Impact of SLBM on equity market outcomes

Rohini Grover   Susan Thomas
IGIDR Finance Research Group

June 21, 2011

- The SLB scheme introduced on 21st April 2008 was revised on 28th June 2010
- Lenders earn a fee for lending out their securities for a fixed amount of time
- This can go from 1 day to 1 year out

- An efficient SLB market would improve market quality in the following two ways:
  1. Increase price efficiency

- An efficient SLB market would improve market quality in the following two ways:
  1. Increase price efficiency
     - Decrease in negative basis through improved reverse cash-and-carry.

- An efficient SLB market would improve market quality in the following two ways:

  1. Increase price efficiency
     - Decrease in negative basis through improved reverse cash-and-carry.
     - Decrease in basis risk.

- An efficient SLB market would improve market quality in the following two ways:
  1. Increase price efficiency
     - Decrease in negative basis through improved reverse cash-and-carry.
     - Decrease in basis risk.
  2. Decrease in volatility of stock prices with active SLB trading

Trading activity in the SLB segment at NSE
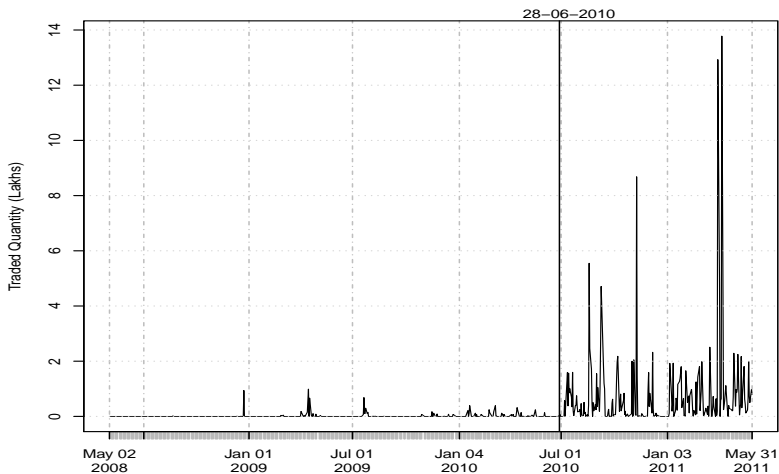
- Stocks analysed:
    - CNX100 stocks and their near month futures.
      Quartiles based on market cap.
    - Nifty spot and near month futures
- Period for analysis: Jan 1, 2010 to Dec 31, 2010 (six months before and after the event)

- Total traded quantity of Nifty stocks active on SLBM segment - 4.7 million (UNITS – INR?)
- Break up of the SLBM trading volumes in Nifty stocks by market cap quartiles:

	1 Jan - 27 Jun		28 Jun - 31 Dec	
Size quartiles	Lent shares	No. of trades	Lent shares	No. of trades
Big	-	-	2,877,426	214
Q2	78,134	13	1,631,070	184
Q3	214,400	29	1,717,300	139
Small	-	-	432,251	113

- Comparative: Nifty spot market volumes - 11 billion
  Nifty futures markets volumes – ???
  Useful to note: Nifty options markets volumes – ???

Hypothesised impact

1. Price efficiency
   - Normal behaviour: Average basis $\bar{B}$ across all stocks before the revision of SLBM will be the same as the $\bar{B}$ after.
     $\bar{B}_{pre} = \bar{B}_{post}$
   - Impacted behaviour:
     $\bar{B}_{pre} > \bar{B}_{post}$

Hypothesised impact

1. Price efficiency
   - Normal behaviour: Average basis $\bar{B}$ across all stocks before the revision of SLBM will be the same as the $\bar{B}$ after.
     $\bar{B}_{pre} = \bar{B}_{post}$
   - Impacted behaviour:
     $\bar{B}_{pre} > \bar{B}_{post}$
   - Normal behaviour: Average *negative* basis $\bar{B}^-$ across all stocks before the revision of SLBM will be the same as the $\bar{B}^{-1}$ after.
     $\bar{B}^-_{pre} = \bar{B}^-_{post}$
   - Impacted behaviour:
     $\bar{B}^-_{pre} > \bar{B}^-_{post}$

Hypothesised impact

1. Price efficiency
   - Normal behaviour: Average basis $\bar{B}$ across all stocks before the revision of SLBM will be the same as the $\bar{B}$ after.
     $\bar{B}_{pre} = \bar{B}_{post}$
   - Impacted behaviour:
     $\bar{B}_{pre} > \bar{B}_{post}$
   - Normal behaviour: Average *negative* basis $\bar{B}^-$ across all stocks before the revision of SLBM will be the same as the $\bar{B}^{-1}$ after.
     $\bar{B}_{pre}^- = \bar{B}_{post}^-$
   - Impacted behaviour:
     $\bar{B}_{pre}^- > \bar{B}_{post}^-$

2. Volatility
   - Normal behaviour: Average volatility ($\bar{\sigma}$) in the stocks with SLBM trading will be the same before and after the SLBM revision.
   - Impacted behaviour: $\bar{\sigma}_{pre} > \bar{\sigma}_{post}$

Part I

Results

Nifty stocks trading in SLBM

Outcomes	Q1	Q2	Q3	Q4
$\triangle \bar{B}$	↑	↑	↓	↑
$\triangle \bar{B}^{+}$	↑	↑	↑	↑
$\triangle \bar{B}^{-}$	↑	↑	↓	↑
$\triangle \bar{B}_{\sigma}$	↑	↑	↓	↑
$\triangle med(\sigma)$	↓	↓	↓	↑

Nifty stocks with no trading activity in SLBM

Outcomes	Q1	Q2	Q3	Q4
$\triangle \bar{B}$	↑	↑	↑	↑
$\triangle \bar{B}^{+}$	↑	↑	↑	↑
$\triangle \bar{B}^{-}$	↑	↑	↑	↑
$\triangle \bar{B}_{\sigma}$	↑	↑	↑	↑
$\triangle med(\sigma)$	↓	↓	↓	↓

Summarising basis risk

Index/Stocks	$\bar{\mathbf{B}}_{\sigma_{pre}}$	$\bar{\mathbf{B}}_{\sigma_{post}}$	$\triangle\bar{\mathbf{B}}_{\sigma}$
Nifty	15.69	18.64	-2.54

Trading activity in SLBM

Q1	25.46	36.75	-11.29
Q2	42.75	50.29	-7.54
Q3	44.99	43.62	1.37
Q4	31.30	37.71	-6.41

No trading activity in SLBM

Q1	25.17	30.33	-5.16
Q2	24.11	32.26	-8.15
Q3	28.34	33.25	-4.91
Q4	25.29	34.62	-9.33

Index/Stocks	med(σ_{pre})	med(σ_{post})	$\triangle$med(σ)
Nifty	0.39	0.38	0.01
Niftyfut	0.35	0.40	-0.05

Trading activity in SLBM

Q1	0.97	0.93	0.04
Q2	1.09	1.08	0.01
Q3	1.33	1.06	0.27
Q4	1.18	1.22	-0.04

No trading activity in SLBM

Q1	1.20	0.99	0.21
Q2	1.20	1.04	0.16
Q3	1.31	1.13	0.18
Q4	1.29	1.17	0.12

Note: $\sigma_Q = \sqrt{\Sigma \sigma_i^2 / n}$

- Post SLBM revision, stocks have on an average shown an increase in basis, positive basis and negative basis.
  The expected impact of SLBM on futures price efficiency has not taken place.

- Post SLBM revision, stocks have on an average shown an increase in basis, positive basis and negative basis.
  The expected impact of SLBM on futures price efficiency has not taken place.

- The volatility of these stocks have decreased.
  However, in this period, overall market volatility has also decreased, so this could be a overall phenomenon rather than impact of the SLBM.

- Thus, the SLBM market even post revision have not yet reached the volumes where it has any significant impact on market quality.
  More needs to be done.

- To note: We have not tested this effect in the price efficiency of options markets, where volumes are far larger.

Thank You