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Perceived problems, causes, and solutions of finance research reproducibility and replicability: A pre-registered report

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ABSTRACT

In response to growing concerns about reproducibility and replicability in finance and conflicting findings in the area, we survey finance academics about their perceptions of reproducibility and replicability of finance research. Our survey results will provide evidence of the extent of the perceived problems, the perceived potential causes, and the community's views on possible solutions. To this end, we contribute to the existing conversations in the finance field on the issues of reproducibility and replicability and provide suggestions for how to improve the state of the field concerning these issues.

1. Introduction

1.1. Brief background

The replication crisis, widely recognised in fields like psychology and medicine, has also recently received a growing amount of attention in finance (Jensen et al., 2023; Menkveld et al., 2024; Welch, 2019). This crisis refers to the growing realisation that many financial studies and models, once considered robust, fail to produce consistent results when their methodologies are applied to new data or tested under different conditions (Loken and Gelman, 2017). Factors contributing to this issue include publication bias, p-hacking, and selective reporting of results (Banks et al., 2016). Authors in finance have also recently coined the term nonstandard errors to describe the 'garden of forking paths' process that researchers undertake when testing hypotheses, which leads to a lack of replicability (Menkveld et al., 2024). Consequently, the credibility of financial research is being questioned, urging the academic finance community to adopt more rigorous standards for validation, transparency, and replication of research findings to ensure the reliability and applicability of financial theories and practices (Menkveld et al., 2024; Mitton, 2022). One response to such concerns has been code and data sharing policies of journals that aim to improve transparency and provide third parties with the ability to reproduce the results using the exact same and applying the same method through code (Nagel, 2018). However, a recent project that investigated the issue of reproducibility in finance found that researchers were only able to exactly reproduce the results of others 52 % of the time, even in the strict condition of using the exact same code applied to the exact same data (Pérignon et al., 2024). This naturally demonstrates that even code and data-sharing policies may only sometimes lead to reproducible research.

In this study, we contribute to this conversation by surveying finance academics about their perceptions of the reproducibility and

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replicability of finance research. In doing so, we attempt to provide evidence on the extent of the perceived problems, as well as understand the perceived potential causes of these problems, as well as the community's views on possible solutions. Our research approach and methodology closely follow other disciplines in the hard and soft sciences (Baker, 2016; Hail et al., 2020).

For the purposes of our study, and in line with the definitions suggested by Welch (2019), and used in recent finance literature (Jensen et al., 2023; Menkveld et al., 2024; Pérignon et al., 2024). We consider *reproducibility* to refer to the notion that a study's findings can be reproduced when it is repeated exactly, using the same underlying datasets and methods. By contrast, we consider *replicability* to refer to the notion that a study's findings can be replicated when its findings are confirmed in similar but not identical settings. These changes may include slight but reasonable variations of method, sample or time period.

1.2. Research question

In our study, we are guided by three overarching research questions:

RQ1. : *What is the perceived level of reproducibility and replicability of finance research?*

RQ2. : *What are the causes of perceived reproducibility and replicability of finance research?*

RQ3. : *How can we increase the reproducibility and replicability of finance research?*

The remainder of this report is structured as follows. Section two reviews the existing literature and establishes our motivation for the study. Section three identifies the positioning of our study within the broader debate on reproducibility and replicability of finance research. Section four presents the empirical design, including the proposed sample, survey, and analysis. Section five concludes with an outline of our study's novelty, impact, and contribution.

2. Literature review and motivation

2.1. Three key papers

Our study is guided by three recent papers by Menkveld et al. (2024), Jensen et al. (2023) and Pérignon et al. (2024). Menkveld et al. (2024) use the term nonstandard error to describe the issue of 'garden of forking paths' by highlighting the notion that researchers are often presented with multiple methodological paths they can take when empirically answering a research question and that these path choices lead to nonstandard errors being present in findings. To demonstrate the prevalence and magnitude of these errors, they used an experiment where 164 research teams tested the same hypotheses on the same data. They find that nonstandard errors are statistically significant and show a sizable dispersion in the estimates across the research teams.

Jensen et al. (2023) develop a Bayesian model of factor replication and test the reproducibility and replicability of asset pricing factors that have been identified in the empirical finance literature. They find that their model provides an 82.4 % replication rate even when applied to a global sample, meaning that not only can they reproduce the overwhelming majority of results at the same time-period and countries, but they can also replicate the findings in other markets. This finding, that is at odds with Menkveld et al. (2024) suggests that the conclusion of these studies are perhaps driven by the research questions and areas of finance that they attempt to reproduce and replicate.

The issue of reproducibility was also recently explored by Pérignon et al. (2024), who drew upon the same experiment as Menkveld et al. (2024). In addition to reporting their results, the research teams also provided their code and a read-me file that explained the process that can be used to reproduce their results. Pérignon et al. (2024) analysed the computational reproducibility of the findings of the research teams. They found that they could only reproduce the results precisely 52 % of the time. In 29.1 % of the cases, the code did not execute correctly and thus could not produce any result even after attempts to solve the underlying issues.

Given the contradictory findings, these three papers are not conclusive showing that there is or isn't a reproducibility or replication crisis in finance. Nevertheless, their findings support the notion that *some* results in finance may not be replicable or robust to alternative specifications and data treatments, and that even when the underlying data and code are shared, results may not always be able to be reproduced. The contradictory findings also suggest that one large reproducibility or replicability study in itself may not be enough, given that the results may differ based on the area of research in finance being investigated. In some ways, the differing methodological approaches of Jensen et al. (2023) and Menkveld et al. (2024) demonstrate the 'garden of forking paths' and how this may affect conclusions.

2.2. Broader literature

Both reproducibility and replicability have been studied extensively in other academic disciplines, including medicine (Ioannidis, 2005), management (Hensel, 2021), psychology (Nosek et al., 2022). Furthermore, some have investigated these issues within specific journals that encompass multiple disciplines ((Fišar et al., 2024). However, there still needs to be more clarity with respect to the definitions and delineation of the terms, as there are some differences between disciplines (Kenett and Shmueli, 2015). As stated in the introduction, we use the definitions of reproducibility and replicability that were outlined by Welch (2019), as these have also been used in recent finance studies (Jensen et al., 2023; Menkveld et al., 2024; Pérignon et al., 2024).

While both reproducibility and replicability are at the core of the scientific process, they have only recently garnered significant attention. The notion of reproducibility in the modern sense was Claerbout and Karrenbach (1992), who suggested that the recent

advances at the time with respect to computational approaches to statistics provided an opportunity to increase the reproducibility of scientific work through the sharing of data and software command scripts. On the other hand, replication has been discussed in the science literature for a longer period, with calls for replications in psychology published in the 1960s and 1970s (Ahlgren, 1969; Smith, 1970). The focus on both reproducibility and replicability has been exponentially increasing in the past few years, and has now also received attention in popular media (The Economist, 2013).

Within the specific area of finance research, the concept of reproducibility has been increasingly acknowledged in the field as top journals now have strict data and code availability policies. Yet it is only recently that reproducibility has been empirically tested systematically in finance (Pérignon et al., 2024). Furthermore, the lack of replications in finance has been long documented (Hubbard and Vetter, 1991, 1996). However, there have been recent advances in the area as journals are now accepting replications of prior work. Notably, Critical Finance Review and the Pacific-Basin Finance Journal both encourage the submission of replication studies, and the Journal of Finance has a special section for replications but limits it to replications of studies previously published in its journal. Additionally, the Journal of Corporate Finance is soon publishing a special issue on ‘Statistically Non-Significant Results in Financial Economics’. While the issue of publishing non-significant results is a distinct problem in the literature that could be considered separate from replication, it is still highly relevant to the prevalence of replications given they often find non-significant results.

Our study is focused on the perceptions of reproducibility and replicability and is based on similar prior work in other disciplines (Baker, 2016; Hail et al., 2020). Baker (2016) reports the results of a survey by *Nature* on the issue of reproducibility with 1576 participants from natural sciences. The survey finds that 52 % of participants believe that there is a significant crisis with respect to reproducibility, whereas 38 % believe that there is a slight crisis. More than two thirds of participants had failed to reproduce findings of other scientists, and over half had failed to reproduce their own experiments. The three most major contributing causes of this perceived crisis are identified as ‘selective reporting of results’, ‘pressure to publish’, and ‘low statistical power or poor analysis’. The study also explores how to improve reproducibility, and finds that the three most popular solutions are ‘more robust experimental design’, ‘better statistics’, and ‘better mentorship’. Hail et al. (2020) adapt the *Nature* survey to understand the views of 136 accounting researchers of reproducibility and find similar results. Nevertheless, Hail et al. (2020) find that the results from the *Nature* survey are mostly confirmed in the accounting context, however the perceived reproducibility crisis is not as great as only 52 % of accounting researchers agreed that it is a major problem. Furthermore, on average, participants believe that 46 % of published results are replicable, whereas 59 % are reproducible. Similar to the *Nature* survey they find that the three most identified contributing factors are ‘selective reporting of results’, ‘pressure to publish for career’, and ‘poor statistical analysis’. However, in contrast to the results in *Nature*, Hail et al. (2020) find that professional incentives are the most likely solutions to the underlying problem, including incentives for reproducing others works, as well as incentives for adopting better reproducibility practices for their own work. These existing studies show that both reproducibility and replicability are concerns in other scientific fields, yet the extent of the problem is somewhat different. They have also found that perceived causes are usually driven by questionable research practices, such as selective reporting of results (Banks et al., 2016), that are often existent due to the systemic incentive structures within academia, such as the pressure to publish (Baker, 2016; Hail et al., 2020; The Economist, 2013). Furthermore, findings with respect to potential solutions for the underlying problems are quite different between the studies of Baker (2016) and Hail et al. (2020).

2.3. Motivation

Building on the research in other disciplines, and driven by the growing attention and concerns about the reproducibility and replicability of finance research in recent times, we aim to explore finance researchers’ views on the magnitude of the problems, causes, and solutions to these. Our study is significant for at least two reasons. Firstly, there currently needs to be more evidence addressing the question of whether reproducibility and replicability are salient issues in the finance literature. Several studies suggest that reproducibility and replicability in finance may be of concern (Menkveld et al., 2024; Mitton, 2022; Pérignon et al., 2024), however, work by Jensen et al. (2023) provides a contrarian view and supports this notion with empirical data. Given these opposing views, surveying researchers’ beliefs and experiences is an alternative information source. In addition, beyond establishing the perceived extent of the ‘crisis’, this alternative survey-based approach will also allow us to get insights into the causes behind the problem and find out the solutions to foster responsible research practices in finance.

Secondly, perceptions themselves are important as they can influence attitudes, incentives, and behaviours within the profession. Notably, Camerer et al. (2018) identify that peer beliefs about replicability closely align with actual replicability, indicating that the research community can reasonably predict which results are likely to be reproducible and replicable. This will complement the existing empirical research on this issue. The existing studies of actual replicability and reproducibility often focus on one specific area of finance (e.g., asset pricing), and as such, may not provide us with an understanding of whether replicability and reproducibility may differ between various areas of finance research (e.g., asset pricing, corporate finance, sustainable finance, behavioral finance). In contrast, our survey-based approach will allow us to understand if the problems, causes, and solutions differ across areas of finance. Given that various areas of finance have vastly different methodological approaches, as well as underlying data, it may be that we find significant differences between areas.

3. Idea

As we primarily aim to gather the views of the research community, our study does not formally predict hypotheses. Instead, we are led by the idea and our three overarching research questions stated in the introduction. Consequently, we position our study within the greater debate on reproducibility and replicability in finance and will identify the perceptions of both of these issues by the finance

community, as well as the perceived causes, and potential solutions (See Fig. 1).

4. Empirical design (Data and Tools)

4.1. Sample

In this study, we aim to understand the views of the finance research community and, consequently, the underlying population are individuals who conduct research in finance. We form a participant panel by collecting contact details of authors of have published in a finance journal in the past ten years.¹ We derive a list of finance journals using the ABDC Journal Quality List to identify those journals with the finance field of research code 3502, as well as by searching for journals on Scopus that include “finance*” in their journal title. We then use Scopus to extract all corresponding author contact details for every published paper in these journals in 2015 and onward. We supplement this information with attendees and presenters at the annual conferences of AFA, FMA, and WFA, as this would include doctoral students who may not have yet published a paper. After removing duplicates in our panel, we are left with 33,431 unique e-mail addresses. We have chosen to cast a wide net as this allows us to increase the sample size and enable us to contrast groups depending on the characteristics of the researchers. It is important to note that some of these e-mail addresses may belong to individuals who have moved institutions, left academia, retired, or passed away, and some individuals may be present in our panel with both their institutional as well as personal e-mails. This means that our potential participant number is significantly lower. However, this large panel allows us to cast a wide net to get the broadest set of views from the finance research community. Our target is to gather 385 usable responses, as this provides us with a 95 % confidence level using a 5 % margin of error (assuming an unknown population size). Given that the project is topical, we believe we should be able to exceed the target of usable responses. To increase the participation rate, we will use two follow-up e-mail invites. We will also have ten random prizes of \$500 AUD given to participants to further encourage participation in the survey.

4.2. Survey

We design a survey instrument closely following prior work in other scientific disciplines (Baker, 2016; Hail et al., 2020). We modify these existing surveys by ensuring that we capture perceptions of both reproducibility and replicability as they have primarily focused on reproducibility alone, and further amendments are made to ensure that the survey instrument is appropriate for the finance discipline. The final survey has been reviewed by multiple academics in the finance discipline as well as in neighbouring disciplines of accounting and economics. The full instrument is included as an appendix to this article.

We assess perceived reproducibility by asking participants, “In your opinion, what proportion of published results in finance research are reproducible (i.e. the results could be reproduced exactly given the dataset and empirical approach described in the paper)? Give your best estimate”. Similarly, for perceived replicability, we ask participants, “In your opinion, what proportion of published results in finance research are replicable? (i.e. similar results would be obtained with slight, but reasonable, variations of method, sample, time period, etc). Give your best estimate”. For both these questions, we use an 11-point Likert scale ranging from 0 % to 100 % in 10 % increments.

We attempt to understand the causes of poor reproducibility and replicability by asking participants about what factors they perceive to drive these. Specifically, we ask them “Use the scale below to indicate how frequently you believe each of the following is an important contributing factor in cases in which published results are not reproducible”. We use a second similar question and modify it to ask about replicability specifically given the potential contributing factors differ slightly. The contributing factors are detailed in the full survey in Appendix B and include factors such as lack of technical expertise, selective reporting, p-hacking, and scientific fraud. For these questions, we use an 5-point Likert scale anchored at Never and Always. We also provide participants with the option to say “I don’t know”.

We assess the potential solutions for poor reproducibility and replicability by asking participants about what they think could be done to address these issues. Specifically, we ask them “Use the scale below to indicate to what extent the factors below may help in improving the reproducibility of research in finance”. We use a second similar question and modify it to ask about replicability specifically. The potential solutions are detailed in the full survey in Appendix B and include things such as better technical training, improved incentives to conduct reproductions/replications, and greater enforcement by journals. For these questions, we use an 4-point Likert scale anchored at “Not likely at all” and “Very likely”. We also provide participants with the option to say “I don’t know”.

In addition to these three main areas of questions, we further supplement them with additional related questions from Baker (2016) and Hail et al. (2020). We also capture a number of demographic variables that we also use to explain the variation in our variables of interest. To this end, we gather information about the participant’s gender, country, academic seniority, and primary field of research within finance.

4.3. Analysis

To answer our three underlying research questions, we are going to use non-parametric tests. For each of the research questions, we

¹ We go back ten years as authors may only be the corresponding author on a select few of all their publications, thus having a longer time frame allows us to capture these researchers as well.

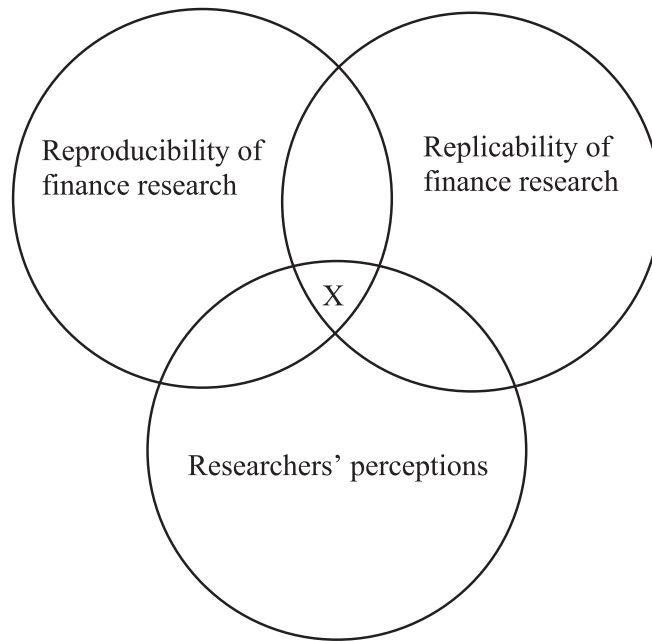


Fig. 1. Depiction of this study's novelty at the intersection of three related constructs.

will focus on the descriptive statistics, comparing within the questions to see whether there are statistically significant differences (for example, between perceived reproducibility and perceived replicability), as well as testing whether there are statistically significant differences based on the demographic information of the participants (e.g. gender, seniority, and primary field).

The most significant issues related to survey research are non-response bias and common method bias. To address non-response bias, we will also compare the demographics of the responses we receive after the first invite with those who respond after a reminder, as previous research has demonstrated that late responders have similar profiles to non-responders (Armstrong and Overton, 1977). To address common method bias, we will utilise existing, established questions and format in our survey to minimise the potential for this bias. In addition, we will test the collected data for common method bias using Harman's single-factor single-factor analysis (Podsakoff et al., 2003).

5. Conclusion

5.1. What's new?

To our knowledge, this is the first assessment of the finance research community's views on the issues of reproducibility and replicability. While some studies have attempted to assess *actual* reproducibility and replicability empirically (Jensen et al., 2023; Menkveld et al., 2024), the results are somewhat conflicting and only provide us with one piece of evidence. Understanding the perceptions of actual researchers allows us to investigate whether the community itself *perceives* these issues as problems, as well as crowd-source their views on potential causes and solutions.

5.2. So what?

Reproducibility and replicability are fundamental principles in scientific research because they ensure the reliability, validity, and credibility of scientific findings. These processes help build confidence in the results among the scientific community and the public, indicating that the findings are not due to chance, error, or bias. Science progresses by building on previous work, and reliable, reproducible, replicable research provides a solid foundation for future studies, allowing researchers to expand on existing knowledge and make new discoveries. Given both reproducibility and replicability are essential in the scientific process, our findings will set the tone in the conversation with respect to the magnitude of the perceived problems with respect to each of these.

5.3. Contribution

The primary contribution is that we will document the views of finance academics on the reproducibility and replicability of research in this domain. The reproducibility and replication crises can only be solved by acknowledging the underlying problem, and without rigorous data on the views of the finance community, it is difficult for the research community to understand the scope of the problem in finance. Our study will also complement the existing debate on reproducibility and replicability in finance research as we

approach the problem from the perspective of perception. The contradictory findings of existing research on reproducibility and replicability in finance suggests that the results may be driven by the area of finance being investigated and that the problems are not uniform across the discipline. As previously mentioned, [Camerer et al. \(2018\)](#) identifies that peer beliefs about replicability align with actual replicability. Our survey-based approach allows us to gather information from a wide range of researchers across the finance discipline and thus provide further insights that enable us to compare the problem within finance.

5.4. Other considerations

There is a minor risk that we may not achieve our desired sample size. However, we have attempted to design the study and data collection process in a manner that maximises our chance of engagement with the community by casting a wide net and inviting multiple thousands of researchers to participate, providing monetary incentives, and using multiple follow-up email invites.

Credit statement

Tim Hasso: Writing – original draft, Writing – review & editing, Methodology, Project administration, Conceptualization.

Mark Brosnan: Writing – review & editing, Methodology, Project administration, Conceptualization, Funding acquisition.

Daniel Chai: Writing – review & editing, Methodology, Project administration, Conceptualization, Funding acquisition.

Searat Ali: Writing – review & editing, Methodology, Project administration, Conceptualization, Funding acquisition.

CRedit authorship contribution statement

Tim Hasso: Writing – review & editing, Writing – original draft, Project administration, Methodology, Investigation, Conceptualization. **Mark Brosnan:** Writing – review & editing, Writing – original draft, Project administration, Methodology, Investigation, Funding acquisition, Conceptualization. **Searat Ali:** Writing – review & editing, Methodology, Funding acquisition, Conceptualization. **Daniel Chai:** Writing – review & editing, Methodology, Funding acquisition, Conceptualization.

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Appendix A. Approved Pitch from Phase 2

Pre-registered Study Type	Full original study
Pitcher's Name	CENSORED FOR PEER REVIEW JEL code G00 Date Completed Oct 2022
FOUR	Four Big Picture Anchors
(A) Working Title	Reproducibility in Finance Research: Views of the Finance Research Community
(B) Basic Research Question	What are the views of the finance research community with respect to the reproducibility of academic research.
(C) Key paper(s)	Baker (2016) . Reproducibility crisis. <i>Nature</i> , 533(26), 353–66 Hail et al. (2020) . Reproducibility in Accounting Research: Views of the Research Community. <i>Journal of Accounting Research</i> , 58(2), 519–543. https://doi.org/10.1111/1475-679X.12305 Faff (2021) . Responsible science matters. Available at SSRN 3880341.
(D) Motivation/Puzzle	The failure of published studies to be replicated by researchers has been dubbed the 'replication crisis'. The phenomenon was originally brought to the mainstream in 2015 by Brian Nosek, as he co-ordinated The Reproducibility Project: Psychology. He found only 36% of the original psychology studies published in top journals were able to replicate to produce significant findings. Since then, other fields of scientific enquiry, such as medicine, economics and accounting, have conducted their own investigations and found similar, disturbing results. In addition, many disciplines have also sought the views of the academic community on this issue. However, to date, no research has been conducted concerning the finance research community's views. This study proposes to remedy the lack of views from the finance research community by surveying academics, and other participants, to collate their collective thoughts.
THREE	Three core aspects of any empirical research project i.e. the "IDioTs" guide
(E) Idea?	Undoubtedly the finance community is aware of the reproducibility issues facing other disciplines. But does the finance community believe their research faces the same problems? Or do they feel they are immune to the research challenges and their findings are more robust? The first part of this study is to survey finance research community participants to establish the community views. Learnings from other disciplines who have conducted similar studies can inform secondary lines of questioning. Such as why they feel the problem does, or does not, exist in finance and, what potential solutions or reforms, if any, they feel are appropriate to remedy the situation.
(F) Data?	We aim to survey the wider finance academic community by using the public contact details that are listed on Web of Science and Scopus for all works indexed on these databases. To this end we will create a database of authors who have published in finance journals in the past ten years. These authors will be invited to participate in the survey through an e-mail invite, with additional reminders sent to non-responders. Our target is to gather 370 usable responses as this provides us with a 95% confidence level, given a 5% margin of error and an assumed underlying population of 10,000 finance academics. Given that the project is topical and somewhat controversial we believe we should be able to exceed the target of 370 usable responses. The survey instrument will be based on existing published studies on reproducibility in neighbouring disciplines (accounting,

(continued on next page)

(continued)

economics, management).

The most significant issues related to survey research are the introduction of instrument induced biases. We propose to follow best practices, such as those discussed by Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff et al. (2003) in their seminal Journal of Applied Psychology paper. Most crucially, the issues of non-response bias and common method bias. To address non-response bias, we will compare the observable information of non-responders such as country, university ranking, and ranking of their top publication. This information is all gathered using public information on Scopus and Web of Science. In addition, we will also compare the demographics of the responses we receive after the first invite with those who respond after a reminder, as previous research has demonstrated that late responders have similar profiles of non-responders. To address common method bias we will utilise existing, established questions and format in our survey to minimise the potential for this bias. In addition, we will test the collected data for common method bias using Harman's single factor analysis.

(G) Tools?

We propose to utilise the survey instrument employed by Hail, L., Lang, M., & Leuz, C. (2020) when they surveyed the accounting research community. Amendments will be made so as the instrument is appropriately adapted for the finance discipline.

Qualtrics is the preferred online platform to create and distribute the survey, as well as manage the data collection. Statistical analysis will be conducted using R and Stata.

Any follow up interviews, if participants opt in, will be conducted via online video conferencing software, such as Zoom. These will be transcribed and thematically analysed using Nvivo.

TWO**(H) What's New?****Two key questions**

The novelty to this study is the participation of the finance research community. Whilst the type of study being proposed has been replicated (pun intended) in other disciplines, the finance community views are not officially known and documented. We anticipate this research will be 'conversation starter' to discuss the state of finance research and potential rectification strategies. However, the first step is discovering the finance communities view of the state of finance research.

(I) So What?

It is not an overstatement to say scientific findings are hugely important on a global scale. Research consumes large amount of financial and human capital, and their findings literally save the world by developing new medicines, vaccines, psychological treatments as well as inform fiscal, social and other public policy measures. If the process is broken, it needs to be addressed. If it is not broken, then research's reputation needs to be reinstated. Regardless of the results, trust in the process is as important as trust in the results. You cannot have one without the other. There is already too much fodder available to the pseudo-scientific community as they spread FUD about the legitimate findings from genuine scientific inquiry. Fixing any potential problems internally, and on the down low, is not an option given how global and interdisciplinary an endeavour research has become. The reproducibility crisis, found in many disciplines to date, needs a co-ordinated solution and the finance research community needs a seat at the table because, even in the highly unlikely event there are no issues with the reproducibility of finance research, the public and other users will judge it guilty by association. If there are issues with finance research, then it too needs to own up and be transparent. A key distinguishing feature of scientific research, as compared to pseudo-scientific research, is its self-correcting and transparent nature managed by an inclusive research community.

ONE**(J) Contribution?****One bottom line**

The primary contribution is that we will document the views of finance academics on the reproducibility of research in this domain. The 'replication crisis' is a crisis that can only be solved by acknowledging the underlying problem, and without rigorous data on the views of the finance community it is difficult for the research community to understand the scope of the problem in finance.

(K) Other Considerations

We have a team of an early-career and a mid-career researcher. The skills of the two researchers are complementary and address the requirements of this project.

The target journal is Critical Finance Review, we have chosen this as our target as this outlet is known to publish research that may be considered as controversial by other journals.

The risk of this project is low as we are not aware of anybody else conducting a similar study, and the researchers have experience with conducting large scale surveys with high response rates.

Appendix B. Survey Instrument

These question have been adopted and modified from the studies of Baker (2016) and Hail et al. (2020).

Survey**Consent form**

The consent form has been censored for the purposes of blind review.

Information

For the purposes of this survey, and in line with the terminology in extant finance literature:

We consider a study to be **reproduced** (or "**reproduction**") when it is repeated exactly, using the same underlying datasets and methods.

By contrast, a study is **replicated** (or "**replication**") when its findings are confirmed in similar settings. These findings may include slight, but reasonable, variations of method, sample or time period.

This survey talks about both issues so please pay attention to the questions.

Questions

Q1. In your opinion, what percent of published results in finance research are...

	0 %	10 %	20 %	30 %	40 %	50 %	60 %	70 %	80 %	90 %	100 %
Reproducible (i.e., the results could be reproduced exactly given the dataset and empirical approach described in the paper)? Give your best estimate.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Replicable (i.e., similar results would be obtained with slight, but reasonable, variations of method, sample, time period, etc). Give your best estimate.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q2a. Please complete the following sentence: “In my opinion, the level of **reproducibility** in finance research is...

- ...better than for other business school disciplines, on average.”
- ...about the same as for other business school disciplines, on average.”
- ...worse than for other business school disciplines, on average.”
- Not sure

Q2b. Please complete the following sentence: “In my opinion, the issue of **reproducibility** in finance research is...

- ...improving over time.”
- ...worsening over time.”
- ...remaining stable over time.”
- Not sure

Q3. Please use the box below to tell us more about your comparison group for answering this question.

Optional

_____.

_____.

_____.

_____.

_____.

Q4a. Please complete the following sentence: “In my opinion, the level of **replication** in finance research is...

- ...better than for other business school disciplines, on average.”
- ...about the same as for other business school disciplines, on average.”
- ...worse than for other business school disciplines, on average.”
- Not sure

Q4b. Please complete the following sentence: “In my opinion, the issue of **replication** in finance research is...

- ...improving over time.”
- ...worsening over time.”
- ...remaining stable over time.”
- Not sure

Q5. Please use the box below to tell us more about your comparison group for answering this question.

Optional

_____.

_____.

_____.

_____.

_____.

Q6. To what extent do you agree or disagree with the following statements?

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
“Poor reproducibility of finance research is a major problem”	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
“ Reproducibility of finance research findings are important for the advancement of finance research”	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
“ Reproducibility of finance research findings should be emphasized in researcher training”	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
“The lack of replication of finance research findings is a major problem”	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
“ Replication of finance research findings are important for the advancement of finance research”	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
“ Replication of finance research findings should be emphasized in researcher training”	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q7. Please use the box below to tell us more about your answer.

Optional.

_____.

_____.

_____.

_____.

_____.

Q8. Have you posted code or data (independently from requirements by journals) to enhance or ensure the **reproducibility** or **replicability** of your work?

- Yes
- No

Q9. Have you, and/or your co-authors, established any procedures to ensure **reproducibility** in your work?

- Yes
- No

Q9a. Use the box below to tell us about the steps that have been taken to ensure **reproducibility** in your work?

Optional.

_____.

_____.

_____.

_____.

_____.

Q9b. When did you and/or your coauthors establish these procedures?

- Within the last year
- Within the last 2 years
- Within the last 5 years
- Within the last 10 years or longer
- The procedures have been in place as we've been working together

Q10. Have you identified any barriers to implementing changes that would improve **reproducibility** of your research?

- Yes
- No

Q10a. Use the box below to tell us about the barriers.

Optional

_____.

_____.

_____.

_____.

_____.

Q11. To what extent do you agree or disagree with the following statements:

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
“I think that a failure to replicate a result most often means that the original finding is wrong.”	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
“I think that a failure to replicate rarely detracts from the validity of the original finding.”	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q12. Use the scale below to indicate how frequently you believe each of the following is an important contributing factor in cases in which published results are not **reproducible** (i.e., the results could be reproduced exactly given the dataset and empirical approach described in the paper)?

	I don't know	Never	Rarely	Sometimes	Very often	Always
Protocols or computer code not publicly posted	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Poor description of empirical approach	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reproduction require advanced technical expertise	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Proprietary data	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Honest mistake in the code	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Honest mistake in the published results	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fraud (i.e., fabricated or falsified results)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q13. Please tell us about any other important factors we may have missed that contribute to **irreproducible** results:

Optional

Q14. Use the scale below to indicate how frequently you believe each of the following is an important contributing factor in cases in which published results are not **replicable**:

	I don't know	Never	Rarely	Sometimes	Very often	Always
Fraud (i.e., fabricated or falsified results)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pressure to publish for career advancement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Insufficient oversight by coauthors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Insufficient peer review of research	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Selective reporting of results	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Proprietary data	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Data mining	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Original findings obtained with poor statistical analysis or experimental design	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Protocols or computer code not publicly posted	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Methods require advanced technical expertise	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Poor description of empirical approach	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Findings only applicable to the original jurisdiction/time-period	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q15. Please tell us about any other important factors we may have missed that contribute to **irreplicable** results:

Optional

Q16. Please use the scale below to indicate how likely you think the following factors would be to improve the **reproducibility** of research.

	I don't know	Not at all likely	Not very likely	Likely	Very likely
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	I don't know	Not at all likely	Not very likely	Likely	Very likely
Journal editors enforcing standards to enhance reproducibility (e.g., through requirement of code and protocols)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Better understanding of coding and statistics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Better teaching/mentoring of PhD students	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Professional incentives (e.g., credit towards tenure) for adopting practices that enhance reproducibility	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q17. Please tell us about any other important factors we may have missed that would improve **reproducibility** of research:
Optional

Q18. Please use the scale below to indicate how likely you think the following factors would be to improve the **replication** of research.

	I don't know	Not at all likely	Not very likely	Likely	Very likely
Professional incentives (e.g., publications) for formally replicating the work of others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Better teaching/mentoring of PhD students	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Better understanding of statistics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
More robust empirical or experimental design	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
More emphasis on independent validation within teams	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
More emphasis on independent replication	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Journal editors enforcing standards to enhance replication (e.g., through checklists)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Public posting of protocols, computer code, and data when possible	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q19. Please tell us about any other important factors we may have missed that would improve **replication** of research:
Optional

Q20. Which, if any, of the following have you done?

	No	Yes
Tried and failed to reproduce one of your own results	<input type="radio"/>	<input type="radio"/>
Tried and failed to replicate one of your own results	<input type="radio"/>	<input type="radio"/>
Tried and failed to reproduce someone else's results	<input type="radio"/>	<input type="radio"/>
Tried and failed to replicate someone else's results	<input type="radio"/>	<input type="radio"/>
Published a successful attempt to replicate someone else's work	<input type="radio"/>	<input type="radio"/>
Published a failed attempt to replicate someone else's work	<input type="radio"/>	<input type="radio"/>
Tried and failed to publish a successful replication	<input type="radio"/>	<input type="radio"/>
Tried and failed to publish an unsuccessful replication	<input type="radio"/>	<input type="radio"/>

Q21. Has anyone ever told you that they could not **reproduce** or **replicate** results from one of your own papers?

- Yes
- No
- I cannot remember

Q21a. Please provide further details.

Which of the following job titles best applies to you?

- Honours/Master/PhD student
- Assistant Professor / Lecturer / Senior Lecturer
- Associate Professor
- Full/Chaired Professor
- Industry Practitioner
- Other (e.g. Research Fellow)

Which of the following best describes your primary area of interest?

- Asset Pricing
- Behavioral/Experimental
- Market Microstructure
- Econometrics
- Banking and Financial Intermediation
- Derivatives
- Corporate Finance
- Financial Markets
- International Finance
- Funds Management
- Investments
- Alternative Assets
- Sustainable Finance
- Financial Technology
- Financial History
- Other

In which country do you currently reside?

▼ Afghanistan ... Zimbabwe.

How do you identify?

- Male
- Female
- Other

How old are you?

- < 20
- 20–30
- 31–40
- 41–50
- 51–60
- 61–70
- 71 +

Do you wish to receive a copy of the results?

- No
- Yes

Do you wish to go into the draw for a prize?

- No
- Yes

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