Report on Bachelor / Master Thesis

Institute of Economic Studies, Faculty of Social Sciences, Charles University

Student:	**Petr Prokš**
Advisor:	**Magda Pečená, Ph.D.**
Title of the thesis:	Effect of Green New Deal on investment funds

OVERALL ASSESSMENT *(provided in English, Czech, or Slovak):*

Please provide a short summary of the thesis, your assessment of each of the four key categories, and an overall evaluation and suggested questions for the discussion. The minimum length of the report is 300 words.

Short summary

This thesis aims to describe the effect of socially responsible investing on mutual fund performance. It uses asset pricing models, namely Fama French 3 factor model, with additional variables to determine how the ESG score influences the funds‘ returns between 2018 and 2021. Another hypothesis is whether the covid period in 2020 affected the returns and impact of ESG-related news.
The manuscript has of decent quality, and the author demonstrates a very good understanding of the current literature and its scope. There are several interesting empirical results.

Contribution

The author contributes to asset pricing literature by building on well-documented results of the Fama French model. Socially responsible investing is a novel topic and deserves the research attention. The work tackles some interesting points and offers new views and hypotheses on the performance of specific segments of mutual funds.

Methods

There are several points I noted through reading, so I will try to be brief and direct here and follow the structure of the text.

You mention in section 1.3 that socially responsible investing has 15 years of history. So why do you only have 4 years sample? Four years of weekly data is roughly 200 observations which get later dissected to arbitrary subsamples for the covid sub-part.

In 3.2.2. you mention the hypothesis about SRI trends and that high-ESG funds improved performance during Covid more. Why? Before you say that high-ESG funds are more restrained in investing, so a sudden market crisis improves their position? Similarly, in 3.2.3, why would high-ESG funds have a higher sensitivity to the news? Is there literature that supports this? How does it work in other classes of funds? Also, here you say, „The aim of this hypothesis is to produce evidence to support the existence of the hysteresis hypothesis.“ Well, you do empirical research to document how this works. This suggests you will produce such results „whatever it takes “ as Mario Draghi famously said.

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In methodology 3.3. you write two paragraphs about arbitrary split by ESG score (you say it is not, but it seems it is), but then you say it is not a very good division and propose another one. This confuses the reader in the results section. Each result times each specification and sort produce many results the reader needs to digest.
Then the section mentions a spread in the groups‘ returns. That is an interesting result! But the majority of the paragraph is devoted to the splitting decision, and then you only briefly comment on this. Is this result significant? Does it hold against CAPM or FF3 model? Is the difference between the first group and last group significant (t-test). Or take a portfolio of those funds and use it in CAPM and FF3 – is there significant alpha? Or their difference as a long-short strategy? You say ESG score is negatively correlated with performance based on three values. What is the coefficient?

Section 3.3.1 introduces CAPM, but the empirical results do not use it. Why keep it there?

You report a very bad regression – having a regression with zero R2 on a Fama-French dataset which has been estimated a billion times should strike you.
The specification does not make sense; the FF risk factors are note panel data. The panel method attempts to estimate group differences, but 3/4 of your variables are not panel; they are the same. In this section, you refer to Table 2, which is nowhere in the text, but is in Appendix. You have Table 1 at the end. If this result is important, document it well. If not, omit it. Then you report on time series regression, and only a handful of funds have significant alpha – that is ok. Again, this is the main result and should be clearly shown and commented on What are the coefficients? How do they differ to original FF results? How about ESG, is it significant? Did ESG improve the R2 compared to the FF3 model? You do not mention ESG at all.

I suspect it is because it was not significant? The issue is that FF factor very well captures the returns of individual assets or portfolios, which a mutual fund is. That is why it is hard to generate a significant alpha – the cross-section of returns can be explained with those (and a zoo of other (see Cam Harvey & Liu 2016 article) factors). So not having a significant alpha is to be expected. The question you do not address is whether the ESG variable brings anything to the table.

I take issue with the covid part. You seem to commit strong selection bias, where you subset certain subperiod until it yields the results you want. It is not clear if you add the dummy variable for covid to the regression, 75 % of that would be zero. The M1 money supply is in total values or differences? You add new variable WEI, but do not produce results with it. Lastly, you say you select three weeks where there is a high number of new infections. I admit that I am totally lost here. Are you looking for a structural break here?

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The news section has, in my opinion, several drawbacks as well. How were those variables constructed with the bag of words precisely? You say „effect of positive news is more often negative than positive" Well you classify the sentiment of the news based on the market reaction, or not? Then this does not make sense.

Also, using weekly data to try to detect an effect of a certain news seems like a too long period. Usually, the literature known to me uses high-frequency data. Nowadays, if you react in a week, the mispricing opportunity is long gone and exploited.

Literature

The literature review part is very long and actually quite hard to digest. Out of 23 pages of the thesis, 13 is literature review and Introduction of terms people in finance know.

In my opinion, it is not necessary to give an overview of the whole history of finance research and various distinct strands of literature. Role of the stock market in an economy is not connected to the primary goal, which is the performance of certain mutual funds. I understand how hard it is to stick to a point in research, but it is not advisable to drag the reader through 10 pages of unrelated stuff. There is so much text about EMH, but how does it relate to your empirical part and results? So ESG mutual funds returns follow random walk or not?

You write „…it would be unpractical and overwhelming to conduct a brief explanation of all these fields. " So do not include them in text. Just focus on what pertains specifically to the topic at hand and to things, and offer references. For the reader who does not know EMH, reference a couple of articles, but do not let this attention astray. It is hard to get it back. In this case, you do not relate the results to the literature well I am afraid.

The references altogether are from the top financial journals, which is good and clearly gave the author a very good understanding of the broad literature.

One of the more direct comments is that the section on modern portfolio theory is missing Markowitz's work. Again you write about concepts like efficient frontier and risk metrics, which are in no way followed in the later text.

Altogether the literature is way too broad, and it would benefit the thesis to rather focus more on the sole ESG investing – how it started, what are the main results in the literature, how large is this compared to other mutual funds etc. I was really interested in this but did not get the chance to learn it here.
Also, given how many topics the author tries to cover, there is not enough literature. Part 2.4 Effects of news on prices has no references. Where did this topic come from? Who uses the

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methods, what are the results and how do they compare to the presented results? Similarly, CAPM is such a well-reserched model, but there are no refrences to where it came from.

Manuscript form

The thesis is written well and is split in several sections up to third level, which seems sometimes bit unnecessary. For instance, Introduction should make the reader excited about the topic, but in this case, it serves as an introduction of abbreviations and terms such as stock-picking, which I do not think is necessary for financial literature. Also, I think it is distracting rather than useful to create a subsection with the structure of thesis.

By far my strongest object with respect to manuscript is the notation of results and the outputs of the asset pricing regression, which are missing. When compared to papers in the same strand of literature, which are actually refered in the thesis, having Table 1 as the second to last paragraph is not the best strategy. The results are commented on in large paragraphs where the reader gets lost. The reader cannot take a look over the results in a concise manner and think about the conclusions comfortably, which deteriorates the experience and devaluates the whole work, in my opinion.

There are several numerical outputs in the Appendix section, but they are not referred to in the actual text and that makes it hard to understand the overall message of the thesis. Also, the tables should be individually understandable with captions, which are missing here.

There are some references to authors without properly citing the works. Also, the pages are not numbered, so I cannot really say where this happens.

Overall evaluation and suggested questions for the discussion during the defense

As I have already written a very long text, I will again try to be brief. I was really excited to get this topic for review – it is new, I hardly knew anything about it, and asset pricing with respect to something which is a bit politically influenced in investing (recent Tesla argument) sparks interest.

By no means do I wish to discourage Petr; the thesis shows a lot of hard work done, and his understanding of those financial topics at this stage is, in my opinion, deserving of a successful defense.
We all know how hard it is to write quality research and keep it interesting to read the whole time. I would start with section 2.3 next time - Right to the point. As prof Cochrane puts it „A good joke or a mystery novel has a long windup to the final punchline. Don't write papers like that — put the punchline right up front and then slowly explain the joke. Readers don't stick around to find the punchline in Table 12."

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It is a harsh reality but true, and we need to accommodate that in our writing.

In that context, I would get rid of the sections on news and covid. The covid section seems like a typical torturing the data until they gave the expected answers. I outlined my reservations about the news above.

Just tell us about the Green New Deal effect on mutual funds and dazzle us with insights and empirical facts you observed. Say there are X funds with such ESG scores, I will try to explain their returns with the FF3 model and see if they differ across the scores – you omitted Sharp's 1966 seminal article btw -and compare it. That is more than enough and very interesting! Report properly on the alphas, the regression outputs, and do not force the reader for a results treasure hunt in the Appendix.

Lastly, I apologize for the lengthy review. In my opinion, the thesis has great potential but just shows typical and understandable Bsc thesis shortcomings. I hope my points are considered constructive and encouraging for future work, as they are 100% meant as such!

In my view, this thesis fulfills the requirements for a successful bachelor thesis at IES.

Suggested questions for defense:

- *Explain the FF time series regression for funds. Is the ESG varaible significant?*
- *So do high-ESG funds perform better or worse to low-ESG counterparts? What is the difference in (expected) returns?*
- *Which sort of fund would you invest in personally?*
- *Why are there only four years of data?*
- *If you stick with the topic for MSc thesis (go for it!) I would be interested in results of portfolio sorts – do the high ESG funds tend to perform consistently worse or not compared to other groups? Is this significant? Is this tradeable?*

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SUMMARY OF POINTS AWARDED *(for details, see below):*

CATEGORY		**POINTS**
Contribution	*(max. 30 points)*	25
Methods	*(max. 30 points)*	20
Literature	*(max. 20 points)*	15
Manuscript Form	*(max. 20 points)*	13
TOTAL POINTS	*(max. 100 points)*	**73**
GRADE	**(A – B – C – D – E – F)**	**C**

NAME OF THE REFEREE:

DATE OF EVALUATION:

Digitálně podepsáno (30.5.2022): Jan Šíla

Referee Signature

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EXPLANATION OF CATEGORIES AND SCALE:

CONTRIBUTION: *The author presents original ideas on the topic demonstrating critical thinking and ability to draw conclusions based on the knowledge of relevant theory and empirics. There is a distinct value added of the thesis.*

METHODS: *The tools used are relevant to the research question being investigated, and adequate to the author's level of studies. The thesis topic is comprehensively analyzed.*

LITERATURE REVIEW: *The thesis demonstrates author's full understanding and command of recent literature. The author quotes relevant literature in a proper way.*

MANUSCRIPT FORM: *The thesis is well structured. The student uses appropriate language and style, including academic format for graphs and tables. The text effectively refers to graphs and tables and disposes with a complete bibliography.*

Overall grading:

TOTAL	**GRADE**
91 – 100	**A**
81 - 90	**B**
71 - 80	**C**
61 – 70	**D**
51 – 60	**E**
0 – 50	**F**