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Private Equity in India: Growth and Emergence

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Abstract

The purpose of this study is to understand the trend, growth and emergence of private equity investment in India. Study involves discussion on the concept of private equity, its structure, emergence and drivers of growth. Data on private equity investment (deal value and volume) and exit (deal value and volume) is collected from 2004q1 to 2017q and log-lin regression analysis is performed. Study finds that private equity investment is a volatile activity in India. Over the past 13 years (2004-2017), the year 2015 attracted maximum investments and witnesses highest exits from private equity investors. IT&ITeS and real estate are the most preferred sectors. And late and growth stage companies are the most desired businesses for investment such institutional investors. Regression analysis report quarterly growth of 3.8% in investment value and 2.8%in investment volume from private equity investors. Also, results show quarterly growth of 3.4% in exit value and 2.7% in exit volume.

Key Words: Private Equity, Log-Lin Regression, Real Estate,IT&ITeS

Introduction

Prior to the global financial crisis, private equity fund managers focused exclusively on US and western European markets. But by mid-1990s, they felt that in order to enter emerging markets of China and India, a new investment model or strategy is required. Around this time, China and India began to open their markets for foreign trade and investment. And suddenly these markets became more receptive towards private investors which resulted in huge growth of FDIs in developing Asia (Leeds and Satyamurthy, 2015). This investment boom benefitted only the large domestic companies. Private equity filled the void and provided capital to many small and medium-sized businesses constituting the rest of the private sector.

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Private Equity has ushered in an equity culture and enabled Indian entrepreneurs to grow (Private equity in India: 2025, PwC, 2015). Private equity investors have funded more than 4000 businesses in India during 2000-2013. In the era of emerging and growing private equity industry, this study aims to contribute towards greater understanding about the concept of private equity, private equity market, trend and growth of private equity industry over the last two decades in India.

Research framework

The objective of this study is to understand the trend, growth and emergence of private equity investment in India. The research follows a qualitative and quantitative research design that includes discussion on the concept of private equity, its structure, emergence and drivers of growth along with statistical analysis of trend/growth of private equity investment. India continued to remain an attractive investment destination for private equity investors as fund allocation to India increased by 8% in 2016 over the previous year (Bain & Company, 2017). Private equity investing is now regulated in India under the SEBI's (Alternative Investment Funds (AIFs)) Regulations, 2012 (Securities and Exchange Board of India (Alternative Investment Funds) (Amendment) Regulations, 2016). Over the past two years the registered AIFs in India have more than doubled and contributed as much as 41% to the total India-focused private equity funds raised in 2016 (Bain & Company, 2017). Such dynamics of the Indian private equity industry encourage academics to address the phenomena of private equity and make significant contributions to build the research gap on the topic in India. This study is structured as follows. Section 2 gives introduction and describes private equity and related terminologies followed by structure of such transactions in India. Section 3 discusses the private equity scenario and section 4 presents descriptive statistics and multiple regression results. The last section is about the future of private equity in India.

Concept

Definition of private equity

Private equity is defined as any equity investment in a company which is not recorded on a stock exchange (Fraser-Sampson, 2007). But over the years, the term private equity has expanded to include investments organized as convertible debt, private investment in the equity of publicly listed companies, secondaries in which existing interests in private equity are traded between investors and so forth (Fraser-Sampson, 2007). Once the head of a global buyout fund quoted that "by definition, private equity capital is long-term and transformational. It needs to be treated better than FIIs". Private equity, often called risk capital, provide financing to private (or public) companies at different (or all) stages of a company's life (Conroy and Harris, 2007; Leeds and Sunderland, 2003; Moon, 2006). In other words, private equity includes early-stage classic venture capital, expansion stage and later stage investments in management buyouts or buyins (Wright and Robbie, 1998). Private equity is thought to bridge the gap between self-financing and conventional sources. As patient capital, private equity assumes a long-term profitable commitment from various investors (Jain and Manna, 2009).

Types of private equity

Private equity may take forms of venture capital, growth capital, hedge funds, buyouts (leverage/management), mezzanine debt, distressed financing, secondaries and so forth. Such forms are often called investment styles or strategies practiced by private equity funds. Venture and buyout are two broad classifications of private equity captured by many researchers. Buyout generally focuses on established companies, makes use of debt and/or equity or a combination (hybrid) of the two, concern traditional sectors and owns majority of shares in the investee company whereas venture capital transactions usually focus on young businesses, concern technology sectors, hardly use debt and owns minority stake in investee companies (Fraser-Sampson, 2007). Growth strategy is taking minority stakes in relatively mature companies that are seeking funds for further expansion or restructuring. Any investment less than US$ 20 million is categorized as growth stage private investment (PwC, 2017). Private equity is not restricted to unlisted companies (Demaria, 2010). Private equity investments in publicly listed companies through preferential allotment or private placements and acquisition of shares by private equity firms in the secondary market constitute private investment in public equity (PIPEs), which is a form of growth capital (PwC, 2017). The objective of PIPEs is to take long-term stake in listed company which is struggling to raise funds on the stock exchange (Demaria, 2010).

A hedge fund is an alternative investment vehicle available for investment to institutions and individuals with significant assets (Barclay Hedge). These are pools of underlying securities/assets using long-short strategies. Hedge funds are set up as private investment partnerships that are open to a limited number of investors (The Economic Times) and require a very large initial minimum investment. Distressed debt investment is acquisition of debt of distressed companies at a discount. The investors become priority creditors who plan to turnaround and restructure the business of investee companies (Demaria, 2010).

Mezzanine debt is a quasi-equity instrument (with the option of converting debt into equity as fine) generally used in medium to large buyouts. It is subordinated to the repayment of other plain vanilla debts due to its risky nature (Demaria, 2010).

Secondary transactions have become important part of private equity landscape (Fraser-Sampson, 2007). Such transactions have grown rapidly in numbers as well as in sizes over the years. These can take place at the portfolio company level, fund level and as portfolio or single asset secondary sale (Demaria, 2010). Private equity funds making investments in other private equity funds and providing investors with products having lower risk profiles are known as funds of fund. They provide investors access to shared expertise, benefit of diversification, access to top investment opportunities and support of specialists in private equity investments (Demaria, 2010). And as the private equity market is expanding, the investment styles are also evolving.

Private equity market/industry

Private equity market is a source of funds for startups, private middle market companies, firms in financial distress and public firms looking for buyout financing (Fenn, Liang and Prowse, 2001). Private equity market is a collection of funds that raise capital by soliciting investments from large investors and acquiring equity position in a company (Gaughan, 2007). Private equity market has been the fastest growing market for corporate finance in terms of magnitude. Depending upon the country, the private equity market may exist in organized and/or unorganized form. The organized private equity market is characterized by professionally managed investments in unregistered securities (private or public) whereas in the latter the transactions are generally exempted from registration with the concerned regulatory body (Fenn, Liang and Prowse, 2001).

Structure

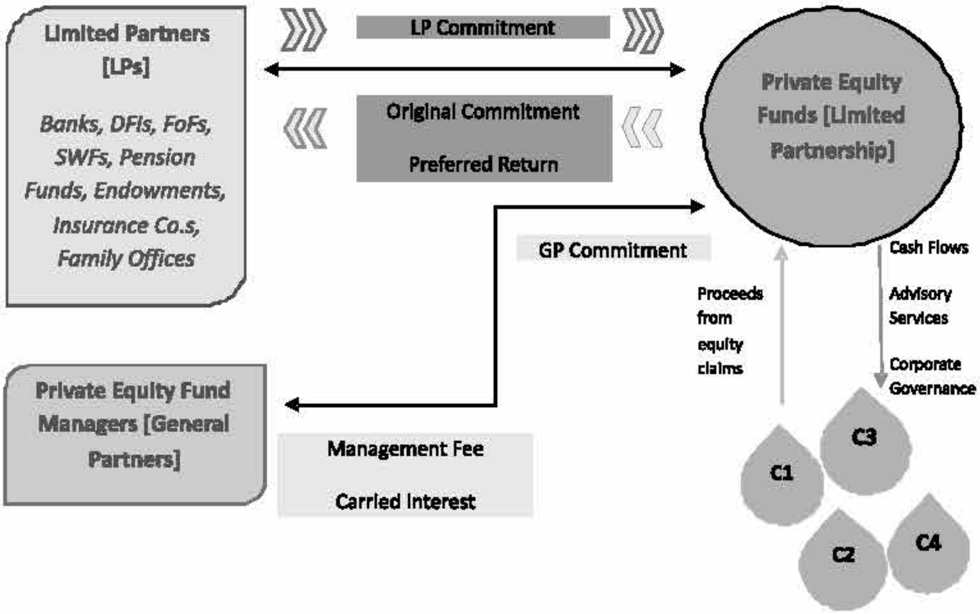
Structure of private equity transaction

The organized private equity market has three major participants namely issuers, intermediaries and investors (Povlay, 2007; Fenn, Liang and Prowse, 2001). Issuers are the firms that receive capital from private equity investors. In case of venture capital, issuers are young firms and in case of private equity issuers could be early stage or late stage companies that cannot raise capital from stock markets or through debt. Intermediaries are basically the private equity funds that are structured as limited partnerships (Metric and Yasuda, 2008; Jeng and Wells, 2000; Gompers and Lerner, 1996; Onio, 2014). A significant portion of private equity investments is solicited through such intermediaries (Jain and Manna, 2009). The institutional investors are the limited partners (LPs) and fund managers act as general partners (GPs) (Figure 1) (Metric and Yasuda, 2008). GPs may have voting and non-voting control in the company including seats on boards of directors. Usually, these funds or limited partnerships have a life span of 10 years (Jain and Manna, 2009; Fenn, Liang and Prowse, 2001).

Investors include public and corporate pension funds, endowments and foundations, bank holding companies, wealthy families and individuals, investment banks, insurance companies, non-financial companies and foreign investors. Most of them invest in private equity funds with the purpose of earning risk-adjusted returns higher than other investments

(Jain and Manna, 2009; Povlay, 2007; Fenn, Liang and Prowse, 2001). The presence of agents and advisors in the private equity market cannot be denied as they reduce information asymmetries and facilitate search and evaluation of institutional investors. Furthermore, there may be exist other minor players who facilitate proper functioning of the private equity market.

Figure 1: Private equity organizational structure



LPs are passive investors as they do not possess any decision-making authority on investments (Figure 4.1). All the responsibility lies with GPs right from deal origination to exiting the last portfolio company (Leeds and Satyamurthy, 2015) (Figure 1). Since, directly investing in individual companies is time consuming, institutions find investment in private equity funds more attractive due to specialized intermediaries, that is, GPs, better efficiency, and probability of higher and attractive financial returns (Leeds and Satyamurthy, 2015).

Overview of India's private equity landscape

Emergence of private equity in India

Most of the South Asian regions saw evolution of venture capital firms into private equity firms by broadening the scope of their investment activities (Jain and Manna, 2009). In mid 1980s, financial institutions like ICICI and IFCI provided seed funding to start-ups in the technology sectors thereby launched their own venture capital schemes. Later 1980s and early 1990s are marked by the emergence of various private sector funds. Not only the activities of venture capitalists expanded eventually become a subset of broad private equity phenomena and but also the size of the private equity industry increased marked by the participation of several foreign private equity firms. Baring private equity partners, CDC capital, Draper international, HSBC private equity, Chrys capital, West Bridge capital and Warburg Pincus were among the first few private equity firms that entered the Indian territory (Jain and Manna, 2009). Venture capital funds became regulated under the SEBI (Venture Capital Funds) Regulations, 1996 but the regulations pertaining to private equity transactions were introduced very recently under SEBI (Alternative Investment Funds) Regulations, 2012 (SEBI). Of course, these regulations were followed by a number of amendments in the succeeding years. Many US-based private equity players exited India in 2000s due to the technology boom burst in US. This led to slowdown in the private equity industry in India from 2001 to 2003 but the market revived in 2004 recording upward trend in private equity activity (Jain and Manna, 2009). A number of successful deals mark the growth of Indian private equity industry in 2000s namely Bharti Airtel-Warburg Pincus, Infomedia-ICICI Venture, Tata Group, Shriram Transport Finance Corp.-Chrys capital and TPG Newbridge and so on. And that is why it is often said that the development of emerging markets (specifically India and China) is largely driven by the funds provided by US-based private equity investors (Wright, Lockett and Pruthi, 2002; Leeds and Sunderland, 2003; Deloitte, 2005).

Until 2007, private equity investment activities increased but declined globally due to financial crisis of US in 2008-09. Thereafter, private equity investors shifted their preferences towards emerging markets (Global Limited Partners Survey, EMPEA, 2009-2013) that have always been in competition to attract funding from institutional investors (Cumming, 2010). Eventually, China, India and Brazil became the top most attractive emerging investment destinations for international risk capital investors (Global Limited Partners Survey, EMPEA, 2013). Private equity industry in India grew at 36.38% in 2013 (The Economic Times, 2013) and the country continued to remain an attractive investment destination for private equity investors as fund allocation to India increased by 8% in 2016 over the previous year (Bain & Company, 2017). India's economy is on an uptrend since the economic downturn of 2007-08. The positive investment environment has attracted large number of private equity investments over the past 7 years (The Fourth Wheel, Grant Thornton, 2017). The private equity to GDP ratio increased from 0.3% in 2009 to 0.6% in 2016 indicating increasing contribution of private equity towards the growth of India's economy. But this ratio is lower in comparison to developed markets. Private equity investors are also contributing to the flow of FDI in India as the private equity to FDI ratio has continuously increased from 9% in 2009 to 17% in 2016 (The Fourth Wheel, Grant Thornton, 2017).

Factors driving growth of private equity in India

Jain and Manna (2009) argue that strong macro-economic fundamentals resulted in increased flow of private equity into India from 2003 to 2007. They identified booming domestic stock markets as the one of the principal factors driving growth of private equity in India. Ratanpal (2008) maintains that growth-oriented policies of government, suitable environment and various profitable investment opportunities in infrastructure development, ever increasing domestic consumption needs led to the emergence and growth of private equity market in India. He believes that private equity investors fund the capital needs of small and medium sized enterprises and emerging entrepreneurs and provide strategic support to them. Leeds and Sunderland (2003) are of the opinion that during mid 1990s emerging markets attracted risk capital on account of shortage of capital, favorable macroeconomic fundamentals, opening up of government to foreign investments and incentive of earning abnormal returns. Many US and Europe-based investor remodeled their investment strategies in emerging markets for want of higher returns. Groh (2009) presented the finding of his study on the same lines and found that institutional investors provide capital by way of investment in small and medium sized young enterprises in emerging regions. He found some unconventional growth drivers like availability of debt financing, maturity of private equity market, previous year's market liquidity, large deal flow to cover the cost of managing private equity funds, legal origin, property rights, accounting standards, labor markets, capital gain tax rates and risk capital culture. Continuous growth of India's economy, while consuming the ups and downs, make the country more resilient and increases the private equity opportunities in India market (Private equity investing in India, KPMG, 2010).

New developments in private equity market in India

Private equity industry is roughly two decades old and since then has been growing very fast in comparison to other markets in India. India, being a healthy market for deal making, was the second highest in the past nine years in terms of its total deal value (Indian Private Equity Report, Bain & Company, 2017). Many new developments/reforms have taken place in 2016 that are significantly impacting the private equity deal activities. Government's demonetization has given rise to short term uncertainty in the investment outlook in all major sectors. This resulted in limited private equity activity as the total deal activity declined by 12% year-on-year in 2016 over the previous year (The Fourth Wheel, Grant Thornton, 2017). But this type of digitization is expected to have long-term positive impact and private equity investors, remaining bullish over medium to long term, are expected to make a comeback in 2017. This scheme is expected to bring down borrowing costs, reduce inflation, improve tax collections and increase digitization of the system. One of the policy initiatives of 2016 is Goods and Service Tax (GST) Act which currently lacks clarity and hence brings uncertainty among investors. Investors believe that GST along with other reforms (rationalization of tax regime, one rank one pension, 7th pay commission, insolvency and bankruptcy code) should help improve the ease of doing business in India.

Private equity investing is now regulated in India under the SEBI's (Alternative Investment Funds (AIFs)) Regulations, 2012. AIFs have emerged as a new class of asset and over the past two years the registered AIFs in India have more than doubled and contributed as much as 41% to the total India-focused private equity funds raised in 2016 (Indian Private Equity Report, Bain & Company, 2017).

Data Analysis

Data on private equity investment and exit in India from 2004q1 to 2017q2 and data on investment according the stage of development is sourced from quarterly reports published by PwC India. Whereas data on private equity investment across sectors from 2005 to 2015 is gathered from yearly reports published by Grant Thornton India. The private equity investment is analyzed in aggregate, across sectors and stages of investment. The quantitative analysis includes the use of basic statistical tools (mean, median, standard deviation and average deal sizes) and empirical analysis using log-linear regression model. This section presents descriptive statistics and time series analysis followed by results of log-linear regression analysis.

Descriptive statistics

13-year private equity investment trend (Table 4.1(a) and 4.1(b)) indicates significant increase in the average deal size from US$ 18 million in 2004 to US$ 43 million in 2017 (June). It implies that investment value has increased in relation to number of deals. In the past 13 years, 2017 (June) remains the year with highest average deal size US$ 43 million. The average private equity deal volume per year is 121 with a standard deviation 52 whereas average total deal value per year is US$ 2704 million with standard deviation US$ 1732 million. This indicates a volatile private equity activity in India during 2004-2017 (June).

Table 1(a): 13-year Private equity investment and exit trend in India

	Average	Median	Std. Dev.
Private Equity Investment			
Volume (No. of Deals)	121	126	52
Value (US$ Mn)	2704	2331	1732
Private Equity Exit			
Volume (No. of Deals)	37	34	17
Value (US$ Mn)	1164	989	852

Source: MoneyTree India Report, PwC, 2004q1 to 2017q2

Table 1(b): 13-year Private equity investment and exit trend in India

	Private Equity Investment (US$ Mn)			Private Equity Exit (US$ Mn)		
Year	Volume	Value	Av. Deal Size	Volume	Value	Av. Deal Size
2004	106	1878	18	46	798	17
2005	197	2511	13	83	4848	58
2006	397	7344	18	94	2683	29
2007	533	14686	28	145	3773	26
2008	497	10331	21	81	1734	21
2009	306	4183	14	122	1957	16
2010	427	8657	20	190	6284	33
2011	560	12643	23	129	3086	24
2012	545	9889	18	152	4800	32
2013	483	10066	21	134	4699	35
2014	573	13177	23	191	4328	23
2015	852	19628	23	253	9549	38
2016	766	17404	23	244	8321	34
2017*	314	13636	43	119	6017	51

*January-June

Source: MoneyTree India Report, PwC, 2012q1 to 2017q2

Table 2: 10-year sector-wise private equity investment trend in India

	IT&ITeS	BFSI	Real Estate	Retail & Consumer	Pharma, Healthcare & Biotech	Infrastructure
Av. Deal Size (US$ Mn)	13	42	60*	19	17	31
Av. Volume (No.of deals)	141*	25	27	31	30	12
Av. Value (US$ Mn)	1879*	1067	1655	477	488	381
Median (No. of deals)	59*	17	27	28	25	12
Median (US$ Mn)	851	819	962*	514	320	271
Std. Dev. (No. of Deals)	177*	20	8	12	19	6
Std. Dev. (US$ Mn)	2242*	816	1801	174	410	320

*Highest

Time Period: 2005 to 2015
Source: The Fourth Wheel, Grant Thornton, 2012 to 2017

The 10-year sector-wise private equity investment trend (Table 4.2) shows that the real estate sector has highest average deal size, US$ 60 million, followed by BFSI (US$ 42 million) and infrastructure (US$ 31 million). IT &ITeS is the sector with lowest average deal size, US$ 13 million, during the 2005-2015 period. However, IT &ITeS with average private equity investment value per year of US$ 1879 and average private equity investment volume per year of 141, is most preferred sector for private equity investors. At the same time, IT &ITeS with standard deviations 177 for number of deals and US$ 2242 million (more than the average) for total deal value per year, is also the most volatile of all the sectors.

Table 3: 6-year stage-wise private equity investment (US$ mn) trend in India

Year	PIPE	Late	Growth	Early	Buyout
2012	2387	2286	1693	497	1986
2013	2604	2463	1967	361	1989
2014	1695	5192	3906	637	707
2015	2048	6680	4758	1434	4469
2016	1226	5055	4350	1021	4289
2017*	1978	6987	1375	505	1450
Mean	**1990**	**4777****	**3008****	**743**	**2482**

**Highest
*January-June
Source: MoneyTree India Report, PwC, 2012q1 to 2017q2

Broadly, majority of private equity investors in India are investing in late (US$ 4777 million) and growth (US$ 3008 million) stage companies (Table 4.3). As many as 78 private equity funds, out of 258 as on April 2017, are practicing growth strategy while investing within India (Bloomberg). Very limited investments are being made in early (US$ 743 million) stage companies. Private equity investment is also somewhat higher in case of companies seeking buyouts (US$ 2482 million). Therefore, it can be concluded that late stage, growth stage and buyout are the three basic investment strategies defining private equity industry in India during the last decade 2005-2015 (Table 4.3).

Time Series

The trend analysis of private equity investment in aggregate, across sectors and among stages is presented through a combination of line graphs and bar charts. During 2004-2017 (June), 2015 remained the year that attracted maximum private equity investment by total value (US$ 19628 million) as well as the volume (852) (Figure 2). During this year, IT &ITeS attracted maximum number of private equity deals and highest investment deal value. Since 2009 there is a steady increase in the private equity flows into India. It indicates that private equity investors or funds are more open to invest in India. The most notable deal in 2015 was Baillie Gifford, Greenoaks Capital, Steadview Capital, T Rowe Price Associates, Qatar Investment Authority, DST Global, GIC, Iconiq Capital, and Tiger Global investing US$ 0.7 billion in Flipkart (The Fourth Wheel, Grant Thornton, 2017). The private equity exit trend is equally suggestive of 2015 as the year witnessing maximum private equity exit volume (253) and value (US$ 9549 million) (Figure 3). This particular year indicates active participation of institutional investors due to which the Indian private equity industry is witnessing greater investments and more exits. Upward and downward trends indicate significant volatility in the private equity exits.

Figure 2: 13-year Private equity investment trend in India

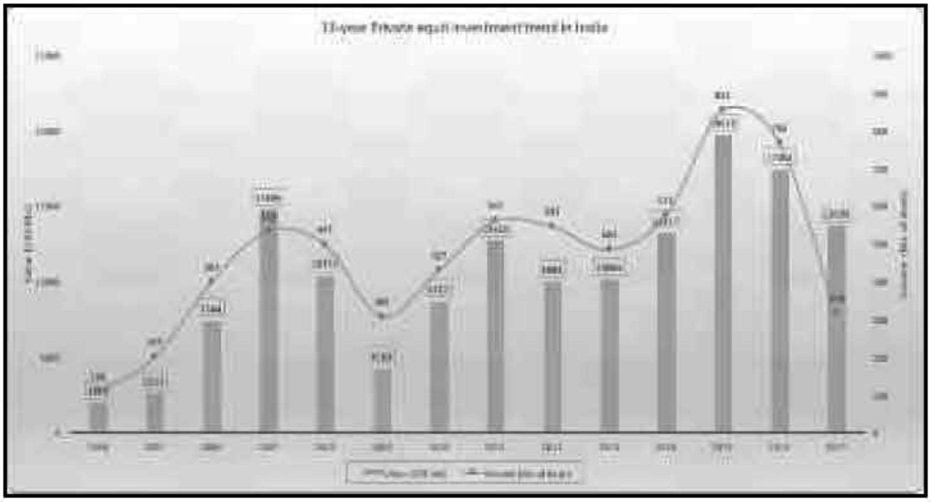
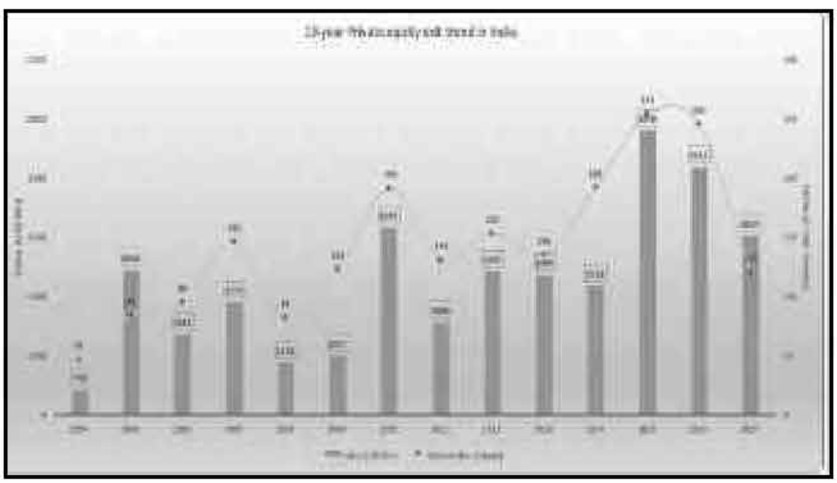
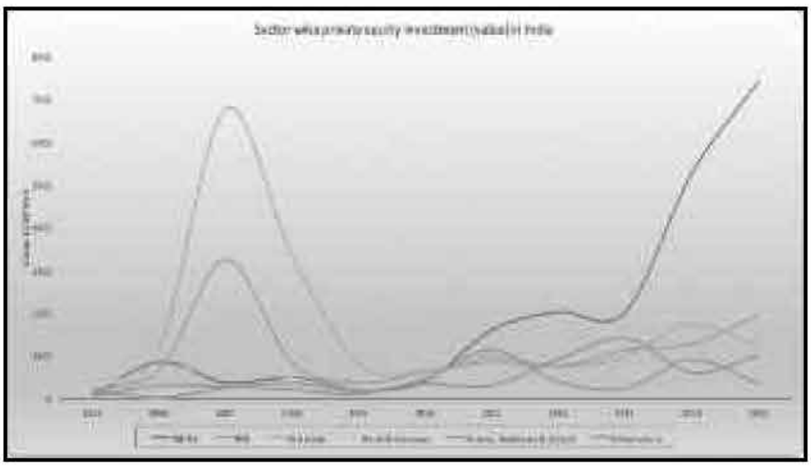


Figure 3: 13-year Private equity exit trend in India



Private equity investment value in real estate (US$ 6764 million) and BFSI (US$ 3231 million) remained highest in 2007 but private equity investment volume in real estate (42) and BFSI (56) remained highest in 2014 and 2015 respectively (Figure 4(a) and (b)). It may imply that in 2007 India witnessed big-ticket investments (deals valuing more than US$ 100 million) in real estate and BFSI. Pharma, healthcare and biotech sector recorded highest private equity investment value (US$ 1391 million) and volume (73) in the same year 2013. The retail and consumer sector presented a trend different from the market and other sectors. It received highest private equity investment value (US$ 733 million) in 2014 and investment volume (52) in 2008. Strong and investor-friendly regulator environment may have resulted in increased investment in these sectors. Infrastructure sector indicate volatile private equity investment value and volume from 2005 to 2015. The year 2011 remained the year with highest investment value (US$ 1123 million) and investment volume (23) in India. Interestingly, private equity investment in IT &ITeS sector has continuously increased during 2005 to 2015. While private equity investment value increased from merely US$ 78 million in 2005 to US$ 7391 million in 2015, private equity investment volume rose from 21 in 2005 to 657 in 2015.

Figure 4(a): 10-year sector-wise private equity investment (value) trend in India



Overall, every sector witnessed peak of private equity investment at some or the other time during the last decade. It may suggest change in the preferences of private equity investors/managers towards different sectors over a period of time. Many unconventional sectors like Pharma, healthcare and biotech, retail and consumer and BFSI have attracted the attention of private equity professionals making these sectors popular among investors

(Private equity in India: 2025, PwC, 2015). Additionally, sectors like energy and natural resources, manufacturing and telecom also captured the attention of private equity investors receiving private equity investment value of US$ 1107 million, US$ 864 million and US$ 500 million respectively in 2015 (The Fourth Wheel, Grant Thornton, 2017). Media and entertainment and education sectors witnessed private equity investment volume 42 and 44 respectively in 2015.

Figure 4(b): 10-year sector-wise private equity investment (volume) trend in India

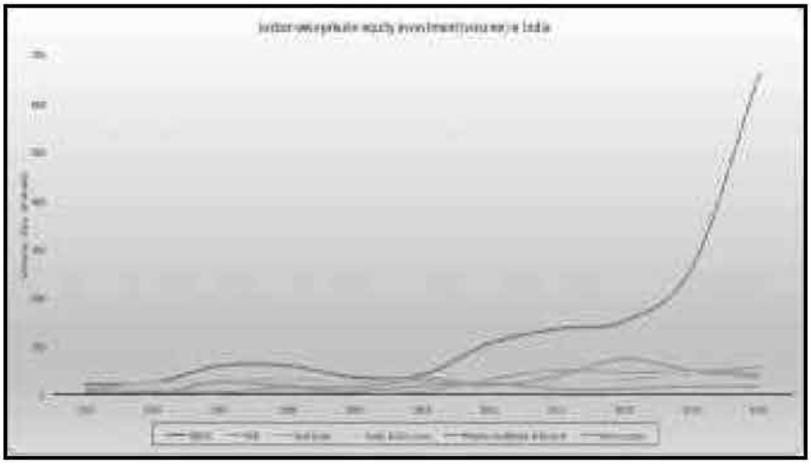
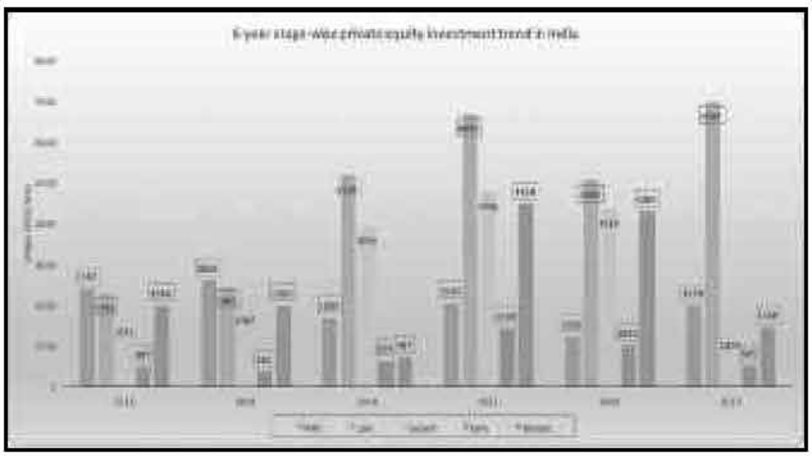


Figure 5: 6-year stage-wise private equity investment trend in India



Despite of certain fluctuations on account of economic disturbance, investors favored investment in late stage companies (Figure 5). Late stage companies are companies that are decade old and generally receive 7th or later round of institutional investments (MoneyTree India Report, PwC, 2017q2). Growth stage companies are the second most preferred businesses attracting private equity capital. Growth stage investing includes investment of less than US$ 20 million in some companies and US$ 20 million or more in few (MoneyTree India Report, PwC, 2017q2). Early stage investing is limited in comparison to other forms in India. Such investments are usually less than US$20 million in less than 5 years old companies (MoneyTree India Report, PwC, 2017q2). Broadly, private equity investors in India prefer investing in later stage and growth stage companies in order of priority. But undertake buyouts by acquiring controlling stakes in companies from existing shareholders (MoneyTree India Report, PwC, 2017q2). Private equity is more in early stage financing in Australia, Canada, the Netherlands and US whereas in countries like Germany, Japan and the UK private equity is more in later stage financing (Jeng and Wells, 2000).

In 2015, Indian private equity industry recorded maximum investments (value as well as volume) and maximum exits (value as well as volume). During this year, IT &ITeS was the most favored sector and late stage and growth stage companies were the most preferred businesses for private equity investors/funds.

Log-Lin Regression Model

Predicting a growth model of a time series may be done using linear and log-linear trend models. The linear trend is the model in which dependent variable changes at a constant rate with time. This may result in persistent errors in the residuals. Therefore, for a financial time series, log-linear trend model works well in modeling the growth of a time series. In this study, log-lin regression model (where regressand is logarithmic) is used which would help in finding out the percentage growth in private equity investment from 2004q1 to 2017q2 for an absolute change in time. Such models are called semi-log models because only one variable appears in logarithmic form (Gujarati, 2004). The model is estimated using the following equation:

$$In\ Y_t = \beta_1 + \beta_2 t + u_t$$

The log-lin trend model predicts that In Y_t will increase by β_2 *from one period to the next. The model predicts a constant growth rate in* Y_t of e $\beta_2 - 1$ β_1 and β_2 are linear parameters. β_2 slope coefficient, measures the constant proportional or relative change in Yfor a given absolute change in the value of independent variable, t(*trend variable*) That is,

$$\beta_2 = \frac{\text{relative } \textit{change in regress and}}{\textit{absolute change in regresssor}}$$

On multiplying, β_2 by 100 we get percentage change in Y which is known as semi-elasticity of Y with respect to X. β_2 measures the instantaneous (at a point in time) rate of growth and not the compound (over a period of time) rate of growth (Gujarati, 2004). If slope coefficient,

β_2, is negative there is a downward trend in *Y* and if it is positive, then there is upward trend in *Y*. Data on private equity investment in India, from 2004q1 to 2017q2, is sourced from quarterly reports published by PwC India. Using STATA 13.0, log-lin regression analysis is performed on natural logarithmic values of private equity investment (value and volume) and private equity exit (value and volume). The independent variable (trend variable) is time, *t*, coded as 1 to 54 indicating number of time periods. The fitted regression models are:

$$\ln \widehat{pei\_val} = 6.596 + 0.038t$$
$$\ln \widehat{pei\_vol} = 3.903 + 0.028t$$

and

$$\ln \widehat{pee\_val} = 5.825 + 0.034t$$
$$\ln \widehat{pee\_vol} = 2.745 + 0.027t$$

Table 4(a): Log-lin regression model of private equity investment (value and volume)

	PEI (Value)	PEI (Volume)
F (1, 52)	55.74*	77.01*
Prob. > F	0.000	0.000
R-squared	0.517*	0.597*
Adj. R-squared	0.508	0.589
Root MSE	0.581	0.365

*statistically significant at 5% level

Table 4 (b): Log-lin regression model of private equity investment (value)

PEI (Value)	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
t	0.038	0.005	7.470*	0.000	0.028	0.048
Constant	6.596	0.160	41.160*	0.000	6.274	6.917

*statistically significant at 5% level

Table 4 (c): Log-lin regression model of private equity investment (volume)

PEI (Volume)	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
t	0.028	0.003	8.780*	0.000	0.022	0.034
Constant	3.903	0.101	38.720*	0.000	3.701	4.105

*statistically significant at 5% level

The log-lin regression model (Table 4 (a)) indicate considerably good predicting ability or explanatory power of time, t, in explaining any variance in private equity investment value and volume with coefficient of determination, R-squared, 51.7% and 59.7%. The p-value of the model 0.000 is less than 5% indicates statistically significant relationship between the variables. t-value (and corresponding p-value) test the importance of a variable in the model. Based on the results, time, , is significant. Root mean square error (MSE) indicates a good fitted model. Over the quarterly period 2004q1 to 2017q2, private equity investment value in India increased at quarterly rate of 3.8% (Table 4 (b)). Roughly, this is equal to an annual growth rate of 15.2 %. Whereas private equity investment volume in India increased at the quarterly rate of 2.8% which is equal to 11.2% annually during the same period (Table 4(c)). Overall, private equity investment in India presents an upward and rising.

Table 5 (a): Log-lin regression model of private equity exit (value and volume)

	PEE (Value)	PEE (Volume)
F(1,52)	36.610*	81.560*
Prob.>F	0.000	0.000
R-squared	0.413*	0.611*
Adj. R-squared	0.402	0.603
Root MSE	0.645	0.338

*statistically significant at 5% level

Table 5(b): Log-lin regression model of private equity exit (value)

PEE (Value)	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
t	0.034	0.006	6.050*	0.000	0.023	0.045
Constant	5.825	0.178	32.700*	0.000	5.468	6.183

*statistically significant at 5% level

Table 5(c): Log-lin regression model of private equity exit (volume)

PEE (Volume)	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
t	0.027	0.001	9.030*	0.000	0.021	0.033
Constant	2.745	0.093	29.410*	0.000	2.557	2.932

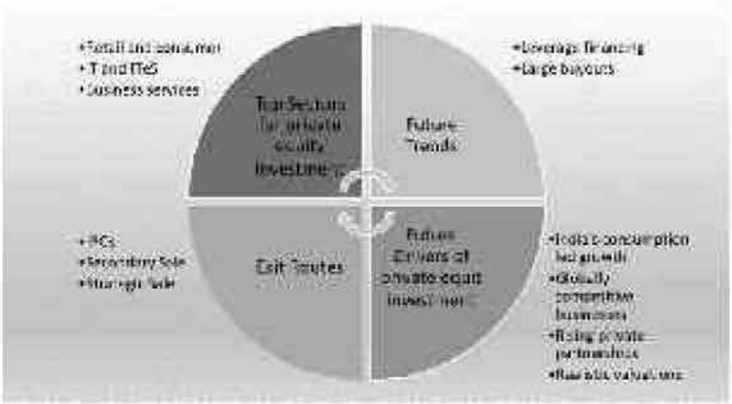
*statistically significant at 5% level

The regression model (Table 5(a)) indicate good predicting ability of time, *t*, in explaining any variance in private equity investment value and volume with coefficient of determination, R-squared, 41.3% and 61.1%. The p-value of the model 0.000 is less than 5% indicates statistically significant relationship between the variables. t-value (and corresponding p-value) test the importance of a variable in the model. Based on the results, time, *t*, is significant. Root mean square error (MSE) indicates a good fitted model. The results indicate that from 2004q1 to 2017q2, private equity exit value in India grew at the rate of 3.4% per quarter whereas private equity exit volume in India increased at the rate of 2.7% per quarter (Table 5(b)). Annually, private equity exits in the country grew approximately at

13.6% in terms of value or deal size and 10.8% in terms of volume or number of deals. Overall, the private equity investment/exit trend is upward and positive from 2004q1 to 2017q2 (Table 5(c)). Broadly, private equity exit activity in India presents an upward and rising trend.

Scope of private equity in India

A consensus prevailing among fund managers is that private equity investment in India annually will be more than US$ 20-25 billion by the year 2025 (Private equity in India 2025, PwC, 2015). Many private equity professionals believe that fund-raising would be the highest priority for private equity funds, despite of the challenges in fund-raising environment in the coming year. LPs are expected to become more active and funds are likely to offer more co-investment opportunities in 2017 (India Private Equity Report, Bain & Company, 2017).



Private equity investors consider stable fiscal and regulatory regime, corporate governance and political and social stability as fundamental factors affecting future private equity investment in India (Private equity in India 2025, PwC, 2015). Leveraged financing, corporate governance, policy clarity, disciplined GPs community, relationship between investor and investee, rupee depreciation, and other factors can change the deal landscape in India dramatically (Private equity in India 2025, PwC, 2015).

Private equity investment will focus towards consumer and industrial sectors and upcoming IPOs in BSFI, consumer and retails sectors will strengthen the confidence of private equity investors in Indian markets (India Private Equity Report, Bain & Company, 2017; The Fourth Wheel, Grant Thornton, 2017). Also, value creation in portfolio companies is expected to be driven by capital and cost efficiencies (India Private Equity Report, Bain & Company, 2017). Many new developments/reforms taken place in 2016 are likely to impact the private equity deal activities in future. For instance, government's demonetization has given rise to short term uncertainty in the investment outlook in all major sectors. This resulted in limited private equity activity in 2016 but is expected to have long-term positive impact on private equity in India (The Fourth Wheel, Grant Thornton, 2017).

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