CHAPTER II: STYLIZED FACTS

Chapter 211-Macroecomy -Financial Integration of India

Today Indian economy is one of the largest i.e. the third largest in the world. It is also one of the fastest growing economies with growth rates in excess of 8% per annum. Indeed India has come a long way from the balance of payment crisis of 1991 when it had run short of foreign exchange to pay for its import bills and had to pledge gold to obtain foreign exchange. Today India’s companies have transformed themselves to what is called “Indian Multinationals” in contrast to the days when they sought shelter under “infant industry” argument.

A crisis offers an opportunity to unleash drastic measures. So did India’s 1991 crisis. Spurred by the urgency, India unleashed a series of economic reforms, both of internal and external sectors, that is known as liberalization.

From 1992 onwards, India has experienced a substantial integration with the world economy on both the current account and the capital account. Table 1 summarises the empirical facts of this period.

While India continues to have onerous capital controls, the capital account is fairly open for FDI, and for “foreign institutional investors”. In addition, as is well known in the literature, there is a strong relationship between a large and open current account, and capital controls. The needs of firms engaged in trade induce an easing of many capital controls, and capital controls become increasingly porous once there is a large current account. The current account can be used by economic agents to
implement cross-border capital flows through over/under invoicing, lags in payments and trade credit (Patnaik and Vasudevan, 2000).

Combining across these elements of openness, India has made significant movement towards de facto convertibility.

Foreign Capital Flows

As can be observed from the above, overall capital flows showed uptrend till 2008, the volatility of total capital flows is on account of portfolio flows.

The following chart showing year to year growth of foreign capital flows vividly brings out the volatile nature of portfolio flows.
FII investment in Debt Markets

In order to encourage foreign participation, foreign institutional investors (FIIs) were allowed in January 1997 to set up 100 per cent debt funds to invest in Central and State Government securities, both in the primary and the secondary markets, within the overall debt ceilings that are announced from time to time. Equity funds set up by FIIs are allowed to invest in debt up to a maximum of 30 per cent of their total investments.
Chapter 212-Interest Rates in India

Capital Flows affect can be segmented into (a) exchange rate; (b) interest rates and (c) inflation. There is a two way relationship between capital flows and interest rates. However, the following paras discuss how capital flows affect interest rates, their behavior and structure.

212.1 An Overview of Interest Rate Structure

The above is given as per RBI.
### Table: 212.1.1.1: Structure of Interest Rates

<table>
<thead>
<tr>
<th>Year</th>
<th>Call/Notice money rates</th>
<th>Deposit rates 1 to 3 yrs.</th>
<th>Over 3 yrs. &amp; upto 5 yrs.</th>
<th>Above 5 yrs.</th>
<th>SBI advance rate</th>
<th>Key lending rates as prescribed by RBI (All commercial banks including SBI)</th>
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<td>Ceiling rate general Minimum rate general Minimum rate selective credit control</td>
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<td>7.00-7.75</td>
<td>7.50</td>
<td>7.50-8.00</td>
</tr>
</tbody>
</table>

(Continued)

### Declining Trend in the overall Interest Rates Structure

As can be observed from the above, general trend across the spectrum is downward.
Downward Sloping (vs. Normal Upward Sloping) interest Rate Structure for Firms

Though the most of the institutions mentioned in the table below have ceased to exist It is important to note that term lending institutions used to lend funds at 14% for a tenor of seven 97 years while banks used to lend short term funds i.e. working
capital funds at 19% implying a downward sloping term structure of interest rates for corporate in the late 1980s and early 1990s.
212.2 Short Term Interest Rates

The following paras analyze and describe how interest rates (overnight, money market and long term) have changed over the period under review (FY 2001 to FY 2010).

212.2.1 Overnight and Short term Interest Rates

212.2.1.1 Interbank Call Money Rates

There is no single call money rate now. RBI has effectively segmented two types of overnight money markets namely, those which are banks and those which are for non-bank financial institutions (such as MFs, NBFCs, etc.).

This is now only open for banks. It can be observed that though call money rates have shown declining trend.

![Chart: Interbank Call Money Rate-Average and Std Deviation (Volatility)](chart.png)

During the FY 2009 the call money showed one of the highest levels and volatility.
212.2.1.2 Treasury Bills

Along with other money market instruments GOI Treasury Bills show a declining trend.

![Chart: 212.2 Treasury Bills -Annual Average Yields](image1)

Source: The Author's own creation based on RBI Data

212.2.1.3 Commercial Papers

Except for the spike in FY 2009, the yields on CPs have been on a declining trend, as can be observed from the following.

![Chart: 212.3 Commercial Paper -Yields](image2)

Source: The Author's own creation based on RBI Data
212.2 Term Structure of Interest Rates

The sovereign yield curve was difficult to model as there was very little trading in government securities.

The following paras set out context of term structure of interest rates in India and how it has evolved and changed since the liberalization.

Sovereign Bond Yields

Five key factors affect the outlook for long-term interest rates in India – factors affecting public finance, monetary policy, external sector and FII. More specifically they are (1) inflation dynamics, and, therefore, monetary policy; (2) the pace and nature of fiscal consolidation; (3) FII limit in local currency bond market; (4) magnitude of reduction in the statutory liquidity ratio (SLR); and (5) exchange rate outlook.

Yield Curve: Term Structure of Interest Rates of Government Securities

Five (5) Year Bonds

This is one (the other is 10 year) of the benchmark GOI bonds.
Ten 10 year GOI Bonds

This benchmark 10-year government bond yield has declined significantly over the last fifteen years. From around 13.5% in late 1990s, the yield on the 10-year government bond eased to the current level of around 8.0%. The highest-ever yield on the 10-year bond in the last several years was around 9.5% in 2008, and that too following an aggressive monetary tightening.

212.3 Corporate Bonds

As this report is focused on corporate finance, corporate bond yields and spread movement is of particular interest.

In India, the corporate bond market is not yet developed. It comprises mainly of issues made by public sector banks and public sector undertakings, banks, financial institutions and NBFCs with private corporate sector having the smallest share, both in issuance as well as in trading volume in the secondary market (NSE started wholesale trading market (“WDM”) segment on June 30, 1994 and retail debt trading market (“RDM”) segment w. e. f. January 16, 2003.
The secondary market trading of corporate bonds\textsuperscript{15} started as late as in January 2007-2008. On NSE, volumes and no of trades (below 100 per day) are very low (below Rs1000 crores per day) compared to total bond markets. The aggregate volumes traded (FIMMDA, BSE and NSE) have not exceeded Rs.30,000 crores annually\textsuperscript{16} though the annual average is much below. With a view to give a boost to corporate bond market, RBI has permitted “repo” against corporate bonds.

\textbf{212.4 Interest Rate Derivatives}

\textbf{212.4.1 Overnight Interest Rate Swaps\textsuperscript{17}}

As is observed in the previous section, interest rates across the entire spectrum have become more volatile. The following chart depicts the volatility during the review period.

In the deregulated market, every entity-be it an individual or organization recognizes and quantifies its risk-taking appetite. Since financial institutions (deposit taking and lending ones like Banks) and corporates are vulnerable to interest rate risks, they will like to mitigate this risk arising from the volatility in the movement of interest rates. One of the commonly used risk management practices is the use of overnight index

\textsuperscript{15} It is mandatory to obtain credit rating for issuance of corporate bonds. Credit Rating & Information Services India Ltd. ("CRISIL"), ICRA Ltd. (ICRA) and Credit Rating Agency of India ("CARE") are the main agencies that carry out bond ratings.

\textsuperscript{16} Table No.72 SEBI Handbook of Statistics for the Indian Securities Market 2009

\textsuperscript{17} Ghosh and Acharya (2010),"The floating benchmark is MIBOR (Mumbai inter-bank offered rate), against which the swap is settled. d. The floating leg of the transaction is compounded and settled only at pre-decided frequency (generally semi-annually). Though OIS are quoted in different maturities, anecdotal evidence indicates that tenors up to five-year are liquid (according to the number of deals)".

swap (OIS).\textsuperscript{18} It is one type of interest rate swaps where the floating leg of the swap is linked to an overnight index, compounded every day over of the payment period.

The parties agree to exchange the difference in the accrued interest arrived according to the fixed and floating interest rates at the maturity on the notional principal amount.

\textbf{212.3.2 Interest Rate Futures}

Interest rate futures account for the largest volume and notional value among the financial derivatives traded on exchange worldwide. According to Bank for International Settlement (“BIS”), June 2009 data, the notional principal amount outstanding in organized exchanges across all future instruments amounts to US$18.5 trillion in March 2009. Out of this total, Asia accounts for US$1.9 trillion. Globally 74 million contracts for interest rate futures are outstanding as on that date.

\textsuperscript{18} Ibid
On account of financial liberalization and economic reforms (freed administrated interest rates except for savings and few others) while the level of interest rates have come down significantly, volatility of interest rates has increased significantly. Recognizing that under financial liberalization interest rate volatility is inevitable, SEBI has given approval for exchanged traded Interest Rate Futures. NSE is the first stock Exchange in India to launch Interest Rate Futures (IRF) followed by MCX.

Summary

From the above discussion on interest rate, it could be concluded that

- The level of interest rates across the entire spectrum have come down
- The volatility appears to have increased
Chapter 213: Global Financial Crisis

213.1 The Genesis of GFC

“The crisis was an outcome of the interplay between both macroeconomic and microeconomic factors. The macro factors were: the persistence of global imbalances, excessively accommodative monetary policy pursued in major advanced economies and lack of recognition of asset prices in policy form. From a microeconomic perspective, the crisis has been attributed to the rapid financial innovations without adequate regulation, credit boom and the lowering of credit standards, inadequate corporate governance and inappropriate incentive system in the financial sector and overall lax oversight of the financial system”19.

213.2 Phases of GFC

The story of the financial crisis is divided into five stages20:

(1) The prelude, leading up to the March 2008 takeover of Bear Stearns;

(2) The gradual deterioration in financial conditions from mid-March to the failure of Lehman Brothers on 15 September 2008;

(3) From mid-September to late October, a global loss of confidence, a massive flight to quality and the near collapse of the financial system;

(4) From late October, the severe decline in the global economy; and

19 Mohanty (2009)

Beginning in mid-March 2009, the deepening downturn and the first signs of stabilisation.

It was in the early 2006 that the financial crisis began when the subprime mortgage market in the U.S. began to display an increasing rate of mortgage defaults. In late 2006, these defaults lead to a decline in US housing prices after nearly a decade of exceptionally high growth. Many Americans witnessed as their primary source of wealth become increasingly devalued. By late 2007, the prime mortgage markets were showing higher than normal default rates as well.

The financial industry backed by insurance companies had created structured products based on mortgages as underlying securities. One such product namely, Collateralized Mortgage Obligations (CMOs), a type of collateralized debt obligations (CDOs), was a conduit in spreading these problems from the mortgage market to other sectors of the economy. Hence it had widespread effects on financial markets as a whole. CMOs were mortgage-backed securities issued by investment banks and other financial institutions, which since they were not part of the commercial banking system, were allowed to operate unregulated by the federal government. As the value of mortgages fell due to increasing default rates, the value of these securities fell likewise.

As mentioned above, CMOs were backed by insurance industry. Insurance industry has created a special product namely, the Credit Default Swap (CDS) to cater to the insurance requirement of banks that were selling CMOs. CDs were CDSs were nominally insurance contracts on CMOs.

CMOs and CDs became a tangled web which dragged the financial system down as sellers of CDSs bought matching CDSs to protect themselves against default risk
until nearly all the players in the investment banking market were linked together by these liabilities.

Both the products i.e. CMOs and CDs became what is known in India as Non performing assets or bad assets. These CMOs and CDSs became the infamous “toxic assets”. The defaults in the mortgage markets caused a collapse in the value of the corresponding CMOs, which created a cascade of additional problems as the multitude of CDSs were executed, dragging down the balance sheets of the major players in investment banking.

Since no one knew how to price these products and also considering they became worthless, the balance sheets of the entities holding them i.e. investment banks and insurance companies got severely it wiping out their capital-making them illiquid and then insolvent. The “trust “ on which financial system is built evaporated and the credit became scarce as no one was willing to lend to another.

**Spreading to the Real Economy**

Soon the contagion effect of the crisis in the financial sector spread to real economy. It had already incipient signs of the problems as early as March 2006, when capital investment expenditure on residential structures began to decline. In the early 2008, this decline also spread to investment in corporate capital expenditure and consumer spending on durable goods.

However, it wasn’t until the summer of 2008 that consumer spending broadly and GDP began falling, signs of a recession. (In December 2008, the National Bureau of Economic Research, official arbiter of business cycles dated the formal beginning of the recession as December 2007.) While the public had been concerned about
recession for much of the year, it wasn’t until the fall that the economy began to
decline (de-growth) at more than a 6% annual rate.

**Rescue by the US Federal Reserve System**

In response, the US Congress passed the Trouble Asset Relief Program (“TARP”)\(^\text{21}\) to assist failing financial institutions such as AIG. This plan was meant to decrease the severity of the recession by treating its cause: the financial crisis.

**213.3 Global Contagion**

In the early 2000s most developing countries i.e. emerging economies had become more globally integrated due to process of liberalization set in the early 1990s and late 1980s. The excess global liquidity partly fuelled by spiralling commodities prices assumed form of international capital flows.

The financial crisis and recession in the U.S. spread globally through both financial and trade linkages. Seeing housing prices in the U.S. rising, foreign banks sought opportunities to invest in the U.S. housing market, such as through CMOs issued by investment banks. When the mortgages backing these securities began to fall in value, the value of the securities themselves began to fall. Seeing their asset prices falling, investors attempted to liquidate their holdings beginning in August of 2007.

\(^\text{21}\) The US Government program created for the establishment and management of a Treasury fund, in an attempt to curb the ongoing financial crisis of 2007-2008. The TARP gives the U.S. Treasury purchasing power of $700 billion to buy up mortgage backed securities (MBS) from institutions across the country, in an attempt to create liquidity and unseize the money markets. The fund was created by a bill that was made law on October 3, 2008 with the passage of H.R. 1424 enacting the Emergency Economic Stabilization Act of 2008. [http://www.investopedia.com/terms/t/troubled-asset-relief-program-arp.asp#ixzz1WsTwlx56](http://www.investopedia.com/terms/t/troubled-asset-relief-program-arp.asp#ixzz1WsTwlx56)
These assets became frozen because of a lack of buyers in the market. As credit became scarce and in response to a lack of confidence in U.S. financial institutions, international banks began to raise the interest rate at which they lent money to one another, known as the LIBOR.

Additionally, the economic slowdown in the U.S. led to declining U.S. imports from its major trading partners, the European Union, Mexico and China. When export sales languished, foreign GDPs fell too, spreading the recession worldwide. Despite recent claims that the US is no longer the locomotive of the world economy, the current crisis shows those claims to be false.

213.4 Emerging Economies-Decoupling Theory Debunked

“Contrary to the 'decoupling theory', emerging economies too have been hit by the crisis. The decoupling theory, which was intellectually fashionable even as late as a year ago, held that even if advanced economies went into a downturn, emerging economies will remain unscathed because of their substantial foreign exchange reserves, improved policy framework, robust corporate balance sheets and relatively healthy banking sector. In a rapidly globalizing world, the 'decoupling theory' was never totally persuasive. Given the evidence of the last few months – capital flow reversals, sharp widening of spreads on sovereign and corporate debt and abrupt currency depreciations - the 'decoupling theory' stands totally invalidated.

Reinforcing the notion that in a globalized world no country can be an island, growth prospects of emerging economies have been undermined by the cascading financial crisis with, of course, considerable variation across countries.22

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22 Duvvuri Subbarao, Governor RBI at the Symposium on "The Global Economic Crisis and Challenges for the Asian Economy in a Changing World" organized by the Institute for International Monetary Affairs, Tokyo on February 18, 2009
213.4 GFC and India

In a paper RBI (2009), the Governor spells out the answers to the following four (4) questions.

(1) Why has India been hit by the crisis?

(2) How has India been hit by the crisis?

(3) How have we responded to the challenge?

(4) What is the outlook for India?

It appears that India did not have any obvious reason for being affected by the contagion effects of this GFC. First, the Indian banking sector was strong (thankfully due to the implementation of Basel’s capital adequacy norms and also cleaning up its balance sheets from non-performing assets taking cue from the Asian Financial Crisis of 1997-98). Moreover, it had no direct exposure to the sub-prime mortgage assets or to the failed institutions. It has very limited off-balance sheet activities or securitized assets. Second, unlike China (heavily dependent on its exports) India’s recent growth has been driven predominantly by domestic consumption and domestic investment.

The answer is in India’s globalization—both trade (current account) and capital. First, India’s integration into the world economy over the last decade has been remarkably rapid. Integration into the world implies more than just exports. Going by the common measure of globalization, India’s two-way trade (merchandise exports plus imports), as a proportion of GDP, grew from 21.2 per cent in 1997-98, the year of the

Ibid

“External demand, as measured by merchandise exports, accounts for less than 15 per cent of GDP” RBI (2009)
Asian crisis, to 34.7 per cent in 2007-08\textsuperscript{25}. Second, India’s financial integration also was deeper. Taking an expanded measure of globalization, i.e. the ratio of total external transactions (gross current account flows plus gross capital flows) to GDP, this ratio has more than doubled from 46.8 per cent in 1997-98 to 117.4 per cent in 2007-08\textsuperscript{26}.

**Contagion of the GFC -India**

The contagion of the crisis has spread to India through all the channels –the financial channel, the real channel, and importantly, as happens in all financial crises, the confidence channel.

**Financial Channel**

All financial markets (equity, money, forex and credit) had all come under pressure from a number of directions.

Faced with illiquid credit markets, Indian banks and corporates turned to domestic money markets withdrawing large amounts\textsuperscript{27} from mutual funds (MFs)\textsuperscript{28}. RBI had to come out with special measures to provide liquidity to banks (so that banks can in turn lend money to MFs to finance their redemptions) and other institutions.

 Forex markets came under heavy pressure as capital flows reversed due to the process of the global deleveraging.

\textsuperscript{25} Ibid

\textsuperscript{26} Ibid

\textsuperscript{27} About Rs.46,793 crores in October 2008, as per Association of Mutual Funds of India (“AMFI”) Table No.:3 [http://www.amfiindia.com/showhtml.aspx?page=amoctober2008repo](http://www.amfiindia.com/showhtml.aspx?page=amoctober2008repo)

\textsuperscript{28} Debt MFs keep about 3 to 4% (vs.20% by equity MFs) in cash
The trends though upward shows a lot of volatility from year to year, with FY 2009 showing the reversals.

The total Flows were as follows:
The monthly flows clearly shows that there is a great volatility from month to month—both equity and debt showing great volatility.

The Reserve Bank's intervention in the forex market to manage the volatility in the rupee further added to liquidity tightening\(^{29}\).

\(^{29}\) RBI (2009)
The following shows how call money rates behaved just before, during and after the days of the GFC.

**Real Channel/Economy**

The transmission of this external demand shocks was swift and severe on India’s export growth, which turned negative in October 2008. Imports too started declining by December 2008 as domestic activity slowed. The overall impact was reflected in a fall in investment demand and sharp deceleration in the growth of Indian economy in the second half of 2008–09 which persisted through the first quarter of 2009–10.

**Corporate Sector**
This has been separately discussed under a section “the stylized facts –micro level”

**Summary**

India was relatively less impacted by the crisis despite increased global integration of the Indian economy in recent years. This could be attributed mainly to the structure of the economy, cautious policies, prudent regulation and effective supervision.
Chapter 221-Indian Corporate Sector-Financial Integration

221.1 Depository receipts

The relationship between ADR/GDR issuance and the domestic financial system has been an interesting one. In the early 1990s, when portfolio flows into India commenced, the market design was inadequate both in terms of the high standards of foreign investors for an efficient market design, and in terms of the physical capacity to settle using paper-based share certificates. In late 1993, there was a crisis of settlement with truckloads of share certificates being moved across Bombay. As a response to these weaknesses, many domestic firms chose to disintermediate the domestic securities markets, and engage in offshore issuance through American Depository Receipts (ADR) or Global Depository Receipts (GDR) markets. This allowed these firms to exploit the superior market design which was available outside in London or New York.

From 1993 to 1995, a substantial volume of GDR and ADR issuance took place.
Since from 1995 onwards, capital market infrastructure in India was strengthened (SEBI, NSE, Clearing Corporation). These developments led to Indian corporates relying more and more on domestic capital markets.

221.2 Ownership by FII - Firm-level evidence on foreign portfolio investment

Pathak (2006), “find that FII ownership is concentrated in a small number of firms. In March 2005, there were only 332 companies where FII ownership exceeded 5 percent. This is a tiny fraction of the 2600 companies in India where a meaningful extent of equity market trading takes place. In total FII own 11 percent of all companies. Their share has risen from 8.5 percent in 2001 to 11.1 percent in 2005.”

In a follow-up study, Shah and Pathak (2005) find that

- India has some firms with a very high FII ownership, and a large number of firms with zero FII ownership.
- Foreign investors only invest in some firms, and there is large heterogeneity in the fraction of the shares that are bought by foreign investors.
- Regarding firm characteristics, size, liquidity and corporate governance are important
- Private Debt
- Capital controls strongly constrained debt issuance by the private sector, which now accounts for only 27.9% of total debt. Private debt grew by only 1.5 times over this period, going from 7% of GDP to 5% of GDP. A fascinating feature of this experience is that while capital controls against private debt were eased from 1999 onwards, private debt only showed a significant rise in
2004 and 2005. This may reflect the expectations of exchange rate appreciation which were in place by 2004.

221.3 Forex Borrowing by the Indian Corporate Sector

![Chart: 221.2 Indian Corporates's Overseas (Forex) Borrowings- ECBs/FCCBs](chart.png)

**Foreign Currency Debt of Indian Corporate Sector**

Though Indian corporates have been permitted to borrow overseas since the late 1990s, they took advantage of the same only from the late 2000.

**Outbound FDI**

Due to comfortable forex reserve position, the Indian government has now turned the end of the spectrum to allow Indian companies to invest overseas. This has given rise to phenomenon of Indian multinationals such as Ranbaxy, TATA Motors, TATA Steel, et al.
Chapter 222 - Finances of the Indian Corporate Sector

The financial performance of select non-government non-financial public limited companies during 11 year period from the financial year 1999-2000 to FY 2009-10 is set out below. The data are presented at the aggregate level for all select companies. The data has been collected from CMIE Prowess Database. It may be noted that since 11 year is a long period, the number of companies from year to year varies.

Financial Performance

Though all aspects of these companies have shown upward trend, the entire 11 year period had two or three distinct phases.

The following were years when the financials of these companies were adversely affected.

- FY 2002
- FY 2006
- FY 2009 & FY 2010

Total Income and Sales

![Chart 222.1: Income & Expense Trend](chart.png)

Source: The Author's creation from data collection
As can be seen from the secular upward trend, the total sales over this period grew at CAGR of 15.2%. However, the year on year (“YoY”) growth was not even. The YoY sales growth which was about 10-12% from 2000 to 2003 gradually increased to 16% in 2004 and recorded increase of 27% in 2005. It declined to 19% in 2006 before moving up to all time high of 29% in 2007 and declined to 22% just before the global financial crisis occurred. The effect was not felt immediately as the sales still grew by 17% in 2008-9 before registering an all time low growth of 7% -the lowest YoY growth in the 11 year period under review.

**Expenses**

Compared to CAGR of 15.2% of sales, raw material expense grew faster at 16.8% CAGR. Also the raw material expenses, as a proportion of sales, have steadily grown from about 37.7% in FY 2000 to 44% in 2010. This could be as commodities prices have continued to rise throughout this period.

![Chart No.: Expenses as a % of Sales](image)

It appears that these companies are making a conscious attempt and succeeding at containing power and fuel expenses which accounted for about 5.6 % declined to 3.6% and this is reflected in slower CAGR of 10%.

Though the employees’ expenses have grown at 16% CAGR as a proportion of sales they have remained more or less around 6-7%.
While Royalty and technical know-how expenses have grown at CAGR of 12% it has remained at about 0.3 to 0.4 % of total sales.

R&D expenses have grown at phenomenally high CAGR of 74%

**Financial Expenses**

The total financial expenses have grown at a much lower CAGR of only 9.8% and as a proportion of sales have come down from 6.1% to 3.6% i.e. about 2/5th (40%). This indicates that the companies have been managing their finances smartly by containing the interest cost.

However, it may be observed from the above, that YoY growth in interest expenses was very volatile -27%, 39% and 101% in 2007, 2008 and 2009, respectively. In FY 2010, the interest expenses declined by 20% to come back to normal levels.

**Components of Financial Expenses**

Though the interest expenses accounted for major chunk of total financial expenses, treasury operations have used to account for about 5% have started accounting for visible portion i.e. about 10% and going up to 32% in FY 2009 mainly on account of losses on forex transactions have accounted for 30%
So what these companies saved by reducing their interest cost, was being compensated by their losses on treasury operations more particularly losses on foreign exchange transactions.

**Why financial expenses were volatile?**

A more detailed analysis revealed an altogether different picture depicted below.

The increase to 101% in FY 2009 was mainly on account of YoY increase of 818%, 239% and 172%, respectively on losses on foreign exchange transactions, losses on long term investment and losses on short term investment.

**Growth**

**Profit**

Due to containment of mainly financial expenses, profit margins grew at CAGR of 23% over the period under review.
It is noteworthy that EBITADA margins in each year were more than 15% of sales in each year under the review.

Net Profit margins actually rose from about 4% in FY 2000 to 9.2% in FY 2010 though in terms of YoY registered negative growth of in FY 2002 and growth halved in FY 2006.

Overall, companies have done well as net profit registered a CAGR of 23.3% compared to sales CAGR of 15.2%

**Profit Trend**

![Chart: 222.6 Profit Trends vs Sales & Expenses](chart)

**Profit Margins**

Profit Margins have grown steadily.

![Chart: 222.7 Profit](chart)
In line with the growth in sales, profit margins grew steadily till FY 2008 and then declined in FY 2009 due to contagion effect of the global financial crisis and recovered in FY 2010. For instance, PBIDTA (EBITADA) margins grew steadily to 19.6% in FY 2008 declined to 16% and recovered to 18.9% in FY 2010. Net profit margins increased steadily from 4% in FY 2000 going up to 10.7% in FY 2008 before 7.3% in FY 2009 and then recovered to 9.2 % in FY 2010.

**Volatile Growth in Profit Margins**

As can be observed from the above chart, though sales displayed lesser volatility, growth in profit margins is more volatile though they are in line with sales growth.

**Capital Structure-Deleveraging by the Indian Companies**

As can be observed from the above, Indian companies appears to have deleveraged themselves from a reasonable debt equity ratio of 1:1 to barely 0.66:1 in FY 2010 indicating that it has been relying more on equity funding from internal resource generation as well as issue of equity in capital markets. This is further corroborated from barely adequate interest cover ratio of 1.9 times to 5 times in FY 2010. Despite
their ability to service debt, as reflected in its high interest cover ratio throughout the late 2000s, these companies have abstained from leveraging themselves.

**Equity Funding outpacing Debt**

The following chart shows how Indian companies have maintained reliance on equity to as much as 60% except in FY 2009 when it went down below that.

It can be observed that borrowings have been more volatile than equity though they have shown negative association except in FY 2005 to FY 2006 when the overall economy was booming and companies were going for both equity and debt raising.

**Reliance on Internal funds**
The above deleveraging has been made possible on account of generation of internal funds (mainly on back of booming Indian economy), access to overseas capital markets, Liberalization of FDI, stock market liberalization (which has enabled foreign financial institutions to take up equity in both primary and secondary markets) and availability of venture capital finance.

**Sources of Finance**
As can be observed, internal sources have accounted for an average of 30% of total funds.

Though the trend is towards more reliance on internally generated funds, the year to year variations are very high. As can be expected when firms have done well they have relied more on internal funds and vice versa though both have moved together in the three phases namely, FY 2000 to 2002 and FY 2004 to FY 2005 and again FY 2009 to FY 2010.
Equity vs. Borrowing or Equity and Borrowings

Both equity and debt are moving and showing uptrend indicating till FY 2009 when firms found it difficult to borrow.

![Equity and Borrowings Chart](chart.png)

Though the debt ratio has been going down for firms, incremental debt equity ratio does not appear. During FY 2002, borrowings accounted for as much as 98% of total external funds.

![Equity and Borrowing Composition of External Funds Chart](chart2.png)

When the capital markets were booming and took off in FY 2003 (when BSE SENSEX around 3000), companies found it easier to raise money at hefty share premium.
From the above, it can be observed that while equity share capital shows flat share premium shows an upward trend.

However the following chart shows how all of them have shown close positive correlation. The period from FY 2003 to FY 2006 marked very buoyant capital markets namely both primary and secondary enabling companies to make equity issues at hefty premiums.

**Incremental Fund Raising**

So when the capital markets were booming, these firms were making most by going for fresh capital though borrowings too rose albeit at a much lower rate, as can be seen from the chart below.
Opening of Overseas Equity Markets

Cash Flow Statement

Investment Activity

A general trend in investment activities has been displayed below

Though purchase of fixed assets has an upward trend line there were some deviations from this trend in FY 2009.

As can be observed from the above chart, there were two investment booms namely, FY 2003-FY 2005 i.e. 3 years, FY 2006-FY 2008 i.e. 3 years The two bad years were FY 2002 (5%) and FY 2009 (25%) which had negative growth rates.
**Purchase of Fixed Assets and Capital WiP**

The question was which types of investment were taking place? What was the nature of growth? Organic (Green field) or inorganic (mergers and acquisition) or pure treasury operations (buy and sell investment)?

The following chart provides some answers

**Organic Investment Activities**

![Chart](chart.png)

Though both purchase of fixed assets and capital wip are positively related, capital WiP is much more volatile than purchase of fixed assets. It has shown huge swings from +484% in FY2005 to a negative in FY 2008.

**Inorganic Investment**

![Chart](chart.png)

The above two viz., purchase of investment and mergers etc. resemble purchase of fixed assets and capital wip, with mergers.

The relationship between these two activities is depicted in the following chart.
More or less they have shown moved together except in FY 2001-FY2004 and again FY 2009 to FY 2010.

Between loans to group companies and outside companies, these companies have shown negative correlations from FY 2003 and onwards.

**Investment & Financing**

The following chart depicts that while overall investment flows are more stable, financing is more volatile impacted by macro-economic environment.
Financing

Both move together except in FY 2007 when they moved in opposite directions.

Since most companies in India borrow from banks and hence are not dependent on bond markets, total borrowings are more stable than share issues which are prone to varying capital market conditions.

It appears that share proceeds might be used to repay borrowings since both are highly and positively correlated. Relative flat repayment shows that companies have core long term borrowings that are getting repaid, as per the schedule.

**Composition of Total Borrowing-LT vs. ST Borrowings**

The long term borrowings and total borrowings show positive relationship,
Even short term borrowings show positive relationship with long term borrowings till FY 2004. However, the relation became negative during FY 2004 to FY 2006. Also short term borrowings have shown higher volatility than long term as short term debt Reliance on Equity Markets

The exceptional success of the equity market may have shaped the corporate financial structure chosen by firms. In addition, the distress experienced by many leveraged firms in period of slow economic growth from 1997 to 2001, when many trade restrictions and entry barriers were removed, may have also shaped the optimization of managers in choosing the level of leverage.

The stylized empirical fact of this period is that a dramatic deleveraging has taken place on the part of large non-finance firms. Using accounting measures of debt and equity, the debt-equity ratio dropped from 1.01 in FY 2001 to 0.66 in FY 2010 India has evolved into a equity-market-dominated financial system.

Income & Expenses
The sales of these companies have grown at CAGR of 15.2% while profit after tax even at higher CAGR of 23.2%.

Cash Flow
In the 2002-05 periods, securities (the sum of debt and equity) as a source of funds stood at roughly zero: the repayment of outstanding bonds offset the fresh issuance of equity. However, this may reflect the relatively low pace of investment activity in the aftermath of the 2001-02 recessions. In recent years, investment activity has picked up, and the importance of securities issuance from 2005-06 onwards might be greater (Figure 1).

---

<table>
<thead>
<tr>
<th>Table No.: Financial Highlights</th>
<th>Cash Flow - Investment - Non Finance Non Government Companies</th>
<th>Rs Crores</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>During the Year ended March 31, 2000</strong></td>
<td><strong>2001</strong></td>
<td><strong>2002</strong></td>
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<tr>
<td>Investment activities</td>
<td>(27777)</td>
<td>(30483)</td>
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<tr>
<td>Purchase of Fixed Assets</td>
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<td>2</td>
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<td>Sale of Fixed Assets</td>
<td>2291</td>
<td>3921</td>
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<tr>
<td>Capital WiP</td>
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<td>(19)</td>
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<td>Capital WiP</td>
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<td>(48)</td>
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<td>Purchase of Investments</td>
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<td>(31960)</td>
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<tr>
<td>Sale of Investments</td>
<td>4557</td>
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<tr>
<td>Sale of Investments</td>
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<td>126</td>
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<tr>
<td>Profit on redemption of shares</td>
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<tr>
<td>Profits on redemption of shares</td>
<td>(89)</td>
<td>4587</td>
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<td>Loans to sub/sibling/group companies</td>
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<td>(393)</td>
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<td>Loans to other companies</td>
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<td>Loans to other companies</td>
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<td>(2055)</td>
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<td>Interest received</td>
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<td>(17)</td>
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<td>Interest received</td>
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<td>3010</td>
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<tr>
<td>Other income</td>
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<td>(1954)</td>
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<td>Income</td>
<td>2419</td>
<td>673</td>
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<tr>
<td>Income</td>
<td>1221</td>
<td>(44)</td>
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<tr>
<td>Disbursements</td>
<td>(260)</td>
<td>(21)</td>
</tr>
<tr>
<td>Note</td>
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<tr>
<td>Financial Highlights</td>
<td>Non Finance Non Government Companies</td>
<td>Re Courses</td>
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<tr>
<td>---------------------</td>
<td>-------------------------------------</td>
<td>------------</td>
</tr>
<tr>
<td>During the Year ended March 31,</td>
<td>2000</td>
<td>2001</td>
</tr>
<tr>
<td>Net cash inflow (outflow) from financing activities</td>
<td>61</td>
<td>67</td>
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<td>Share issues</td>
<td>0.01</td>
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<td>Redemption/repayment of capital</td>
<td>(9874)</td>
<td>(6614)</td>
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<td>Total Borrowings</td>
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<td>Repayment of Borrowings</td>
<td>(22453)</td>
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<td>Interest Paid</td>
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<td>Dividend Paid</td>
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<td>Long Term Borrowings</td>
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<td>Short Term Borrowings</td>
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<td>Repayment of Short Term Borrowings</td>
<td>(3941)</td>
<td>(3941)</td>
</tr>
</tbody>
</table>

Note: Figures in brackets represent percentage growth over the previous year.

Source: Compiled by the Author from data collected.
Chapter 23 Research Questions

The analysis and review of the stylized facts earlier are summarized below

Macro

The study’s analysis of 2237 non finance non banking companies shows that though interest expenses grew at lower rate (CAGR of 8.7% vs. 15.2% of sales), there was greater volatility in interest expenses on year on year (“yoy”) basis. For instance, while it declined in the FY 2003 (6%), FY 2004 (12%) and FY 2005 (4%) it rose in FY 2007 (34%), FY 2008 (39%) and FY 2009 (46%). On account of financial liberalization and economic reforms (freed administrated interest rates except for savings and few others) while the level of interest rates have come down significantly, volatility of interest rates\(^{30}\) has increased significantly. Recognizing that under financial liberalization interest rate volatility is inevitable, SEBI has given approval for \(^{31}\)exchanged traded Interest Rate Futures\(^{32}\).

In view of the above, did liberalization raise or reduce interest levels? How did the call money market rate (short-end)\(^{33}\) and term structure of interest rates got impacted

\(^{30}\text{As per MCX it was 10.62\% (2000), 14.17\% (2001), 12.05\% (2002), 15.74\% (2003), 14.31\% (2004), 8.15\% (2005), 8.22\% (2006), and 8.44\% (2007) and went up to 19.75\% in 2009-the year GFC occurred.}\n
\(^{31}\text{NSE launched trading in Interest Rate Futures from 30th August 2009}\n
\(^{32}\text{According to MCX-"IRFs account for (US$17.8 trillion) the largest volume and notional value among all exchange traded financial derivatives (US$18.5 trillion)"}\n
\(^{33}\text{Alan Blinder (1998), "Central banks generally control only the overnight interest rate, an interest rate that is relevant to virtually no economically interesting transactions. Monetary policy has important macroeconomic effects only to the extent that it moves financial market}\n
during financial liberalization and during global financial crisis of FY 2008-9 ("GFC")?

**Micro**

Since the 1980s, more and more Indian firms are becoming globally integrated first through trade (imports and exports). However, since 1990s and onwards, the Indian corporate sector has transformed itself by becoming more financially integrated globally due to lifting of restrictions on investment and financing abroad. In the late 1990s and the early 2000, many firms listed themselves overseas and then borrowed from overseas debt and loan markets. Also the analysis by the study of 2237 non finance non government companies show greater volatility of short term borrowings.

All these lead to a question; how global financial integration (resulting from financial liberalization) affects the balance sheets of the Indian corporates in the long run? Also, though short term effect based on stylized facts appear to be negative did financial liberalization made any significant changes to corporate balance sheets?

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34 CRISIL Opinion (May 2011), "Foreign currency convertible bonds (FCCBs) worth Rs 315 billion ($7 billion) are due for redemption over the next 2 years for S&P CNX 500 companies. More than 80 per cent of these outstanding FCCBs are trailing below their conversion price (as on May 3, 2011). This would result into investors opting for redemption of their bonds rather than converting them into equity shares. Also, the redemption amount is quite high in many cases, and companies do not have adequate funds to repay them. This will force companies with outstanding FCCBs worth a total of Rs 220-240 billion to either refinance the bonds or revise their conversion price downwards, which will dilute the stake of existing shareholders. Both these options will adversely affect their financials. Moreover, companies with close to Rs 15-20 billion worth of outstanding FCCBs having high debt levels and already low promoters' stake will face a significant challenge in meeting their repayment obligations."
Research Questions

1) Did the volatility of international capital flows affect domestic interest rates and the term structure of interest rates? If they did affect these variables, how did they affect these variables?

2) How did Indian companies balance sheets get affected by financial liberalization? Particularly how did the episodes of sudden reversal of international capital flows affect these determinants of debt maturity structure?

Answering this research question implies reaching the following three objectives. Firstly, provide updated characteristics on the debt maturity structure of listed firms. Secondly, investigate whether globalization and other characteristics have affected the determinants of debt maturity structure characteristics. Thirdly, investigate how leading theoretical models of debt maturity structure, initially developed for analyzing listed firms, apply to listed Indian firms.