

The concept of measuring the effects of public support for the Polish venture capital market

Abstract

Keywords: capital market, venture capital, public intervention, impact evaluation, propensity score matching.

The venture capital market is an important source of financing for young, innovative enterprises implementing breakthrough technologies. These enterprises have a significant impact on the development of entire national economies, setting new technological trends and stimulating the development of new sectors. Nevertheless, the risk of investing in this type of enterprise is very high due to the early stage of development, uncertainty as to the market effects of the implementation or the asymmetry of information between the company and the investor. The above problems lead to the creation of an equity gap that justifies the implementation of government intervention on the development of the venture capital market.

The critical literature review conducted for this study identified the research gap, which is lack of the integrated approach to measuring the effectiveness of interventions on the venture capital market. The analyzed research does not cover such aspects as the identification of market failures or the public intervention logic. A significant part of analyzed research concerns of the macroeconomic perspective, in which the impact of venture capital investments on the whole economy is estimated, or of the microeconomic perspective, in which the effects of interventions at the level of portfolio companies are analyzed. This research problem determined the choice of the topic of the dissertation and the implementation of the main goal, which was the preparation of a concept of measuring the effects of public support for the Polish venture capital market.

The implementation of the main goal required the setting of eight specific goals, which were implemented in six chapters of the dissertation. The first chapter presents the basic concepts related to the subject of venture capital, the evolution of the definition, identifies institutions and market segments depending on the value of investment and the stages of development of portfolio companies. The second chapter presents the

classification of funds and the stages of the investment process. This chapter also provides a critical literature review, which identified the economic impact of venture capital. The third chapter presents theories justifying the presence of the state in the economy, including the implications of the agency theory and information asymmetry of venture capital. From the practical side, the problems influencing the emergence of market failures in the form of an equity gap, innovation gap or knowledge gap were presented, as well as the methods of solving them through the implementation of various types of interventions. The fourth chapter identifies the factors supporting the intervention on venture capital markets and the effects of these on the reference markets in the United States, Great Britain, and the European Union. The fifth chapter presents the evaluation process and methods of public interventions including venture capital, from the theoretical point of view. This chapter addresses counterfactual impact evaluation issues. Chapter six discusses the results of the previous considerations on the causes, effects and external factors related to the development of the venture capital market and the implemented government interventions. Based on previous analyzes, this chapter presents an assessment of the effects of public intervention carried out on the Polish venture capital market in 2007–2017. The final part of the chapter presents the concept of measuring the effects of the public support program for the domestic venture capital market.

The dissertation verified three research hypotheses concerning the assessment of the effects of the intervention implemented through National Capital Fund in 2007–2017. The first hypothesis that the intervention carried out through National Capital Fund was not big enough in relation to the size of the Polish market to lead to an increase in venture capital investments in Poland in relation to GDP, was verified positively. The verification was carried out with the use of logical analysis of the information presented in the study, statistical analysis of indicators describing the venture capital market and benchmarking in relation to other comparable markets. Using the same techniques, the second hypothesis was positively verified that direct intervention was not accompanied by indirect intervention, thus there were no factors supporting the development of the venture capital market. The third hypothesis referred to the portfolio companies states that young

innovative enterprises financed by public venture capital funds (as part of public intervention) do not develop better than enterprises financed by private capital. The hypothesis was verified positively, using the logistic regression model (the probability model of the participation of an individual in the intervention), in which the intervention's average treatment effect was estimated by comparing companies participating in the intervention with companies that met the conditions for participation in the intervention, but did not participate in it. The propensity score matching technique was used to combine the units from both samples.

As a result of the conducted analyzes, the concept of measuring the effects of public support for the Polish venture capital market was proposed, which included all research methods tested in the dissertation and covered both the supply side (venture capital funds) and the demand side (portfolio companies of the funds).