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A NEWSLETTER OF THE FINANCE LAB

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Indian Institute of Management Calcutta

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Editorial

The otherwise-reticent Reserve Bank of India has been in the news for the past two months. The 19 November Board meeting of the Central bank ended surprisingly without much acrimony- thanks to the maturity shown by both the sides. Experts say that though the government did not openly invoke Section 7 of the RBI Act and claim a share of RBI's reserve, two major developments happened. These developments can shape the functioning of the management of RBI in future. The first change is recognition of the fact that there is a separation between RBI board and management. The Board, henceforth, cannot delegate all responsibilities to the management (i.e., governors). The second change is the decision to form a committee to design a framework for estimating economic capital of the central bank. The suggestion is that any residual reserve in excess of the economic capital may be treated as 'surplus' and hence distributive. The next few months will really be interesting time for RBI, its board and the government.

The first article is on the dynamics of crude oil and the author tries to show that the politics and economic imperatives of OPEC member (and non-member) nations would ensure that oil prices do not rise significantly in near future. In the second piece, the author attempt to explore a series of recent events that are related to the liquidity distress factors in the Indian NBFC (Non-Banking Financial Company) sector. The third article is an open letter to the CIO's Of Mutual Funds. In the fourth article, the author discusses the expectations and design of central banking system and concludes that rational expectations might provide a reasonable solution for now, but the final word on the topic is still to be written. In the last piece, the author shows why transfer of currency and gold revaluation account and investment revaluation accounts credit balances shown as part of the capital and reserves on the RBI's balance sheet to government will not be prudent.

You may send your comments and feedback on this issue to ashok@iimcal.ac.in

Happy reading!

Ashok Banerjee

Dynamics of Crude Oil Price

Ashok Banerjee



Ashok Banerjee, Ph.D., is Professor, Finance and Control, Indian Institute of Management Calcutta (IIM-C). He is also the faculty in-charge of the Financial Research and Trading Lab at IIM-C. His primary research interests are in areas of Financial Time Series, News Analytics and Mergers & Acquisitions.

Crude oil is the most influential commodity affecting all countries and all sectors. Every economist, policy maker, business and even household regularly follows movement of crude prices and its likely impact on the inflation. Yet it is most difficult to predict crude prices. Econometricians, armed with advanced time series models, have been trying, over many decades, to predict movement of crude oil prices. They have failed. What has worked so far is that empiricists were able to identify factors that explain movement of crude oil prices. But predictive models did not work.

India's heavy reliance on crude imports is a known fact- 82% of our crude oil needs are met through imports. Hence, any upward movement in international crude oil prices adversely affects our current account deficit (CAD). Though major oil importing companies in India do not entirely depend on Brent Crude or U.S. oil and they buy a crude basket, the basket prices are pegged to global benchmarks. Hence, a rise in Brent crude oil price would increase India's oil import bill. It is a fact that crude oil (shown as crude petroleum) has only 1.95% weight in India's wholesale price index (WPI). But its pervasive impact on the food prices (weight 15.26%) and manufactured products (weight 64.23%) makes this commodity as the single most influencer in the general price rise in our country. So, no one can ignore the potential damage that spiralling crude price can have on any economy. Should we really worry about crude oil? I show that the politics and economic imperatives of OPEC member (and non-member) nations would ensure that oil prices do not rise significantly in near future.

OPEC Members' Disagreement

The Organisation of the Petroleum Exporting Countries (OPEC) now has 15 members and together they account for close to 45% of global oil production. Therefore, any decision by the OPEC members to reduce or enhance oil production would significantly affect global oil supply and hence its price. OPEC members have in the past been normally adhering to the production agreements reached among the members. Economists believe that decisions of OPEC to curb oil production may influence oil prices in the short run. In the long-run, oil exporting countries may not honour any multilateral agreement on production as that would adversely affect revenue of each oil exporting country. The recent discovery of shale gas in the U.S. and growing initiative among oil

importing countries to search for alternative fuel have already created some discord among OPEC members. The average oil production by OPEC members and the Brent crude price are inversely correlated (Table 1). The oil price (Brent) has declined by 40% in the past seven years, whereas the OPEC oil production has increased by only 10% during the same period. Thus, the clout of OPEC members on global oil price is declining. There could be several reasons for such weakening of influence: (a) behaviour of non-member countries in offsetting any attempt for cartelisation by OPEC members; (b) big bullies in the OPEC not honouring decisions of OPEC; (c) the U.S. turning into oil-surplus territory; and (d) emergence of alternative sources of energy. It is interesting to note that the oil price declined by 70% in three years (2015 vs. 2012) and recovered to 2014 levels in 2016. The upward rally in crude price in 2017 is welcomed by oil exporting countries. OPEC members have agreed to a scheduled cut in oil supplies in January 2017.

Table 1: Crude Oil Price and OPEC Oil Production

Year	Crude price (\$/bbl)	% change	OPEC production	% change
2012	111.94		30482	
2013	110.82	-1.00%	29919	-1.85%
2014	55.76	-49.68%	30302	1.28%
2015	35.75	-35.89%	32945	8.72%
2016	55.41	54.99%	33140	0.59%
2017	66.82	20.59%	32470	-2.02%
2018	66.62	-0.30%	33330	2.65%

Source: Bloomberg. Brent Crude prices and output data are at the end of respective years, except 2018 where the price and output figures are on November 15, 2018. Production figures are in 000 barrel per day.

However, big oil producing countries (Saudi Arabia and Russia) have not followed the OPEC consensus and in a way decided to abandon the agreement. The supply cut, which was put in force in January 2017, is going to expire in December 2018 (the next meeting of OPEC is scheduled on December 6th). With the U.S. pumping record volume of oil and prices tumbling further, the OPEC members would be under pressure to think about their next move. Many non-OPEC oil-producing countries had also agreed to join with OPEC to further limit oil production. However, here also not all the non-OPEC oil producing countries agreed to join the OPEC –mandated production cut. For example, the U.S., Canada, Norway did not join the production cut lobby.

Table 2: Oil Production: OPC Nations and Others

OPEC Nations	Production cutback	Non-OPEC Nations	Production cutback
Algeria	97%	Azerbaijan	79%
Angola	218%	Bahrain	146%
Ecuador	85%	Brunei	638%
Eq. Guinea	81%	Eq. Guinea	95%
Gabon	76%	Kazakhstan	-352%
Iraq	39%	Malayasia	-13%
Kuwait	89%	Mexico	196%
Qatar	143%	Oman	92%
Saudi Arabia	98%	Russia	63%
UAE	67%	South Sudan	-220%
Venezuela	424%	Sudan	188%
TOTAL	121%	TOTAL	76%

Source: Bloomberg. Production cutback indicates percentage of the target cut over the period January 2017-15 November 2018.

It can be seen (Table 2) that big oil producers in Saudi Arabia and Russia did not follow the supply cut diktat. The oil-producing giants have kept their tap open to counter any pre-emptive move to put upward pressure on the global oil price. This disagreement among oil producing nations has calmed global oil price. This would definitely benefit oil importing countries and their economy.

Oil Price and Stock Market

The relationship between oil prices and stock markets is not straightforward. While some studies find little correlation between oil price movements and stock returns, others find that oil price volatility transmits to stock market volatility. Another study¹ finds that stock market returns do not respond to supply-side shocks, whereas positive responses are observed in cases of aggregate demand shocks. In other words, stock markets do not necessarily react to OPEC's strategy to boost oil prices by cutting supply. Any increase in oil prices, due to increase in demand, sends signal of general economic growth and hence is treated as something positive by stock

¹ Kilian, L., & Park, C. (2009). The impact of oil price shocks on the US stock market. *International Economic Review*, 50(4), 1267-1287

markets. It is also believed that any impact of oil price shock on the stock market has to be examined at the aggregate level and not at firm level. Using stock market indices of oil exporting and oil importing countries, another study² finds little evidence of stock market being affected by oil price shock.

We look at the relationship between movements in the (Brent) crude oil price and stock indices of three oil exporting countries (Russia, Canada, and Norway) and three oil importing countries/continent (Europe, China and India). We find, using daily prices over seven year period (2012-2018), that aggregate correlation between stock market returns and crude price movements has been positive and low for both oil exporting and importing countries (Table 3)

Table 3: Aggregate Correlation³ over the period (January 2012-15 November 2018)

INDEX	Correlation with	<i>EUCRBRDT Index</i>
IMOX Index	MOEX Russia Index (Russia)	0.21
SPTSX Index	S&P/TSX Composite Stock Index (Canada)	0.44
OSEAX Index	Oslo Stock Exchange All Share Index (Norway)	0.35
SX5E Index	Euro Stocxx 50 Price EUR (Eurozone)	0.23
SHCOMP Index	Shanghai Stock Exchange Composite Index (China)	0.07
NIFTY Index	NSE Nifty 50 Index (India)	0.10
EUCRBRDT Index	European Crude Dated Brent Spot	1.00
MXWO Index	MSCI World Index	0.36

Data Source: Bloomberg

It may be noted that during this period, the crude oil price fell by more than 40%. It must be good (bad) news for the oil importing (exporting) countries. Yet, the correlation is very low for oil importing countries and somewhat higher for oil exporting nations. The correlation between movements in crude price and global stock market is also pretty low. Why is it so? One reason could be that oil prices are not longer relevant for stock markets as firms (in both type of countries) have adopted robust risk management techniques to mitigate impact of any fluctuations of oil prices on their profitability.

² Apergis, N., & Miller, S. M. (2009). Do structural oil-market shocks affect stock prices? *Energy Economics*, 31(4), 569-575.

³ Author acknowledges help of Mr. Anirban Banerjee, a PhD student at IIM Calcutta for estimating the correlation coefficients.

One may argue that there may be inter-temporal relationship between crude oil prices and stock market and hence the dependence is not captured when one looks at the relationship over a longer period of time. Another argument could be that the relationship would depend on the crude price regime (very high price vs. very low price). In order to address these concerns, we also look at annual correlations between stock market returns and crude price movements during periods of high crude price (2012 and 2013) and low crude price (2015). Results (Table 4) are not different.

Table 4: Annual Correlations with Brent Crude Price movements

INDEX	2012	2013	2015	2018
IMOEX Index	0.38	0.12	0.26	0.20
SPTSX Index	0.47	0.30	0.47	0.39
OSEAX Index	0.39	0.13	0.40	0.38
SX5E Index	0.39	0.17	0.21	0.23
SHCOMP Index	0.12	0.06	0.13	0.23
NIFTY Index	0.21	0.02	0.13	0.01
EUCRBRDT Index	1.00	1.00	1.00	1.00
MXWO Index	0.51	0.30	0.42	0.36
Crude Price (\$/bbl)	111.94	110.82	35.75	66.62

Data Source: Bloomberg

Correlation between global stock index and crude price has been somewhat high across various oil price regimes. Similar is the case with oil exporting countries. However, stock markets in China and India- two major oil importing countries- did not appear to bother about crude prices in both the regime. This is quite surprising.

Oil Price and Firm Performance

Though we do not find any significant relationship between aggregate stock market and crude oil price movements, firms do face market risks due to changes in oil prices. This is particularly true for firms, which sell crude oil (upstream business of oil firms) or use crude as raw materials (downstream business). The upstream business showed stellar performance in the years (2012 and 2013) of high oil price (Table 5). The upstream profit margin turned negative for most of the companies in 2015 and thereafter. These results are on expected lines- a sharp fall in crude price diminishes the top line of upstream business. The upstream oil major in India is an exception.

The downstream oil business, on the other hand, is a high-volume and low-margin business. Interestingly, the profit margin of downstream business, though low, has been positive irrespective of the level of crude oil prices. Investments in upstream projects increase when oil prices are high. One may notice that there had been a sharp decline in investments in upstream business since 2014. In fact, investment in downstream business increased post 2014, when oil prices softened.

Table 5: Performance of Oil Giants

	2012	2013	2014	2015	2016	2017
EXXONMOBIL						
Revenue (US\$ Million)						
Down Stream	341638	312117	289405	184615	155386	184576
Up Stream	38712	39061	37162	24053	19830	23857
Profit Margin (%)						
Down Stream	3.9	1.1	1.1	3.6	2.7	3.0
UP Stream	77.2	68.7	74.1	29.5	1.0	56.0
Change in Capex (%)						
Down Stream		-71.4	-4.8	237.6	-23.9	12.2
Up Stream		-11.0	7.9	-60.2	-96.7	5563.6
BP						
Revenue (US\$ Million)						
Down Stream	345026	350150	323659	200501	166392	218053
Up Stream	29653	28047	28781	21286	15607	21261
Profit Margin (%)						
Down Stream	0.7	0.8	-0.7	2.6	4.0	NA
UP Stream	86.9	104.0	30.7	-4.5	6.0	NA
Change in Capex (%)						
Down Stream		-14.2	-31.1	-32.1	1.5	12.1
Up Stream		3.2	3.4	-13.6	-6.1	-14.2
ROYAL DATA SHELL						
Revenue (US\$ Million)						

Down Stream	423638	403725	375752	236384	201823	264731
Up Stream	43431	47357	45240	6739	6412	7723
Profit Margin (%)						
Down Stream	1.3	1.0	0.9	4.3	3.3	3.1
UP Stream	51.2	26.7	35.0	-131.1	-57.3	20.1
Change in Capex (%)						
Down Stream		19.6	11.5	-15.6	6.4	9.7
Up Stream		24.0	-9.6	-47.6	-22.5	-10.4
ONGC						
Revnuue (US\$ Million)						
Down Stream	11984	12657	12463	10224	7811	40938
Up Stream	19059	17102	16274	16038	13377	13099
Profit Margin (%)						
Down Stream	2.3	-0.2	0.9	-4.0	1.3	5.0
UP Stream	43.3	37.8	38.0	30.7	22.4	28.5
Change in Capex (%)						
Down Stream		-45.3	-38.4	343.7	NA	NA
Up Stream		-28.0	32.4	-36.8	NA	NA

Data: Bloomberg. Computations: Author

Volatility in crude oil prices has intrigued many experts. However, it was difficult to predict oil prices. Studies have shown that movement in oil prices that was led by demand shock had impact on financial markets. However, attempts by OPEC members to curb oil supplies had no impact on its price nor did it have any adverse effect on stock markets. The correlation between stock market returns and oil price movements has been lower particularly for oil importing countries. This is found to be true in both high and low oil price regime. Finally, downstream oil business was less affected by high oil prices as their product prices always passed on the crude price increase to end users. However, the upstream business of global oil majors was seriously affected during low oil prices. Therefore, both OPEC and upstream oil companies hope that the OPEC meeting in Vienna on 6 December 2018 would push for further cut in oil supplies. Not good news for global economy if that happens.

Liquidity Crisis at IL&FS - A Closer Look at the Big Picture

Arnab Bhattacharya



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‘Never let a good crisis go to waste’

During September 2018, a series of announcements by the Infrastructure Leasing and Financial Services Ltd (IL&FS) Group, one of the largest infrastructure financing companies in India, revealed that the firm is going through a severe financial distress. Particularly, the public announcements informed the investors that the company had failed to meet its immediate obligations on a Letter of Credit (LC) payment to IDBI Bank, interest payments on Non-Convertible Debentures (NCDs) and other payment obligations with respect to bank loans, short-term deposits and term deposits. These announcements took the market by surprise, and led to a significant disruption in the subsequent months. In this article, we shall attempt to explore a series of recent events that are related to the liquidity distress factors in the Indian NBFC (Non-Banking Financial Company) sector. We shall also discuss some of the major causes and consequences of these events for the Indian capital market investors, infrastructure and real estate companies, government and regulatory agencies and the broader economy in general.

How important are the issues under discussion? – A quick look at the market reaction

Even if you do not generally follow news related to the NBFC sector, the degree of market reaction to the IL&FS crisis might have attracted your attention. So, we begin our analysis by directly examining the market reactions first, before getting to the underlying events that have triggered these intense reactions in the capital market. This serves two important purposes. It will give you an insight into the market perceptions and reactions leading up to this crisis, its root causes and corrective and preventive actions. It will also enable you to see how a crisis may affect not only the corporate sector in general, but also impact your personal finance through its effects on your portfolio investments.

The table below presents the recent share price performance of some of the major NBFC companies. We compute the most recent 1 week, 1 month, 3 months and 6 months raw returns of the NBFC and Housing Finance Companies (HFCs). The highly negative returns in most of these stocks suggest the level of steep correction in the market valuation of the NBFC sector companies, particularly during the last 6 months. As evident from the table, most of the HFC stocks are trading at about half price as compared to 3 to 6 months back. The fall in share prices have been even sharper for two of the IL&FS group affiliated companies – IL&FS Transportation Networks and IL&FS Investment Managers, and Dewan Housing Finance Limited (DHFL), all of which have lost almost three-fourths of their market valuation during the last 6 months. And all three companies have been at the epicenter of the recent NBFC crisis. So, what are the causes of such sharp correction in the market valuation of NBFC stocks? What are the main concerns of the investors in these stocks? This takes us to the next section below.

Table 1: Share Price Performance of Non-Banking Financial Companies (NBFCs), as on 25-Oct-2018.

Companies	Horizon of Raw Return			
	1 Week	1 Month	3 Months	6 Months
IL&FS Transportation Networks	-5.8%	-18.1%	-47.4%	-74.9%
IL&FS Investment Managers	-7.0%	-5.2%	-47.5%	-69.3%
Dewan HF	-23.0%	-39.5%	-70.4%	-68.8%
Gruh Finance	-1.0%	-10.2%	-17.1%	-52.7%
Indiabulls HF	-12.7%	-26.2%	-47.2%	-50.6%
Repco HF	-0.4%	-25.2%	-45.1%	-45.6%
GIC HF	4.4%	-11.4%	-33.8%	-44.8%
PNB HF	-17.2%	-32.2%	-43.7%	-44.6%
Bajaj Finance	8.4%	1.3%	-13.7%	39.1%
Sundaram Finance	4.2%	-6.2%	-5.6%	-24.3%
L&T Finance	-3.3%	-11.7%	-36.5%	-32.2%
BSE30	-3.1%	-8.1%	-8.6%	-6.3%

What Triggered the Panic Reaction in the Market? – Exploring the Causes

A series of defaults led the investors to panic and react the way the stock charts earlier indicated. For example, in mid-September, IL&FS Investment Managers Ltd. (IIML), one of the listed subsidiaries of IL&FS Group, announced that it had defaulted on INR 1,000 Crores loan from Small Industries Development Bank of India (SIDBI), a development financial institution. It had also defaulted on a Letter of Credit (LC) to IDBI Bank and another INR 12,000 Crores of other repayment obligations consisting of both short-term and long-term borrowings. Around the same time, there was news in the market that DSP Mutual Fund was selling the

Commercial Papers (CP) of DHFL in the secondary market at a discount to its issue price (or equivalently, at a higher yield).

The market interpreted these announcements as signals of financial distress in the NBFC sector. As a result, most of the NBFC stocks came under severe selling pressure. DHFL tried to alleviate some of these investor concerns by announcing that it had not defaulted on any of its repayment obligations and did not foresee any liquidity issue in servicing their upcoming debt obligations. It thereby hinted that the secondary market sale of the CPs by DSP Mutual Fund were perhaps driven by liquidity needs of the portfolio managers rather than their concerns around the liquidity of the CP issuer. However, as the stock market reactions indicate, the market participants seemed to remain concerned about the financial soundness of these NBFCs.

So, what was it that led the investors to increase their risk aversion for portfolio exposure to these NBFC securities, and revise their valuation expectations sharply downwards? To answer this, we move on to the following sections.

Asset Liability Management in Banks and Financial Institutions – Managing the Mismatch

Banks and Financial Institutions are primarily in the business of borrowing or raising money from investors (shown as liabilities in their balance sheet), and lending them to other borrowers (shown as assets in their balance sheet). The assets (money lent) generate an interest income, while the liabilities (money borrowed) incur an interest expense. For profitable operations, these financial institutions must ensure that the average borrowing rate (cost of funding) must be lower than the average lending rate. The management of this interest rate spread is an essential component of the asset liability management operations in any bank or financial institution. This interest rate spread is often measured by the Net Interest Margin (NIM), defined as the interest income earned on the assets minus the interest expense incurred on the liabilities, divided by the interest-earning assets, and is one of the most important valuation drivers for the financial institutions.

Financial institutions actively monitor and manage this interest rate spread by optimizing the mix of assets and liabilities in their balance sheets. This involves deciding on the nature of assets and liabilities in terms of the following:

- (a) Type of interest rates - fixed or floating
- (b) Type of depositors and borrowers - retail or wholesale
- (c) Type of maturity – money market (short-term) or capital market (long-term) and
- (d) Type of denomination – domestic currency or foreign currency.

Asset Liability Management (ALM) involves managing the risks borne by these financial institutions due to mismatch between the nature of these assets and liabilities such as those just mentioned above. This includes interest rate risk (due to mismatch in nature of interest rates), liquidity risk (due to mismatch in nature of maturity

profiles) and foreign currency risk (due to mismatch in nature of denominations). In the next section, we specifically focus on funding liquidity risk – the risk of inability of a firm to meet its current or short-term cash flow obligations, which is at the heart of the NBFC liquidity crisis story.

Funding Long-Term Assets with Short-Term Liabilities – Risks and Rewards

The recent NBFC liquidity crisis is primarily an off-shoot of asset liability mismatch in the balance sheets of NBFCs, as the financial institutions were relying heavily on short-term financing for funding their long-term assets. As a result, the amount of deposits and borrowings falling in short-term buckets (which were approaching their redemption dates in near-term) far exceeded the amount of repayments to be received from the loans in the same buckets. Given adequate liquidity in the money market, it can be advantageous for NBFCs to finance their long-term assets with short-term borrowings when the yield curve is upward sloping, as NBFCs can borrow at cheaper, short-term borrowing rates and invest their funds in higher, longer-term assets. This allows the NBFCs to increase their Net Interest Margins (NIMs), and earn higher profits with the same invested capital. However, such a strategy is also exposed to significant refinancing or roll-over risk, as short-term interest rates may fluctuate widely in the event of any illiquidity induced market disruptions.

Hence, when the subsidiaries of IL&FS Group announced a series of defaults on their short-term repayment obligations, and the news of mutual fund managers selling the Commercial Papers of DHFL at a discount in the secondary market became public, the market participants interpreted this information as a signal of impending financial distress for the NBFCs, and immediately became more risk averse in terms of their portfolio exposure to both debt as well as equity securities issued by the NBFCs. This increased risk aversion effectively meant that investors were now willing to pay lower prices for same NBFC securities than their prevailing prices, thereby increasing both the short-term rates in the money market, and the cost of funds of NBFCs, and adversely impacting the NIMs or profitability of NBFCs, as well as their equity valuation.

Over-dependency on Commercial Papers and Credit Rating Downgrades – Going Into a Tailspin

NBFCs were heavily dependent on the issuance of Commercial Papers for funding their long-term assets. Commercial Papers are privately placed, unsecured, short-term money-market instruments issued by highly rated corporate borrowers such as large manufacturing companies, leasing companies and financial institutions. Issuance of Commercial Papers require a minimum credit rating of A3, and have a maturity period that is typically between 7 days and 1 year. Since the yields on commercial papers were lower than the benchmark lending rates, it was beneficial for the NBFCs to borrow from the bond markets rather than the banks. On the other hand, many

banks and mutual fund managers also preferred to invest their surplus funds in the money markets rather than government securities as the yields on the Commercial Papers were higher than the reverse repo rates.

However, it is risky and an ill-advised strategy to depend on short-term borrowings such as Commercial Papers as a permanent source of capital as money markets tend to be seasonal in nature, and can be susceptible to rapid tightening in the event of any adverse financial outcome. Therefore, when the subsidiaries of IL&FS Group failed to repay obligations worth INR 12,000 Crores in short and long-term borrowings, one of the Credit Rating Agencies (ICRA) downgraded the credit rating of the borrower from A1+ to Default, citing the liquidity pressure on IL&FS due to its upcoming repayment obligations. This triggered a panic reaction in the capital market, as IL&FS Group is a huge borrower, with an aggregated outstanding debt of INR 91,000 Crores, out of which more than INR 16,000 Crores were of short-term nature. The aggregate borrowings of IL&FS Group accounts for almost 2% of outstanding Commercial Papers in the money market, around 1% of Non-Convertible Debentures (NCDs) and roughly 0.7% of the entire banking system loans. Hence, any significant financial distress to IL&FS Group naturally poses a major systemic risk to the overall banking and financial system in India.

Moreover, as the Indian banks are already burdened with sizable proportion of Non-Performing Assets (NPA) in their balance sheets, they became reluctant in increasing their exposure to the NBFC sector, either through money market instruments or through direct lending. Money market mutual funds also came under heavy redemption pressure, as retail investors became more risk averse, given the significant exposure of mutual funds to IL&FS Group in particular, and NBFCs as a whole. Thus, the rapid deterioration in the credit rating of IL&FS Group led to a general loss of investor confidence in the creditworthiness as well as asset quality of the NBFCs, and a heightened risk aversion towards portfolio exposure to NBFC securities. This further tightened the money market, leading to sharp increase in the cost of borrowings of NBFCs. To make things worse, the rupee was depreciating heavily against dollar due to rapid rise in crude oil prices in the international markets and widening current account deficit. Hence, the interventions made by Reserve Bank of India (RBI) to stabilize the foreign exchange rate through open market operations were creating further liquidity pressures in the market.

Path to Redemption – In Search of Short-term Liquidity and Long-term Planning

Given the immediate liquidity distress, NBFCs are actively exploring various alternative fund raising opportunities to meet their immediate, short-term repayment obligations. This includes raising overseas debt (through instruments such as External Commercial Borrowings) and considering sale of stakes or direct sale of assets to banks, private equity funds and other financial institutions. In fact, financial institutions and private equity funds may also find this as an opportunity to selectively pick the good quality assets from the NBFCs at reasonable discounts, given their urgent needs for liquidity. In the current market conditions, NBFCs with strong balance sheet, prudent asset liability management and high asset quality will have a natural advantage in their

fund raising activities. On the other hand, NBFCs with significant exposure to infrastructure and real estate projects with uncertain future cash flows will find it challenging to roll-over their short-term repayment obligations at reasonable costs. The Reserve Bank of India (RBI) has already initiated various steps to ease the liquidity conditions for the NBFCs, by increasing the ceiling for bank lending to a single NBFCs from 10% to 15%.

However, this IL&FS liquidity crisis may also serve as an important wake up call for all the participants in the overall shadow banking sector that has witnessed a phenomenal growth in the recent times, thanks partly to the less stringent supervisory rules and easier prudential norms relative to their banking sector peers. It is worth investigating, whether the rapid growth in NBFC assets came as a result of excessive lending to less creditworthy borrowers. The onus also lies with credit rating agencies to revisit some of their traditional ratings standards to include market intelligence and surveillance based inputs rather than solely depend upon historical data and management estimates of project cash flow forecasts for their credit ratings decisions. Finally, it will be important for the government and the Securities Exchange Board of India (SEBI) to initiate regulatory reforms that can address the shortcomings in their corporate governance mechanisms, and assign accountability and responsibility of top management and the board of directors for such hasty infrastructure and real estate investments alongside inadequate risk management practices, as well as the partners of the designated external audit firms for their audit failures in preventing possible misrepresentation of important financial information.

ALUMNI CORNER**An Open Letter to the CIO's Of Mutual Funds****Balachandran R**

Balachandran R is an alumnus of IIM Calcutta (1987-89) with extensive experience in corporate banking, investment banking and product management.

Dear CIO's,

The fear over debt mutual funds, and in particular, “liquid” funds, triggered by the ILFS default, has been rising to a crescendo. This is an opportune moment for us from the investor community, both corporate and individual, to share our feedback with you, on the state of affairs.

We have reposed our faith in your asset management skills, by parking about Rs 12 lakh crores with you, in the debt mutual fund category. While we may not pay the handsome fees like the equity scheme investors, we have undoubtedly bolstered your Assets Under Management, and thereby helped you in claiming your place at the high table of the financial markets in Mumbai. But it's not only an AUM game, many of the debt schemes are lucrative too, from your perspective.

In return, we ask for three things, like any other investor, including august ones like the Reserve Bank of India which invests the Foreign Exchange Reserves of the country: safety, liquidity and return, perhaps in the same order.

On the liquidity front, we observe that you have a tendency to cry “uncle” at the first sign of trouble. In 2008, you were bailed out by the central bank, at the peak of the Wall Street induced financial crisis. This time, by gorging on NBFC/HFC paper, you are facing a self-induced crisis and understandably expect the government and/or central bank to step in to bail out your NBFC friends and thereby your schemes as well. We as investors are fortunate to have such ardent champions on our behalf, who have no qualms in going hat in hand regularly to the powers that be, for a bailout. But we also have in our midst those who carp at the structural issues by way of liquidity facing the mutual fund industry, and the lack of concerted effort to address it, rather than repeatedly falling back on the expectation and hope that the system liquidity provider will step in always. These pessimists in ask the unthinkable; what if the central bank one day fails to backstop liquidity, citing moral hazard in such actions to save the private sector, and to avoid complacency among NBFC's and asset management companies.

Your reliance on the opinion of rating agencies is noteworthy. These agencies have an egalitarian approach to their fee paying customers, whose paper you buy on our behalf. “Innocent until proven guilty” goes the legal maxim. Extending this to the credit markets, rating agencies accord most large NBFC/HFC’s a “AAA” rating, unless proven otherwise. The latter scenario is where the rating agencies truly prove their mettle. No sooner a default happens, they promptly downgrade the rating from “AAA” to D. It appears that the rating scale is binary in their world.

As investors we suggest that the rating reports are taken seriously by you. Reading them before going to bed, will ensure a good night’s sleep. Your portfolio, as certified by these distinguished analysts is all “AAA”!

All those juicy fees dangled by the rating agencies’ customers in the NBFC/HFC space for their mega CP issuance, would surely not have clouded the judgement of the agencies. But here, one recalls Upton Sinclair, the American novelist, who said that “it is difficult to get a man to understand something, when his salary depends upon his not understanding it”. We therefore suggest developing a parallel rating scale of your own. We as investors have chosen to pay you investment management fees for your credit skills. For investment decisions, if you are relying largely on the opinion of analysts at external rating agencies (“all honorable men” as Mark Antony said!), then we might as well pick up the investment papers directly. As investors we would be glad to see your internal ratings and their rationale, as part of your disclosures.

Some of us who are risk averse have invested in your Banking and PSU debt schemes. We are aghast that NBFC/HFC paper have crept into their portfolio, at times. While the fine print in your legal documents may permit you to take such exposure, this is a breach of faith, from our investor perspective. When the name of the scheme implies one thing, while the portfolio is something else, then all trust breaks down. Investors will never forgive you for losses if any, in our Banking and PSU debt schemes, on account of exposure to NBFC/HFC paper or for that matter, any non-bank/non PSU investment. The same holds good for gilt schemes too. We also urge you to research on the fiscal deficit and other parameters of state governments, impacting repayment of their State Development Loans.

Basel compliant Additional Tier 1 bonds issues by weak PSU banks, especially those under the ambit of the regulator’s Prompt Corrective Action mechanism, are best avoided, despite their attractive yields. The Basel III norms do not permit payment of interest on such bonds, unless the issuing bank has sufficient distributable reserves. Given the bottomless pit that NPA’s are turning out to be, these banks, to be Basel compliant, may have to either default or prepay the bonds with the help of the Government. While the latter route has been taken thus far, do not bet that this will continue forever.

We urge you not to expose us to duration risk in gilt funds. Your track record in dynamic bond schemes, which play on duration, is nothing to write home about. Most of you are rarely able to get the rate cycle correct on these dynamic bond schemes. Therefore, sticking to a portfolio of predominantly short term Treasury bills and Triparty

repo through CCIL would remove both volatility and credit risk from the Gilt schemes. We are not greedy, we appreciate that such a portfolio will produce modest returns, but that's the price we are willing to pay for safety.

We note that the current crisis has seen a manifold increase in the AUM's of overnight funds. AMC's who do not offer these schemes are rushing to launch them. The industry at last is realizing the true meaning of a liquid fund and its ideal portfolio. Keep away anything other than reverse repo and CCIL's triparty repo from the portfolio of overnight funds. As normalcy returns sooner or later to the money markets, we trust that you will not dump your favorite NBFC paper in overnight funds, taking refuge in some obscure fine print in the scheme information documents. The current crop of liquid funds, stuffed with "AAA" rated NBFC/HFC paper, are best reclassified as Credit Risk funds (of low duration).

One of the biggest worries that we as investors in debt mutual funds face, is the fear of being the "residual or last investor" given the open ended nature of most of the schemes, barring fixed maturity plans. If a portfolio has 75% liquid/credit worthy paper, and faces a run, the first 75% of the investors who choose to press the redeem "panic button" and run for the exits, get 100% of their money back. The last 25% is stuck with the illiquid and dubious paper, and face potentially a 100% loss. Most investors are aware of this, hence any market rumour of a NBFC/non-financial corporate defaulting, will see a run on schemes which have exposure to it. The contagion can then spread to other schemes and then to the wider money markets, potentially leading to a grid lock, not unlike the extreme distress scenario witnessed during the dark days of the 2008 global financial crisis. We are currently seeing a mini version of this in India. The industry needs to work with the regulator to address this structural issue, on a war footing basis.

CONCLUSION

Your business model is enviable. Rating agencies are there to do credit assessment on your behalf, and the guardians of the financial system to handle your systemic liquidity problems in an extreme scenario. And unlike banks, you don't have the Basel norms for capital adequacy to meet nor any reserves to keep with the central bank. If investee companies default, you pass it on faithfully to us, by marking down the daily NAV. Since all of you have near identical portfolios, there is no real individual reputational risk too. Rarely does a business produce such returns to shareholders, with negligible skin in the game. But we have a word of caution for you. The minority in our midst, are prone to lament about the investment management fees we pay you, and the value that you bring to the table. Before their voice becomes a majority, we urge you to introspect on all these facets, once the current crisis blows over.

A final word. If the government ever eliminates the tax arbitrage arising from long term capital gains benefit for investment in debt mutual funds, which is currently not available for direct investments in fixed deposits and other debt instruments, your very *raison d'être* would be in question, and would require you to find a new business model or fade away into oblivion.

With best regards.

VOICE OF AMERICA**Rational Expectations and the Design of a Central Bank****Ayan Bhattacharya**

Ayan Bhattacharya is Assistant Professor of Finance at The City University of New York, Baruch College. He has a PhD from Cornell University and his research focus is financial economics, especially financial market design and asset pricing.

Many coffee room conversations in academic circles that follow the Indian economy have veered inevitably, these past few weeks, towards the headlines dominating India's financial press: RBI's independence, or the lack of it. For academics in the US, the situation is not completely unfamiliar: the Federal Reserve in the US, too, faces increasing pressure from the president. In fact, many other nations in the recent past – Japan for instance – have had their trysts with similar situations. On the bright side of things (at least for researchers who work on the topic), there seems to be a sudden spike in interest in understanding the foundations of Central bank independence among audiences – after a lull of many years.

1. Rational Expectations

The roots of the movement towards Central bank independence lie in a school of economic thought called rational expectations. In a pioneering paper in 1961, John Muth, then at Carnegie Mellon University, proposed the idea that rational economic agents' prognosis about the future should be consistent with the economic models used to predict the future. Sitting today, if an agent posited a model of the future that included the agent himself, he had to behave according to the model's prediction when the future actually unfolded. This is a matter of basic consistency, and it represents the crux of rational expectations. Muth was a microeconomist, but very soon this revolutionary idea spread to the world of macroeconomics. The most influential adherents were based at the University of Chicago, and led by Robert Lucas, these macroeconomists fundamentally altered the way we think about the modern economy.

The 1960s and 70s were a period of great churning in central bank policy-making. The US had been facing runaway high inflation for many years and economists were at a loss on how to bring the situation under control. High inflation was destroying the livelihoods of people across the board and the repercussions were getting graver by the day. It was in this climate that two young macroeconomists, Finn Kydland and Edward Prescott, decided

to attack the problem of inflation using the tools of rational expectations theory. Their main argument was intuitively easy. If politicians were in charge of monetary policy in democracies, there would be the perennial temptation to print more money. This is because an increased money supply provides a short-term boost to economic activity as well as reduces government debt in real terms. In a certain sense, it is like eating a chocolate ice-cream; in the short term things feel good. However, economic agents are rational, thus they would see through the politicians' game. Rational agents would expect the inflation to spike as a result of the increased money in the system, and this would make them cut back on their economic activity. To cope with this, politicians would print even more money, and this would spook rational agents even more, and very soon the spiral would go out of control, destroying the economy.

This was what was happening in the US economy, these macroeconomists argued, and the way out was to entrust monetary policy to an independent authority that could rise above the temptations of ordinary self-interested politics. It was under this framework that President Jimmy Carter appointed Paul Volcker as Chairman of the Federal Reserve. Volcker's epic battles with inflation are legendary in Central banking circles, but part of the reason he succeeded in the end was the bi-partisan he got support from politicians of the day. Volcker was appointed by a Democratic president, but many of his battles were under fought under the Republican regime of Ronald Reagan.

The success of Volcker's term firmly established the rational expectations approach as the dominant paradigm of monetary policy. Many of the prominent academics in the rational expectations macroeconomic school – Lucas, Kydland and Prescott, among others – went on to win the Nobel memorial prize. Similar models of Central bank independence were operationalized in many countries around the world, and gradually, what was at the start a radical approach to monetary policy, became the prevalent orthodoxy taught in graduate school economics.

2. Its Just a Theory After All

Unlike Physics, most theories in Economics are not immutable laws of nature. More often than not, economic paradigms are just a mix of astute observations and clever reasoning that provide acceptable explanations for puzzles of the day. Since economics deals with human reasoning, the theories evolve as our understanding of human decision-making process gets refined. This fluid nature of the field is a fundamental characteristic of the subject, and most academics readily acknowledge it. The key to success with economic theories in the real world, therefore, comes down to understanding the limitations of the theory, especially in the real world of policy-making.

At the heart of the rational expectations approach to high inflation lies a paradox. Recall the reason a government wants a monetary easing – it is to provide a fillip to the economy, which in fact shows that the government cares

for the welfare of its people. The process of democracy institutionalizes this responsibility in the government. However, left to itself, the government trips up on this responsibility in the monetary domain much like how most of us have a hard time resisting a chocolate ice-cream. The rational expectations solution is to move the chocolate ice-cream away from our reach; in other words, move monetary policy-making away from the regular democratic orbit. Since the Central bank manages expectations for the long-term, it needs to be shielded from the short-term pulls and pressures of the democratic system. Presented in this light, rational expectations suggests a rather bleak choice: sacrifice of (short-term) democracy, or the pernicious effects of a binge of chocolate ice-cream! Observe that the problem would not arise (at least not in this form) in non-democratic governing systems. If a ruler were assured of a 50 year rule, short-termism in expectations would disappear. So in some sense the rational expectations approach says that in a healthy, functioning democracy, certain institutions need to be kept away from the rumpus of democracy. A paradox indeed!

Most problems with the modern central banking structure can be traced back to this basic paradox. In India, the problems we are witnessing are a common flavor of this paradox. Many other countries have faced similar tugs and pulls – some have chosen wisely, others have faltered. In large parts of the rich world, Central banks face a slightly different flavor of the paradox. Given many years of chronically low inflation, the Central banks now want to rev up the inflation engine. However, given that the very structure of modern central banking – independence etc. – was created to cool inflationary fears, markets have a hard time reconciling to this new stance.

3. Look Around and the Paradox is Everywhere

The basic paradox between short-term incentives and long term expectations is not unique to banking. Corporate finance has been grappling with a similar issue for many years. Stock markets are a good check and balance on a firm, yet quarterly announcements and reports create an inevitable bias towards short term brouhaha that stymies longer term projects. Or, for that matter, employee stock options which provide short term incentives even though the job expectations might be long term. Scratch the surface, and you will find these kinds of issues in many different contractual situations.

In many ways, monetary policy is also a contract – this time a social one between citizenry and the monetary authority. The government becomes a necessary intermediary in this contract because they supposedly represent the will of the people. Yet, come to think of it, the meaning of “will of the people” is very fuzzy. When voting, do people take into account the myriad contracts that a government might execute on their behalf? Do people understand that the effects of many of these contracts far outstrip the term of the government they are electing?

The design of a robust central banking system thus links to a number of open questions in the field. When the time horizons of principals and agents do not match, how must one structure good contracts? Is there an optimal

mechanism to collect opinions when a bundle of contracts need to be decided by a group? How rational are people when thinking through the long term implications of actions? We may not immediately realize it, but all these deep and open questions have a bearing on the optimal RBI-government equation. Rational expectations might provide a reasonable solution for now, but the final word on the topic is still to be written.

GUEST COLUMN**Why RBI's Revaluation Reserves cannot be transferred to Government****V K Sharma**

A career central banker and a Member of the Markets of Bank for International Settlements, Basel, Switzerland, Mr. Sharma retired as Executive Director, Reserve Bank of India (RBI), on 31st December, 2012. He is currently on the Board of Governors of International Management Institute, New Delhi and on the Academic Advisory Board of MIT World Peace University's School of Economics, Pune.

Liabilities on the RBI's balance sheet comprise what are known as 'Monetary' and 'Non-Monetary' liabilities. Monetary liabilities are created when the RBI, like any central bank, buys assets as part of its exchange rate and monetary policy objectives, and credits the accounts of banks maintained with it. Part of these credit balances can be exchanged for currency notes. These monetary liabilities of the RBI, including the currency in circulation, are also referred to as high powered Base/Reserve Money and a multiple of which creates what is known as Broad Money (M3). Non-Monetary liabilities comprise capital and reserves consisting of credit balances, also referred to as Revaluation Reserves, in Currency and Gold Revaluation Account (CGRA), Investment Revaluation Account-Foreign Securities, Investment Revaluation Account-Rupee Securities, Contingency Fund and Asset Development Fund. As the name itself suggests, these Revaluation reserves represent periodic marked-to-market net 'unrealized/notional' gains/losses in the value of Foreign Currency and Gold Assets, Foreign Securities and Rupee Securities on the RBI's Balance Sheet and currently add up to about ₹7 trillion (with revaluation reserves in Investment Revaluation Account-Rupee Securities being only ₹0.132 trillion and those in Investment Revaluation Account – Foreign Securities being zero) on RBI's total assets of about ₹ 36 trillion, constituting about 20% of the total assets as on 30 June 2018. The other component of RBI's capital and reserves of about ₹2.5 trillion, constituting about 7% of total assets, comprises insignificant equity capital, Contingency Fund and Asset Development Fund, arising from the RBI's realized net income. These marked-to-market Revaluation reserves thus provide the buffer only to absorb marked-to-market unrealized/notional losses on account of currency, interest and gold price risks inherent in the RBI's balance sheet. And significantly, any debit/negative balances in these Revaluation Accounts are debited to the Contingency Fund as was indeed done this year ended 30 June 2018 when the debit/ negative balance of ₹0.169 trillion in the Investment Revaluation Account- Foreign

Securities was debited to the Contingency Fund . Thus, the total capital and reserves add up to about ₹9.5 trillion constituting 27% of the total assets on the RBI's Balance Sheet.

It was widely reported in the media that Government was seeking transfer of ₹3.6 trillion of these ₹7 trillion worth of revaluation reserves. However, it is just as well that only a few days back , Government denied the move to seek transfer of ₹3.6 trillion because the only way that the RBI can transfer such notional/ unrealized net gains is by actually realizing them by selling ₹14.5 (3.6/7 x 28) trillion worth of its Foreign Currency and Gold assets because nearly all of this unrealized/notional net gain of ₹7 trillion is from the periodic marked-to-market revaluation of the Foreign Currency and Gold Assets worth about ₹28 trillion . But when the RBI actually sells what amounts to 40% of its total assets and 51% of its Foreign Currency and Gold Assets , their value , in rupee terms , will crash to such an extent that the credit balance of the unrealized net gains of ₹7 trillion in the CGRA may not only be entirely wiped out but may , in an extreme case, even turn into a debit/negative balance and may , therefore , need to be debited to the Contingency Fund ! This is because as per the Significant Accounting Policies of the RBI, debit/ negative balances in all the Revaluation Accounts are to be debited to the Contingency Fund. Worse, such massive appreciation in the Indian rupee will lead to an unsustainable widening of the country's Current Account deficit due to exports becoming way too expensive and imports way too cheap which ,in turn, will be a double whammy what with the output and employment in both export- oriented and import-competing domestic industries collapsing ! In other words, this massive sale of ₹14.5 trillion worth of foreign currency assets will deliver an entirely unintended cataclysmic deflationary macro-economic shock to the real economy (GDP)! This, incidentally, is also a very cogent argument against the proposition of some market analysts and experts, who, although they should know better, erroneously contend that this unrealized/notional amount of ₹3.6 trillion can be straightaway transferred to Government by crediting its account with the RBI and debiting the CGRA. In support, they contend that there is no way the rupee will appreciate by 33 % (28/21*100) to completely wipe out the CGRA credit balance of ₹7 trillion! But such experts conveniently overlook the fact that between September-end of 2013 and May-end of 2014 , that is , in just about 8 months, the Indian rupee appreciated by about 18% from ₹68.80 to a dollar to ₹58.44 to a dollar ! And, therefore, since only about half of ₹7 trillion, that is, ₹3.4 trillion will remain in the CGRA after transfer of ₹3.6 trillion to Government, such appreciation of the rupee of (18%) will more than wipe out the remaining CGRA balance of about ₹3.4 trillion, and worse, the CGRA balance could well turn into negative for any higher appreciation of the rupee! That was indeed very close and the worse, therefore, cannot be ruled out as that is what financial market risks are all about given the numerous black swan kind of imponderables ! And , in any case, making any payment from the unrealized/ notional credit balance is antithetical to good , sound and prudent accounting standards which are the hallmarks of sound and good governance globally and that is precisely why in January this year (2018) , Government notified an amendment to the Companies Act, 2013 and inserted the following proviso to Section 123 which precludes corporates from paying dividends from unrealized gains , by including the following proviso

, namely, "Provided that in computing profits , any amount representing unrealized gains, notional gains or revaluation of assets and any change in carrying amount of an asset or of a liability on measurement of the asset or the liability at fair value shall be exclude ! Thus it is no brainer to see that what applies in law to a private corporate entity must apply with equal, if not more, rigor to a sovereign institution like the RBI!

So in the above scenario, what incontrovertibly follows is “Heads, the economy loses “!

Under the other scenario,, even if, for argument’s sake, we make a very strong assumption that the value of the Foreign Currency and Gold assets will not go down in spite of the assets sale of this magnitude (₹14.5 trillion), it will still result in a massive contraction in RBI's balance sheet of about ₹11 ([14.5-3.6](#)) trillion, that is net of ₹3.6 trillion transfer to Government. This will entail making the following accounting entries; Credit Assets with ₹14.5 trillion and Debit Monetary liabilities with ₹14.5 trillion, Debit CGRA with ₹3.6 trillion and Credit Income Account with ₹3.6 trillion and Debit Income Account with ₹3.6 trillion and Credit Government Account with RBI with ₹3.6 trillion. Thus ₹3.6 trillion worth of non-Monetary liability will become the Monetary liability of the RBI with the transfer of the realized gain on sale of assets worth ₹14.5 trillion. As a result, the Reserve /Base Money, or the so-called primary liquidity, will shrink to about ₹15 (26- 11) trillion from ₹26 trillion currently.

This contraction of about ₹11 trillion in the Reserve Money will , in turn, lead to the shrinking in Broad Money supply (M3) from the current ₹145 trillion to about ₹84 ($15*5.6$) trillion , assuming the current Money Multiplier of about 5.6 . This, in turn, will deliver an entirely unintended cataclysmic deflationary shock to the real economy, driving interest rates way too high, and thus leading to a massive collapse in output and employment. Specifically, on a ballpark basis, GDP will collapse from the current ₹166 trillion to about ₹97 ($84*1.15$) trillion (applying the current GDP/M3 ratio of 1.15 on the reduced M3

Of ₹84 trillion). Significantly, this ratio has ranged between 1.15 to 1.18 since 2011-12. So even if we take the GDP/M3 ratio of 1.18, we still get the post-shock GDP of about ₹99 trillion! And no less, due to this massive contraction in the RBI’s balance sheet assets, there will be a corresponding sharp fall in the RBI's realized income, which, in turn, will mean so much less future surplus transfer to Government!

Although for the purpose of illustration, the above method of calculation was used for the media-reported transfer of ₹3.6 trillion worth of revaluation reserves, although since denied by Government, it can just as easily be applied to quantify the impact of revaluation Reserve transfer of any amount.

So the compelling and incontrovertible conclusion from the above any-which-way analysis is “Heads, the economy loses and tails, the economy loses “!
