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Conceptual Paper

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Behavioral biases in corporate risk management and investment decisions during the COVID-19 pandemic in Poland

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Abstract:
The COVID-19 pandemic has caused great turbulence in global financial markets. The first goal of this conceptual paper is to explore whether managers of companies listed on the Warsaw Stock Exchange are susceptible to selected behavioral biases related to irrational risk preferences. We also seek to investigate whether susceptibility to these errors may affect selected management practices in the areas of corporate risk management and investment policy. The second major goal of our project is to identify whether there is a link at the micro level, that is, between the aforementioned irrational management practices resulting from susceptibility to behavioral biases and the macro level (i.e., certain macroeconomic indicators, such as aggregate investment, employment, and growth). We hope that our research project will contribute to shifting the paradigm of economics in such a way that the behavioral approach will be increasingly used and acknowledged by researchers.

Keywords: behavioral biases, behavioral finance, corporate managers, COVID-19, macroeconomics
JEL Classification: G41

1 Introduction

The last COVID-19 crisis caused a tremendous economic slowdown and recession in almost all countries and their financial markets around the globe [e.g. Bairoliya and İmrohoroğlu, 2020; Sharma et al., 2020; Szyszka, 2020]. In particular, the outbreak of the COVID-19 pandemic triggered a huge level of uncertainty in business activity and posed great challenges for companies' management due to significant supply chain disruptions, subsequent inflationary pressures, and the ongoing fear of potential COVID-19 variants and related deterioration in social life [Baker et al., 2020; Anayi et al., 2021]. However, this crisis had a few features that make it unique compared with previous financial crises. First, the above mentioned sharp decline in economic activity did not result from imperfections in the economic system itself (e.g., improper monetary or fiscal policy, inflation shocks, problems with the financial sector, etc.); its source is a significant limitation on people's activity that was forced by health issues [Bairoliya and İmrohoroğlu, 2020;

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Szyszka, 2020]. The second distinguishing feature of this crisis is that the pandemic hit both the supply and demand sides of economies [McKibbin and Fernando, 2020; Sharma et al., 2020]. Uncertainty and fear in the face of health threats, actual limitations in life activity, anxiety about losing a job, and banks' reaction in the form of tightening lending policies toward consumers are the factors that contributed to a drastic drop in consumer demand. On the other hand, business restrictions, closed borders, factory downtime, and logistical perturbations all contribute to a sharp decline in produced output and a reduction in supply [Salgado et al., 2020]. Finally, the uniqueness of the pandemic crisis – and the challenge for policymakers – – also lay in the fact that the traditional tools of economic stimulation known to economists can eventually be used only after the source of the crisis had been mastered. Thus, this is based on the non-economic health aspects of this pandemic crisis. All the above mentioned unique aspects of this crisis undoubtedly influenced corporate management in the area of risk management and investment policy [Sharma et al., 2020].

Nevertheless, as with other financial crises, we must emphasize the psychological/behavioral factors that are intrinsic to almost all economic crises [Szyszka, 2009]. History shows that economic crises may have very different sources. Nevertheless, regardless of the primary causes of a crisis, it is possible to identify several common behavioral features. Behavioral economics and finance provide an interesting and innovative theoretical framework for how behavioral factors may impact the individual behaviors of investors or managers and how they, in turn, may impact the macro level of the economy as a whole [Akerlof and Shiller, 2009; Kahneman, 2012; Thaler, 2015]. By incorporating major psychological insights into the study of stock markets and investors, behavioral economics and finance proponents have undermined many assumptions of neoclassical finance theory [e.g. Markowitz, 1952; Fama, 1970], creating accurate pictures of both individual investors and stock markets on the aggregate level [Szyszka, 2013]. It was found that even professional investors and managers are susceptible to behavioral biases originating from cognitive errors and heuristics [Kahneman, 2012], and the bounded rationality of investors is responsible for various stock market anomalies that cannot be explained with the efficient market hypothesis [Fama, 1970]. These irrational behaviors are especially visible during financial crises.

It is possible to distinguish some common features of human behavior that are manifested during this crisis and in other crises [Szyszka, 2009, 2011]. Usually in pre-crisis periods, people often tend to behave overconfidently and overoptimistically. They are susceptible to extrapolation bias and expect good times for a very long time, and they underestimate the importance of unlikely events with potentially colossal implications. Additionally, they are also prone to confirmation bias, which consists of the uncritical acceptance of information that confirms previously formed views and avoiding opportunities to confront these views with new information to the extent of denying information that would contradict prior expectations. In most cases, greed and excessive optimism initially lead to the overheating of an economy or the accumulation of speculative bubbles [Szyszka, 2011]. Behavioral biases of managers, which often lead to management errors on a microeconomic level, can coalesce, causing at least ineffectiveness, if not serious disruptions, in the economy on a macro scale. This issue was the topic of our previous research project, which was carried out at a time of rather favorable economic conditions in Poland prior to the COVID-19 pandemic [see Rzeszutek et al., 2020, 2021].

Usually, when a bubble bursts, fear and panic levels rise, causing the economy to drop sharply. After the first wave of collapse, persistent fear tends to paralyze decision makers from taking further action, which was the case at the beginning of the COVID-19 crisis [Atig et al., 2020]. Furthermore, uncertainty and fear in the face of health threats, limitations to life activity, anxiety about job loss, and banks tightening lending policies resulted in a drastic drop in consumer demand. Business restrictions, closed borders, factory downtime, and logistical perturbations contributed to a drastic decline in produced output and a reduction in supply. The pandemic has stimulated uncertainty in companies such that the propensity to invest has drastically decreased, while the desire for excess savings has significantly increased [Szyszka, 2020]. Thus, this paper asks whether and how these tendencies translate into long-term macroeconomic situations in particular countries.

2 Conceptual design and research objectives

We have just begun another project funded by the National Science Centre Poland and is titled "Behavioural bias in corporate risk management and investment decisions during the COVID-19 pandemic and their impact on selected macroeconomic indicators in Poland." In collaboration with researchers from the University School of Advanced Studies (IUSS) in Padua, Italy, we are currently conducting research among Polish managers of stock exchange-listed companies. As underlined above, the COVID-19 pandemic has caused serious disruptions in the global economy and the behavior of people and societies at large. When it comes to business, the pandemic has had a significant impact on the behavior of managers, triggering irrational attitudes toward risk, among others, thus leading to suboptimal decisions in investment policy. This could be observed particularly at the initial stage of the COVID-19 pandemic, when managers were overcome by feelings such as surprise, uncertainty, and sometimes even fear. Thus, our project has three goals.

First, we aim to examine whether corporate managers, that is, chief executive officers (CEOs) and chief financial officers (CFOs) of companies listed at the main market of the Warsaw Stock Exchange (WSE), are susceptible to selected behavioral biases described by behavioral finance proponents related to irrational preferences resulting from biased attitudes toward risk. In addition, we desire to investigate whether susceptibility to the studied behavioral biases may be linked to certain irrational managerial practices in the area of corporate investment policy. We utilize the generalized behavioral asset pricing model [GBAPM; Szyszka, 2010] as a foundation and relate it to irrational preferences for risk. In particular, we focus on mental accounting [Thaler, 1985], risk-averse versus risk-seeking tendencies – as described by prospect theory [Kahneman and Tversky, 1979] – and susceptibility to emotions such as fear and greed – as described by behavioral portfolio theory [Shefrin and Statman, 2000]. We also analyze whether the aforementioned cognitive and emotional distortions may impact certain managerial practices associated with corporate investment policy, including the disposition effect [Shefrin and Statman, 1985], the sunk-cost fallacy [Arkes and Blumer, 1985], and the tendency toward high financial leverage stemming from greed vs. the excessive holding of cash stemming from fear stemming from fear [Szyszka, 2013]. The choice of this particular group of behavioral biases and managerial practices was especially motivated by the COVID-19 pandemic, during which irrational attitudes toward risk have not been prevalent among professional investors and corporate managers in financial markets – particularly in the field of investment.

Second, we wish to analyze certain aspects of the behavioral theory of corporate governance [Van Ees et al., 2009]. The behavioral approach is increasingly used in law, as it relies on a more realistic picture of human behavior as the foundation of legal regulations [Thaler and Sunstein, 2008; Teitelbaum and Zeiler, 2018]. More specifically, existing studies show that corporate governance occasionally attempts to mitigate susceptibility to behavioral biases among managers but in other cases constitutes an additional source of irrational managerial practices [e.g., Cormier et al., 2010; Guenzel and Malmendier, 2020]. By corporate governance, we understand both soft laws (i.e., best practices) that listed companies may voluntarily decide to obey, as well as mandatory provisions of law that should be complied with by issuers [Van Ees et al., 2009]. The set of soft regulations covers areas concerning companies' information policy, communication with investors, internal functions like internal control or risk management, conflicts of interest and transactions between related parties, and managerial incentives and discipline [Moore and Petrin, 2017]. Furthermore, there are a growing number of specific mandatory regulations, one of the most important of which is the market abuse regulation (MAR). It relates to the disclosure of confidential information, the publication of financial reports, and insider trading. Despite this detailed regulation directly concerning the activities of the public companies, there are also many additional rules that have a crucial impact on actions made by issuers (accounting, audit, and data protection law). In our particular project, we seek to verify whether both soft laws and mandatory provisions of law can help mitigate biases and lead to making rational decisions or if they function as a source of irrational behavior. This is of great importance, especially during the COVID-19 pandemic, which is a period in which regulations are tested in specific conditions (remote working, digitalized way of making decisions, online activity of corporate bodies) and adjusted by legislators if necessary. In addition, during this period, higher market volatility and investor activity is also observable, and they consequently lead to an increase in the volume of managerial decisions that require consideration of corporate governance regulation.

Finally, we move from the micro to the macro level and attempt to analyze how managerial biases can accumulate and affect the economy on the macro level. In particular, we are interested in investment, employment, and economic growth. To achieve this goal, we seek to build an agent-based model (ABM) to verify the relationship between the aforementioned irrational managerial practices in terms of investment policy (stemming from the irrational managerial risk preferences) with selected macroeconomic indicators in Poland, such as aggregate investment, employment, and growth. ABM is a relatively new tool used for simulations in the social sciences [e.g., Le Baron, 2006; Caiani et al., 2016; Dawid et al., 2019]. We have already used the ABM in our previous research, and it allowed us to demonstrate the impact of behavioral biases in Initial Public Offerings (IPOs) and corporate capital structure decisions and their aggregate effect on the stability of the overall financial system, unemployment, and the gross domestic product [Rzeszutek et al., 2020, 2021]. ABMs describe the economy as a complex adaptive system composed of heterogeneous agents interacting in a decentralized manner and reacting adaptively to stimuli coming from their environment. These interactions give rise to nontrivial emergent properties that are distinct from those of individual agents, which characterize the system as a whole. Such models are particularly suitable for the purpose of our project as they depart from the perfect rationality hypothesis in favor of a more realistic approach that accounts for cognitive and psychological biases. In particular, we aim to study the systemic impacts of behavioral biases at the micro level during the COVID-19 pandemic and their accumulated impact on selected macroeconomic indicators in Poland.

The above mentioned aims and different layers of our study are depicted in (Figure 1).

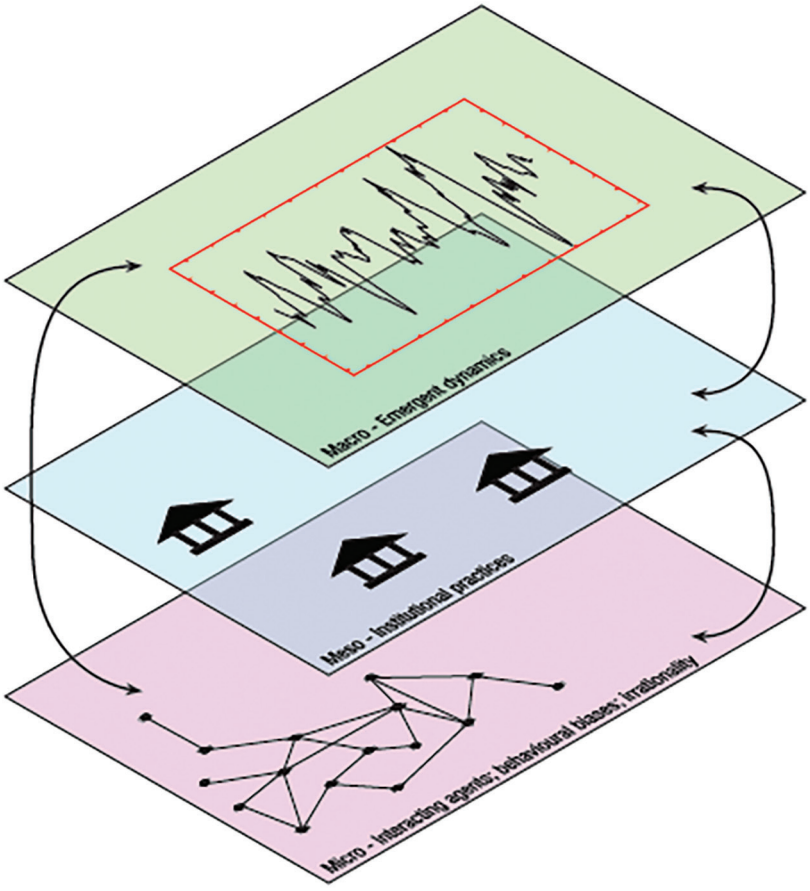


Figure 1. The hypothetical model of associations in our research project. This is our own elaboration, which is based on Caiani et al. [2016], Seppecher et al. [2019], and Silva et al. [2020].

In light of the above mentioned assumptions and aims of the study, we formulate the following research hypotheses:

Hypothesis 1: Corporate managers succumb to behavioral biases linked to irrational preferences for risk (see the mental accounting, risk aversion versus risk seeking as described by the prospect theory, and susceptibility to fear versus greed as mentioned by the behavioral portfolio theory).
Hypothesis 2: When the aforementioned behavioral biases displayed by corporate managers are not properly mitigated by corporate governance, they lead to irrational managerial practices in corporate investment decisions (see the disposition effect, the sunk-cost fallacy, and the tendency toward high financial leverage stemming from greed vs. tendency to hold excessive cash due to fear). Irrational managerial risk preferences and practices in investment policy may also be strengthened by the economic uncertainty arising from the COVID-19 pandemic.
Hypothesis 3: Irrational managerial practices in terms of investment policy on the micro level, which stem from irrational managerial risk preferences, are correlated with specific macroeconomic indicators in Poland, such as aggregate investment, employment, and growth.

3 Methodological approach

Within the first two aims and hypotheses of our study, we opted to use a survey methodology for this research. The survey is based on Szyszka's [2013] studies on the behavioral aspects of corporate finance. The first part of the questionnaire, which assesses the behavioral biases present among managers, takes the form of hypothetical situations with multiple choice options and estimation tasks, wherein participants decide how they would behave in a hypothetical situation in which they are faced with a number of options. In each scenario, the participants' susceptibility to behavioral biases related to irrational preferences toward risk was measured. The second part of the survey dealt with the examination of irrational managerial practices in the area of risk and investment policy, with special emphasis on the practices of managers during the COVID-19 pandemic. The questionnaires were sent to CEOs and CFOs of companies listed on the main market of the WSE in Poland. We conducted interviews with executives from companies representing various sectors. We conducted interviews with companies from various sectors (e.g., biotechnology and pharmacy, chemical industry, construction, financial sector, information technology, light and heavy engineering, biotechnology, retail trade). The survey was distributed online (by e-mail), a computer-assisted telephone interview, or a computer-assisted web interview. We engaged an external company to facilitate data collection.

As far as the last project objective and hypothesis are concerned, the Java macro agent-based toolkit (JMAB), which is a general ABM programing platform developed by our international partners in the University School of Advanced Studies (IUSS) in Padua, will be used. JMAB aims to implement a wide scope of models and several aspects of modern economic systems, specifically regarding the handling of heterogeneous real and financial stocks in agents' balance sheets and the proponents of commercial and financial networks. The platform allows for the rigorous design, calibration, and validation of agent-based macroeconomic models and is currently employed by several research groups in Italy (IUSS Pavia, S. Anna School of Advanced Studies, and Marche Polytechnic University), France (CEPN, AFD), and Holland (University of Groeningen).

4 Summary

The COVID-19 pandemic has affected numerous areas of our lives and has directly influenced human behavior in a significant way. The outbreak and later development of the pandemic in succeeding waves has changed the risk attitudes of investors and corporate managers and is often a source of irrational decision-making, thus inspiring the research project conceptually described in this paper. We are convinced of this paper's epistemological and practical advantages.

The use of the behavioral paradigm in corporate finance is still a research gap that needs to be addressed, especially in Poland, where this topic is almost non-existent in the literature. We have high hopes for the

results of the extensive direct interviews with managers of companies listed on the WSE. First, our research will allow us to reveal insights about managerial corporate practices in times of high volatility and exceptional conditions during the pandemic on the micro level. Second, the innovative methodological tool ABM will help us to model the economy from micro and macro perspectives, linking them to fill the gap in the existing methodology of behavioral finance. We hope that our research will contribute to shifting the paradigm of economics in such a way that the behavioral approach will be increasingly used and acknowledged by researchers [Kahneman, 2012; Thaler, 2015], especially in Poland [Rzeszutek and Szyszka, 2017].

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