

INTERNATIONAL HELLENIC UNIVERSITY

“Private Equity Investments in Balkans”

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Abstract

There is a strong pop up private equity market is a cornerstone for innovation in modern economics. However, there are a lot a differences in the relative amounts raised and invested in private equity across European countries. Moreover, when we take a look at the wide Balkan region, we can see that the differences are significant a lot with the rest of Europe. In this thesis, we will try to examine what are the factor that affect the most the private equity investment in the wide Balkan area. Our estimation is based on 13 countries and 15 indexes-variables. The model that we will use is fixed effect panel data analysis.

Introduction

Private equity investments was appeared in the USA in the early of 40's and from then it has expanded worldwide. The PE, finances companies at early stages especially for the develop of new technologies and conquer new markets. Private equity investors provide the necessary capital to the investee firm in exchange for an above the average return. According to Wright and Robbie (1998), Private Equity, differs from traditional finance in : i) acquired assets are illiquid, ii) investee firm's assets are not re deployable , iii) investee are under the active and knowledgeable monitoring of financiers, iv) PE capital is unfused at stages and according to the progress of the project. Another feature is that PE capital invest in start-up firms and in development of innovation. In USA and Europe most of the well-known firms were PE backed at early stages of development. Also Fehn and Fuchs (2003) proved that they create more employment and growth than other investments.

The urgent need for capital especially in life science and communication in the wide balkans region is evidence. The growth potential is enormous and expects capital to be exploited. Policymakers should focus on creating the adequate settings for the PE market to be develop. This support will boost investments, growth, competitiveness and entrepreneurial activities. The profits from the use of PE capitals, according to Ganetsou and Fronistas (1995) could be: i) in the economy of the country, and ii) in the firm. In this paper we will focus at the country

benefits of that kind of investments. As EVCA states for every 1\$ that managed from professional PE firm in the USA, there are about 4\$ of publicly traded equities. So in the level of the economy, the two authors report that PE helping the existing companies to growth in contrast with the foundation of new companies.

The main question is why we can see PE activity at USA and UK and the activity in wide Balkans region is very low. As far as Europe is concerned, despite the growth of PE investments over the last decade, the diversities in activity across countries is significant. Different developments can be identified between West and East Europe too. Especially the country of wide-Balkan region and the other European. Private equity industry has much shorter history in this region, but despite the rapidly growth of the last decade, the activity is significant lower. Kolondo and Wagner and Hlouskova (2005) argue that these countries are in a period of catch up that might last decades. We can see that because per-capita GDP is still below the current EU average. But the growth estimates is above the EU estimates, so there is a strong demand of risk capital in these countries and hence to a high attractiveness of PE investors. However, the risk capital supply is rather small compared to EU and relative to the expected growth opportunities in Balkans, even if investors are looking internationally for new investments opportunities.

It is fact now that PE activity can product growth in the countries. Understanding the determinants of PE industry has been primary goal for both academics and regulators. But there is still no broad consensus on the determinants os PE investments and the literature focussing on the this region in the attempt to explain it's major obstacles to catching up with the developed markets is relatively scarce. In this thesis we will try to explain what are the factors that effect the investments in the wide Balkan region. The factors that we will use can categorized as: i) Business Indexes, ii) Economic activity indexes, iii) Economic Policy indexes.

Literature review

There are a lot of research paper about PE investment and it's factors that can be explain the activity. We are going to take a quick look about these.

The condition of a particular country's economy reflects to PE investments. Gompers and Lerner (1998) points that there are more attractive opportunities if the economy is growing rapidly. The growth of the start-ups is expected to be related to societal wealth. Romain (2004) finds that PE investments are cyclical and lot of related to GDP growth. Both the start-up financing and higher income among the customers, are very important for growth of the domestic companies.

Liquidity of stock exchanges has significant role at PE investments. As much liquidity so higher the PE investments are. Schertler (2003) uses either the capitalization os stock markets or the number of the listed firms to prove that. On the other hand Balboa and Morti (2003) find that the PE activity is dependent on the previous year's market liquidity. Black and Gilson (1998) found also a relationship between the development of the stock market and the private equity market. They claim that USA has an comparative advantage, because of strong initial public offerings (IPO) market, which can represent an exit strategy of PE investors. Jeng and Wells (2000) used as explanatory variables IPO's, GDP growth, Labor market regulations, accounting standards and other. They state that IPO market is the most related factor, when market capitalization turns out to be insignificant.

Gompers and Lerner (1998) and Bonini and Alkan (2009) argue that the level of interest rates might be relavant in attracting PE investments. But here we can have two theories. The first is that the level of interest rates should affect negatively in PE investments, because a high level of real interest rates reduces the attractiveness of risky investments. Bonini and Alkan (2009) finds also the negative effect of interest rates on PE investments. Gompers and Lerner (1998) show the positively relation between the US Treasury bills return and the PE activity in USA.

Also the availability of debt financing is very important in the PE activity. Hellman (2004) states that the banks are the dominate financial institutions. So in order to attract investments, you need to find bankers who are willing to take risks. Additionally the maturity of the PE market itself might attract investors. It is reflected by the numbers of the players and supporting institutions such as investment banks, consultant and auditors. The supporting
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institutions are very important to create safe and succeeded deals of entree and exit. Of course if the economy is too small, it is simply not in the scope of internationally acting institutional investors and, hence, the sources of PE.

Legal system is another very important factor for PE fundraising. Cumming (2006) states that the quality of the legal system in a country, is stronger connected to facilitating PE backed exits than the country's stock market. La Porta (1997/1998) confirm that the legal environment determines the size and extent of a country's capital market and local firms ability to receive outside fundraising. Djankov (2003 and 2005) suggest that parties in common-law countries have greater ease in enforcing their rights from commercial contracts. Desai (2006) discuss that fairness and property rights protection, positive relates strongly in the growth of new enterprises. La Porta (2002) find lower cost of capital for companies in countries with better investor protection. Johnson (1999) show that weak property rights limit the reinvestment of profits in start-up firms.

Capital gains tax rate influences PE investments. Gompers and Lerner (1998) argues that taxation has positive and significant impact on attracting Private equity investments. Cullen and Gordon (2002) prove that taxes metter businesses entry and exit. An increase in the tax rates on wages raise the probability of becoming an entrepreneur. Especially in that region, where in force of the crisis, countries must decrease deficits and make their economy more attractive. One of the most usual treatment is the increase of taxation. By that the governments trying to increase their incomes, in addition with the decrease of national development.

As we know several studies have illustrated the positive impact of PE on the economy. But high unemployment is one of the main problems in our days. Much of the attention has recently shifted to the industry's contribution to job creation and employment in general. According to a research of EVCA at 2005, PE financed companies employ close to 6 million people. That represents almost the 3% of the economically active population in Europe at 2004. Also in the public companies listed at Dow Jones STOXX 600 index, jobs in Private equity financed companies amounted to around 25%. Employment in buyout-financed companies grew 2.4% on average annually between 1997 and 2004. Employment in these companies grew at higher rate than the EU 25 average rate (0.7%) between 2000 and 2004. In addition to PE backed companies in which the employment grew up with 10.1%. Another very important figure is that 73% of PE-backed companies increased staff by more than 25%

per year between 1997 and 2004. So, it is very important to have PE investments to fight unemployment. The numbers are the answer.

On the other hand strong and rigid labor market policies can affect negatively the attractiveness of PE activity. Black and Gilson (1998) show that variations in labor market restrictions correlate with PE activity. Blanchard (1997) discuss how rigid restrictions can reduce employment and growth.

There is several research about the development of PE especially in region countries. Farag (2004) focus in Hungary, Czech Republic and Poland, and compare them with German market. He conclude that there is one major obstacle is the lack of talented people how manage the PE investments. Furthermore the debt financing remains difficult and that makes difficult to gain returns by leveraging transactions. The recent work of Karai (2009) provides a overview of the developments of the private equity industry in central east europe between 2002 and 2008. Speculates on the future effects of the financial crisis and recession on region's private equity market. The declares that the major part of the extremely large amount of capital raised over the last 5 years is expected to remain invested and the decrease for the coming one or two years will be less than the one experienced by other developed markets. However, the fundraising for new funds will be more difficult due to shortage of money of the most significant investors of funds.

However the development in these countries are subject to analyse. Many institutional investor are point that these markets maybe be the way for recovering from the financial crisis. These markets are open for investments, but first we must see what are the disadvantages that until now make investors not to take risks.

Investment activity in Balkans, Europe and USA

Private equity investments in the wide balkans territory in 2008 was €2.5bn euros, when at 2007 was almost €3bn euros, as we can see in Table 1. Although below the pick of 2007, there is a significant amount and tops the investment levels recorded in 2006. These dynamics compare favourably with Europe as a whole, where investment level dropped by 28% in 2008. Region countries attracted almost the 5% of total PE investments across Europe. The overall amount invested decreases more than 18%, especially in later-stage investments. However the number of companies that financed increases, driven by the financing of more start-up businesses. In 2008, the CEE PE market, was more oriented at growth than the total European market.

Investment activity

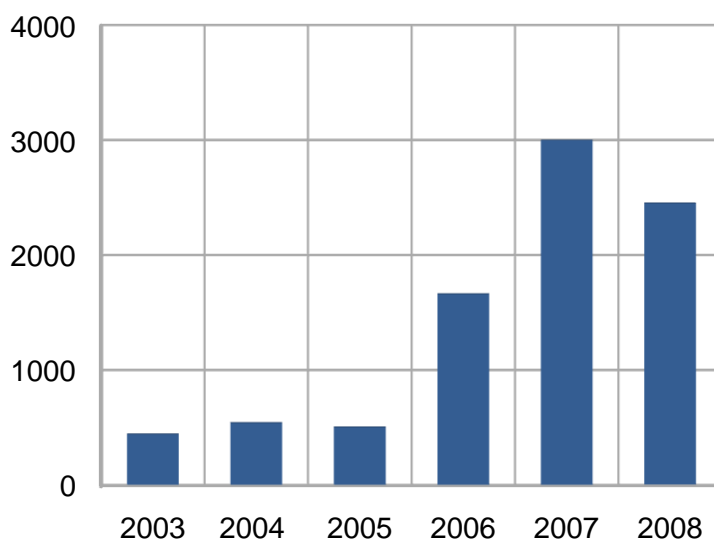


Table 1 : Investment activity from 2003 until 2008 in CEE (source EVCA)

Nearly 200 companies received PE financing in 2008, when the average size of investment per company decreased to €12.5bn in 2008, from €14.7bn in 2007.

In terms of sector activity, the amount of life sciences doubled in 2008, driven by one particularly large buyout transaction, and the number of companies that PE financed remain stable in 19. The sector remains the most financed sector by amount, attracted almost 25% of total investment. It was followed by communications which despite the 30% drop from 2007,

still represented the 20% of total investment. Business & Industrial products, Consumer goods and Financial services followed with almost 10% of the total investment.

Comparison of PE investment activity to GDP reveals that the region is still far below the average of Europe as a whole. In 2008, the ratio of private equity investment to GDP in this region was 0.209%. only half of the Euro-wide average of 0.404%. In 2007, the region was 57% of the European average.

As for market segments, the Buyouts share of overall investment dropped from 77% in 2007 to 63% in 2008. In contrast, growth capital investment surged from only 4% in 2007 to 29% in 2008. This reflected the shift in focus of region fund managers in changing in macroeconomic and deal-making environment. Comparing the investment types to Europe as a whole, the region market was much more growth-capital-oriented than Europe, where less than 14% of total investment value was allocated to growth capital. Also the financing of start-up companies in the region represented the 2.4% of the total investment, since in Europe was 4.6%. At 2007, in our region, the start-up financing was representing by 26 companies, when at 2008 was almost doubled representing by 43 companies. The numbers of companies that had buyout was 93 at the year 2007, when decreases in 45 at 2008. The amount of capital invested in buyouts was decreased also by 33%, from €2.3bn at 2007, to €1.5bn in 2008. But the buyout percentage in the total investment amount remains high at 2008, with 63%. At 2007 the representing percentage was 77%, so we can conclude that the investment amount of PE activity was moved from buyout to growth in a very fast way.

In the 2 year period between 2005-2007, the combination of decreasing interest rates, loosening lending standards and regulatory changes for publicly traded companies would set the stage for the largest boom private equity had seen. Some of the largest buyouts was made in the USA, such as "The Hertz Corporation". As 2005 ended and 2006 started new large buyout comes. In the market of the USA private equity firms bought 654 US companies for almost \$375bn, which was 18 times more the investments of 2003. In July of 2007, turmoil that had been affecting the mortgage markets, spilled over into the leverage finance and high yield debt markets. In the first 6 months the market had been highly robust, with covenant light debt widely available to finance large leveraged buyouts. July and August saw a slowdown in issuance levels in the high yields and leveraged loan markets with few issuers to access the market. Uncertain market condition led to a significant widening of yield spreads, which coupled with the traditional summer slowdown. That made a lot of companies and investment banks to put their plans on hold until autumn of 2007. However the expected rebound in the market did not materialize and the lack of market confidence prevented deals from pricing. By the end of September the credit situation became obvious. As 2007 ended

and 2008 starts, it was clear that lending standards had tightened and the large buyouts come to an end. Nevertheless, private equity continues to be a large and active asset class and the private equity firms, with hundreds of billions of dollars of committed capital from investors are looking to deploy capital in new and different transactions.

Presentation of our data

Our data consist countries of Balkans, as usually defined, and some more from the wide Balkan region. The countries that we will analyse is Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Greece, Hungary, Romania, Serbia, Slovakia, Slovenia, Turkey and Ukraine. We selected these countries because of these countries are very similar in traditions, legal environment and similar way of life. Also all of them are very close each other in distance.

The indexes that we use for our analysis consists from 3 general categories : i)Business Indexes, ii)Economic Activity, iii)Economic Policy. So, for the Business Index category the selected indexes are Domestic credit to private sector (% of GDP), Merchandise trade (% of GDP), Time to start a business (days). For the category Economic activity the selected indexes are foreign direct investment net flows (\$), current GDP (\$), GDP annual growth (%), lending interest rate (%), Market cap of listed companies (\$), real interest rate (%), total unemployment (%). For the category Economic policy the selected indexes are exports of goods and services (% of GDP), inflation consumer prices (%), electric power consumption (kwh per capita).

The data is collecting very carefully to represent the economic condition of a country, since we know that this is a important, but also the general performance of the country. By the Business indexes we can examine the impact of the domestic private sector, to test the leverage that the companies use and with merchandise trade we will test if a high value (due to GDP) can have impact on the decisions over private equity investments. The second category of economic activity can give us an overview about the condition of the domestic market as a whole. With interest rates (both lending and deposit) we examine what is the impact of them to countries with traditionally high interest rates. Interest rates are vital to investments, since the most of the times, high interest rates makes investors not to prefer risky investments. Also, foreign direct investment shows us if these types of investments has a serious impact over PE investments. Market cap of listed companies is one of the talked about factor. As we described in literature, there is a lot of research that proof's the positive impact over private equity investments. Let's see if this impact is also at this region. The index of

unemployment can show us, if investors are interested over that kind of macroeconomic problems, since the PE investments in Europe and CEE (central east Europe) help employment as we described before. Of course GDP, which is maybe one of the most talk-about index for all kind of investments. We expect the GDP (one of the two) to be highly correlated with PE investments.

Also we will use 2 dummies for i) if the country is member of EU we put 1, if not 0, ii) if the tax rate is under 50% we put 1, if not we put 0. The importance of these indexes is vital to our research, because if a country is an EU member, it means that this country for the year of entry and after, has the EU to control its deficits, their interest rates (from European Central Bank) and generally it will be more attractive for investors. It is a fact that every country enters EU, its economy has highest growth than the others, at least at the starting years of entry. Furthermore the taxation, as we said at the literature review, it is one of the most important factors at alternative investments as private equity. Let's think that nowadays Greece, for example, has almost 20%-40% taxation on companies, when the neighbor Bulgaria has 10%. It is more than obvious that Bulgaria has an advantage over Greece, as both are EU members right now. The dummy variable taxation is 1 if the taxation is under 50%, because most of the countries, between 1999 and 2008 had from 35% to 57%, with most of them to be around 45%-55%.

All these factors will be the independent variables in the regression model, since the dependent variable will be the Private Equity investments that have been made in these countries. We have the value of investments that have been made from the EVCA. In some countries no investments had been made for a year (or very small or EVCA don't have enough data), so we will include them in the model, because it is very interesting to see what is the impact of them to the summarized investments. From the PE investments that had been made at 2008, we have seen that Hungary comes at the first place with almost 476mil, Czech Republic comes second with 434mil. The interesting is that in the third place is Turkey, with almost 64mil. less than Czech Republic, with 370mil. Very close is Greece with 344mil, Ukraine with 300 and Romania with 290mil. In the bottom of the list is Croatia with 100mil, Bulgaria with 90mil, Slovakia with 31mil, Serbia with 8mil, Bosnia with 4mil. and Slovenia with 2.8mil.

It is more than obvious that almost 90% of the investments have been made in 6 countries. But we use also the rest to make the whole structure of that region.

Data analysis

Generally speaking for the model

In order to analyse our data and make our conclusions about the factors that affect the PE investment in wide Balkans region, we will use Panel data analysis. Panel data analysis is statistical method, widely used in econometrics which deals with two-dimensional panel data. Our data is collected over time and over the same individuals and then a regression is run over these two dimensions. In our project multidimensional analysis is over the years and countries.

A common panel data regression model looks like $y_{it} = a + bx_{it} + \varepsilon_{it}$, where y is the dependent variable, x is the independent variable, a and b are coefficients, i and t are indices for individuals and time. The error ε_{it} is very important in this analysis. Assumptions about the error term determine whether we speak of fixed or random effects.

There are 2 most commonly used independent approaches:

- random effects models
- fixed effects models

It is often said that the random effects model is more appropriate when the entities in the sample can be thought of as having been randomly selected from the population, but the fixed effect model is more plausible when the entities in the sample effectively constitute the entire population.

In econometrics, a fixed effects model is a statistical method that represents the observed quantities in terms of explanatory variables that are all treated as if those quantities were non-random. This is in contrast to random effect models in which either all or some of the explanatory variables are treated as if they arise from the random causes. Often the same structure of model, which is usually a linear regression model, can be treated as any of the two types depending on the analyst's viewpoint, although there may be a natural choice in any given situation.

In panel data analysis, the term fixed effects estimator is used to refer to an estimator for the coefficients in the regression model. If we assume fixed effects, we impose time independent effects for each entity that are possibly correlated with the regressors.

The model

As we describe before, we have 13 countries, 13 indexes and 2 dummies. In order not some data to be skewed we use the logarithm of their values. Of course it is no need to use the logarithms of every index, but mainly in the monetary items, as presented below at the Equation presentation. By that we exact the possibility to be skewed. In probability theory, skewness is a measure of the asymmetry of the probability distribution of a real valued variable. A negative skew indicates that the tail on the left side of the probability density function is longer than the right side and the bulk of the values lie to the right of the mean. A positive skew indicates that the tail on the right side is longer than the left side and the bulk of the values lie to the left of the mean. A zero value indicates that the values are relatively evenly distributed on both sides of the mean, typically but not necessarily implying a symmetric distribution.

The second step is to check for multicollinearity problem with variables. So we run a correlation matrix, as presented at Appendix-table 2. As we can see from the table none of the pairs have correlation more than 90%, so we don't have problem with multicollinearity. Only the pair of Merchandise trade and Exports of goods and services have high correlation, by 89,79%. But we think that both indexes are variable for the research and the correlation is on the limit. So we do not leave them out. Multicollinearity is a statistical phenomenon in which two or more predictor variables in a regression model are highly correlated. In this situation the coefficient estimates may change unpredictable in response to small changes in the model or the data. Multicollinearity does not reduce the predictive power or reliability of the model as a whole but it only affects calculations regarding individual predictors. That is, a multiple regression model with correlated predictors can indicate how well the entire bundle of predictors predicts the outcome variable, but it may not give valid results about any individual predictor, or about which predictors are redundant with others.

After avoiding skewed data and multicollinearity, we can proceed to the construction of the equation that we will use.

Equation

The equation that we will use is based on the general model that we had presented in the section “Generally speaking”

So our equation is constructed as below,

$$\begin{aligned} \underline{PE\ INV}_{it} = & \beta_0 + \beta_1 \ln(FDE_{it}) + \beta_2 \ln(CGDP_{it}) + \beta_3 (GDPAG_{it}) + \beta_4 (LIR_{it}) + \\ & \beta_5 \ln(MRKCAP_{it}) + \beta_6 \ln(RIR_{it}) + \beta_7 (TU_{it}) + \beta_8 \ln(EGS_{it}) + \beta_9 (ICP_{it}) + \beta_{10} (DCPS_{it}) + \\ & \beta_{11} (MT_{it}) + \beta_{12} (TSB_{it}) + \beta_{13} (EPC_{it}) + \beta_{14} (D1_{it}) + \beta_{15} (D2_{it}) + \varepsilon_{it} \end{aligned}$$

where i represents each country (with $i = 1, 2, \dots, 13$), t represents each time period (with $t = 1999, \dots, 2008$) and β_0 is homogeneous over time and across individuals intercept. Here, we have

$\ln(FDE_{it})$, which is the logarithm of foreign direct investment net flow for country i and time t . At the same way we can see the logarithm of CDGP (current GDP for country i and time t), the GDPAG (GDP annual growth in terms of percentage), LIR (Lending interest rate in terms of percentage), the logarithm of MRKCAP (Market capitalization), the logarithm of RIR (Real interest rate), TU (Total unemployment in terms of percentage), the logarithm of EGS (Exports of goods and services in terms of percentage of GDP), ICP (Inflation consumer prices in terms of percentage), DCPS (Domestic credit to private sector in terms of percentage of GDP), MT (Merchandise trade in terms of percentage of GDP), TSB (Time to start a business in terms of days), EPC (Electric power consumption in terms of kwh per capita), D1 (dummy variable for EU membership - if the country is member we have 1, if not 0), D2 (dummy variable for taxation - if the country have over 50% we have 1, if not 0).

A necessary condition for our panel estimation is that all countries are “poolable”. Therefore, we have tested whether the estimated slope coefficients, excluding the constant terms to allow for country fixed effects, are the same for the all of the countries. We find that the null hypothesis of equality of the slope coefficients has never been rejected for our countries.

To test if the fixed effect method is efficient for our model, we can use Hausman test. The Hausman test is a statistical test in econometrics named after Jerry A. Hausman. The test evaluates the significance of an estimator versus an alternative estimator. It helps one evaluate

if a statistical model corresponds to the data. We find that the null hypothesis of redundant fixed effects test, can be reject since Cross-section F is over 0.1 (0.2053)

Now we use an OLS estimator with country fixed effects and with panel-corrected standard errors. The estimation results and the result of Hausman test are shown in Tables 2 and 3.

As indicated by the R^2 values in Appendix-Table 1, our fixed effect panel model are able to explain almost the 50% of the variation in PE investment. For statistical significant level we will use p-value of 20%, because of our few data on the countries. We have near to 130 observations.

The decision to invest in this region is affected by the level of current GDP. This index is statistical significant (p value 7,1%). A one dollars increase in the current GDP, increase the PE investments by also 100k. Statistical significant is also domestic credit to private sector with p-value of 9.2%. Also in this index the positive correlation with PE investments indicates that one percentage increase at the index the PE investments will increase by 1.000. This is an evidence about the fact that the more easily that the companies funding, with leverage, the most investments the countries are attracting.

The electric consumption index is not a statistically significant index, with p-value of 85,9%. But exports of goods and services are statistically significant (p-value of 2,5%). But the relation of this index with PE investments seems to be negative. Also foreign direct investments are not affect the PE activity in this region. The p-value of this index is 87,6% (>20%), so we reject this index.

GDP annual growth is unaffected, as we expect, the PE activity. The p-value is 20%, but we must reject it. This evidence was confirmed by Jeng and Wells (2000). On the other hand Gompers and Lerner (1998) proved that real GDP growth can affect positively the PE investments. Inflation consumer prices affect negatively the PE activity with p-value of 13.45% (<20%). Also an increase or one percentage of that index, will decrease the PE activity by 505k value of investments.

Lending interest rates have a positive influence on PE investments. With p-value of 7% and the coefficient of 957, we can say that it is an important factor of our analysis. Market capitalization of the public companies is statistically significant with p-value equal to 16,88%. But it has negative effect on the PE investments. We expect to be in the other way around. Because stock markets gives the exit opportunity. Schertler(2003), Black and Gilson (1998) proved the opposite of our result.

Next Index is the Merchandise trade, as a percentage of the GDP. With p-value of 5,7% and positive effect on investment, with coefficient equal to 1077. Which means that an increase of 1% in terms of GDP, the PE activity of the region will raise up by that number.

The real interest rate has p-value equal to 31,37%, so we must say that it is not statistically significant under the null hypothesis. Also total unemployment is not significant factor on PE investments since its p-value is 59,35%.

On the other hand the index time to start a business, with p-value of 2,78%, is statistically significant. It is obvious that when this index increases the PE investment will decrease. If the problems of bureaucracy cannot be faced by the governments, the investors will not make their investments even if all the other factors are fine.

Our dummies, due to null hypothesis of p-value, is not statistically significant for the PE investment. Both EU membership and tax rate has p-value of 68,13% and 38,99% respectively. In contrast with the literature and the common sense, taxation is not affecting PE investments as we expected, in this region. Also the EU membership seems that also do not have influence over the investors. If we consider that Turkey, which is not member of EU, has one of the highest in the region we can see why we have that result.

Conclusions

The Europe, USA level of investments in PE has grown remarkably in the last decade. Of course the observed growth rates was very different across countries. The wide-Balkans region, the region that we examined, was at the last position of growth. The PE activity although risen very fast, and that is a widely-documented positive impact on a country's growth. Understanding the the determinants of PE industry has been a primary goal for both academics and regulators. But there are still not enough research at the region of Balkans, about the macro determinants of PE investments. Although many papers trying to explain the region's major obstacles to catching up with the development markets, but is relative scarce. Our thesis, hopefully, can add to literature and investigates the determinants of PE investment in this region. Using panel data from 1999 until 2008, 13 countries of the wide Balkan region, this thesis tests whether market conditions, business policy, stock markets, economic policy, economic activity are driving forces of PE activity. Before our analysis we checked for multicollinearity and skewness. To avoid skewness, we used logarithms at some variables. To avoid multicollinearity we first examine the correlation matrix to put out some of the variables that are very correlated each over. In our analysis we used fixed-effect panel estimators to shed new light on the driving forces of PE investments.

Our main findings are as follows. First, we find that only 8 out of 14 variables (including dummies), was robustly correlated to private equity investments. For some variables that the literature seted as important determinants, we didn't confirm the relation with PE investment. Second, according to other literature, we found that current GDP is positive related with private equity investments. Also we proof that the leverage of funding in a country is a significant term for investors. Stock market capitalization, according to this thesis and to literature, is a determinant of the PE investment, but we found that it is negatively effecting (in contrast with the literature). We found that lending interest rates affecting positively the investments, although some literature don't and some other do proof the same. Exports of goods and merchandise trade are affecting but in different ways. Merchandise Trade is positively related and exports of goods and services is negatively affect the PE investments. Also inflation in consumer prices is negatively affecting, and that is in terms of literature, right. Last but not least is the index of time to start a business, where the foundings are as exactly we expect. It is negatively reflects to PE investments, and that means if the policymakers don't reduce the bureaucracy, the investors with affected negatively.

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Appendix

Table 1

Redundant Fixed Effects Tests
Equation: Untitled
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	1.345482	(12,101)	0.2053
Cross-section Chi-square	19.130529	12	0.0854

Cross-section fixed effects test equation:

Dependent Variable: PE_INV

Method: Panel Least Squares

Date: 10/15/10 Time: 13:57

Sample: 1999 2008

Periods included: 10

Cross-sections included: 13

Total panel (unbalanced) observations: 129

White diagonal standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CURRENT_GDP	91196.91	33265.29	2.741503	0.0071
DOMESTIC_CREDIT_TO_PRIV	1131.032	666.3384	1.697384	0.0924
ELECTRIC_POWER_CONSUMPTI	-10088.52	56864.28	-0.177414	0.8595
EU_MEMBER_DUMMY_	10448.31	25378.74	0.411696	0.6813
EXPORTS_OF_GOODS	-149331.9	65932.94	-2.264906	0.0254
FOREIGN_DIRECT_INVESTMEN	-998.4950	6385.212	-0.156376	0.8760
GDP_ANNUAL_GROWTH	-3504.584	2718.613	-1.289107	0.2000
INFLATION_CONSUMER_PRICE	-505.5647	335.3949	-1.507371	0.1345
LENDING_INTEREST_RATE	957.5400	525.1426	1.823390	0.0709
MARKET_CAP	-4493.545	3244.941	-1.384785	0.1688
MERCHANDISE_TRADE	1077.895	561.0839	1.921095	0.0572
REAL_INTEREST_RATE	23024.16	22750.21	1.012041	0.3137
TAX_RATE__50_DUMMY_	23483.25	27208.45	0.863087	0.3899
TIME_TO_START_BUSINESS	-115764.8	51923.77	-2.229514	0.0278
TOTAL_UNEMPLOYMENT	526.8888	984.3207	0.535282	0.5935
C	-569049.1	462189.1	-1.231204	0.2208
R-squared	0.500000	Mean dependent var		47070.58
Adjusted R-squared	0.433628	S.D. dependent var		100145.2
S.E. of regression	75367.01	Akaike info criterion		25.41376
Sum squared resid	6.42E+11	Schwarz criterion		25.76847
Log likelihood	-1623.188	Hannan-Quinn criter.		25.55789
F-statistic	7.533320	Durbin-Watson stat		1.252106
Prob(F-statistic)	0.000000			

Table 2(in extra file)