

DETERMINANTS OF PRIVATE EQUITY INVESTMENTS ACROSS BRICS COUNTRIES

Mr G Ndlwana*

School of Accounting

College of Business and Economics

University of Johannesburg

gugu.ndlawana@gmail.com

Prof Ilsé Botha (corresponding author)*

School of Accounting

College of Business and Economics

University of Johannesburg

P. O. Box 524

Auckland Park

2006

+27 82 301 9345

ilseb@uj.ac.za

Gugu Ndlwana is a Masters graduate and business owner and Ilsé Botha is an associate professor in the department of Accountancy.

DETERMINANTS OF PRIVATE EQUITY INVESTMENTS ACROSS BRICS COUNTRIES

Abstract

The determinants of private equity investments (particularly venture capital investments) have been studied extensively across developed economies. This is however not the case among emerging markets. Hence, this study primarily focuses on the determinants of private equity (inclusive of all sub-classes) among the BRICS countries. Six macroeconomic and market related explanatory variables, including the corruption perception index are studied. Private equity funds raised across BRICS are used as the proxy for private equity investments. These variables are studied using panel data analysis predicated on the fixed effects model over an eight-year observation period. The study reveals that GDP growth and real interest rate are both statistically significant and positively related to private equity investments across the BRICS countries. Furthermore, market capitalization growth and corporate tax rates are statistically significant and are both found to be negatively related to the dependent variable.

Keywords:

Determinants, private equity, venture capital, emerging markets, BRICS, panel data

1. INTRODUCTION

Carsalade and Rennó (2014) observe that, subsequent to the 2009 global economic crisis, limited partners (LPs) - third-party private equity (PE) investors preferred emerging markets over developed economies as a source of investment return. Most notably, Brazil, Russia, India and China (BRIC) were observed as beneficiaries of this investment trend. PE investments in emerging markets have experienced remarkable growth over time. In 2012, South Africa (SA) had the second highest recorded number of PE deals (164) behind the United States (US) which had 477 deals among a total of 30 countries (including both emerging and developed economies); India had the fifth highest and China the tenth highest recorded number of deals (SAVCA, 2013).

Klonowski (2011a:26) posits that “international investors perceive emerging markets as being resilient to financial turmoil and economic downturns”, and that emerging markets present an opportunity for investors to diversify their portfolios through PE investments given the inherent counter-cyclical nature of emerging markets. Interestingly, previous studies primarily focus on the determinants of PE (most notably venture capital (VC)) investments among developed economies, notably the US and Europe. Hence, this study is predicated upon the objective of identifying and quantitatively analysing the key drivers or determinants of PE investments among the BRICS countries.

2. LITERATURE REVIEW

The PE investment industry has grown significantly over time and has contributed to the development, expansion and growth of a myriad successful multinational businesses. This has been most evident across developed economies like the US and the UK. This contribution is most notable in a number of innovative and ground-breaking companies such as Apple Inc., Microsoft Corporation, Google (subsidiary of Alphabet Inc.), and Facebook Inc., among others (Ning, Wang and Yu, 2015). In addition, PE investments have also been shown to contribute positively towards the creation of employment. Demaria (2013) asserts that venture and growth capital

(subclasses of PE investing) are net creators of employment. These assertions are shared by Keuschnigg (2004), Samila and Sorenson (2011), Puri and Zarutskie (2012) and Ning et al. (2015).

The preferred target (or investee) companies are unlisted businesses that have substantial business expansionary or growth potential in the form of revenue growth and/or cost reduction opportunities. Sinyard (2013) points out that PE investment managers adhere to a structured seven-step process when appraising the attractiveness of potential PE investment opportunities (target companies). This process includes reviewing the investee company's business plan, conducting management meetings, conducting preliminary due diligence, the drafting of a term sheet, additionally conducting extensive due diligence, making the investment decision and lastly finalising the legal documentation as well as closing and funding the PE transaction.

The first five steps act as inputs into the decision making process of PE investments, and can be viewed as business-specific endogenous factors of the investee companies that drive PE investment flows therein, however, a number of studies have shown that exogenous factors such as gross domestic product (GDP) growth, corporate tax rates, market capitalization growth, exports, interest rates and initial public offerings, among others, also act as determinants of PE investments (particularly VC investments).

2.1. Determinants of venture capital investments among developed economies

The determinants of PE investments (or VC investments) are predominantly studied through understanding the key supply and demand forces that influence PE investments. Poterba (1989) posits that changes in VC fund raising emanate from changes in the supply or demand of VC. Gompers and Lerner (1999) further build on these assertions by establishing the VC supply and demand equilibrium approach to examine the determinants of VC raising in the US. It is from this approach developed by Gompers and Lerner (1998) that the equilibrium model formulated by Jeng and Wells (2000) is premised. Jeng and Wells (2000) study the evolution of VC investments across 21 countries (consisting predominantly of European countries as

well as Japan and the US, among others). Adongo (2011) studies the determinants of VC investments in Africa by means of using a cross-section analysis approach predicated on the work of Gompers and Lerner (1998) as well as that of Jeng and Wells (2000). Precup (2015) uses a similar approach to study the determinants of PE investments in Europe, focusing primarily on 27 countries from 2000 to 2013. Groh and Wallmeroth (2016) expand on the analysis performed by Jeng and Wells (2000) by chiefly focusing on 118 countries, 78 of which are emerging markets, using panel data from 2000 to 2013.

Groh and Wallmeroth (2016) study different determinants compared to Jeng and Wells (2000). The primary variables studied by Groh and Wallmeroth (2016) include mergers and acquisitions (M & A) activity, legal rights and investor protection, innovation, intellectual protection (IP), bribery and corruption, corporate taxes, exports, and unemployment. Jeng and Wells (2000) study a plethora of variables including initial public offerings (IPOs), GDP growth, market capitalization growth, labour market rigidities, accounting standards, private pension funds among others. Ning et al. (2015) formulate hypotheses on the determinants of VC investments studied based on the arguments of Poterba (1989) and Gompers and Lerner (1998), in conjunction with other selected literature, including that of Jeng and Wells (2000) to examine the volatility and macroeconomic drivers of VC drivers in the US. The determinants studied include macroeconomic variables (real GDP growth, industry production index, unemployment rate and annual consumer price inflation) as well as market indicators (Russell 2000 return, NASDAQ Composite return, 10-year T-Bond yield and the number of IPOs).

Michelacci and Suarez (2004) note the importance of stock market activity as a contributing variable to PE investment activity. Synonymously, Kelly (2012:321) asserts that market capitalization, a “commonly used indicator for depth and liquidity of capital markets”, is found to be a statistically significant determinant of PE buyout investment activity. Interestingly, Jeng and Wells (2000) find that market capitalization is not a significant driver of VC investment, however, it needs noting that IPOs are found to be the strongest driver of VC investing and that private pension fund levels are a significant driver over time.

Bernoeth and Colavecchio (2014) study macroeconomic determinants of PE investments across 13 developed (western European) and only 3 developing (central and eastern European) countries. The identified drivers vary, albeit they are similar in some cases across the western and central eastern European countries. Notable significant determinants of PE activity across these countries include economic activity (measured as annual GDP growth), the inflation rate, unit labour costs, unemployment rate, the institutional, legal environment and similar to Kelly (2012), market capitalization. Gompers and Lerner (1998) note the positive effect of the economic growth on VC in the US. In addition, Carvell, Kim, Ma and Ukhov (2013) find evidence of correlation between VC flows and GDP growth in the US. Interestingly, Jeng and Wells (2000) find that GDP growth is not a statistically significant driver of VC among 21 countries (including the US).

In the US, Gompers and Lerner (1998) find that both economic growth and R&D expenditure have a positive relationship with VC activity. In addition, lower capital gains tax rates were also identified as having a positive relationship with VC activity. In congruence with Gompers and Lerner (1998), Hassan (2010) argues that a considerable number of developed countries have bolstered the growth and development of local start-ups while simultaneously stimulating their respective PE industries through the reduction of capital gains tax. The reduction of capital gains tax was one of the key instruments that Egypt employed as an emerging market to encourage PE investments in the country.

The determinants of PE (including VC) investments in or across emerging economies are seldom studied as there is limited literature primarily focused on studying the bespoke drivers or determinants of PE investments in emerging markets. This could arguably be attributed to PE investing still being in its nascent stages of development in emerging markets compared to developed economies like the UK and the US, where PE investing has been active since the late 1970s and early 80s (BVCA (2010), and Davidoff (2009)).

2.2. Determinants of private equity across emerging markets

Emerging markets are characterized by rapid economic growth and generally present attractive investment opportunities due to their perceived resilience to economic downturns. Klonowski (2013) notes that the rapid economic growth associated with emerging markets is driven by an expanding middle class, high rural-to-urban migration and increased population wealth. Binnie (2013) adds that Brazil's growing middle class, commodities wealth and investor-friendly legal framework is what makes it an attractive PE investment destination. This phenomenon has also been observed in India. Kumari (2013) asserts that rapid growth of GDP coupled with business friendly regulations have contributed to making India an attractive VC and PE investment destination. It is plausible that the economic growth quality of developing economies drives the demand for PE investments among other forms of investment vehicles as it can be noted from the findings of Gompers and Lerner (1999), Carvell et al. (2013) and Bernoth and Colavecchio (2014). It has been discussed in the preceding section of the literature review that economic growth tends to be a positive driver of VC investments among developed economies, however, this remains to be proven for emerging countries (BRICS in this case). Klonowski (2013) adds that emerging markets are poised to experience high growth in PE investments as the economic growth impetus is expected to continue.

The idiosyncratic determinants of PE investments (inclusive of all subclasses) across emerging markets (central and eastern Europe, the Commonwealth of Independent states, Turkey, Russia, Emerging Asia, Latin America, the Caribbean, the Middle East and North America as well as Continental Africa) have been studied on a limited basis compared to developed markets like the developed European countries, the UK and the US. This is the case even for VC investments (as a subclass of PE investments) as there is limited literature that primarily focuses on quantitatively analysing and understanding the idiosyncratic determinants of VC investments among emerging markets. Groh and Wallmeroth (2016) assert that the majority of the extant studies that analyse and evaluate a multitude of variables which drive (attract, increase or decrease) VC investments focus on developed economies. Oberli (2014:50), in a study focused on understanding the drivers of PE investments in Asia (China, India, South Korea, Vietnam, Singapore and Hong Kong), asserts that "research with regard to emerging economies is scarce."

Notable studies that focus on understanding the determinants of VC investments in emerging markets include those of Adongo (2011) and Klonowski (2011b) as well as Groh and Wallmeroth (2016). Adongo (2011) studies thirty six African countries and finds that the rule of law, research and development expenditure as a percentage of GDP, and robust information flow between investors and potential investees are positively and significantly related to VC activity. Klonowski (2011b) studies the evolution of the PE market in Poland in conjunction with its drivers and returns. The author finds that stable economic growth, strong entrepreneurship, institutional infrastructure improvements, and exit market development acted as the key pillars of continued development in PE investments in Poland over two decades (1990-2010). Groh and Wallmeroth (2016) conclude that M & A activity, legal rights and investor protection, innovation, intellectual property protection, corruption, corporate taxes and unemployment all have a high impact on VC investment activity; however, bribery and corruption, as well as innovation, were observed to play a more pronounced role in developing markets than in developed markets.

Oberli (2014) selectively studies a plethora of PE investment activity determinants in Asian emerging markets, amongst which is the fiscal/legal environment and government intervention within which the PE investment activity is focused. Among the variables studied by Oberli (2014) include past returns to investors, IPOs, recent investment activity, GDP growth, (short-term) interest rates, gross domestic volume of savings, capital gains taxation, investment regulations, labour market policies, the maturity of the PE market (and its size) etc. These variables are akin to those studied by Bonini and Alkan (2011).

Oberli (2014) notes that, unlike in developed markets (the US, the UK, Canada, Israel, Japan, Australia, Germany, France, Spain, Italy, Sweden, Norway, Finland, Austria and Switzerland), the amount of credit supplied by the banking sector is negatively correlated with the PE funds raised in emerging markets (China, India, South Korea, Vietnam, Singapore and Hong Kong). The author notes that this could be due to direct competition between banks and PE investors. Babarinde (2012) posits that the burgeoning of interest in Africa as a preferred PE investment destination could be due to a number of factors, including political and economic reforms, a budding middle class, relatively high return on investment, and successful PE exits.

2.3. Understanding the drivers of private equity investments across BRICS

The determinants of PE investments among the BRICS countries (including SA) have not been studied extensively as there is very limited literature that focuses on quantitatively studying the idiosyncratic determinants of PE investments among emerging markets, let alone among the BRICS countries. Woeller (2012) qualitatively studies the legal and economic environment across the BRIC group (excluding SA) in relation to PE investments. Klonowski (2011a) focuses on the economic analysis of the BRIC countries and, similar to Woeller (2012), assesses the PE dynamics encapsulating the regulatory environment, investment process and returns among the BRIC countries. Albeit the study conducted by Groh and Wallmeroth (2016) includes the BRICS countries in its universal dataset, it is important to note that the dataset analysed therein comprises of both emerging and developed economies, thus not enabling for the bespoke drivers/determinants of PE investments specific to the BRICS countries to be adequately analysed and understood.

Fisher and Smyth (2013) assert that when US private equity investors are interested in emerging markets, they are sensitive to location-specific problems, which range from the protection of shareholder rights, tax treatment of capital gains to the development of the securities markets. Hallisy (2008) notes that in Russia, inadequate investor protection acts as a specific impediment to US private equity investments. As a result Russia has implemented various amendments to their investor protection law(s) to address this issue. In India, Kumari (2013) highlights that the expedited growth of GDP as a macroeconomic determinant, coupled with other factors, contributed significantly towards the development of the VC industry there. In congruence with Kumari (2013), Ratanpal (2008) asserts that India's economic growth, driven by investments in infrastructure, domestic consumption, and India's unique position as a preferred hub for global outsourcing as well as growth-oriented policies promulgated by the government, have led to growth in PE investments.

Carsalade and Rennó (2014:3) highlight that improved macroeconomic performance coupled with policymaking stability and other factors “drove PE in Brazil to a cyclical peak”. Hallisy (2008) notes that economic reforms such as the privatization of state-owned companies contributed significantly towards the growth of PE investments in

Russia. Owens (2011:24) points out that strong economic performance and improved institutional frameworks in Brazil, India and China subsequent to the 2008 economic crisis contributed to making these countries “attractive” for PE investments. Molatlhwe (2016) concludes that factors such as economic growth, developed financial markets and a sophisticated banking system have contributed to the growth of PE investments in SA. It is important to note that these studies only show plausible drivers or determinants of PE investments across the individual BRICS countries, whereas this study seeks to analyse the BRICS countries collectively as a group.

It is important to highlight the role that governments (BRICS governments in this case) can play in structurally driving or attracting PE investments through policy-making mechanisms. Kelly (2012:326) argues that governments could attract more PE investment activity through providing “fiscal incentives for R & D activity”, and through the implementation of initiatives that promote innovation. Hassan (2010) notes that the Egyptian government reduced personal and corporate tax rates, increased energy subsidies and privatized a number of entities in 2005. The result of this was a significant increase in foreign direct investment in the form of PE investments. Similarly, Adongo (2011) finds that capital gains tax rates are negatively and significantly related to VC activity in Africa. Mporu and Sibanda (2015) have found that the dearth of regulation, market liquidity and viable business sectors, in conjunction with political risks, are the main impediments to PE operations in Zimbabwe.

In agreement with Hassan (2010) and Adongo (2011), Bernoth and Colavecchio (2014) find that the central and eastern European governments employ low corporate tax rates and tax incentives to attract institutional investors. Pradhan, Maradana, Zaki, Dash and Jayakumar (2016) argue that per capita growth can be stimulated through the promulgation of policy strategies that promote VC investments through robust regulatory governance, encouragement of government investments, and by incentivizing private sectors to invest in the VC funds. Groh and Wallmeroth (2016) find that reduction of corruption and bribery within both the public and political sectors has a positive impact on VC investments. Variables like the corruption perception index, corporate tax rates and the legal infrastructure can be influenced by policymakers, lawmakers or the government to positively promote the inflow of PE

investments, thus it is imperative for the impact of such variables on PE investments to be studied and understood.

3. RESEARCH METHODOLOGY

This study employs quantitative secondary data to analyse and understand the determinants of PE investments among the BRICS countries. The study uses data spanning eight years (2008-2015) across the research variables are used. The research variables are listed on TABLE 3.1 below.

TABLE 3.1: Research variables

Variable	Measurement	Transformation	Hypotheses
Real interest rates	Percentage value		1) Real interest rates have a positive relationship with private equity capital funds raised.
GDP growth	Percentage of GDP		2) GDP growth has a positive relationship with private equity capital funds raised.
Corruption perception index	Numerical value	Log transformation	3) The corruption perception index has a positive relationship with private equity capital funds raised.
Corporate tax rates	Percentage value		4) Corporate tax rate has a negative relationship with private equity capital raised
Market capitalization growth	Percentage of GDP		5) Market capitalization has a positive relationship with private equity capital funds raised
Unemployment Rate	Percentage		6) Unemployment has a negative relationship with private equity capital raised
Private equity funds raised	Numerical value (\$)	Log transformation	
Sources: Jeng and Wells (2000); Groh and Wallmeroth (2016); Author's deductions			

The subsequent section outlines the assumptions formulated on the variables listed on TABLE 3.1 above.

3.1. Research hypotheses

3.1.1. Dependent variable

In line with Precup (2015), the PE investment variable will be measured as the total amount of capital raised across the BRICS countries over an observation period of eight years (2008-2015). This approach is also in congruence with Gompers and Lerner (1998), who study the determinants of VC fundraising, as well as Poterba (1989), Jeng and Wells (2000) and Marti and Balboa (2001). The explanatory variables are discussed in the subsequent section.

3.1.2. Independent variables

3.1.2.1. Expected return on investment

Gompers and Lerner (1998:6) argue that “higher expected returns lead to a greater desire of investors to supply venture capital”. This argument presents a plausible rationale in support of expected returns from PE investments being a reasonable driver of the flow of PE investments into a particular economy. Furthermore, Gompers and Lerner (1998:6) assert that the demand schedule for VC is “the quantity of entrepreneurial firms seeking venture capital that can supply a particular expected rate of return”. Gompers and Lerner (1998) further assert that the expected rate of return is considered to be the price of PE investments. It is from both these assertions that the assumption that as the expected return on PE capital investments increases, fewer entrepreneurs demand capital, is predicated.

3.1.2.2. Real interest rate

PE investors tend to partly use their own capital as supplied from their limited partners (LPs) and capital obtained through leverage via debt capital markets. Thus higher interest rates make it expensive for PE investors to raise funds through the debt capital markets. Gompers and Lerner (1998) posit that bonds are among the alternative asset classes available to venture capitalists and as a result higher interest rates make PE assets less attractive to PE investors. However, from an entrepreneur’s point of view, higher interest rates make it costlier for unlisted companies to raise capital through debt capital markets, thus making PE capital an attractive alternative. It then prevails

to hypothetically assume that an increase in interest rates may lead to a decline in the supply of the quantity of PE investments provided, however, from the demand perspective, the opposite could be true. Gompers and Lerner (1998), as well as Romain and de La Potterie (2004,) argue in favour of the latter argument. For the purposes of this study, the demand side is considered and thus the expectation is that an increase in interest rates leads to an increase in the demand for PE investments.

3.1.2.3. Economic growth

Growth in the economy is synonymous with a generally healthy economy. A growing economy translates to the development of more business opportunities for entrepreneurs and in turn this engenders an increase in the demand for VC (Gompers and Lerner, 1998). This argument is also in congruence with Romain and de La Potterie (2004). It then follows that GDP growth is hypothetically expected to have a positive relationship with PE investments in the BRICS countries.

3.1.2.4. Corruption

Precup (2015) studies the determinants of the PE market in Europe using previously studied determinants as well as productivity and the corruption index as additional variables. Precup (2015) finds that the corruption index is relevant in explaining the development of PE activity in Europe. Groh and Wallmeroth (2016) assert that decreases in bribery and corruption practices have a positive statistical significance on VC investments. Thus the assumption that an increase in bribery and corruption leads to a decrease in the supply of PE investments can reasonably be postulated. For the purposes of this study the corruption perception index as published by the Transparency International organisation is employed. The corruption perception index ranks countries based on how corrupt their public sector is viewed to be by surveyed independent institutions. Prior to the year 2012, the ranking was based on a scale of 0-10, where 0 represents countries that are viewed to be highly corrupt and 10 represents countries that are viewed to be without corruption. As of 2012 the scale was changed to be 0-100 where 100 indicates countries that are viewed to be without corruption and 0 still bears the same interpretation (Transparency International, 2015).

3.1.2.5. Corporate tax

A plethora of extant literature (Hassan (2010), Adongo (2011), Bonini & Alkan (2011), Bernoth & Colavecchio (2014) and Oberli (2014)) have shown that an increase in corporate taxes has a negative impact on VC investments and hence it arguably follows that an assumption about the counter-reactionary relationship between corporate taxes and PE investments can be reasonably predicated from these findings.

3.1.2.6. Market capitalization

The assumption considered with regards to market capitalization (market cap) as a determinant of PE investment among the BRICS countries is that an increase in the market cap is indicative of liquidity and viable exit opportunities for PE investors that rely on initial public offerings for divestment purposes. Thus an increase in market cap is synonymous to an increase in PE investments. This assumption is in line with the findings of Felix, Gulamhussen and Pires (2007), who found that market cap has a positive relationship with VC investments. Similarly, Precup (2015) found market cap to be statistically significant in driving PE in Europe.

3.1.2.7. Unemployment

Unemployment was found to be statistically insignificant and was also found to have a negative impact on VC investments (Groh & Wallmeroth, 2016). The authors posit that this could be attributed to the argument that the unemployment rate can act as an economic harbinger that could be indicative of a thriving or anaemic economy which could in turn drive VC investments subject to the country's holistic economic position. Thus it can be conjectured that an increase in the unemployment rate has a negative impact on PE investments.

3.2. Model specification

The modelling approach used in this study is in line with Jeng and Wells (2000), as well as Gompers and Lerner (1998). Poterba (1989) posits that changes in VC fund raising emanate from changes in the supply or demand of VC. Gompers and Lerner (1998), building on the assertions of Poterba (1989), established the VC supply and demand equilibrium approach to examine the determinants of VC raising in the US. It is from the approach developed by Gompers and Lerner (1998) that the model derived by Jeng and Wells (2000) is premised.

3.2.1. Model

The model is derived from using supply and demand equations of PE investments. It is from these equations that an equilibrium model encapsulating the research variables is derived. The model can be mathematically represented as follows:

$$PE_{it} = \gamma_0 + \gamma_1 GDP_{it} + \gamma_2 MKT_{it} + \gamma_3 Empl_{it} + \gamma_4 Int_{it} + \gamma_5 BCI_{it} + \gamma_6 Tax_{it} \quad (1)$$

where *GDP* represents the GDP growth, *MKT* is the market capitalization growth, *Int* is the real interest rate, *BCI* is the corruption perception index, *Tax* is the corporate tax rate and *Empl* is the unemployment rate.

The empirical panel data analysis employed in this study is conducted on the premise of equation (1).

4. EMPIRICAL FINDINGS

The data analysis performed in this chapter is premised on a sample composed of a panel dataset constituted of the five BRICS (cross-sectional units) countries using seven research variables (time series data) over the observation period of eight years (2008-2015), as outlined on TABLE 3.1. The methodology employed to analyse the panel data is aligned to that of Precup (2015) and Groh and Wallmeroth (2016).

4.1. Panel data analysis

Subsequent to performing the redundant effects testing analysis, the fixed effects (FE) model was found to be the better model in comparison to the least squares dummy variable and the pooled regression model. It is important to note that the random effects model is not analysed in this study as the number of explanatory variables (six variables) studied exceed the number of cross-sectional units under study (five countries) (Cameron & Trivedi, 2005).

4.1.1. Fixed effects model

Table 4.1 below shows the results obtained from the FE model.

TABLE 4.1: Fixed effects model results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant	9.699	3.455	2.807	*0.009
GDP growth	5.924	1.062	5.577	*0.000
Unemployment rate	-0.287	0.193	-1.491	0.147
Market cap	-0.022	0.007	-3.277	*0.003
Corporate tax rate	-0.206	0.089	-2.299	**0.029
Corruption index	2.414	1.967	1.227	0.230
Interest rate	0.063	0.035	1.819	***0.079
Fixed Effects (Cross)				
BR_--C	-1.442			
RU_--C	-3.678			
IN_--C	-0.831			
CH_--C	-3.004			
SA_--C	8.954			
R-squared	0.640	Mean dependent var		-0.085
Adjusted R-squared	0.516	S.D. dependent var		1.055
F-statistic	5.166	Durbin-Watson stat		2.207
Prob(F-statistic)	0.000			

* represents the 1% significance level, ** represents the 5% significance level and *** represents the 10% significance level.

Source: Output obtained from the Eviews application

The FE model shows that four explanatory variables (as well as the constant) are statistically significant. The statistically significant variables are the GDP growth, market cap growth, real interest rate and the corporate tax rate. The GDP growth variable is shown to have a positive relationship with the dependent variable characterized by a coefficient of 5.924. In addition, this positive relationship between GDP growth and the dependent variable is in congruence with the results obtained by Gompers and Lerner (1998) as well as Romain and de La Potterie (2004).

Interest rates are shown to have a moderately positive relationship with PE investment funds raised. This is in line with expectations. The associated coefficient is 0.063, which implies that for every unit real interest rates rise by, PE investment funds raised increase by 0.063.

The corporate tax rate variable is statistically significant at the 5% level of significance and has a negative relationship with the dependent variable characterized by a coefficient value of -0.206.

This follows from the premise that higher tax rates inherently reduce business profitability (Beigi, Rafat, & Panah, 2013) and as a result a higher tax rate does not incentivize investors to channel capital into high tax economies.

Market cap growth is statistically significant at the 5% level of significance and it has a moderately negative relationship with PE investment funds raised. This relationship is characterized by the coefficient value of -0.022, which implies that for every single unit that the market capitalization among the BRICS countries grows by, the PE investment funds raised decrease by 0.022. This finding is aligned to Jeng and Wells (2000), who state that there is a negative relationship between market cap growth and VC investments.

It is important to note that this result is not in line with the expectation of a positive relationship between the dependent variable and the market cap growth. The expectation is predicated on the argument that an increase in the market cap is indicative of liquidity and viable exit opportunities for PE investors that rely on initial public offerings for divestment purposes.

The mismatch in the results could be attributed to the assertion made by Felix et al. (2007) that market cap also measures capital gains in the stock market, thus an increase in the market cap would translate into investing in VC (in this case PE investment) being viewed as less attractive than the stock market as an alternative asset class for PE investors. This argument translates to investors comparing listed companies (stock market) in terms of capital gains as measured by market cap growth against unlisted companies (PE investments) within the BRICS countries in pursuit of high return yielding assets. The outlined argument can also be linked to the assertion that stock markets and PE investments are comparatively uncorrelated in terms of volatility and performance (Demaria, 2013). Hence the negative relationship.

The unemployment rate was found to be statistically insignificant as per the FE model output, not according to the expectation. This result is in line with Felix et al. (2007), as well as Groh and Wallmeroth (2016), who assert that this result is prevalent among developing economies. The authors assert that this negative relationship could be attributed to a high unemployment rate being a signal for a lacklustre economy which inherently indicates tepid entrepreneurial activity, thus low demand for capital funding.

Lastly, the corruption index variable is found to be statistically insignificant among the BRICS countries over the observation period (2008-2015). This could be attributed to the fact that the corruption perception index employed in this study does not exclusively encompass market-related corruption (Groh & Wallmeroth, 2016). It is important to note that the positive relationship between the corruption index and the PE funds raised observed among the BRICS countries is in agreement with Precup (2015) and Groh and Wallmeroth (2016).

Russia is notably the most corrupt country among the BRICS over the observation period and inherently it is observed to have the lowest PE funds raised. This is in line with Klonowski (2011a), who asserts that Russia is primarily viewed as a risky investment destination for a variety of reasons, particularly the payment of bribes and widespread corruption practices. It is important to note that, although the relationship between the corruption variable and the dependent variable used in this paper is in line with various extant studies, the corruption perception index was found to be statistically insignificant among the BRICS countries.

5. CONCLUSION

The objective of this paper was to identify and analyse the determinants of private equity investments across the BRICS countries. The results show that four of the six explanatory variables drive private equity investments across the BRICS countries. The main determinants as per the fixed effects estimation model include the GDP growth, market capitalization growth, corporate tax rate and the real interest rate.

Literature has shown that minimal government intervention, the promotion of a business-friendly regulatory infrastructure and, in line with the results of this paper, lower taxes are important for the promulgation of PE investments.

The value that can be derived from this paper is premised on the different approaches that policymakers or governments of the respective emerging countries can exploit to drive PE investments in their respective economies. There are possible interventions, which policymakers within the BRICS countries could implement to positively drive PE investments. Firstly, innovative ways could be explored to reduce taxes in the interest of positively driving PE investments. Secondly, policymakers could promulgate robust regulations and enforcement that seek to protect the rights of investors (domestic and foreign) within a country. Thirdly, governments could incentivize pension funds (of public and private companies) to channel some of their investment funds towards PE firms. Lastly, governments should promote a culture of entrepreneurship and also note that inadequate regulations or lack thereof limits PE investments.

LIST OF REFERENCES

- Adongo, J. (2011). *Determinants of Venture Capital in Africa: Cross Section Evidence*. African Economic Research Consortium: Nairobi. (AERC Research Paper No. 237).
- Babarinde, O. (2012). The Private Equity Market in Africa: Trends, Opportunities, Challenges, and Impact. *The Journal of Private Equity*, 16(1), pp. 56-73.
- Balboa, M. & Marti, J. (2003). *An Integrative Approach to the Determinants of Private Equity Fundraising*. (EFMA 2004 Basel Meetings Paper).
- Beigi, M.R., Rafat, B. & Panah, H.M. (2013). The Analysis of the Effect of Tax on Profitability Indices in Listed Companies of Tehran Stock Exchange. *European Online Journal of Natural and Social Sciences*, 2(3), pp. 86-98.
- Binnie, R. (2013). Private Equity Market in Brazil: Key Legal Issues in Fund Formation. *The Journal of Private Equity*, 16(4), pp. 69-85.
- Bernoth, K. & Colavecchio, R. (2014). The Macroeconomic Determinants of Private Equity Investment: A European Comparison. *Applied Economics*, 46(11), pp. 1170-1183.
- Bonini, S. & Alkan, S. (2012). The Political and Legal Determinants of Venture Capital Investments around the World. *Small Business Economics*, 39(4), pp. 997-1016.
- British Private Equity and Venture Capital Association (2010). *A Guide to Private Equity*. BVCA Publications and Research.
- Cameron, C.A. & Trivedi, P.K. (2005). *Microeconomics, Methods and Applications*. New York: Cambridge University Press.
- Carsalade, F. & Rennó, R. (2014). INSEAD-PwC Study on Private Equity in Brazil, Brazilian Private Equity: A New Direction. Available: <https://www.pwc.com.br/pt/publicacoes/setores-atividade/assets/private-equity/2014/pwc-insead-brazilian-private-equity-2014.pdf>. (Accessed 31 January 2017).

- Carvell, S.A., Kim, J., Ma, Q. & Ukhov, A.D. (2013). Economic and Capital Market Antecedents of Venture Capital Commitments (1960-2010). *International Entrepreneurship and Management Journal*, 9(2), pp. 167-182.
- Davidoff, S. (2009). *Gods at War: Shotgun Takeovers, Government by Deal and the Private Equity Implosion*. New Jersey: John Wiley & Sons.
- Demaria, C. (2013). *Introduction to Private Equity: Venture, Growth, LBO & Turn-Around Capital, 2nd Edition*. West Sussex: John Wiley & Sons.
- Felix, E., Gulamhussen, M.A. & Pires, C.P. (2007). The Determinants of Venture Capital in Europe: Evidence across Countries. *CEFA GE UE*, pp.11-25.
- Fisher, K. & Smyth, S. (2013). U.S. Private Equity Investment in Emerging Economies. *Journal of International Business and Law*, 12(1), pp. 223-257.
- Gompers, P. & Lerner, J. (1998). *What Drives Venture Capital Fundraising? (Brooking Papers on Economic Activity)*. Available:
<https://www.brookings.edu/bpea-articles/what-drives-venture-capital-fundraising>.
(Accessed 25 August 2016).
- Groh, A.P. & Wallmeroth, J. (2016). Determinants of Venture Capital Investments in Emerging Markets. *Emerging Markets Review*, article in press.
- Hallisy, C.M. (2008). Riches to Rubles: Problems Russia Must Address to Increase Direct Investment from U.S. Private Equity. *Tulsa Journal of Comparative and International Law*, 16(1), pp. 137-171.
- Hassan, A. (2010). An Explanatory Study of Private Equity and Venture Capital in an Emerging Economy: Evidence from Egypt. *The Journal of Private Equity*, 13(2), pp. 55-66.
- Jeng, L.A. & Wells, P.C. (2000). Determinants of Venture Capital Funding: Evidence across Countries. *Journal of Corporate Finance*, 6(2000), pp. 241-289.
- Kelly, R. (2012). Drivers of Private Equity Investment Activity, Are Buyout and Venture Investors Really So Different? *Venture Capital*, 14(4), pp. 309-330.

Keuschnigg, C. (2004). Venture Capital Backed Growth. *Journal of Economic Growth*, 9, pp. 239-261.

Klonowski, D. (2011a). Private Equity in Emerging Markets: Stacking Up the BRICs. *The Journal of Private Equity*, 14(3), pp. 24-37.

Klonowski, D. (2011b). Private Equity in Poland after Two Decades of Development: Evolution, Industry Drivers, and Returns. *Venture Capital*, 13(4), pp. 295-311.

Klonowski, D. (2013). Private Equity in Emerging Markets: The New Frontiers of International Finance. *The Journal of Private Equity*, 16(2), pp. 20-37.

Kumari, V.R.J. (2013). An Analysis of Trends of Venture Capital and Private Equity Investments in India. *Indian Journal of Economics & Business*, 121, pp. 73-81.

Marti, J. & Balboa, M. (2001) *Determinants of Private Equity Fundraising in Western Europe*. (IVIE Working Paper).

Michelacci, C. & Suarez, J. (2004). Business Creation and the Stock Market. *Review of Economic Studies*, 71(2), pp. 459-481.

Molatlhwe, L. (2016). *Private Equity Growth in Emerging Markets: A South African Case Study*. Gordon Business Institute of Business Science, University of Pretoria. Available:

http://repository.up.ac.za/bitstream/handle/2263/52261/Molatlhwe_Private_2016.pdf?sequence=1. (Accessed 12 June 2017).

Mpofu, M. & Sibanda, M. (2015). Private Equity Capital in a Less Developed Economy: Evidence, Issues and Perspectives. *Acta Universitatis Danubius Economica*, 11(5), pp. 17-29.

Ning, Y., Wang, W. & Yu, B. (2015). The Driving Forces of Venture Capital Investments. *Small Business Economics*, 44(2), pp. 315-344.

Oberli, A. (2014). Private Equity in Emerging Markets: Drivers in Asia Compared with Developed Countries. *The Journal of Private Equity*, 17(3), pp. 45-61.

Owens, C. (2011). Private Equity Comes of Age in China, India and Brazil. INSEAD Knowledge Publications, p. 24-26. Available:

<http://knowledge.insead.edu/INSEAD-knowledge-private-equity-in-china-india-and-brazil-11-923.cfm>. (Accessed 09 June 2017).

Poterba, J. (1989). *Venture Capital and Capital Gains Taxation, Tax Policy and the Economy*. Cambridge: MIT Press.

Pradhan, R.P, Maradana, R.P., Zaki, D.B., Dash, S. & Jayakumar, M. (2016). Nexus between Venture Capital and Economic Growth In European Economic Area Countries: The Granger Causality Approach. *The Journal of Developing Areas*, 50(6), pp. 1-15.

Precup, M. (2015). The Future of Private Equity in Europe – The Determinants Across Countries. *Romanian Journal of European Affairs*, 15(4), pp. 72-92.

Puri, M. & Zarutskie, R. (2012). On the Life-Cycle Dynamics of Venture Capital and Non-venture-capital-finance Firms. *Journal of Finance*, 67(6), pp. 2247-2293.

Ratanpal, A. (2008). Indian Economy and Indian Private Equity. *Thunderbird International Business Review*, 50(6), pp. 353-358.

Romain, A. & de La Potterie, B.v P. (2004).The Determinants of Venture Capital: A Panel Data Analysis of 16 OECD Countries. *Research Institute in Management Science*, pp.10-35.

Samila, S. & Sorenson, O. (2011). Venture Capital, Entrepreneurship and Economic Growth. *The Review of Economics and Statistics*, 93(1), pp. 338-349.

Sinyard, D.B. (2013). The Investment Process Used By Private Equity Firms: Does The Affect Heuristic Impact Decision-Making? Dissertation, Georgia State University. Available:

http://scholarworks.gsu.edu/cgi/viewcontent.cgi?article=1026&context=bus_admin_di ss. (Accessed 03 June 2017).

South African Venture Capital and Private Equity Association and Development Bank of the Southern Africa (2013). *The Economic Impact of Venture Capital and Private Equity in South Africa*. Available:

<http://www.savca.co.za/wp-content/uploads/2014/04/SAVCA-DBSA-Economic-Impact-Study-2013.pdf>. (Accessed 15 September 2016).

Transparency International. (2015). *Corruption by Country/Territory*. Available: <http://www.transparency.org/country/#idx99>. (Accessed 02 October 2016).

Woeller, A. (2012). Private Equity Investment in the BRICS. *Fordhan Journal of Corporate & Financial Law*, 17(4), pp.1307-1361.