

Zhekai Zhang

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## 1. About me

My name is Zhekai Zhang. I am a Chinese PhD student in Adam Smith Business School. My supervisors are Prof. Mario Cerrato and Prof. Craig Burnside. I was awarded the 2018-2019 Jim Gatheral Travel Scholarship of £3550 to fund my two month visit to Economics department of Duke University, North Carolina, US. I received the scholarship in my second year and started my visit during the third year. I currently focus on the empirical asset pricing theory for foreign exchange market.



*Figure 1 Duke University Economics department*

## 2. Why did you apply for the travel scholarship?

I am working with my supervisors Prof. Cerrato and Prof. Burnside in the project of currency pricing theory. We are trying to propose a set of asset

pricing factors implied by the market microstructure information. To do that, we bring two strands of literatures that provide explanations to



*Figure 2. Selfie with Prof. Burnside*

exchange rates together. Both of my supervisors are world leading researchers in this area. Prof. Cerrato is specialized in the field of market microstructure models. While Prof. Burnside is mainly working on the risk-based asset pricing models. Prof. Burnside is a professor titled in both Duke University and University of Glasgow. We have already worked out the microstructure side and what left is the empirical results of asset pricing test.

Since Prof. Burnside is based in US most of the time, I was only able to see him during his short visit in Glasgow twice a year. The travel scholarship gives me the chance to have face-to-face communications regularly with him at Duke University which is very important for our project especially when there are issues to be solved in the most detailed manner.

### 3. Details of your visit

I have spent most of my visit at Duke University west campus, Durham, North Carolina. I arrived at 6<sup>th</sup> Jan 2019 and came back at 10<sup>th</sup> Mar 2019. The history of Duke University traces back to 1838. Duke University is known as a ‘university in the forest’. There are lots of magnificent historic buildings around campus such as Duke Chapel and beautiful natural views like Duke garden.



*Figure 3. Duke Chapel*



*Figure 3. Perkins Library*



*Figure 5. Sarah P. Duke Gardens*

The purpose of my visit is to tackle problems with asset pricing results by using generalized method of moments (GMM) test. GMM is a generic mathematical method for estimating parameters in statistical model. Prof Burnside proposed a reduced rank GMM which provides solutions for multilinear issues in asset pricing factors. During my stay, I have joined several workshops and PhD econometric training courses which help me

on the GMM model. I have also got acquainted with lots of researchers who working on the same topic.

We find our factors explain most of cross-sectional variations in interest rate sorted currency portfolios. Thus they also explain for the carry trade anomalies. By using these factors we could interpret the carry anomaly as a compensation for the currency crash risk. What links the microstructure theories with asset pricing framework is that microstructure information measures the crash risk very well.

#### 4. Impact of the travel scholarship

The Jim Gatheral Travel Scholarship gives me a great opportunity to advance my research with world leading researchers. I have developed proficient skills to use GMM and reduced GMM to estimate the coefficients for an asset pricing model. It is not possible for me to finish the project so soon if I have not come to Duke University. Most importantly, travelling to another institution allows me to meet a lot of young researchers who are focusing on the same research topic. This trip is incredibly beneficial to my academic development.

#### 5. Acknowledgements

I would like to thank University of Glasgow for funding this trip. I appreciate the support from my supervisor Prof. Cerrato on the application of this scholarship. I also show my gratitude to the Prof. Burnside for his generous efforts on the project during my visit. Last but not least, I would like to thank to Mrs Rebekah Derrett in University of Glasgow and Angela Zemonek in Duke University for trip arrangement and administration work.