Research Assessment Exercise 2020
Impact Case Study

University: The Hong Kong Polytechnic University
Unit of Assessment (UoA): Economics and Finance (UoA21)
Title of case study: Asset Pricing and Investment

(1) Summary of the impact

Our research focuses on the study of cross-sectional stock returns with an objective to inform investors of investment strategies. This is done by bringing together factors that have important practical impact on individual household investors and professional fund managers (mutual funds, pension funds, etc.), such as the idea of smart investing, the concept of important risk factors and diversification. As a direct result of the research conducted at PolyU, these factors have been refined with particular attention to helping retail investors overcome behavioral bias by investing in a well-diversified portfolio. This will allow them to more comfortably accumulate their wealth for retirement even when markets are unstable.

(2) Underpinning research

Cross-sectional stock risk and returns build the foundation for recent asset pricing models and make investors smarter in their investment. R2 finds that firms who invest more or are faster at growing assets earn substantially lower risk-adjusted returns. R2 extends Prof Wei's initial discovery in 2004 on this investment effect, which has a very long-lasting impact on subsequent studies/debates to understand what causes this negative relation: behavioral or rational. R2 is the foundation and motivation for the investment factor. Prof Wei's other studies have also benefitted this field. For example, his work on the profitability factor in the Fama-French (2015) five-factor model and the Hou-Xue-Zhang q-factor model has become the standard for evaluating the performance of mutual funds, pension funds, and any managed portfolios.

Effects of behavioral bias on asset prices

In R1 and R2, Professor Wei's teams show that investors' behavioral bias can generate cross-sectional anomalies. R1 finds that momentum trading strategies that buy recent winners (i.e., 6 months) and simultaneously sell recent losers are very profitable in most countries, especially in countries with high individualism culture. This is the first study to introduce "individualism" to the empirical asset-pricing literature. Ever since, individualism has become a very popular culture measure for many international studies beyond the finance area. Moreover, the evidence in R1 is the motivation for the construction of a momentum factor. The contribution of R2 to the field is that it is the first study to use a return decomposition approach based on analysts' forecasts to document that the investment-related anomalies mainly come from changes in firms' fundamentals, i.e., cash flow news, which are more consistent with behavioural bias.

Analysts' behavioral bias and anomalies

The innovation of R4 is to describe the dark side of analysts' stock recommendations, especially for those over-valued stocks with the most favorable recommendations. These stocks underperform substantially. Mutual funds' excess demand seems to corroborate well with analysts' favorable recommendations for these over-valued stocks.

Political uncertainty risk / Cyber security risk

The innovation of R3 is that it is the first study to show that political uncertainty caused by the political event of the Bo scandal in China is very value-destructive, especially for politically sensitive firms. It has an implication for the recent anti-government protests in Hong Kong. In R5, Dr Kim's research, grounded in modern risk management theory and the theory of firm reputation, provides new insights into the economic implications of cyber security risk. It provides relevant implications for both regulators and industry practitioners about cyber security risk.

Winner-take-all phenomenon rules the global stock market, too
R6 shows that the majority of stocks (56% for US and 61% for non-US) underperform one-month US Treasury bills over the sample period from 1990 to 2018. More importantly, just 1.3% of the world's public companies account for all the market gains during the past three decades. Outside the U.S., the gains are even more concentrated, with less than 1% of all stocks driving all of the net appreciation in share prices. The result suggests that it is not easy for investors to pick up the winners so diversification is very important for non-skilled investors, especially household investors.

Key researchers: Te-feng Chen (since 2015-7), Andy Chui (since 1995-7), Jungmin Kim (since 2014-7), John Wei (since 2016-7)

(3) References to the research

R1. **Chui, Andy C.W.**, Sheridan Titman, and **K.C. John Wei**, 2010, "Individualism and momentum around the world", *Journal of Finance* 65, 361-392. https://doi.org/10.1111/j.1540-6261.2009.01532.x

R2. Mao, Qinghao Mike, and **K.C. John Wei**, 2016, "Cash flow news and the investment effect in the cross-section of stock returns", *Management Science* 62, 2504-2519. (Published in September 2016; PolyU email (john.wei@polyu.edu.hk) is shown at the beginning and PolyU affiliation is shown in Acknowledgement); GRF644310: HK$195,175. https://pubsonline.informs.org/doi/pdf/10.1287/mnsc.2015.2235

R3. Liu, Laura Xiaolei, Haibing Shu, and **K.C. John Wei**, 2017, "The impacts of political uncertainty on asset prices: Evidence from the Bo scandal in China", *Journal of Financial Economics* 125, 286-310; GRF694413: HK$299,000. https://www.sciencedirect.com/journal/journal-of-financial-economics/vol/125/issue/2

R4. Guo, Li, Frank Weikai Li, and **K.C. John Wei**, 2019, "Security analysts and capital market anomalies", *Journal of Financial Economics* (accepted date: June 18, 2019); GRF155035/17B:HK$915,924. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3101672

R5. Kamiya, Shinichi, Jun-Koo Kang, **Jungmin Kim**, Andreas Milidonis, and René Stulz, 2019, "Risk management, firm reputation, and the impact of successful cyberattacks on target firms", *Journal of Financial Economics* (accepted date: May 22, 2019). https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3135514

R6. Bessembinder, Hendrik, **Te-Feng Chen**, Goeun Choi, and **K.C. John Wei**, 2019, "Do global stocks outperform US Treasury bills?" ssrn.3415739, 1-85 (post date: July 9, 2019). http://dx.doi.org/10.2139/ssrn.3415739

(4) Details of the impact

Knowledge transfer to financial institutions: Due to the nature of Professor Wei's research on the risk and return tradeoff, he has conducted consultancy projects for HSBC, Hang Seng Bank (a majority-owned subsidiary of HSBC), and Fidelity in designing/reviewing their "risk profile questionnaires" (RPQs) for retail investors and/or small and medium enterprises (SMEs) since 1997 and the most recent one is in 2018 for SMEs. His advice focuses on sale of investment products that match their clients' risk tolerance to limit excessive risk-taking. RPQs are mandatorily required by Hong Kong Monetary Authority (Hong Kong central bank) or Securities and Futures Commission of Hong Kong (equivalent to U.S. Securities and Exchange Commission) to protect investors by restraining commercial banks or mutual funds from selling too risky investment products to them. HSBC is the largest bank and Hang Seng Bank is the second largest bank with a combined market share of over two-thirds of retail investors or SMEs in Hong Kong. All investors, either individuals or SMEs, in Hong Kong are required to take RPQs in order to adequately assess their risk profiles before they can buy any investment products. Professor Wei's research impact to Hong Kong society concerns about two-thirds of their retail investor or SME population.

Continuing education for CFA (S1): R4 has been selected as material for CFA practitioners. It qualifies for 0.75 CE under the guidelines of the CFA Institute Continuing Education Program. To maintain and improve professional competence, CFA Institute members are recommended to complete a minimum of 20 hours of CE credit activities. CFA Institute is the world's largest association of investment professionals. It has over 164,000 members in more than 140 countries, and 151 local member societies worldwide. They publish a practitioner-oriented journal, *Financial Analysts Journal* which focuses on the applications of academic research to the real financial world. As all of the institute's members are subscribers and readers, R4 can potentially reach 164,000 CFA members.

Media attention and dissemination of research outputs (S2, S3): R6 has received substantial media attention. Professor Wei's recent work with Dr Chen (Do global stocks outperform US Treasury bills?) has been featured by Bloomberg twice. Bloomberg is the largest instant online financial data provider, whose subscribers include almost all financial institutions and major universities around the world, suggesting that the feature article can potentially reach more than millions of readers. Since after July 9, 2019, as of October 15, 2019, R6 has attracted 7,846 SSRN abstract views, 2,543 SSRN downloads, 43 Tweets, and 3 Facebook shares, likes, and comments. This paper also got attention from Jack Vogel and Wesley Gray at Alpha Architect (https://alphaarchitect.com/), an asset management company.

Impact on financial professional organization (S4): Professor Wei's research has also received attention from professional organizations. He is currently serving on the Advisory Council for *Financial Analysts Journal* (FAJ) of the CFA Institute which is the most impactful practitioner journal in the financial industry, especially for the asset management industry with over 50,000 members. Serving on the Advisory Council gains the most prestigious position to provide advice to the CFA Institute and FAJ about their future development and new practical research directions, such as adoption of new technology (artificial intelligence, machine learning) and new investment trend (ESG investing, factor investing).

Knowledge transfer as an independent director of a security company (S5): Due to the nature of Professor Wei's research on the risk and return trade-off, he has been an Independent Director at a Hong Kong listed security company (Haitong International Securities) since 2013, and he also serves as a member of the risk management committee and the compensation committee. Professor Wei closely monitors the company's risk management practices and protects its shareholders' interest by ensuring that the company practices the pay-for-performance compensation scheme for its senior managers.

Knowledge transfer as a keynote speaker for a hedge fund (S6): Professor Wei was also invited by YongAn GuoFu (one of the most outperforming hedge funds in China with AUM of around RMB 3 billion) to give a keynote speech on "Smart Investing" based on his research for its high-net-worth clients (around 300) during its annual meeting on January 5, 2019.

Knowledge transfer by disseminating research outputs to Harvard Law School Forum (S7): Dr Kim's research on cyber security risk was featured at the Harvard Law School Forum on Corporate Governance and Financial Regulation and published as a lead article in *NBER Digest*, a monthly publication that presents four recent and newsworthy working papers by National Bureau of Economic Research (NBER). Harvard Law School Forum is one of the most influential avenue to disseminate research outputs to regulators. The NBER ranks as the second most influential U.S. economic policy think tank, followed by the Brookings Institution. Dr Kim also presented her research work at the U.S. Securities and Exchange Commission (SEC), a U.S. financial regulator.

Implication on household investment for retirement (S8): The most important implication and impact of findings in R1, R2, and R4 and from others (e.g., Nobel prize winner, Richard Thaler) are to educate the general public, i.e., household retail investors, on how to accumulate their wealth over their life-long investment more comfortably even when the financial markets are unstable. Specifically, they should learn to avoid the greed-driven tendencies attributable to their behavioral bias and build well-diversified portfolios (R6) with high-quality firm characteristics regularly (such as monthly).

Impact on the passive factor- or style-investing industry (S9) The findings in R1, R2, and R4 and those from others have also motivated the rising trend for index funds and equity exchange-traded funds (EFTs) that practice passive factor or style investing strategies. ETFs are a convenient way for retail and institutional investors to gain from exposures to broad markets, sectors, styles, or factors with easy diversification, a low expense ratio, low trading cost, tax efficiency, trading flexibility, and transparency. ETFs become one of retail investors' preferred choices for long-term investment. According to BlackRock, the factor investing industry is currently estimated at $1.9 trillion and is projected to grow to $3.4 trillion by 2022.

Educational use in evaluating investment performance (S10): The findings in R2 and R4 have built the foundations and motivations for the investment factor and the profitability factor in the FF 5-factor model and the HXZ q-factor model. Both models have become the standard asset-pricing models used to evaluate the performance of mutual funds, pension funds, and managed portfolios and to calculate risk-adjusted returns for any investment. Moreover, the FF 5-factor model has been recently taught in almost all investment and/or corporate finance classes at undergraduate, graduate, and PhD levels.

(5) Sources to corroborate the impact

S1. The paper in R4 qualifies for 0.75 CE for the CFA Institute Continuing Education Program. https://www.arx.cfa/en/search#q=Security%20analysts%20and%20capital%20market%20anomalies

S2. Recent research by Professor Wei and Dr Chen (R6) has been featured by **Bloomberg** twice: one on July 17, 2019, by Vildana Hajric, entitled, "Most of the World's Companies Are Duds, Stock Picker Says" with the link as follows: https://www.bloomberg.com/news/articles/2019-07-17/a-stock-picker-s-lament-most-of-the-world-s-companies-are-duds

S3. Another featured news article by **Bloomberg** on R6: July 29, 2019, by Barry Ritholtz, entitled, "Winner-Take-All Phenomenon Rules the Stock Market, Too" with the link as follows: https://www.bloomberg.com/opinion/articles/2019-07-29/winner-take-all-phenomenon-rules-the-stock-market-too

S4. Professor Wei on the Advisory Council for *Financial Analysts Journal* of the CFA Institute. https://www.cfainstitute.org/en/research/financial-analysts-journal/editorial-team

S5. Professor Wei, Independent Director at Haitong International (link to its website) at: http://www.htisec.com/en-us/about-us

S6. Professor Wei, Keynote speaker on "Smart Investing": the link to YongAn GuoFu Asset Management http://gs.amac.org.cn/amac-infodisc/res/pof/manager/101000014933.html

S7. Dr Kim's recent research (R5) on cyber security risk was featured in Harvard Law School Forum at https://corpgov.law.harvard.edu/2018/03/30/what-is-the-impact-of-successful-cyberattacks-on-target-firms/

S8. Professor Richard Thaler's Nobel Prize Lecture on behavioral finance with implications for investor savings: https://www.nobelprize.org/uploads/2018/06/thaler-lecture-slides.pdf

S9. Factor investing at BlackRock: https://www.blackrock.com/us/individual/investment-ideas/what-is-factor-investing#explore-factor-based-strategies

S10. Factor models in a textbook on *Financial Decisions and Markets: A Course in Asset Pricing* by John Y. Campbell (2017) at https://press.princeton.edu/titles/11177.html