

# **A study of industry cost of equity in Australia using the Fama and French 5 Factor model and the Capital Asset Pricing Model (CAPM): A pitch**

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**Abstract:** This paper describes the use of the Faff (2015) pitching template to formulate a research concept into a formal research proposal. It outlines our experience in applying the various sections of the pitch template and the challenges experienced in doing so. Overall the adoption of the pitch template has significantly improved our approach to developing research projects.

**Keywords:** Pitching research, FFM5, Regulated Energy Sector, CAPM.

**JEL codes:** G12, G28

## **1. Introduction**

This letter is a discussion of how the pitch template by Faff (2015) was utilised to develop a finance cost of equity capital research project. Will Mackay is an early career researcher with a PhD in Accounting from The University of Adelaide, and is employed as an Associate Lecturer in Accounting. Tariq Haque is a lecturer in Finance at The University of Adelaide with a PhD in Finance from The University of Melbourne and researches in mutual fund performance evaluation and various topics in asset pricing.

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After attending a pitching seminar by Professor Faff held at The University of Adelaide in October 2014 the potential for the pitching template to structure research ideas in a concise and succinct way became clear. The pitching template offered the opportunity to ignite a planned research idea. In addition it could be used to help explain research ideas to other academic staff, particularly senior staff whose input into future projects would significantly improve those projects.

We decided to utilise the pitching template to develop a new research project concerned with the cost of equity and the Fama and French 5 Factor model. The completed pitch was presented at the CIFR pitch day held in Sydney on 24<sup>th</sup> May 2015.

The remainder of this pitch letter is organized as follows. Section 2 contains a brief commentary on the completed pitch. Section 3 provides some personal anecdotes on issues that arose in completing our pitch. Section 4 concludes.

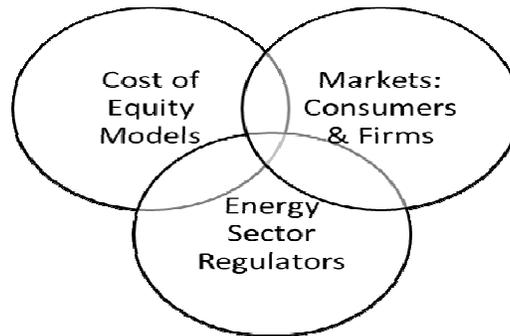
## **2. Brief commentary on the application of the pitch template**

It took approximately one week to develop the first draft of the pitch. At this point the pitch was sufficiently developed to enable a rich conversation with other academics, most notably Associate Professor Bryan Howieson. Table 1 shows the completed pitch template for the research project ‘A study of industry cost of equity in Australia across industries using the Fama and French 5 Factor model (FF5) and the Capital Asset Pricing Model (CAPM)’.

As Faff (2015) suggested, the pitch was not completed in a sequential manner as various sections of the pitch template were easier to complete than other sections. The contribution relative to the existing academic literature took the longest to complete. Although the practical benefits of the study for industry and regulators were easy to identify, marketing the pitch to an academic audience proved more challenging. The initial idea for the pitch came from a prior collaboration in which an empirical investigation was undertaken in 2014 on the cost of equity capital for the regulated energy sector in Australia. Observations from the research revealed the computed cost of equity varied depending on the asset pricing model chosen. The model chosen by the Australian Energy Regulator to estimate the cost of equity has implications for profitability of regulated energy sector firms and on the price businesses and consumers pay for energy. After completing all sections of the template briefly, the weaker sections were identified, more detail was added and all blank sections were filled. Faff’s (2015, 2016) cues were used to make significant improvements to the pitch template. For example the requirement to choose three key journal papers to underpin the pitch refocused the broad literature review on

the most important journals. The requirement to summarize our motivation in 300 words or less facilitated a distillation of the broad research topic down to the essential elements resulting in a concise research proposal.

In addition the “Mickey Mouse” diagram was used to illustrate the core themes of the planned project as demonstrated in Figure 1 above. The diagram helped to place the project within the broader sphere of research and thereby uncovered the potential contribution to the literature.



**Figure 1 Mickey Mouse diagram characterizing novelty of research idea**

### **3. Personal reflection on the pitch exercise**

The pitch template is an invaluable tool to focus thoughts and research ideas for early career researchers. The process of completing the template was challenging. The challenges included difficulties in concisely stating the research motivation and contribution. However after applying the pitch template the motivation and contribution are now stronger and much clearer, both from an academic and practitioner perspective. The pitch template forced reflection on what data would be required to complete the study and which methodology is most appropriate. After much thought, the key areas of data and methodology are under control and the research can be completed.

The pitch template requires the target journals for the research to be identified upfront. The research has been designed to meet the high standards of the target journals and will be submitted to a top Accounting and Finance journal in Australia in due course.

**Table 1. Completed 2-page pitch template on industry cost of equity in Australia using the Fama and French 5 Factor model and the Capital Asset Pricing Model (CAPM)**

Pitcher's Names	Will Mackay & Tariq Haque	FoR Category	Finance	Date Completed	23-May-2015
<b>(A) Working Title</b>	A study of industry cost of equity in Australia across industries using the Fama French 5 Factor model (FFM5) and the Capital Asset Pricing Model (CAPM).				
<b>(B) Basic Research Question</b>	What is the cost of equity capital implied by FFM5 for various industries?				
<b>(C) Key paper(s)</b>	What is the cost of equity capital implied by CAPM for various industries? How well does FFM5 perform compared to CAPM at estimating industry cost of equity for Australian industries? Fama, E. F and French, K. R. (1993) Common risk factors in the returns on stocks and bonds, Journal of Financial Economics, Vol. 33, pp. 3-56. Fama, E. F and French, K. R. (1997) Industry costs of equity, Journal of Financial Economics, Vol. 43, pp. 153-193. Fama, E.F and French, K.R. (2015) A five-factor asset pricing model, Journal of Financial Economics, Vol. 116, Issue 1, pp. 1-22 , <a href="http://dx.doi.org/10.1016/j.jfineco.2014.10.010">http://dx.doi.org/10.1016/j.jfineco.2014.10.010</a> .				
<b>(D) Motivation/ Puzzle</b>	The study is motivated by the ongoing debate over the privatisation of public infrastructure assets. Superannuation funds such as Cbus advocate for the sale of public infrastructure assets. They commit to invest in the infrastructure assets stating that their members have enjoyed "solid returns" in the past from investing in infrastructure. It is common for government to set the return allowable to investors of public infrastructure assets. CAPM is used as a fundamental model when setting the allowable rate of return for regulated energy assets. Governments aim to balance the price and allowable rate of return for public infrastructure assets with attracting sufficient investment for the assets on offer. The allowable rate of return set has long run implications for the public and the investor. Selection of a pricing mechanism that delivers a return similar to assets in a competitive market is the ultimate goal.				
<b>THREE</b>	<b>Three</b> core aspects of any empirical research project i.e. the "IDioTs" guide				
<b>(E) Idea</b>	In order to maintain the quality of the privatised infrastructure assets FFM5 has been included in the study. The inclusion of investment growth and profitability in the model used to determine the cost of equity capital ensures an explicit allowance for these factors in the allowable rate of return. There is a well-defined methodology by Fama and French (2015) that can provide an indication of what these allowances should be. At the moment there is a strong possibility of profits being generated and investments being made by firms in the regulated energy and utilities sectors that are too high because the allowable rate of return exceeds the true cost of equity faced by these firms.				
<b>(F) Data</b>	We will be using Australian data as the focus is on the allowable rate of return for Australian companies. Sample period: 2000-2014. Both financial market data and firm level accounting data is required to calculate the factors employed in the modelling. For the listed entities in our analysis we require: Monthly stock returns, Firm market capitalization, Book-to-Market Equity, Profitability and				

Pitcher's Names	Will Mackay & Tariq Haque	FoR Category	Finance	Date Completed	23-May-2015
	Investment Growth				
	Depending on how we decide to construct the Fama and French factors, data will be collected for either the ASX 300 or all firms listed on the ASX.				
	We are planning to use time series regressions following Fama and French (1997). There may be scope to use panel data regressions also.				
	Data will mainly come from Datastream, Sirca and financial statements of listed regulated Australian energy and utilities companies as well as other listed Australian financial companies. We are expecting sufficient variation in investment and profitability of the firms in the various industries to provide meaningful insights into how investment and profitability are priced in the market and how that in turn can be used by regulators to set the allowable rates of return.				
<b>(G) Tools?</b>	We will be mainly using OLS time-series regressions developed by Fama and French (1993, 1997) and Fama and French (2015) to calculate the cost of equity for each of the listed firms in each industry that we examine. We will then use OLS time-series regressions on the investment and profitability of each firm as a function of the difference between the allowable rate of return and the actual cost of equity capital faced by the company. We will use Eviews or Stata to perform these tasks.				
<b>TWO</b>	<b>Two key questions</b>				
<b>(H) What's New?</b>	This is an innovative idea that combines asset pricing with real world outcomes. Normally the effect of changing an asset pricing model is used to identify abnormal returns from a trading strategy or abnormal performance by a mutual fund manager but in this case the effect on important outcomes for the economy such as the investment and profitability in electricity and gas assets, is examined. There has also been a dearth of Australian cost of industry capital studies. We will also incorporate the impact of dividend imputation into the Fama and French (2015) model.				
<b>(I) So What?</b>	Government needs to set an appropriate allowable rate of return. If they do not, the level of profits by firms holding privatised infrastructure assets may be too high and the level of investment and/or prices faced by consumers could be too high. It is in the public interest for this research to shed some light on what the appropriate allowable rate of return should be. This research may change the rate of return allowed by regulators and may in turn affect the prices faced by consumers. It may change the cost of equity capital used by companies in their project evaluations.				
<b>ONE</b>	<b>One bottom line</b>				
<b>(J) Contribution?</b>	The main contribution is to introduce the cost of industry equity capital calculations into the Australian literature and to identify important practical applications of that such as how the allowable rate of return should be set by regulators. This in turn has a direct impact on the level of profits and investment by companies in the Australian infrastructure assets and prices faced by consumers.				
<b>(K) Other Considerations</b>	Target Journal(s): Accounting And Finance, Australian Journal Of Management, Abacus The idea is low risk in terms of the originality of the idea and in terms of achieving empirical results. We may utilise other econometric techniques such as time-varying beta methodology or use rolling regressions to estimate rolling factor loadings.				

## 4. Conclusion

This letter outlines our basic pitch for a proposed research topic in the area of cost of industry equity capital. The pitch has been discussed with another senior Accounting academic. The process of completing the pitch was challenging. It forced reflection on the key objectives of the research, formalised a plan of how to deliver the research results and provided clues as to where the study would fit into the literature. It is clear to see that Faff's (2015, 2016) pitch template will be a very important part of the planning for this research project (which will be subject to further revisions as feedback from academic colleagues and industry practitioners is incorporated) and for subsequent research projects.

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