

Liquidity Evolution of Chinese Market

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September 7th, 2012

Overview

- Two exchanges: Shanghai (SSE) and Shenzhen (SZSE)
- Two types of shares: A and B
 - B shares are officially called Domestically Listed Foreign Investment Shares and targeted for foreign investors
 - B shares face values are set in RMB but traded in foreign currencies, in contrast to A shares that are both priced and traded in RMB
 - B shares were limited to foreign investment until Feb 19th, 2001
 - Now it is dominated by domestic investors

# of Stocks	A Shares	B Shares	Proportion of B Shares (%)
SSE	921	54	5.5%
SZSE	1399	54	3.7%

Table 1: Number of A and B Shares

Investability of Chinese Market

- How different is it from other markets?
- How liquid is it?
- What is the magnitude of the trading frictions such as market impact and spreads?
- Similarities and differences between A Shares and B Shares

Market Capitalization

- Chinese market has gone through rapid development in the last decade

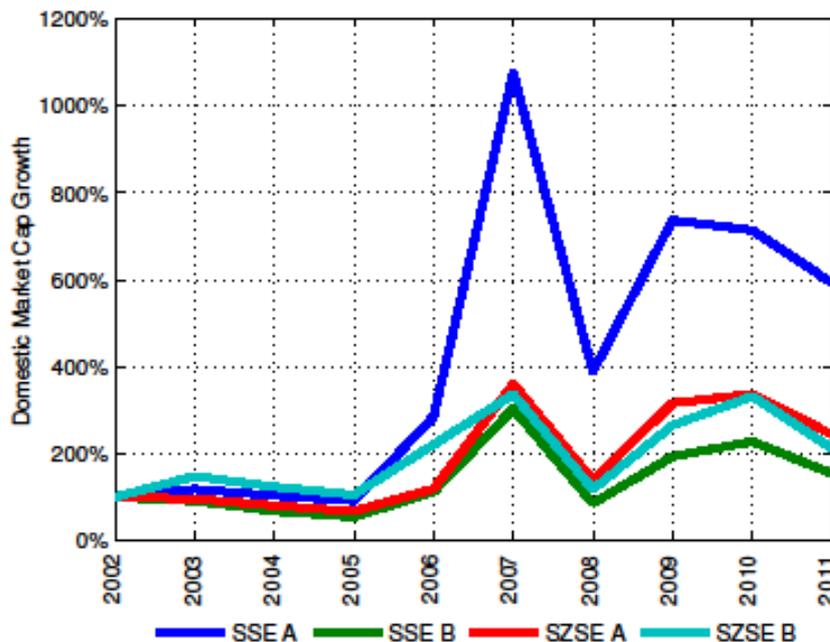


Figure 1: Domestic market capitalization

Broad Index Return

- The indexes for A Shares and B Shares are highly correlated
- Chinese stock market experienced higher returns than its mature counterparts, such as US and Japan

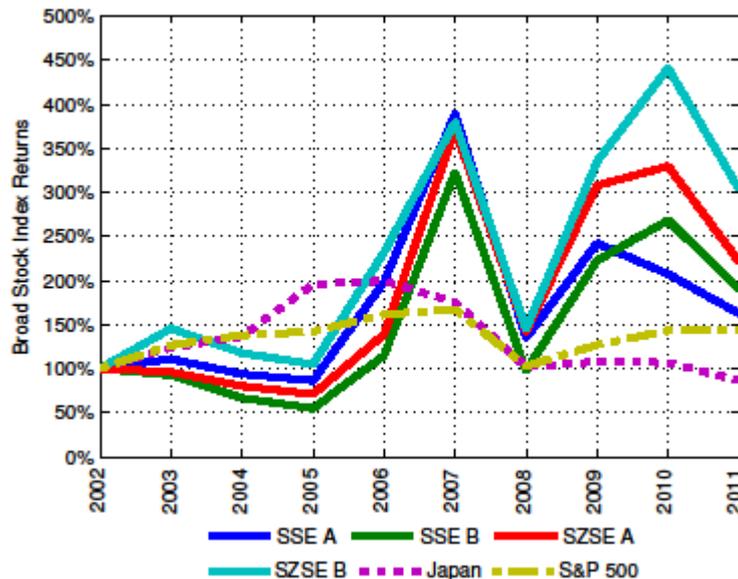


Figure 2: Broad stock index returns since 2002

Trading Volume

- When it comes to investing in emerging markets, the common concern is lack of liquidity of their stock markets
- Overall trading value gives a good first assessment of liquidity

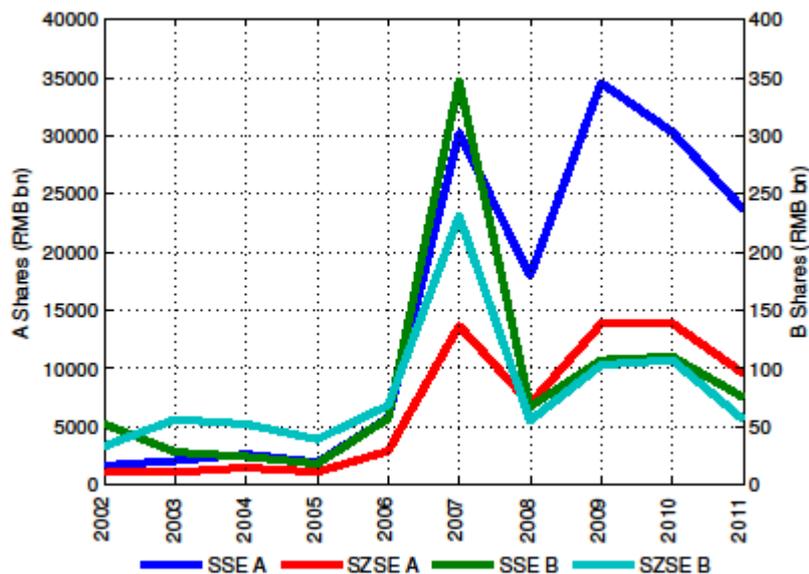


Figure 3: Total value of traded shares (RMB bn)

Turnover Velocity

- Defined as the ratio between the annual trading value of domestic shares and their market capitalization
- Turnover velocity provides additional insight with regard to liquidity

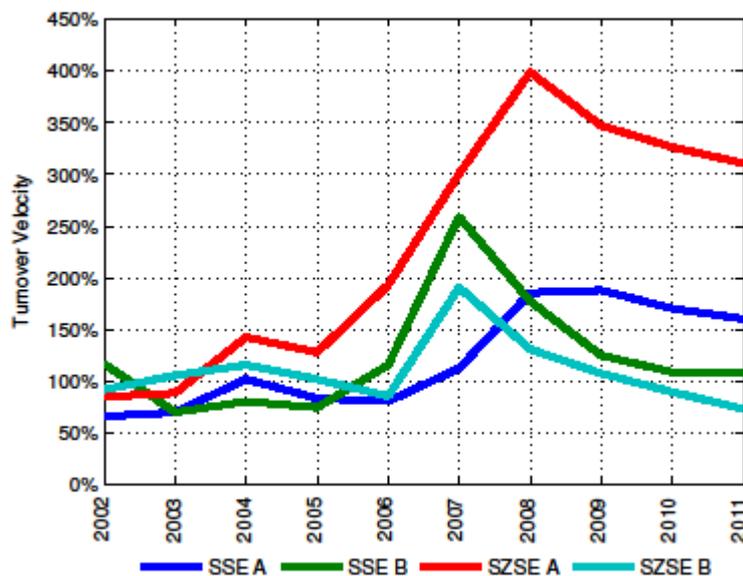


Figure 4: Turnover velocity

Number of Trades

- The ease with which a market may be traded can be analyzed by looking at annual number of trades

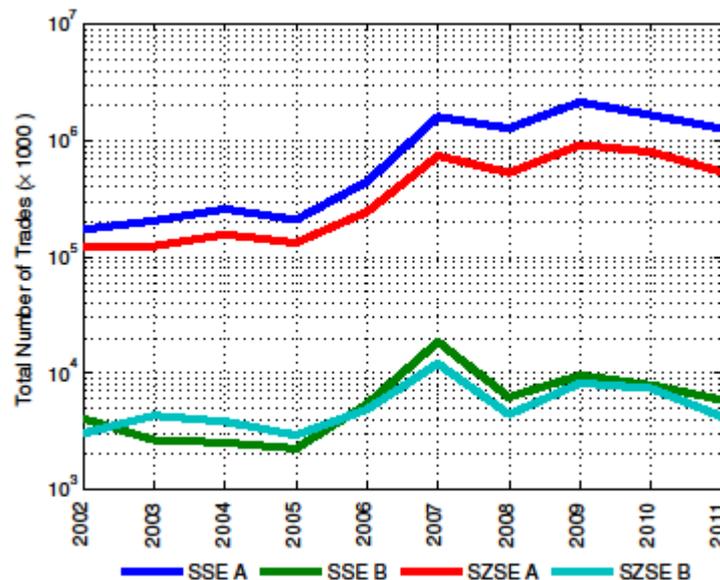


Figure 5: Number of trades

Average Value of Trades

- To better understand how the overall trading activity translates at the order level, it is interesting to look at the average value of trades

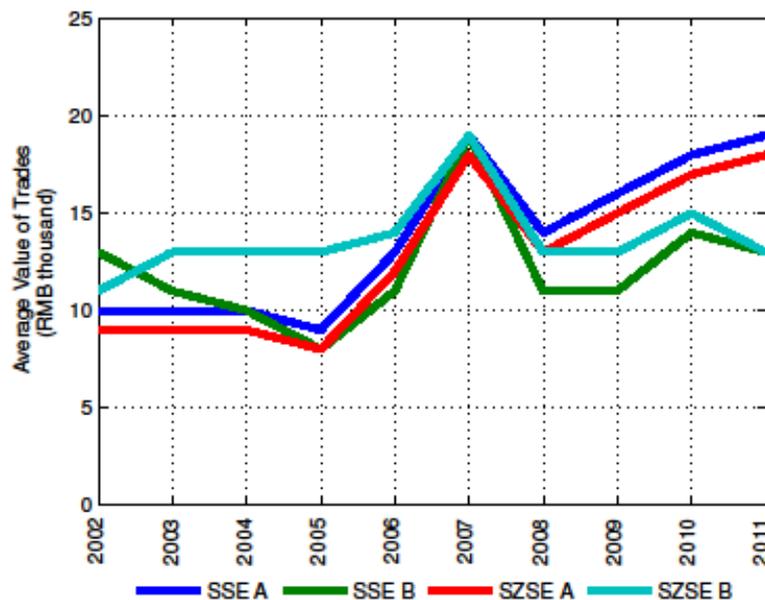


Figure 6: Average value of trades

Intra-Day Profiles

- Volume Profile
 - Volume is calculated as % of trading value of all stocks in the current bucket over total daily trading value of all stocks
- Market Depth Profile
 - Market depth is defined as the ratio of average number of shares available at best bid and best ask in the current bucket over the daily average
- Spread Profile
 - Spread is the turnover weighted average (over stocks) of time weighted average spread in the current bucket
- Volatility Profile
 - Volatility is the simple average (over stocks) of interval price dispersion normalized by historical daily volatility during the same time period

Methodology

- We divide the whole universe into two groups
 - Top 20% most liquid names
 - The remaining 80% less liquid ones
- The universe of B shares is kept as a whole considering it is small
- Each trading day is split into 1-min buckets to spot interesting patterns

Volume Profile

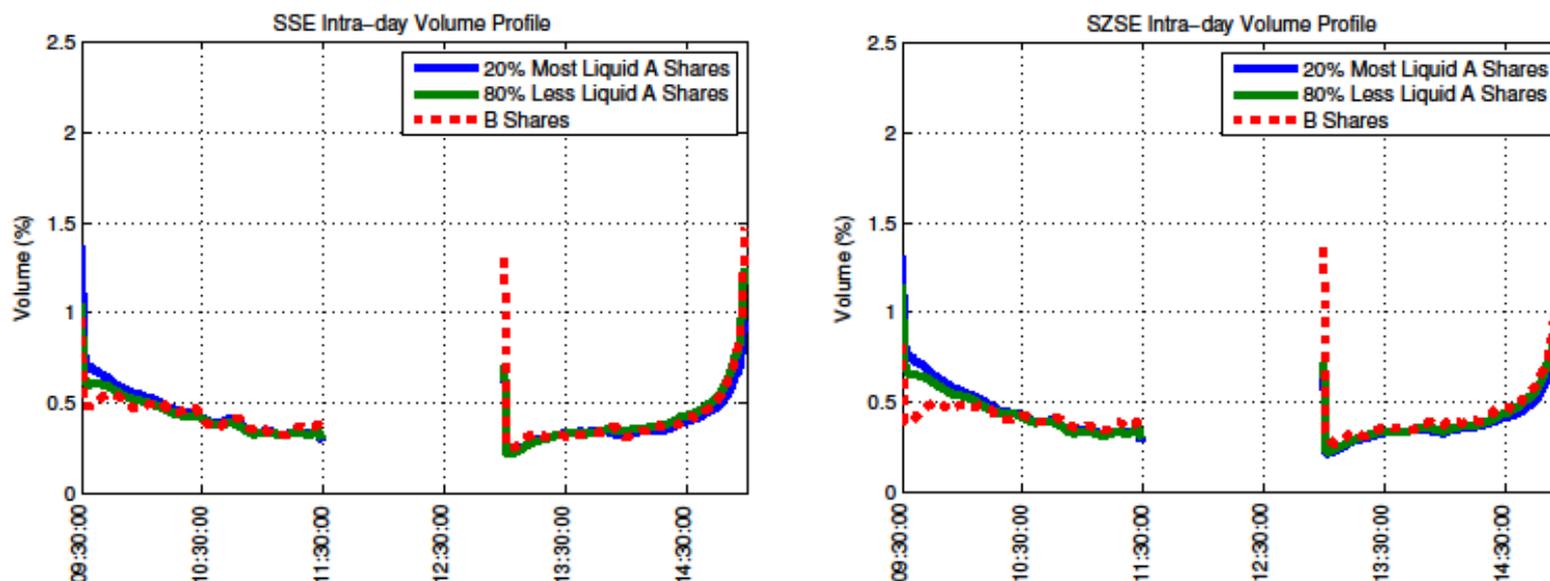


Figure 7: Volume profile

- U pattern for both liquid and illiquid names
- Volume spike immediately after the afternoon open
- B shares trade less actively than A shares during market open, but have higher concentration during the afternoon open

Market Depth Profile

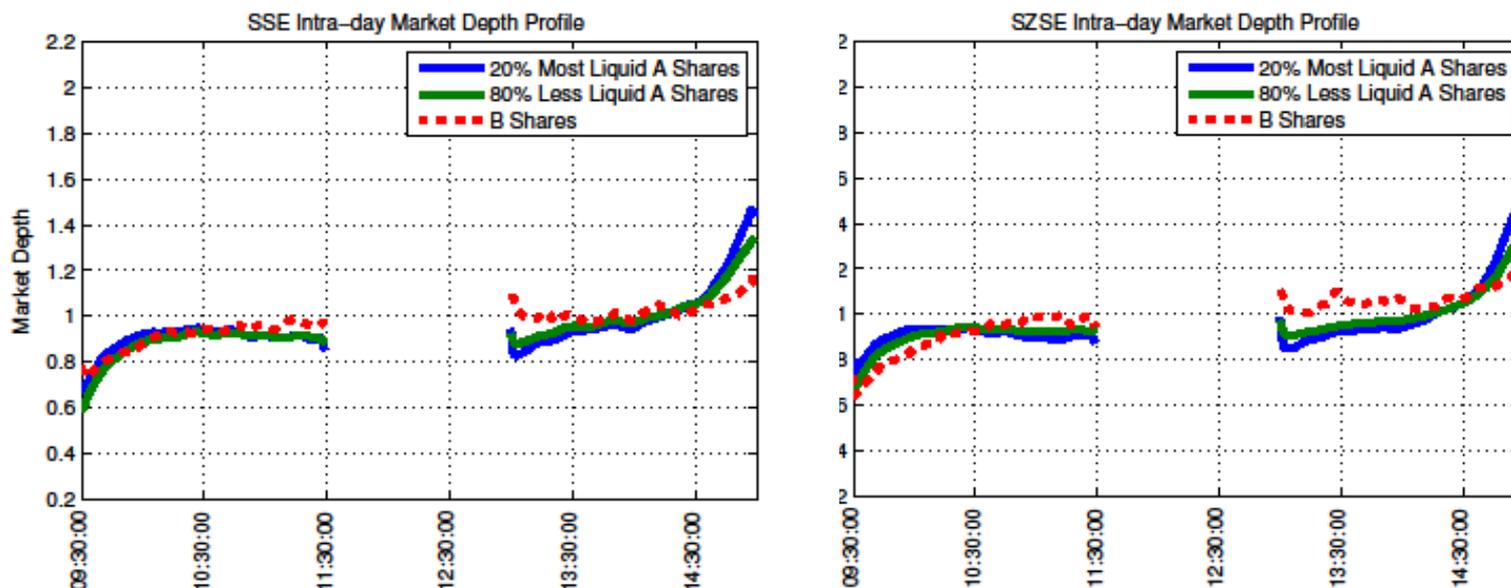


Figure 8: Market depth profile

- Non-informed investors attempt to avoid being taken advantage of by quoting smaller sizes around market open
- As trading continues, investors are more willing to post sizes
- Steeper spike before the market close

Spread Profile

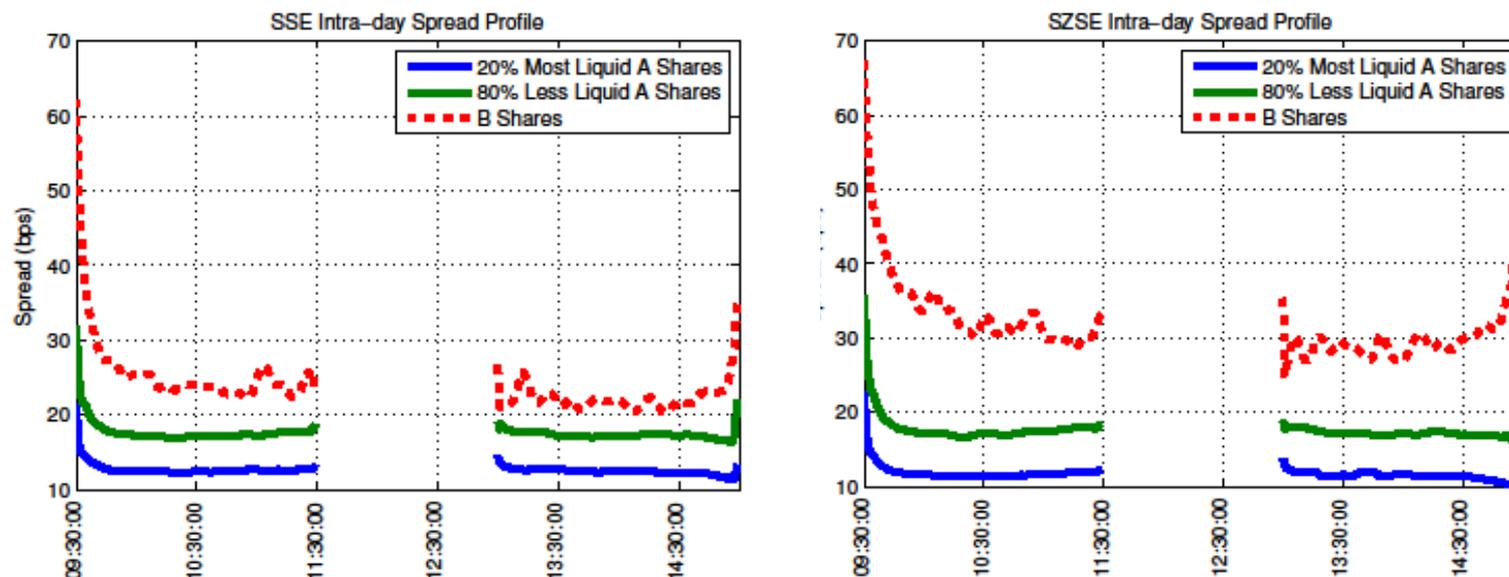


Figure 9: Spread profile

- The intra-day spreads exhibit overall U shapes
- The spike during the market open is the most notable
- Significant size difference between liquid and illiquid names

Volatility Profile

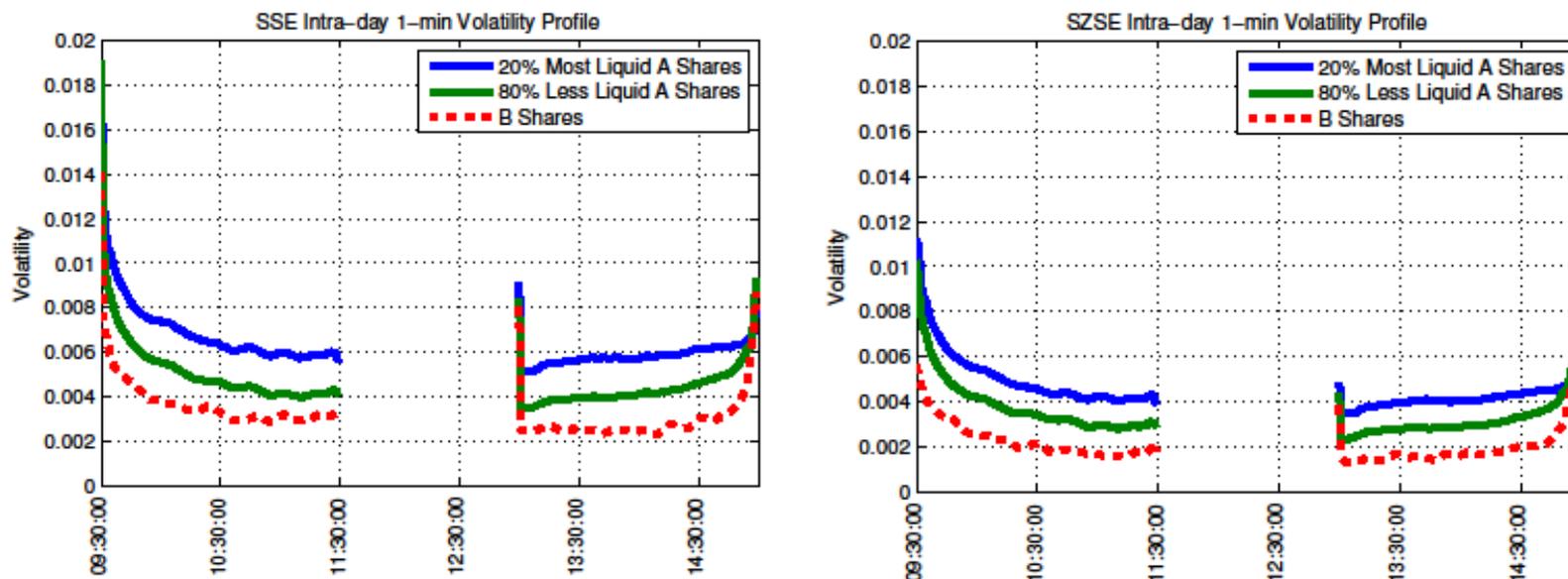


Figure 10: Volatility profile

- The liquid and illiquid names share similar pattern, i.e., U-shape
- The spike during the market open is the most significant, which could be attributed to the price discovery process
- Higher volatility for the more liquid names

Transaction Cost

- Explicit transaction costs
 - Exchange fees
 - Commissions
- Market frictions during the implementation phase. The two main components of these implicit costs are
 - Spread
 - Market impact

Spread

- Evolution of average spread in bps over the last five years

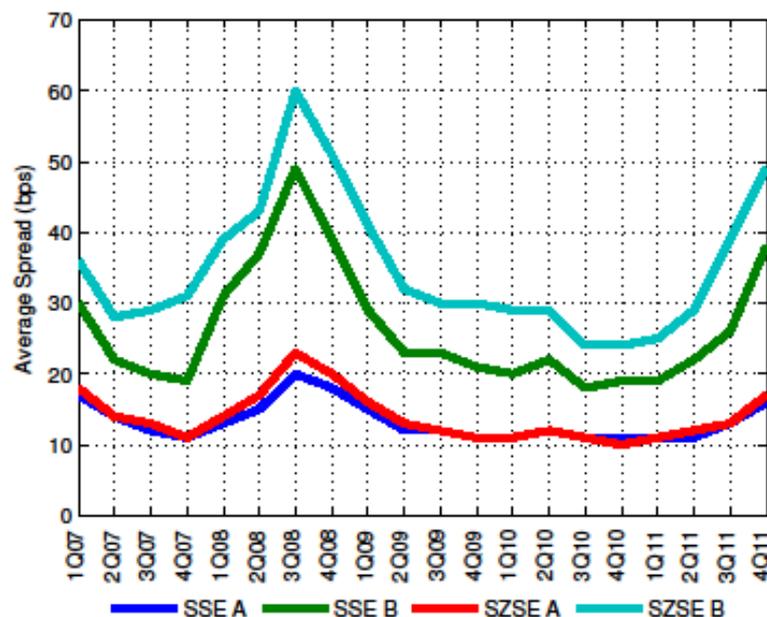


Figure 11: Average spread

Market Impact

- Market impact estimate is based on J.P. Morgan proprietary model calibrated for global markets

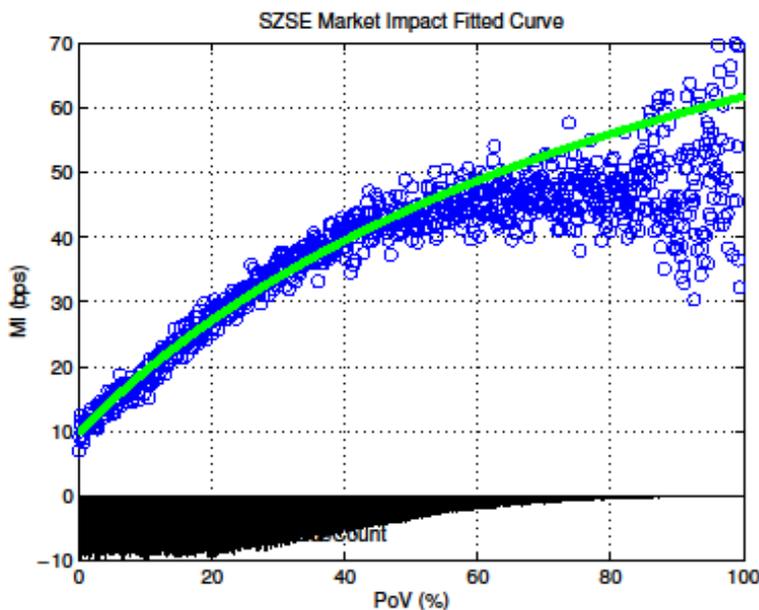
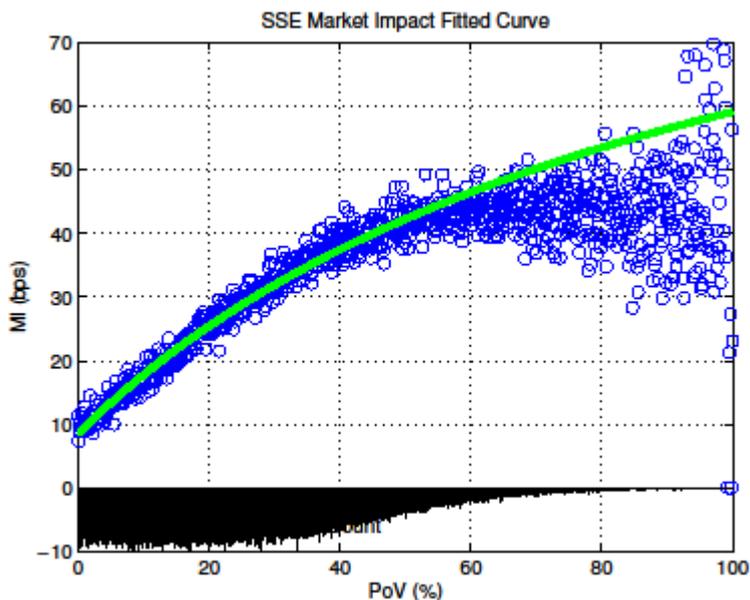


Figure 12: Market impact

Conclusions

- The economic development of China, together with that of its financial market, draws attention across the globe
- Liquidity as well as breadth of the Chinese stock markets improved significantly making them easier to access and invest
- Chinese stock markets exhibit patterns that justify the use of algorithmic strategies that were previously considered the exclusive domain of developed countries
- The inherent risk accompanying investing in Chinese stocks cannot be neglected as there are still restrictions for overseas capital to enter the Chinese stock markets
- These characteristics shall be borne in mind of investors who see the potential to invest in China

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