(1) Name, Position, Contact Details for each applicant

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(2) Project Title

Post-earnings-announcement drift and expected growth risk

(3) Updated Project Summary (500 words) including any variations between the project undertaken and the original application

The project examine whether post-earnings-announcement drift (PEAD) can be explained by expected growth risk. Building on recent theoretical work suggesting that stock returns are more strongly affected by changes in expected growth when expected growth is higher, this project proposes two testable hypotheses. First, other things being equal, firms with recent large positive earnings surprises are likely to have higher expected growth rates than firms with recent negative or less positive earnings surprises. Second, firms included in high-standardized unexpected earnings (SUE) portfolios have higher growth rate risk and earn higher expected returns than firms included in low-SUE portfolios.

We measure expected growth risk as covariance between returns and expected future aggregate growth rates. Since GDP is a more suitable representative for growth at the aggregate level than any other macroeconomic variable, we use expected real GDP growth as a measure of expected aggregate growth. We find strong empirical support for the proposed hypotheses. That is, both expected growth rates and expected risk monotonically increase across SUE-sorted portfolios, and expected growth risk is significantly priced in cross-sectional regression tests. The pricing ability of expected growth risk for PEAD is remarkable. That is, the expected real GDP growth factor alone explains PEAD satisfactorily, and it is superior in terms of pricing errors, defined as the difference between realized return and expected return.

The project added further analysis beyond what it had proposed in the original application: it examines whether the mispricing hypothesis for PEAD remains valid even after adjustment for expected growth risk. It is important to examine this issue, because, depending upon the results, we may be able to provide a clearer picture for the issue of whether PEAD is better explained by the omitted latent risk hypothesis or the mispricing hypothesis due to limits-to-arbitrage. As proxies for limits-to-arbitrage, we consider four aspects of limits-to-arbitrage: arbitrage risk (measured by idiosyncratic volatility); transaction costs (measured by bid–ask spread, dollar trading volume, the Amihud (2002) illiquidity, and recent stock price); short sale constraints (measured by institutional ownership and stock borrowing costs); and information uncertainty (measured by analyst forecast dispersion, analyst coverage, and cash flow volatility). To our knowledge, this is the first project to investigate the impact of limits-to-arbitrage on PEAD with this various aspects of limits-to-arbitrage.

Our results show that after adjustment for expected growth risk, the systematic relation of PEAD with the degree of limits-to-arbitrage disappears and, more importantly, PEAD is completely explained. Specifically, the pricing errors from the expected real GDP factor alone do not exhibit any particular pattern across SUE portfolios for any given level of limits-to-arbitrage and even for using all stocks. These results support the omitted latent risk hypothesis rather than the mispricing hypothesis due to limits-to-arbitrage. We thus argue that the empirical evidence reported in the literature supporting the mispricing hypothesis due to limits-to-arbitrage is a consequence of the failure in incorporating appropriate risk, expected growth risk, which is never used in the literature, and the drift is a manifestation of expected growth risk.

(4) Funds Granted

A total amount of $5,000 was granted.

(5) Detailed Report on Expenditure of Funds against Budget Items, with variations explained

The granted funds were mainly expended for the research visit to the collaborator, Professor Dongcheol Kim at Korea University. Specifically, funds were expended as a per diem during my visiting period: $199.5/day x 23 days = $4588.5 in total. The main research activities conducted during my research period is as follows:

- From 6 Dec to 15 Dec 2017 (9.5 days): to strengthen the contribution of the project to the PEAD literature, I and collaborator decided to contain additional analyses on the interaction between limits-to-arbitrage and PEAD, which is beyond of the original research plan at the application stage. During this visiting period, we meet face-to-face and discuss the scope of additional analyses, a structure of newly purchased database from Markit, detailed empirical methodologies, and its implication for the key finding regarding omitted latent risk hypothesis.

- From 10 Jan to 15 Jan 2018 (5.5 days): from presentation at the conference and research seminar, we had common comment that the paper needs to incorporate recent developed asset pricing models (the Fama-French five-factor model and Hou-Xue-Zhang four-factor model) to compare with our suggested model based on growth rate risk. During this visiting period, we discuss how to accommodate these recent asset pricing model, conducted empirical analyses for accommodating these models, and add sections to contain these results.

- From 14 Jun to 21 Jun 2018 (8 days): to reflect the comment from a review that raised some concerns on the underlying theory to motive our empirical analyses, during this visiting period we discussed heavily about how to reshape the paper in a better way. A good writing (to communicate better with a referee) is a key factor that drives a successful publication. As such, we spend sufficient time to discuss how to improve the quality of writing. In addition, we further implemented and added robustness checks regarding the asset pricing tests in this period, including testing without the constant in the cross-sectional regression, considering different sets of test assets, and estimating the factor mimicking portfolios.

The original budget items in the application were 1) expenses related to research visit to the collaborator ($3,770) and 2) expenses related to hiring research assistant ($6,051). That only $5,000 were granted out of $9,812 amount that I applied for in the application forced me to reduce and re-allocate budget items. I feel that making an active and effective communication with the collaborator when facing obstacles and problems in conducting the research project is more important to hiring research assistant. As such, I re-allocated available budget to the expense related to research visit, rather than hiring research assistant.

(6) Outcomes, for example, working papers, presentations and publications (give full details, including abstracts)

This projects leads to produce a complete working paper, titled as "Post-Earnings-Announcement Drift: Expected Growth Risk or Limits-to-Arbitrage?"

This paper was presented at the Auckland Finance Meeting in December 2017. And it was also presented at the Auckland University of Technology as a research seminar. We had some positive and constructive comments from these presentations, and we have revised the paper by addressing those comments.

(7) Future Intentions for this Project (give full details)

a. Conference submissions

I have a plan to submit the paper to a leading international conference, such as the Financial Association Management (FMA) annual conference and Financial Research Network (FIRN) Annual Conference.

b. Journal submissions

I will submit the paper to the ABDC A*/A accounting and finance journals, such as Contemporary Accounting Review. I will keep update and improve the paper, accommodating the comments raised by referees, until it is accepted.

c. Grant applications

Since I already produced a complete working paper with the AFAANZ research grant, this research project itself will not be applied for further research grants.

d. Projects

I will extend the idea of the current project to my future research agendas on the pricing puzzles that are on debate in the accounting and finance literature, which could result in a subsequent project.

(8) Summary of Outcomes and Benefits

The AFAANZ research grant has been very helpful for me to successfully finish the research project, producing a complete working paper. In particular, the funding for research visit to the collaborator Professor Dongcheol Kim at Korea University enabled me to make effective communication when we face obstacles and problems in conducting the research project. The paper was presented at a conference as well as a research seminar. We will further present the research outcome in other seminars and academic conferences, and propagate the findings from this research project throughout the academia and industry. The ultimate outcome of the project is to be a publication at a leading academic journal. The paper will be keep revised addressing the referee's suggestions and comments until it is accepted.