Chapter 3

Macroeconomic background and analytical perspectives

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Brief Content

3.1. Opening remarks

The ways in which exchange rate variations can induce price impacts and subsequently affect domestic growth, inflation and employment have been the chief concerns of the macroeconomic strand in pass-through literature. The roots of these concerns can be traced back to the debates on the efficacy of various exchange rate regimes and the preponderance on how the different ways of managing exchange rate could affect domestic macroeconomic outcomes. The realizations on allowing greater flexibility in the determination of exchange rate ignited the "fears of floating" (Baquerio et al., 2003) and the theoretical concerns of the mid-1900s fructified into real issues by the late 1900s. The close interaction between increasingly market-oriented exchange rates and domestic macroeconomic adjustments, paved way for the shift from studying the quantity impacts of exchange rates to their price impacts. The empiricists who were engaged in analysing the quantity channels through which exchange rates could help in the balance of payments adjustments and subsequently in domestic macroeconomic management, were now presented with a newer challenge of accounting for the price channel through which a freer exchange rate could disturb the macroeconomic equilibrium. These concerns were systematized into the analysis of Exchange Rate Pass-Through (ERPT) mechanism and since then have evolved into a voluminous literature.

Macroeconomic analysis attaches prime importance to the determination and simultaneous interactions of the aggregate output, inflation and employment. In an open economy framework, the traditional analytical apparatus needs to be modified to account for the external sector movements and the channels through which these movements can induce shocks and changes in the domestic economy. Larger exposure to international trade in goods and assets, as well as higher dependency on the foreign exchange market for determination of currency's value, have made it imperative to model the role of exchange rates in shaping the macroeconomic developments. There are two major channels through which exchange rate variations can percolate into the local economic conditions. One is the quantity channel and is largely focused on the impact of exchange rates on trade quantities while the second is the price channel which attaches prime importance to the nexus between exchange rate and trade prices. It is in the second domain that the ERPT literature was born and the concerns with price effects of exchange rates became an active area of empirical research. While the early analysts in the pass-through domain focused exclusively on advanced economies, the later periods saw increasing attention to emerging economies. The

impact of exchange rates on trade prices was recognized as a critical element in the larger macroeconomic issues such as in the balance of payments adjustments, in the impact of trade balance on growth, and in the monetary transmission mechanism for an open economy. With increasingly larger number of economies moving towards a higher degree of market-orientation in the determination of their currency's values, ERPT analysis became a major domain in itself.

The empirical findings of from the 1980s to the early 2000s suggested that pass-through of exchange rate movements to aggregate trade prices, i.e. the import and export prices, was incomplete for the industrially advanced economies. The theoretical presumption for emerging economies was exactly the antithesis of what was observed for advanced economies, i.e. the pass-through to these economies would be complete. This presumption was justified as most of the emerging economies displayed features of small open economies and thus were not in a position to assert any market power in the international markets. It was expected that such economies would experience complete or even more-than-complete pass-through to trade prices. However, empirical outcomes deviated wildly from this presumption and pass-through was not found to be complete in studies after studies that examined the ERPT for various emerging economies. India too was not an exception. It was recognized early in the literature that the ERPT to import prices in India was incomplete. Nonetheless, some studies observed complete and even more than complete pass-through into import prices but the larger amount of evidence was seen bending towards incompleteness in transmission of exchange rate changes to import prices. The main repercussions of such inferences was that ERPT gained an even larger momentum as a topic of macroeconomic research and its grip enlarged over both the researchers and policymakers.

The early preoccupation with the import price pass-through evolved into the analysis of the transmission of exchange rate changes to domestic inflation. Inflation has always been at the heart of monetary macroeconomics. The emergence of the external channel that could possibly disturb the domestic macroeconomic equilibrium provided a large boost to the ERPT literature in India. Monetary management was now not only challenged by domestic challenges, but had to account for the exchange rate channel also. The increase in the flexibility of value determination of the Indian rupee meant that the impossible trinity made its way back into the macroeconomic agenda. The economic reforms of the 1990s saw not only structural changes in the industrial sector but also included the gradual liberalization of the Indian rupee in terms of the current account and

capital account convertibility, as well as easing of controls over the foreign exchange management which was embodied in the shift from the FERA 1973 to the FEMA, 1999. These developments provided the long awaited space to exchange rate variations that were earlier suppressed via extreme sterilization measures in the pre-FEMA era. While interventions by the Reserve Bank of India (RBI) in the forex market continued even after the economic reforms, the variations in exchange rate were now allowed to unfold themselves within the tolerable range. The importance of exchange rate variations had increased and the implications of the same for trade prices, and thereafter for domestic prices gained attention from the analysts and particularly the policy framers. Consequently, this period saw a sizeable increase in the research works on the ERPT issue in India and since then the literature has evolved in several directions.

The evolution of the ERPT process in India has been closely linked with the larger macroeconomic processes undergoing in the Indian economy in the post reforms period. Output growth saw important structural shifts since the 1991 reforms. While the actual Gross Domestic Product (GDP) growth varied by different degrees, the upwards trend in the same has held its pace despite a host of internal and external shocks. Maintenance of a high and stable rate of economic growth has been the key concern of the fiscal and monetary policies since the economic reforms and largely, there has been success in achieving the same. The continuous expansion of the Indian economy has brought its own set of implications for the pass-through process. Output growth over the years has expanded the international engagement of India in the international markets for goods and assets. The demand for foreign products, assets and services has also expanded subsequently resulting in increased openness and greater vulnerability to exchange rate movements. Not only the demand for international commodities but also the composition of the same has undergone dramatic changes since the economic reforms in India. While oil imports have continued to dominate the Indian import basket, there have been continuous changes in the composition of the non-oil imports of India, resulting in structural changes in the import markets of India. Inputs have become increasingly important components of the import basket resulting in larger impact of exchange rate changes on domestic prices via the imported inputs. Output growth in India has generally deviated from its potential level and this has resulted into substantial cyclical fluctuations giving rise to business cycles. The impact of exchange rate on domestic prices has varied under different phases of the business cycle in India. The broad trends in the aggregate employment have also produced significant implications for the nature of the pass-through process in India. The

changes in the nature of jobs due to emergence of technology-intensive industries, expansion of service sector employment, continued dominance of agricultural employment, protection to the critical sectors, and the redistribution of labour force between the formal and informal sectors, have in general contributed to increasing nominal rigidities in the post-reforms period, which in turn may explain the findings of incomplete pass-through in India. The role of nominal rigidities in inducing a less-than-proportionate response from domestic prices to exchange rate changes is well debated in the literature courtesy to Taylor (2000) who investigated the macroeconomic dynamics of the pass-through mechanism. The role of domestic inflation in the importing nation has also been located as a key determinant of the degree of pass-through in the literature. Higher and persistent inflation results in larger pass-through just as higher inflation volatility results into higher import-price and domestic price pass-through. Thus, inflation becomes endogenous to the ERPT process itself and the macroeconomic literature in India has given prime importance to the role of inflation in pass-through analysis. The WPI and CPI inflations in India have been displayed wide variations across different time periods while also converging for brief spans. Not only the rate of inflation but its variability itself has shifted over time and this has been located as a key reason for the dominance of producer currency and vehicle currency pricing in the Indian imports market. Pass-through has thus been found incomplete at least when looked at from the viewpoint of domestic prices. Not only the historical nature of inflation process but also the inflation expectations have shaped the ERPT mechanism in India. Larger number of studies have found evidence for backward-looking impact of inflation rather than forward-looking. In some studies, the results on the pass-through coefficients have not shown much different irrespective of whether inflation is account within the backwards or a forward looking approach.

Thus, the macroeconomic developments of the Indian economy have played a vital role in the ability of exchange rate movements to transmit variability and fundamental shifts into the domestic markets. An analysis Indian economy's evolution since the economic reforms, which marked a critical structural shift in the economic environment of the country, can help to contextualize the economic implications of the results that follow in later chapters. Moreover, ERPT is a component in the larger macroeconomic adjustments that the Indian economy has been undergoing through the thicks and thins of economic prosperity since the economic reforms. Whether it is the analysis of monetary policy's ability to achieve domestic goals of high growth with price stability or the fiscal concerns with balance of payments adjustments, the pass-through

impact of exchange rate changes on domestic prices including the trade prices has remained a matter of concern. It is in this sense that the analysis of ERPT should be conceptualized rather than being treated as a unilateral economic concern in itself.

The aim of this chapter is to examine the macroeconomic developments that have occurred in India since the initiation of reforms in 1991. This is undertaken with reference to both the real and monetary sectors of the economy and the ways in which each of the important element of the economy has evolved in the past. Such an analysis is expected to yield insights on the nature of economic progress experienced by India and the key drivers of the same. The movements in the aggregate output are the key matter of concern and it is necessary to pitch the real and monetary changes to the output variations. The primary objective of both fiscal and monetary policies in India has been to maintain a healthy rate of economic growth. All other dimensions of progress are expected to align with this key aim. Exchange rate movements are a critical element in this framework as the Indian economy has been integrating at multiple fronts into the international economic architecture. The necessity of economies to open up to the global economy has made it inevitable for domestic policies to accommodate exchange rate parameters into the policymaking analysis. While the increased flexibility in the determination of the rupee's value, the control over the impact of exchange rate variations on domestic outcomes has also weakened. While this has allowed an amicable solution to the 'impossible trinity', it has also complicated the nature of interactions between the Indian economy and the external sector. External shocks are now more likely to be transmitted into the local economic structure and the exchange rate channel is one important source in this regard.

Interconnections and feedbacks among output, inflation and employment are much more complicated when economies interact in dynamically changing international markets. Prices of assets, goods and money are the primary equilibrating forces that direct the international and intra-national flows of financial instruments, commodities and finance respectively. These prices, in absolute and relative senses, provide the necessary foundations for linking the agents in a complex network of intra-national and international economic relationships. Exchange rates being a critical component of the same can affect the international and domestic prices in unpredictable manners causing uncertainty about the final outcomes of economic activities. Variations in exchange rates can distort the outcome in the goods, assets and labour markets and are capable of putting excessive

stress on the monetary authorities. Hence, the behavior of exchange rates is a critical element in shaping the movements in key prices and thus can impact the signaling function of prices and possibly induce large scale shifts in the global capital, wealth and income distributions. The manner in which exchange rate can change various prices, particularly the domestic prices, is captured by the ERPT mechanism. Higher degree of pass-through complicates the domestic monetary and fiscal management as the independence of the policymakers under flexible exchange rate regimes comes at the cost of inviting excessive volatility and uncertainty into the trade flows as well into the domestic price structure. Moreover, exchange rate shocks in the balance of payments adjustment process can destabilize the fiscal efforts to stabilize and increase the output growth. On both the fiscal and monetary fronts, exchange rate changes can culminate into increased uncertainty and volatility of various international and domestic prices. Trade, producer, wholesale and consumer prices are all susceptible to these uncertainties and distortions. At the same time, favourable changes in exchange rates can also provide improvements in the performance of the economy. An exchange rate depreciation for example can boost exports while curtailing imports and can help in output expansion. However, if the pass-through to domestic prices is high, then the gains in trade competitiveness via exchange rate depreciation can be wiped out by higher domestic inflation, thereby not inducing the sizeable change in the international trade structure of an economy. An exchange rate appreciation on the other hand is expected to reduce domestic prices via the fall in import prices. However, such a pass-through can work against the monetary policy if attempts were being made to increase the inflation rate due to persistently low inflation or episodes of deflation. Advanced economies such as Japan have been victims of such possibilities. In the Indian case, however, reconciliation of the high and persistent inflation and continuous depreciation of the Indian rupee have snowballed the impact of exchange rates on the domestic macro management.

Inflation management in India has been extremely wary of the exchange rate depreciations and the volatility in the same. The early history of the Indian economy is dominated by the Keynesian ideas of fiscal dominance in enabling gains in output and employment (Goyal, 2014). Planned expenditures via the five-year plans were the primary tools through which the course of the Indian economy was laid down regularly and the fiscal and monetary policies were expected to align themselves with the same. In general, monetary policy was considered a supporting force to the fiscal engine in boosting the output and employment while controlling the inflation. The

management of inflation was considered as the primary task of the RBI and the attention was reserved to quantity-based policies such as credit allocation, reserve requirements, etc. while providing limited scope to price policies such as the key interest rates. In general, the economy was perceived as supply constrained and both the fiscal and monetary policies were directed in resolving these constraints. However, there has been a marked shift in the nature of monetary policy formulation since the 1991 reforms, wherein not only the credit channel but also the interest rate channel of monetary policy transmission was brought into the limelight. Such concerns were reflected as early as in 1985 when the Chakravarty committee noted that the long years of credit controls by the RBI had distorted the micro level credit structure and that the interest rate tools were utilized up to their optimum capacity. Both the Vaghul committee and the Narasimham committee stressed the importance of utilizing the monetary policy rate variations via open market operations to impact the domestic inflation and monetary management rather than the sole reliance of credit rationing through reserve requirements and credit controls. The role of monetary policy became more pronounced since the reforms as the shift from the Keynesian to the new Keynesian ideas was evident in the Indian context (Goyal, 2016). At the same time, the Indian economy emerged as an internationally active player and thus was exposed to host of external shocks whose impact would now be snowballed due to the gradual opening of the economy to foreign flows of capital, goods and funds. The frequent oil price shocks, the Asian crisis, geopolitical disorders due to changing power structures among the advanced economies, the financial crisis of 2007-08, overall slowdown in the world economy during the early 2010s and the corona pandemic, all translated into constant challenges for smooth management of money and inflation. The primary linking force between these shocks and the domestic macro outcomes has been the exchange rate and the pass-through effects that it can have on trade and domestic prices.

In an open economy framework, both the aggregate demand and the Phillips curve must account for exchange rate variations and particularly their impact on domestic savings, investments, output and inflation. Restructuring of the macroeconomic viewpoint by incorporating exchange rate behavior in the models of aggregate demand and supply is pivotal to a smoother integration of theory with the realities of an open economy. Maintenance of the macroeconomic equilibrium is at the heart of domestic macro management. Inability to account for the nexus between exchange rate and inflation could prove costly when both are in an unstable relationship, thereby introducing additional uncertainties for local economic agents. Inflation is a critical

component of the aggregate supply curve under the new Keynesian framework, which has increasingly dominated the monetary economic empirics since the reforms era in India. The introduction of exchange rate behavior into the aggregate supply curve relationship was established via the ERPT relationship. Monetary transmission mechanism was expected to account for the exchange rate channel of importing inflation which could distort the management of domestic sources of price rises. Structural models of pass-through took into account different manners in which exchange rate variations could be imported into the local prices via the trade price channel under assumptions of nominal rigidities, and the studies accounted for important features of the Indian economy such as downwards wage rigidity to derive aggregate supply curves that could then be utilized to study the dynamics of macroeconomic equilibrium across time. ERPT has thus become a key component of the open economy macroeconomic analysis of the Indian economy. Analysis of the macroeconomic stability and growth of India cannot proceed effectively without recognizing the ERPT analysis as a key component in the narrative. Thus, macroeconomic developments are a necessary background for the contextualization of the findings on pass-through relationships to be investigated in the later chapters. The next sections shall examine the broad-based growth story of India with special emphasis on the real and monetary sectors, while attempting to rationalize these major developments into a set of stylized facts that provide the necessary background to the empirical works to be conducted later.

3.2. Macroeconomic developments in India: A historical perspective

The evolution of the Indian economy has been a synthesis of theoretical ideologies and practical challenges. Post-economic reforms, the old economic structure collapsed and gave birth to a more market-oriented economy whose policymakers actively accounted for the price signals embodied in the numerous markets of the country. The relevance of what markets thought and what markets expected became a practical concern in policy formulation and prices across the tight regulations on the prices of goods, assets and money were reduced to suit the ambitions of a socialist market economy. The principles of socialism did not fade away though. Rather, a pro-active stance was adopted to continuously study the international and domestic markets and allow the markets to take their own course while correcting for abnormal imbalances. Propagation of external and domestic shocks were tightly grappled by aggressive fiscal and monetary interventions. Gradually, the Indian economy has shifted to a dynamic growth trajectory with continuous fine tuning by

interventions. The fiscal space has rather expanded since the reforms and the Government has moved into sectors that are critical for economic development while leaving other industries for private capital. The fine balance between public and private capitals in a continuously expanding economy with frequent interventions as and when warranted defines the essence of India's growth story since the reforms period. The following sections build the key components of the growth story in India since 1991-92 and thereafter derive the major developments which can summarize the Indian macroeconomic history.

3.2.1. Macroeconomic Developments during 1991-92 to 1995-96

Consistent and smooth expansion of aggregate output is a necessary element to achieve the desired macroeconomic objectives by an economy. For an emerging economy like India, the challenge is not only to achieve a higher rate of economic growth, but also sustain it for longer periods of time to bring positive structural changes in the economy. The path that aggregate output growth assumes across time plays a pivotal role in the development trajectory that a country can achieve the speed with which it can converge to the advanced economies. Naturally, given the large underutilized capacity in an emerging economy, the growth rates are expected to be high and sustained across longer periods to establish solid economic foundations that are expected from a successful economy. Growth dynamics are a critical element in the efforts of a developing nation to emerge as a stronger, resilient and economically sound economy. The nature of growth path assumed by India can provide important insights into how the country has travelled through the thick and thin of economic changes that have always been floating at its bay.

India's growth story post-reforms began with the payments crisis of June 1991. The gulf war, oil price shocks, sudden increase in imports demand at home, excessive borrowings from the International Monetary Fund (IMF), abruptly increased capital outflows, and aggressive imports compression strategy led to the build-up to the payments crisis. The initial belief that the trade deficit was the root cause of problem was quickly overturned by the persistence of the crisis despite a fall in trade deficit in by the end of 1991-92. The new Government that assumed office began unleashing a series of reforms, collectively known as the stabilization programme. Drastic decisions were taken on the fiscal front by massive reductions in the budget and fiscal deficits. On the trade front, exchange rate was devalued considerably to better reflect its current value and promote exports. Micro level changes were brought by reducing the licensing requirements for

essential and capital imports. Access to the export-oriented imports was improved and several changes were brought to improve the exports to imports ratio while promoting better growth prospects. At the industrial policy level, the new industrial policy of July 1991 was introduced. Licensing for all but the strategic and ecologically sensitive sectors was abolished with subsequent changes in competition policy by allowing larger space to private capital for directing industrial production. Various micro level changes were also introduced such as reduction of 'paper bureaucracy' in licensing process, permission to raise larger capital through equity route for small and medium industries, automatic approval for technology imports and a whole slew of measures were undertaken to improve the industrial business environment of India. Similarly, larger scope was provided to private sector to participate in the growth process by allowing new licenses and permissions to private businesses to compete with public sector companies. Disinvestments were undertake, though moderately, to raise additional capital and increase private participation. In essence, the new Government was engaged aggressively in reducing the macroeconomic imbalances due to balance of payments deficits and adopted a multi-pronged strategy of exchange rate, industrial policy, trade policy and fiscal reforms simultaneously.

Accordingly, the first period takes into the account the initial phase of reforms and accounts for the important changes brought into economic system by the Government on trade, industrial, fiscal and other fronts.

Table 3.1: Macroeconomic progress during of the Indian economy during 1991-92 to 1995-95

Savings, investments and economic growth						
Statistic	**GDSGDP**	**GCFGDP**	**GDP(g)**	**GDS(g)**	**GCF(g)**	
Mean	22.3	25.7	16.16	19.25	21.65	
SD	1.19	2.38	1.33	5.43	18.09	
CV	5.34	9.27	8.24	28.19	83.59	
Skewness	0.47	-0.36	-0.01	1.77	-1.67	
Kurtosis	-3.16	0.11	-5.94	3.29	2.98	
Inflation and monetary management						
Statistic	**WPI(g)**	**CPI(g)**	**M3**	**IVELM1**	**IVELM3**	**MONM3**
Mean	9.75	9.34	18.54	5.87	2.08	3.17
SD	2.1	1.26	3.79	0.33	0.07	0.08
CV	21.56	13.47	20.43	5.63	3.3	2.59
Skewness	1.08	-1.74	0.14	-0.54	-1.17	1.1
Kurtosis	0.03	3.02	NA	1.64	0.32	0.03

Table 3.1 ***(continued)***

Occupational structure of Indian economy						
Statistic	**EMA(g)**	**GVA(g)**	**EMM(g)**	**GVM(g)**	**EMS(g)**	**GVS(g)**
Mean	1.23	3.61	1.98	7.54	3.79	6.88
SD	1.13	2.56	0.18	4.34	0.39	1.67
CV	91.46	71.03	9.23	57.52	10.17	24.34
Skewness	-0.19	-0.92	-0.13	-0.35	-0.08	0.22
Kurtosis	-4.9	-0.7	-2.53	0.48	-5.04	-3.1

Fiscal management			
Statistic	**GFDGDP**	**GPDGDP**	**GRDGDP**
Mean	6.94	2.15	3.41
SD	0.61	0.61	0.43
CV	8.72	28.21	12.65
Skewness	1.53	1.23	1.28
Kurtosis	3.26	2.16	1.00

Foreign trade, international prices and balance of payments							
Statistic	**IM(g)**	**EX(g)**	**MUV(g)**	**EUV(g)**	**TRDB(g)**	**CURB(g)**	**CAPB(g)**
Mean	26.81	24.75	3.32	7.19	74.14	169.11	32.42
SD	9.45	5.44	4.97	7.53	86.5	228.44	87.3
CV	35.27	21.97	149.88	104.62	116.67	135.09	269.27
Skewness	-0.4	-0.28	0.03	-0.55	-0.2	0.73	1.36
Kurtosis	-2.34	-3.94	-5.75	-2.53	-2.82	0.84	2.13

Forex management and exchange rates						
Statistic	**FCA(g)**	**TOTFRX (g)**	**FORGDP**	**USDRS(g)**	**NEER(g)**	**REER(g)**
Mean	50.27	37.68	6.11	8.55	-5.57	-0.32
SD	61.14	43	1.56	11.43	8.98	4.25
CV	121.63	114.12	25.6	133.7	-161.3	-1310.36
Skewness	1.07	0.97	-1.05	1.69	-0.7	-0.55
Kurtosis	2.14	2	1.27	2.88	-0.33	1.66

Notes: SD is standard deviation; CV is Coefficient of Variation expressed in percentages; Data are in percentage form; Data are in current prices. **Source**: Author's estimation.

This period should be judged in terms of the severe payments crisis faced by the country and the drastic reforms undertaken in an extremely challenging environment. The performance of

the economy during this period is a reflection of the lagged effects brought by the reforms. This period saw a nominal growth rate in GDP of 16.16% which was accompanied with high growth rate of aggregate savings and capital formation. Both the savings and capital formation are the foundations for achieving high growth. With 19.25% growth in savings and 21.65% growth in capital formation, the necessary base for future expansions were laid down in this period. The nature of growth in output, savings and investments can also be ascertained in terms of the skewness and kurtosis as shown in Table 3.1. GDP(g) has shown a fairly symmetric behavior during the period of 1991-92 to 1995-96 with skewness very much nearer to zero. It seems that the growth rates have been broadly around the mean with not much deviations from the average value. Similarly, excess kurtosis estimates of the same also indicates a broadly stable growth around the mean with most years displaying the growth rates around the mean. Conversely, the growth in savings, GDS(g), and capital formation, GCF(g), show a starkly different picture. Savings have rather been affected by a few years with considerably high growth while capital formation has seen a few instances of considerably smaller growth. It seems that savings have generally been lower than the average with a few instances of very high growth and the picture for investments is the opposite of the same. This savings-investment imbalance was a serious concern during this period, and it continued its presence during the entire period.

After June 1991, the short-term and structural policy changes required a stronger capital base and larger production capacities to achieve the desired long term objectives of self-reliance and strong macro fundamentals. The savings and investments as proportion of GDP were at a healthy level of 22.3% and 25.7% respectively which seems to be mainly an outcome of the industrialization efforts undertaken in the 1980s. Inflation on the other hand was high and persistent during the period as evident from the mean values of WPI(g) and CPI(g). While inflation was stable as seen from the low standard deviation and CV, its average level was still high but had progressed downwards from the double digit levels of the late 1980s. The nature of inflation is different at the wholesale and consumer price levels. While WPI(g) seems to have experienced a few years of very high growth, CPI(g) has rather experienced the opposite of the same as evident from the skewness values of these variables. The excess kurtosis for CPI(g) is rather high indicating larger instances of deviations from the average inflation level and possibly higher price uncertainties at the retail level. Probably, monetary policy interventions were able to handle the wholesale inflation much better compared to consumer prices. It may also seem, though in a

speculative sense, that the monetary transmission to WPI was better than for CPI during this period, given the larger kurtosis of the CPI. Furthermore, consumer prices are generally expected to be more unstable and volatile than wholesale prices due to inherently larger demand fluctuations at the retail levels and price distortions by middlemen who may induce unexpected variations in the prices to meet their desired objectives.

Excess demand was one probable source of the high average levels of WPI(g) and CPI(g) as noted in the 1991-92 economic survey. However, one could not rule out other possible pull and push factors at play. Given the dominance of agricultural activities in aggregate production and employment, the inflationary momentum was driven by the same with manufacturing activities being the second strongest carriers of inflation. The build-up of excess demand is probably reflected in the high values of fiscal and revenue deficits as proportion of GDP, GFDGDP and GRDGDP, at 6.94% and 3.91% respectively. The Government was expected to help bridge the gaps in the developmental needs of the nation in view of the severe payments crisis, oil price shocks and a weak private sector. Compared to the fiscal deficit, the primary deficit as proportion of GDP (GPDGDP) was, however, quite lower at 2.15%, signifying the immense interest burden on the economy in light of large-scale borrowings from the IMF and World Bank during the period. The stress and challenges for fiscal management are evident from the values of skewness and excess kurtosis as shown in Table 3.1. Skewness for the fiscal variables has been high and positive indicating large outliers in the time period. It seems that the Government was forced to increase the deficits excessively during this period which can be rationalized in context of the payments crisis and the need to boost aggregate demand during this period. Excess kurtosis is also high indicating considerable deviations from the normal fiscal behavior with the Government frequently running larger-than-average deficits during the period. Such a behavior is consistent with the uncertainties, shocks and the broader economic restructuring being experienced by India during these years. Given that this period saw continuous reforms on different economic fronts, running high deficits was a necessity rather than a choice. However, as compared to the periods later, the fiscal stress was kept relatively lower, as will be evident in later discussions.

Monetary management was expansionary with the average growth of 18.54% as seen for broad money growth (M3) and the RBI seemed to be frequently adjusting the supply of money given the high coefficient of variation for the variable at 20.43%. One possible cause of this could

have been the continuous funding of the Government's fiscal deficit by the RBI. The discontinuation of the ad-hoc treasury bills that linked reserve money growth with fiscal deficit was undertaken only in 1994-95 and its actual execution occurred in 1995-96. Hence, the nexus between fiscal deficit and money growth continued throughout this period and could be a major reason for higher growth of both narrow and broad moneys. Additionally, as compared to other periods, the variability of money supply in one of the highest. Monetary expansion was undertaken possibly to lower the interest rates and promote domestic investment activity. Other developments on the monetary front show considerably stable monetary management given the limited variability in income velocity of money and the money multiplier. Largely, the inflation rate continued to be remain tightly anchored to the growth in money supply in this period.

Turning to the real sector, employment trends and the structural shifts in occupational structure of India began unfolding during this period. While in absolute sense, agriculture continued to contribute the highest share in employment and production, the growth dynamics point out a contrasting picture. The manufacturing sector performed the best during this period with the average growth in manufacturing employment, EMA(g), being 1.98% while the growth in its output, GVM(g), being 7.54%. Services followed later while agriculture performed the worst. This was expected as rainfall variations were high during this period and the reforms were yet to be enlarged to include the agriculture sector. The strength of the manufacturing sector could be located in continuous industrial policy changes brought during this period under the ambit of the New Industrial Policy of 1991. Moreover, industrial sector was prioritized due to the focus on physical capital formation during this period for expanding production capacity of the country in meeting the domestic demand pressures. However, agriculture production recovered by the end of this period with both manufacturing and services showing robust growth. Agricultural employment growth showed the highest variations with CV being 91.46% which was unprecedented. Variability of the growth of agricultural employment could be traced to the variations of agricultural output, which is signified by GVA(g) with the CV of 71.03%, the highest among all three sectors. This trend could also be ascribed to urbanization that induced oscillations of workforce between rural and urban regions, though it is more of a speculation at this stage rather than a fact. Employment growth was the highest for services industry as shown by the mean value of EMS(g) at 3.79%. India was already undergoing the structural shift towards service industries, particularly driven by the emerging financial services and IT sectors. One would also take note of

the broadly symmetrical growth of employment and output in the agriculture, manufacturing and services industries during this period. Excess kurtosis is mostly negative indicating smaller instances of large deviations from the average, though the normally expected variability in the growth pattern is visible as seen in the values of CV for the employment variables.

Looking at the performance indicators of the external sector, attention is drawn to the trade price inflation visible in the average values of MUV(g), which shows the import price inflation, and EUV(g), which proxies the export price inflation. Both are measured by the unit value index rather than the price index due to data unavailability. Export price inflation was fairly higher than import price inflation with its mean value being 7.19% as compared to import price inflation which was almost half of it at 3.32%. However, in value terms, imports grew at a larger mean rate than exports. In terms of the growth path, trade price inflation has shown larger variability as seen from the CV of MUV(g) and EUV(g) compared to IM(g) and EX(g). The expansion of imports was probably driven by the reductions in import restrictions brought during this period, particularly for capital goods imports, while the overall push to exports through administrative and economic improvements could be seen as materializing in these years. The high variability of trade price inflation may be looked in consonance with the high volatility in exchange rates. The coefficient of variation for USDRS(g), NEER(g) and REER(g) were very high in this period. It seems that trade price inflation has reacted sharply to exchange rate devaluations during this period while the values of trade flows have remained much more stable. On the balance of payments front, the deficits have expanded sizeably with current account deficit being the highest and partially compensated by the expanding capital account surplus. India was undergoing critical changes in the external sector management during this period. The large-scale borrowings made from the international agencies, constant devaluation of the rupee due to introduction of the Liberalized Exchange Rate Management System (LERMS), and robust domestic demand for imported capital and intermediate inputs, seem to be the primary causes of this.

These challenges are also reflected in the foreign exchange management during the period. Total forex reserves as proportion of GDP had ballooned to 6.11% and grew at an impressive rate of 37.68% during this period. This expansion was primarily driven by the expansion of foreign currency assets holding of the RBI as seen in Table 3.1 in the mean value of FCA(g) at 50.27%. At the same time, Indian rupee was depreciating against the US dollars and other major currencies

too, as seen in the mean values of USDRS(g) and NEER(g). The weakening of the rupee against major currencies was a necessary evil to improve the trade deficit and while the deficit expanded during this period, the growth was possibly lower than what would have been if devaluations were not undertaken. The momentum of growth in forex reserves was high and the skewness and kurtosis estimates suggest there were abnormally high episodes of growth during this period. The pictures presented by the bilateral and the effective exchange rate variations also show some important differences. While both show devaluation of the rupee, the bilateral rate is considerably asymmetric in its growth pattern with higher excess kurtosis and positive skewness, pointing towards episodes of abnormally higher-than-average devaluations during the period.

In summary, this period was characterized by high growth, inflation that was lowered than the pre-crisis levels but which was still on the higher scale, aggressive fiscal expansion, structural reforms on the industrial and trade front, expansionary monetary policy, episodes of large devaluations of the rupee, and a widening trade deficit. However, the growth momentum was maintained with stable employment growth in manufacturing and services and high variability in agricultural output and employment. Critical policy changes during this period included the establishment of the SEBI, setting up of the Board for Financial Supervision, income tax and indirect tax reforms, setting up of the National Stock Exchange (NSE) and digitalization of the Bombay Stock Exchange (BSE) automatic approvals for foreign direct investments in selected industries, introduction of the LERM system of exchange rate management, and the enactment of the New Industrial Policy along with a host of micro level reforms. These reforms laid the basis for higher growth, larger tax buoyancy, better fiscal management, larger exports-to-imports ratio, decelerating inflation and improvements in the Balance of Payments situation in the next period.

3.2.2. Macroeconomic Developments during 1996-97 to 2000-01

The growth momentum achieved in the previous period despite the severe payments crises continued to build up on account of the stabilization and structural reforms enacted during the previous years. However, the progress in the period 1996-97 to 2000-01 was stalled by the East Asian Crisis and the overall slowdown in world trade followed by economic contractions in Russia, devaluation of the Brazilian currency and a host of other external macro factors. This period saw the Indian Government on a war footing similar to the previous period. External shocks were prominent and had deep impact on the structure of production and growth dynamics.

The first observation that attracts attention is the fall in GDP growth rate from 16.16% in the previous period to 12.2 in the current period while displaying larger variability as indicated by the higher CV at 26.36%. Growth path was vulnerable to various external shocks and the slowdown driven by agriculture and manufacturing sectors. The skewness and kurtosis measures still point to a broadly homogenous growth experience across the years within this period with a downward trend. Savings and investment as proportion of GDP fell down by almost half than their values in the previous period with larger variability and possibly more upheavals in the savings-investment balance required for a healthy and stable growth. The variability of capital formation with CV being 196.62% is particularly worrisome. Such fluctuations in capital formation may be indicative of uncertain business environment.

On the monetary front, while the money supply continued its growth momentum as in the previous period, inflation fell down considerably but the variability increased compare to the previous period. There was a slight reduction in money growth (M3) and possibly this was one factor in the reduction of inflation rate. However, it seems that the larger economic slowdown captured by the lower mean value of GDP(g) is the root cause of the deceleration of inflation. The income velocity measures continued their levels and not much seems to have changed on that front. On the employment and production fronts, agricultural growth has shown the highest variability given the CV for EMA(g) being 198.97% and for GVA(g) being 116.09%. Agricultural instability is a serious concern for growth dynamics and the high rainfall dependency along with the larger economic slowdown may have contributed to this. Services continued to pull the aggregate growth path in positive direction with more stable and more symmetrical growth trajectory as compared to agriculture and manufacturing.

On the fiscal front, fiscal deficit and revenue deficit have increased as proportion of GDP compared with the previous period. Despite ambitious budgetary targets to reduce the deficits, economic slowdown driven by fall in the domestic and external demand, as well as the east Asian crisis have not allowed the reduction of fiscal stress. Rather, fiscal deficit and revenue deficit increased from 6.94% and 3.41% of GDP to 8.04% and 5.19% of GDP respectively. Primary deficit, however, remained at largely the same level, and this implies that non-interest burden on the Central and State Governments has increased. One possible source may be the sudden increase in non-planned expenditures which continued to be a major concern across this period. Fiscal

management was also challenged by more variability in the deficit indicators in this period compared to the previous one. It seems that the Governments were actively engaged in smoothening the growth path of the economy in light of the various external shocks.

Interestingly, the slowdown experienced by the economy during this period was also countered by a host of reforms on the trade, fiscal industrial and financial fronts. On the trade front, delicensing and deregulation of a large number of commodities was undertaken to enable freer trade while rationalizing the customs and tariffs on both consumer and capital imports. During this period, the import intensity of domestic production was high and reliance on imported capital, intermediate and raw material goods was strongly prevalent. Abruption of these imports would have added further fuel to the already slowing economy in the light of the external shocks.

Table 3.2: Macroeconomic Developments during 1996-97 to 2000-01

Savings, Investments and Economic Growth						
Statistic	**GDSGDP**	**GCFGDP**	**GDP(g)**	**GDS(g)**	**GCF(g)**	
Mean	24.02	25.56	12.2	13.26	11.04	
SD	1.29	2.96	3.21	8.80	21.71	
CV	5.36	11.59	26.36	66.36	196.62	
Skewness	0.35	1.3	-0.5	-0.03	0.23	
Kurtosis	0.41	2.78	-0.64	-0.64	-2.01	
Inflation and Monetary Management						
Statistic	**WPIAC**	**CPI-IW**	**M3(g)**	**IVELM1**	**IVELM3**	**MONM3**
Mean	5.08	7.30	16.35	5.85	1.93	3.60
SD	1.50	4.06	2.40	0.08	0.11	0.35
CV	29.6	55.53	14.69	1.41	5.87	9.67
Skewness	0.41	0.61	0.20	-1.49	0.08	-0.61
Kurtosis	-0.59	-0.82	-1.73	2.27	-2.74	0.57
Occupational Structure of Indian economy						
Statistic	**EMA(g)**	**GVA(g)**	**EMM(g)**	**GVM(g)**	**EMS(g)**	**GVS(g)**
Mean	0.24	3.34	2.84	5.18	3.61	7.51
SD	0.48	3.88	0.93	3.1	0.12	1.66
CV	198.97	116.09	32.96	59.91	3.23	22.16
Skewness	2.23	0.39	2.16	-0.29	0.62	-0.52
Kurtosis	4.99	-1.53	4.74	0.88	-1.14	-0.61

Table 3.2 *(continued)*							
Fiscal Management							
Statistic	**GFDGDP**	**GPDGDP**	**GRDGDP**				
Mean	8.04	2.79	5.19				
SD	1.37	1.1	1.37				
CV	17.05	39.34	26.33				
Skewness	-0.77	-0.92	-0.66				
Kurtosis	-1.92	-1.41	-2.73				
Foreign Trade, International Prices and Balance of Payments							
Statistic	**IM(g)**	**EX(g)**	**MUV(g)**	**EUV(g)**	**TRDB(g)**	**CURB(g)**	**CAPB(g)**
Mean	13.57	14.08	-1.59	4.35	11.37	-6.07	32.92
SD	5.04	7.96	18.32	7.89	28.23	29.93	74.02
CV	37.16	56.52	-1150.68	181.33	248.35	-493.4	224.86
Skewness	0.33	1.7	-1.73	0.9	-0.32	0.1	1.82
Kurtosis	0.16	3.13	3.37	2.24	-1.55	-2.03	3.26
Forex management and Exchange Rates							
Statistic	**FCA(g)**	**TOTFRX(g)**	**FORGDP**	**USDRS(g)**	**NEER(g)**	**REER(g)**	
Mean	25.99	21.57	7.79	6.49	0.16	0.45	
SD	6.95	3.62	0.89	3.93	2.85	5.4	
CV	26.75	16.77	11.44	60.53	1793.6	1211.19	
Skewness	1.56	1.61	0.38	1.74	-0.41	-1.25	
Kurtosis	2.07	2.49	0.1	3.49	-2.77	0.49	

Notes: SD is standard deviation; CV is Coefficient of Variation expressed in percentages; Data are in percentage form; Data are in current prices. **Source**: Author's estimation.

The stabilization of imports and limited interference in key imports industry may possibly explain the low excess kurtosis and lower skewness in growth of imports as shown by IM(g) in Table 3.2. It seems that imports growth was tightly anchored to the mean growth rate of 13.57% during this period by deregulations and constant improvements in the licensing process that probably made allowed the smother growth of imports. While being stable, the import growth substantially collapsed in this period compared to the previous one as did the growth of exports. Trade felt down by almost half from its mean levels in the earlier period, indicating the challenging international environment facing the Indian economy. The Asian financial crisis, economic

slowdown of important trading partners and the overall deceleration in world trade may have been the primary drivers of the sizeable collapse in India's international trade.

The developments in the foreign exchange management and subsequent outcomes are also noteworthy. While the forex reserves expanded as proportion of GDP, this was mainly due to the economic slowdown rather than an expansion of foreign exchange reserves. This is evident in the substantial fall of forex reserve growth, FCA(g), with its mean value falling from 50.27% to 25.99%, and interestingly the variability also fell down from a CV of 121.63% to 26.75%. The reserves seemed to have taken a downward trend and moved consistently to the lower level. The downfall in reserves could also be linked to the fall in the value of Indian rupee against the dollar. Substantial reforms were made in the exchange rate management policy with the introduction of the LERMS, FEMA, and the attempts to improve current account convertibility of the rupee. Inevitably, the exposure of Indian currency to external vagaries increased and the world trade slowdown, deceleration of India's trade growth and the economic slowdown may have caused the depreciation observed in this period. Moreover, the expansionary monetary policies induced fall in the interest rates and these could have caused further fall in the value of rupee due to capital flight on account of lowering interest rates. While the bilateral exchange rate depreciated, there were slight gains in terms of the growth in NEER and REER. Both showed slight appreciation as their growth rates were positive and opposite of the experience in the earlier period. The instability in the movement of Indian rupee against the major currencies can be seen in the excessively high CV for both the NEER(g) and REER(g). The slight appreciation in the effective rates were negated by their high variability. Despite high variability, the occurrence of extreme fluctuations appear to have been very limited as can be ascertained from the value of excess kurtosis for both the effective index variables. The volatility inherent in the movements in effective rates can also be located in the negative skewness measure that possibly indicates the higher frequency of larger changes rather than smaller ones. The overall scenario, however, indicates that the Indian currency did not perform quite well during this period and the slight gains via the small appreciation of effective rates were driven out by high variability of the same and the fall in forex growth.

There was some respite on the Balance of Payments front with the current account having fallen down by 6.07% across this period on the average. While the current account deficit ballooned by 169.11% during the previous period, the reversal of this trend was a positive outcome

possibly brought by the trade reforms such as increased flexibility in exchange rates, and improved current account and capital account convertibility. The gain was however minor and the high variability in current account adjustments as seen by the CV of 493.4% should be weighed against the fall in the deficit. The slower expansion of trade balance deficit as seen in the fall in mean value of TRDB(g) from 74.14% to 11.37% was also an important gain but the increased variability in the same probably weighs down some of this gain.

In summary, this period was a concomitant of the series of external shocks faced by India and the constant need for stabilization of the economy to continue reaping the benefits of the reforms initiated in the former period. Economic growth felt down and was followed by deceleration of inflation at both the wholesale and consumer price levels, a fall in forex reserve growth, depreciation of the rupee against the dollar and an overall fall in economic activity. The period was, however, also characterized by a series of reforms, some of which laid the foundations for the economic improvements experienced in the subsequent periods. The establishment of the IRDAI, reforms in the capital markets such as inclusion of derivative contracts in the definition of 'securities', removal of quantitative restrictions on import of more than 800 items, improvements in prudential norms for banking sector, increased thrust on the knowledge industry that included the IT sector, enactment of the Fiscal Responsibility and Budget Management Bill, 2000 and greater autonomy to NABARD were some of the major reforms that reshaped the trajectory of India's growth experience for several years to come and were laid down in this period.

3.2.3. Macroeconomic developments during 2001-02 to 2005-06

The third sub-period began with the dreaded growth path laid by the previous period. While there were a host of reforms that were expected to provide a strong base for future growth spurts, the September 2001 attacks on the US, the continuation of the world economic slowdown and the severe collapse in agriculture growth in 2001-02 as compared to the previous year created macroeconomic imbalances that created fresh challenges to be overcome in this period.

The growth path of the economy was characterized by a slowdown in the GDP growth rate as shown by the mean value of GDP(g) in Table 3.3 which fell to 11.18% with a higher variability in terms of the CV being 27.58% which was higher than in the previous two periods. The growth path, however, seems to have moved similarly across the mean growth during this period as shown by the low skewness and broadly symmetrical excess kurtosis of GDP(g). The growth of aggregate

savings and investments bounced back to the levels seen in the first period as per Table 3.1, and it seems that the reforms undertaken in the second sub-period were reaping slow but fundamentally critical benefits by reducing the savings-investment imbalance. Savings and physical investments as proportion of GDP continued to rise as seen in the mean values of GDSGDP and GCFGDP in Table 3.3. This increase could not be solely attributed to the fall in the GDP as both GDS(g) and GCF(g) recorded an increase as seen in their mean values of 19.48% and 20.11% respectively.

The economic slowdown is also visible in the fall in the inflation rates at both the wholesale and consumer price levels. There seem to have been episodic bursts of inflation momentum as expressed in the values of excess kurtosis for WPI(g) and CPI(g). However, on-the-average, the inflation experience was low in most of the years within this sub-period. Growth of money supply as captured by M3 had also fallen compared to the previous period as can be ascertained by comparing the mean values of this variable in Tables 2 and 3. Interestingly, the other important indicators of monetary management such as income velocity measures and money multiplier, i.e. IVELM1, IVELM3 and MONM3 continued to maintain their pace. There were a host of reforms on the banking and financial fronts in India during the previous and this period. Improvements in the prudential norms, capital adequacy norms, reforms in priority sector lending to promote financial inclusion and the improvements in the performance of public sector banks, seem to have contributed in maintaining the income velocity and money multiplier measures at their earlier pace. With low skewness and negative excess kurtosis, it appears that these measures grew in a fairly symmetrical manner during the period with no abnormal behavior. The tight anchoring of the income velocity and money multiplier to their mean values may be attributed to prudent monetary management and the series of the banking reforms undertaken during this period. Interestingly, income velocity declined consistently from 2.08 in the first sub-period to 1.51 in this period as can be seen in the mean values of IVELM3, possibly indicating increasing monetization of the Indian economy with a larger shift towards M3 as the preferred medium of transitions rather than barter (Government of India, 2004).

The growth dynamics can be better appreciated if the performance of the economy is seen at the sectoral levels. The third period is characterized by dominance of manufacturing and service sectors in the growth momentum. The growth of employment in agricultural sector was very weak as seen in the mean value of EVA(g) while manufacturing and services occupied a large space in

the expanding labour market in India. Manufacturing sector provided the largest share in the growth of employment opportunities while also driving the aggregate growth momentum. The series of reforms for promoting the industrial sector in the previous two periods helped achieve the impressive strides achieved by the manufacturing sector in this period. However, the growth path of services sector was much more stable than the other sectors as seen in the value of CV for GVS(g) which was 15.71% and the lowest amongst all three sectors. Agriculture sector continued to display excessive volatility on both the growth and employment expansion fronts with the CV value for both EVA(g) and GVA(g) being extremely high compared to other sectors. Further credence is added to this observation with a high and positive excess kurtosis of EMA(g) though the growth of value added remained fairly symmetrical with limited abnormal years during the period as seen in the excess kurtosis estimate of GVA(g). The behavior of employment growth for all the sectors was characterized by frequent years of abnormally high growth as seen in their high and positive excess kurtosis. Such growth was accompanied by variability in the growth of agricultural employment as compared to other sectors.

The most essential development in this period was the structural shift in the composition of India's aggregate GDP with the service sector taking over agriculture sector as the main contributor.

Table 3.3: Macroeconomic developments during 2001-02 to 2005-06

	Savings, Investments and Economic Growth					
Statistic	**GDSGDP**	**GCFGDP**	**GDP(g)**	**GDS(g)**	**GCF(g)**	
Mean	29.96	32.15	11.18	19.48	20.11	
SD	4.25	3.32	3.08	9.49	8.55	
CV	14.19	10.32	27.58	48.73	42.52	
Skewness	0.24	0.83	-0.34	1.12	-0.32	
Kurtosis	-2.96	-1.75	-2.99	0.29	-1.63	
	Inflation and Monetary Management					
Statistic	**WPIAC**	**CPI-IW**	**M3(g)**	**IVELM1**	**IVELM3**	**MONM3**
Mean	4.68	4.06	14.86	5.31	1.51	4.52
SD	1.29	0.21	2.02	0.36	0.1	0.13
CV	27.6	5.12	13.62	6.76	6.6	2.98
Skewness	0.57	-1.01	-0.52	-0.04	0.81	-0.76
Kurtosis	-1.34	1.11	-0.72	-2.41	-0.96	-1.28

Table 3.3 *(continued)*							
	Occupational Structure of Indian economy						
Statistic	**EMA(g)**	**GVA(g)**	**EMM(g)**	**GVM(g)**	**EMS(g)**	**GVS(g)**	
Mean	0.94	3.08	4.8	7.58	3.58	7.5	
SD	1.2	4.8	0.58	3.05	0.48	1.18	
CV	127.34	155.89	12.11	40.18	13.55	15.71	
Skewness	-2.23	-1.08	-1.67	-1.14	-1.54	0.41	
Kurtosis	5	0.9	3.07	1.03	2.67	-1.52	
	Fiscal Management						
Statistic	**GFDGDP**	**GPDGDP**	**GRDGDP**				
Mean	8.17	2.17	5.01				
SD	1.32	1.1	1.8				
CV	16.17	50.85	36				
Skewness	-0.23	0.29	-0.5				
Kurtosis	-2.04	-2.1	-2.41				
	Foreign Trade, International Prices and Balance of Payments						
Statistic	**IM(g)**	**EX(g)**	**MUV(g)**	**EUV(g)**	**TRDB(g)**	**CURB(g)**	**CAPB(g)**
Mean	23.91	17.85	10.62	6.49	40.86	18.79	26.34
SD	12.61	9.65	7.28	5.37	59.76	198.32	32.56
CV	52.75	54.03	68.57	82.72	146.25	1055.45	123.62
Skewness	-0.27	-1.10	-0.27	1.04	1.49	-0.28	-0.21
Kurtosis	-0.01	1.24	-2.63	1.19	2.10	-1.22	-2.29
	Forex management and Exchange Rates						
Statistic	**FCA(g)**	**TOTFRX(g)**	**FORGDP**	**USDRS(g)**	**NEER(g)**	**REER(g)**	
Mean	29	28.39	16.02	-0.57	-0.61	0.49	
SD	11.79	11.46	3.26	3.62	1.98	1.89	
CV	40.65	40.36	20.35	-631.81	-323.61	388.8	
Skewness	-1.7	-1.62	-0.89	0.32	0.57	-1.47	
Kurtosis	2.64	2.37	-0.62	-0.46	-0.53	2.87	

Notes: SD is standard deviation; CV is Coefficient of Variation expressed in percentages; Data are in percentage form; Data are in current prices. **Source**: Author's estimation.

On the fiscal front, important changes were experienced by the Indian economy in this period. The FRBM act was enacted, New Pension Scheme was launched and considerable fiscal consolidation was attempted by the Central and State Governments to reduce the fiscal burden and

contract fiscal and other deficits. However, fiscal burden in terms of mean value of GFDGDP remained high at 8.17% of GDP and it increased slightly compared to the previous period. Despite a host of reforms and particularly the strict enactment of fiscal deficit reduction targets via the FRBM act, the persistence of high deficit was a challenge that required aggressive corrections in fiscal management policies. This perseverance can also be located in the negative excess kurtosis of GFDGDP, GPDGDF and GRDGDP as per Table 3.3. The doggedness of the high deficit could be seen as a response to the macroeconomic imbalances generated by successive external and domestic disturbances in the current and particularly the previous period. Moreover, the government was actively pushing infrastructural development with massive funding to various projects and refinancing to public sector banks that were actively engaged in funding such projects. The major source of the burgeoning fiscal deficit, however, seems to be the interest burden on the Government as can be seen from the difference in mean values of GFDGDP and GPDGDP in Table 3.3.

In the international arena, India's performance was characterized by an expanding trade and current account deficit with impressive increase in the forex reserves as proportion of GDP as seen in the mean values of TRDB(g), CURB(g) and FORGDP in Table 3.3 vis-à-vis Tables 3.1 and 3.2. At the same time, the Rupee climbed northwards in value against the US dollar as seen in the negative mean value of USDRS(g) though it depreciated against the basket of major currencies as seen in the mean value of NEER(g) in Table 3.3. There was extreme volatility in the exchange rates as seen in the CV of both the variables and it seems that most of the years saw sizeable but similarly paced fluctuations around the mean as can be ascertained from the negative value of excess kurtosis for both the exchange rate variables. The expansion of the current account balance put an end to the surplus era of the early 2000s as seen in the previous period. This was driven by rapidly expanding imports which stood at the mean growth of 23.91% while exports increased slightly from their mean value in previous period. These observations can be located in the information on IM(g) and EX(g) variables in Table 3.3. Trade and particularly the current account balances experienced wild variability as seen in the CV values of TRDB(g) and CURB(g). This was a reflection of the highly volatile external environment driven by macroeconomic imbalances in the US on account of the war in Iraq, resultant upwards shocks to oil prices, increasing global inflation momentum and the excessive volatility of India's exchange rate against major currencies. In terms of trade price inflation, import prices grew costlier by a much larger margin than export

prices as seen in the mean values of MUV(g) and EUV(g) in Table 3.3. Import price inflation could also have been another major reason for the expanding current account deficit in India during this period. The sudden rise of import price inflation from a deflationary behavior of the previous period was an important contributor to the enlarging BoP imbalances. The jump from the mean import price inflation rate of -1.59% to 10.62% was bound to further deepen the balance of payments imbalances.

Summarizing this period, it can be concluded that there was considerable growth consolidation via improvements in the international trade, increased competitiveness of the rupee as seen in the growth of REER, stabilization of the inflation, maintenance of a heathy growth rate despite a series of external and domestic disturbances, and a broad-based growth trajectory for manufacturing and service sectors. However, the fiscal stress on the Central and State Governments was pressed further and the balance of payments adjustment was distorted due to various challenges on the domestic and external fronts. The economic strain on the Governments was worryingly driven by the interest burden as seen in the sizeable difference in the mean values of GFDGDP and GPDGDP. Moreover, the active push to infrastructural development inevitably caused larger burden on the treasury. Furthermore, in this period, there was a clear slowdown in growth but it was substantially cushioned by the expanded fiscal interventions and a series of reforms to stabilize the growth path while maintaining price stability. The RBI in particular played a constructive role in stabilizing the growth by proactively molding its monetary policy stance and the liquidity in banking system to suit the challenges of the time. The last year of this period, i.e. 2005-06, saw a fundamental shift in India's growth trajectory with services taking over the long rooted dominance of agriculture sector in driving India's economic growth. Service sector continued to experience broad-based growth with impressive performance year-on-year. 2005-06 saw the launch of several landmark reforms for pushing financial inclusion with a high level of business optimism as seen in the impressive growth of capital formation, GCF(g), with a generally high growth momentum across the years as seen in its negative skewness value. In retrospect, this period marked a new phase of economic growth in India with the dominance of service sector in aggregate GDP rather than the agriculture, with manufacturing industries continuing to drive the growth momentum along with services.

3.. Macroeconomic developments during 2006-07 to 2010-11

The fourth sub-period begins with a services-driven GDP trajectory and robust macroeconomic fundamentals in terms optimistic growth momentum and recovery from the economic slowdown experienced in the previous period. The fourth period saw one of the most important macroeconomic shocks in the global financial history in the form of the Global Financial Recession of 2007-08. While the Indian economy was not immune to the global recession, the domestic macro fundamentals remained resilient and the economy was able to bounce back to a high and stable growth path.

Table 3.4 provides the quantitative summary of key macroeconomic developments in the Indian economy from 2006-07 to 2010-11. Economic growth picked momentum as seen in the early 1990s at the mean growth rate of 16.10% with a positive excess kurtosis indicating frequently large deviations from the mean value and possible instability in the growth momentum. Growth momentum was accompanied by a slightly slower growth in aggregate savings, GDS(g), and investments, GCF(g), as seen in their mean values relative to their values in the previous period as shown in Table 3.3. The savings-investment gap has widened while both the savings and investments have experienced slower growth than the previous period as seen in the mean values of GDS(g) and GCF(g) in Table 3.4 vis-à-vis Table 3.3. The stability of the upward trend in the behavior of savings and capital formation is visible in the low values of CV for GDSGDP and GCFGDP when traced from the Table 3.1 to Table 3.4. Aggregate physical investments, as measured by GCF, are expected to be more volatile than savings due to the variations introduced by business fluctuations. The fact that the variability of GCFGDP has generally been higher than that of aggregate savings is possibly a testimony of this expectation. Coupled with the high growth rate of nominal GDP as measured by the mean value of GDP(g), the higher proportions of savings and investments to GDP with a considerably stable growth path signifies the efficacy of the Government in withstanding the adverse impacts from the recession of 2007-08. This period was also characterized by divergence in the WPI and CPI inflation along with an expansionary monetary policy and a larger creation of credit by the banking system. The RBI was able to contain the inflationary momentum to manageable level at the wholesale front but it seems that the retail inflation as captured by the CPI-IW, did not fare as well as it was expected to.

Table 3.4: Macroeconomic developments during 2006-07 to 2010-11

Savings, Investments and Economic Growth							
Statistic	**GDSGDP**	**GCFGDP**	**GDP(g)**	**GDS(g)**	**GCF(g)**		
Mean	35.72	39.02	16.1	17.29	17.7		
SD	0.98	1.33	2.64	6.93	8.44		
CV	2.74	3.4	16.41	40.08	47.67		
Skewness	0.65	1.38	0.74	-0.57	-1.9		
Kurtosis	-0.05	2.78	1.73	-0.26	3.71		
Inflation and Monetary Management							
Statistic	**WPIAC**	**CPI-IW**	**M3**	**IVELM1**	**IVELM3**	**MONM3**	
Mean	6.55	9.02	20.08	4.41	1.25	4.69	
SD	2.35	2.51	2.02	0.07	0.08	0.22	
CV	35.91	27.79	10.09	1.62	6.77	4.61	
Skewness	0.13	0.36	-1.32	-0.6	0.35	-1.62	
Kurtosis	-1.69	-1.47	0.92	-2.45	-1.64	2.62	
Occupational Structure of Indian economy							
Statistic	**EMA(g)**	**GVA(g)**	**EMM(g)**	**GVM(g)**	**EMS(g)**	**GVS(g)**	
Mean	-1.99	3.57	4.27	8.98	2.41	7.57	
SD	0.06	4.13	0.55	3.53	0.13	0.83	
CV	-2.87	115.78	12.81	39.27	5.19	10.97	
Skewness	-0.01	0.69	0.05	1.21	0.05	0.07	
Kurtosis	-1.2	-0.39	-1.2	2.14	-1.19	-0.49	
Fiscal Management							
Statistic	**GFDGDP**	**GPDGDP**	**GRDGDP**				
Mean	6.72	1.73	2.93				
SD	2.2	2.39	2.23				
CV	32.78	138.24	75.84				
Skewness	-0.1	-0.26	-0.05				
Kurtosis	-1.88	-2.2	-1.55				
Foreign Trade, International Prices and Balance of Payments							
Statistic	**IM(g)**	**EX(g)**	**MUV(g)**	**EUV(g)**	**TRDB(g)**	**CURB(g)**	**CAPB(g)**
Mean	21.23	20.78	6.76	10.08	21.61	41.72	163.77
SD	13.58	13.49	10.77	6.70	19.59	37.16	309.71
CV	63.97	64.90	159.20	66.48	90.62	89.07	189.11
Skewness	-1.22	-0.85	-1.23	-0.63	0.46	1.11	1.86
Kurtosis	2.31	0.11	0.29	-1.92	-1.15	1.94	3.85

Table 3.4 *(continued)*						
Forex management and Exchange Rates						
Statistic	**FCA(g)**	**TOTFRX(g)**	**FORGDP**	**USDRS(g)**	**NEER(g)**	**REER(g)**
Mean	15.01	16.16	20.95	0.92	-1.56	2.15
SD	20.42	18.67	2.88	9.36	6.98	7.34
CV	136.03	115.49	13.76	1016.11	-446.05	341.13
Skewness	0.6	0.76	0.32	0.28	-0.07	-0.89
Kurtosis	-1.57	-1.37	-1.01	0.53	-0.52	-0.52

Notes: SD is standard deviation; CV is Coefficient of Variation expressed in percentages; Data are in percentage form; Data are in current prices. **Source**: Author's estimation.

Given that the CPI provides a larger weightage to food products, the persistence of a higher CPI may be a testimony of higher food inflation during this period. There were multiple upward shocks to oil prices during this period for the Indian crude basket along with the disruptions to global oil supply chains due to the continuing Iraq war by the US. Global commodity prices were also unstable during this period and these factors could have led to the persistence of consumer inflation in India. External factors should receive a larger weightage in explaining the higher food inflation during this period as the domestic food production in India rose persistently during this period despite imbalances in the growth of overall agricultural production. Inflation rose at both the fronts, i.e. at the wholesale and retail levels during this period as compared to the previous. One may trace this development to the increased mean growth rate of M3 from 14.86% for M3(g) in Table 3.3 to 20.08% in Table 3.4. The economic slowdown induced by the global recession saw an aggressive expansionary approach by the RBI and this could possibly explain the rapider expansion of money supply in this period. The fall in income velocity as seen in the mean values of IVELM1 and IVELM3 in Table 3.4 as compared to the previous period is also a reflection of the expansionary monetary policy which led to the higher change in the mean growth of M3 from the previous period as compared to the GDP, thereby causing the slight fall in the average income velocity during this period relative to the previous one.

Economic recovery during this period was also characterized by a fairly homogenous performance of the agriculture sector with respect to the previous periods as seen in the mean growth of 3.57% which appears to be largely anchored with the previous periods. The variability of agricultural production also continued to be very high as compared to the other two sectors as

seen in the value of CV for GVA(g) at 115.78%. This period was characterized by abnormal rainfall with large deviations from the Long Period Average (LPA) of the normal rainfall levels as defined by the India Meteorological Department (IMD). Given the frequent upswings in the global commodity prices and the abnormal rainfalls, the large deviations in agricultural production from its mean value seem to be an obvious outcome of these factors. Deviations were broadly similar both above and below the mean as seen in the value of excess kurtosis for GVA(g), implying higher uncertainties in the performance of agriculture sector. The growth momentum achieved by the Indian economy during this period clearly did not emerge from the agricultural sector but can rather be located in the robust performance displayed by the manufacturing and service sectors. While the service sector maintained its robust growth path at the mean growth rate of 7.57%, the manufacturing sector emerged as the most promising sector with 8.98% average growth rate during the period. However, the manufacturing sector posed more variability as compared to the service sector if one compares the values of CV for GVM(g) and GVS(g) in Table 3.4. The higher variability of the manufacturing sector as compared to service sector, was probably an outcome of the instability of the core sectors due to several episodes of disruptions in the supply chain caused by external shocks particularly following the global financial crisis. The consistent fall in the variability of the output growth of services, as seen in the mean value of GVS(g) across all previous periods, was a demonstration of the momentum gained by services in driving economic growth without inducing excessive instability in the process. The employment dynamics were, however, worrisome. Employment growth for agriculture was negative as evident in the negative mean value of -1.99% for EMA(g), while the employment growth was slightly lower for EMM(g) and much more lesser for EMS(g) as compared to their performance in the previous period. Probably, this signified a 'jobless' growth recovery driven by heavy fiscal stimuli and limited absorption of the emerging labour force into the growth process. The slowdown in employment growth across the board was probably a reflection of the economic slowdown experienced after the recession. The deceleration in service employment could have occurred due to the sudden contraction of the IT and BPO industries following the recession though other service industries may also have contributed in this case.

Resurgence of growth momentum in this period from the slowdown experienced in the previous period was enabled in large part by the frequent fiscal interventions as indicated in the high value of CV for GPDGDP. The impressive fall in the primary and revenue deficits as

proportion of GDP in this period relative the last one was mainly a result of the aggressive fiscal consolidation undertaken under the FRBM Act. The Government became considerably stricter on achieving the fiscal deficit reduction as recommended by the 12th and the 13th Finance Commissions. The high variability in GPDGDP could most probably be associated with the interventions necessitated by the financial crisis. Fiscal deficit as proportion of GDP did not show as impressive reduction as did the other deficit indicators. It seems that the interest burden on the Government continued to expand during this period. There were indeed large increases in debt-creating capital inflows in India and moreover the Government mobilized large amount of resources via domestic capital markets to fund the fiscal stimuli and the infrastructural developments underway during this period. This could have added a sizeable interest burden on the economy and thus could explain the softer fall in fiscal deficit relative to the primary deficit as proportions of GDP.

On the international trade front, Indian economy experienced a marginally lower growth of imports while a slight increase in growth rate of exports was observed as indicated by the mean values of IM(g) and EX(g) in Table 3.4. Trade growth was more volatile compared to the previous period as shown by the higher value of CV for both IM(g) and EX(g) in Table 3.4 as compared to their counterparts in Table 3.3. International trade growth also experienced frequent years of abnormal growth with high deviation from the mean growth path as seen in the value of excess kurtosis of IM(g) though exports growth seems to have been more stable and anchored to the average growth path during the period. It appears that the import-export gap was reduced to some extent, though imports continued to remain much larger than exports as seen in the positive growth rate of trade deficit captured by the mean value of TRDB(g). The trade deficit decelerated from its mean growth of 40.86% in Table 3 to 21.61% in Table 3.4. The contraction in the trade deficit growth was possibly a reflection of the intense efforts of the Government in promoting exports and stabilizing the value of the Indian rupee during this period. Promotion of investment zones, free trade zones, increased export subsidies for major export-driving industries and the push given to service exports through the emergence of IT and BPO industries in India could have been the primary drivers of the improved growth balance between imports and exports. The large current account deficit coupled with its high growth as seen in the mean value of 41.72% for CURB(g) in Table 3.4 was absorbed more than proportionately by the growth in capital account surplus as indicated by the mean growth rate of a phenomenal 163.77% of CAPB(g). This period saw large-

scale external commercial borrowings by the Government to withstand the financial stress due to the financial crisis and to fund the intense infrastructural developments undertaken during this period. The impressive growth in capital account surplus was also accompanied by increased debt-creating inflows (Government of India, 2008). The high growth momentum at the mean GDP(g) value of 16.1% coupled with expanding money supply at 20.08% mean growth, with lower wholesale inflation at 6.55%, and improvements in trade growth with a considerably large expansion in capital account surplus pointed towards an expansionary phase if the economy.

Inflation in domestic prices was accompanied with trade price inflation as seen in the positive mean values of MUV(g) and EUV(g) in this period. There was a declaration of import price inflation while export price inflation jumped to 10.08% from its value of 6.49% in the previous period. This resulted in some loss of competitiveness in international markets, as seen in the mean growth of 2.15% for REER(g). Appreciation of the real effective exchange rate jumped from 0.49% in the previous period to 2.15% in the current period, indicating worsening of trade competitiveness for India. One may also notice that in both bilateral and effective terms, India's foreign exchange rate depreciated as shown by the mean values of USDRS(g) and NEER(g). This depreciation was followed by a positive import price inflation as evident from the mean value of MUV(g), and subsequently being followed by increased domestic price inflation both at the wholesale and consumer levels. While these insights are inferential in nature, but one can get indication of the ERPT process emerging as a possible concern as far as inflation management was concerned. Exchange rate volatility also emerged as a significant concern for inflation and exchange rate management with an abnormally high CV at 1016.11% for the bilateral rate. The excessive volatility in exchange rate of the Indian rupee against the US dollar was a direct result of the massive global uncertainties induced by the financial crisis and the global commodity price shocks during this period. Other distributional characteristics of exchange rate behavior displayed a fairly symmetrical behavior though, as indicated in the values of excess kurtosis and skewness of USDRS(g), NEER(g) and REER(g). It seems that the exchange rate volatility was fairly well-managed by not allowing extreme and asymmetric variations around the mean.

The expansion in growth experienced in this period was accompanied with robust performance of the forex reserves of the RBI with the Net Foreign Assets (NFA) dominating the growth in reserves at the mean value of 15.01% for FCA(g), though there was a deceleration in its

growth from its previous period counterpart. Similarly, the total forex reserves also expanded but a slower pace as seen in the movement of mean value of TOTFRX(g) from 28.39% in Table 3.3 to 16.16% in Table 3.4. The slowdown in the growth of forex reserves was probably a result of the large-scale interventions undertaken by the RBI during this period to stabilize the exchange rate. Moreover, while the growth in reserves slowed down, its proportion to GDP expanded from 16.02% in Table 3.3 to 20.95% in Table 3.4 as displayed by the mean value of FORGDP. One possible source of the expanded forex reserves could have been the high capital inflows, particularly debt-creating inflows, in India during this period as can be seen in the impressive expansion of capital account surplus, captured by CAPB(g). This was a matter of concern and could produce larger instabilities in the future as debt-creating flows can reverse fairly quickly. The activeness with which the RBI was intervening in the international forex markets to stabilize the exchange rate of Indian rupee can also be located in the increased CV of FCA(g) and TOTFRX(g) in Table 3.4 as compared to their values in Table 3.3. The global financial crisis and the ongoing Iraq war were contributing substantially to the instability of international forex market and the proactive stance of the RBI was embedded in the higher variability of forex growth along with increased instability of foreign capital flows in India. The fall in excess kurtosis for the forex management variables was also a crude testimony of the success of the RBI in managing the international uncertainties and maintaining a healthy level of reserves.

In conclusion, this period was characterized by a strong bounce back from the economic slowdown of the previous period. But the expansion of output came at the cost of a depreciating exchange rate, trade price inflation and domestic price inflation, along with a high interest burden on the fiscal space of the Government. The agriculture sector suffered considerably during this period while the growth momentum was anchored by the manufacturing and service sectors. The savings-investment imbalance also reduced while aggregate savings and capital formation accelerated to create the necessary productive capacities for maintaining the growth momentum in the next period. Inflation remained a concern during this stage and it seems that the Phillips curve trade-off was playing a crucial role in shaping the fiscal and monetary policies as the policymakers were constantly thrown into the dilemma of increasing growth but at the cost of accelerating inflation rate. In the last year of this period, namely 2010-11, economic recovery was concluded and the economy had bounced back to the +8% rate. Private savings and investments, both, knuckled up substantially, allowing the reduction of the crowding out effects of previous fiscal

stimuli. However, global commodity prices continued to fuel the food inflation in India and this remained a significant challenge for domestic monetary management. Fiscal consolidation was put back into motion despite the deviations caused through the financial crisis.

3.2.5. Macroeconomic developments during the period 2011-12 to 2015-16

This period began with the growth momentum built in the previous period and continued with the challenges of containing the persistent food inflation, necessity for pro-market reforms particularly in the food market, increased fiscal burden and deviations from the targets set by the FRBM, increased volatility of the exchange rate and widening current account deficit. It appears that higher growth was being achieved under tremendous pressure from the imbalances in the external sector, and the some important events dictated the larger macroeconomic environment faced by the Indian economy during this period. The Eurozone crisis, emerging demands for the exit of Britain from the EU, the debt crisis in Greece and the economic uncertainties in the US economy along with continued shocks from oil price movements led to an adverse environment which had to be grappled by the Indian policymakers.

The GDP growth saw a downfall in nominal terms as seen in the mean value of GDP(g) in Table 3.5 vis-à-vis its value in Table 3.4. While in real terms, the GDP growth rate was impressive at 8.27% if one reconciles both the WPI inflation, as shown by the mean value of 3.82% for WPIAC with the nominal growth in aggregate output. However, from the perspective of the consumer price inflation, real GDP growth was weak and this indicated the persistent divergence between the wholesale and consumer price inflations in India, seemingly driven by the high food inflation. This period was characterized by a larger debate on the need for reforms in the national food market with voices being echoed in favour of deregulating the distribution channel and allowing farmers to sell their produce freely in open markets rather than restricting them to the Agriculture Produce Market Committee (APMC) centers. Series of reforms were made to improve agricultural production and stabilize its expansion path, but the primary focus in this period was to contain food inflation by increasing the market-orientation of food markets. There was some success in achieving this objective as indicated by the fall in CV of GVA(g) from 115.78% to 63.46%. Other than a few years, most of the period experienced growth that was compactly anchored to the mean rate. However, the presence of a few years with abnormally large growth indicated some instability in agricultural development as shown by the positive and high skewness

and the positive and high excess kurtosis. These facts do indicate that the Government stabilized the overall growth pattern towards a positive trend while reducing the variation in the same. The divergence in the growth momentum in nominal and real terms emerged from the lower than expected wholesale inflation rate. The contractionary monetary policy implemented by the RBI can be seen in the fall in the mean growth rate of M3(g) to 13.72% from the previous period counterpart of 20.08%. Interest rates were also hardened during this period and could have resulted in the downfall in the nominal growth rate though there were gains in terms of the real growth rate. Correspondingly, income velocity of money expanded from the previous period along with an expansion in money multiplier, roughly indicating expanding bank credit during the period. If looked at from the perspective of consumer price inflation, Indian economy seemed to have been experiencing stagflation (Government of India, 2014).

The direction and composition of aggregate growth during this period can be better understood by looking at the components of aggregate growth in terms of sectoral contributions and employment dynamics across these sectors. The output-employment growth nexus showed divergence for agriculture sector with its mean output growth rate being positive at 2.29%, indicated by GVA(g), but employment growth being -2.13%. There was a broad-based slowdown in employment expansion as seen in the mean values of GVM(g) and GVS(g) vis-à-vis their mean values in the previous period. However, service sector continued to fuel the growth momentum with the mean rate of expansion being 8.22% as compared to the 6.15% of industrial sector and a meagre 2.29% for the agriculture sector. Rainfall continued to be volatile and deviations from the LPA remained a key concern during this period. Persistence food inflation too could have adversely affected the expansion of farming activities and possibly have dampened the growth impetus created by non-food and non-farming agricultural industries. Service sector growth experienced a slight increase in variability as seen in the value of CV for GCS(g) at 19.10% from its previous period counterpart at 10.97%. This could have been a result of economic imbalances in the US and the volatile external demand for domestic output from EU countries given the unstable events in the Eurozone. India's service exports were driven in large part by the demand from US and EU consumers and during this period, both the regions saw instability and volatility which could have affected the service growth in India. It is difficult to locate domestic causes for this as the Government continued unveiling number of reforms for promoting exports as well as liberalizing the capital account.

During this period savings and investment rates, as captured by GDSGDP and GCFGDP continued to remain at a healthy level, though their expansion decelerated rather dramatically from 17.29% and 17.7% in the previous period to 8.75% and 7.93% respective as seen in the mean values of GDS(g) and GCF(g) in Tables 3 and 4. This was clearly a worrisome sign and indicated the domestic savings-investment imbalances created by the external shocks during this period. The slowdown in growth was also accompanied by a marked change in the BoP position of India with the trade, current and capital account balances decelerating dramatically from their previous period mean growth rates. This was a direct result of the slowdown in India's trade growth in terms of the mean values of IM(g) and EX(g) which felt down to 9.33% and 9.27% respectively. Clearly, the Eurozone crisis, the imbalances and uncertainties around the US economy, and the slowdown in world economic growth were a major source of these developments. The uncertainties propelled by the external events can also be located in the abnormally high value of the CV for TRDB(g), CURB(g) and CAPB(g) which increased to a whopping 270.42%, 1898.21% and 1038.57% respectively. Such high variability was possibly a result of the uncertainties unfolded by the various external shocks during the period. Balance of Payments adjustment was undergoing massive instability in this period and it seems that the RBI allowed the variability to unfold itself by not disturbing the market corrections induced by external shocks. One may find some evidence for this argument in the fall in the growth of the key component of forex reserves, namely FCA(g) to 12.74% in Table 3.4 from its mean value of 15.01% in Table 3.3. Forex reserves as proportion of GDP, i.e. FORGDP, also contracted to 16.78% on the average during the period.

The variability of the key indicators of forex management, as indicated by the value of CV of these variables, showed a sizeable reduction from the previous period, probably reflecting the increased focus of the RBI on domestic monetary management rather than pursuing external account stability. Such an approach was perhaps the result of inflationary challenges back at home and the hardening of monetary policy stance during this period. The fall in interest rates could have resulted in the weakening of India's currency, as indicated by the increased rate of depreciation of Indian rupee against the US dollar, USDRS(g), and against the basket of 36 major currencies, namely the NEER(g). The rate of depreciation accelerated to 7.61% in bilateral terms and 4.26% in nominal effective terms, which could be linked to the contractionary monetary policy and hardening interest rates, which could have caused a fall in external demand for Indian rupee and a subsequent capital flight that could have contracted the demand for rupee. During these

developments, however, the RBI seems to have remained focused on domestic goals by not actively intervening in the forex markets through sterilization measures. The larger focus of the RBI on the domestic macro goals was probably a reflection of the increasing market-orientation of the central bank on the matter of exchange rate management.

Table 3.5: Macroeconomic developments during the period 2011-12 to 2015-16

Savings, Investments and Economic Growth						
Statistic	**GDSGDP**	**GCFGDP**	**GDP(g)**	**GDS(g)**	**GCF(g)**	
Mean	32.8	35.67	12.09	8.75	7.93	
SD	1.44	3.16	1.38	2.4	5.79	
CV	4.38	8.85	11.45	27.47	73.04	
Skewness	0.31	0.36	0.02	0.53	-0.56	
Kurtosis	-1.61	-2.23	-1.82	-3.2	-2.02	
Inflation and Monetary Management						
Statistic	**WPIAC**	**CPI-IW**	**M3(g)**	**IVELM1**	**IVELM3**	**MONM3**
Mean	3.82	8.06	13.51	5.18	1.19	5.28
SD	5.07	2.05	1.85	0.3	0.01	0.34
CV	132.82	25.49	13.72	5.73	0.56	6.48
Skewness	-0.81	-0.22	-0.1	-0.75	1.84	-1.46
Kurtosis	-0.44	-2.51	1.98	-0.77	3.54	1.48
Occupational Structure of Indian economy						
Statistic	**EMA(g)**	**GVA**	**EMM(g)**	**GVM**	**EMS(g)**	**GVS**
Mean	-2.13	2.29	1.62	6.15	2.53	8.22
SD	0.14	1.45	2.12	2.38	0.09	1.57
CV	-6.69	63.46	130.68	38.72	3.6	19.1
Skewness	1.97	1.82	2.01	0.42	0.52	-0.8
Kurtosis	4.14	3.56	4.11	-0.64	-1.59	0.08
Fiscal Management						
Statistic	**GFDGDP**	**GPDGDP**	**GRDGDP**			
Mean	7.00	2.34	3.36			
SD	0.48	0.54	0.61			
CV	6.84	22.83	18.15			
Skewness	1.97	1.78	0.2			
Kurtosis	4.07	3.42	1.75			

Table 3.5 *(continued)*							
Foreign Trade, International Prices and Balance of Payments							
Statistic	**IM(g)**	**EX(g)**	**MUV(g)**	**EUV(g)**	**TRDB(g)**	**CURB(g)**	**CAPB(g)**
Mean	9.33	9.27	14.51	8.79	10.60	2.61	5.66
SD	18.62	14.71	35.64	13.16	28.65	49.53	58.74
CV	199.61	158.62	245.58	149.67	270.42	1898.21	1038.57
Skewness	1.28	-0.04	1.68	0.33	1.35	0.25	-0.87
Kurtosis	1.69	-0.90	3.10	-2.69	1.87	0.08	0.17
Forex management and Exchange Rates							
Statistic	**FCA(g)**	**TOTFRX(g)**	**FORGDP**	**USDRS(g)**	**NEER(g)**	**REER(g)**	
Mean	12.74	11.89	16.78	7.61	-4.26	-0.04	
SD	5.72	4.44	0.61	4.93	5.61	4.06	
CV	44.88	37.34	3.64	64.74	-131.74	-10302.5	
Skewness	0.17	-0.51	-0.72	-0.14	0.37	0.63	
Kurtosis	-2.34	-0.1	-2.51	-1.05	-2.61	-1.69	

Notes: SD is standard deviation; CV is Coefficient of Variation expressed in percentages; Data are in percentage form; Data are in current prices. **Source**: Author's estimation.

The downward movement in inflation, at least on the wholesale price front, on account of the contractionary monetary stance with hardening interest rates, was further accompanied by gains in external competitiveness as shown in the fall of mean value for export price inflation while the increase in import price inflation, seen in EUV(g) and IUV(g) respectively. The sizeable depreciation of the Indian currency brought an increase in the import prices and thereby could be linked with the persistently high consumer price inflation despite a fall in the WPI inflation. The link is rather weak in this case as the leakage of the impact from exchange rate depreciation at the wholesale level should also result into lower pass-through to the retail levels. Thus, consumer price inflation could have been driven by domestic factors such as persistent food inflation rather than by external shocks. Despite these caveats, the increased import prices with falling export prices allowed some gains to the country in terms of a the fall in mean growth of REER(g) at -0.04 though the gains were not substantial enough to induce reversal in the imports-exports imbalance in the country. The imports continued to remain larger than exports though in growth terms, exports performed better. The fall in the growth of current account deficit was primarily fueled by the growth differential of imports and exports during this period.

Lastly, the fiscal burden expanded during this period and there was a sizeable deviation from the FRBM targets as set in the previous period. Fiscal deficit as proportion of GDP expanded to 7.00% from 6.72% in the previous period, while the primary deficit as proportion of GDP also increased to 2.34%. Both the interest burden on the Governments as well as the increased expenditure due to fiscal stimuli in the previous phase, contributed to these developments. There were strong voices advocated in favour of a better FRBM framework which finally culminated into the Kelkar Committee recommendations. Probably, the adherence to these recommendations given in 2012-13, prevented further slippage in the fiscal management during this phase. The co-interpretation of excess kurtosis and skewness for all three indicators of the fiscal management in this period indicated occurrence of abnormally large movements from the mean growth indicating aggressive fiscal interventions to stabilize the economy in face of the domestic and international challenges as discussed earlier. The adoption of the Kelkar committee recommendations allowed a gradual fall in the fiscal deficits when expressed as proportion to GDP by the end of this period.

In conclusion, one can notice the return of the slowdown and the downwards phase of the business cycle in India during this period. The gains made in the previous period were protected but the post-financial crisis instabilities in the advanced economies had a dampening impact on the Indian economy. These effects lasted for a few years and began withering away as the economy saw the dawn of economic buoyancy, lower inflation and improved legal and regulatory environment geared towards higher market orientation. The series of reforms made during this period laid the base for the growth acceleration that could be experienced by the Indian economy in the future. The introduction of the new marginal standing facility (MSF) for scheduled commercial banks along with deregulation of savings deposit rates increased the freedom available to the banking system is distributing their resources and channelizing their production. These reforms also allowed better liquidity self-management by the banks and laid the road for better coordination between the RBI and the banking system. On the supply side, the induction of the Cabinet Committee on Investments (CCI) was an important move to address the problem of "rising stalled projects and falling project starts" (Government of India, 2013). Moreover, the clearance of the Land Acquisition and Rehabilitation and Resettlement (LARR) Bill by the cabinet increased the hope for improvements in investments by domestic and foreign private capital in India in the wake of excessive bottlenecks in the land acquisition laws. On the trade and foreign investment fronts, Qualified Foreign Investors (QFIs) were permitted to directly invest in Indian equity

markets. The trade direction of India was now more diversified with increasing share of Asian counterparts such as the ASEAN nations, indicating the shift in India's geopolitical focus from the advanced economies to fellow Asian nations. These reforms provided a positive outlook for the future growth trajectory of India.

3.2.6. Macroeconomic developments during the period 2016-17 to 2021-22

This period was perhaps one of the most dramatic phases in the macroeconomic evolution of Indian economy. Three key events shaped the economic trajectory of Indian economy in this phase. First, the demonetization in November 2016 provided a large domestic shock to the growth path. Second, the formal implementation of the GST at the national level in July 2018 that provided a new tax indirect tax regime for the country. And third, the COVID pandemic and the subsequent series of lockdowns that were undertaken to contain the pandemic and minimize its negative impulses.

The impact of the adversities faced by the Indian economy is visible in the mean value of GDP(g) at a meagre 9.63%. The fall in the growth of nominal GDP was accompanied by a fall in the consumer price inflation along with a low wholesale price inflation. The fall in the inflation rates was driven by the slowing economy and the contractionary monetary policy as captured by the fall in mean value of M3(g) to 10.16% in the current phase from 13.51% in the previous period. Given the low skewness and slightly positive excess kurtosis, one may infer that the GDP growth rate was largely low in this period except a few abnormal deviations from the mean growth. Savings and investment rates felt down slightly but their expansion was weak as seen in the mean values of GDS(g) and GCF(g) in Table 3.4. The savings-investment imbalance seems to have narrowed down in this period but occurred on the back of weakening growth rather than as prudent outcome conscious attempt at reducing this imbalance. Both savings and investment growth remained low, though there was a slight increase when compared with the earlier period. The fall in the growth of capital formation indicated the business pessimism during this phase. This was understandable as the demonetization and the lockdown during pandemic created uncertainties among economic agents which possibly translated into fall in the growth of capital formation. The businesses required a strong push to begin expanding their activities and pull the aggregate demand from the clutches of the recession. The active involvement of the Central and State Governments can be located in the high mean values of GFDGDP, GPDGDP and GRDGDP. The increased proportion of fiscal deficit to GDP was an outcome of both the fiscal stimuli and large-scale

borrowings by the Government during the pandemic, while the increased revenue deficit as proportion to GDP was probably on account of active welfare interventions to protect the nation from the pandemic's impacts. Compared to fiscal deficit, the primary and revenue deficit indicators portrayed larger variability as captured by the value of CV for GPDGDP and GRDGDP at 81.4% and 61.96% respectively. This could be an indication of the relative stability of the interest burden on the treasury while the variability in fiscal management emerged from fresh interventions undertaken during each year. Moreover, the high and positive skewness along with positive excess kurtosis for the fiscal management indicators point out the episodic large interventions by the Government to help stabilize the economy from its weak economic footings, especially after 2020 pandemic.

The slowdown in economic activity was also reflected in the contractionary monetary stance of the RBI as indicated in the fallen mean value of M3(g) with low variability in the same during the period as shown by the low value of CV for M3(g). While the growth was lower as compared to the previous period, there was still an expansion in the monetary base and subsequently the continuation of a high money multiplier as indicated in the mean value of MONM3. There was an attempt to lower down the build-up of inflationary momentum by reducing the growth of money supply but the period was also characterized by softening interest rates, with continuous fall in the repo rate during this phase, which was primarily aimed at enabling economic recovery which was already on a weak macro footing in the previous period. Inflation rate felt down both at the wholesale and consumer price levels as seen in the mean growth of WPIAC and CPI-IW in Table 3.4. CPI inflation particularly felt down as compared to the previous period, but this could be associated with the larger economic slowdown due to the domestic shocks, rather than with contractionary money growth as during the same phase, the interest rates were continuously softened to push the growth trajectory northwards. The monetary stance is not clear from these two opposing tendencies and it seems that the RBI was contending the aims of maintaining price stability along with pushing the growth upwards. Growth continued to remain low while inflation was brought considerably, but this could largely be ascribed to weak macro footings on which the Indian economy was treading throughout this phase.

Table 3.6: Macroeconomic developments during the period 2016-17 to 2021-22

Savings, Investments and Economic Growth							
Statistic	**GDSGDP**	**GCFGDP**	**GDP(g)**	**GDS(g)**	**GCF(g)**		
Mean	31.43	31.11	9.63	10.39	8.88		
SD	0.51	0.6	6.89	2.85	4.62		
CV	1.63	1.93	71.62	27.47	52.04		
Skewness	-0.78	-0.02	-0.35	-1.03	0.13		
Kurtosis	1.42	2.06	1.28	1.66	-1.62		
Inflation and Monetary Management							
Statistic	**WPIAC**	**CPI-IW**	**M3**	**IVELM1**	**IVELM3**	**MONM3**	
Mean	4.11	5.11	10.16	5.06	1.18	5.7	
SD	4.37	1.59	1.17	0.54	0.07	0.54	
CV	106.38	31.12	11.55	10.64	5.55	9.5	
Skewness	2.13	0.39	0.94	-0.91	-2.14	1.8	
Kurtosis	4.67	1.16	1.26	1.79	4.85	3.62	
Occupational Structure of Indian economy							
Statistic	**EMA(g)**	**GVAA**	**EMM(g)**	**GVAM**	**EMS(g)**	**GVAS**	
Mean	2.04	4.49	2.12	4.79	4.16	7.08	
SD	6.96	2.31	1.48	4.15	1.67	1.00	
CV	340.77	51.34	69.58	86.62	40.19	14.14	
Skewness	1.88	-0.05	0.47	-1.85	0.01	1.22	
Kurtosis	3.56	1.50	-3.24	3.43	-5.9	0.59	
Fiscal Management							
Statistic	**GFDGDP**	**GPDGDP**	**GRDGDP**				
Mean	8.12	3.17	4.35				
SD	2.89	2.58	2.7				
CV	35.63	81.4	61.96				
Skewness	1.44	1.46	1.63				
Kurtosis	1.59	1.85	2.49				
Foreign Trade, International Prices and Balance of Payments							
Statistic	**IM(g)**	**EX(g)**	**MUV(g)**	**EUV(g)**	**TRDB(g)**	**CURB(g)**	**CAPB(g)**
Mean	12.80	-10.08	8.46	5.66	15.25	-50.55	138.17
SD	25.05	37.75	11.71	5.25	43.50	173.02	284.02
CV	195.70	-374.52	138.44	92.78	285.28	-342.28	205.56
Skewness	1.15	-2.20	0.74	0.84	0.89	0.48	2.10
Kurtosis	1.51	5.13	-0.34	-1.83	0.40	0.17	4.78

Table 3.6 *(continued)*						
Forex management and Exchange Rates						
Statistic	**FCA(g)**	**TOTFRX(g)**	**FORGDP**	**USDRS(g)**	**NEER(g)**	**REER(g)**
Mean	11.1	11.94	17.59	2.25	-0.04	0.63
SD	9.76	9.41	2.43	4.17	2.97	3.25
CV	87.92	78.83	13.83	185.44	-6991.69	517.17
Skewness	0.39	0.37	0.66	0.07	-1.56	-0.81
Kurtosis	-1.82	-0.72	-1.03	0.67	3.23	0.63

Notes: SD is standard deviation; CV is Coefficient of Variation expressed in percentages; Data are in percentage form; Data are in current prices. **Source**: Author's estimation.

The broader growth slowdown and recession were accompanied by improved performance of the agriculture sector. The mean value of GVA(g) showed improvement as compared to the previous period. There was some instability in the agricultural growth pathway as can be seen from the moderately high CV and positive excess kurtosis, perhaps indicating noticeable deviations from the mean growth trajectory. However, the sector, by-and-large, grew firmly anchored to a positive expansion route and the some variability was inevitable due to the natural forces of rainfall and related uncertainties inherent in Indian agriculture. The problem was pronounced on the manufacturing sector's front with a sizeable fall in the growth of the sector from 6.15% in Table 3.3 to 4.79% in Table 3.4. The core sectors were perhaps the ones to have suffered the most due to the lockdown and possibly due to the economic distortions created by the demonetization and introduction of the GST regime. However, one can only speculate these ideas at this stage as the empirical evidence on the impact of these shocks on the domestic macro fundamentals is a matter of larger debates. Service sector remained fairly grounded in its past trend of continuous expansion during this phase. In terms of employment, the agriculture sector saw a reversal of its previous trend and the sector expanded the employment opportunities with the mean value of EMA(g) being 2.04%, though the expansion was volatile as suggested by the high CV value for the same. These developments could be associated with the large-scale reverse migration that resulted in the urban-to-rural shift of labour force in the wake of the lockdown (Baria, 2020). The sudden expansion in rural labour force could have resulted in the increased employment growth and the high variability in the same during this period. Manufacturing sector employment generation was particularly affected by these events as seen in the negative skewness and positive excess kurtosis for GVM(g) in Table 3.4. It appears that there were some substantially large falls in the employment growth in

manufacturing sector and this was expected as the core sectors were the most adversely affected industries in this sector, and they provided the highest share in manufacturing sector employment (Government of India, 2020).

On the international trade front, India largely continued the performance of the previous period in terms of the mean values of IM(g) and EX(g). The international trade growth of India remained weak owing to the economic imbalances created by the pandemic in the economies our key trading partners. The slowdown in India's trade resulted in the contraction of the current account deficit as shown by the mean value of CURB(g) which was at -50.55%. The global economic slowdown was transmitted into India's trade structure and the fall in the current account deficit seemed to be largely enabled by the world trade slowdown. The capital account surplus growth seen in the mean value of 138.17% for CAPB(g) sufficiently absorbed the current account imbalances. Growth in the capital account surplus remained unstable with a high and positive excess kurtosis along with high CV and a positive skewness. This could have emerged from the large but volatile capital inflows during this phase. The RBI seems to have continued the market-oriented approach in managing the foreign exchange rate fluctuations as shown in the high CV of USDRS(g) and particularly NEER(g), but the low CV of FCA(g) and TOTFRX(g). In general, one would expect the forex reserves of the RBI to vary concurrently with the volatility in exchange rates if the RBI were actively seeking to shape the behavior of the currency. Given the circumstances of maintaining low inflation while pushing the growth, RBI seems to have constrained its interventions in the foreign exchange market. The Indian rupee depreciated against the US dollar as well as against the basket of 36 major currencies as seen in the mean values of USDRS(g) and NEER(g). The rate of depreciation, however, felt down during this period if one views the mean value of exchange rate variables in this period relative to the previous phase. The deceleration in the depreciation of the rupee was accompanied by the deceleration of the trade price inflation, visible in the mean values of MUV(g) and EUV(g) vis-à-vis their values in the earlier phase. Similarly, one could also pitch the fall in inflation rates with these observations and there seem to be indications of a compactly anchored relationship between exchange rate movements, trade price inflation and domestic inflation.

Concluding this period, it may be ascertained that the expectations of economic recovery laid down by the reforms undertaken in the previous phase were washed away by the consecutive

domestic economic shocks and particularly by the immense economic burden produced by the pandemic. This period was perhaps one of the most dramatic phases in the growth narrative of Indian economy. The policies laid down in the earlier phases could not fructify into economic gains and a more aggressive fiscal and monetary stance is needed to pull back the economy from the gloomy macro outlook faced by the economy in this period. The narrative built in this section has provided the macroeconomic background to contextualize the analysis of pass-through process to be conducted in the next chapters. The economic progress made by the Indian economy across the period 1991-92 to 2021-22 was characterized by several shocks, structural changes and the general economic fluctuations which have shaped the nature of ERPT process. These developments have been laid out in this section and the historical and policy perspectives developed here can be utilized for contextualizing the ideas and inferences to be drawn later in the empirical analysis.

3.3. Reconciling the macroeconomic developments since the reforms

The idea of economic growth has been the cornerstone of macroeconomic analysis since its formal inception in the Keynesian revolution. Achieving a positive growth has no longer been the singular policy concern and the nature of growth in terms of not only its trend but also its stability over time and shocks has gained increasing attention in economic policy formulation. The expectations of a balanced growth experience in India have generally been met by time-sensitive expansion which was itself determined by the numerous events that have unfolded at different junctures. While the output has continued to expand since the reforms were initiated in the early 1990s, and has remained anchored to the positive trend, the growth experience was not homogenous in terms of sectoral dynamics and the interlinkages between the real and monetary sectors. As highlighted earlier, growth momentum since reforms has been imbalanced in terms of its temporal distribution as well as with reference to the macroeconomic fundamentals governing the growth process. The events unfolding during the payments crisis laid the foundations for a more robust fiscal and monetary stance that could tackle the complexities of an emerging economy.

Each period examined in the previous section narrated the ordeals confronted by India and the efficacy of its institutions, markets and policymakers in tacking the same. The Table 3.7 summarizes the macroeconomic performance of the Indian economy since the initiation of the reforms in the early 1990s. Despite the host of shocks that hit the Indian markets and industries

from outside and from within the nation, the economy registered an average growth of 12.68% in nominal terms and approximately an impressive real growth rate of 7% when adjusted for the average WPI inflation. Even when looked at from the angle of the consumer price inflation, the economy managed to sustain a growth of approximately 6%. At this rate, India remained among the most rapidly expanding economies globally and created large resources for its future progress. The savings-investment imbalance persisted throughout the period, indicating the need for larger push to savings, in particular the household savings, which fluctuated considerably more than corporate savings. This imbalance is indicated in the mean values of the savings and investment rates in Table 3.7.

Savings and capital formation grew at a healthy rate of 14.44% and 14.13% suggesting that the imbalance among these two key drivers of economic progress had contracted in growth terms. The higher pace of expansion in savings and capital formation were possibly a result of the increasing market orientation of the economy accompanied by a reformist policy agenda observed throughout this period. Higher growth momentum was facilitated through the robust performance of the service sector output and also by manufacturing production. Agriculture, however, declined in terms of growth in its employment as well as its share in aggregate employment; though a moderate expansion of agricultural value added was observed during this period. This expansion could be seen as a result of the continuous push by the State to this sector due to its large employment base, and perhaps due to its impact on food inflation.

Table 3.7: Macroeconomic performance of the Indian economy since the reforms

	Savings, Investments and Economic Growth					
Statistic	**GDSGDP**	**GCFGDP**	**GDP(g)**	**GDS(g)**	**GCF(g)**	
Mean	29.44	31.52	12.68	14.44	14.13	
SD	5.09	5.38	4.30	7.29	12.54	
CV	17.30	17.06	33.89	50.49	88.75	
Skewness	-0.28	0.07	-1.08	0.80	-0.06	
Kurtosis	-1.40	-0.93	2.78	0.55	-0.38	
	Inflation and Monetary Management					
Statistic	**WPIAC**	**CPI-IW**	**M3**	**IVELM1**	**IVELM3**	**MONM3**
Mean	5.48	7.01	15.19	5.25	1.49	4.58
SD	3.51	2.87	3.93	0.58	0.36	0.94
CV	64.09	40.93	25.85	11.08	24.35	20.47
Skewness	-0.04	0.40	0.20	-0.35	0.67	-0.02
Kurtosis	0.71	-0.90	-0.87	-0.95	-1.20	-0.49

Table 3.7 *(continued)*							
	Occupational Structure of Indian economy						
Statistic	**EMA(g)**	**GVAA**	**EMM(g)**	**GVAM**	**EMS(g)**	**GVAS**	
Mean	-0.06	3.35	3.00	6.74	3.30	7.49	
SD	2.89	3.20	1.63	3.42	0.89	1.30	
CV	-5062.55	95.55	54.33	50.78	27.06	17.33	
Skewness	3.07	-0.14	-0.1	-0.15	1.12	-0.07	
Kurtosis	12.61	0.01	-1.31	0.67	1.29	-0.87	
	Fiscal Management						
Statistic	**GFDGDP**	**GPDGDP**	**GRDGDP**				
Mean	7.52	2.42	4.05				
SD	1.73	1.59	1.84				
CV	23.04	65.71	45.3				
Skewness	1.09	0.93	0.7				
Kurtosis	3.06	3.98	1.2				
	Foreign Trade, International Prices and Balance of Payments						
Statistic	**IM(g)**	**EX(g)**	**MUV(g)**	**EUV(g)**	**TRDB(g)**	**CURB(g)**	**CAPB(g)**
Mean	17.47	11.61	7.19	7.04	27.01	21.95	70.07
SD	16.01	21.67	17.27	7.56	48.28	144.85	182.36
CV	91.62	186.58	240.27	107.26	178.75	659.99	260.26
Skewness	0.19	-3.22	1.69	0.47	1.43	0.74	2.93
Kurtosis	0.04	13.95	8.23	-0.49	1.90	2.53	8.80
	Forex management and Exchange Rates						
Statistic	**FCAG**	**TOTFRX**	**FORGDP**	**USDRSG**	**NEERG**	**REERG**	
Mean	22.71	20.41	14.59	4	-1.8	0.59	
SD	25.68	18.98	5.65	6.92	5.21	4.31	
CV	113.08	92.95	38.74	173.19	-289.95	729.62	
Skewness	2.88	2.2	-0.34	0.79	-1.06	-0.32	
Kurtosis	12.38	8.19	-0.99	2.23	1.42	-0.14	

Notes: SD is standard deviation; CV is Coefficient of Variation expressed in percentages; Data are in percentage form; Data are in current prices. **Source**: Author's estimation.

The instability in economic growth, as seen from the value of CV for GDP(g), seems to have emerged from the variability in agricultural production which remained stubbornly high relative to the other sectors. Inflation is another important concern that engulfs the policymakers as it distorts the signaling function of prices in a market-oriented economy like India, thereby causing uncertainties in resource movements across sectors and industries, and potentially disturbing the structure of the growth process itself. It can also cause economic ambiguities that can adversely impact the decision-making of economic agents, and could thus induce unforeseen

fluctuations in economic activity. An important characteristic of this period in terms of inflation dynamics was the divergence between wholesale and consumer price inflations. The different behaviors displayed by these two inflation measures, in terms of not only their mean values during the sample period, but also at the higher moments of their temporal distribution, seem to have emerged primarily from the differential impact of external shocks and the treatment of food inflation in these two measures. Consequently, India remained on a permanently inflationary path fueled by an expanding money supply and a sizeable money multiplier. Fiscal space remained constrained and the fiscal management targets could not be fully observed due to the host of shocks faced by the economy as narrated in the previous section. Fiscal deficit paced at 7.52% of nominal GDP while the primary deficit dwarfed at 2.42%, indicating large interest burden on the central and state governments. It seems that the growth trajectory maintained by the economy was shaped in large part by the active fiscal interventions, sizeable money multiple and a robust momentum in savings and investment rates during the entire sample period.

On the international front, the depth of forex reserves of the RBI remained high at the mean value of 14.59% for FORGDP while the reserves expanded at an impressive rate of 20.41% as seen in the mean value of TFRX(g). The healthy level and growth of reserves during this period is a testimony of the robust trade activities, large foreign capital inflows and proactive interventions by the RBI. The active involvement of the RBI is also indicated by the frequent outliers in the growth of total forex reserves and its key component – the Foreign Currency Assets (FCA). On the trade front, the imports-exports gap in growth terms remained a major concern with the imports recording a mean growth of 17.47% while exports fared considerably weaker at 11.61%. The expansion path of exports was also much more turbulent given the considerably larger CV of EX(g) as compared to IM(g), while also showing a large and positive excess kurtosis at 13.95 relative to 0.04 for imports growth. The relative stability of imports could be located in the continued dependency of India on crude oil and the key inputs for the core sectors, which remained persistent despite the frequent macroeconomic disturbances. As a result, the trade balance and current account deficits grew at a rapid pace while being partially compensated by the growing capital account surplus during the entire sample period. Current account balance growth, CAB(g), was much more volatile relative to trade account growth, indicating the instability of the invisibles trade and international investment position of India. The instability of capital flows in particular

can be gauged from the high excess kurtosis of CAPB(g) that signifies frequently abnormal deviations in its growth from the mean path.

The exchange rate of Indian rupee in both bilateral and nominal effective terms clearly depreciated across the sample period. This is visible in the mean values of USDRS(g) and NEER(g) in Table 3.7. Accompanied with the continuous depreciation of rupee are the inflating import prices and increasing domestic prices. The three variables seem to have moved in tight connection with each other, at least if looked from a correlational perspective. It appears that the depreciation of the rupee has been transmitting inflationary impulses into the economy via the import prices. This raises the question of whether these co-movements between the three key elements of the pass-through process signify information beyond the correlational relationship and may possibly indicate causal connections between them. Investigating the different dimensions on this fundamental question is the subject matter of the remaining chapters.