



Cross Currency Derivatives at NSE

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1. About New Currency Pairs

2. Trading

3. Settlement

4. Risk Management

5. Trading Strategies

6. Benefits of Trading on NSE

About New Currency Pairs

- Top 3 global currency pairs to trade on NSE
 - Euro-US Dollar
 - British Pound – US Dollar
 - US Dollar – Japanese Yen
- Both futures and options contracts to be listed
- Will expand the suite of currency pairs on NSE

Currency Futures & Options on NSE

FCY-INR	Cross Currencies
USD/INR	EUR/USD
EUR/INR	GBP/USD
GBP/INR	USD/JPY
JPY/INR	

- US dollar is on one side of 88% of global forex trades
- More than 50% global forex volumes is in EUR/USD, GBP/USD and USD/JPY*

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Currency Pair Description

- First currency in the pair is always the **base currency**
- The second is always the **quote currency**

Example:

While trading EURUSD, participants shall quote in USD for 1 Euro

Base Quote

EUR / USD

GBP / USD

USD / JPY

Ready to **buy** 1 EUR
for 1.2315 USD

EUR/USD	
Bid Price	Ask Price
1.2315	1.2316
1.2314	1.2317
1.2313	1.2318

Ready to **sell** 1 EUR for
1.2316 USD

Contract Size

EUR/USD

1 Contract = EUR 1000



GBP/USD

1 Contract = GBP 1000



USD/JPY

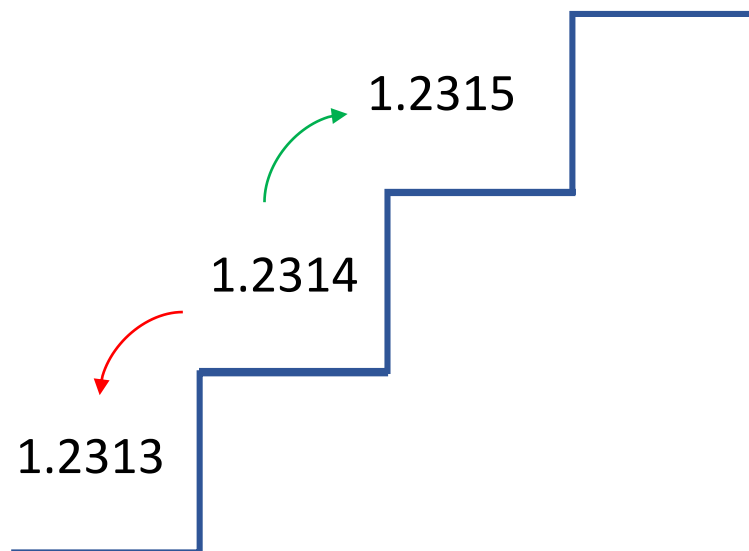
1 Contract = USD 1000



Price Steps

- Price Steps or tick size for futures and options
 - EURUSD = 0.0001
 - GBPUSD = 0.0001
 - USDJPY = 0.01

Example: Last traded price of EURUSD futures is 1.2314. The next minimum price change can be:



Contract Cycle




- Futures:
 - 12 monthly contracts available
- Options:
 - 3 monthly & 3 Quarterly contracts available
- New contracts introduced after expiry of near month contract

Illustration:

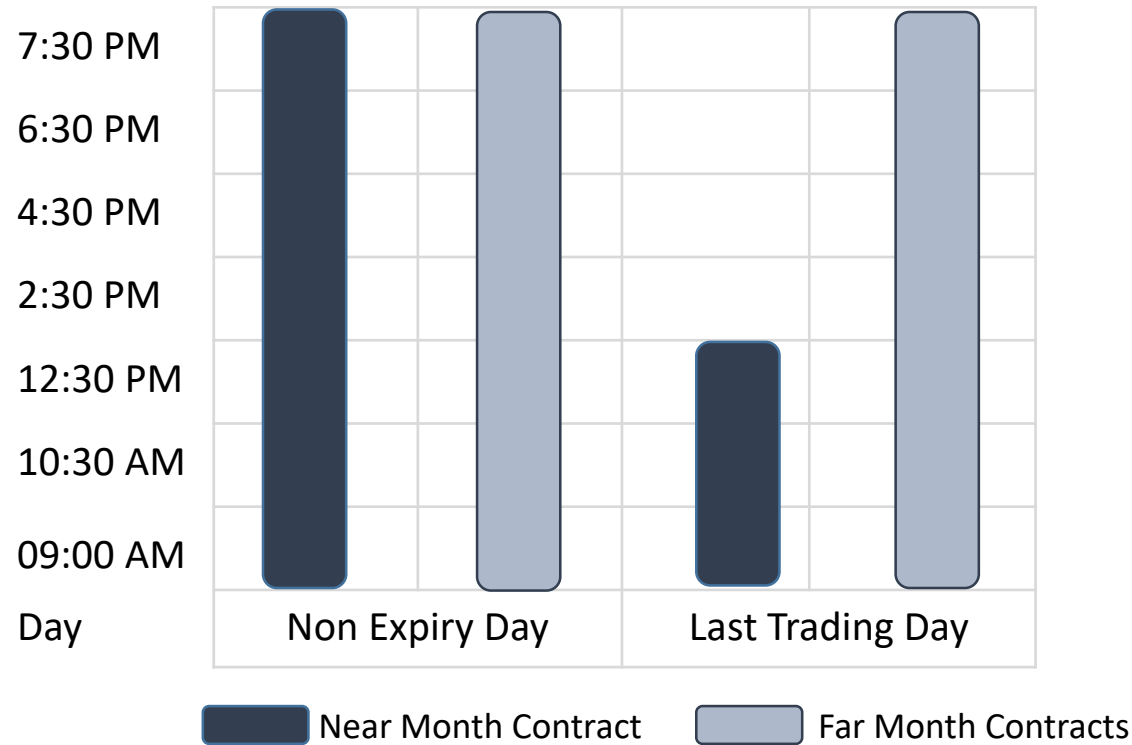
Futures	✓	Options	✓
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✓ ✓ March 2018	✓ ✓ April 2018	✓ ✓ May 2018	✓ ✓ June 2018	✓ July 2018	✓ August 2018
✓ ✓ September 2018	✓ October 2018	✓ November 2018	✓ ✓ December 2018	✓ January 2019	✓ February 2019

Options Strike Price

Parameters			
Underlying	Euro – US Dollar	Pound – US Dollar	US Dollar – Yen
Strike Price Interval	0.005	0.005	0.50
Minimum no. of strikes	12 In-the-money, 12 Out-of-the-money and 1 Near-the-money		
Example of few strike prices	1.210	1.375	105.00
	1.215	1.380	105.50
	1.220	1.385	106.00
	1.225	1.390	106.50
	1.230	1.395	107.00
	1.235	1.400	107.50
	1.240	1.405	108.00

Market Time



APRIL 2018						
M	T	W	T	F	S	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

Last trading day

- Contracts shall trade from 09:00 AM to 07:30 PM, Monday to Friday
- Contracts shall expire 2 days prior to last working day at 12:30 PM

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Settlement in Indian Rupees

- Contracts are quoted, traded in foreign currency
- Settlement in cash in Indian Rupees
- Profit/Loss in foreign currency converted to INR using applicable RBI rate for the day
- RBI rate shall be available after 12:30 PM
- Daily settlement : T+1 day, Final Settlement : T+2 day

Symbol	Traded Price	Profit/Loss	Conversion Rate	Settlement Value
	1	2	3	4
EUR/USD & GBP/USD	US Dollar	US Dollar	USD/INR RBI Ref Rate	Indian Rupees
USD/JPY	Japanese Yen	Japanese Yen	JPY/INR RBI Exchange Rate	Indian Rupees

Example 1: Futures MTM Settlement

- On March 20, 2018 a participant buys & sells 1 contract in cross currency pairs
- Daily MTM shall be converted to INR
 - For EUR/USD & GBP/USD, using USD/INR RBI reference rate
 - For USD/JPY using JPY/INR RBI exchange rate

EUR/USD		
	Buy	Sell
Time	09:50:00	12:15:00
Price USD	1.2310	1.2315
P&L in USD	(Sell Price-Buy Price)*Contract Size*No. of contracts $0.5 = (1.2315 - 1.2310) * 1000 * 1$	
P&L in INR	$32.5 = 0.5 * 65$ (RBI Ref Rate on March 20, 2018)	

GBP/USD		
	Buy	Sell
Time	11:00:00	12:45:00
Price USD	1.3970	1.3980
P&L in USD	(Sell Price-Buy Price)*Contract Size*No. of contracts $1 = (1.3980 - 1.3970) * 1000 * 1$	
P&L in INR	$65 = 1 * 65$ (RBI Ref Rate on March 20, 2018)	

USD/JPY		
	Buy	Sell
Time	18:00:00	19:15:00
Price JPY	107.80	107.76
P&L in JPY	(Sell Price-Buy Price)*Contract Size*No. of contracts $-40 = (107.76 - 107.80) * 1000 * 1$	
P&L in INR	$-24 = -40 * 0.60$ (RBI Rate on March 20, 2018)	

Example 2: Futures MTM Settlement

- On March 20, 2018 a participant buys 10 EUR/USD contract and holds till expiry
- Daily MTM shall be computed in US dollar but settlement shall be in INR
- Conversion to INR shall be using daily USD-INR RBI Reference rate of 12:30 PM

Trade Date	Price	MTM in USD for 10 contracts	RBI Ref Rate	MTM in INR for 1 contract
20-Mar (11:30 AM)	1.2325			
20-Mar (EOD)	1.2330	5.00 [#]	64.52	322.60
21-Mar	1.2332	2.00	63.90	127.80
22-Mar	1.2329	-3.00	63.92	-191.76
23-Mar	1.2328	-1.00	64.12	-64.12
26-Mar	1.2331	3.00	64.28	192.84

5.00 = $(1.2330 - 1.2325) * 10$ (no. of contracts) * 1000 (contract size)

Example 3: Options Premium Settlement

- A participant trades call option contracts in different strikes in GBP/USD
- Net premium shall be payable/receivable on T+1 day

Premium in INR = Traded Price * Number of contracts * Contract Size * RBI exchange rate

Time	11:30 AM	14:30 PM
Buy/Sell	Buy	Sell
Strike Price	1.390	1.395
Call Price/Traded Price in USD	0.0181	0.0158
No of contracts	1	1
Contract Size	1000	1000
RBI USD-INR Ref Rate at 12:30 PM	65.00	65.00
Premium in INR	(1176.5)	1027.00
Net Premium (Payable) /Receivable on T+1 day in INR	(149.50)	

Example 4: Options Final Settlement

- A participant has 10 long call option contracts in USD/JPY, which expires in-the-money
- Conversion to INR shall be using JPY/INR RBI exchange rate of 12:30 PM

Final Settlement Price in JPY	107.82
Call Strike Price	107.60
Exercise amount per contract (in JPY)	220
JPY-INR RBI exchange rate at 12:30 PM	0.60
Exercise amount per contract (in INR)	1320 [#]

1320 = $(107.82 - 107.60) * 10$ (no. of contracts) * 1000 (contract size) * 0.60 (RBI Ref Rate)

Daily Settlement Price

- Open future positions are marked-to-market at daily settlement price (DSP)
- $DSP = \text{Last Half Hour Weighted Average Price}$
- In absence of last half hour trading, theoretical price shall be considered

Final Settlement Price

- EUR/USD, GBP/USD and USD/YEN are cross currency rates for India
- Cross rate is calculated by dividing one of the pairs by the other
- Final settlement price shall be computed using RBI rate at 12:30 PM on last trading day
- Example of computation of final settlement price

RBI Rates	{	USD/INR	EUR/INR	GBP/INR	YEN/INR
		64.5000	79.722	90.1452	0.6000

Cross Rates	{	$\text{EUR/USD} = \frac{\text{EUR/INR}}{\text{USD/INR}}$ $1.2360 = \frac{79.7220}{64.5000}$	$\text{GBP/USD} = \frac{\text{GBP/INR}}{\text{USD/INR}}$ $1.3976 = \frac{90.1452}{64.5000}$	$\text{USD/JPY} = \frac{\text{USD/INR}}{\text{JPY/INR}}$ $107.50 = \frac{64.5000}{0.6000}$
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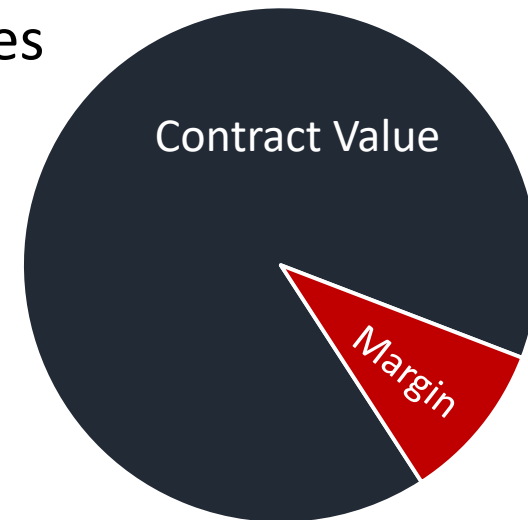
Margins

- NSCCL shall levy margins for trading cross currency derivatives
- Margins shall be blocked from the collaterals of clearing member with NSCCL

Margins	Futures	Options
Initial Margin	SPAN Based Margin 2% (Minimum)	SPAN Based Margin
Extreme loss margin	1% of MTM value of gross open position	1% of notional value of short open position
Assignment Margin	N.A.	100% of the net exercise settlement value

Spread	Margin (Rs.)
1 Month	1,500
2 Month	1,800
3 Month	2,000
4 Month +	2,100

- Till 2 PM
 - Margins collected in INR based on previous day (t-1 day) RBI rate
- Post 2 PM
 - Margins collected in INR based on same day (t day) RBI rate



Margins are only fraction of contract value!

Position Limits

For stock brokers (banks and non-bank), Category I & II FPIs, DIIs & AD Category-I banks

Currency Pair	Position limits
EUR-USD	Higher of 15% of OI or EUR 100 million
GBP-USD	Higher of 15% of OI or GBP 100 million
USD-JPY	Higher of 15% of OI or USD 100 million

For Proprietary position of non-bank stock brokers

Currency Pair	Position limits
EUR-USD	Higher of 15% of OI or EUR 50 million
GBP-USD	Higher of 15% of OI or GBP 50 million
USD-JPY	Higher of 15% of OI or USD 50 million

For Clients and Category III FPIs

Currency Pair	Position limits
EUR-USD	Higher of 6% of OI or EUR 10 million
GBP-USD	Higher of 6% of OI or GBP 10 million
USD-JPY	Higher of 6% of OI or USD 10 million

- Participants are allowed to take position within limit without having to establish underlying exposure

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Strategies

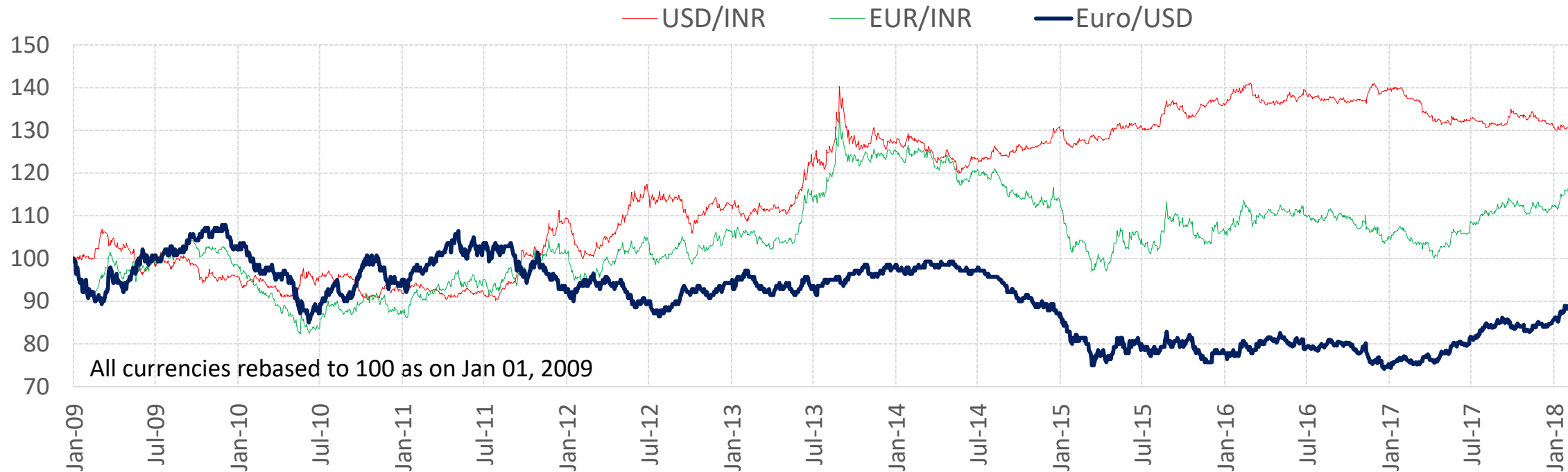
- Hedging
 - Cross currency futures can be used for hedging the FCY-FCY currency risk
 - A corporate expecting Euros in future and wants to convert it in US dollar has risk of US dollar appreciation (or depreciation of Euros)
 - Corporate can use short futures or long put to hedge this risk
 - Banks can hedge their FCY-FCY exposure using futures and options
- Arbitrage
 - Mispricing of FCY-FCY and FCY-INR pairs can generate arbitrage opportunities
- Expressing view
 - Changes in interest rate, economic scenario impact currency movement
 - Market participants can express views on changes in FX rates
- Options trading strategies
 - Multiple options strategies like spread, straddle, strangle butterfly, etc. can be explored

Value of Tick

- Value of 1 Tick = Tick Size * Contract Size * INR conversion rate

Parameters	 	 	 
Symbol	EURUSD	GBPUSD	USDJPY
Tick Size	USD 0.0001	USD 0.0001	JPY 0.01
Contract Size	EUR 1000	GBP 1000	USD 1000
Applicable Conversion Rate	USD/INR	USD/INR	JPY/INR
RBI Exchange Rate	65.00	65.00	0.60
Value of 1 Tick (in INR)	6.5	6.5	6.0

Market Trends – EUR/USD



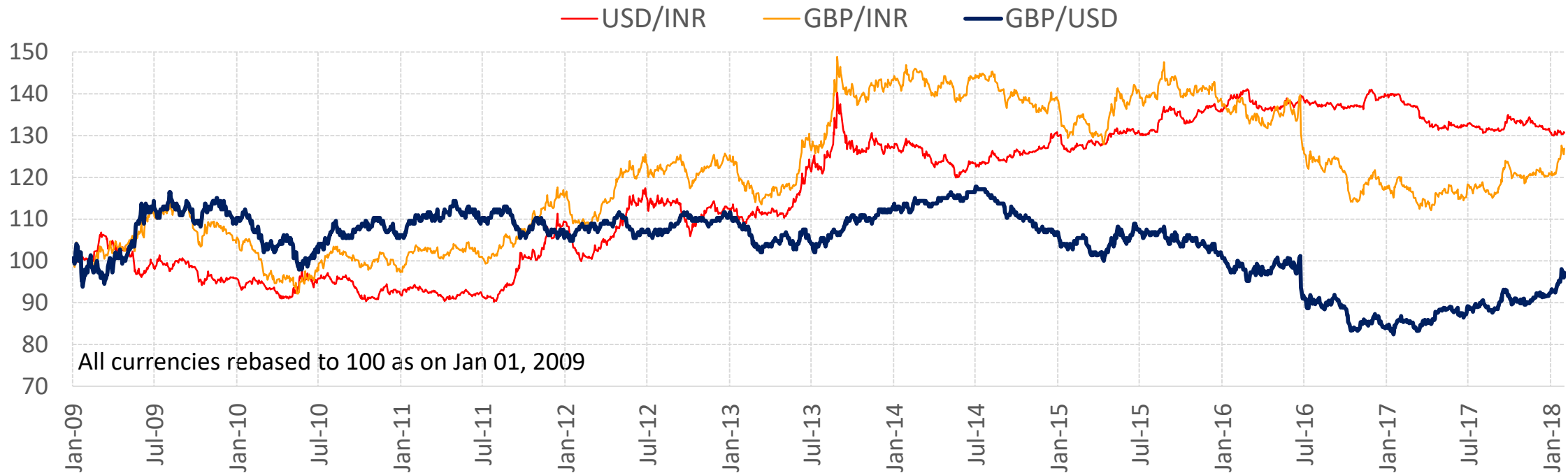
- In 2017 USD has depreciated against Rupee and Euro
- USD has depreciated from 1.05 on Jan 01, 2017 to 1.24 as on Feb 20, 2018 against Euro
- In 2017 EUR-USD had annualised volatility of 8.51%

Annualized Volatility*	EUR-USD	USD-INR	EUR-INR
5 yrs	10.49%	8.59%	12.01%
3 Yrs	11.65%	5.50%	11.76%
1 Year	8.51%	5.04%	8.32%

Standard deviation of daily returns

Period ending December 31, 2017

Market Trends – GBP/USD



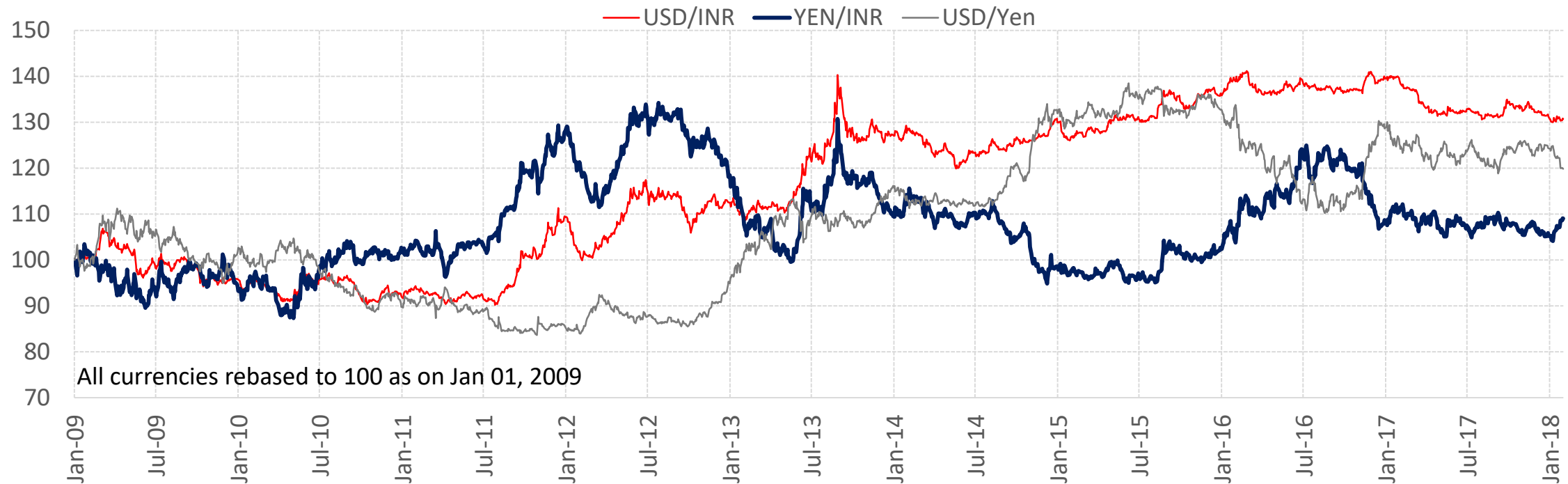
- In 2017 USD has depreciated against INR and GBP
- USD has depreciated from 1.23 on Jan 01, 2017 to 1.42 as on Feb 20, 2018 against GBP
- In 2017 GBP-USD had annualised volatility of 10.17%

Annualized Volatility*	GBP-USD	USD-INR	GBP-INR
5 yrs	11.00%	8.59%	12.37%
3 Yrs	12.44%	5.50%	12.13%
1 Year	10.17%	5.04%	10.22%

Standard deviation of daily returns

Period ending December 31, 2017

Market Trends – USD/JPY



- In 2017 USD has depreciated against INR and YEN
- YEN has appreciated from 116.90 on Jan 01, 2017 to 108.68 as on Feb 20, 2018 against USD
- In 2017 USD-YEN had annualised volatility of 10.35%

Annualized Volatility*	USD-YEN	USD-INR	YEN-INR
5 yrs	12.35%	8.59%	14.77%
3 Yrs	12.00%	5.50%	12.95%
1 Year	10.35%	5.04%	10.66%

Standard deviation of daily returns

Period ending December 31, 2017

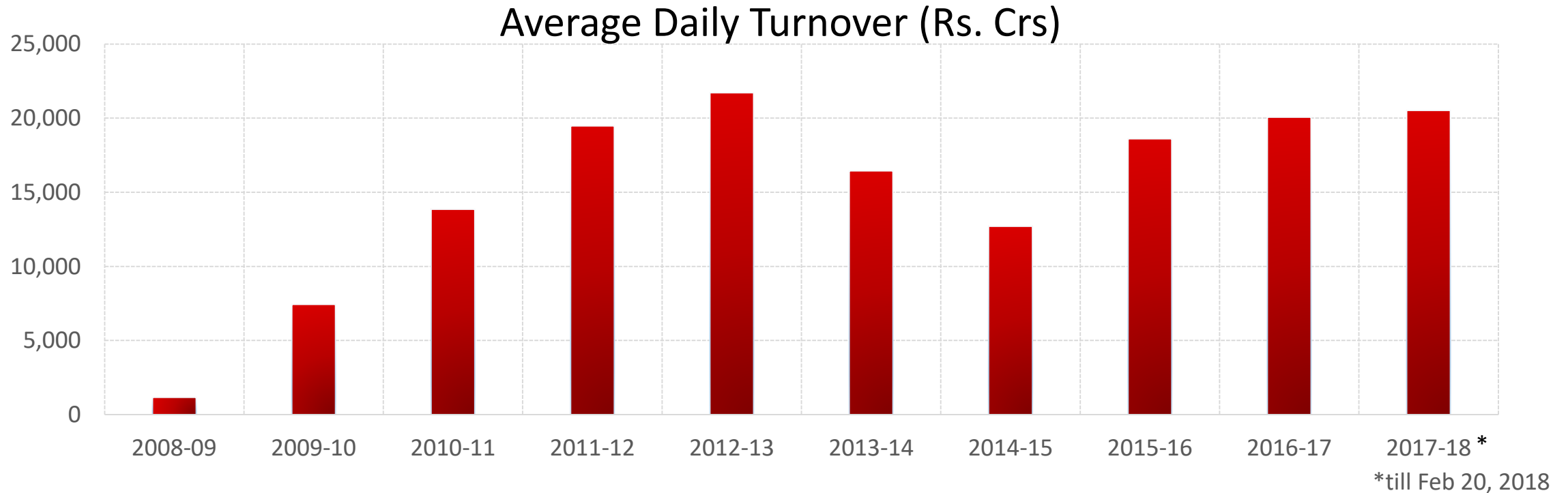
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Benefits of Trading on NSE



Growth of Currency Derivatives at NSE



- NSE launched currency futures on August 29, 2008
- Average daily volume in 2017-18 is Rs.20,515 crores
- CAGR over last 8 years is 14%

THANK YOU