Investment-based asset pricing models predict that a firm’s risk is determined by its inflexibility in adjusting capital, which is manifested through book-to-market ratio (B/M). However, inconsistent with this prediction, empirical results in the past 50 years suggest that high-B/M firms are not riskier. I find this is because B/M in the data has deteriorated as an indicator of inflexibility, which is caused by growing R&D investment and the accounting practice of expensing R&D expenditures. Using both B/M and R&D capital to identify inflexibility, I find that inflexibility is an important determinant of risk and expected returns in the cross-section.

R&D investment has been playing an increasingly important role in the economy. However, accounting standard requires firms to immediately expense R&D as incurred. Therefore, R&D investment is not capitalized on the balance sheet. Could the unrecorded R&D capital affect our assessment of a firm’s risk? The answer is affirmative, according to the findings from this project. The results from this project suggest that due to unrecorded R&D capital, book-to-market ratio calculated from the balance sheet data increasingly misrepresents a firm’s inflexibility to make capital adjustment and hence misrepresent its risk. A better way to evaluate a firm’s inflexibility and risk is to consider book-to-market ratio and R&D capital together.

I have presented this paper at several European universities and received very useful feedbacks. I plan to submit this paper to major finance conferences in the next few months in order to obtain more feedbacks, and in the meanwhile revise the draft.