DAY PERFORMANCE SIMILARITIES OF MULTIPLE LISTED COMPANIES

and their possible use for a day trading strategy

Multiple Listed Companies

- Companies which are listed on more than one stock exchange.
- There is a legal difference between cross-listed and dual-listed companies, but this is not considered this case study.
- If stock exchanges are in different time zones the shares are trades two times in 24 hours.
- For the case study I used stock prices of six companies which are listed in New York and Bombai (India).

Companies

Company	US St. Exch.	IN St. Exch.	Sector	US Smbol	IN Symbol	Comment
ICICI Bank	NYSE	BSE	Banks	IBN	ICICIBANK	
Infosys	NYSE	BSE	Software & Computer Services	INFY	INFY	
Vedanta Limited	NYSE	BSE	Indust.Metals & Mining	VEDL	VEDL	
Tata Motors	NYSE	BSE	Industrial Engineer	TTM	TATAMOTORS	
Videocon d2h	NASDAQ	BSE	TV Services	VDTH	VIDEOIND	VIDEOIND is the group
Wipro	NYSE	BSE	Software & Computer Svc	WIT	WIPRO	

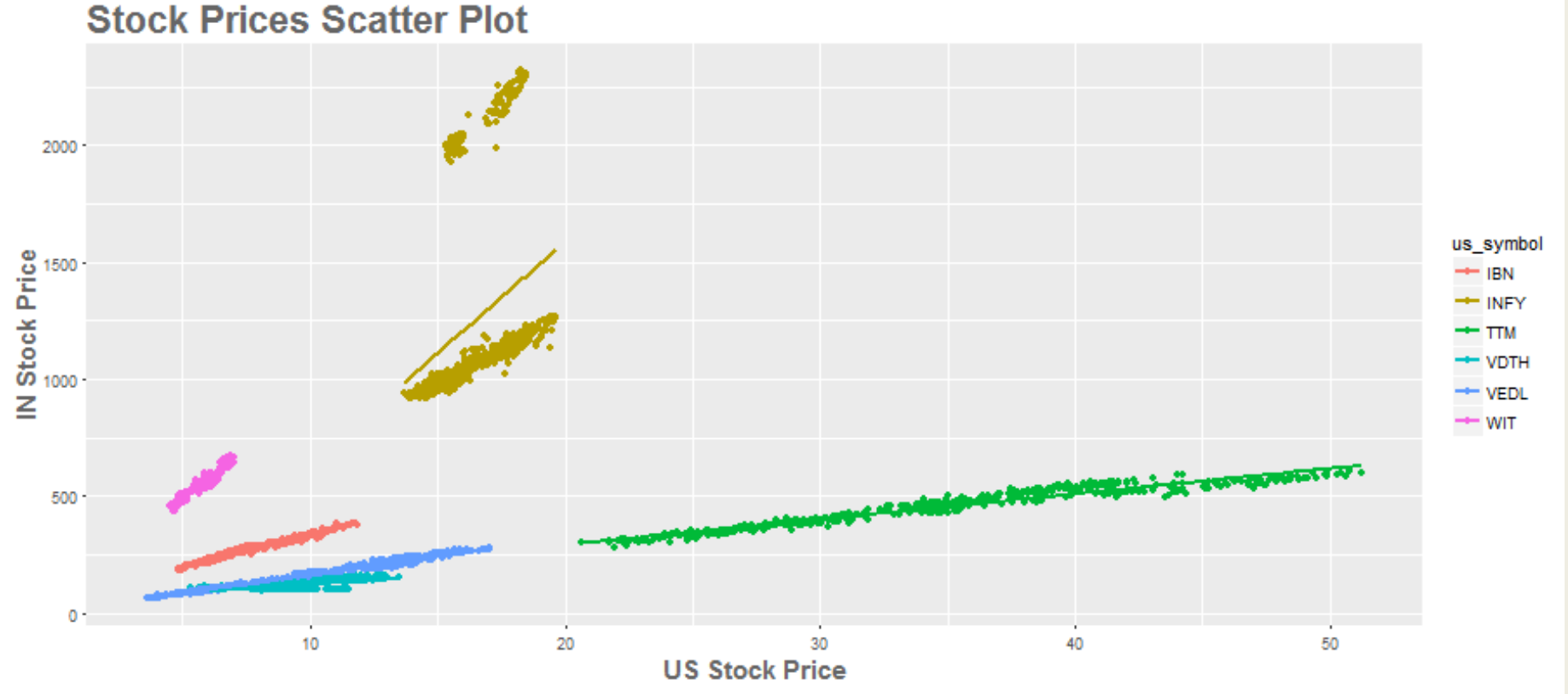
- Daily stock prices of the last 10 years can be downloaded from the stock exchange web sites.
- Joined the data together where the trading days are within 24h.
- There are two possilble directions IN -> US and US -> IN.

Day Performance, Trading Model Assumptions

- The day performance is calculated the following waý:
  (Closing_Price - Opening_Price) / Opening_Price
- If we decide to trade a stock on a specific day we assume that we can buy the stock with the opening price and sell with the closing price, so the trading performance ist the same as the day performance of the stock.
- We always sell the stock at the end of the day, we hold no stocks overnight.
- **We trade a stock if the day performance of the remote stock exchanges was positive.**

Correlations of stock prices

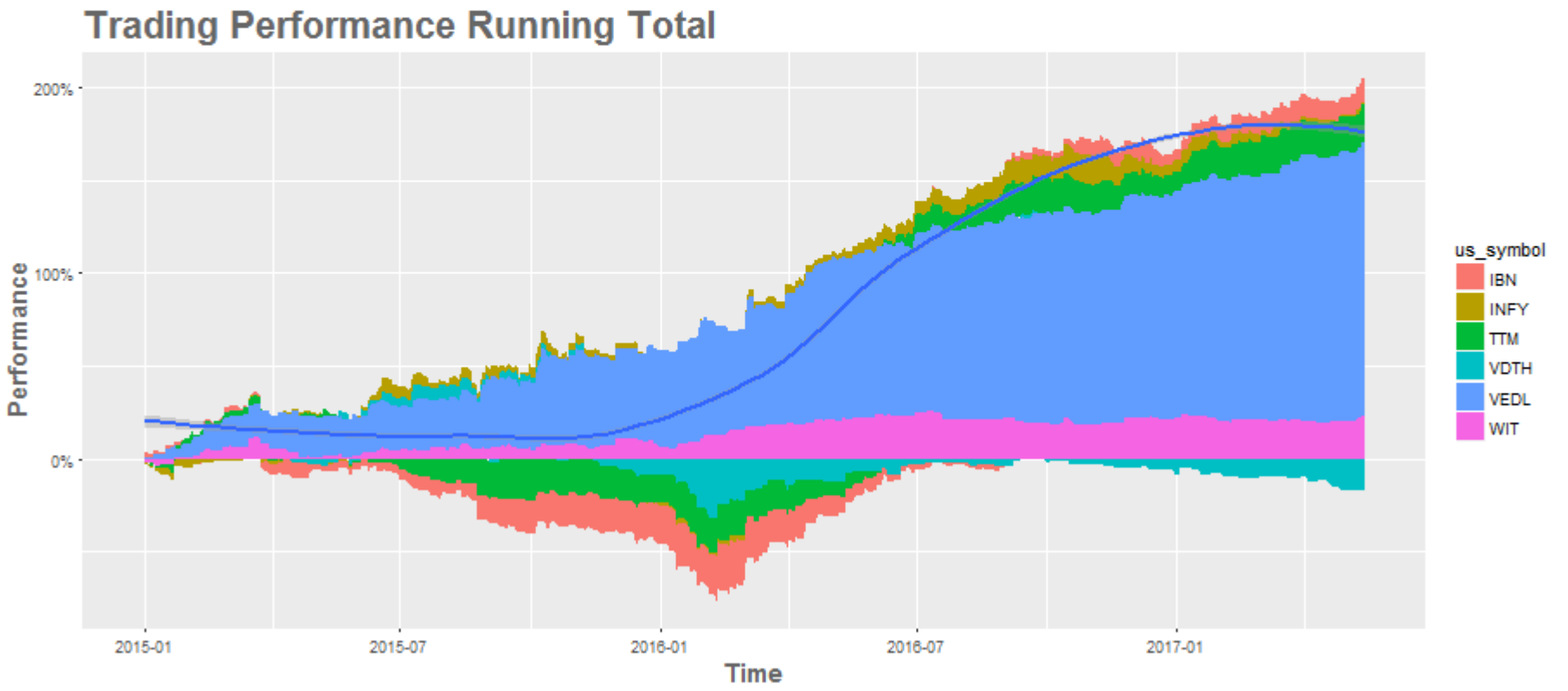
- Stock Prices Scatter Plot 2015/01 – 2017/07:



- The stock prices are strongly correlated.
- If there appear two clusters for one stock (Infosys) then a stock split took place.

Day Trading Performance (IN->US)

Serie	Sum Perf. (%)	Count	Mean Perf. (%)	Median Perf. (%)	Std.dev Perf. (%)	Pos.Days (%)	Avg. Win pos. Days (%)	Avg. Loss neg. Days (%)
Trading	187.71	1368	0.14	0.09	1.43	51.90	1.11	-0.91
Local	-45.35	3332	-0.01	0.00	1.51	47.36	1.11	-1.02
Remote	-694.80	3332	-0.21	-0.28	1.89	41.09	1.36	-1.30

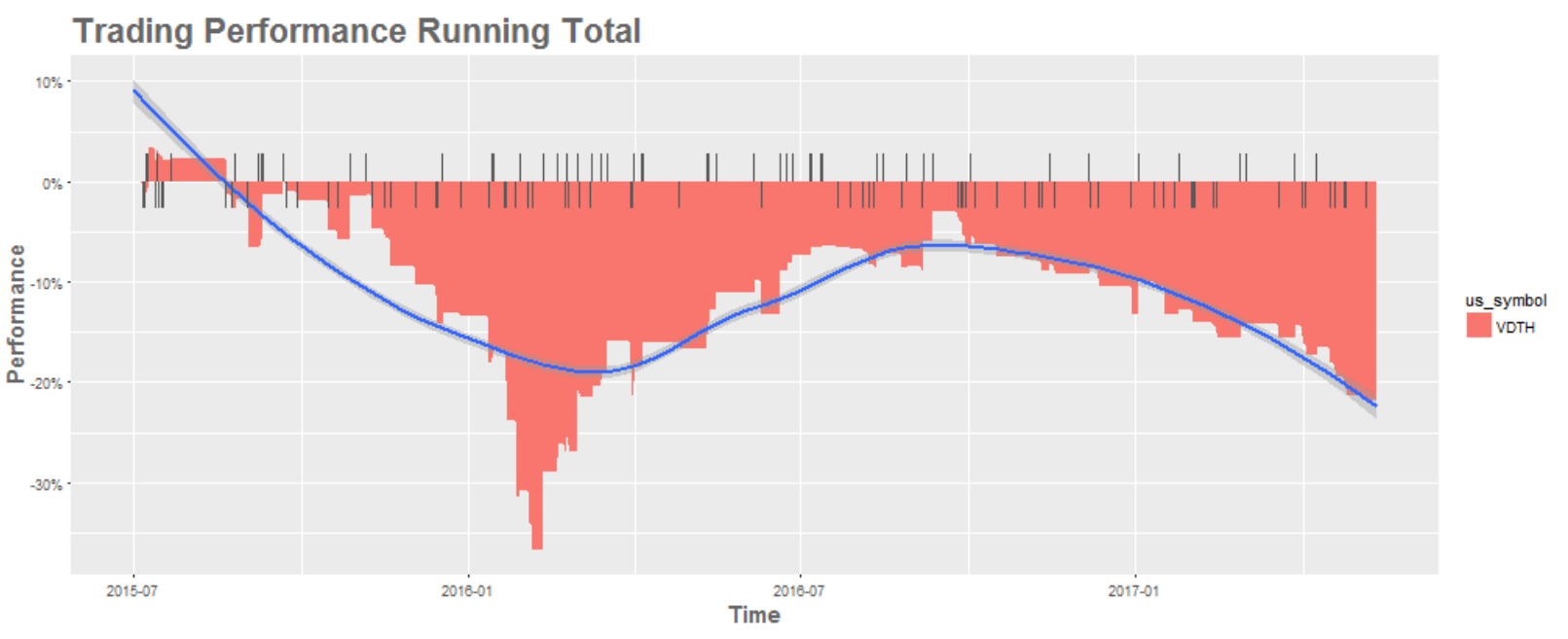


Day Trading Performance / Findings

- Overall the trading was profitable (188%).
- Not all stocks have been positive, some changed behaviour, some are negative.
- For a more detailed analysis a sliding correlation was implemented.
- For each day with data the correlation of the day performances of the 60 previous days were calculated.
- In the following we show different types.

Trading Performance: „Loser“

- The trading performance of Videocon d2h is very bad.



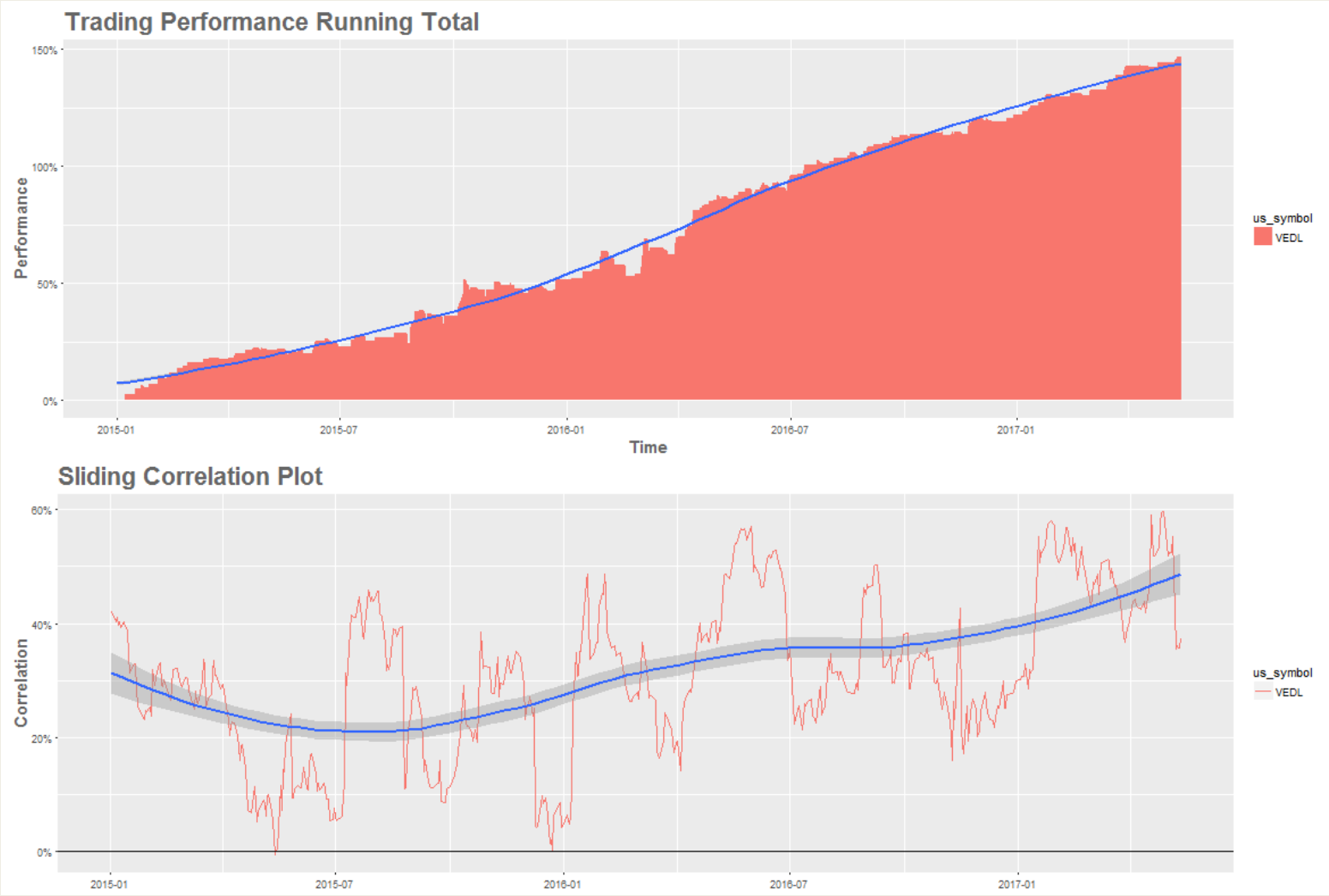
- The overall correlation in the time period is to low:

Serie	Pearson	Kendall	Spearman
Total	0.02	0.02	0.03
VDTH	0.02	0.02	0.03

➢ **No candidate for our trading model!**

Trading Performance: „Star“

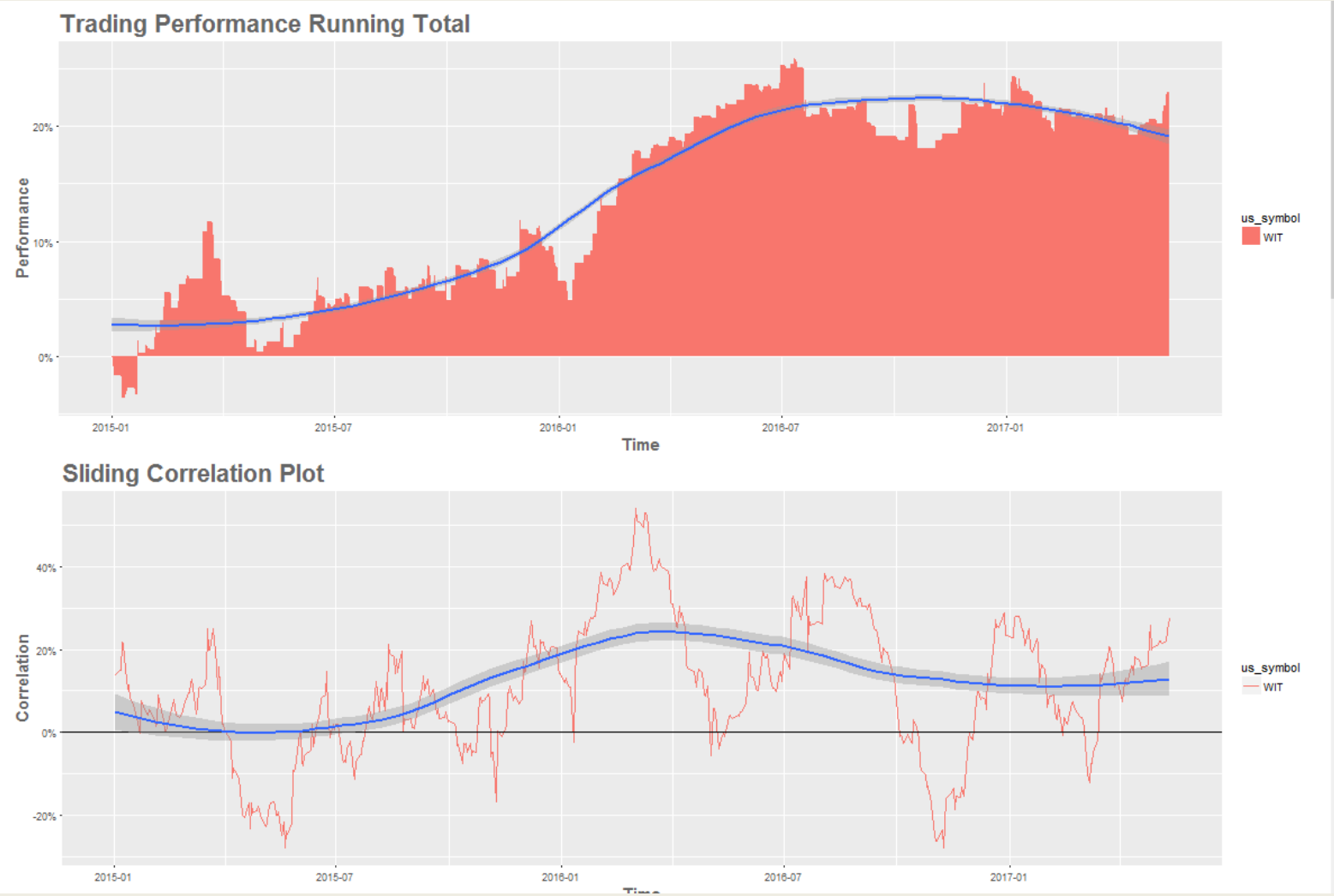
- Vedanta Limited:



- Strong correlation throughout.
- Total performance correlation is 29%.
- **Moneymaker!**

Trading Performance: „Lame Duck“

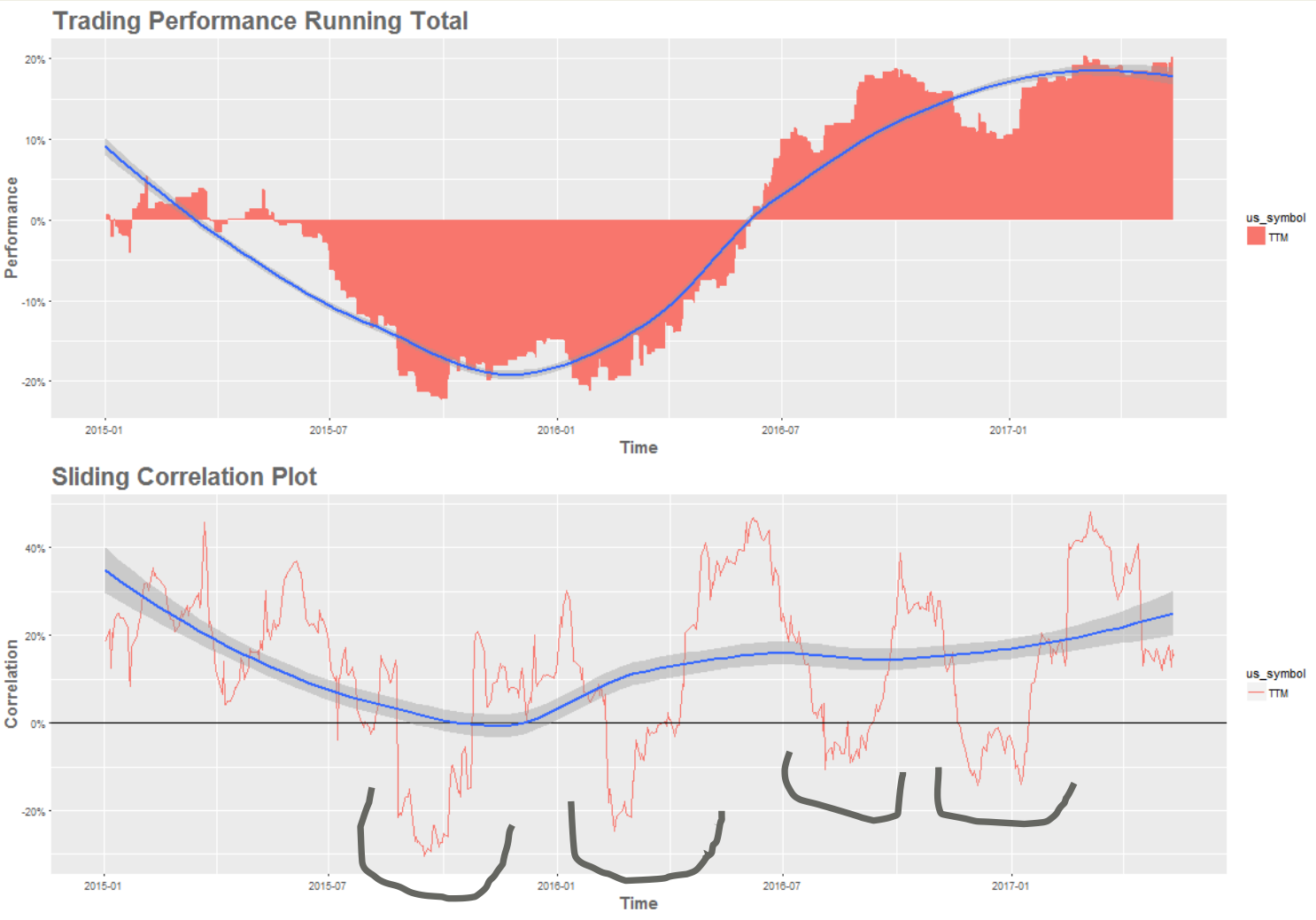
- Wipro:



- Good start but no gain since 2016/7.
- Horizontal movement.
- Correlation got to weak.
- **Pause while lame / further analysis.**

Trading Performance: „Flakey Jerk“

- Tata Motors:

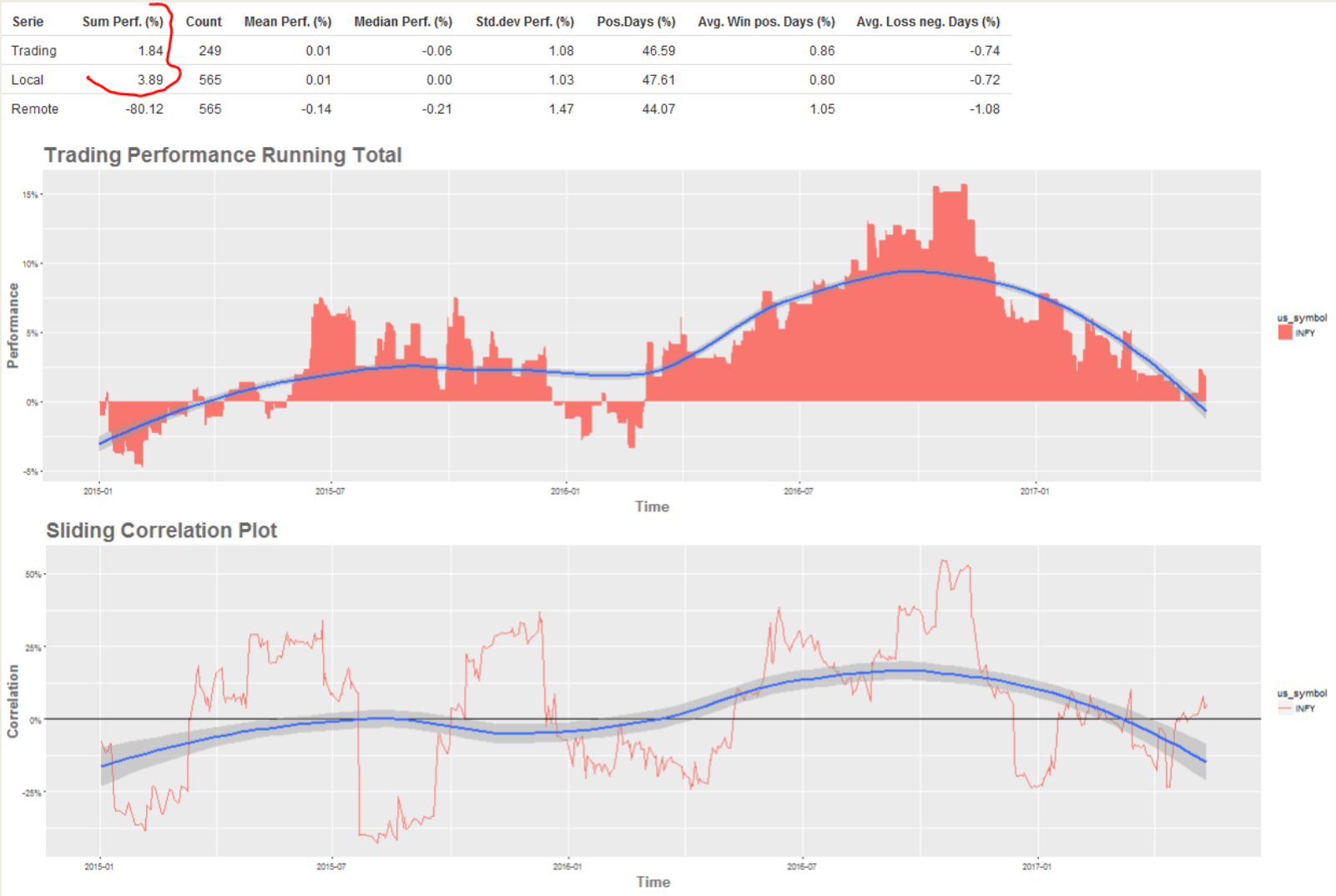


- Long periodic negative correlation phases.
- Try to detect and avoid negative correlation phases.
- **More analysis.**

Trading Performance: “Dazzler”

- Infosys

Serie	Sum Perf. (%)	Count	Mean Perf. (%)	Median Perf. (%)	Std.dev Perf. (%)	Pos.Days (%)	Avg. Win pos. Days (%)	Avg. Loss neg. Days (%)
Trading	1.84	249	0.01	-0.06	1.08	46.59	0.86	-0.74
Local	3.89	565	0.01	0.00	1.03	47.61	0.80	-0.72
Remote	-80.12	565	-0.14	-0.21	1.47	44.07	1.05	-1.08



- Seems to have a correlation, but the trading perf. is smaller than the every-day-trading performance.
- The trading strategy has no positive effect.
- Positive result is just luck.
- Remove and observer future development.

Conclusion

- Some multiple listed companies show a useful and valuable correlation of the day performances.
- The correlation is much weaker than the stock price correlation and varies over the time.
- To gain profit the correlation must stay over 10-20% in the observed time-span and there have to be enough buying signals (remote perf > 0).
- Further analysis to detect the current correlation level could yield to a better trading model.

10-Year Performance

Serie	Sum Perf. (%)	Count	Mean Perf. (%)	Median Perf. (%)	Std.dev Perf. (%)	Pos.Days (%)	Avg. Win pos. Days (%)	Avg. Loss neg. Days (%)
Trading	1369.92	5174	0.26	0.19	1.98	54.97	1.43	-1.16
Local	228.92	11200	0.02	0.00	1.99	49.31	1.35	-1.27
Remote	-976.67	11200	-0.09	-0.15	2.37	46.20	1.69	-1.62