



ECON 4200 | Proposal Presentation

Quantitative effects of MSCI EM Index inclusion on China A shares

Subclass G, Group 10:

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The background of the slide is a composite image. On the left, there is a portion of the Chinese national flag, showing the red field with five golden stars. Overlaid on the right side of the flag are several semi-transparent financial charts. These include a line graph with data points and numerical labels (e.g., 1.7900, 1.7855, 1.7810, 1.7765), a candlestick chart, and a bar chart. The overall theme suggests a focus on finance, economics, or global markets, specifically with a reference to China.

Agenda

1

Background and Motivation

2

Hypothesis

3

Data

4

Methodology

5

Action plan

6

Implications & Limitations

An aerial night view of a city skyline with numerous skyscrapers. Overlaid on the city are glowing blue lines that form a complex, interconnected network, resembling a global communication or data network. The lines are most prominent in the foreground, creating a sense of depth and connectivity.

Background and Motivation

1

Motivation: Recent Observation

China is on its way for Capital Market Liberalisation



China as a global financial powerhouse

- Alleviate Capital outflow pressure
- Potential to be the world's largest financial hub
- Internalization of the RMB

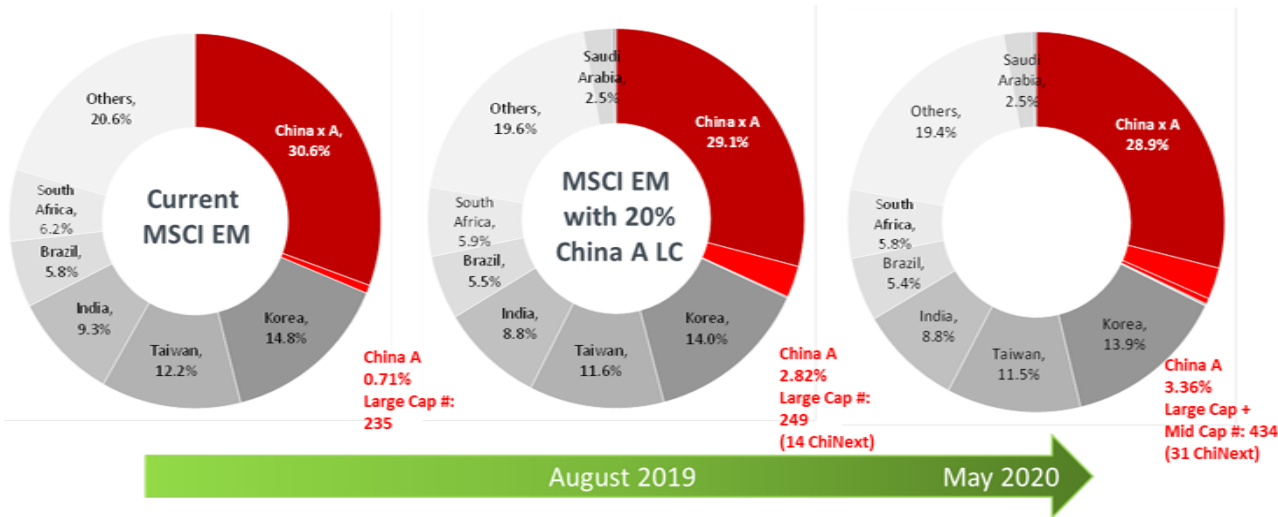


Global counterparts welcome this change

- China's Capital Availability
- Competitive Economy with solid growth
- Diversification of asset holdings

Motivation: Recent Observation

MSCI considers increasing weight of China A shares in the EM Index



What are the implications to these stocks and its risk profile?

Hypothesis

2

Motivation: Literature Review

Previous Literature

- Implementation of the Shanghai-Hong Kong Stock Connect has asymmetric impacts on the Mainland and Hong Kong, while increasing market liquidity, size, risk persistence and exposure to systematic risk are observed in medium term (Bai and Chow, 2017)
- Stock price volatility decreases significantly after the opening of ShenZhen Hong Kong Stock Connect, and net funding ratio of ShenZhen Connect has a negative impact on stock price volatility (Li, 2018)
- Positive (negative) permanent price impacts upon MSCI EM index inclusion (exclusion), and betas with respect to the index increase (Hacibedel and Bommel, 2007)
- Significant increase in both trading volume and return volatility on the effective date of inclusion, while there is no evidence of a statistically significant change in Beta after a stock's inclusion in the S&P 500 Index (Lin and Kensinger, 2007)



Our Research



Pioneer to examine the quantitative impacts of MSCI's Inclusion on China A Shares



Examines more than 200 stocks within the EM index



Comprehensive analysis on trading volume, market liquidity, price return and volatility

Hypothesis

H1

There will be a significant increase in trading volume and market liquidity with the inclusion of A shares in the MSCI EM Index

H2

Stock price volatility will decrease significantly due to the influx of mature and institutional foreign investors

H3

Positive stock returns will be observed with increasing investments and stronger market efficiency



Data

3

Hypothesis 1 (Market Volume): Data and Variable Construction

$$VR_{it} = (V_{it} / V_{mt}) (V_m / V_i)$$

Variable	Description	Frequency	Source
V_{it}	Volume traded of the individual stock i during time period t	1 month	Bloomberg
V_{mt}	Volume traded of the Market in which individual stock i belongs to, during time period t	1 month	
V_m	Average trading volume of the market in which the individual stock belongs to	6 months	
V_i	Average trading volume of the individual stock	6 months	

Hypothesis 1 (Market Liquidity): Data and Variable Construction

$$L = (S_{it} / S_{mt}) (S_m / S_i)$$

Variable	Description	Frequency	Source
S	Bid-Ask Spread	-	Bloomberg
S_{it}	Bid-Ask Spread of the individual stock at time t	1 month	
S_{mt}	Average of Market Bid-Ask Spread, weighted by Market Capitalization at time t	1 month	
S_m	Average of S_{mt} over a time period	6 months	
S_i	Average of S_{it} over a time period	6 months	

Smt

$$= (\text{Cap}_{it} / \text{Cap}_{mt}) \times S_{it}$$

$$= (\text{Cap}_{it} / \text{Cap}_{mt}) \times (B_{it} - A_{it})$$

$$\text{Cap}_{mt} = \text{Sum}(\text{Cap}_{it})$$

Hypothesis 2 (Volatility) : Data and Variable Construction

Explanatory and Independent Variables

Variable	Description	Frequency	Source
r_{it}	Return of the individual stock i during day t	Daily	Bloomberg
r_{avg}	Average of r_{it} over the period (Pre/Post Inclusion)	6 months	
n	Sample size	-	

Hypothesis 3 (Stock Returns): Data and Variable Construction

$$\ln(R_i) = \beta_1 D + \beta_2 \ln(\text{Vol}_{it}) + \beta_3 \ln(\text{Vol}_{it}) \cdot D_1 + \beta_4 \ln(\text{Cap}_i) + \beta_5 \ln(\text{MP})$$

Control Variables	Description	Frequency	Source
Vol_i	Volume traded of the individual stock i during time period t	Daily	Bloomberg
D	Dummy Variable to measure the avg. effects of inclusion	-	
D₀	Dummy Variable to indicate pre-inclusion period	-	
D₁	Dummy Variable to indicate post-inclusion period	-	
Cap_i	Market Capitalization of the individual stock	-	
MP	Variable for Market Performance using Index return of as a proxy	Daily	



Methodology

4

Trading Volume

$$VR_{it} = (V_{it} / V_{mt}) (V_m / V_i)$$

Expected results:

- $VR_{it} > 1$
- T-stat to be significant
 - $T = (VR_{it} - 1 / \text{s.d.})$
- V_m and V_{mt} controls market variables, eg. macroeconomic conditions, economic cycles, trade wars, etc.

Hypothesis 1: Methodology

Market Liquidity

$$L = (S_{it} / S_{mt}) (S_m / S_i)$$

Expected results:

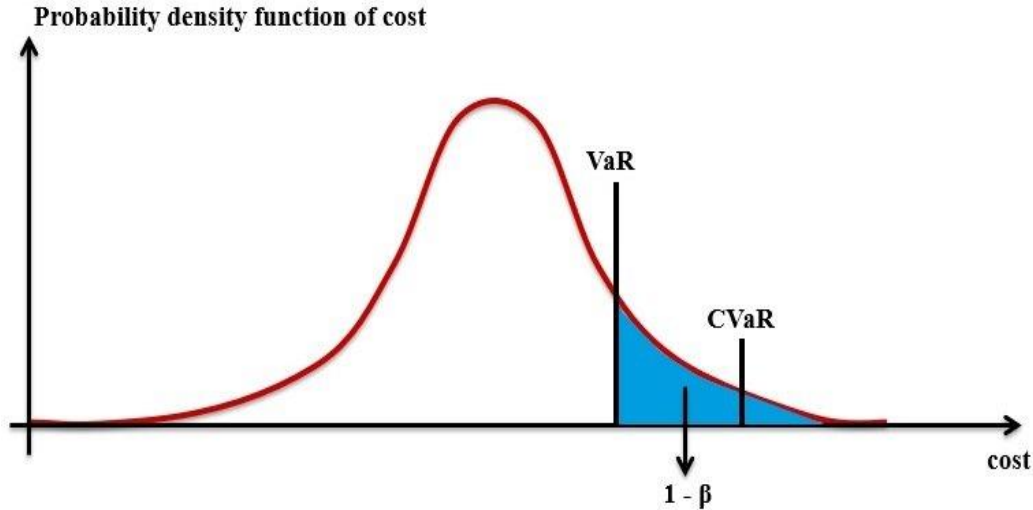
- $L > 1$
- T-stat to be significant
 - $T = (L - 1 / \text{s.d.})$
- S_m and S_{mt} controls market variables, eg. macroeconomic conditions, economic cycles, trade wars, etc.

Hypothesis 2: Methodology

Stock Volatility



CVar(95)



Expected results:

- CVar(95%) should decrease
- t-stat should be significantly negative

Hypothesis 2

$$SD = \sqrt{\frac{\sum (r_i - r_{avg})^2}{n - 1}}$$

- Calculate for periodical sd. and average s.d. prior to inclusion announcement
 - σ_t and σ_{ave}
- Expected results
 - $\sigma_t > \sigma_{ave}$
 - t-stat is significantly negative

Hypothesis 3: Methodology

Regression Analysis for Stock Returns

$$\ln(R_i) = \beta_1 D + \beta_2 \ln(\text{Vol}_{it}) \cdot D_0 + \beta_3 \ln(\text{Vol}_{it}) \cdot D_1 + \beta_4 \ln(\text{Cap}_i) + \beta_5 \ln(\text{MP}_{it})$$

Expected results:

- Targeted coefficient: β_1
- Sign should be positive and coefficient should be significant
- β_2 and β_3 measures effect of trading volume before and after inclusion respectively

An aerial photograph of a city skyline, featuring several tall skyscrapers and a dense urban area. A large, semi-transparent blue bar is overlaid on the left side of the image, containing the text 'Action Plan' and a blue circle with the number '5'.

Action Plan

5

Workload Distribution & Timeline

<i>Archie</i>	<i>Anthony</i>	<i>Natalie</i>
Coding and scripting	Data mining	Literature review, implications and limitations

Action items	Time
Data collection	Week 2-5
Code Scripting	Week 5-7
Run formulas and regression	Week 7
Collect findings	Week 7-8
Conclude findings and implications	Week 9 - 12

Implications & Limitations

6

Implications



Beneficial to international portfolio managers and investment service providers in devising trading and hedging strategies



Provides a useful source for the discussion on further weight increase of China A Shares in the MSCI Indexes, including Large Cap and Mid Cap securities



Offers valuable insights for policy makers and governments in evaluating the impact of post financial liberalization

Limitations



Limitations of the model and quantifying methods

- Macroeconomic factors only captured by market index eg. SSE Composite Index
- Some A-shares may not be affected during the inclusion due to addition and deletion
- Beta (β_1) only captures average effect, not quantitatively specific



Previous opening up policies, including the Shenzhen-Hong Kong Stock Connect, have already attracted foreign investors to inject capital to the A shares market, thus may limit the impact of the inclusion

References

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