore) for 2011-12 (dated securities) as compared with ₹ 4,37,000 crore (net ₹ 3,25,414 crore) for 2010-11. Taking into account shortfall in other sources of financing of the fiscal deficit, particularly small savings and higher levels of expenditure outgo, the market borrowings have been scaled up by ₹ 92,872 crore as per the indicative borrowing calendar issued for the second half of 2011-12. The gross market borrowings through dated securities (up to December 2011) have been to the tune of ₹ 3,79,000 crore (74.31 per cent of the budgeted borrowing programme) as compared to ₹ 3,84,000 crore during the corresponding period of the previous year (87.87 per cent of the Revised Estimates). The weighted average yield of dated securities issued up to December 2011 stood at 8.56 per cent as compared to 7.87 per cent during the corresponding period of the previous year (Figure 4.23). Uncertainty regarding the trajectory of inflation has been one of the factors contributing to volatility in the bond market. The secondary market yield on 10-year benchmark Government of India securities averaged at 8.61 per cent (during the year up to December 2011) and stood in the range of 7.94-9.11 per cent. Keeping in view the flattening of yield curve during the recent period, long dated securities were issued for higher notified amounts and accordingly the weighted average maturity of the dated securities issued up to December 2011 worked out to 12.45 years vis-a-vis 11.54 years registered during the corresponding period of the previous year.

Yields on 10-year Government Securities (G-sec)

4.63 At the commencement of financial year 2011-12, G-sec yields hardened as rising commodity prices, including that of crude oil, aggravated inflation concerns. The hardening of yields continued in May 2011 in response to a hike of 50 bps in policy rate by the RBI on 3 May 2011 and also due to persistence of inflation concerns amidst a hike in petrol prices. However, yields eased in the month of June, with international commodity and oil prices showing signs of moderation. Increased uncertainty about the resolution of the sovereign debt crisis in the euro zone also led to flight to safety that in turn affected yields. G-sec yields hardened marginally after another hike in petroleum prices was announced on 24 June 2011 with the 10-year generic yield standing at 8.34 per

Figure 4.23 Weighted average yield of primary issues of GOI dated securities (cumulative)



cent as on 30 June 2011 vis-a-vis 8.01 per cent at end-March 2011 (Figure 4.24).

4.64 G-sec yields generally eased during the first three weeks of July 2011 but hardened in response to the RBI's decision to hike policy rate by 50 bps on 26 July 2011. During August 2011, G-sec yields eased, taking a cue from the rally in safe haven assets due to sell-off in risk assets witnessed globally after the S&P downgrade of long-term credit rating of the United States. During September 2011 G-sec yields rose following the Government of India's decision to increase its market borrowings by ₹ 52,800 crore. The 10-year generic yield stood at 8.44 per cent on 29 September 2011.

4.65 During the month of October, yields hardened once the second half borrowing programme of the government commenced. However, during November 2011 the G-Sec yields eased as market sentiments improved with the announcement of OMO purchase auctions by the RBI and increase in FII investment ceiling in government securities from US$ 10 billion to US$ 15 billion and in corporate bonds from US$ 15 billion to US$ 20 billion. The softening continued during December 2011 with 10-year generic yields standing at 8.54 per cent at end December 2011, as compared to 8.74 per cent at the end of November 2011. During January 2012 so far, yields have eased with moderation in inflation, further OMOs, and on expectations of easing of policy rates by the RBI. The 10-year generic yields stood at 8.25 per cent on 10 January 2012.

State Governments' Market Borrowings

4.66 Up to end December 2011, 24 state governments have raised an aggregate amount of ₹ 1,02,155 crore on gross basis as compared to ₹ 74,104 crore raised by 22 state governments during the corresponding period of the previous year. The cut-off yields have ranged between 8.36 and 9.33 per cent as compared to 8.05 and 8.58 per cent during the corresponding period of the previous year. The weighted average yield worked out to 8.76 per cent up to December 2011 and 8.39 per cent for the financial year as a whole. Up to December 2011 the spread between the yield on state development loans (SDLs) and 10-year benchmark Government of India securities stood lower at 25-61 bps as compared to 32-69 bps during the corresponding period of the previous year.

Monetary Policy Stance During 2011-12

4.67 The monetary policy stance during 2011-12 changed course during the year, from tightening driven by inflation concerns to gradual pause recognizing the risks to growth as inflation moderated, albeit marginally. The monetary policy stance during May-October 2011 was based on the premise that over the long run, high inflation is inimical to sustained growth as it harms investment by creating uncertainty. Bringing inflation down, even at the cost of sacrificing some growth in the short run, was therefore accorded precedence. Year-on-year headline WPI inflation remained stubbornly high, averaging around 9.6 per cent during May-September 2011. Inflation was driven by all the three major groups, namely primary articles; fuel and power; and manufactured products. Hence the focus of monetary policy stance during May-October 2011 was on containing inflation and anchoring inflation expectations even as it entailed sacrificing some growth.

4.68 The period from December 2011 to January 2012 marked a reversal of the cycle as policy rates were kept unchanged. Growth started moderating in 2011-12, in part anticipated as a consequence of

Figure 4.24 Movement in 10 year yield

Source: RBI

cumulative impact of past monetary policy action, but more importantly on account of investment uncertainties, worsening global scenario and the large linkages of the manufacturing sector with global demand. GDP growth moderated for the sixth consecutive quarter to 6.9 per cent in Q2 of 2011-12. The growth rate of GDP during 2011-12 is estimated at 6.9 per cent. Since November 2011, however, inflation has broadly followed the projected trajectory and has shown moderation with headline WPI inflation moderating to 7.5 per cent in December 2011. The decline in inflation was driven largely by a decline in primary food and non-food articles inflation. The momentum indicator of the WPI, as measured by the seasonally adjusted three-month moving average inflation rate, also showed a decline. Consistent with the RBI's earlier projections, inflation was expected to decelerate further to 7 per cent by March 2012.

4.69 In view of the slowdown in growth, especially investment activity, and expected moderation in inflation beginning December 2011, it was decided to pause repo rate hikes in the Mid Quarter Review of December 2011. During this period, despite the conduct of OMOs by the RBI, liquidity conditions have remained beyond comfort zone, with significant increase in the structural liquidity deficit in the system-- a development that was seen to potentially hamper the flow of credit to the productive sectors of the economy. Therefore, with the aim of injecting permanent liquidity into the system, the RBI has reduced the CRR of SCBs by 50 bps from 6.0 per cent to 5.5 per cent of their NDTLs in the Third Quarter Review (TQR) of monetary policy on 24 January 2012. The RBI has not announced any change in the policy interest rate. Accordingly, the repo rate under the LAF has been retained at 8.5 per cent. Consequently, the reverse repo rate, determined with a spread of 100 bps below the repo rate, will remain unchanged at 7.5 per cent and the MSF rate, determined with a spread of 100 bps above the repo rate, at 9.5 per cent. The stance of monetary policy as stated in the TQR is intended to:

- Maintain an interest rate environment to contain inflation and anchor inflation expectations.
- Manage liquidity to ensure that it remains in moderate deficit, consistent with effective monetary transmission.
- Respond to increasing downside risks to growth.

In its Third Quarter Review guidance the RBI observed that in reducing the CRR, the attempt was to address the structural pressures on liquidity in a way that is not inconsistent with the prevailing monetary stance.

4.70 Table 4.12 gives an overview of the changes in policy rates since 2009-10. Since the exit from the crisis-driven expansionary monetary policy stance, the RBI has raised the repo rate 13 times by 375 bps between March 2010 and January 2012. Out of this cumulative rise of 375 bps, between March 2010 and March 2011, the policy rate was raised eight times by 200 bps. In 2011-12 (up to 24 January 2012), it was further raised five times by 175 bps.

Table 4.12 : Revision in Policy Rates

(per cent)

Effective Date	Repo rate	Reverse repo rate	CRR	SLR	MSF rate*
1	2	3	4	5	6
2009-10					
21Apr. 2009	4.75	3.25	5.00	24.0	
7 Nov. 2009	4.75	3.25	5.00	25.0	
13 Feb. 2010	4.75	3.25	5.50	25.0	
27 Feb. 2010	4.75	3.25	5.75	25.0	
19 Mar. 2010	5.00	3.50	5.75	25.0	
2010-11					
20 Apr. 2010	5.25	3.75	5.75	25.0	
24 Apr. 2010	5.25	3.75	6.00	25.0	
2 Jul. 2010	5.50	4.00	6.00	25.0	
27 Jul. 2010	5.75	4.50	6.00	25.0	
16 Sep. 2010	6.00	5.00	6.00	25.0	
2 Nov. 2010	6.25	5.25	6.00	25.0	
18 Dec. 2010	6.25	5.25	6.00	24.0	
25 Jan. 2011	6.50	5.50	6.00	24.0	
17 Mar. 2011	6.75	5.75	6.00	24.0	
2011-12					
3 May 2011	7.25	6.25	6.00	24.0	
9 May 2011	7.25	6.25	6.00	24.0	8.25
16 Jun. 2011	7.50	6.50	6.00	24.0	8.50
26 Jul. 2011	8.00	7.00	6.00	24.0	9.00
16 Sep. 2011	8.25	7.25	6.00	24.0	9.25
25 Oct. 2011	8.50	7.50	6.00	24.0	9.50
24 Jan. 2012	8.50	7.50	5.50	24.0	9.50

Source **: RBI**

*** *Note* : The MSF commenced from 9 May 2011.**

Challenges And Outlook

4.71 During the year 2011-12, higher inflationary pressures were evident, both in India and in the EDEs. Fortunately these are now moderating in India and high food production growth and lower global commodity prices, as well as a number of policy steps to moderate price pressures, have worked to sharply lower inflation in the past couple of months. Strong monetary tightening, with 13 adjustments in policy rates, has also slowed output growth and demand side inflationary expectations.

4.72 Global growth remains very weak and the renewed sluggishness in the global economy has led to some moderation in global commodity prices - particularly those of food and metals. Domestic food stocks are high and producer supply responses to higher prices for protein foods will dampen price pressures, while expected fiscal consolidation efforts will reduce inflationary pressures further, allowing more room for private-sector growth. The outlook therefore is for continued moderation in inflation in 2012-13, even as activity levels recover cyclically and structurally.

4.73 By March 2012, headline WPI inflation is expected to fall to 6.5-7 per cent and further moderate in the months ahead, barring unexpected shocks. Vigilance will nevertheless be required and steps taken to quickly deal with any unexpected developments. Recent geopolitical uncertainties are once again putting pressures on crude oil prices globally. This represents a major risk and challenge ahead and the best course of action would be to persist with regular step-adjustment of domestic energy prices, which will help with both reducing incipient structural inflationary pressures and fiscal consolidation efforts.

4.74 The hike in policy rates by the RBI was due to persistently high inflation. The high rates, however, have impacted growth in the short run. There is need to examine the linkages and trade-offs between policy rate changes and growth in the Indian context. Such understanding is important for better calibration of monetary policy both with respect to size and timing of rate changes. This is especially important since monetary policy primarily addresses demand-side factors relevant for inflation management whereas supply-side factors also play a key role in contributing to sustained increase in prices. Renewed attention to structural ways of improving medium-term supply responses in agriculture and supply chains and infrastructure more broadly may be vital.

4.75 Greater attention needs to be given to asset price bubbles in real estate and stock markets and their implications for the economy and to the strength of the financial system. Focus mainly has to be on credit-induced bubbles that create positive feedback loop with business-cycle implications. There is scope for sharpening monetary policy and macro-prudential tools to deal with such asset bubbles and other risks.

4.76 Overall, prudent macroeconomic policy will continue to be important for guarding against any unexpected supply-demand imbalances and price pressures re-emerging. As part of such a policy, greater attention to improved supply capacities--speeding private and public investment--rather than to demand-side management, is once again gaining heightened importance and will represent a major challenge. Getting back to a low-inflation/sustained high growth environment is both possible and necessary.