

Ministry of Education
Yushan Fellow Program
(the 1st term) Final Performance Report

University Name and Appointment Unit : National Tsing Hua University & Department of Quantitative Finance	Academic Field : Social Sciences
Name of the Yushan (Young) Fellow : Po-Hsuan Hsu	<input checked="" type="checkbox"/> Yushan Fellow <input type="checkbox"/> Yushan Young Fellow
Reporting Year : 2021 (the 3rd year)	

Yushan Fellow Program

Performance Report

Assessment of effectiveness of tangible work (The implementation results can be presented cumulatively, including the annual performance report of the second year, which can include the results of the first year and the second year)

Main points of assessment	The anticipated goals	Concrete work achievements or results	Supporting documents
1. Chief content of the Yushan (Young) Fellows' research work and overview of full research process.	<ol style="list-style-type: none">1. Prof. Hsu plans to initiate a new research field on the innovation choices and strategies in a dynamic competition environment in a laboratory setting.2. Prof. Hsu plans to extend his research on the pricing of technological innovation to more different forms of intellectual property, such as trademarks, innovation awards, and new drug development.3. Prof. Hsu plans to conduct more investigations on the influence of law and regulation changes on country- and firm-level innovative capability.4. Prof. Hsu also plans to continue the development and application of large-scale, bootstrapping-based multiple testing methods for data snooping problems in financial problems.5. Moreover, Prof. Hsu recently got interested in green innovation, sustainable technology, and corporate social responsibility issues, and has been working on some projects on the interaction between those issues and financial markets.	Please see the column below for the detailed achievements	See the column below

Main points of assessment	The anticipated goals	Concrete work achievements or results	Supporting documents
	<p>6. Prof. Hsu plans to use his experience in organizing world-class or regional conferences to bring in more international conferences in Taiwan, especially those related to innovation and intellectual property.</p> <p>7. Prof. Hsu plans to offer the following Ph.D. courses for students to bring the cutting-edge research methods and ideas to Taiwanese students.</p>		
<p>2. The link between Yushan (Young) Fellows' future research topics and the university's development and the anticipated benefits (including Higher Education SPROUT Project):</p> <p>(1) Fellows' research plan and goals</p> <p>(2) The link between scholars' research content and the university's development</p> <p>(3) Specific work performance or achievements, please include the mid-term progress report of the particular research plan</p> <p>(4) Anticipated goals (including qualitative or quantitative working performance or results)</p> <p>※ If there is a quantitative work achievements, please fill out “Quantitative Assessment Form”</p>	<p>a. <u>The scholar's research plans and associated goal(s).</u></p> <p>1. In addition to extending his previous research in asset pricing, corporate finance, and financial econometrics (which will be mentioned below), Prof. Hsu plans to initiate a new research field on the innovation choices and strategies in a dynamic competition environment in a laboratory setting. Previous economics theories and models related to innovation are based on static industry structures and constant competition conditions; nevertheless, whether and how firms innovate in fact depend on their competitors' actions. For example, in a stable environment with no competition, firms do not even need to invest in innovation. However, the fact that firms need to continuously innovate to survive in today's knowledge-based economy highlights the important role of competition dynamics in explaining firms' innovation decisions. To simulate such dynamics, Prof. Hsu plans to recruit subjects to play multi-stage games in which their compensations depend on their innovation performance relative to others'. Prof. Hsu has consulted Prof. Joseph Tao-yi Wang of National Taiwan University (NTU) and</p>	<p>Performance in the First Term</p> <p>1. Due to COVID19, it is impossible and infeasible for Prof. Hsu to recruit subjects and implement lab works and experimentation. Moreover, due to the uncertainty associated with the pandemic, Prof. Hsu decided to abandon research projects related to experiments.</p> <p>2. Prof. Hsu has extended his research on the pricing of technological innovation to more different forms of intellectual property, such as trademarks, innovation awards, and new drug development, and has made good progress: (1) In the paper “Patent thickets, stock returns, and conditional CAPM” (accepted at <i>Management Science</i>), Prof. Hsu and his coauthors developed a general equilibrium model to explain the relation between patent thickets and stock returns. (2) In the paper “Valuation of new trademarks” (accepted by <i>Management Science</i>), Prof. Hsu and his coauthors including Kevin Tseng (NTU) find that the subsequent stock returns of firms with more new trademarks are higher; however, such an effect is often underestimated by stock analysts as well as general investors. (3) In the paper “Benchmarking U.S. university patent value and commercialization efforts: A new approach” (published at <i>Research Policy</i>), Prof. Hsu and his coauthors propose a new approach to benchmarking university patents and commercialization performance based on</p>	<p>1. None</p> <p>2. Please see https://oir.site.nthu.edu.tw/p/412-1487-18850.php</p> <p>3. Please see https://oir.site.nthu.edu.tw/p/412-1487-18850.php</p> <p>4. None</p> <p>5. Please see the attached CV</p> <p>6. www.aieas.org and oir.site.nthu.edu.tw</p> <p>7. https://curricul.site.nthu.edu.tw/</p> <p>8. For the quantitative performance, please see the form “Quantitative Performance Statement”</p>

Main points of assessment	The anticipated goals	Concrete work achievements or results	Supporting documents
	<p>Prof. Shih-Chang Lin in National Tsing Hua University (NTHU) for potential collaboration in this direction.</p> <p>2. Prof. Hsu plans to extend his research on the pricing of technological innovation to more different forms of intellectual property, such as trademarks, innovation awards, and new drug development. As a pioneer in this area, Prof. Hsu intends to understand more about the pricing and mispricing of intangible assets in both equity and credit markets. With more new analysis along this direction, Prof. Hsu will continue to extend the knowledge domain of the finance and economics literature about innovation and intellectual property. Moreover, his research in intangible asset pricing have policy implications on the development strategies of financial markets and the regulation and rule designs of security authority.</p> <p>3. Prof. Hsu plans to conducts more investigations on the influence of law and regulation changes on country- and firm-level innovative capability. He is especially interested in how the improvement of income equality, compensation fairness and disclosure, diversity, board structure, managerial integrity, and consumer protection will influence the incentive and performance of country- and firm-level innovative activities.</p> <p>4. Prof. Hsu also plans to continue the development and application of large-scale, bootstrapping-based multiple testing methods for data snooping problems in financial problems. For example, he plans to apply the SSPA test to examine the</p>	<p>comparative corporate patent value. (4) In his paper “Corporate R&D and stock returns: International evidence” (accepted at <i>Journal of Financial and Quantitative Analysis</i>), Prof. Hsu and his coauthors find that firms’ R&D investments positively predict their stock returns using a large sample of listed companies in 21 countries.</p> <p>3. Prof. Hsu plans to conducts more investigations on the influence of law and regulation changes on country- and firm-level innovative capability, and has made great progress. (1) In the paper “More cash, less innovation: The effect of the American Jobs Creation Act on patent value” (published at <i>Journal of Financial and Quantitative Analysis</i>), Prof. Hsu and his coauthors including Kevin Tseng (NTU) find that firms can become less innovative following a sudden cash “inflow.” Specifically, multinational firms that were eligible to repatriate (and indeed repatriated) cash to the U.S. under the American Jobs Creation Act generate less valuable patents than otherwise similar firms. (2) In the paper “The Oscar goes to...: High-tech firms’ acquisitions in response to rivals’ technology breakthroughs” (published at <i>Research Policy</i>), Prof. Hsu and his coauthors including Yanzhi Wang (NTU) and I-Ju Chen (Yuan Ze) find that a firm’s propensity to acquire another firm significantly increases after its competitors win the R&D 100 awards. (3) In his paper “Consolidating product lines via mergers and acquisitions: Evidence from the USPTO trademark data” (published at <i>Journal of Financial and Quantitative Analysis</i>), Prof. Hsu and his coauthors find that product competition measured by trademark data positively increases firms’ acquisition likelihood. Moreover, acquirers tend to abandon the target firms’ product lines and launch fewer new product lines after the</p>	

Main points of assessment	The anticipated goals	Concrete work achievements or results	Supporting documents
	<p>profitability of carry trades, which is well-known to the public. Moreover, his research in financial econometrics may be applied to industry in terms of evaluating the performance and profits of Artificial Intelligence- (AI-)based funds, cryptocurrencies, mutual funds, hedge funds, and pension funds.</p> <p>5. Moreover, Prof. Hsu recently got interested in green innovation, sustainable technology, and corporate social responsibility issues, and has been working on some projects on the interaction between those issues and financial markets. For example, he has touched on the pricing of firms' pollution and how the ownership structure determines a firm's environmental investments. He plans to continue the exploration of these important issues from a financial perspective.</p> <p>6. Prof. Hsu plans to use his experience in organizing world-class or regional conferences to bring in more international conferences in Taiwan, especially those related to innovation and intellectual property. These events will attract global-renowned researchers to share their research with Taiwanese scholars, increase the visibility of Taiwan, and promotes Taiwan-originated research overseas.</p> <p>7. Lastly, Prof. Hsu plans to offer the following Ph.D. courses for students to bring the cutting-edge research methods and ideas to Taiwanese students: (i) Empirical Asset Pricing; (ii) Empirical Corporate Finance; (iii) Research Methodology and Data Collection; and (iv) Innovation Economics.</p>	<p>merger. (4) In the paper "The real effect of smoking bans: Evidence from corporate innovation" (published at <i>Journal of Financial and Quantitative Analysis</i>), Prof. Hsu and his coauthors show that once a state adopted a non-smoking policy at workplace, inventors become much more productive in terms of generating more patents (and especially more influential ones).</p> <p>4. Prof. Hsu has also made progress on the development and application of large-scale, bootstrapping-based multiple testing methods for data snooping problems in financial problems. For example, in the working paper "Do carry trades create real profits?", Prof. Hsu and his coauthors applied the SSPA test to the real profitability of carry trades. This paper has been requested to revise and resubmitted by <i>Journal of Empirical Finance</i>. Moreover, Prof. Hsu and his coauthors have developed a new testing method (functional False Discovery Rate plus, or "FFDR+") and applied the method at the real profitability of mutual funds.</p> <p>5. Prof. Hsu has made good progress on projects related to green innovation, sustainable technology, and corporate social responsibility issues. For example, in the paper "Leviathan Inc. and corporate environmental engagement" (accepted at <i>Management Science</i>), Prof. Hsu and his coauthors find that state-owned enterprises (SOEs) perform better in environmental engagement and make lower CO2 emission.</p> <p>6. Prof. Hsu originally planned to bring important international conferences (especially those related to innovation economics and intellectual property) to Taiwan. However, due to COVID19, the 2021 AIEA-NBER Conference was hosted online (nevertheless, by hosting the conference online, Prof. Hsu still successfully increased the</p>	

Main points of assessment	The anticipated goals	Concrete work achievements or results	Supporting documents
	<p>b. <u>Details of the scholar's research topic(s) and how their research is related to the university and its development</u></p> <ol style="list-style-type: none"> 1. Prof. Hsu's research topic in financial econometrics is highly related to the teaching and research need of the Department of Quantitative Finance of NTHU. Quantitative finance research is established on four major fields: econometrics, statistics, mathematics, and computation. Prof. Hsu's SSPA test and related research is related to econometrics, statistics, and computation. It offers an important methodology for the performance valuation of quantitative investments and portfolio allocations, and is expected to develop even more applicable tools for both academic research and industry purposes for years to come. Moreover, Prof. Hsu's analyses of AI-powered funds and cryptocurrencies are very relevant to the FinTech trend. 2. Prof. Hsu's research topics in technological innovation and intellectual property nicely fit the goal and development of College of Technology Management (CTM) of NTHU very well. CTM was first founded in 2000 with the goal to integrate NTHU's strength in science and engineering with vigorous corporate connections in Hsinchu Science and Technology Park. With the transition of economic paradigm, the value of innovation and intellectual property becomes even more important than ever. Prof. Hsu's knowledge and expertise on the pricing of intellectual property, the determinants of innovation capabilities, and financial econometrics can create great synergy together with the existing faculty members in CTM, and are expected to offer both economic analysis tools, applicable knowledge, and policy 	<p>visibility of Taiwan and NTHU). On the other hand, the Darden Entrepreneurship and Innovation Research Conference has been suspended for two years. In the second term of the Yushan Scholar Program, Prof. Hsu will continue to try his best to bring important conferences to Taiwan (if possible). Nevertheless, Prof. Hsu has successfully hosted 24 events of Taiwan Symposium on Innovation Economics and Entrepreneurship and 3 times of NTHU Symposium on Sustainable Finance and Economics (all in an online format nowadays). In every event, Prof. Hsu invited world-renowned keynote speakers. All these activities not only allow scholars in Taiwan to access to the latest research of these keynote speakers, but also create possible international connections between Taiwanese researchers and global scholars.</p> <p>7. Prof. Hsu has offered the following courses to share his research experience and knowledge with Taiwanese students: (1) Empirical Asset Pricing and Innovation, (2) Empirical Corporate Finance and Innovation, (3) Data Collection and Analysis of Intellectual Property and Innovation, and (4) Seminar on Academic Research Careers in Finance and Innovation Economics.</p> <p>8. For the quantitative performance, please see the form "Quantitative Performance Statement"</p>	

Main points of assessment	The anticipated goals	Concrete work achievements or results	Supporting documents
	<p>implications for the Hsinchu Science and Technology Park and Taiwanese high-tech industries.</p> <p>3. In addition, Prof. Hsu's research on the determinants of innovative capability is able to offer important insights to Taiwan government's science and technology policies. To adapt the modern economy, the government needs to invest resources and design appropriate programs for the incubation of and support to entrepreneurs. However, the costs and weights of input factors for entrepreneurship are always difficult to measure and approximate. Prof. Hsu's research in innovation economics can provide econometric methods to estimate the importance of input factors and to analyze the cost-benefit trade-off, both facilitating the government's decision toward more efficient and effective industrial and innovation policies.</p> <p>4. As discussed above, innovation economics is thus an important topic calling for the government's and universities' attention. Prof. Hsu's research topics on innovation economics is closely related to the research and teaching need of the Department of Economics of NTHU. In fact, Prof. Hsu has published two papers in top economics journals: Review of Economics and Statistics and Journal of International Economics. The joint force of Prof. Hsu and the Department of Economics is of high potential.</p> <p>5. Prof. Hsu's research interest in green innovation, sustainable technology, and corporate social responsibility issues are also important topics in current economics and have policy implications that are related to Institute of Technology Management and Institute of Law for Science and Technology in CTM. The combination and synergy may result in valuable insights and implications for environmental policies.</p>		

Main points of assessment	The anticipated goals	Concrete work achievements or results	Supporting documents
	<p>6. More importantly, Prof. Hsu has received degrees in different disciplines (international business, technology management, and finance) and is thus able to conduct cross-discipline research. His publications in top economics and accounting journals and his working papers in the management field are proofs for his multidisciplinary research approach. As research methodologies for technology management source from economics, management, sociology, and even psychology, he will be able to share valuable cross-field research experience with our colleagues in different units of the CTM, including Institute of Service Science.</p> <p>7. Lastly, Prof. Hsu plans to host the AIEA-NBER Conference, the Darden Entrepreneurship and Innovation Research Conference, or other important conferences in NTHU. These events will greatly enhance the global visibility of NTHU CTM and the cross-discipline integration of innovation research within CTM.</p> <p>c. <u>The scholar's specific approach to their research work</u></p> <p>1. To achieve Point 1 of research plan in subsection <u>a. The scholar's research plans and associated goal(s)</u>, Prof. Hsu plans to have more discussions with Prof. Joseph Tao-yi Wang and Prof. Shih-Chang Lin for the research design, budget requirement, and staff requirement. Then, Prof. Hsu plans to use the administrative support grant from Yushan grant (NTD 1,500,000) to hire research assistants (RAs) (i) to design games to reveal subjects' reactions to rewards from their and others' innovation; and (ii) to guide interviewees and to implement the laboratory experiments. In particular, Prof. Hsu plans to focus on the following features in the game: (i) the distance to competitors; (ii) the payoffs of</p>		

Main points of assessment	The anticipated goals	Concrete work achievements or results	Supporting documents
	<p>competitors; (iii) the costs to know competitors' actions; (iv) the total payoffs of an invention and the profits each subject can share; and (v) how subjects keep their competitors away from sharing profits.</p> <p>2. To achieve Point 2 of research plan in subsection <u>a. The scholar's research plans and associated goal(s)</u>, Prof. Hsu plans to collect, clean, and construct measures of firm-level trademarks, innovation awards, and new drug development. Then, Prof. Hsu will use the administrative support grant from Yushan grant as follows: (i) to purchase software (such as SAS, STATA, and Matlab) to conduct statistical analysis for the pricing of these intellectual property. The research methods include portfolio sorting, Fama-MacBeth regressions, and panel regressions; and (ii) to hire RAs to conduct empirical analyses.</p> <p>3. To achieve Point 3 of research plan in subsection <u>a. The scholar's research plans and associated goal(s)</u>, Prof. Hsu plans to use the administrative support grant from Yushan grant to (i) to hire RAs to study the literature and government policies for potential policy or regulation changes (such as pay disparity, income disparity, consumer and investor protection, etc.), (ii) to hire RAs to collect necessary data (such as firm- and country-level innovation activities); (iii) to purchase necessary datasets if the data are unavailable to the public; and (iv) to conduct empirical tests including difference-in-differences regression, regression discontinuity, and panel regressions.</p> <p>4. To achieve Point 4 of research plan in subsection <u>a. The scholar's research plans and associated goal(s)</u>, Prof. Hsu also plans to use the administrative support grant from Yushan grant</p>		

Main points of assessment	The anticipated goals	Concrete work achievements or results	Supporting documents
	<p>(i) to hire RAs to analyze possible methodological extensions in new large-scale, bootstrapping-based multiple testing methods or</p> <p>(ii) to hire RAs to apply the SSPA test and other tests to assess the performance and profits of carry trades, AI-powered funds, and cryptocurrency.</p> <p>5. To achieve Point 5 of research plan in subsection <u>a. The scholar's research plans and associated goal(s)</u>, Prof. Hsu also plans to use the administrative support grant from Yushan grant</p> <p>(i) to hire RAs to collect, clean, and construct data about firms' green innovation, sustainable technology, and corporate social responsibility;</p> <p>(ii) to purchase necessary datasets if the data are unavailable to the public; and (iii) to conduct empirical tests including portfolio analysis, Fama-MacBeth regressions, difference-in-differences regression, regression discontinuity, and panel regressions.</p> <p>6. To achieve Point 6 of research plan in subsection <u>a. The scholar's research plans and associated goal(s)</u>, Prof. Hsu plans to use the administrative support grant from Yushan grant to cover the airfare and accommodation of invited keynote speakers and distinguished scholars to come to Taiwan, to host the AIEA-NBER Conference, and to host the Darden Entrepreneurship and Innovation Research Conference in NTHU.</p> <p><u>d. Anticipated benefits (Expected tangible quantitative or qualitative results)</u></p> <p>1. For Point 1 of research plan in subsection <u>a</u>, Prof. Hsu expects to complete one to two research papers (within the three-year period of the Yushan grant) based on the data collected from laboratory experiments. Prof. Hsu understands that it takes time to design games,</p>		

Main points of assessment	The anticipated goals	Concrete work achievements or results	Supporting documents
	<p>recruit subjects, implement experiments, and organize and analyze data, and to repeat these steps when necessary. Thus, it is difficult to publish papers from these pioneer works within three years. The anticipated benefits include the collaboration with faculty members in NTU and NTHU, the creation and presentation of working papers, and training of Ph.D. students, master students, and undergraduate students.</p> <p>2. For Point 2 of research plan in subsection a, Prof. Hsu expects to finish two to three papers on the pricing and mispricing of trademarks, innovation awards, and new drug development within the three-year period of the Yushan grant. The anticipated benefits include publishing one or more papers in top or decent journals, sharing experience on asset pricing studies with junior faculty members and Ph.D. students in NTHU, and making policy and regulation suggestion to the security authority.</p> <p>3. For Point 3 of research plan in subsection a, Prof. Hsu expects to finish two papers on the effect of compensation equality and disclosure, board structure, and diversity on country- and firm-level innovative activities within the three-year period of the Yushan grant. The anticipated benefits include publishing one or more papers in top or decent journals, sharing experience on corporate finance research with junior faculty members in NTHU, training Ph.D. students and undergraduate students in NTHU, and making suggestions to governments on science and technology policies.</p> <p>4. For Point 4 of research plan in subsection a, Prof. Hsu expects to extend or apply the SSPA test to examine the profitability of carry trades, AI-based funds, and cryptocurrencies within the three-year period of the Yushan grant. The</p>		

Main points of assessment	The anticipated goals	Concrete work achievements or results	Supporting documents
	<p>anticipated benefits include publishing one paper in a decent journal, training Ph.D. students on data snooping bias and correction in NTHU, demonstrating useful tools to banking industries (especially on wealth management), and providing suggestions to pension funds in Taiwan.</p> <p>5. For Point 5 of research plan in subsection a, Prof. Hsu expects to finish two papers on the relation between financial markets and green innovation, sustainable technology, or corporate social responsibility issues within the three-year period of the Yushan grant. The anticipated benefits include publishing one or more papers in top journals, sharing experience with junior faculty members in NTHU, training Ph.D. students and undergraduate students on collecting and processing sustainability and corporate social responsibility data in NTHU, making suggestions to governments on environmental and security regulation, and offering managerial insights to industry practitioners.</p> <p>6. For Point 5 of research plan in subsection a, Prof. Hsu expects to host the AIEA-NBER Conference, the Darden Entrepreneurship and Innovation Research Conference, and/or other important conferences in NTHU. The anticipated benefits include promoting Taiwanese research in innovation and entrepreneurship, increasing the visibility of NTHU CTM, and attracting more world-class scholars to pay more attention to the development of Taiwan. Prof. Hsu knows the following candidates in person (and is optimistic about their visit): Scott Stern (MIT Stern), Josh Lerner (Harvard Business School), Laruen Cohen (Harvard Business School), Ashish Arora (Duke Fuqua), Gustavo Manso (UC Berkeley Haas), Benjamin Jones (Northwestern Kellogg),</p>		

Main points of assessment	The anticipated goals	Concrete work achievements or results	Supporting documents
	<p>Kathryn Shaw (Stanford GSB), Lee Branstetter (Carnegie Mellon U.), Ivan Png (National U. Singapore), Thomas Hellmann (Oxford), etc.</p> <p>7. For Point 6 of research plan in subsection a, Prof. Hsu expects to offer the following courses within the three-year period of the Yushan grant: (i) Empirical Asset Pricing; (ii) Empirical Corporate Finance; (iii) Research Methodology and Data Collection; and (iv) Innovation Economics. All these will enhance NTHU students' understanding of the research frontier in these subjects.</p>		
<p>3. Support provided by the university and the project's original goals (please specify the type of support or funds provided by the university to assist in research, such as research equipment and funds, research assistant personnel expenses, accommodation, relocation, children's education assistance, etc.)</p>	<p>a. Overall package of supportive measures and arrangements the university will provide</p> <p>I. National Tsing Hua University Newly-Recruited Faculty Academic Research Subsidy (start-up subsidy) NTHU provides the Academic Research Subsidy (start-up subsidy) to help the newly-recruited faculties build up their research labs and facilities, and encourage them concentrate on research. Within six months after reporting, the newly-recruited faculties can apply for the subsidy. After approval, in principle every applicant can obtain NTD\$ 1.5 million at most provided together by department, college and university.</p> <p>II. Guest House and accommodation subsidy</p> <p>i. Guest House In principle the newly-recruited faculties have the priority to apply to live in Guest House III, single room or double room. Besides, the newly-recruited faculties also can apply to live in Guest House I or Guest House II. Further information please refer to http://affairs.web.nthu.edu.tw/files/13-1011-</p>	<p>1. Prof. Hsu received the start-up funding. 2. Prof. Hsu received the accommodation subsidy. 3. Prof. Hsu received birthday vouchers and health-check subsidy 4. Prof. Hsu use the office and the space for the Interdisciplinary Research Office.</p>	

Main points of assessment	The anticipated goals	Concrete work achievements or results	Supporting documents
	<p>44868.php.</p> <p>ii. Accommodation subsidy If it conforms to the regulation of the accommodation subsidy in NTHU, the newly-recruited full-time faculties have the option to apply for the accommodation subsidy (up to NTD\$10,000 per month) for a duration of three years.</p> <p>III. Education of children</p> <p>i. Children of the newly-recruited full-time faculties have the priority to apply to study in the Affiliated Kindergarten or Affiliated Experimental Elementary School of National Tsing Hua University.</p> <p>ii. Children's education subsidy : Further information please refer to http://person.web.nthu.edu.tw/files/14-1138-12001,r940-1.php.</p> <p>IV. Others</p> <p>i. Birthday vouchers : Every full-time faculty member will receive the birthday vouchers NTD\$ 1000 every year.</p> <p>ii. Health-check subsidy : Every full-time faculty member over 40-year-old can apply for the health-check subsidy NTD\$ 3500 once every two years.</p> <p>iii. Group insurance at one's own expense</p> <p>b. Overall package of supportive measures and arrangements the college/Department will provide</p> <p>I. The College of Technology Management (CTM) will provide office space, necessary research lab space, and administrative support to conference organization.</p> <p>II. The Department of Quantitative Finance will provide necessary administrative support to teaching need.</p>		

Main points of assessment	The anticipated goals	Concrete work achievements or results	Supporting documents
4. Yushan Fellows ' team cooperation (please list team members and cooperation methods) (Yushan Young Fellows don't need to fill in this)	<p>a. Planning to collaboratively establish a team</p> <ol style="list-style-type: none"> 1. As stated in Point 2 of research plan in section 2(2)a, Prof. Hsu has started working with Wan-Chien Chiu (Assistant Professor of Department of Quantitative Finance, CTM, NTHU) on a project on the effect of trademark protection and value on firms' bank loan interest rates. 2. As stated in Point 3 of research plan in section 2(2)a, Prof. Hsu has started working with Pei-Fang Hsieh (Associate Professor of Department of Quantitative Finance, CTM, NTHU) on a project for the effect of managerial compensation disclosure on firms' operating performance and customer support measured by customer satisfaction index and trademark survival rates. 3. As stated in Point 4 of research plan in section 2(2)a, Prof. Hsu plans to work with Jui-Chung Yang (Assistant Professor of Department of Economics, CTM, NTHU) on projects for the extension of the SSPA test and related large-scale, bootstrapping-based multiple testing methods. 4. As stated in Point 5 of research plan in section 2(2)a, Prof. Hsu plans to work with Wan-Chien Chiu (Assistant Professor of Department of Quantitative Finance, CTM, NTHU) on a project on banks loan contracting with firms that experience corporate social responsibility pressure. 5. As stated in Point 6 of research plan in section 2(2)a, Prof. Hsu has started to collaborate with Ying-Che Hsieh (Associate Professor of Institute of Technology Management, CTM, NTHU) and , Chan-Yuan Wong (Assistant Professor of Institute of Technology Management, CTM, NTHU) on host international conferences in CTM, NTHU. 	<ol style="list-style-type: none"> 1. Prof. Hsu has completed a paper with Wan-Chien Chiu (Associate Professor of Department of Quantitative Finance) "Legal Protection of Brand Names and Creditworthiness: Evidence from the 1996 Federal Trademark Dilution Act" and has started new work on trademark information. 2. Prof. Hsu's collaboration with Jui-Chung Yang (Assistant Professor of Department of Economics) and Chung-Han Chou (Ph.D. student in Department of Economics) is close to completion to a paper "Measures of trademark novelty". 3. Prof. Hsu is working with Hunghua Pan (Assistant Professor of Department of Quantitative Finance) a paper "Proprietary Advertising Expenditures: Protecting the Firm or the Manager" that is almost done. 4. Prof. Hsu's collaboration with Pei-Fang Hsieh (Associate Professor of Department of Quantitative Finance) and Jianqiang Chen (Ph.D. student of Department of Quantitative Finance), and Prof. Ross Levine (UC Berkeley) has resulted in a completed paper "Environmental Liabilities, Creditors, and Corporate Pollution: Evidence from the Apex Oil Ruling". 5. Prof. Hsu is working with Jui-Chung Yang (Assistant Professor of Department of Economics) on "Revamping Firm Fixed Effects Models with Machine Learning – New Evidence on the Missing RD-Patent Relation" that is close to completion. 	<ol style="list-style-type: none"> 1. See SSRN: 3418210 2. See NBER 29740

Main points of assessment	The anticipated goals	Concrete work achievements or results	Supporting documents																																							
	<div>b. List of team members</div> <table><tr><th>Name</th><th>Unit</th><th>Job title</th></tr><tr><td>Hsieh, Pei-Fang</td><td>Department of Quantitative Finance</td><td>Associate Professor</td></tr><tr><td>Chiu, Wan-Chien</td><td>Department of Quantitative Finance</td><td>Assistant Professor</td></tr><tr><td>Jui-Chung Yang</td><td>Department of Economics</td><td>Assistant Professor</td></tr><tr><td>Hsieh, Ying-Che</td><td>Institute of Technology Management</td><td>Associate Professor</td></tr><tr><td>Wong, Chan-Yuan</td><td>Institute of Technology Management</td><td>Assistant Professor</td></tr></table>	Name	Unit	Job title	Hsieh, Pei-Fang	Department of Quantitative Finance	Associate Professor	Chiu, Wan-Chien	Department of Quantitative Finance	Assistant Professor	Jui-Chung Yang	Department of Economics	Assistant Professor	Hsieh, Ying-Che	Institute of Technology Management	Associate Professor	Wong, Chan-Yuan	Institute of Technology Management	Assistant Professor	<div>List of team members</div> <table><tr><th>Name</th><th>Unit</th><th>Job title</th></tr><tr><td>Pei-Fang Hseih</td><td>Dept. of Quantitative Finance</td><td>Associate Professor</td></tr><tr><td>Wan-Chien Chiu</td><td>Dept. of Quantitative Finance</td><td>Associate Professor</td></tr><tr><td>Jui-Chung Yang</td><td>Dept. of Economics</td><td>Assistant Professor</td></tr><tr><td>Hunghua Pan</td><td>Dept. of Quantitative Finance</td><td>Assistant Professor</td></tr><tr><td>Jianqiang Chen</td><td>Dept. of Quantitative Finance</td><td>Ph.D. student</td></tr><tr><td>Chung-Han Chou</td><td>Dept. of Economics</td><td>Ph.D. student</td></tr></table>	Name	Unit	Job title	Pei-Fang Hseih	Dept. of Quantitative Finance	Associate Professor	Wan-Chien Chiu	Dept. of Quantitative Finance	Associate Professor	Jui-Chung Yang	Dept. of Economics	Assistant Professor	Hunghua Pan	Dept. of Quantitative Finance	Assistant Professor	Jianqiang Chen	Dept. of Quantitative Finance	Ph.D. student	Chung-Han Chou	Dept. of Economics	Ph.D. student	
Name	Unit	Job title																																								
Hsieh, Pei-Fang	Department of Quantitative Finance	Associate Professor																																								
Chiu, Wan-Chien	Department of Quantitative Finance	Assistant Professor																																								
Jui-Chung Yang	Department of Economics	Assistant Professor																																								
Hsieh, Ying-Che	Institute of Technology Management	Associate Professor																																								
Wong, Chan-Yuan	Institute of Technology Management	Assistant Professor																																								
Name	Unit	Job title																																								
Pei-Fang Hseih	Dept. of Quantitative Finance	Associate Professor																																								
Wan-Chien Chiu	Dept. of Quantitative Finance	Associate Professor																																								
Jui-Chung Yang	Dept. of Economics	Assistant Professor																																								
Hunghua Pan	Dept. of Quantitative Finance	Assistant Professor																																								
Jianqiang Chen	Dept. of Quantitative Finance	Ph.D. student																																								
Chung-Han Chou	Dept. of Economics	Ph.D. student																																								
5. Yushan (Young) Fellow should aim to cooperate and exchange foreign academic resources, which should be linked to university development. It's suggested to make good use of these global academic network resources to assist the internationalization of the host university and promote international exchanges and cooperation, including teachers and students exchange activity between universities, international research collaborations, dual degree programs and so on.	Prof. Hsu plans to use his experience in organizing world-class or regional conferences to bring in more international conferences in Taiwan, especially those related to innovation and intellectual property. These events will attract global-renowned researchers to share their research with Taiwanese scholars, increase the visibility of Taiwan, and promotes Taiwan-originated research overseas.	1. Prof. Hsu originally planned to bring important international conferences (especially those related to innovation economics and intellectual property) to Taiwan. However, due to COVID19, the 2021 AIEA-NBER Conference was hosted online (nevertheless, by hosting the conference online, Prof. Hsu still successfully increased the visibility of Taiwan and NTHU). On the other hand, the Darden Entrepreneurship and Innovation Research Conference has been suspended for two years. In the second term of the Yushan Scholar Program, Prof. Hsu will continue to try his best to bring important conferences to Taiwan (if possible). Nevertheless, Prof. Hsu has successfully hosted 24 events of Taiwan Symposium on Innovation Economics and Entrepreneurship and 3 times of NTHU Symposium on Sustainable Finance and Economics (all in an online format nowadays). In every event, Prof. Hsu invited world-renowned keynote speakers. All these activities not only allow scholars in Taiwan to access to the latest research of these keynote speakers, but also create possible international	https://oir.site.nthu.edu.tw/																																							

Main points of assessment	The anticipated goals	Concrete work achievements or results	Supporting documents
		<p>connections between Taiwanese researchers and global scholars.</p> <p>2. Prof. Hsu is also discussing with several European Universities for possible exchange/visit opportunities for Ph.D. students or dual Ph.D. degrees.</p>	

Quantitative Assessment Form

Item	Results and concrete work performance	Explanation	
1. Manpower training	Doctoral courses: __9__ Graduate courses: __9__ Undergraduate courses: ____ Doctoral students: __3__ persons Master's students: ____ persons Undergraduate students: __3__ persons Others: ____ persons	<p>Prof. Hsu offered the following 7 courses: (1) 11010QF 526600 Data Collection and Analysis of Intellectual Property and Innovation; (2) 10920QF 527000 Seminar on Academic Research Careers in Finance and Innovation Economics; (3) 10920QF 526800 Empirical Corporate Finance and Innovation; (4) 10910QF 526600 Data Collection and Analysis of Intellectual Property and Innovation; (5) 10820QF 526800 Empirical Corporate Finance and Innovation; (6) 10820ECON531700 Empirical Asset Pricing and Innovation; (7) 10810QF 526600 Data Collection and Analysis of Intellectual Property and Innovation; (8) 11020QF 527300 Seminar on Research and Academic Publication in Finance and Technology Management; (9) 11020QF 526800 Empirical Corporate Finance and Innovation</p> <p>Prof. Hsu is collaborating with the following PhD students: (1) working with Chung-Han Chou on a project that is related to the value of product inventions in trademark text data; (2) advising Yi-Shan Wong on data collection of syndicate loans; and (3) working with Jianqiang Chen on a project that examines how corporate laws influence firms' pollution choices.</p> <p>Prof. Hsu advised Yi-Chun Liu and Wei-En Tsai to link trademark data to new product user's manuals.</p>	
2. Papers and research works	Domestic	Journal papers: ____ Academic books and papers in books: ____ Conference papers: ____ Technical reports: ____ Others: ____	
	Overseas	Journal papers: __14__ Academic books and papers in books: ____ Conference papers: ____ Technical reports: ____ Others: ____	See https://oir.site.nthu.edu.tw/p/412-1487-18850.php
3. Keynote speaker	__13__ panels /sessions		

4. Patents (including patents pending)	Domestic	Quantity: _____	
	Overseas	Quantity: _____	
	<input checked="" type="checkbox"/> N/A		
5. Industry-Academia Cooperation	Number of partnered enterprises : _____		
	Number of industry-academia research projects: _____		
6. Technology licensing	Technology licensing cases: _____		
	Total technology licensing royalties (amount) NT\$ _____		
	<input checked="" type="checkbox"/> N/A		
7. Others			