Global Crisis and the Indian Economy-
On a Few Unconventional Assertions

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Abstract

The paper tries to argue that terms such as "recession" and "crisis" are blown out of proportions in the current context. **First**, it simulates alternative growth scenarios for major sectors and demonstrates that industrial recession of some kind would not affect the overall growth prospects as long as the service sector does not shrink substantially. **Second**, it reiterates the point that local bubbles may not be contained without adverse exogenous shocks. Excessive liquidity may generate bubbles, distort real rates of return and may damage efficient allocation of capital. Thus recession driven withdrawal of liquidity may bring such returns in line with the fundamentals. **Third**, it tries to make the point that a substantial part of the working population, around 90% is absorbed outside the formal or the organized sector. It is essential that one looks at the impact of the slowdown on the informal economy.

This paper is an attempt to analyze certain key macro economic features of the Indian Economy in the context of the ongoing and possibly weakening global recession.

In the first part of the paper we discuss several alternative hypothetical scenarios where a given decline in GDP growth rate is disturbed across sectors. We try to argue that if the industrial sector has to be the true culprit for a disastrous impact of GDP growth, then we should have a substantial recession in the industrial sector, which is impossible. Since the shares are likely to change drastically, service sector growth rate holds the key for overall response. Although this has been discussed to some extent in the report prepared by the prime minister's advisory council prior to the elections 2009,we simulate alternative scenarios to provide detailed growth rate composition at the sectoral level.

If one traces the movements of stock prices and real estate market, it would be hard not to appreciate the existence of price bubbles. While there is no systematic analysis of bubbles utilizing recent data, Marjit and Das (2009) have argued that stock market related indices and transactions hardly got translated into growth in real activities. Only in very recent times our investment rate crossed over the 30% mark while over the last decade the stock market has grown by leaps and bounds. Whether future earnings per share are rightly predicted by current movement in stock prices is a simple exercise to check for unaccounted for exuberance. It is a well known fact that the annual inflation in housing market for quite a few years has been way out of line with the average inflation rate. When whole sale prices were up by around 15% housing prices were higher by around 50% annually at least in the metropolitan areas. The demand for housing was also fueled by bank credit with entire banking sector disbursing a significant proportion of credit to the mortgage market. Was the rising prices a true reflection of "real" activities? Is real return of around 35% to 40% reflective of true profitability of the sector? These are issues one has to confront. If there is bubble and excess liquidity either through foreign capital inflow and windfall gains in stock markets and strong credit infusion from the banks have been fuelling a bubble, what can be reasonable way out? This brings us to the issue of sectoral repercussion of monetary policy and capital inflow. Sectoral bubbles

will distort relative prices and induce further accumulation in the inflated sector. If the forces within the economy are not adequate to control for the artificial rise in prices, external shocks become essential to restore the balance. We discuss some of these issues in second section.

The third section deals with the impact of the so-called recession on the informal sector of the economy which absorbs around 90% of the total work force. The transmission effect from the rest of the world becomes weaker if a large part of the economy remains insulated from external shocks. It is overall well recognized high growth since the 1990 has benefited the skilled segment of the economy to a grater extent relative to the unskilled sector. While the effect on poverty and low income group has been more or less positive, it goes without saying that, the "non-traded" segment of the economy provides jobs to millions of people and such a segment is possibly doing well. For example while wholesale prices went on a downward spiral, consumer prices have explained healthy inflation rates. Rural farm and non-farm sector, which provide income to 60% of population, have not done badly given a reasonable growth in agriculture. In the third section we attempt a rather simple analysis of the relationship between the formal and the informal by looking at the organized and unorganized manufacturing sector.

Till 2007-08 the Indian economy has witnessed a rising and high rate of growth of GDP, which has slowed down in the year 2008-09 due to global financial crisis. What started off as US subprime lending crisis in the US housing market turned into a global financial crisis and then to a global economic crisis. Though the developed countries like Japan, US and UK, due to this global financial crisis are witnessing recession in their economies, India is witnessing a positive and significant growth rate although lower than 9%. Rate of growth of GDP in 2007-08 was around 9% and it was around 7.8% in first half of the year 2008-09. But the third quarter of 2008-09 has registered a growth rate of 5.3% (Table: 4) as unveiled by the Central Statistical Organisation (CSO). Agricultural sector has registered a negative growth rate of −2.2% and manufacturing growth rate contracted to –0.2% in the third quarter. But agriculture has done well in last two years. Services sector registered 9.3% growth rate, which is a very small change from what it has registered in the second quarter. Different sectors have been impacted differently by the recession. In the popular media and policy circles industrial recession has been hailed as the true signal of crisis. However a given decline in GDP growth rate can be decomposed into alternative sectoral growth rates. We consider alternative scenarios to overall argue that GDP growth rate is likely to be pretty insensitive to industrial recession.

Agriculture and Allied Activities

In the year 2007-08 the farm sector comprising of agriculture, forestry & fishing, registered a growth rate of 4.5 percent. Economic Advisory Council to the Prime Minister estimated it to be around 3 percent in the year 2008-09. But in the third quarter of 2008-09 it has contracted to 2.2%. In the past, crisis in agrarian economy had hit hard the

economic growth; as a result India witnessed some of its bad years. However, as share of agriculture in GDP dropped over time, bad impact in this sector did not affect the overall GDP growth that much. Looking at the past data on rate of growth of agriculture (Table: 5), we can observe that the rate has been fluctuating to a large extent and in many years it had registered negative growth rate. For last couple of years the rate of growth averaged 4 percent. Its share in GDP has been falling over the years and this is due to relatively higher expansion in other sectors (Table: 6).

Industry

GDP in the industrial sector averaged 8 percent in the year 2007-08 and declined to 5 percent in the first quarter of the year 2008-09. The Index of Industrial Production (IIP) registered a negative index in the month of October 2008. The global economic crisis had its adverse effect on industrial sector especially in manufacturing, mining and electricity. In fact in the third quarter of 2008-09, manufacturing growth rate contracted to –0.2% (Table: 4). Dampened demand, funding constraint and uncertainty surrounding the crisis have adversely affected Indian corporate margin & business confidence and thus growth. The slide is continuing.

Services

This is the most important sector for Indian economy as its share in the GDP has been rising significantly since 1950-51 (Table: 6) and currently its share in the GDP is averaged 63 percent. This sector comprises of trade, hotels, transport, storage, communication, financing, insurance, business services, real estate, community, social and personal services and construction. In the fiscal year 2007-08 this sector has registered a growth rate of 10.7 percent (Table: 5), which has come down to 9.3% in the third quarter of 2008-09 and the relative difference is very small. This decline is due to falling growth rate of construction, trade and hotels. But there is a rapid increase in the growth rate of community, social services & personal services, which has posted a robust growth rate of 17.3 percent against 5.3 percent in the same period a year ago (Table: 4). Financing, insurance, real estate & business services also grew at a high rate of 9.5

percent. Therefore it can be said that it is the service sector, which is giving major boost to the economic growth of our country.

Growth Rate Analysis (Methodology)

In the third quarter of 2008-09, GDP has posted a growth rate of 5.3 percent against 8.9 percent in the same period a year ago (Table: 2). Many economists and economic analysts expect the growth rate of Indian GDP to be around 5%-6% in the next year. What we have attempted to do in this exercise is that if GDP grows at 5 percent or 6 percent, what would be the alternative sectoral growth rates. Let us denote overall growth rate of GDP as g. We can write the following equation

$$g_a s_a + g_i s_i + g_s s_s = g$$

where g_a, g_i & g_s are growth rates of agriculture, industry & services respectively and s_a, s_i & s_a are corresponding share of GDP of the sectors respectively. In the first table (Table: 1) we have considered change in the growth rate of one sector keeping growth rate of other sectors unchanged. Now for the purpose of calculating the growth rate of GDP of only one sector keeping growth rate of other two sectors unchanged we have deducted the reduction in growth rate of GDP i.e 3% or 4% (9%-6%=3%) from the value $g_•s$ of the particular sector and arrived at the growth rate. The initial values of sectoral growth rates and share of GDP are the values of 2007-08 (Agriculture: growth-4.5% & share-17.8%, Industry: growth-8.1 & share-19.4%, Services: growth-10.7 & share-63%).

In the second table (Table: 2) we have considered change in the growth rate of two sectors keeping growth rate of one sector unchanged to account for the 3 percent and 4 percent reduction in growth rate of GDP. For this purpose we have deducted 1.5% (2% in case of 4% reduction in GDP) from each of the $g_•s$ of two sectors and arrived at the growth rate of GDP using the values of the respective share of each sector.

In the third table (Table: 3) we have done a different exercise. Growth rate of GDP was around 9 percent in the year 2007-08 and it has declined to around 7 percent in the year 2008-09 (as estimated by CSO). Therefore we have witnessed a 2% reduction in growth rate. Of this 2% reduction, we have $\Delta g_a s_a = 0.27$, $\Delta g_i s_i = 0.88$ & $\Delta g_s s_s = 0.52$. Using these values we can get the weights with which $g \cdot s$ of each sector contracts. Using these weights we have calculated the growth rate of each sector when growth rate of GDP shrinks from 9 percent to 6%, 5% & 4% or shrinks by 3 percent, 4 percent and 5 percent respectively.

Table: 1 Sectoral Growth Rate Analysis

Sector	Growth Rate	
	Growth rate of gdp at 6%	**Growth rate of gdp at 5%**
Agriculture (keeping growth rate of Industry & Services unchanged)	-12.40	-18.03
Industry (keeping growth rate of Agriculture & Services unchanged)	-7.40	-12.56
Services (keeping growth rate of Agriculture and Industry unchanged)	5.89	4.30

Source: *Summary of Estiates of GDP at Constant (1999-00) Prices, Central Statistical Organisation*
Macroeconomic and Monetary Development, Reserve bank of India

Table 2: Sectoral Growth Rate Analysis

Sectors	Growth rate of GDP at 6%			Growth rate of gdp at 5%		
	1st case: Growth rate of Services unchanged	2nd case: Growth rate of Agriculture unchanged	3rd case: Growth rate of Industry unchanged	1st case: Growth rate of Services unchanged	2nd case: Growth rate of Agriculture unchanged	3rd case: Growth rate of Industry unchanged
Agriculture	-3.95	**4.5**	-3.95	-6.77	**4.5**	-6.77
Industry	0.34	0.34	8.1	-2.24	-2.24	8.1
Services	**10.7**	8.28	8.28	**10.7**	7.48	7.48

Table 3: Sectoral Growth Rate Analysis

Sectors	Sectoral Growth Rate			
	2008-09(AE) GDP estimated to grow at around 7%	Growth rate of GDP at 6%	Growth rate of GDP at 5%	Growth rate of GDP at 4%
Agriculture	**3.1**	1.79	0.89	-0.01
Industry	**3.7**	-0.09	-2.82	-5.55
Services	**9.6**	9.18	8.68	8.18

Source: *Summary of Estiates of GDP at Constant (1999-00) Prices, CentralStatistical Organisation*
Macroeconomic and Monetary Development, Reserve bank of India

Table 4: Quarterly Growth Rates of Different Sectors

	2007-08			2008-09		
	Q1	Q2	Q3	Q1	Q2	Q3
Agriculture	4.4	4.4	6.9	3.0	2.7	-2.2
Industry	8.5	7.5	7.6	5.2	4.7	0.8
Services	10.7	10.7	10.1	10.2	9.6	9.5
GDP at factor cost	9.1	9.1	8.9	7.9	7.6	5.3

Source*: Macroeconomic and Monetary Development, RBI*

Table 5 : Sectoral and Overall Growth Rate of GDP at Constant (1999-2000) Price

Year	Agriculture and Allied Activities	Industry	Services	GDP
1951-52	1.5	4.6	3.2	2.3
1952-53	3.2	3.3	1.7	2.8
1953-54	7.7	6.9	2.9	6.1
1954-55	2.9	6.7	5.6	4.2
1955-56	-0.9	7.1	6.8	2.6
1956-57	5.4	7.3	5.7	5.7
1957-58	-4.5	4.6	1.4	-1.2
1958-59	10.1	5.0	5.2	7.6
1959-60	-1	6.9	5.3	2.2
1960-61	6.7	9.1	7.1	7.1
1961-62	0.1	8.4	5.1	3.1
1962-63	-2	8.1	5.5	2.1
1963-64	2.3	9.0	6.9	5.1
1964-65	9.2	6.4	6.1	7.6
1965-66	-11	2.7	3.5	-3.7
1966-67	-1.4	1.4	4.0	1
1967-68	14.9	1.4	4.5	8.1
1968-69	-0.2	5.7	4.4	2.6
1969-70	6	9.9	4.8	6.5
1970-71	7.1	1.5	4.0	5
1971-72	-1.9	3.6	3.1	1
1972-73	-5	4.2	2.9	-0.3
1973-74	7.2	3.9	1.7	4.6
1974-75	-1.5	3.3	3.2	1.2
1975-76	12.9	4.1	7.7	9
1976-77	-5.8	8.4	5.4	1.2
1977-78	10	5.8	5.6	7.5
1978-79	2.3	11.2	5.2	5.5
1979-80	-12.8	-2.4	1.3	-5.2
1980-81	12.9	1.9	5.6	7.2
1981-82	4.6	8.9	5.2	5.6
1982-83	-0.3	4.6	4.9	2.9
1983-84	10.1	9.0	5.6	7.9
1984-85	1.6	4.5	5.7	4
1985-86	0.3	3.9	7.4	4.2
1986-87	-0.4	6.8	6.9	4.3
1987-88	-1.6	5.6	6.3	3.5
1988-89	15.6	9.6	6.8	10.2
1989-90	1.2	8.8	8.5	6.1
1990-91	4	5.7	5.9	5.3
1991-92	-2	-0.3	4.3	1.4
1992-93	6.7	3.3	5.4	5.4
1993-94	3.3	7.5	6.4	5.7
1994-95	4.7	10.4	5.8	6.4
1995-96	-0.7	13.2	9.6	7.3
1996-97	9.9	8.0	6.9	8
1997-98	-2.6	2.0	9.0	4.3
1998-99	6.3	3.6	8.1	6.7
1999-00	2.7	3.5	9.3	6.4
2000-01	-0.2	6.4	5.7	4.4
2001-02	6.3	2.4	6.9	5.8
2002-03	-7.2	6.8	7.5	3.8
2003-04	10	6.0	8.8	8.5
2004-05	0	8.5	9.9	7.5
2005-06	5.9	8.0	11.0	9.4
2006-07	3.8	10.6	11.2	9.6
2007-08	4.5	8.1	10.7	9
2008-09(AE)	3.1	3.7	9.6	7.99

Table 6 : Share of Sectors in GDP at Constant (1999-00) Prices

Year	Share of Agriculture	Share of Industry	Share of Service Sector
1950-51	55.1	10.62	33.96
1951-52	54.7	10.85	34.27
1952-53	54.8	10.91	33.88
1953-54	55.7	10.99	32.87
1954-55	55	11.25	33.31
1955-56	53.1	11.74	34.69
1956-57	53	11.92	34.69
1957-58	51.2	12.62	35.59
1958-59	52.4	12.31	34.81
1959-60	50.8	12.88	35.85
1960-61	50.6	13.13	35.87
1961-62	49.1	13.81	36.57
1962-63	47.2	14.61	37.76
1963-64	45.9	15.16	38.43
1964-65	46.6	14.99	37.92
1965-66	43.1	15.98	40.73
1966-67	42	16.04	41.93
1967-68	44.6	15.04	40.50
1968-69	43.4	15.49	41.21
1969-70	43.4	15.98	40.56
1970-71	44.3	15.45	40.18
1971-72	43	15.84	41.03
1972-73	41	16.55	42.37
1973-74	42	16.45	41.22
1974-75	40.9	16.79	42.07
1975-76	42.3	16.05	41.55
1976-77	39.4	17.18	43.25
1977-78	40.3	16.90	42.50
1978-79	39.1	17.82	42.39
1979-80	36	18.34	45.29
1980-81	37.9	17.45	44.63
1981-82	37.6	17.99	44.45
1982-83	36.4	18.29	45.33
1983-84	37.1	18.48	44.37
1984-85	36.3	18.57	45.13
1985-86	35	18.53	46.52
1986-87	33.4	18.97	47.66
1987-88	31.7	19.34	48.93
1988-89	33.3	19.24	47.46
1989-90	31.8	19.72	48.53
1990-91	31.4	19.80	48.83
1991-92	30.3	19.46	50.21
1992-93	30.7	19.07	50.23
1993-94	30	19.40	50.60
1994-95	29.5	20.13	50.33
1995-96	27.3	21.24	51.43
1996-97	27.8	21.23	50.94
1997-98	26	20.77	53.23
1998-99	25.9	20.16	53.93
1999-00	25	19.60	55.40
2000-01	23.9	19.99	56.12
2001-02	24	19.33	56.68
2002-03	21.4	19.88	58.69
2003-04	21.7	19.42	58.86
2004-05	20.2	19.61	60.19
2005-06	19.6	19.37	61.08
2006-07	18.5	19.54	61.94
2007-08	17.8	19.38	62.87
2008-09(AE)	17.06	18.72	64.23

Source(Table 5 & Table 6): *Summary of Estiates of GDP at Constant (1999-00) Prices, Central Statistical Organisation*
*Macroeconomic and Monetary Development, Reserve bank of India*

Chart 1: Percentage Share of Sectoral GDP for the Years 1950-51 to 2008-09
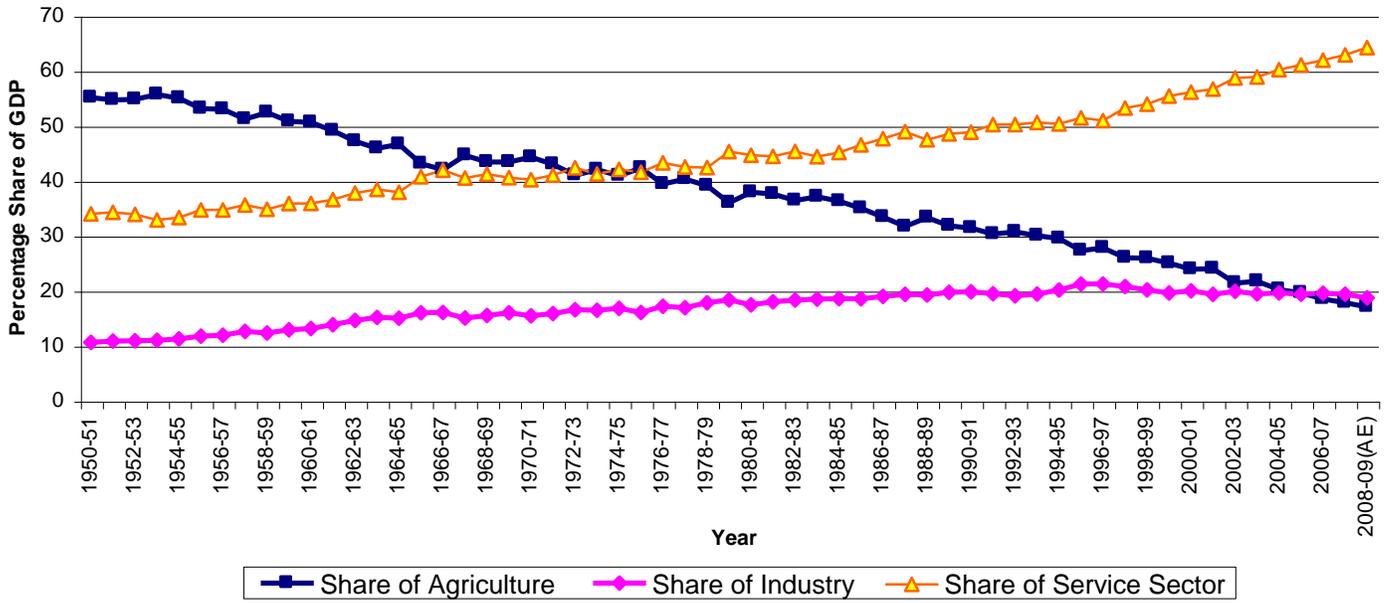
Source: *Summary of Estimates of GDP at Constant (1999-00) Prices, Central Statistical Organisation,*
Macroeconomic and Monetary Development, Reserve bank of India

Chart 3: Growth Rate of GDP for the period 1951-97 and for 1998-09
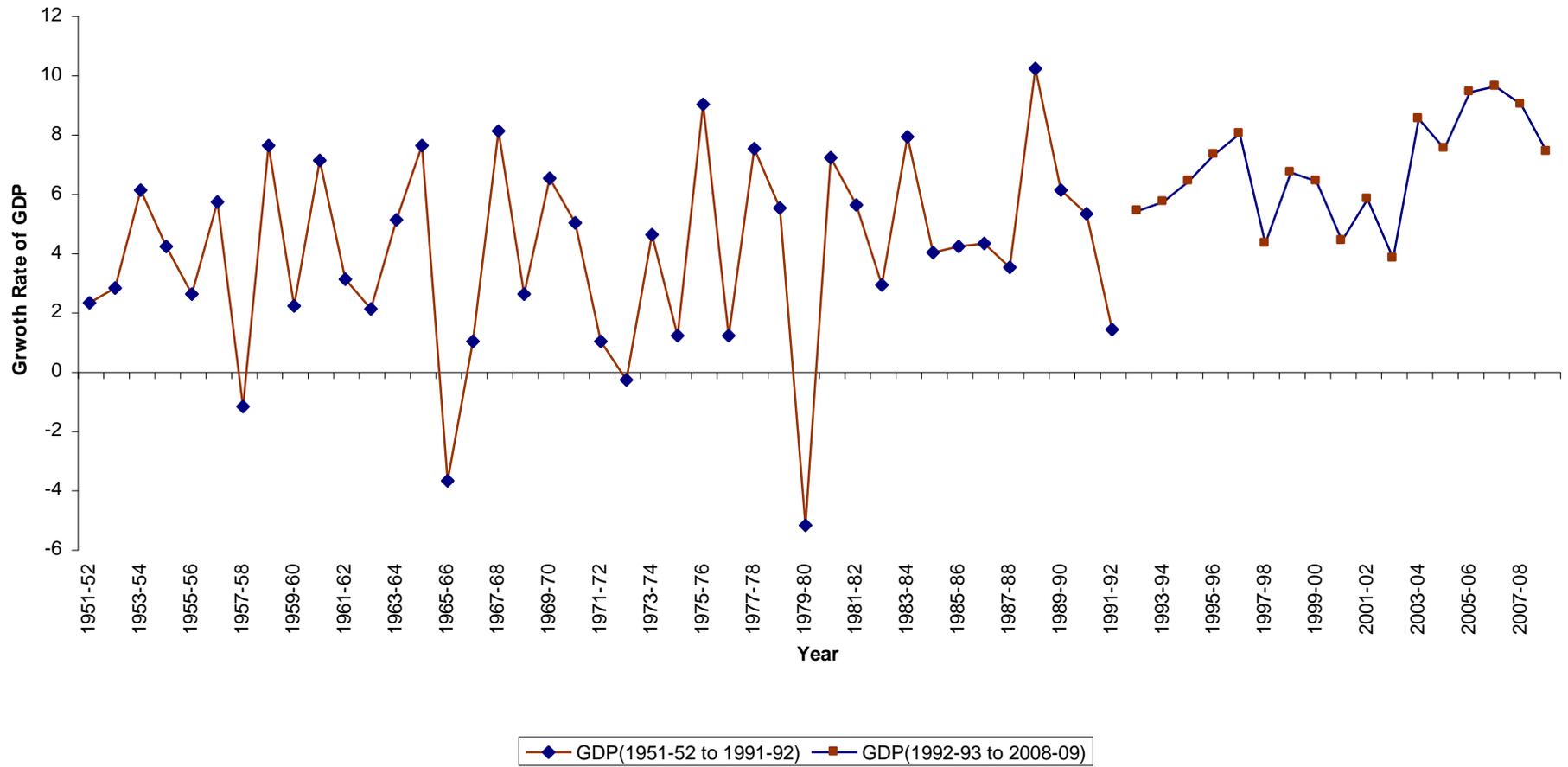
Source: *Summary of Estimates of GDP at Constant (1999-00) Prices, Central Statistical Organisation*,
  Macroeconomic and Monetary Development, Reserve bank of India

Section II

Existence of bubbles is difficult to trace and estimate. Yet few will disagree that bubbles are realities both in the sphere of capital market as housing market. One could possibly construct a Shiller's index for India or simply look at the relationship of inflation in housing market and the general inflation rate. First, we try to trace the existence of abnormalities in the stock market with the implicit assumption that stock market turnover at period t may not have much to predict what will happen in period t + k. If current exuberance is a good signal for future growth, then closing prices of shares will be good predictors of future earnings. Therefore EPS at t + k should be clearly and positively related to closing prices at t. Therefore, $E_t(EPS)_{t+k}$ should explain the price of shares at t. Assuming that $E_t(EPS)_{t+k}$ can be approximately by actual EPS at t + k, we have tried to trace the above relation for major stocks between 2000-08 with quarterly "leads". We have plotted adjusted closing price and EPS for major Sensex shares between 2000-08. The closing price dates are taken for January, May and September and EPS figures are plotted for April, August and December. The graphs show interesting trends. For some they are quite closely related as expected, for others and there are periods when there seem to be no relationship at all. Here we pick and choose those where EPS could not be closely related to lagged closing prices.

Wipro Ltd..(Adjusted Closing Price)
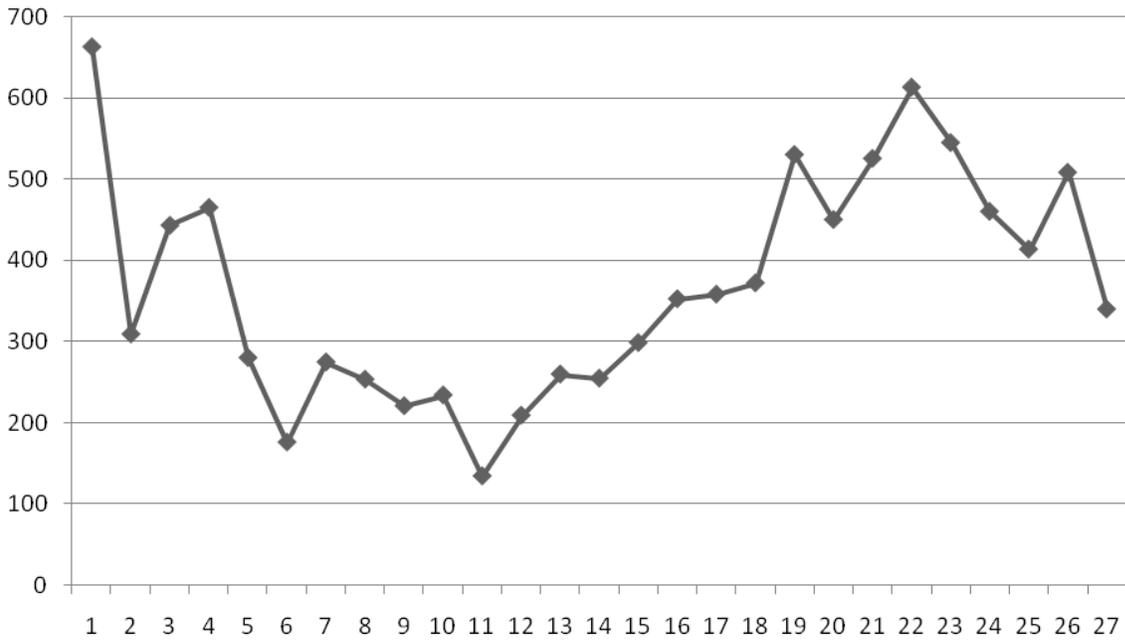
Wipro Ltd.(EPS)
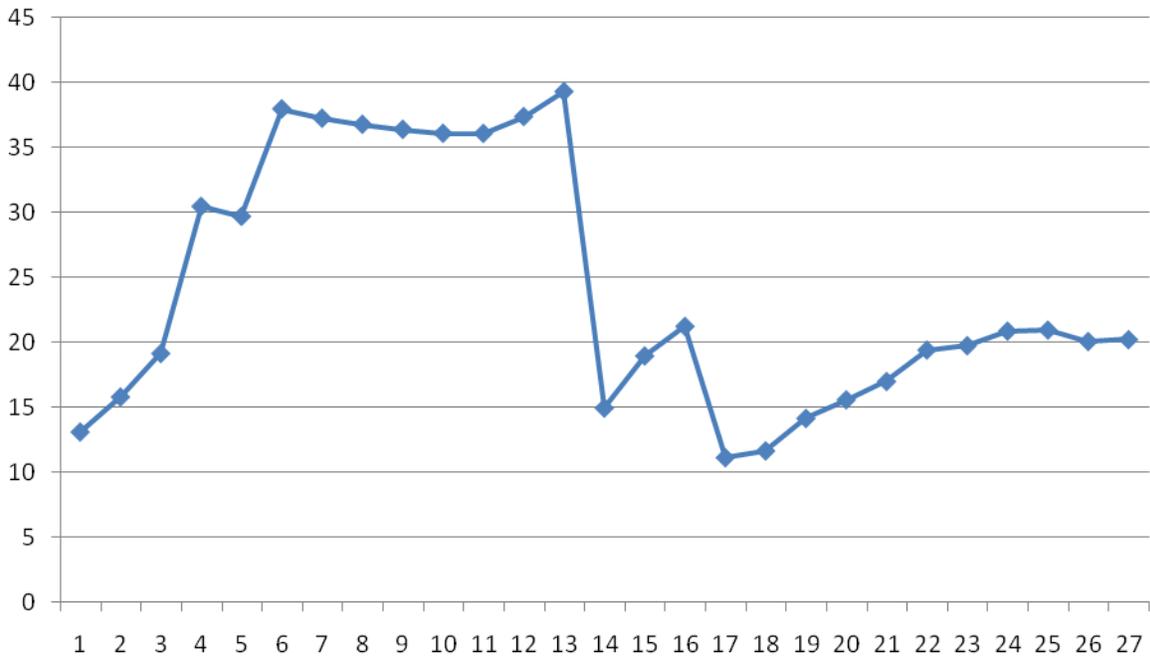
Tata Steel Ltd..(Adjusted Closing Price)
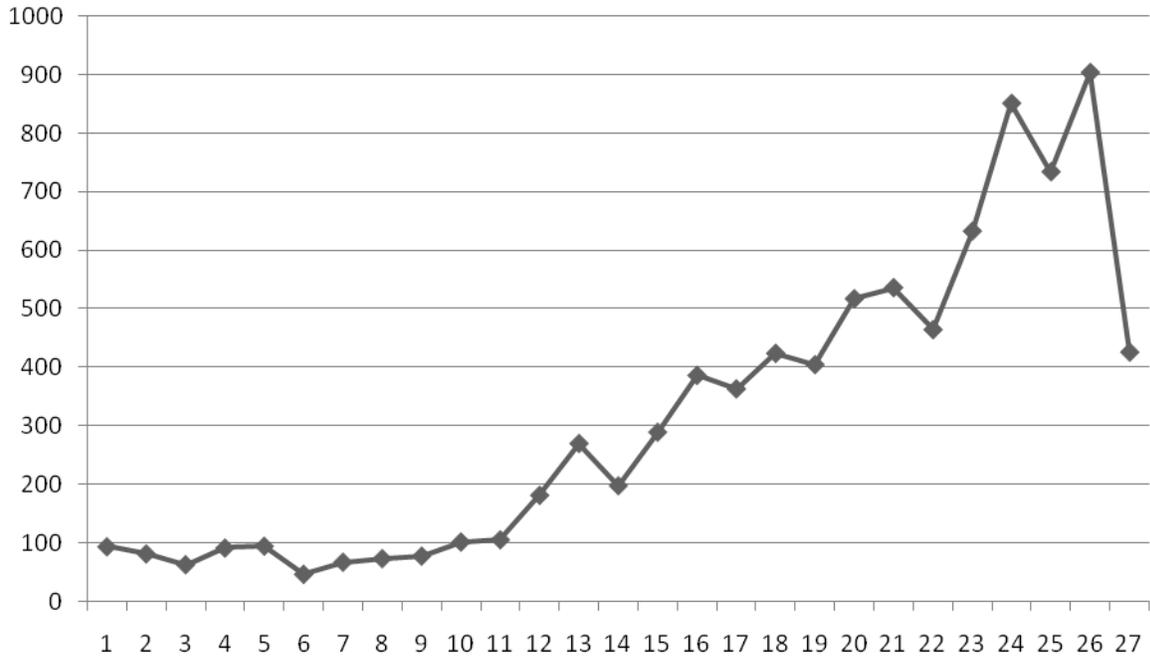
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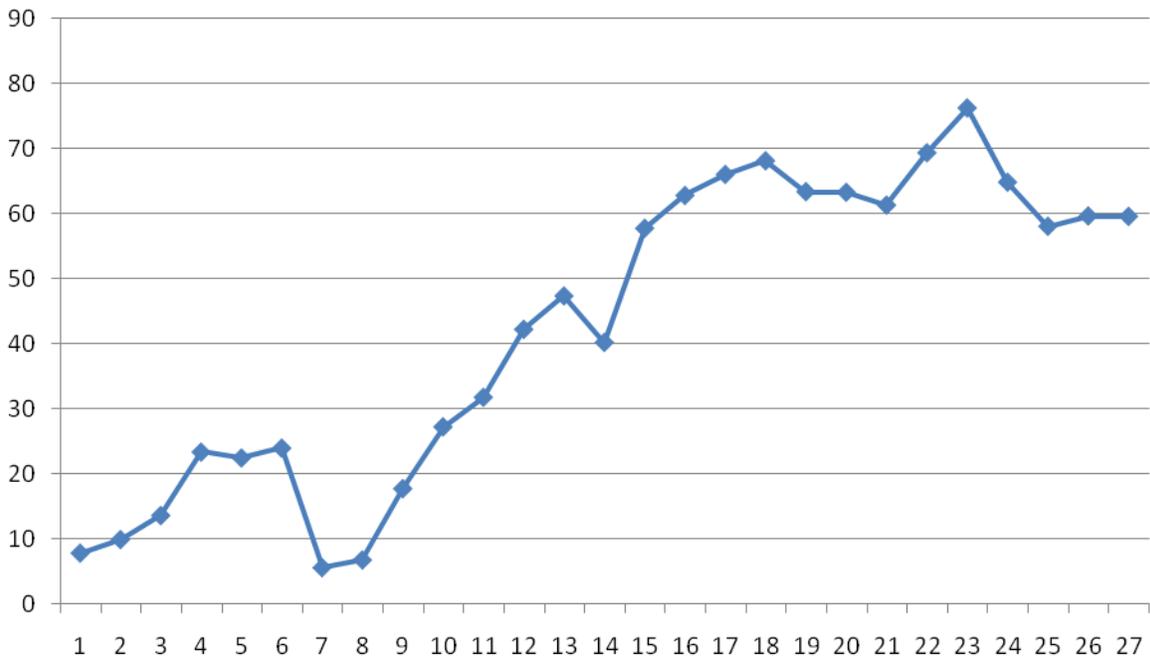
Sun Pharmaceutical Inds. Ltd..(Adjusted Closing Price)
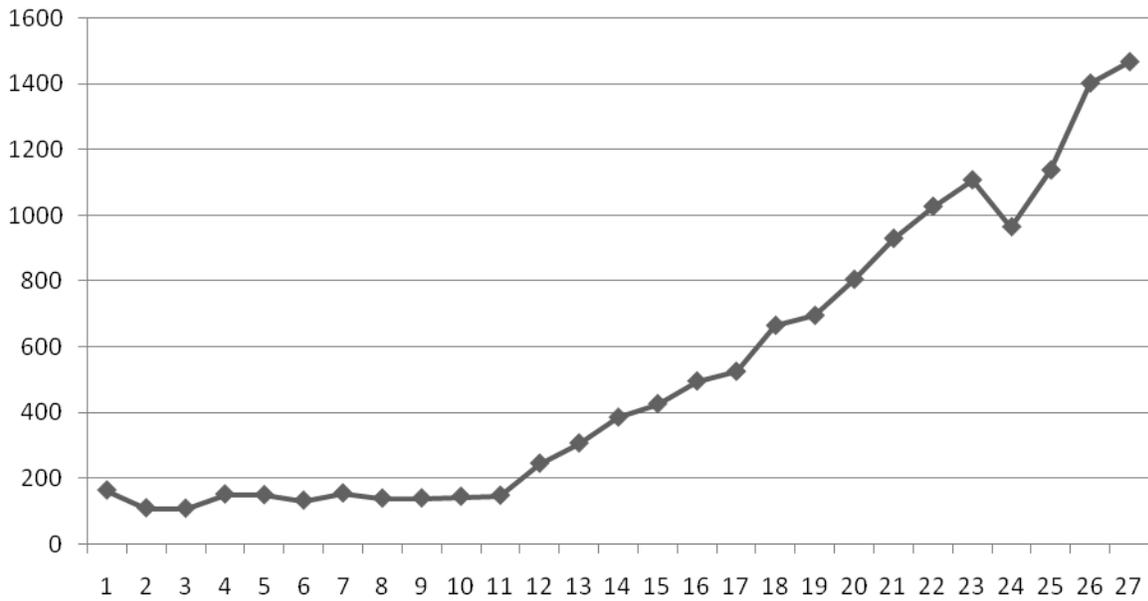
Sun Pharmaceutical Inds. Ltd.(EPS)
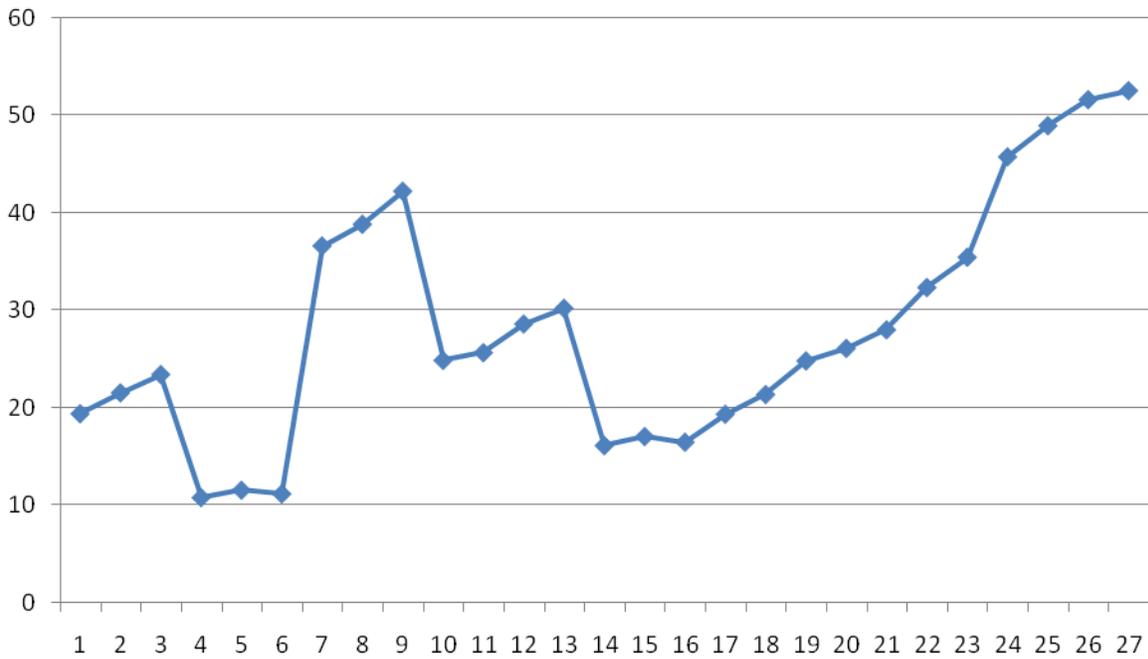
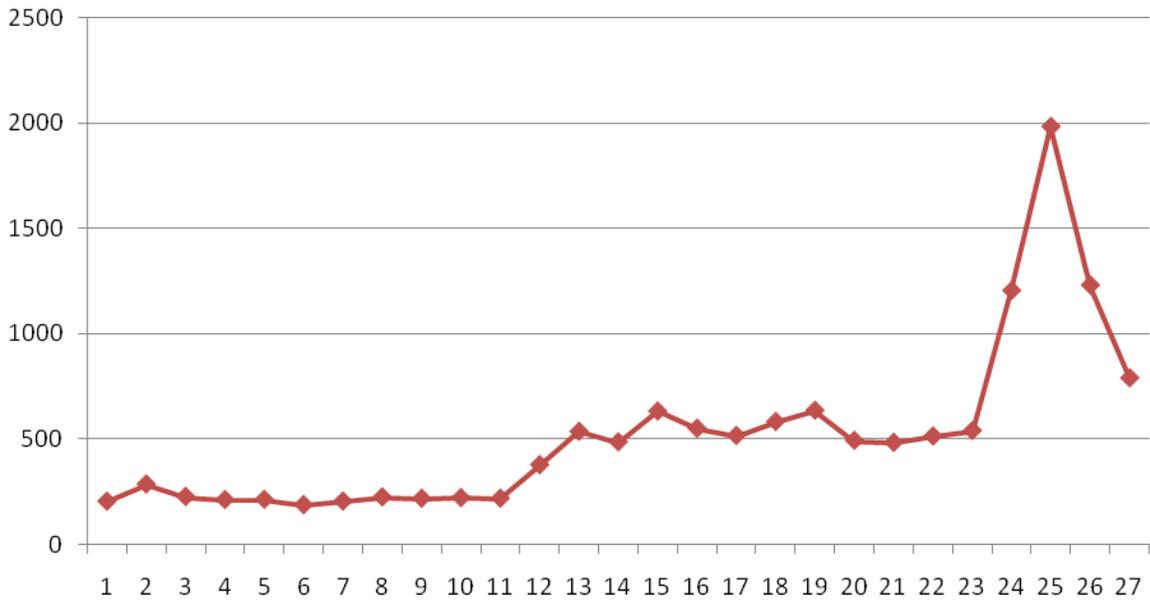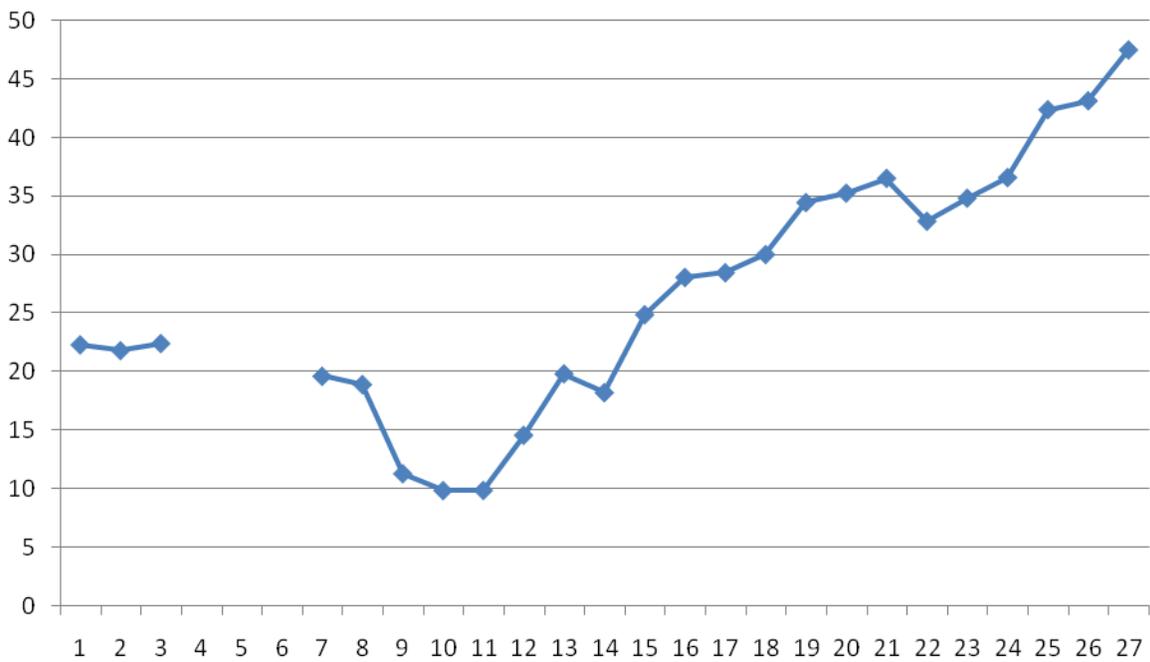# Sterlite Industries (India) Ltd..(Adjusted Closing Price)
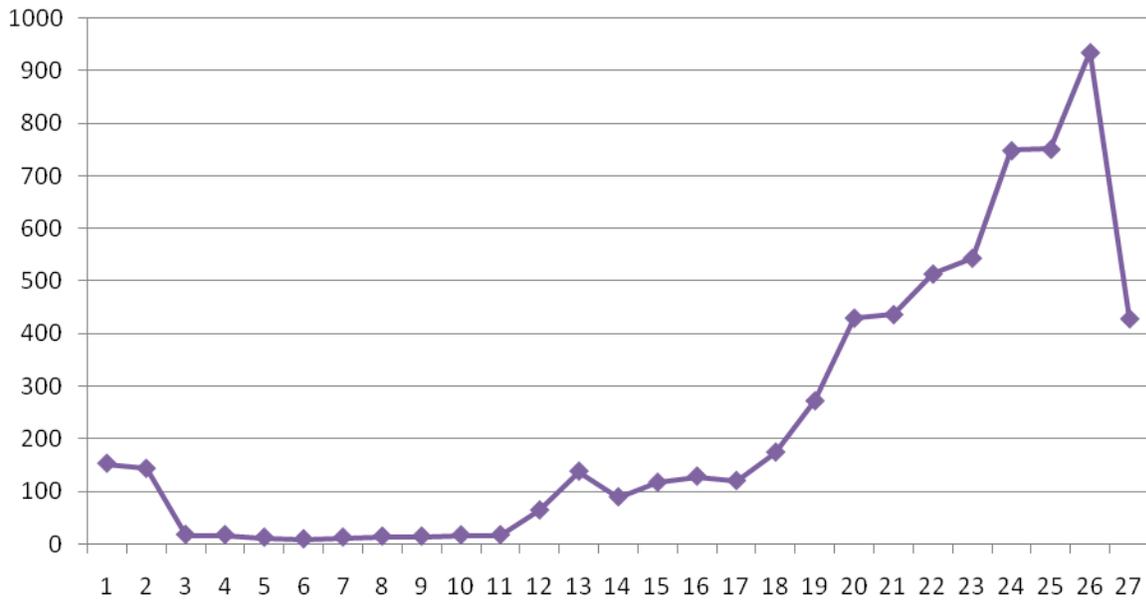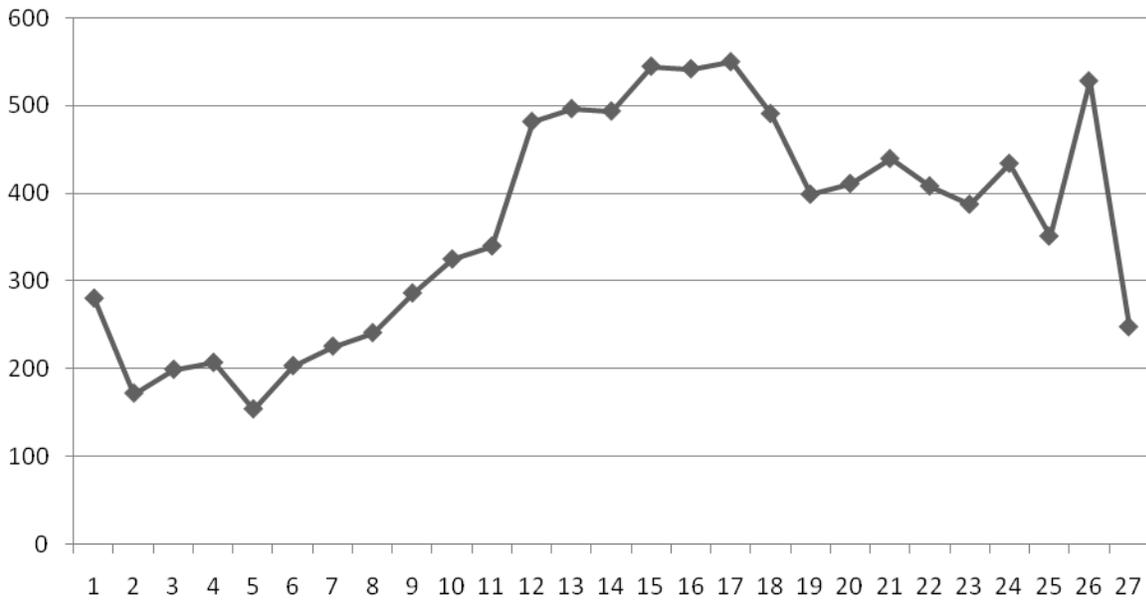

Sterlite Industries (India) Ltd.(EPS)
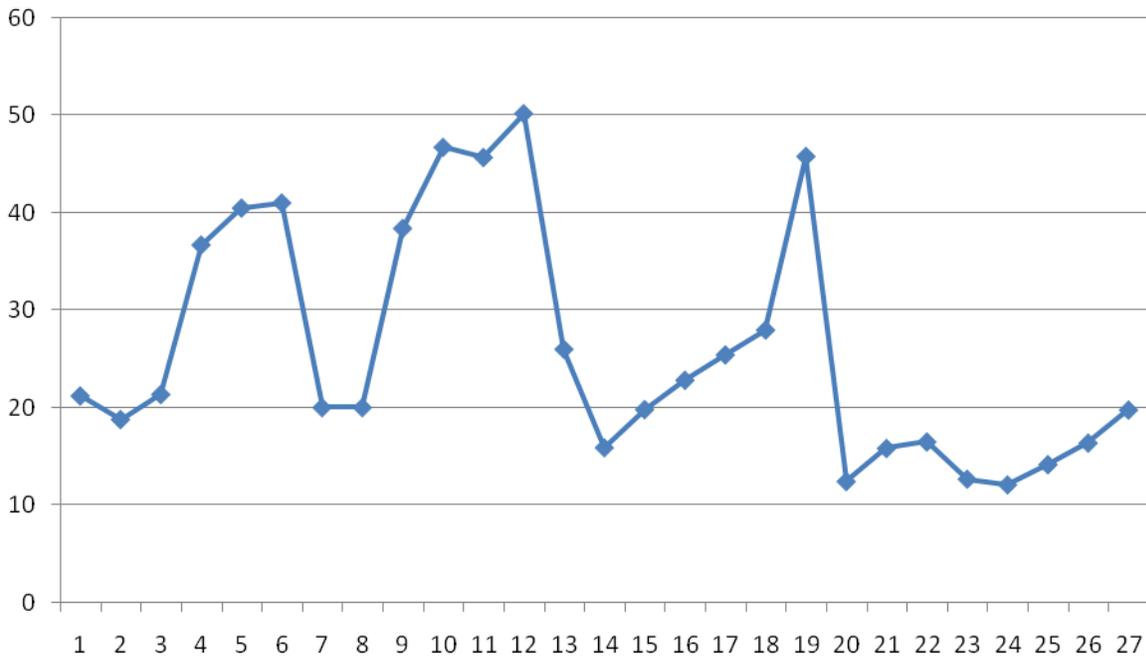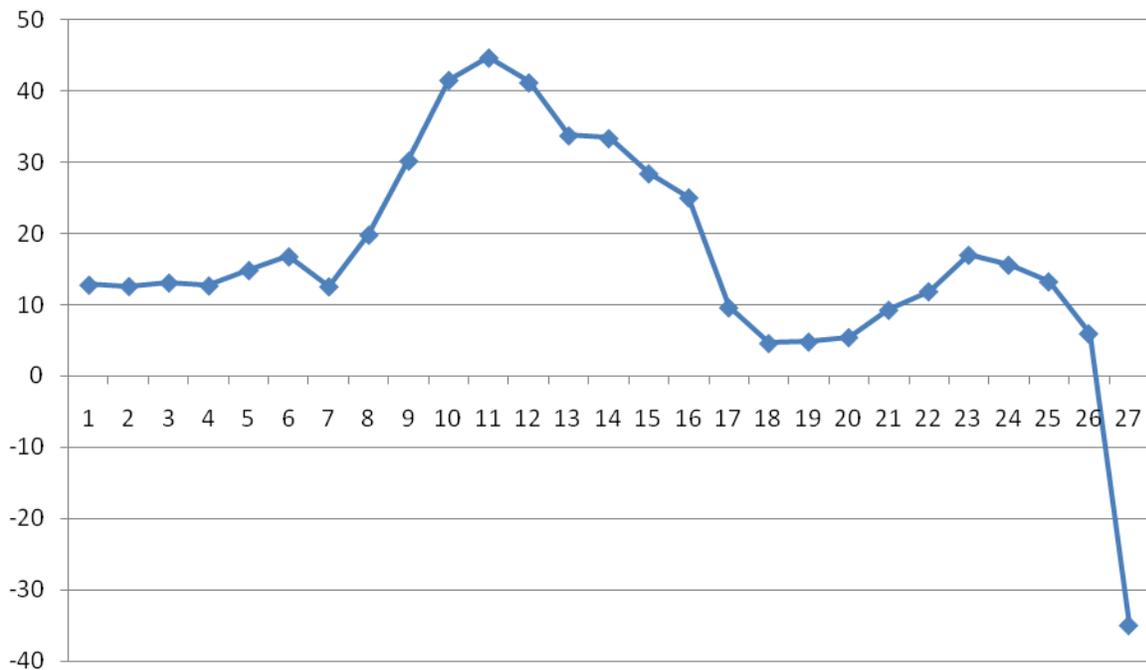
Reliance Infrastructure Ltd..(Adjusted Closing Price)
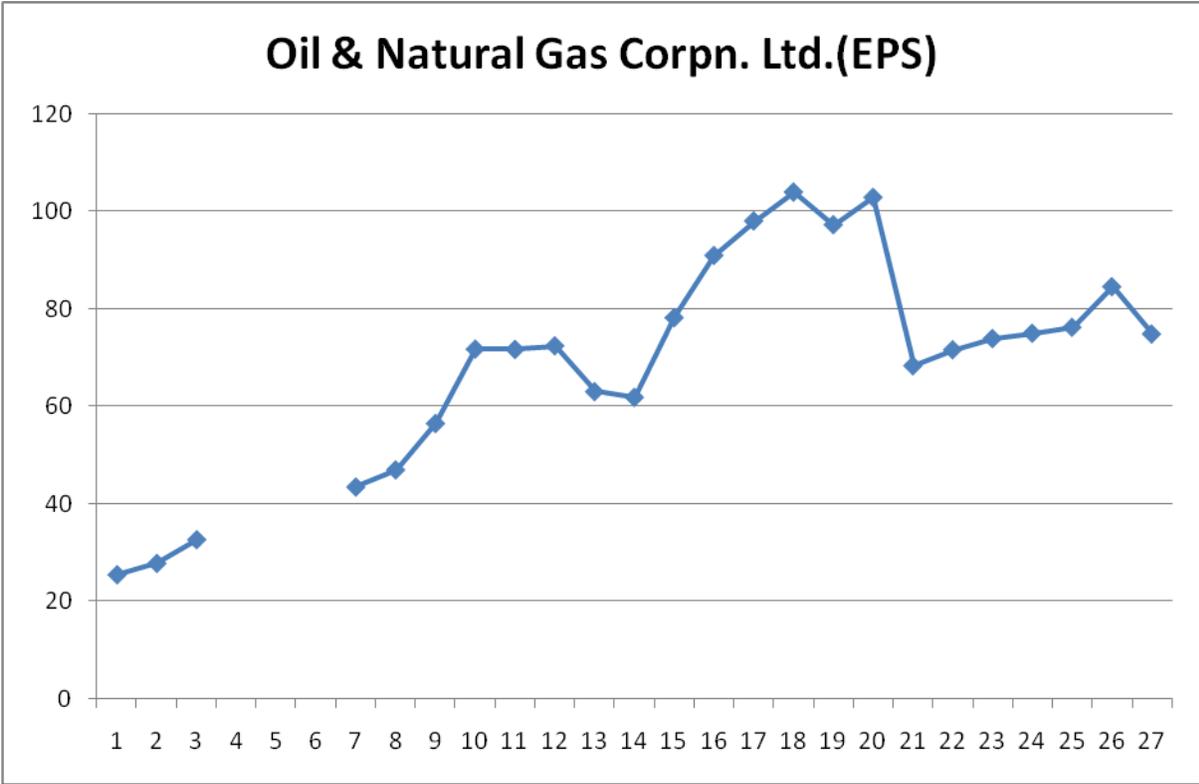

Reliance Infrastructure Ltd.(EPS)

Ranbaxy Laboratories Ltd..(Adjusted Closing Price)

Ranbaxy Laboratories Ltd.(EPS)

Oil & Natural Gas Corpn. Ltd..(Adjusted Closing Price)

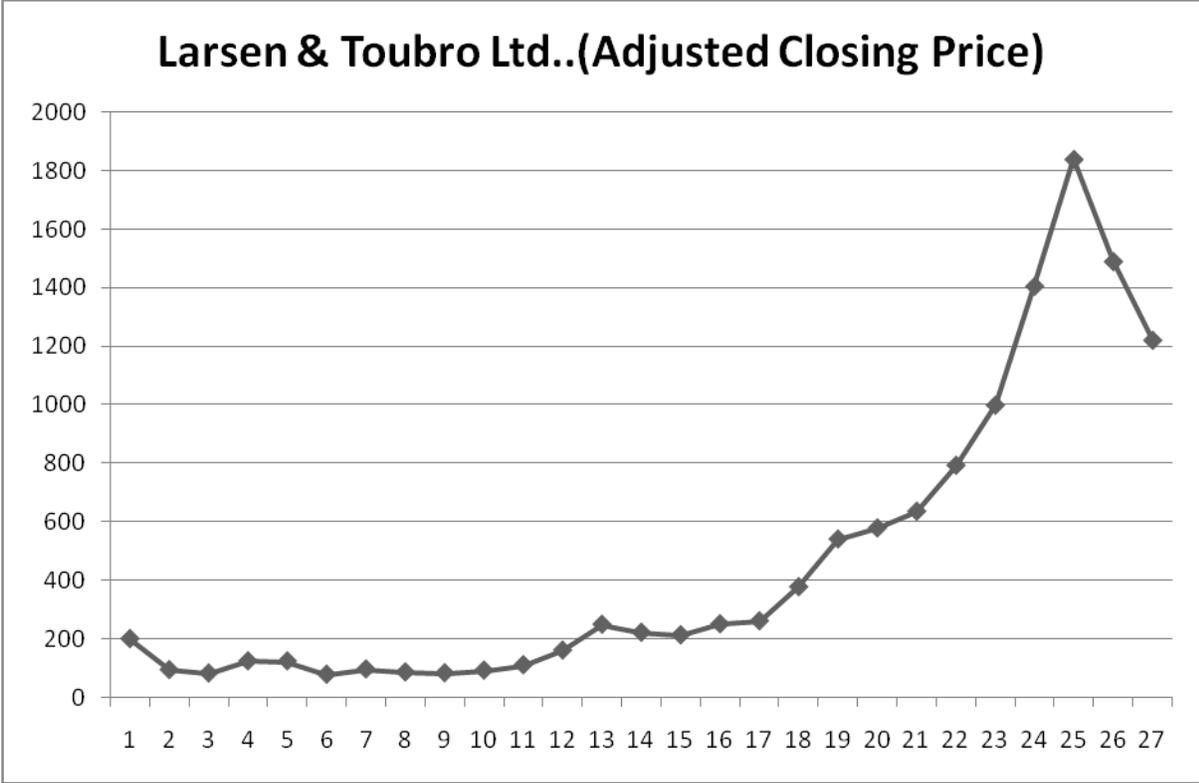# Oil & Natural Gas Corpn. Ltd.(EPS)
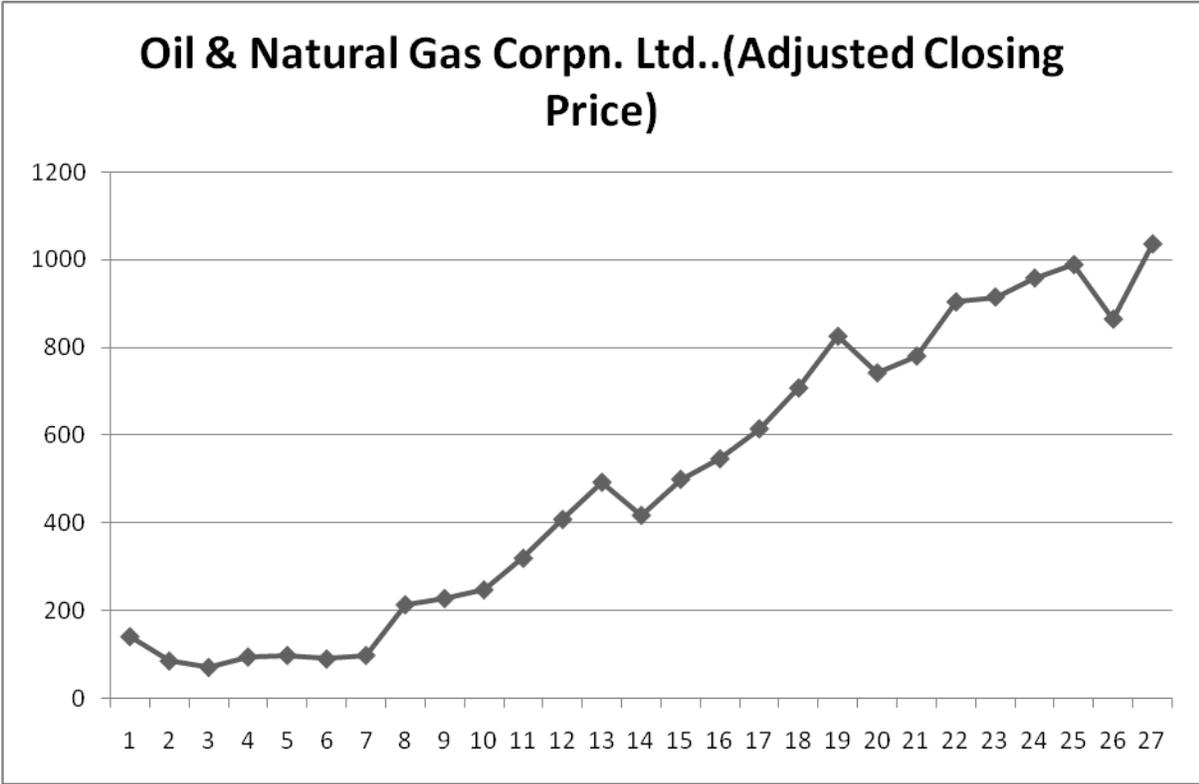
Mahindra & Mahindra Ltd..(Adjusted Closing Price)

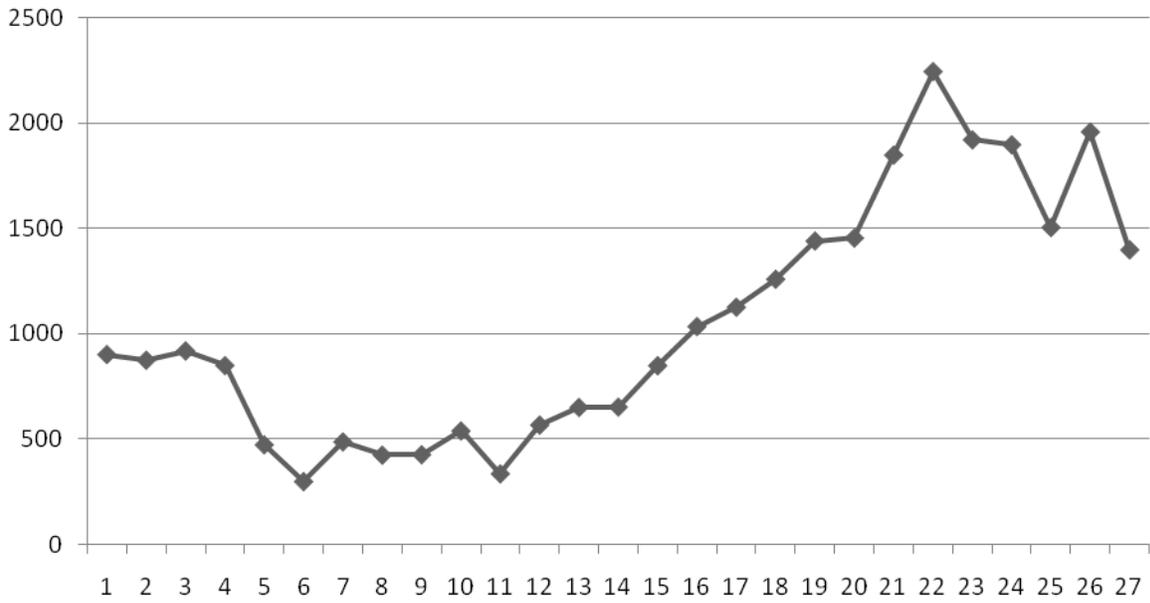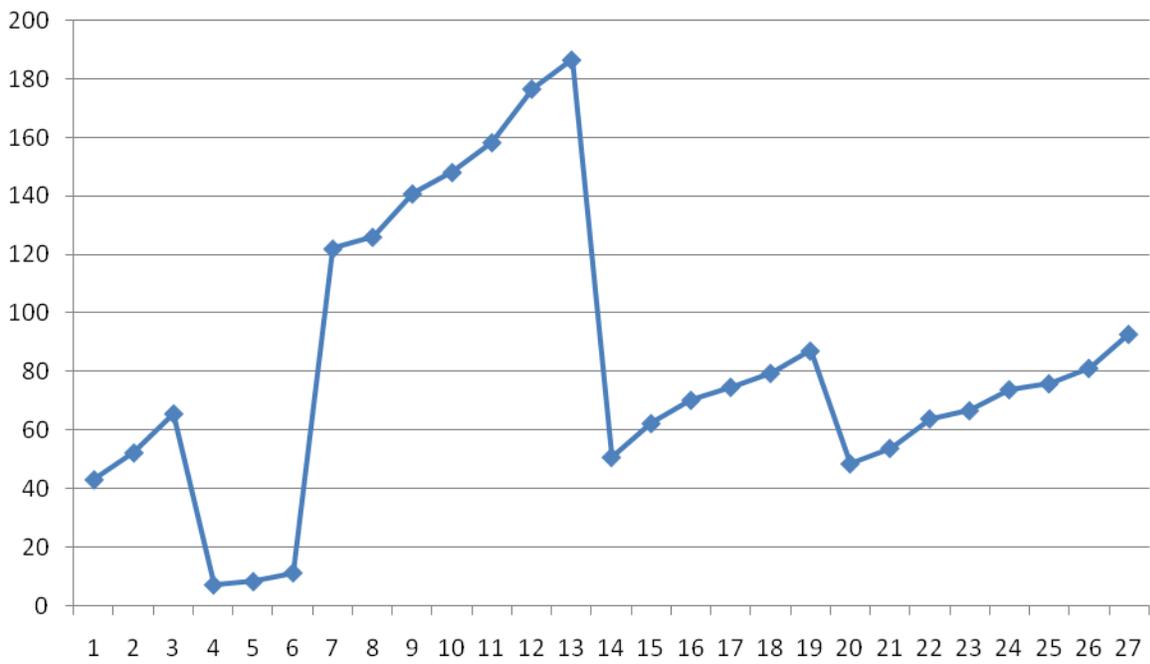**Mahindra & Mahindra Ltd.(EPS)**

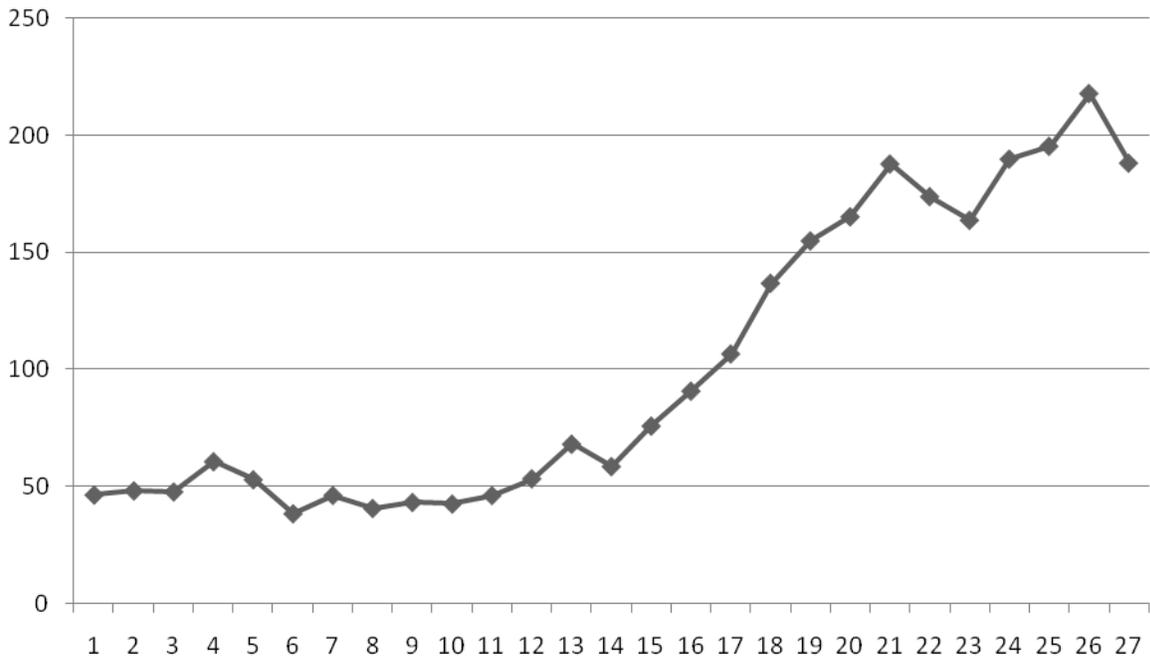Larsen & Toubro Ltd..(Adjusted Closing Price)
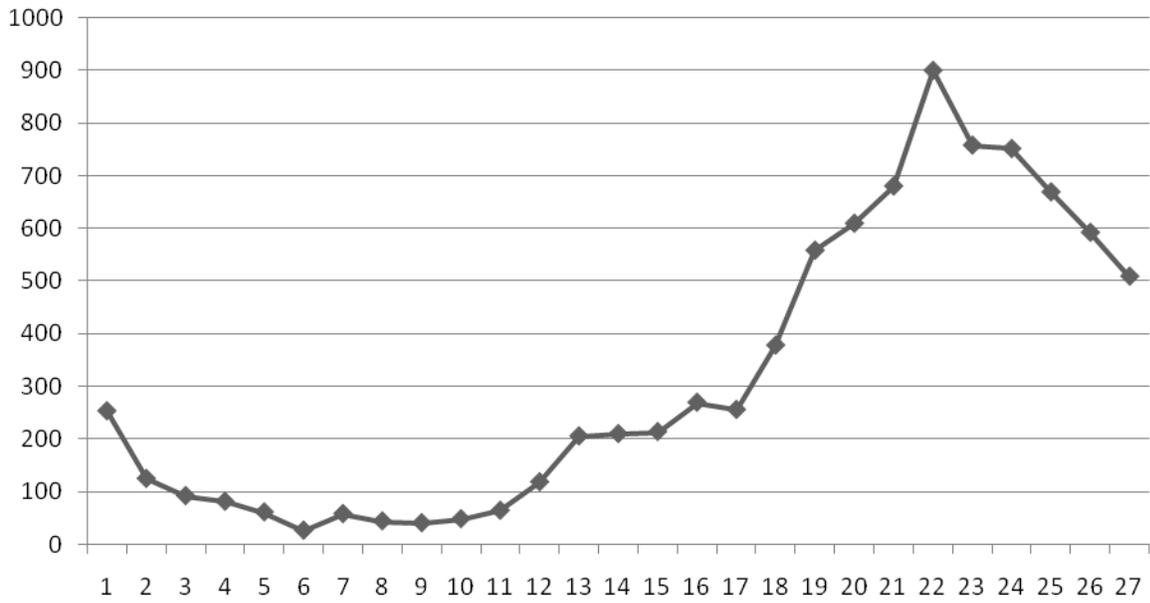
Larsen & Toubro Ltd.(EPS)
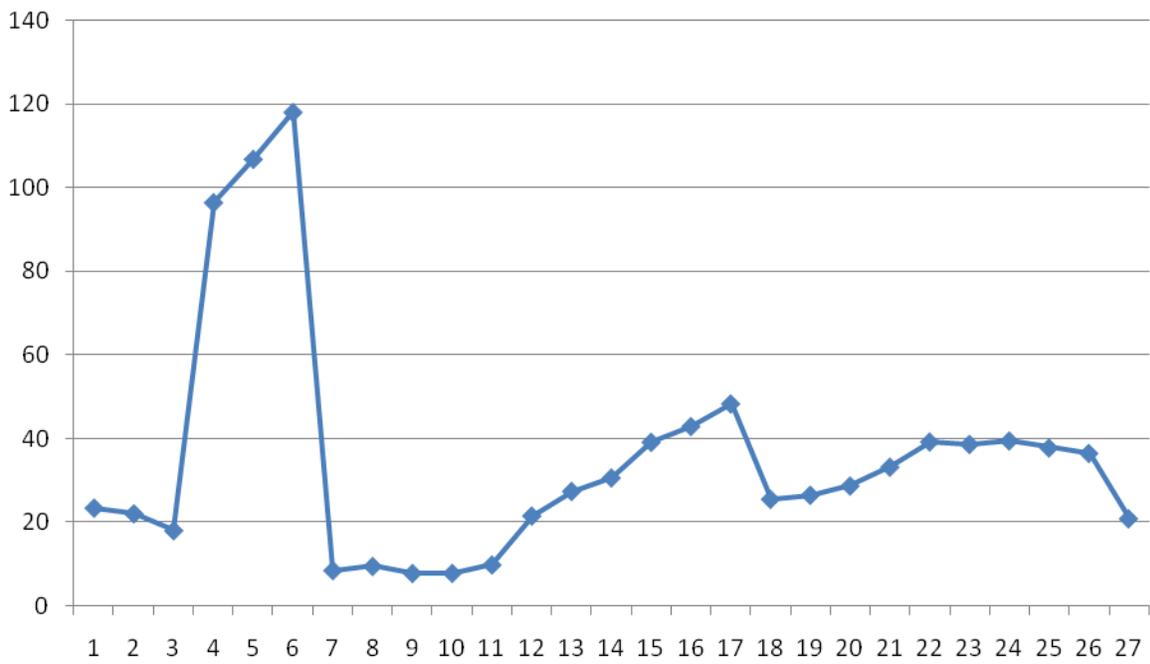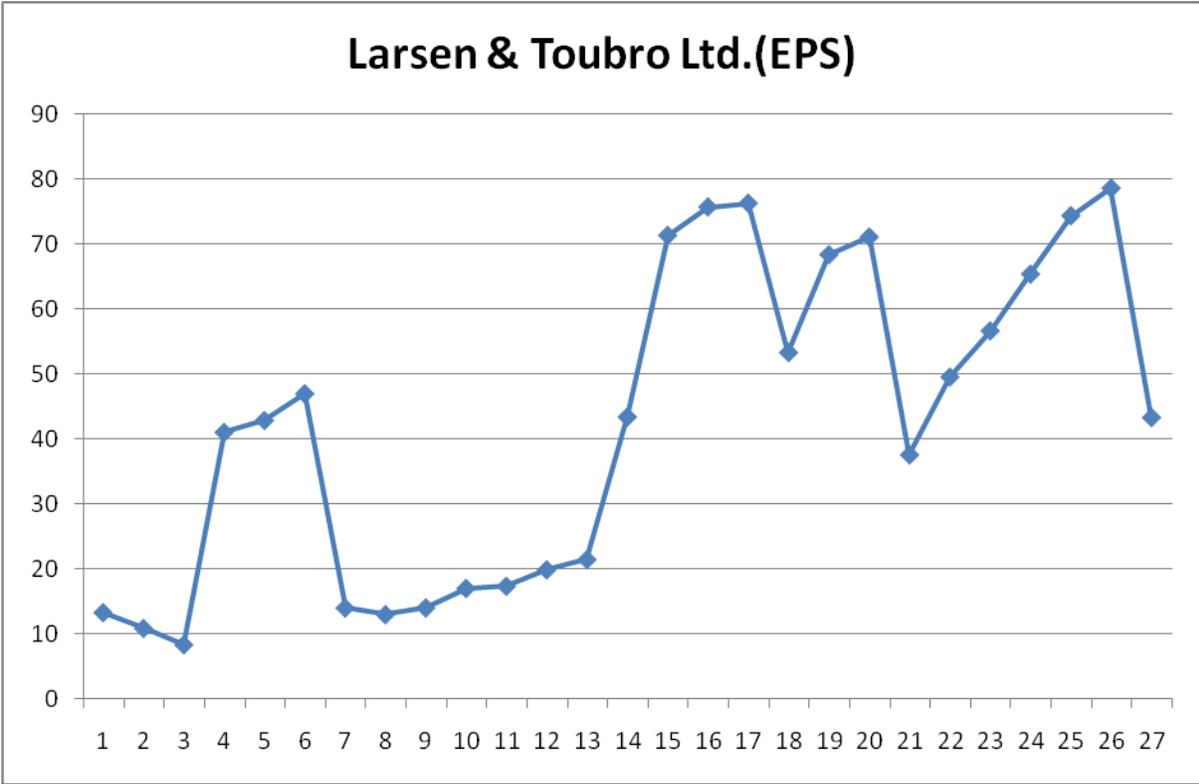
Infosys Technologies Ltd..(Adjusted Closing Price)
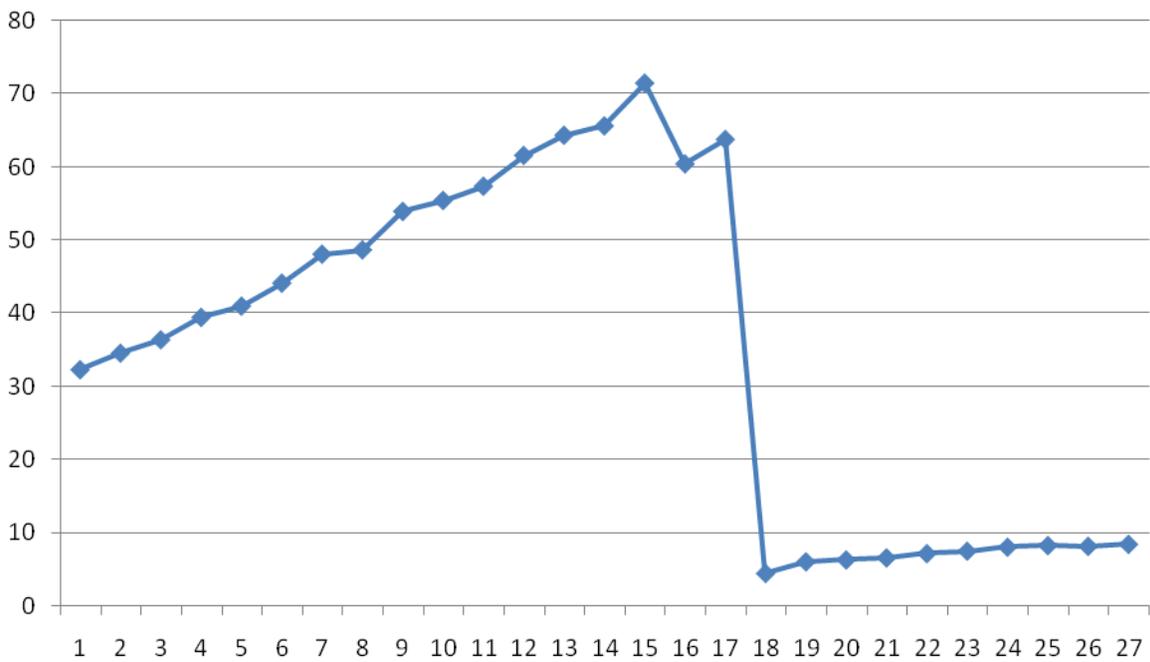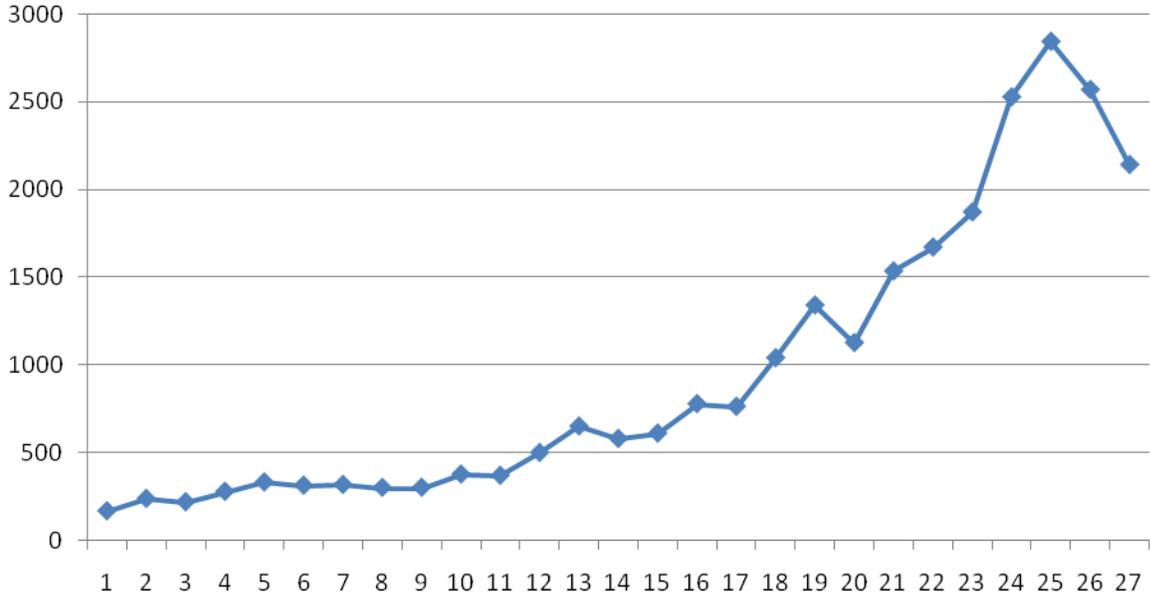

Infosys Technologies Ltd.(EPS)

I T C Ltd..(Adjusted Closing Price)

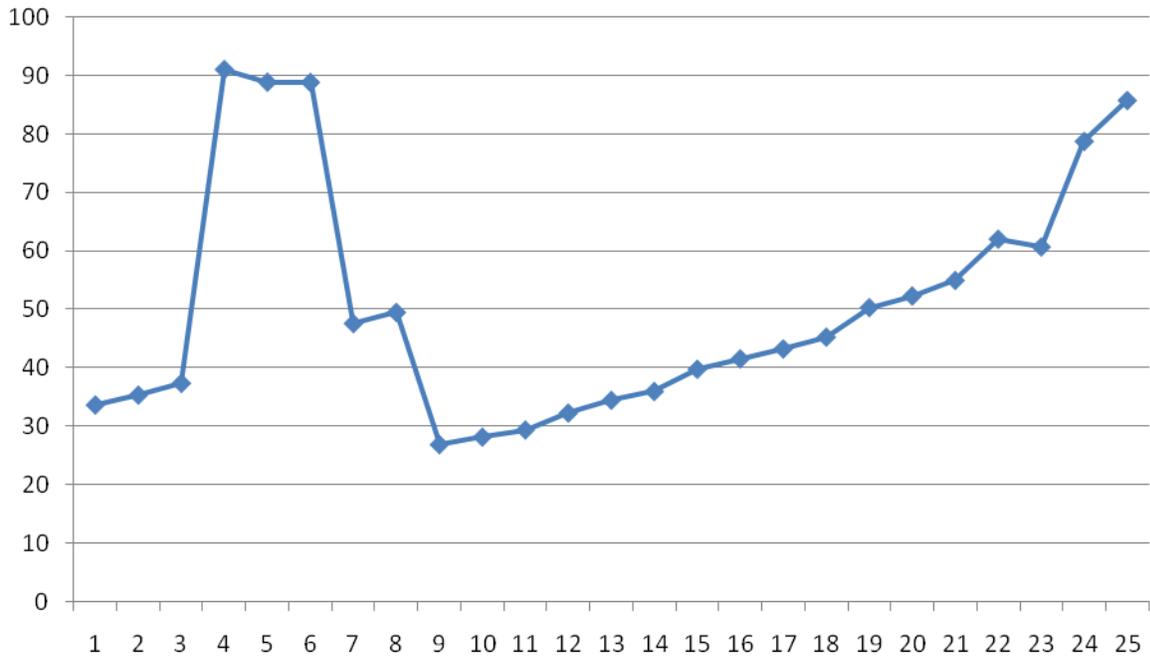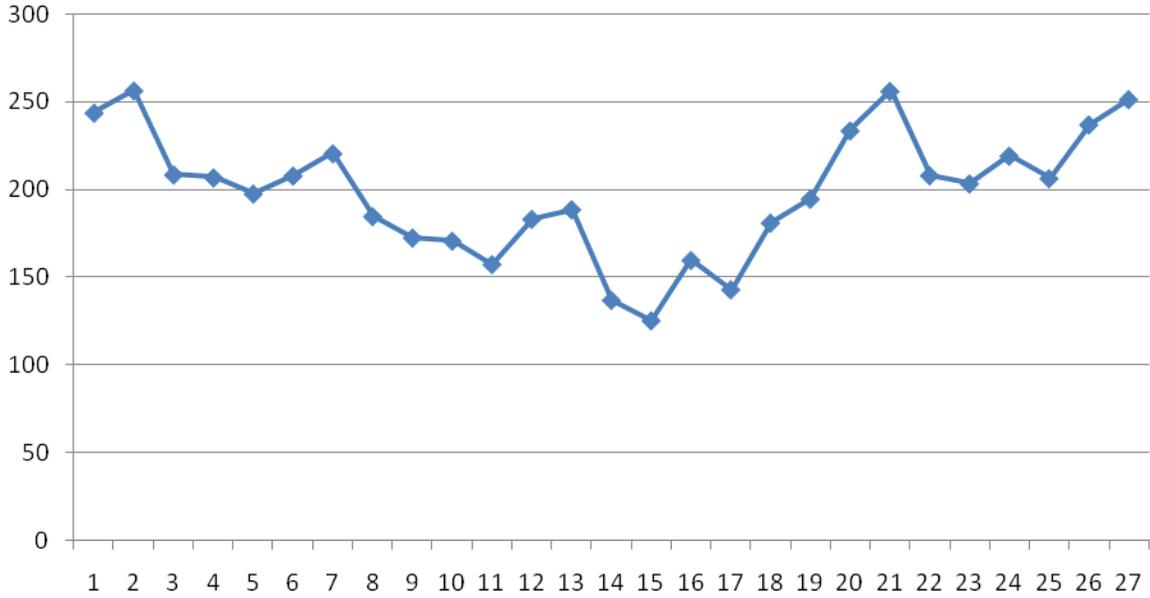

I T C Ltd.(EPS)

Housing Development Finance Corpn. Ltd..(Adjusted Closing Price)

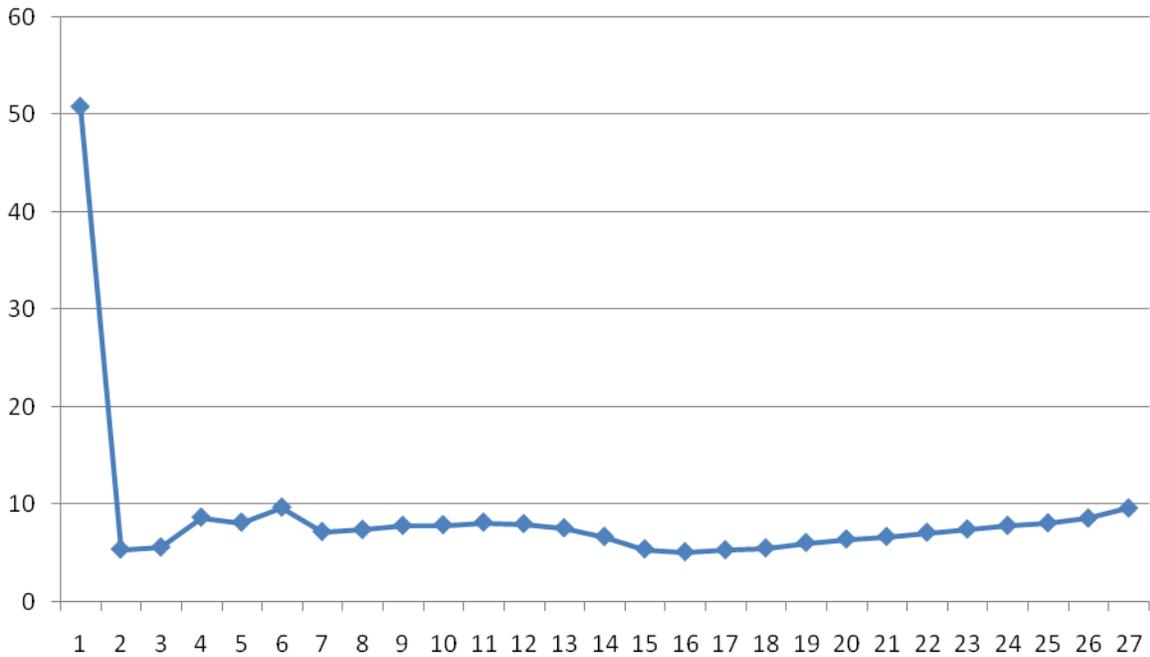**Housing Development Finance Corpn. Ltd(EPS).**
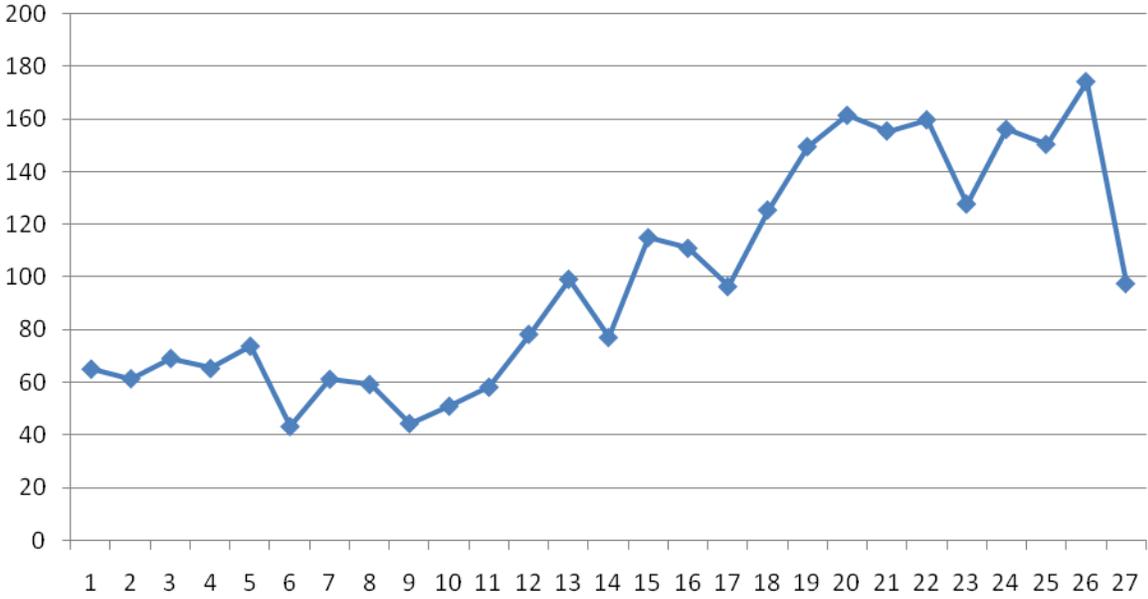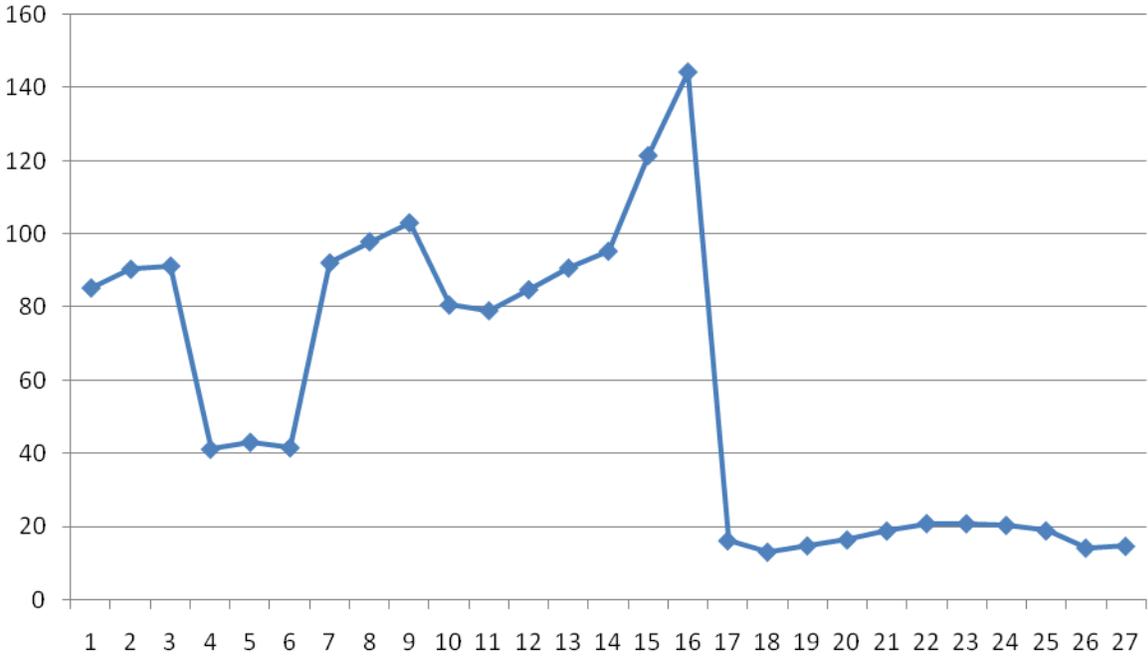
Hindustan Unilever Ltd..(Adjusted Closing Price)

Hindustan Unilever Ltd.(EPS)

Hindalco Industries Ltd..(Adjusted Closing Price)

Hindalco Industries Ltd.(EPS)

A general proposition concerns the movement in real rates of return for specific assets in a regime of excess growth of liquidity beyond a long term trend. Over the last decade there has been huge accumulation of foreign exchange reserves and consequent growth in money supply, sometimes more than 20% per annum (RBI sources). While it is more or less confirmed that over the long run growth of money supply matches inflation rate and thus real rates should be similar across sectors, there can be significant short-term anomalies where returns may diverge substantially.

Consider the following well known specific-factor model used frequently in international trade and development X and Y are produced by labor and sector specific capital earning r_x and r_y with $r_x \neq r_y$ in the short run. With usual neo-classical condition one can write

$$wa_{lx} + r_x a_{kx} = P_x \qquad (1)$$
$$wa_{ly} + r_y a_{ky} = P_y \qquad (2)$$

$$a_{Lx}X + a_{Ly}Y = L \qquad (3)$$
$$a_{Kx}X = Kx \qquad (4)$$
$$a_{Ky}Y = Ky \qquad (5)$$

$$\frac{X}{Y} = \frac{D_x}{D_y} = \phi\left(\frac{P_x}{P_y}\right) \qquad (6)$$

(1) - (6) determine w, r_x, r_y, X, Y and $P = \dfrac{P_x}{P_y}$

Suppose we superimpose a quantity theory type money demand money supply rule that determines the nominal price (P_x, P_y). Note that if money supply, P_x, P_y all grow at the same rate, nothing "real" changes in the model reconfirming the standard neo-classical/monetarist proposition. But suppose excess liquidity is distributed in such a way that $\hat{P}_x > \hat{P}_y = 0$ where '^' denote percentage change. This will imply that $\hat{r}_x > \hat{P}_x > 0 = \hat{P}_y > \hat{r}_y$.

If to start with $r_x > r_y$, such a policy creates further wedge with a tendency of capital to fly away from Y towards X. Of course that should over the medium to long run, reduce r_x and increase r_y. However if systematically P_x is allowed to rise relative to P_y, there will be a continuing spiral.

It is possible that in a more general credit driven demand supply model, both D_x and X will be affected by excess liquidity. For example banks push both demand for and supply of housing. But if the demand pressure is high r_x will continually rise. If $r_x = r_y$ is the desirable longer run possibility, excess liquidity may thwart such a process by continuously encouraging the gap.

Section: III

This section tries to find an aggregative relationship between the formal and the informal segments of the Indian economy. Preoccupations and possibly obsession with the GDP growth often undermine certain salient features of our economy. These features have to be kept in perspective while evaluating the impact of global recession on the economy and its constituents. Let us highlight such features.

a) Agriculture commands 20% of GDP, provides occupations to 60% of population primarily engaged in farm and non-farm rural sector.

b) More than 90% of total work force around 360 million are employed in the unorganized sector characterized by all or some of the following features – unrecorded, unorganized economic activities, non-compliance with labor and other regulations, highly dependent on relatively unregulated markets, no access to formal credit markets etc.

c) Some and possibly a large number of such activities may not be linked to the contracting traded sectors. Although a recent UNCTAD report suggests that export sector does accommodate a significant number of informal workers.

In a series of articles Marjit an Kar (2009, 2008a, 2008b, 2007) have argued that theoretically and also by using NSS data on unorganized manufacturing, that in the post-reform period, informal sector has done fairly well in terms of wages, productivity and growth of fixed assets. However, in the current context we would like to check to what extent the inertia of the informal economy is conditioned by developments in the formal sector. Since information is scarce we provide a very rough approximation by comparing the ASI figures for organized manufacturing with NSSO figures for the unorganized sector.

Methodology: Here we have attempted to compare growth rates of different variables related to manufacturing activity in Formal and Informal sector. We have chosen four variables for comparing growth of formal and informal sector; these are ***fixed assets, outstanding loan, gross value added and wages per worker***. Choice of variables was constrained by the availability of data on common variables both on formal and informal sector. Annual Survey of Industries (ASI) provides data on organized manufacturing sector for different states of India for each year. On the other hand there exists surveys on informal units by National Sample Survey Organization (NSSO), which conducts five yearly surveys on Unorganised Manufacturing Sector. For our purpose we have considered 51st round (1994-95), 56th Round (2000-01) & 62nd Round (2005-06). We have calculated the growth rate of the above-mentioned variables from the year 1994-95 to 2000-01 for 24 states and have taken yearly average growth rate of each variable by dividing the growth rates by number of years. Similarly we have calculated average yearly growth rates for the period 2000-01 to 2005-06 of each variable for informal sector. Now to compare the variables with the formal sector we have considered growth rate of each year from 1995-96 to 2000-01 and have taken the average of the growth rates to arrive at the average yearly growth rates of the each variable using ASI data. Following the similar procedure we have calculated the average yearly growth rates for the period 2000-01 to 2005-06 for the variables. Table: 1 shows the comparison table for formal and informal sector across different states and union territories of India. Charts are also given for comprehensive analysis of comparison between formal and informal sector.

[**Note**: Concepts of fixed capital and fixed asset
ASI provides data on fixed capital. It has defined fixed capital in the following way:
Fixed Capital: represents the depreciated value of fixed assets owned by the factory as on the closing day of the accounting year. Fixed assets are those which have a normal productive life of more than one year. Fixed capital includes land including lease- hold land, buildings, plant and machinery, furniture and fixtures, transport equipment, water system and roadways and other fixed assets such as hospitals, schools etc. used for the benefit of factory personnel.

NSSO provides data on fixed assets. It has defined fixed asset in the following way:
Fixed assets: Fixed assets are assets held for the purpose of producing or providing goods or services and they are not held for resale in the normal course of entrepreneurial activities. These cover all goods, new or used, that have a normal economic life of more than one year from
the date of purchase.]

Correlation Coefficient of the growth rates of different variables between formal and Informal Sector:

1994-95 to 2000-01				
	Fixed assets	**outstanding loan**	**gross value added**	**Wages per worker**
Correlation Coefficient ®	-0.187	0.027	0.231	-0.376
p-values	0.373	0.896	0.270	0.0637*

*Significant at 10% level of significance

2000-01 to 2005-06				
	Fixed assets	**outstanding loan**	**gross value added**	**Wages per worker**
Correlation Coefficient	-0.033	-0.052	0.311	0.210
p-values	0.875	0.806	0.131	0.316

Statewise Average Growth Rate of Fixed Asset for the years 1994-95 to 2000-01 in Formal and Informal Sector
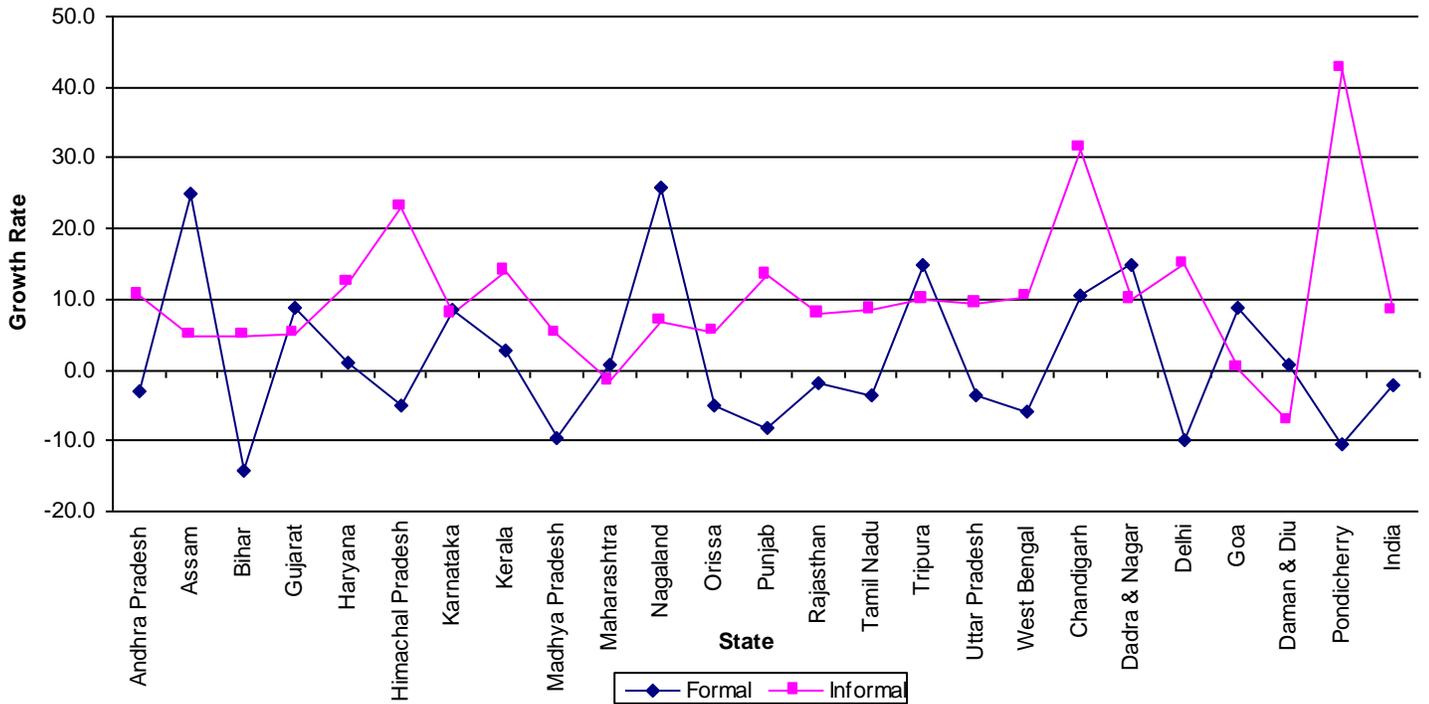
Statewise Average Growth Rate of Fixed Asset/Capital for the years 2000-01 to 2005-06 in Formal /Informal Sector
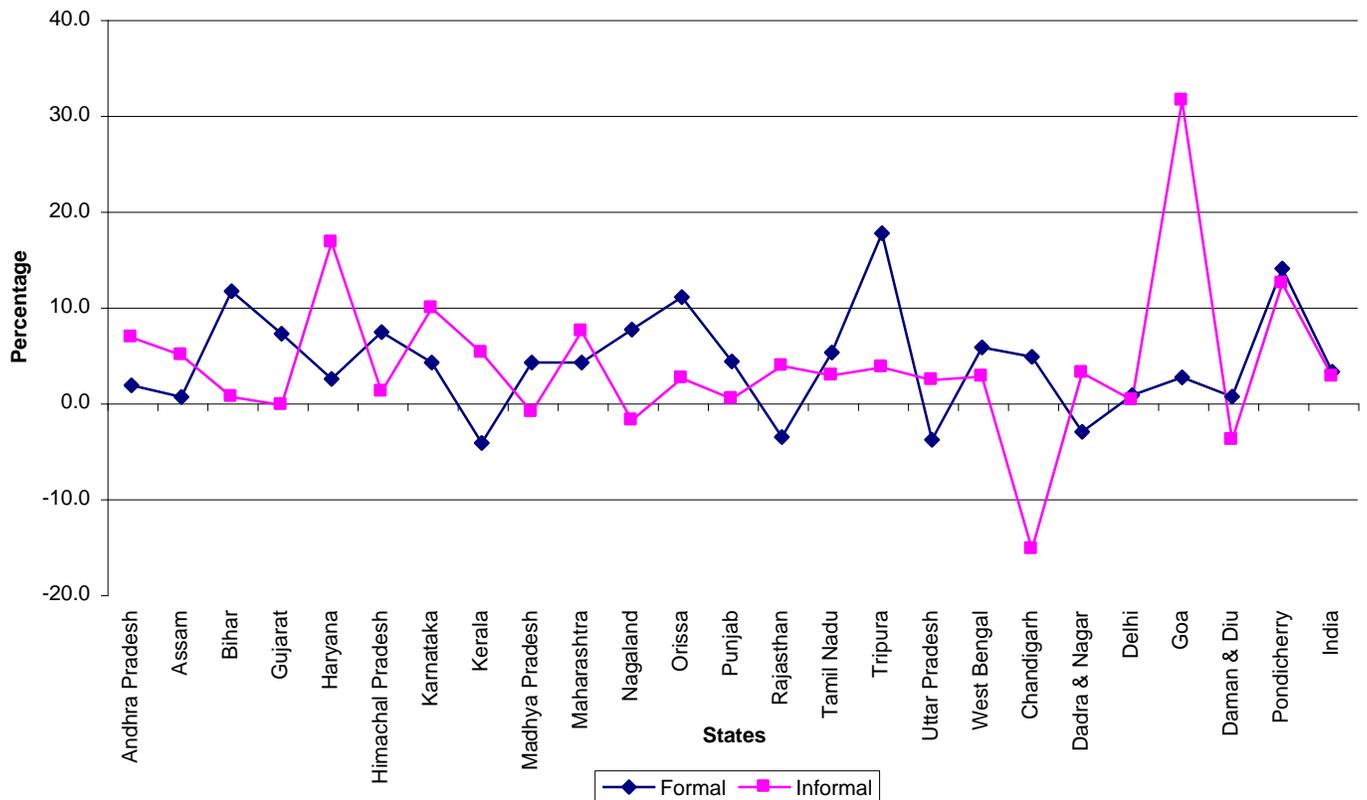
Statewise Average Growth Rate of Outstanding Loan of the years 1994-95 to 2000-01 in Formal and Informal Sector

Statewise Average Growth Rate of Outstanding Loan for the years 2000-01 to 2005-06 in Formal and Informal Sector

Statewise Average Growth Rate of GVA of the years 199495 to 2000-01 in Formal and Informal Sectors

Stateswise Average Growth Rate of GVA for the years 2000-01 to 2005-06 in Formal and Informal Sector
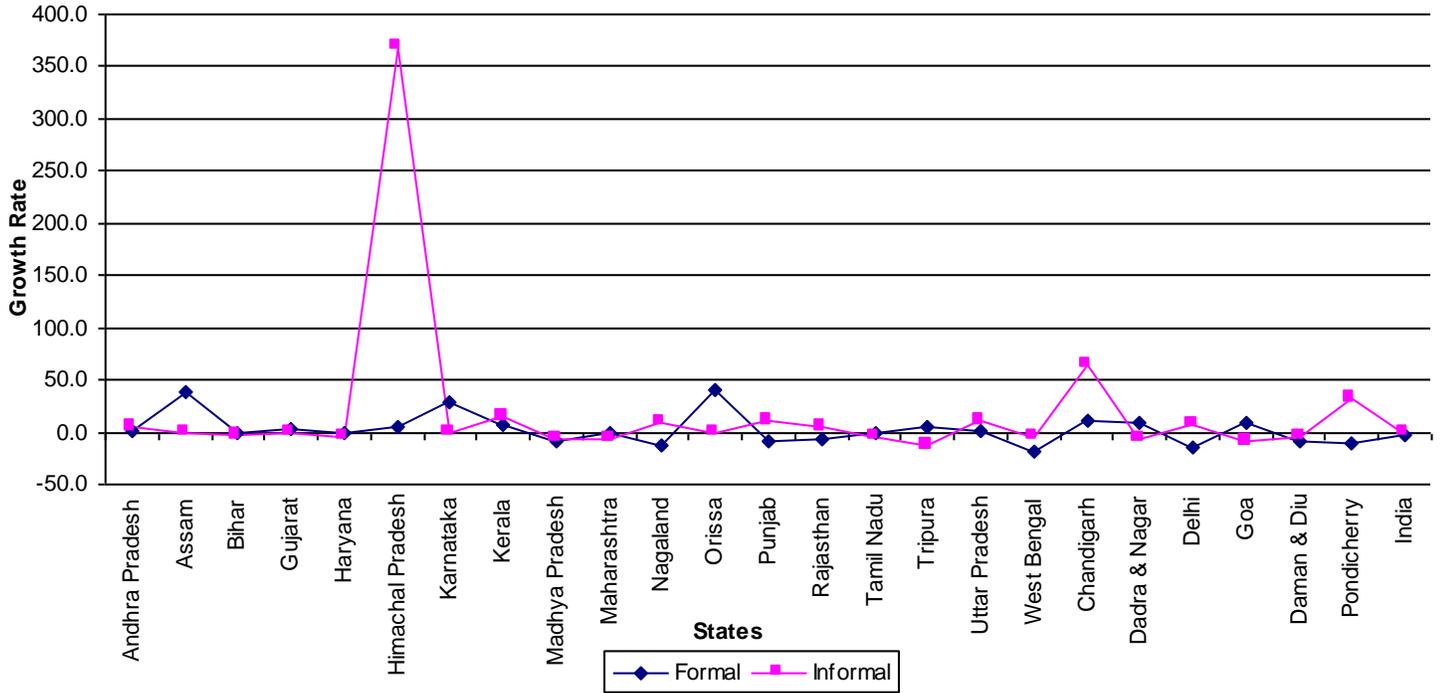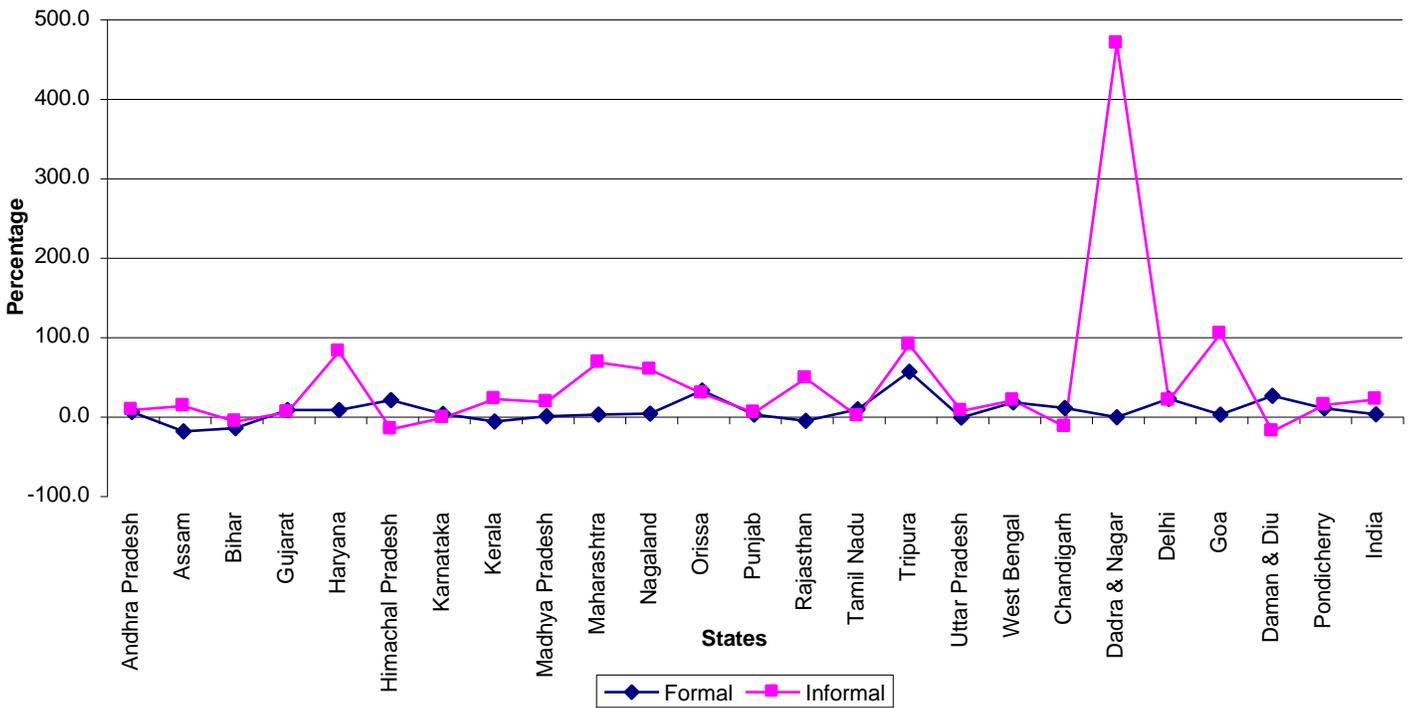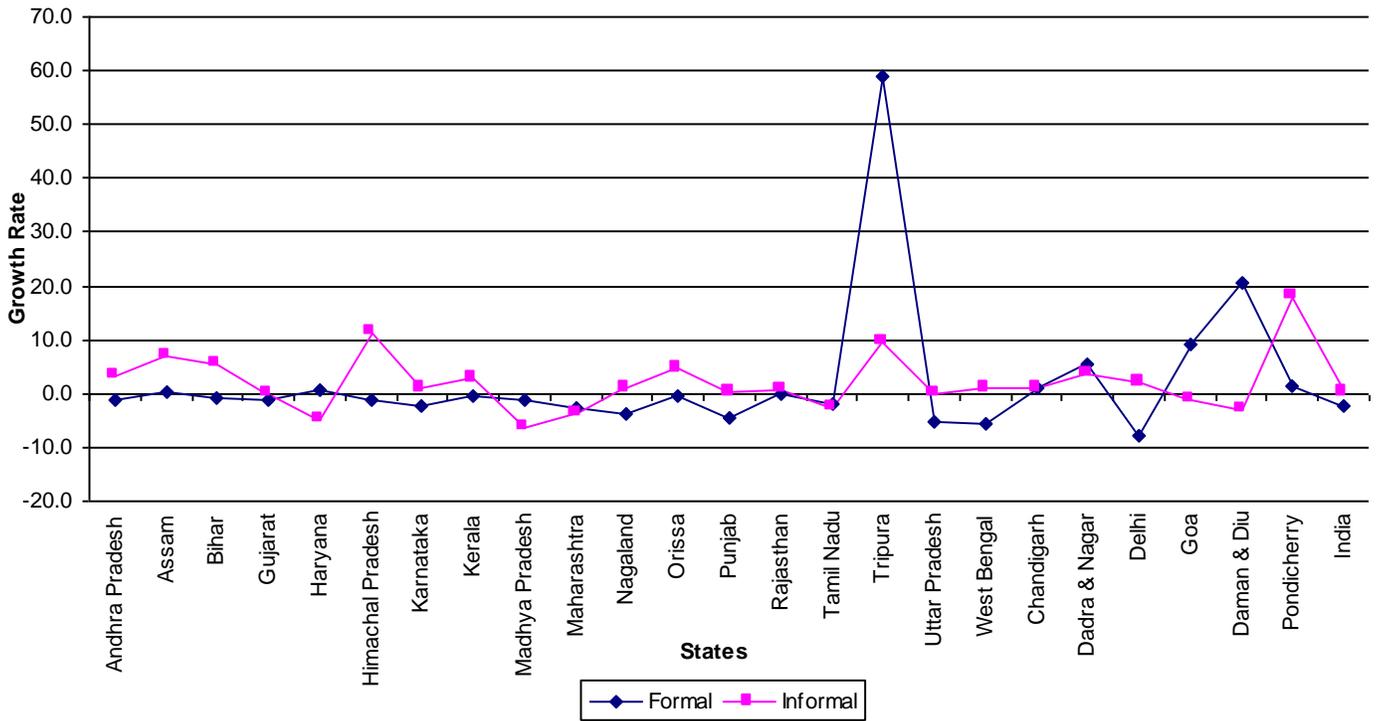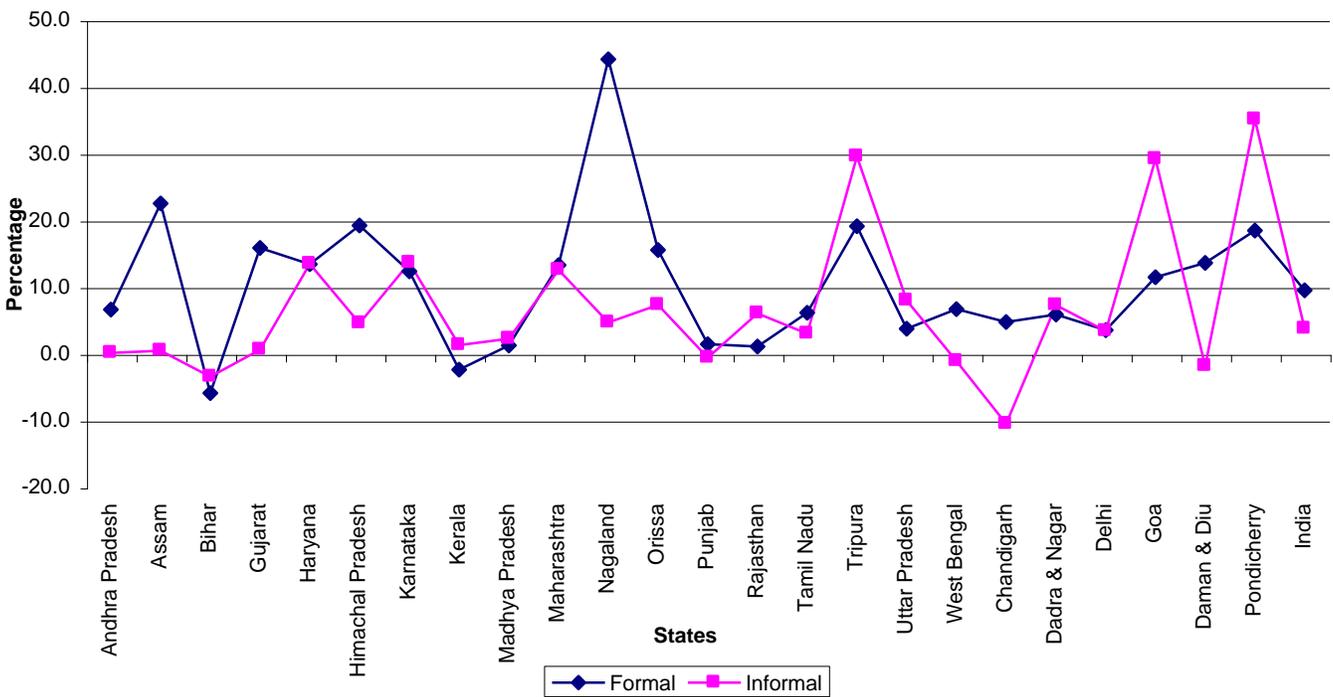
Statewise Average Growth Rate of Wages per Worker of the years 1994-95 to 2000-01 in Formal and Informal Sectors

Statewise Average Growth Rate of Wages per Worker for the years 2000-01 to 2005-06 in Formal and Informal Sector
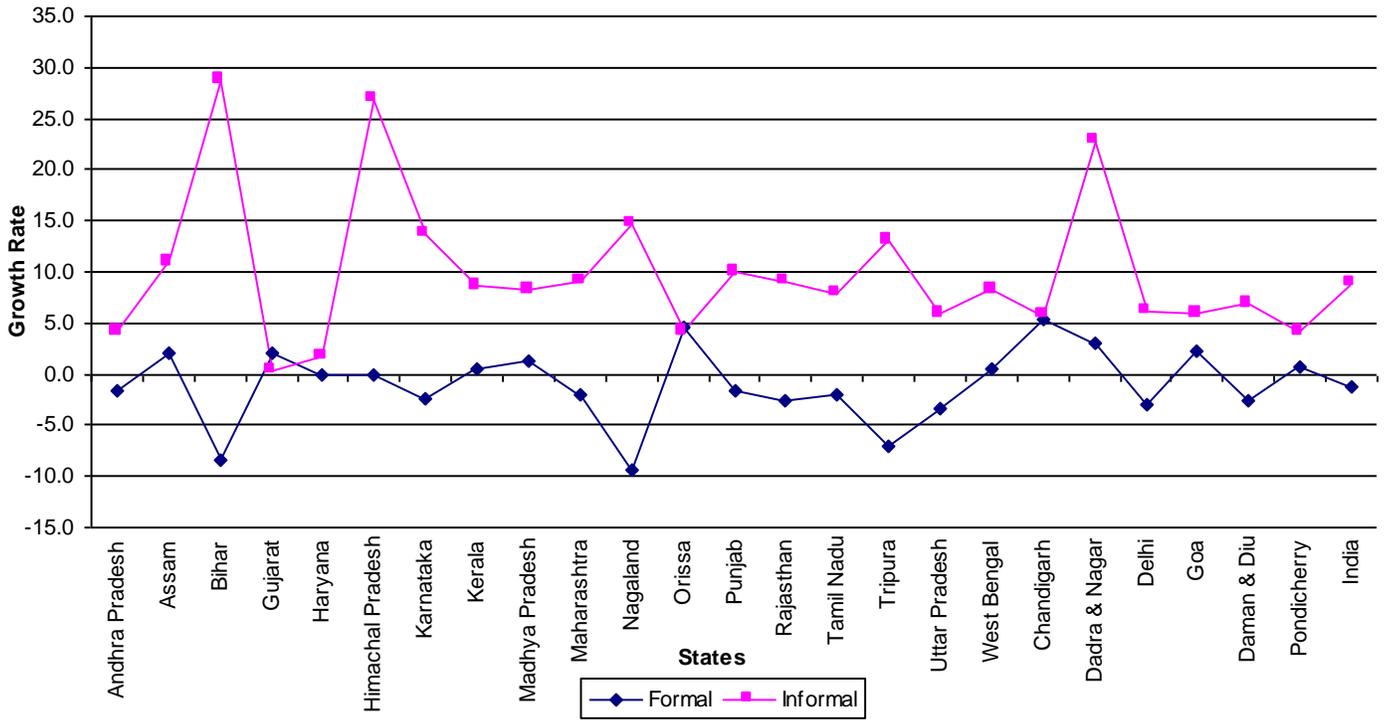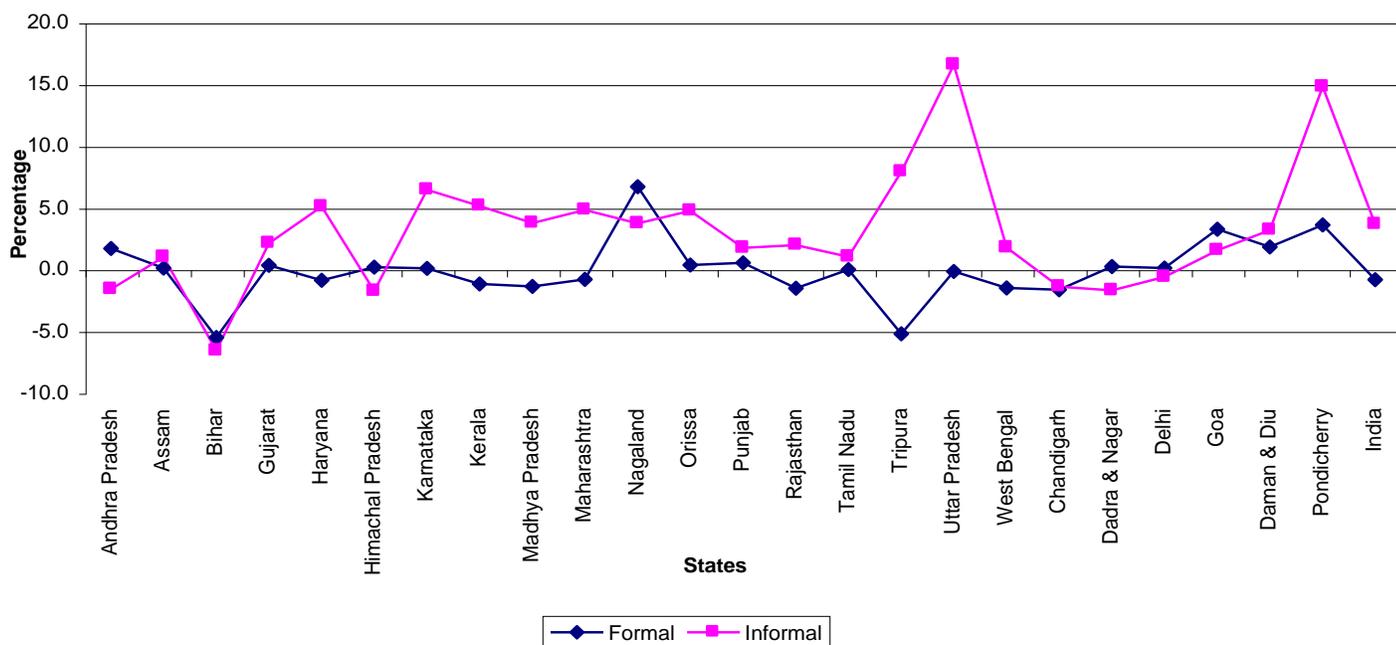
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States	Years	Var1 Fixed assets		Var2 Outstanding loan		Var3 Gross value added		Var4 Wages per worker	
		Formal	Informal	Formal	Informal	Formal	Informal	Formal	Informal
Andhra Pradesh	1994-95 to 2000-01	-3.0	10.6	0.3	4.1	-1.1	3.1	-1.6	4.2
	2000-01 to 2005-06	1.8	6.8	4.6	7.0	6.7	0.1	1.7	-1.6
Assam	1994-95 to 2000-01	25.0	4.8	38.6	-1.5	0.3	7.0	2.0	11.0
	2000-01 to 2005-06	0.6	4.9	-20.0	12.0	22.6	0.5	0.1	1.0
Bihar	1994-95 to 2000-01	-14.1	4.8	-0.8	-3.3	-1.0	5.6	-8.4	28.8
	2000-01 to 2005-06	11.6	0.6	-15.6	-7.6	-5.9	-3.4	-5.5	-6.6
Gujarat	1994-95 to 2000-01	8.8	5.1	3.9	-1.6	-1.4	-0.1	2.1	0.4
	2000-01 to 2005-06	7.2	-0.3	6.9	4.3	15.9	0.6	0.3	2.1
Haryana	1994-95 to 2000-01	1.1	12.3	-0.8	-5.0	0.6	-4.8	-0.1	1.7
	2000-01 to 2005-06	2.5	16.7	7.0	80.4	13.5	13.5	-0.9	5.1
Himachal Pradesh	1994-95 to 2000-01	-5.0	22.9	4.9	368.7	-1.3	11.4	0.0	26.9
	2000-01 to 2005-06	7.3	1.1	19.7	-17.1	19.2	4.6	0.2	-1.7
Karnataka	1994-95 to 2000-01	8.5	7.9	29.2	-0.3	-2.2	0.9	-2.4	13.8
	2000-01 to 2005-06	4.2	9.8	2.0	-2.8	12.4	13.7	0.1	6.5
Kerala	1994-95 to 2000-01	2.9	14.1	7.2	14.4	-0.4	2.7	0.5	8.6
	2000-01 to 2005-06	-4.2	5.2	-7.4	20.7	-2.4	1.3	-1.2	5.1
Madhya Pradesh	1994-95 to 2000-01	-9.5	5.1	-9.6	-7.6	-1.1	-6.4	1.4	8.3
	2000-01 to 2005-06	4.2	-1.0	-0.9	16.8	1.3	2.3	-1.4	3.8
Maharashtra	1994-95 to 2000-01	0.7	-1.5	-1.2	-7.7	-2.7	-3.8	-2.1	9.0
	2000-01 to 2005-06	4.2	7.4	1.4	66.9	13.3	12.6	-0.8	4.8
Nagaland	1994-95 to 2000-01	25.9	6.7	-13.2	8.9	-3.8	1.2	-9.4	14.7
	2000-01 to 2005-06	7.6	-1.9	2.7	57.7	44.1	4.7	6.7	3.7
Orissa	1994-95 to 2000-01	-5.1	5.2	39.8	-0.4	-0.4	4.8	4.6	4.2
	2000-01 to 2005-06	11.0	2.5	31.4	28.0	15.6	7.3	0.4	4.7
Punjab	1994-95 to 2000-01	-8.1	13.4	-8.0	10.0	-4.4	0.3	-1.7	10.0
	2000-01 to 2005-06	4.3	0.4	1.4	3.6	1.5	-0.6	0.5	1.7
Rajasthan	1994-95 to 2000-01	-1.8	7.9	-5.9	4.4	-0.1	0.7	-2.6	9.0
	2000-01 to 2005-06	-3.6	3.8	-6.5	46.8	1.1	6.1	-1.5	2.0
Tamil Nadu	1994-95 to 2000-01	-3.7	8.5	-1.6	-4.3	-1.8	-2.8	-1.9	7.8
	2000-01 to 2005-06	5.2	2.8	8.0	-0.6	6.2	3.0	0.0	1.0
Tripura	1994-95 to 2000-01	14.7	9.9	4.3	-13.2	58.8	9.6	-7.0	13.0
	2000-01 to 2005-06	17.7	3.7	55.0	89.1	19.1	29.6	-5.2	7.9
Uttar Pradesh	1994-95 to 2000-01	-3.6	9.5	0.8	10.0	-5.2	-0.2	-3.3	5.9
	2000-01 to 2005-06	-3.9	2.3	-2.7	6.0	3.8	8.0	-0.2	16.6
West Bengal	1994-95 to 2000-01	-5.8	10.3	-18.2	-4.3	-5.5	1.1	0.4	8.3
	2000-01 to 2005-06	5.8	2.7	16.4	19.1	6.7	-1.1	-1.5	1.8
Chandigarh	1994-95 to 2000-01	10.7	31.2	10.9	64.2	0.9	1.2	5.4	5.7
	2000-01 to 2005-06	4.8	-15.3	9.7	-14.2	4.8	-10.5	-1.7	-1.4
Dadra & Nagar	1994-95 to 2000-01	14.9	10.1	9.6	-7.7	5.4	3.7	2.9	22.7
	2000-01 to 2005-06	-3.1	3.1	-2.1	468.6	5.9	7.3	0.2	-1.7
Delhi	1994-95 to 2000-01	-9.8	14.8	-14.8	6.8	-7.8	2.2	-3.0	6.1
	2000-01 to 2005-06	0.8	0.3	21.1	19.0	3.6	3.4	0.1	-0.6
Goa	1994-95 to 2000-01	8.9	0.2	8.3	-9.5	9.2	-1.2	2.2	6.0
	2000-01 to 2005-06	2.6	31.5	1.3	102.9	11.5	29.2	3.3	1.6

Daman & Diu	**1994-95 to 2000-01**	0.7	-7.2	-7.8	-5.4	20.5	-3.2	-2.5	6.8
	2000-01 to 2005-06	0.6	-3.9	25.1	-20.0	13.6	-1.8	1.8	3.2
Pondicherry	**1994-95 to 2000-01**	-10.4	42.4	-11.4	32.4	1.2	18.1	0.6	4.1
	2000-01 to 2005-06	14.0	12.4	9.0	13.1	18.5	35.2	3.6	14.8
India	**1994-95 to 2000-01**	-2.2	8.1	-3.3	0.1	-2.5	0.3	-1.2	8.8
	2000-01 to 2005-06	3.2	2.7	1.7	20.4	9.5	3.8	-0.8	3.6