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The Impact of Ownership on Companies' Investment Rates in Ukraine*

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**Abstract**

In this paper, we empirically analyze the impact of ownership groups on companies' investment rates in Ukraine using a new dynamic Tobin's Q model allowing investment rates to depend on present and lagged Q. We find that the presence of a majority in and increases in state, non-domestic and financial companies' ownership has a significantly negative impact on investment rates. State and insider ownership are associated with soft budget constraints whereas non-domestic, financial companies' and financial and industrial groups' ownership with hard budget constraints. The dynamic model shows persistence in the market-to-book value of equity, the proxy for Q.

**Keywords:** Investment, Ownership, Corporate Governance, Investment, Financial Constraints, Soft Budget Constraints, Private Benefits of Control

## 1. Ownership and Investment Rates

Recent studies on companies' investment rates in Eastern European economies (for example, Lizal and Svejnar (2002), Perotti and Vesnaver (2004), Mykhayliv and Zauner (2013)) provide evidence for the explanatory power of different ownership groups and corporate governance variables   The main reasons for these seem to be the role of soft and hard budget constraints and the varying degree of the magnitude of private benefits of control (Mykhayliv and Zauner ((2013), (2015)) of the different ownership groups. In contrast to the literature, we analyze investment rates using a dynamic Tobin's Q model where companies' investment rates are allowed to depend on the present and past market-to-book value of equity, the proxy for Tobin's Q. We measure soft and hard budget constraints using interaction terms of cash flow with ownership group indicators.

In the context of companies in transitional economies, the relationship between state ownership and companies' performance is of particular interest (Megginson and Netter (2001)). An important factor in explaining companies' investment rates of state owned companies is the concept of soft budget constraints (Kornai (1979), Kornai (1980), Kornai, Maskin and Roland (2003)), that is, activities that allow companies to neglect financial discipline. Even though there is ample evidence for the presence of soft budget constraints, the empirical link between companies' performance (Djankov and Murrell (2002), Estrin and Rosevear (1999, 1999a), Grygorenko and Lutz (2007)) or investment (Lizal and Svejnar (2002) and Perotti and Vesnaver (2004)) and state ownership is surprisingly weak in Central and  Eastern European countries. An important hypothesis is therefore whether the state ownership is negatively related to companies' investment rates.

There are two more important factors that weigh on investment rates and the performance of companies in transition countries. The second factor is related to actions that reduce the value of the company in order to improve the private welfare of some individuals or groups who are able to exert control over the company against the welfare of shareholders. These actions are commonly labelled tunnelling ((Johnson, La Porta, Lopez-de-Silvanes and Shleifer (2000)), asset stripping (Campos and Giovannoni (2006)) or, in a less pronounced form, private benefits of control ((Grossman and Hart (1988), Mykhayliv and Zauner (2013)). In Ukraine, for example, value-decreasing activities like share dilutions and asset stripping are common and not explicitly illegal (Mycyk, Cook and Fedoruk (2007)).

The third factor is related to financial imperfections in the form of hard budget constraints or financial constraints (Fazzari, Hubbard and Petersen (1988)). Under general equilibrium assumptions, the capital structure of a company is irrelevant (Modigliani and Miller (1958)) and it does not matter whether internal or external funds are used to finance investment. However, as it is well known that external funds are typically more costly than internal funds due agency and information issues.

Given these three and other factors, ownership plays an important role in the performance and investment behaviour of companies, particularly where ownership and control functions are separated (Fama and Jensen (1983)). This paper tries to analyze the impact of different ownership groups (state, insider or management, non-domestic, finance, and financial and industrial groups (FIG)) on investment rates. We also investigate the impact of absolute majority ownership and the existence of a significant minority with the ability to block major decisions within the company on investment rates. We also try to gauge the effect of the three different factors detailed above in explaining investment rates.

There are two theories that to a large degree explain companies' investment rates, the cash constraint and the management discretion theory (Hadlock (1998)). The cash constraints theory relates low investment rates to hard budget constraints whereas the manager discretion theory relates it to the abusive use of funds by the management to build empires and to increase their private welfare to the detriment of the value of the company.

There are several studies analyzing the impact of ownership structures on companies' investment in Central and Eastern European transition countries: Lizal and Svejnar (2002) (Czech Republic), Perotti and Vesnaver (2004) (Hungary), Mickiewicz, Bishop and Varblane (2004) (Estonia), Colombo and Stanca (2006) (Hungary). Typically (except Perotti and Vesnaver (2004)), the market to book value of equity is not used in the investment regressions. The results typically show evidence for soft budget constraints and financial imperfections and the cash constraint theory. Typically, state ownership has a negligible impact on companies' investment rates. Using Ukrainian data, Mykhayliv and Zauner (2013), in a related paper, use the market to book value of equity, emphasize the role of private benefits of control and provide evidence for a significantly negative impact of state ownership on investment.

The plan of the paper is as follows. Section 2 presents the data and the models. Section 3 provides the estimation results. Section 4 concludes.

## 2. Companies' Investment Rates and Private Benefits of Control

In this paper, we use the data set in Mykhayliv and Zauner (2013) with approximately 134 listed, large Ukrainian companies and 590 observations over the years 2002 to 2007. The companies in the data set come from different sectors of the Ukrainian economy, in particular, electricity and energy (21.54%), engineering (11.96%), mining (11.96%), metals (6.72%), steel (6.72%), chemicals (6.72%), and others. More details on the data set can be found in Mykhayliv and Zauner (2013). Summary statistics are contained in Table I. The data set is derived from Dragon Capital (2006, 2007)), the First Securities Trading System PFTS (http://www.pfts.com.ua/ukr/) and the Agency for the Development of Infrastructure for Funds Market in Ukraine (www.smida.gov.uk). The ownership data were checked using the Ukrainian business press and relate to the years 2005 and 2006, so are basically constant over this period. Summary statistics of the ownership group shares are given in Table II.

Table I: Summary of Financials in US$.

| Financials | Mean | Std. Dev | Min | Max |
|---|---|---|---|---|
| Total Assets | 358938.7 | 643963.5 | 8558 | 74199651 |
| Fixed Assets | 162428.8 | 264431 | 433 | 2052003 |
| Investment | 35233.5 | 82375.06 | -114297 | 803287 |
| MBV | 2.368675 | 6.148593 | 0 | 99.56863 |
| Net Income | 22927.35 | 65477.76 | -162091 | 580383 |
| Depreciation | 12509.5 | 37864.57 | -2628 | 756780 |

Note. Mean, standard deviation, minimum and maximum of financials in thousands of US$. MBV is the market-to-book value of equity. Source: Mykhayliv and Zauner (2013)

Table II: Ownership Group Shares

| Variable | Mean (%) | Std. Dev. | Min (%) | Max(%) |
|---|---|---|---|---|
| State | 14.74 | 0.2784 | 0 | 96.8 |

| Insider | 12.57 | 0.2841 | 0 | 96 |
| NonDomestic | 18.21 | 0.3203 | 0 | 98.3 |
| Finance | 16.94 | 0.312 | 0 | 100 |
| FIG | 35.88 | 0.4064 | 0 | 100 |

Note. Mean, standard deviation, minimum and maximum of the ownership group shares. FIG stands for financial and industrial group. Source: Mykhayliv and Zauner (2013)

Mykhayliv and Zauner (2010, 2013) introduce private benefits of control into a marginal Tobin's Q investment model. The private benefits of control are modeled as shares of cash flow that can be diverted out of the company at the expense of passive shareholders. This implies that investment is impacted by marginal Q, a measure of the profitability of investment, hard and soft budget constraints, shares of ownership groups potentially enjoying private benefits of control and control variables.

In contrast to Mykhayliv and Zauner (2013), in this paper, we empirically investigate a Tobin's Q model with persistence in the market-to-book value of equity in the sense that the investment rates depend on current and lagged market-to-book value. We follow the literature and use a positive cash flow coefficient as evidence for hard budget constraints and an insignificant or negative cash flow coefficient as evidence for soft budget constraints (Mickiewicz, Bishop and Varblane (2004), Lizal and Svejnar (2002)). As in Mykhayliv and Zauner (2013) we use ownership shares of different categories of firms measure the ownership shares of controllers enjoying private benefits. Since private benefits of control have to be financed, cash flow may also reflect the constraints from financing the private benefits. Hence, the estimate for the ownership shares may indicate the impact of private benefits of control not already captured by the cash flow and present a low estimate for the impact of private benefits of control on investment.

## 3. Dynamic Q model and Results

First, in contrast to Mykhayliv and Zauner (2013), we investigate a reduced form regression motivated by Hoshi, Kashyap and Scharfstein (1991) and Perotti and Vesnaver (2004). We focus on a Tobin's Q model where the dependent variable is the investment rate (investment to fixed assets ratio), the explanatory variables are the market-to-book value of equity and ownership group shares. Control variables are the cash flow to fixed assets ratio, the total assets to fixed assets ratio and the leverage to fixed assets ratio. In this regression, the market-to-book value of equity is a proxy for the investment's profitability. Cash flow is a proxy for

liquidity, soft or hard budget constraints. The ratio of total to fixed assets is a proxy the size of the firm. In the transition countries, leverage and cash flow may be related to soft budget constraints, but also to investment opportunities. The regression includes the following set of ownership groups: state ownership (*state*), insider or management ownership (*insider*), non-domestic ownership (*non-domestic*), ownership by banks and other financial companies (*finance*) and ownership by financial and industrial groups and holdings (*fig*).

We also investigate two corporate governance variables that we believe are important. The first one is the variable *majority* which relates to control about the company, that is, majority ownership of 50% and over *without* a blocking minority of 25% ownership or more. The second variable *minority* relates to majority ownership with a blocking minority.

We look at two versions of the model, by focussing on a specification where the ownership is measured in shares and where the ownership is measured by an indicator with a 50% cut-off value.

The two regressions are given by

$$\frac{I_{it}}{A_{it}} = \alpha + \beta_1 MBV_{it} + \beta_2 \frac{CF_{it}}{A_{it}} + \beta_3 \frac{Assets_{it}}{A_{it}} + \beta_4 \frac{L_{it}}{A_{it}} + \sum_k \beta_k s_{it}^k + \delta_{majority} d_{it}^{majority} + \delta_{minority} d_{it}^{minority} +$$

$$\delta_t d_t + \eta t + v_i + \varepsilon_{it},$$

where $i$ relates to firm $i$, $t$ relates to year; $I_{it}$ is investment, the difference between fixed assets at the end and the beginning of year $t$, $A_{it}$ is fixed assets at the beginning of year $t$; $MBV_{it}$ is the market-to-book value of equity at the beginning of period $t$; $CF_{it}$ is cash flow in year $t$; $Assets_{it}$ are total assets at the beginning of year $t$, $L_{it}$ is leverage (total debt) at the beginning of year $t$; $s_{it}^j$ is ownership of group $j$ ( $j = state, insider, non-domestic, finance, fig$ ) where the ownership is either measured in shares or as an indicator with value 1 if there is a majority ownership of the respective ownership group; $d_{it}^{majority}$ is the indicator of *majority*, $d_{it}^{minority}$ is indicator for *minority*; $d_t$ are time indicators, $t$ is a time trend, $v_i$ is a firm specific error term; and $\varepsilon_{it}$ is the usual error term.

Table III presents the results of a random effects regression of ownership in shares and as indicators since the Hausman tests shows support for random effects over a fixed effects specification.

Table III: Investment Rates and Ownership

|  | *Shares* | *Indicator* |
|---|---|---|
| Market-to-book value of equity | .0001 (.0093) | -.0001 (.0092) |
| Cash Flow | .7286[***] (.0187) | .7275[***] (.0186) |
| Total Assets | -.3199[***] (.0112) | -.3203[***] (.0112) |
| Leverage | .3399[***] (.0152) | .3408[***] (.0151) |
| State | -.8039[**] (.3848) | -.6606[**] (.2964) |
| Insider | .1816 (.3700) | .0735 (.2977) |
| Non-domestic | .5070[*] (.2735) | .4707[**] (.2205) |
| Finance | .8997[***] (.2801) | .7642[***] (.2419) |
| FIG | -.6759[***] (.2543) | .7710[***] (.2114) |
| Majority | .0269 (.2515) | .0121 (.2711) |
| Significant Minority | 1.0529[***] (.3539) | 1.0269[***] (.3705) |
| Constant | -54.7159 (84.2018) | -53.3423 (83.637) |
| Wald $\chi^2$ | 1540.02 (.0000) | 1569.07 (0.0000) |
| Breusch and Pagan | 26.86 (.0000) | 30.27 (0.0000) |

| | | |
|---|---|---|
| Hausman | 348.00 | 345.89 |
| (efficient) | (.0000) | (0.0000) |
| $R^2$ overall | 0.6182 | 0.6174 |

Note. Random effects.  Standard errors below the coefficient in brackets. The 10 (5) [1] % level is shown as * (**) and [***]. Wald, Breusch and Pagan, and Hausman test statistics (p-values in brackets) uses the estimated co-variance matrix of the efficient estimator.

The results show that the market-to-book value of equity is never significant in these regressions, as in Perotti and Vesnaver (2004). The estimate for cash flow variable is positive and highly significant, consistent with the presence of financial constraints. Larger firms have a higher investment rate. In contrast with Perotti and Vesnaver (2004), leverage is positively related to investment and highly significant. In contrast with Lizal and Svejnar (2002) and Perotti and Vesnaver (2002), state ownership has a negative impact on investment. Ownership by financial and non-domestic firms has a positive effect on investment rates. Ownership by financial and industrial groups exerts a negative influence on investment.

Regarding the corporate governance variables, the existence of a significant minority has a positive effect on investment.  A possible explanation is that a significant minority exerts a disciplining factor on the insider and private benefits of controllers and improves corporate governance structures.

The reduced form regression shows that the market-to-book value of equity does not have explanatory power, providing strong evidence for misspecification.

Persistent Market-to-Book Value of Equity

Since the profitability of investment plays no role in the reduced form regression above, we try to model the market-to-book value of equity more carefully. First, we introduce interaction terms between cash flow and the different ownership groups to test for soft and hard budget constraints of the different ownership groups and, second, in contrast with the literature, we introduce *current* and *lagged* market-to-book value of equity in the regression. The regression is given by

$$\frac{I_{it}}{A_{it}} = \alpha + \beta_1 MBV_{it} + \beta_2 MBV_{it-1} + \sum_k \beta_k \frac{CF_{it}}{A_{it}} d_{it}^k + \beta_3 \frac{D_{it}}{A_{it}} + \sum_k \beta_k s_{it}^k +$$

$$\delta_{majority} d_{it}^{majority} + \delta_{minority} d_{it}^{minority} + \delta_t d_t + \eta t + v_i + \varepsilon_{it},$$

where, in addition to above, $d_{it}^k$ is the indicator related to ownership group $k$ (with cut-off level at 50%) and the interaction term between cash flow and ownership group indicator, in other words, the cash flow sensitivity of investment, $\frac{CF_{it}}{K_{it}} d_{it}^k$, is a proxy for soft and hard budget constraints of ownership group $k$.

We analyze this dynamic model to control for potential endogeneity of the explanatory variables[1] and employ the two-step system Generalized Methods of Moments estimator estimator (Arellano and Bover (1995) and Blundell and Bond (1998)) and its improvement by Windmeijer (2005) where the regression is estimated simultaneously in levels and first differences. The difference regression equation takes care of firm-specific errors and the level regression equation allows for the estimation of variables that are constant through time. Standard statistical tests are used to test the suitability and validity of the instrumental variables without having to resort to analyzing a first stage regression.

In this estimation we believe that the market-to-book value of equity and the variables related to cash flow may be potentially endogenous, that is, current and past errors may be correlated with current and future values of the market-to-book value and the variables related to cash flow. Generalized Methods of Moments instruments of the level and difference regression equation for the market-to-book value of equity and the interaction terms cash flow with indicators of ownership groups are specified as the values of the twice-lagged and earlier variables. Generalized Methods of Moments instruments for the predetermined variable Leverage are specified as the values of the once-lagged variable. The usual instruments for the level and difference regression equation are the exogenous ownership variables and the lagged-once capital intensity, time dummies and a time trend. In order to reduce the instrument number, we collapse the instruments as discussed in Roodman (2006, section 3.2 and 3.5). The matrix $H$ related to variance-covariance matrix of the transformed errors is set to the h(2) option.

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[1] See Lins (2003) for checking the suitability of instruments in the context of companies' performance in transitional countries.

We test the suitability and suitability of the instruments using standard tests in the Generalized Methods of Moments framework, the Sargan (1958) test and Hansen (1982) J-test, including all subgroups of instruments. If the instrumental variables regression is over-identified, both tests allow us to verify whether the moment conditions are jointly valid. All difference-in-Hansen tests for the null hypothesis that the instrument subsets are exogenous are insignificant, with the lowest p-value of 0.222 (0.218) in the percentage (indicator) ownership model. We also check the suitability of the instruments using the Arellano-Bond (1991) test for the autoregressive model of order 1 and the autoregressive model of order 2 in first differences which looks for autocorrelation in the errors. Both tests do not lead us to question the validity of the instruments and the employed lags in the instruments. We present the results of the Generalized Methods of Moments estimation of the investment model in Table IV.

Table IV: Investment Rates and Ownership: Generalized Methods of Moments Estimation

| Investment | Percentage | Indicator |
|---|---|---|
| Market-to-book value of equity | | |
| -present | -.0011 | -.0006 |
| | (.0041) | (.0038) |
| -1 lag | .0030*** | .0029*** |
| | (.0007) | (.0007) |
| State*CF | -.0015 | -.0512 |
| | (.1093) | (.1487) |
| Insider*CF | .0804 | .0558 |
| | (.2526) | (.1948) |
| Non-domestic*CF | .9836*** | .9852*** |
| | (.0162) | (.0152) |
| Finance*CF | 1.3805** | 1.4023*** |
| | (.5520) | (.5219) |
| FIG*CF | -.9652* | -.9847* |
| | (.5704) | (.5301) |

| | | |
|---|---|---|
| Leverage | -.0111 | -.0139 |
| | (.0140) | (.0140) |
| State | -.1153$^{*}$ | -.0914$^{*}$ |
| | (.0647) | (.0526) |
| Insider | .0084 | -.0161 |
| | (.0930) | (.0674) |
| Non-domestic | -.2354$^{***}$ | -.2369$^{***}$ |
| | (.0555) | (.0499) |
| Finance | -.2912$^{**}$ | -.27015$^{**}$ |
| | (.1348) | (.1251) |
| FIG | .2020 | .1832 |
| | (.1462) | (.1121) |
| Majority | -.0233 | .0399 |
| | (.0379) | (.0484) |
| Significant Minority | .0083 | .0907 |
| | (.0715) | (.0832) |
| Constant | .2368$^{***}$ | .1848$^{***}$ |
| | (.0450) | (.0353) |
| F-Test | 302.97 | 344.53 |
| (p-value) | (.0000) | (.0000) |
| Number Instruments | 39 | 39 |
| Sargan | 26.34 | 25.81 |
| (p-value) | (0.194) | (0.214) |
| Hansen J | 20.28 | 19.74 |
| (p-value) | (0.504) | (0.538) |

Note: Two-step system Generalized Method of Moments estimation.

We discuss the results. In contrast to other studies of Eastern European firms, the estimate for the market-to-book value of equity (lagged once) is highly significant and positive. In one of the only empirical investment studies of Eastern European transitional economies that uses the market-to-book value of equity to explain investment, Perotti and Vesnaver (2004) observe that this variable and similar profit proxies do not have any explanatory power for investment. This may be due to capital market imperfections and

underdeveloped capital markets (Lizal and Svejnar (2002), footnote 22, p. 359), Mickiewicz, Bishop and Varblane (2004)).

We discuss the impact of the ownership categories on firms' investment in turn, both for the indicator and percentage model. The indicator specification can be interpreted as the impact of the presence of a majority ownership of the respective ownership group on investment rates, whereas the percentage specification can be interpreted as the impact of an increase in ownership shares of the respective ownership group on firms' investment rates. For each ownership group we discuss the impact of the particular ownership type on firms' investment rates and also on the interaction of cash flow and the indicator of the particular ownership type to provide evidence for soft and hard budget constraints of the ownership type.

*State ownership* exerts a negative influence on firms' investment. This is in contrast with the typical result regarding Eastern European economies (see, for example, Lizal and Svejnar (2002) and Perotti and Vesnaver (2004)). The cash flow sensitivity with respect to state ownership (*State\*CF*) is not significant which indicates that state-owned companies face soft budget constraints. State ownership has a significantly negative impact on firms' investment rates. The two results regarding state ownership are consistent with the presence of free cash flow (Jensen (1986)), and private benefits of control (Grossman and Hart (1988)).

*Insider ownership* does not significantly impact firms' investment rates. The variable *Insider\*CF* is positive, but insignificant indicating that insider owned firms do not face hard but soft budget constraints and appear to be subject to free cash flow (Jensen (1986)) and private benefits.

Firms with ownership by *non-domestic entities* and by *banks and financial firms* experience a negative impact on firms' investment rates and severe hard budget constraints as do firms with ownership by financial and industrial groups and holdings.

Concerning ownership by financial firms and banks, the estimate of *Financial\*Cashflow* is significant and large positive, indicating that firms owned by financial firms also face severe financial constraints. Finance ownership is negatively associated with investment.

The corporate governance variables related to majority and significant minority ownership do not impact on firms' investment rates significantly.

The results on finance companies' ownership are new, the results on other ownership types strengthen the evidence presented in Mykhayliv and Zauner (2013) using a different model. In contrast to Mykhayliv and Zauner (2013), debt does not have explanatory power in this model.

## 4. Conclusions

Using data from large Ukrainian firms for the period 2002-2007, we studied companies' investment rates as a function of ownership and corporate governance variables. The empirical analysis shows that the lagged market-to-book value of equity explains investment rates and is informative. There appears to be evidence for a soft budget constraint facing state owned firms. State ownership appears to be negatively related to investment due to private benefits of control, tunnelling or asset stripping consistent with Mykhayliv and Zauner (2013, 2015). Other ownership groups, like ownership by non-domestic or finance firms face hard budget constraints. Firms with ownership by financial and industrial groups and ownership by insider do not appear to suffer from hard budget constraints. These ownership groups appear to be subject soft budget constraints. In the case of insider ownership this is consistent with the free cash flow theory of Jensen (1986). Since firms' investment is not impacted positively or negatively by ownership of insider or financial and industrial groups, it appears likely that they suffer from private benefits of control.

These results also seem to indicate that state, financial, and foreign ownership suffer from underinvestment due to private benefits of control or even asset stripping in the case of state ownership and due to financial constraints in the case of financial and foreign ownership. It is also likely that firms with insider ownership do not suffer from underinvestment consistent with the free cash flow theory of Jensen (1986).

The results on financial companies' ownership and leverage are new, other results are consistent with results found in Mykhayliv and Zauner (2013).

**REFERENCES**

Arellano, M., and S. Bond, 1991, Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations, *Review of Economic Studies* 58, 277-97.

Arellano, M., and O. Bover, 1995, Another Look at the Instrumental Variable Estimation of Error Components Models, *Journal of Econometrics* 68, 29-51.

Blundell, R., and S. Bond, 1998, Initial Conditions and Moment Restrictions in Dynamic Panel Data Models, *Journal of Econometrics* 87, 115-143.

Blundell, R., S. Bond, M. Devereux, and F. Schiantarelli, 1992, Investment and Tobin's Q: Evidence from Company Panel Data, *Journal of Econometrics* 51, 233-257.

Campos, N. , and F. Giovannoni, 2006, The Determinants of Asset Stripping: Theory and Evidence from Transition Economies, *Journal of Law and Economics* 56, 681-706.

Colombo, E., and L. Stanca, 2006, Investment decisions and the soft budget constraint: Evidence from a large panel of Hungarian firms, *Economics of Transition* 14, 171-198.

Djankov, S., and P. Murrell, 2002, Enterprise Restructuring in Transition: A Quantitative Survey, *Journal of Economic Literature* 40, 739-792.

Dragon-Capital, 2006, Ukraine Equity Guide, (Kyiv, Ukraine).

Dragon-Capital, 2007, Ukraine Equity Guide, (Kyiv, Ukraine).

Estrin, S., and A. Rosevear, 1999, Enterprise Performance and Ownership: The Case of Ukraine, *European Economic Review* 43, 1125-1136.

Estrin, S., and A. Rosevear, 1999a, Enterprise Performance and Corporate Governance in Ukraine, *Journal of Comparative Economics* 27, 442-458.

Fama, E.F., and M.C. Jensen, 1983, Separation of Ownership and Control, *Journal of Law and Economics* 26, 301-325.

Fazzari, S., G. Hubbard, and Bruce C. Petersen, 1988, Financial Constraints and Corporate Investment; Comments and Discussion, *Brookings Papers on Economic Activity* 1, 141-206.

Grossman, S., and O. Hart, 1988, One Share-One Vote and the Market for Corporate Control, *Journal of Financial Economics* 20, 175-202.

Grygorenko, G., and S. Lutz, 2007, Firm Performance and Privatization in Ukraine, *Economic Change and Restructuring* 253-266.

Hadlock, C.J., 1998, Ownership, Liquidity, and Investment, *Rand Journal of Economics* 29, 487–508.

Hansen, L., 1982, Large Sample Properties of Generalized Method of Moments Estimators, *Econometrica* 50, 1029-1054.

Hausman, J.A., 1978, Specification Tests in Econometrics, *Econometrica* 46, 1251-1271.

Hoshi, T., A. Kashyap and D. Scharfstein, 1991, Corporate Structure, Liquididy, and Investment, *The Quarterly Journal of Economics* 106, 33-60.

Jensen, M., 1986, Agency costs of free cash flow, corporate finance and takeovers, *American Economic Review* 76, 323-329.

Jensen, M.C., and W.H. Meckling, 1976, Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure, *Journal of Financial Economics* 3, 305-60.

Johnson, S., R. La Porta, F. Lopez-de-Silvanes, and A. Shleifer, 2000, Tunneling, *American Economic Review Papers and Proceedings* 90, 22-26.

Konings, J., M. Rizov, and H. Vandenbussche, 2003, Investment and financial constraints in transition economies: micro evidence from Poland, The Czech Republic, Bulgaria and Romania, *Economics Letters* 78, 253-258.

Kornai, J., 1979, Resource-Constrained Versus Demand-Constrained Systems, *Econometrica* 47, 801-819.

Kornai, J., 1980. *The Economics of Shortage* (Amsterdam: North-Holland).

Kornai, J., E. Maskin, and G. Roland, 2003, Understanding the Soft Budget Constraint, *Journal of Economic Literature* 41, 1095-1136.

Lins, K. V.,2003. Equity Ownership and Firm Value in Emerging Markets, Journal of Financial and Quantitative Analysis 38,159-184.

Lizal, L., and J. Svejnar, 2002, Investment, credit rationing and the soft budget constraint: evidence from Czech Panel data, *The Review of Economics and Statistics* 84, 353-370.

Megginson, W., and Netter, 2001, From State to Market: A Survey on Empirical Studies on Privatization, *Journal of Economic Literature* 39, 321-339.

Mickiewicz, T., K. Bishop, and U. Varblane, 2004, Financial Constraints in Investment - Foreign versus Domestic Firms. Panel Data Results from Estonia 1995-1999, *Acta Oeconomica* 54, 425-449.

Modigliani, F., and M. H. Miller, 1958, The Cost of Capital, Corporation Finance and the Theory of Investment, *American Economic Review* 48, 261-297.

Mycyk, A., E. Cook, and D. Fedoruk, 2007, Corporate governance and disclosure in Ukraine, *International Journal of Disclosure and Governance* 4, 49-74.

Mykhayliv, D. , and K. Zauner, 2010, On the Q Theory of Investment with Private Benefits of Control, (Leeds University Business School).

Mykhayliv, D. and K. Zauner, 2013, Investment behavior and ownership structures in Ukraine: Soft budget constraints, government ownership and private benefits of control, *Journal of Comparative Economics* 41, 265-278.

Mykhayliv, D. and K. Zauner, 2015, Investment Behaviour, Corporate Control and Private Benefits of Control: Evidence from a Survey of Ukrainian Firms, *Bulletin of Economic Research* 67, 309-323. DOI: 10.1111/boer.12001

Perotti, E. C., and L. Vesnaver, 2004, Enterprise Finance and Investment in Listed Hungarian Firms, *Journal of Comparative Economics* 32, 73-87.

PFTS, 2002-2008, Annual Reports.

Roodman, D., 2009, How to Do xtabond2: An Introduction to Difference and System GMM in Stata, *The Stata Journal* 9, 86-136.

Shleifer, A., and R. Vishny, 1997, A Survey of Corporate Governance, *Journal of Finance* 52, 737-783.

Windmeijer, F., 2005, A Finite Sample Correction for the Variance of Linear Efficient Two-Step GMM Estimators, *Journal of Econometrics* 126, 25-51.

World-Bank, 2002, Transition: The First Ten Years, Analysis and Lessons for Eastern Europe and the Former Soviet Union, *Washington D.C*.