

Identifying Jumps in the Stock Prices of Banks and Non-bank Financial Corporations in India – A Pitch

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Keywords: Jumps, Indian financial institutes

JEL: C58, G21, G28

1. Introduction:

I am writing this letter by following the template developed by Faff (2014) for the research papers in the Finance discipline. I am a second year PhD student of the Tasmanian School of Business and Economics, University of Tasmania. Hence, I am still a newcomer in the field of research. I completed the first draft of the pitch on 12/01/2015. Then I used another one week to correct the pitch and submit it to the SIRCA YWR 2015. The pitch experience forced me to focus on rethinking on my research agenda which will help me to communicate the research to others and also to carry it on.

The idea of the research has been developed from the common research interests of myself and my supervisors. I am doing three/four independent essays for the PhD thesis. My first essay which is already in the stage of a completed draft, is on decomposing the CAPM beta into continuous and jump betas. While working on the paper I applied jump test in order to determine the jump betas of firms. While working on the paper an interest on jumps tests has been developed among us and we decided to continue with it. While having a literature review on jumps we found different jump tests which employ different methodologies to detect jump in a given asset price series. We may come up with different results by applying each of these methods. That inspired me to make a comparative study on the jump tests. I am in a stage where I can see myself at getting down from the top to the bottom of Faff's (2014) "cocktail glass". I have identified the key research papers of my research area. Now I am in the process of data cleaning and at the same time working on developing Matlab codes for the jump tests. I hope to get assistance from my supervisors cum co-authors in this regard.

The remainder of the letter is organized as follow. In section 2, I present a brief overview on my pitch. I share my opinion on the pitch development exercise in section 3 and section 4 concludes.

2. Brief overview on the pitch

The completed pitch is shown in Table (1) where I outlined my proposed research with the title – “Identifying Jumps in the Stock Prices of Banks and Non-Bank Financial Corporations in India”. The key research question is – “Does financial sector experience different jump exposures than that of the overall market in emerging markets?” The project will explore innovative methodologies of identifying jump risks in the financial sector of India, a representative of emerging markets. Using intra-day high frequency data, we will apply several widely used jump tests to the price series of the financial institutions listed on the National Stock Exchange of India. We have identified nine different jump tests developed by researchers so far. All the nine papers describing the test methods are important for our analysis. However, the paper of Dumitru and Urga (2012) makes a comparative study and compiled these methods in their paper. That is why I identified this paper as the key paper for my research. This paper applied these methods on simulated data, whereas I will apply these methods on the real data.

The global financial crisis on 2008/2009 shows that economy of a country is vulnerable to the instability of its financial sector. That motivated me to study the jump risks, which can be defined as large infrequent discontinuous price movements, of the financial sector stocks. I have chosen India as the concerned country as it is an emerging economy and still understudied.

The project will examine jump risks of 41 banking stocks and around 70 Non-banking financial companies (NBFCs) listed in the National Stock Exchange of India. We will collect the core data – intraday stock and index prices from the Thomson Reuters Tick History Database provided by SIRCA. My supervisor has arranged access for me to this rich database which provides tick by tick financial asset prices. I intend to use 1-minute, 5-minute, 10-minute, 15-minute and 30-minute data in my research to detect jumps in the price series. The data will likely to have missing data problem. I will adjust the problem by filling up the missing prices by taking the previous period’s price.

I will use nine nonparametric jump detection methods developed by different authors and make comparative analysis on the findings. By applying these tests to Indian financial sector

stocks, I will obtain a first picture of the high frequency characteristics of stock prices in India. By completing the project we will provide a better understanding of the behaviour and risks of banks, insurance companies and NBFCs especially in an emerging market.

3. Personal reflections on the Pitch Exercise

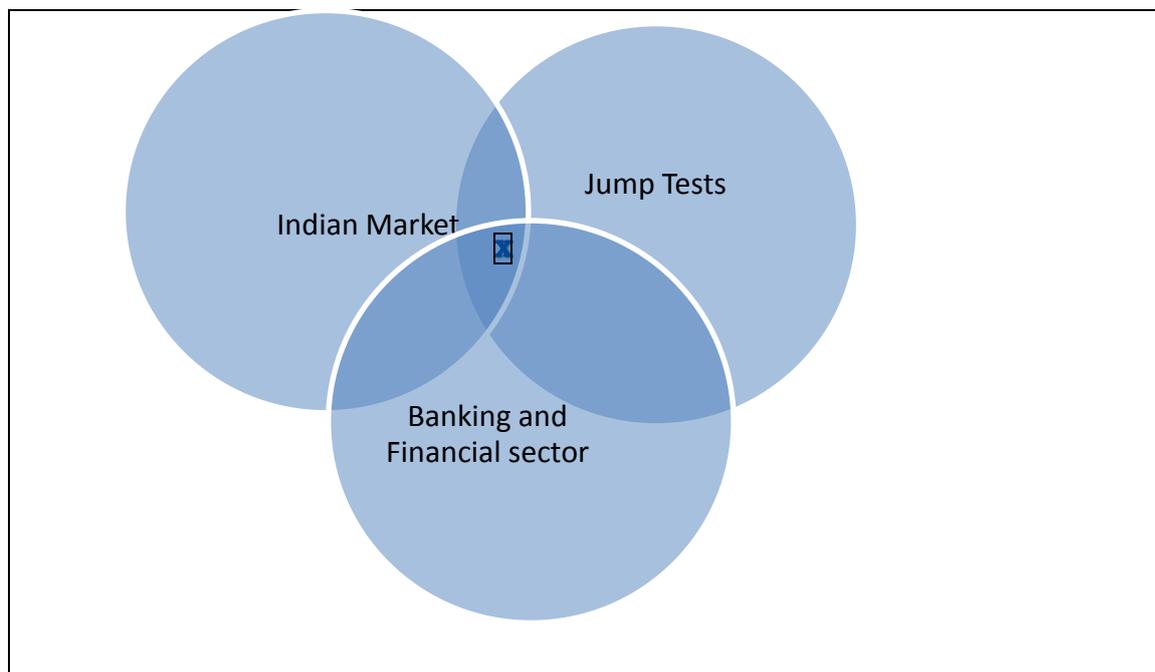
I have found the Pitch exercise a useful practise that has several benefits. It ensures that a researcher thinks about the essential points before undertaking a research project. We may overlook these points when we become too excited about a project. Such as, two questions are extremely important in any research as pointed out by Faff (2014) – ‘What is new in our project’ and ‘what are the contributions’. While answering these questions explicitly we get a reality check on what we can expect to achieve from the project. Figure 1 shows the position of my project in the literature as “Mickey Mouse” format.

Another obvious benefit is that it provides an easy, succinct mean by which we can communicate our research ideas with the potential supervisor, senior collaborator/co-authors. The senior academics will get the summary and also the strengths and weaknesses of the proposed project by reading the pitch within a short time. The time spent to develop the pitch may be the only disadvantage of this exercise but at the end the benefits clearly out weight this disadvantage. It may save time for both the pitcher and the pitchee by identifying weaknesses of a project before investing time and resource on it.

Table 1: The “3-2-1” pitching template – Completed pitch on “Jump detection” topic

(A) Working title	Identifying Jumps in the Stock Prices of Banks and Non-bank Financial Corporations in India
(B) Basic research question	Does financial sector experience different jump exposures than that of the overall market in emerging markets?
(C) Key paper(s)	Dumitru AM and Urga G (2012) Identifying jumps in financial assets: A comparison between non parametric jump tests, Journal of Business and Economic Statistics, 30, 242-255.
(D) Motivation/Puzzle	In recent times we observed economic crisis which are induced by the instability of financial sector. It seems financial sector experiences greater market movements than the overall economy and plays as a protagonist to create overall market crisis. Examining and making a comparative analysis of jumps between financial sector and the overall market will shed light to the point.
THREE	
(E) Idea	This project will examine the jump risks for 41 Indian banking stocks listed on the National Stock Exchange of India (NSE), as well as a range of listed insurance companies and NBFCs. Drawing on high frequency intra-day data from the Thompson Reuters Tick History Database provided by SIRCA, we will use recent econometric techniques to provide a first characterization of the jump risks of the Indian financial sector. Central hypothesis: Financial sectors exhibit higher sensitivity towards shocks than the overall market indicated by larger amounts of jumps experienced by this sector.
(F) Data	This project will examine the jump risks for 41 Indian banking stocks listed on the National Stock Exchange of India (NSE), as well as a range of listed insurance companies and NBFCs. Drawing on high frequency intra-day data from the Thompson Reuters Tick History Database provided by SIRCA (1) Country/settings: India, Why? As an emerging market. Unit of Analysis: stock price of Indian banks and financial institutions. Sampling: high frequency intraday data, 1 min/5 min/15 min/30 min. (2) Expected sample size: 41 banks and 70 financial companies. Sample period: from 2004 to 2013. (3) Data source: Thompson Reuters Tick History Database provided by SIRCA, Time frame: already have subscription with the database, no time delay is expected. Assistance needed: professional assistance needed to clean the data. Funding/grants: under an existing grant. (4) Standard data, not novel (5) Missing data may pose a problem, must be filled up with previous period's price. Impact of Stock split, merger etc. must be adjusted. (6) Will your test variables exhibit adequate (meaningful) variation to give good power? Yes, preliminary results are good.
(G) Tools	Basic empirical framework: We first use the nonparametric procedure from the seminal work of Barndorff-Nielsen and Shephard (2006) (BNS henceforth) on an Indian financial sector index. We will apply the testing procedure to individual stocks for banks, insurance companies and NBFCs to explore whether there are any sub-sector characteristics of the jump risk. We will consider other alternative jump detection methods that are commonly-used in the literature, including the tests developed by Ait-Sahalia and Jacod (2008), Lee and Mykland (2008), Jiang and Oomen (2008), and Corsi et al. (2010). By applying these tests to Indian financial sector stocks, we will obtain a first picture of the high frequency characteristics of stock prices in India as a representative emerging market. Econometric software needed/appropriate for jobs? Matlab and/or Eviews/Stata – licenses held at University of Tasmania. Knowledge of implementation of appropriate or best statistical/econometric tests? Yes, but require learning and collaboration. Compatibility of data with planned empirical framework: yes, already applied one jump test in another paper by the same author.
TWO	
(H) What's new?	We will apply different jump tests to a market which was not done before.
(I) So what?	Among different jump tests we do not yet which tests work best for emerging countries. By comparing the testing outcomes of different detection methods and exploring the sub-sector characteristics of the jump behaviour for banks, insurance companies, and NBFCs, we investigate whether there is any difference in their exposure to jump risk in Indian financial market from the overall market.
ONE	
(J) Contribution	This project will provide a better understanding of the behaviour and risks of banks, insurance companies and NBFCs.
(K) Other considerations	Is Collaboration needed/desirable? Idea: no Data: yes, for cleaning the data Tools: yes, for developing the codes of different jump tests Target journal: Tier 1 Finance journal. Realistic? Yes. given Dumitru AM and Urga G (2012, JBES) Risk assessment: - No result risk: Low – some preliminary results are available - Competitor risk – (being beaten by a competitor) - low, I do not know of anyone doing this kind research on Indian market. - Risk of “obsolescence”: low, the jump risk of financial sector will remain a major concern of the regulators.

Figure1: Mickey Mouse Applied in my pitch



4. Conclusion:

This is a letter that outlines my pitch on “Jump detection” project. I have outlined motivation and the basic idea of my project, along with data and tools to be used in the 3-2-1 template developed by Faff (2014). The pitching exercise helped me to think critically about my research and to identify potential strengths and weaknesses. Overall I found this exercise very useful.

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