DETERMINATION OF INTEREST RATE ARBITRAGE ACROSS MARKETS IN INDIA

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Abstract

One of the most widely traded derivative contracts by market players are 'Futures Contracts'. Futures contract is an agreement between two parties to buy and sell an asset at a certain time in the future for a certain price. If the actual price of the underlying and the Futures contract are known, one can easily derive the implied interest rate present in those markets for the given maturity of the Futures contract. If the implied interest rate in futures market differs from the interest rate in the debt (money) market for same tenure, capital will flow via arbitrageurs from low interest rate market to high interest market till interest rates (cost of capital) across both the markets are uniform. This nullifies the arbitrage opportunity.

With the backdrop of the theory of free market, this study makes an attempt to compare implied interest rates in Equity Index Futures market and the interest rates in money (debt) market (of same tenure) in India. In India, arbitrageurs are not able to arbitrage the difference between Futures and Spot price (i.e. basis) as well as between implied interest rates and money market rates in a certain band partly due to [i] absence of securities lending and borrowing mechanism of underlying defined for derivatives, market participants are not be able to move capital from equity futures market to money market with ease; [ii] State owned financial intermediaries and public sector banks, who are major players in debt market, have not begun to use derivatives for risk hedging or for position taking in a way such investors should be; [iii] Due to trading restrictions, some participants in the derivatives market are not able to participate directly in the money markets. Major market participants like banks can use derivatives only for hedging and not speculative purposes. Hence, the cost of capital to do arbitrage is more in India.

Key Words : *Determination,Interest rate, Arbitrage across markets.*

Introduction

In recent years the volume of derivative contracts created and traded by the financial system has grown enormously (Kohn M, 2008). One of the most widely traded derivative contracts by market players are 'futures contracts'. A financial futures contract is a standardized agreement to deliver or receive a specified amount of a specified financial instrument at a specified price and date. Financial futures contracts are traded on organized exchanges, which clear, settle, and guarantee all transactions that occur on their exchanges. Many of the popular financial futures contracts are on debt securities (such as treasury bills, CDs, bonds) and are referred to as interest rate futures. There are also financial futures contracts on stock indexes (BSE Sensex, S&P CNX NIFTY, S&P 500, S&P 50) and are referred to as stock index futures. It is a commitment to buy or sell a portfolio of stocks comprising the index.

Since stock index is a hypothetical product and does not have a physical form, it is a non-deliverable asset. Hence, such futures contracts are necessary cash settled. Cash settlement implies the exchange of difference in prices upon cancellation of the original contract (Srivastava & Misra, 2009). For each type of contract, the settlement dates at which delivery would occur are pre-determined (Madura, 2008). Financial futures are traded either to speculate on prices of securities or to hedge existing exposure to security price movements. Many hedgers who maintain large portfolios of stocks or bonds take a futures position to hedge their risk. Speculators generally take the opposite position and therefore serve as the counterparty on many futures transactions; and hence provide liquidity to the futures market. The price of index futures tracks the price of the underlying basket of stocks quite closely because of a type of trading known as 'index arbitrage'. If the price of the index is too high relative to the price of the underlying stock, traders sell the futures and buy the stock to benefit from the discrepancy. If the price is too low, they buy the futures and sell the stock. As a result of this trading by arbitrageurs, the two prices move closer together (Madura, 2007).

The price of any financial futures contract generally reflects the expected price of the underlying security (or index) as of the settlement date. Thus, any factor that influences that expected value should influence the current prices of financial futures. A primary factor is the current price of the underlying security (or index), which normally serves as a somewhat useful indicator of the future price. As the market price of the financial asset represented by the financial futures contract changes, so will the value of the contract. For example, if the prices of Treasury bonds rise, the value of the existing Treasury bond futures contract should rise because the contract has locked in the price at which Treasury bonds can be purchased. Another factor that influences the futures price is the opportunity cost (or benefits) involved in holding a futures contract rather than owning the underlying security. An investor who purchases stock index futures rather than the stocks themselves does not receive the dividends. By itself, this factor would cause the stock index futures to be priced lower than the stocks themselves. However, because the investor's initial investment is much smaller when purchasing the stock index futures, the investor may be able to generate interest income on the remaining funds. By itself, this factor would cause the stock index futures to be priced higher than the stocks themselves. When, both factors are considered, the effects are somewhat offsetting. The discrepancies between prices of index futures and stocks are capitalized by securities firms acting as arbitrageurs. Arbitrage involves the buying or selling of stock index futures with a simultaneous opposite position in the stocks that the index comprises. In fact, the arbitrage is instigated when prices of stock index futures differ significantly from the stocks represented by the index (Madura, 2008). The cost-of-carry pricing model is the arbitrage mechanism that sets the relationship between spot and futures prices (Dubofsky, & Miller, 2009: Strong, 2002). In fact, the difference between spot and

futures prices shows the amount of profits. It can be positive or negative. Dividing this profits amount by the spot value (price), give the rate of profits or the rate of interest on the investment. This is the indicative or the implied rate of interest on investment.

The theory of efficient market assumes free flow of capital between markets, which guarantee the uniform cost of capital across various financial markets. If cost of capital differs across markets then the capital flows from low cost to high cost market via arbitrageurs till the cost of capital between the markets are uniform. This nullifies the arbitrage opportunity. For example, if the implied interest rate in futures market differs from the interest rate in the debt market (money market) for same tenure, capital will flow from low interest rate market to high interest market till interest rates across both the markets become same. The speed and degree to which capital flows across the markets depends on market regulations and market characteristics. Greater the speed at which capital flows across markets to nullify the arbitrage opportunity, the more efficient are the markets and their governance structure (Jain & Bhanumurthy, 2005).

Interest rate comparison across short-term markets for financial assets:
With the backdrop of the theory of free market, this study makes an attempt to compare implied interest rates in Equity (stock) Index Futures market and the interest rates in money market (of same tenure) in India. Equity Index Futures market is the exchange traded equity derivative market and money market is a debt market. Both these markets are markets for short-term financial assets.

The value of Equity Index Futures derived from their underlying Equity Index like BSE Sensex, S&P CNX NIFTY, CNXIT and the CNX Bank Indices. The BSE Sensex is a weighted average of the prices of 30 shares and the S&P CNX NIFTY is a weighted average of the prices of 50 shares. Each point is considered to be equivalent to 1 rupee (Srivastava & Misra, 2009). Minimum contract value is fixed in a manner so as to be close to Rs. 2 lakh at the time of introduction. A minimum lot size for the BSE Sensex was fixed at 50, while for the S&P CNX NIFTY, it was 200. If the index value of BSE Sensex is around 4000 then appropriate value of a index futures contract is (50 x 4000 = Rs. 2,00,000) is Rs. 2 lakh; and if the S&P CNX NIFTY is 4000 then appropriate value of a index futures contract is (200 x 4000 = Rs. 8,00,000) Rs. 8 lakh. They are mostly used for hedging, trading and investments. Investors using Equity index futures could involve exposure to a market or to a sector without having to actually purchase shares directly.

To compare implied interest rate in Equity Index Futures market and the interest rate in money market in India, seven month time period from March 01, 2007 to September 17, 2007 is chosen as the analysis we intend to do does not demand long period time window. Implied interest rates in Equity Index Futures market in India is calculated on the basis of NIFTY Index values and NIFTY Futures values announced by NSE ; while debt (money) market rates are calculated on the basis of reference rates announced by NSE viz. average of Mumbai Interbank Bid Rates (MIBID) and Mumbai Interbank Offer Rate (MIBOR).

At any given point of time at the National Stock exchange, there exist three NIFTY Futures contracts. First contract is the existing or having near month expiry. Second contract is having next month expiry. And, the third contract is having next to next month or far month expiry (http://www.nseindia.com). Hence at start of March 07 the prevalent contracts were: First, existing month expiry contract viz. March 07, (which was initiated in January 07); second, next month expiry contract viz. April 07(which was initiated in February 07); and, third, far month expiry contract viz. May 07(which was initiated in March 07).

On the same lines in Sept 07 the prevalent contracts were first, existing month expiry contract viz. September 07; next month expiry contract viz. October 07; and far month expiry which is November 07.

Hence, in all, there were 7 contracts between March 07 and September 07 viz. March,April,May; April,May,June; May,June,July; June,July,August; July,August,September; August,September,October; & September,October,November.

First, we shall consider March 07 contract for calculating implied interest rates in the Equity Index Futures market in India.

The future contract traded on 1st March 07 is expiring on 26th April 2007. Thus there are 56 days to expiry for this futures contract from March 01, 55 days to expire from March 02 and so on. Holidays/Sundays when the markets are closed are excluded here. The days are presented in column 1; expiry date of futures contract is presented in column 2 and days to expire in column 3 of Table: 1. The underlying of this future contract is NIFTY Equity Index. The closing value of this Nifty Equity Index on the day given by the NSE is presented in column 4 as Spot-Index value. The closing value of the day of Futures contract on this Equity Index is given in column 5 as Equity Futures Contract Price - April 07. The implied (or indicative) interest rates of this Future Contract are estimated from its future value and spot value (Bodie, et.al., 2009) using following formula:

$$\text{Implied Interest rate} = \frac{(\text{Futures Value} - \text{Spot Value}) * 100}{(\text{Spot Value})}$$

$$= \frac{(3786 - 3811.2) * 100}{3811.2}$$

$$= -0.6612\%$$

The implied interest rate of this contract on March 01, 2007 is therefore - 0.6612%:

The implied interest rate calculated of this Futures contract every day is shown in column (6). Money market rate is calculated by using 'reference rate' announced by the NSE. NSE announces two rates – MIBOR and MIBID. For the calculation we have considered mean of MIBOR and MIBID as the money market rate for the year. If expiration period of futures contract is above 30 days, the average of 3 - Month MIBID -MIBOR is used as money market rate; if expiration period of futures contract is above 15 days but less than 30 days then average of 1-month MIBID-MIBOR is used as the annual money market rate; and if expiration period of futures contract is less than 14 days then average 14 day MIBID-MIBOR is used as the annual money market rate. These reference money market rates are shown in column 7. The money market rates till the expiry of the contract are calculated by the using the following formula:

Money Market rate = (Annual Interest Rate * Time to Expiry of Futures Contract)/ 360

In case of the contract signed on March 01, 2007 and expiring on April 26, 2007 (i.e., after 56 days), the ***money market interest rate till expiry of futures contract*** (i.e. for 56 days) is calculated by using average of 3 months MIBOR-MIBID. It comes to 1.55%, i.e.

$$= (9.97*56)/360$$
$$= 1.55\%$$

The *estimated Money market interest rate till the expiry of the contract* is shown in column (8). The difference between Money Market rate till expiry (8) and Implied Interest rate of the Equity Futures Contract (6), is shown in column (9). It comes to 2.21% for the April 07 contract traded on March 01,2007 i.e. Money Market Rate till expiry – Implied Interest Rate of Equity Futures contract is 2.21%, (i.e., 1.55 - (-0.6612) = 2.21%).

This means that the money market rate is higher than implied interest rate on Equity Index Futures contract by 2.21% on March 01, 2007. Therefore, an arbitrageur can buy NIFTY Futures contract at 3786 and sell spot index at 3811.2 and invest the proceeds in the money market at interest rate of 1.55% to earn rate of return of 2.21%. This trade strategy will continue till NIFTY Futures price rises to the level where the implied interest rate touches 1.55%. The higher the difference between Money market interest rates till expiry and implied interest rate on Equity Index Futures contract, the higher is the opportunity for arbitrage.

The observation of Table: 1 shows that the difference between *money market interest rate till expiry* and implied interest rate of Equity Futures contract goes on diminishing as the Equity Futures contract moves towards maturity, of course with few exceptions. There exist arbitrage opportunity to a greater extent during the start and middle tenure of NIFTY April 2007 futures contract. As the future contract comes near to expiry, the uncertainty in the futures value decreases; and hence, the arbitrage opportunity also decreases.

Similar exercise of estimating a difference between the implied interest rate from Nifty Futures Contract and Money Market rates till expiry is also done in case of remaining 8 Equity Index Futures contracts arising between March 07 and Sept 07. The results are shown in Table 2.

The numbers of observations in Table 2 are not equal across months as the total trading days for each contract differs from March 07 till Sept 07. For example for March 07 contract trading days were 16 in the time period considered, while for November 07 contract trading days were 21. Table: 3 below captures the number of trading days per contract and the maximum and minimum difference between implied interest rates of Equity Index Futures contract and interest rates of similar tenure in the money (debt) market.

Table-3 shows that the differential between the implied interest rates of Equity Index Futures markets and the interest rates of similar tenure in the money (debt) market is ranging from maximum of 3.90% difference for November 07 contract to minimum of around 0.03 % difference for March and May 07 contracts indicating significant scope for arbitrage between the Derivatives market and debt (money) market in India.

Conclusion

Futures pricing theory does not recognize any negative interest rate, as futures price is always greater than the spot price and therefore implied interest rates is positive. However, negative interest rates are seen in Indian Derivative markets. This goes against the Futures pricing theory of Stock Index Futures. This may be due to inability of the market participants to arbitrage because of following reasons:

a) If the implied interest rate in the futures market is higher than the money market rate, market participants will short sell Treasury bills to lock the proceeds and park the money in the futures market to earn higher rate of interest (by selling Futures and investing the equivalent proceeds of the Treasury bill sale in spot index). However, in India, there is a ban on short-selling of G-Secs and Treasury Bills (http://www.financialexpress.com).

b) Absence of securities lending and borrowing mechanism of underlying defined for derivatives (http://www.financialexpress.com). Securities lending and borrowing in Treasury Bills helps to address delivery obligations of market participants who sold short and help

them to arbitrage if the implied interest rates in the Equity Index Futures market is greater than the Money market rate. In the absence of such venue market participants will not be able to move capital from equity futures market to money market with ease.

c) In India, State Owned Financial Intermediaries and Public Sector banks are major players in Debt market. This institutional segment of the market has not begun to use derivatives for risk hedging or for position taking in a way such investors should be (http://*www.igidr.ac.in*).

d) Some participants in the derivatives market are not able to participate directly in the Money markets[1]. Since they do not have access to money market funds, they do not use either T-Bill rate or any other standard money market rate for Futures pricing. Hence the cost of capital to do arbitrage is more in India.

e) For smooth arbitrage it is necessary that the market participants are allowed to short sell (speculate) with adequate safeguards. However in India there is trading restriction on major market participants like banks. They can use derivatives only for hedging and not speculative purposes (http://*www.igidr.ac.in*).

f) Index Fund, Exchange Traded Fund can be used as dummy index to sell and buy spot index to execute arbitrage opportunities. However, in Indian market there is almost absence of (or less popular) products complementing arbitrage.

g) In India, the Implied interest rates show more fluctuations at the expiry of the futures contract implying that the Derivatives market in India is dominated by hedgers and speculators and not by arbitrageurs. Due to reasons mentioned in the preceding paragraph arbitrageurs are not able to arbitrage the difference between Futures and Spot price (i.e. basis) as well as between implied interest rates and money market rates in a certain band.

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http://www.igidr.ac.in

http://www.financialexpress.com

http://www.nseindia.com

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[1] Most of the Equity Derivative market participants like FII's, Retail investors do not have direct access to the Money Market to borrow funds or face multiple hurdles in doing so.

Table: 1
Implied Interest rates of NIFTY contract expiring on 26th April 07

Date (1)	Expiry date of Futures Contract (2)	Days to Expiry (3)	Spot Index Value (4)	Equity Futures Contracts Last Traded Price - April 07 (5)	Implied Int rate (%) (6)	Annual Money Mkt Int Rate (7)	Money Market Int Rate till Expiry (8)	Diff in Implied and MM Int Rate (9)
1-Mar-07	26-Apr-07	56	3811.2	3786	-0.6612	9.965	1.55011	2.21132
2-Mar-07	26-Apr-07	55	3726.75	3675	-1.3886	9.91	1.51403	2.90264
5-Mar-07	26-Apr-07	52	3576.5	3537	-	9.99	1.443	2.54743
6-Mar-07	26-Apr-07	51	3655.65	3647	-0.2366	9.935	1.40746	1.64408
7-Mar-07	26-Apr-07	50	3626.85	3611	-0.437	9.98	1.38611	1.82313
8-Mar-07	26-Apr-07	49	3761.65	3768	0.16881	10.105	1.3754	1.20659
9-Mar-07	26-Apr-07	48	3718	3681	-0.9952	9.965	1.32867	2.32383
12-Mar-07	26-Apr-07	45	3734.6	3736.9	0.06159	9.985	1.24813	1.18654
13-Mar-07	26-Apr-07	44	3770.55	3756	-0.3859	10.065	1.23017	1.61605
14-Mar-07	26-Apr-07	43	3641.1	3594.5	-1.2798	10.07	1.20281	2.48264
15-Mar-07	26-Apr-07	42	3643.6	3620	-0.6477	9.93	1.1585	1.80621
16-Mar-07	26-Apr-07	41	3608.55	3570	-1.0683	10.08	1.148	2.2163
19-Mar-07	26-Apr-07	38	3678.9	3657.95	-0.5695	10.08	1.064	1.63346
20-Mar-07	26-Apr-07	37	3697.6	3667.1	-0.8249	10.205	1.04885	1.87371
21-Mar-07	26-Apr-07	36	3764.55	3753.4	-0.2962	10.84	1.084	1.38018
22-Mar-07	26-Apr-07	35	3875.9	3878	0.05418	10.945	1.0641	1.00992
23-Mar-07	26-Apr-07	34	3861.05	3865	0.1023	10.4	0.98222	0.87992
26-Mar-07	26-Apr-07	31	3819.95	3844	0.62959	10.39	0.89469	0.26511
28-Mar-07	26-Apr-07	29	3761.1	3753	-	10.26	0.8265	1.04186

					0.2154			
29-Mar-07	26-Apr-07	28	3798.1	3804	0.15534	10.405	0.80928	0.65394
30-Mar-07	26-Apr-07	27	3821.55	3796	-0.6686	10.545	0.79088	1.45945
2-Apr-07	26-Apr-07	24	3633.6	3589	-1.2274	11.03	0.73533	1.96277
3-Apr-07	26-Apr-07	23	3690.65	3656	-0.9389	11.03	0.70469	1.64355
4-Apr-07	26-Apr-07	22	3733.25	3695	-1.0246	10.275	0.62792	1.65249
5-Apr-07	26-Apr-07	21	3752	3712.5	-1.0528	9.8	0.57167	1.62444
9-Apr-07	26-Apr-07	17	3843.5	3829.5	-0.3643	9.265	0.43751	0.80177
10-Apr-07	26-Apr-07	16	3848.15	3827.3	-0.5418	9.435	0.41933	0.96115
11-Apr-07	26-Apr-07	15	3862.65	3838	-0.6382	9.32	0.38833	1.0265
12-Apr-07	26-Apr-07	14	3829.85	3797	-0.8577	8.395	0.32647	1.18421
13-Apr-07	26-Apr-07	13	3917.35	3899.4	-0.4582	8.41	0.30369	0.76191
16-Apr-07	26-Apr-07	10	4013.35	4007	-0.1582	8.675	0.24097	0.39919
17-Apr-07	26-Apr-07	9	3984.95	3975	-0.2497	9.345	0.23363	0.48331
18-Apr-07	26-Apr-07	8	4011.6	4002.25	-0.2331	9.275	0.20611	0.43919
20-Apr-07	26-Apr-07	6	4083.55	4083	-0.0135	9.035	0.15058	0.16405
23-Apr-07	26-Apr-07	3	4085.1	4069.1	-0.3917	9.08	0.07567	0.46733
24-Apr-07	26-Apr-07	2	4141.8	4142.15	0.00845	8.8	0.04889	0.04044
25-Apr-07	26-Apr-07	1	4167.3	4175.9	0.20637	8.935	0.02482	-0.1816

Source: National Stock Exchange of India

Table: 2
Differences between Implied Interest rates (from Nifty Futures Contract)
and Money Market rates till expiry

S.No (1)	Mar 07 contract (2)	April 07 contract (3)	May 07 contract(3)	June 07 contract(4)	July 07 contract(5)	Aug 07 contract(6)	Sept 07 contract(7)	Oct 07 contract(8)	Nov 07 contract(9)
1	1.22	2.21	2.81	3.23	3.09	2.59	3.29	3.30	3.60
2	1.66	2.90	3.67	3.64	2.51	3.01	2.87	3.01	3.25
3	1.36	2.55	3.57	3.41	2.33	2.42	2.62	2.68	3.57
4	1.05	1.64	2.42	3.61	2.34	2.94	2.50	3.16	3.90
5	1.31	1.82	2.72	3.56	2.45	2.45	2.33	3.13	2.91
6	0.72	1.21	2.26	2.60	2.68	2.71	2.60	3.17	3.31
7	0.63	2.32	3.05	2.81	1.83	2.41	2.47	2.63	2.81
8	0.72	1.19	2.07	2.86	2.75	2.38	2.50	3.13	2.63
9	1.05	1.62	2.44	3.01	1.93	2.92	2.16	3.14	2.69
10	0.56	2.48	3.34	2.76	1.88	2.47	2.22	3.38	2.54
11	0.87	1.81	2.72	2.34	1.96	3.19	2.43	3.26	2.51
12	0.47	2.22	2.95	2.39	1.57	2.44	2.29	2.64	2.61
13	0.16	1.63	2.56	2.33	2.03	2.22	2.14	2.60	2.42
14	-0.03	1.87	2.87	2.33	1.69	2.19	2.09	3.13	1.87
15	-0.45	1.38	2.39	1.93	1.92	2.36	2.21	2.81	2.27
16	-0.18	1.01	2.05	2.27	1.97	2.39	2.44	2.15	1.74
17		0.88	1.84	1.90	1.97	2.57	2.07	2.47	1.81
18		0.27	1.33	1.72	2.22	2.37	2.24	1.93	2.20
19		1.04	2.12	2.23	1.44	2.56	1.74	2.17	1.45
20		0.65	1.76	2.22	1.77	2.47	2.48	2.31	1.21
21		1.46	2.48	1.68	1.83	2.37	2.84	2.14	1.23
22		1.96	3.03	1.59	2.00	1.98	2.39	2.62	
23		1.64	2.69	1.62	1.93	1.70	1.87	2.44	
24		1.65	2.70	1.86	1.72	1.58	2.49	3.02	
25		1.62	2.75	2.02	2.10	1.51	2.46	2.61	
26		0.80	1.81	1.01	1.46	1.79	2.52	2.16	
27		0.96	1.96	2.00	1.96	1.71	1.90	2.61	
28		1.03	2.06	1.16	1.74	1.75	2.50	2.87	
29		1.18	2.15	1.11	1.76	1.31	2.15	1.77	
30		0.76	1.89	1.09	1.50	1.39	2.52	2.22	
31		0.40	1.51	0.67	1.26	1.58	2.17	3.30	
32		0.48	1.57	1.16	1.91	1.50	1.69	3.01	
33		0.44	1.53	0.92	1.51	1.49	1.80	2.68	
34		0.46	1.57	1.20	2.05	1.36	2.26	3.16	
35		0.16	1.18	1.13	1.46	1.47	2.00	3.13	
36		0.47	1.51	1.30	1.14	1.62	1.32	3.17	
37		0.04	1.14	1.35	1.23	1.23	1.51	2.63	
38		-0.18	0.86	0.57	1.33	1.38	1.18	3.13	

39			1.54	0.95	1.29	0.92	1.27	3.14	
40			1.41	1.06	1.48	1.59	1.43	3.38	
41			0.84	1.21	1.34	1.87	1.14	3.26	
42			0.65	0.97	1.45	1.45	1.71	2.64	
43			0.65	0.79	1.21	1.00	1.32	2.60	
44			0.93	1.24	1.24	1.57	2.10	3.13	
45			1.15	0.51	0.79	1.44	1.50	2.81	
46			0.10	1.09	0.54	1.52	1.12		
47			1.09	0.78	0.50	0.85	1.47		
48			0.31	0.91	0.36	1.52	1.78		
49			0.30	0.67	0.62	1.12	0.67		
50			0.25	0.40	0.64	1.49	1.06		
51			-0.19	1.06	0.60	1.08	0.52		
52			0.29	0.61	0.31	0.63	0.52		
53			-0.05	1.25	0.23	0.83	0.56		
54			0.25	0.50	0.51	1.05	0.30		
55			0.31	0.20	0.39	0.86	0.34		
56			0.37	0.29	0.36	0.26	0.42		
57			0.48	0.38	0.21	0.52	0.26		
58			-0.40	0.40	0.26	0.05	-0.14		
59			0.01	0.43	0.54	0.14	0.11		
60			0.03	0.35	0.15	0.53	-0.54		
61			0.28	0.21	0.28	0.13	-0.16		
62				-0.02	-0.19	0.51	-0.08		
63					0.06	-0.11	-0.42		

Source: Derived using National Stock Exchange of India Ltd, NIFTY futures and MIBOR/MIBID data from March 07 till Sept 07,2007

Table:3
No of days and the maximum and minimum difference between money market rates and implied interest rate of futures contract.

S.No	Equity Index Futures Contract	Trading days	Minimum difference (%)	Maximum difference (%)
1.	NIFTY March 07	16	-0.03	1.66
2	NIFTY April 07	38	0.16	2.90
3	NIFTY May 07	61	0.03	3.67
4	NIFTY Jun 07	62	-0.02	3.64
5	NIFTY July 07	63	0.06	3.09
6	NIFTY Aug 07	63	-0.11	3.19
7	NIFTY Sept 07	63	-0.08	3.29
8	NIFTY Oct 07	45	0.20	3.38
9	NIFTY Nov 07	21	1.21	3.90