The Moral Hazard issues of the State-Aid Programs for SME's

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Abstract: Adverse selection and moral hazard are empirical research themes for the SME's financing after the local and international crises of the 90's and recently after the world-crises starting in 2007. Although several empirical evidence is available for commercial and development banking related issues, the direct subsidies of the European Union and the partner states have not been investigated yet. Moral hazard has to be first generalized for state-aid related issues, incorporating the social surplus as value created by subsidized firms. As firm owners might transfer bank loans into private benefits, in case of direct subsidies firms utilize government funds without contributing to any increase in social surplus, i.e. we interpret moral hazard irrespective from private benefits and consider only the social surplus elements of the fund transfers.

Keywords: SME financing, Moral Hazard,

1 Introduction

The well known and established adverse selection and moral hazard phenomenon in SME financing will be extended and reformulated for state-aid related issues. First of all the direct government subsidy is regarded as state intervention, which is a fund transfer without any repayment[2]. The subsidy is granted for economic development purposes, which can be captured in social surplus, however it is highly complex to be measured properly. Further investigation should deliver a proper definition in order to start the empirical testing, this paper focuses only on generalization of moral hazard.

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[2]   In case of failure if the project does not meet the set of predefined criteria the firm is obliged to return the funds, otherwise if the project succeed no repayment is needed

The theoretical research is based only on few articles, (Stiglitz & Weiss, 1981), (Holmstrom & Tirole, 1997). The first one is about defining the moral hazard phenomenon; the second creates a simple equilibrium model of credit explaining the role of different kind of credit constraints. These articles are the basis for further empirical investigation of adverse selection in case of SME bank financing proving the credit constraint or the credit rationing.

Empirical testing aims to show if credit constraint is present or is there any structural difference in the particular market which could explain the correlation between easy excess to credit and economic development. However, no empirical testing could be found for state aid related moral hazard issues.

SME's represent 99,8 percent of number the companies, 70 percent of the workforce is employed and 60 percent of the total turnover can be assigned. The bank financing of SME's is characterized by asymmetric information and adverse selection, which might be captured as a pro-cyclical market failure (Repullo & Suarez, 2013), indicating that banks lower credit lines to SME's making them more vulnerable in case of economic downturn. Contra-cyclical behavior comes from state-owned development banks is regarded by (Beck, Thorsten, Demirgüç-Kunt, & Maksimovic, 2004) and (Griffith-Jones, Tyson, & Calice, 2011), whereas (Petersen & Rajan, 1995) summarize the potential of increase in management and financial knowledge of SME's.

2   The Holmstrom-Tirole model

To find a framework for further investigating the moral hazard issues, we assume that companies are endowed with limited capital, and for financing there projects they excess the credit market. The non-equilibrium situation is the credit constraint, where banks are reluctant to give the required financing to SME's, markets do not clear even with higher credit rates

As Holmstrom-Tirole pointed out increasing the interest rate will not clear the market it will only lead us to the moral hazard problem. (Berlinger E. J., 2015) (Berlinger, Lovas, & Juhász, 2016) and (Kállay & Vas G, 2017) contributed to further developing the original Holmstrom-Tirole model as they extended the model to state-aid related questions. The meaning of state-aid can be understood in several ways: it is first of all regarded as intervention of central government related body to directly support firms in order to achieve economic development purposes.

In the basic model there are three players: the firm, the financial intermediary and the investor. In the first period the financing decision is made, the legal contracts closed, while in the second period the investment returns are realized and settlement of all claims is taken place. All players are risk-neutral and have limited

liabilities, i.e. the extent of the potential loss might only be equal to the original investment made. There are infinite number of firms with different sets of technologies, firms only differ in the initial set of own capital, indicated by A. Firms intend to invest I, therefore I-A financing is needed. Cummulated turnover

is denoted by $R(I)$ for investment I with income 0 or R, for failure or success. The private benefit of the firms' owners might increase in lack of proper incentives or monitoring. This is what we identify as moral hazard of the financing:

$$p = Ph - Pl > 0$$

Successful projects do not generate private benefit, Ph denotes higher probability, then failed projects with lower probability Pl. In case of failure there are two different types of possible outcomes: firms' owner realize low or high private benefit depending on the personal efforts executed by them. Expected rate of return on investment is denoted by γ, therefore

$$Ph * R > I * \gamma$$

applies for economically viable project, if the firm owner aims successful projects rather than private benefits. If private benefit might be b or B, depending or low or high personal effort, we conclude that:

$$Pl * R < I * \gamma - B$$

meaning that the project is not bankable. Expected net income plus private benefits are less than expected rate of return on initial investment.

3   Re-defining moral hazard of state subsidies

In case of SME bank financing the credit constraint is the consequence of adverse selection. Firms cannot excess the required amount of commercial bank financing, because banks are reluctant to give financing for those projects. Banks are considering SME's not to be able to define profitable projects or they are suspicious that firms will use the available fund to cross-finance other projects. We might assume that firms would perform better if they would get the required amount of commercial bank financing, turnover would increase which would contribute to increase in profitability as well. This is the reason behind the government subsidy, to make available excess funds to SME's to boost economic development. As we know that government subsidy distorts competition, it also changes firms' behavior, what we call moral hazard.

The basic question arises as what would prevent firms to aim for subsidized project which would not be profitable to establish from own sources. This means

that firms define project because of the cheap government money which is available from state (or equally European Union) sources. Or on the other hand subsidies might refinance more expensive corporate banking or other forms of own sources. Both cases are the materialization of moral hazard issues. State subsidy can be characterized as certain form of financing, in which case the repayment is expected to be the increase in social surplus. The moral hazard can be reformulated in that sense that firm owners aim for private benefit instead of increasing social surplus.

The major difference is the lack of repayment, therefore increasing social surplus is intended to be regarded as certain form of of repayment. In case of commercial bank financing the banks' fund are transformed into private benefit as hidden action of firms' owners, which is interpreted as moral hazard of financing. On one hand the theoretical fundamentals for capturing moral hazard should be reinterpreted as an issue of theory of games (Kállay & Vas, 2017), on the other hand empirical evidences should be presented. Currently there are several obstacles for empirically detecting moral hazard. First the social surplus can not be measured properly, which is definitely needed for empirical testing the phenomenon. Further theoretical research is needed to determine certain criteria for measuring social surplus on individual firms' and more generally on macroeconomic levels.

The central government is interested in supporting projects in order to increase social surplus. Although it is not an easy task, as it is not easy for commercial banks to select the viable, profitable projects. Contemporary theoretical research consider indicators to value project's profitability, however there are less effort invested into finding robust indicators signaling increase in social surplus. The central government is facing the growth problem of SME's, therefore government authorities would like to make more financing opportunities available for firms. One type of this is government subsidy, which is intended to have accountable effect on economic development. The European Union defines government subsidy as state funds are given by state authorities to selected firms, which is used for achieving pre-defined economic development goals and finally increase social surplus. Domestically the emphasis of economic development policies are on improving the competitiveness of Hungarian SME's, which might be achieved if the problems caused by the credit constraint is mitigated and excess funds of financing is granted for firms.

4 Implications of moral hazard issues for economic development policies

There are three main types of government subsidies: first, the non-refundable cash transfers, with the purpose of increasing employment, investments and innovation. Firms make efforts to achieve pre-difiened goals, if succeeded the subsidy increases firms' wealth. Second, several forms of tax benefits, which are direct forms of subsidies in a sense that firms do not have to consider paying public charges. Third, the refundable cash transfers, such as subsidized credit programs, guarantees or capital transfers. All forms of subsidies are similar making production expenses shrink, which might be the economic development effect.

There are several ways how government subsidies can have no real positive effect on social surplus within the legal framework, i.e. it is not our goal to analyze how malevolent firm owners intend to cheat. The real consequence of moral hazard is that even if firms follow the law and execute projects as contracted with the authorities social surplus will not be increased. This is not the fault of firm owners or the central governments, this is a long term non-equilibrium solution. Non-equilibrium in that sense that increasing the amount of subsidy will not clear the market, i.e. the social surplus will not be increased automatically.

If moral hazard can not be proven empirically without proper measurement methodology of social surplus, certain forms of appearance still can be detected. It is basic accounting evidence that government subsidy increases net sales of firms for the period of the lifetime of the investment, while profitability might not be effected because of the excess amortization. The total amount of subsidy is accounted as net sales over the period of the lifetime, ensuring that excess amortization will equal the amount of subsidy taken into consideration for the period. The increase in net sales is a positive externality but the real effect of it is still ambiguous.

We might conclude that the subsidy increases the wealth of firms giving room for owners to redistribute funds for other activities, therefore subsidized SME's might invest less from own sources but rather might want to reinvest the subsidy. This is the same phenomenon what we could experience in case of TARP[3] Sheng, (2016).

It is a consequence of that SME's have higher expected rate on return for own sources than for the cheap government money. If subsidized SME's do not reinvest they increase their savings, in that way government subsidies turn into excess funds. Simply firms develop projects because of the existence of cheap

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3   TARP stands for Troubled Asset Relief Program, which is an initiative of the central government in the USA, with the main purpose to mitigate the negative consequences of the toxic assets

government money, in the real life from own sources or from commercial banking financing would never consider to invest. This might be regarded as the real economic development effect of the state-aid policies, however the right incentives have to be employed to ensure that firms select the projects with positive externality, i.e. they increase social surplus.

On the other hand if firms have commercial bank credits with less attractive conditions the first reasonable choice will be the repayment. Therefore SME's without commercial bank financing represent lower moral hazard than those with high amount of loans. Since any type of commercial banking financing is more expensive than the government subsidy, it is an obvious choice for firms to consider redistribute funds instead of reinvesting them.

If the state wants to decrease moral hazard, it decreases the portfolio of eligible companies. Firms compete for state-aid funds, government authorities should monitor the execution of projects. Proper monitoring procedures can only mitigate moral hazard, since it is a hidden action. If we want to ensure that firms develop projects for increasing social surplus, there is the need to find effective procedures. The basic challenge is to theoretically establish the framework to measure the value of the social surplus.

Summarizing, we might conclude that there are two different forms of moral hazard: the first-type is when applying for subsidy while knowing that the social welfare will not be increased, while the second-type is applying for subsidy with the intent to refinance more expensive sources.

The original purpose of subsidizing SME's was to increase competitiveness of the sector while making firms economically stronger. But we see that firms' owners have different incentives than the authorities, they are more interested in increasing private benefits rather than contributing to achieve economic development goals. Finding the proper incentives is the key issue of all state-aid policies.

Theoretically moral hazard can be mitigated by introducing proper monitoring procedures. The main problem is finding what to monitor if we want to ensure the optimal increase in social surplus. This is the reason why further investigation is needed to detect how can firms' economic activities boost social surplus.

Conclusions

Government authorities make excess funds available for firms with constraint access to commercial bank credit lines in a form of non-refundable subsidies to achieve economic development goals. Whithout finding the right incentives to mitigate moral hazard issues the original purpose of state-aid will not be met. Detecting forms of moral hazard issues might be the first contribution to

understand the real effects government subsidies. Further theoretical research is needed to analyze the real effect of state-aid on social surplus.

Acknowledgement

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