

Private Equity (PE) Performance Around the World

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This paper looks at the performance of LPX Private Equity indices as proxy for Private Equity (PE) performance in North America, Europe, UK and the World and compares them to their respective regional stock and bond indices from January 1999 – December 2016. PE has outperformed stocks and bonds in all regions with much higher returns. However, PE also had higher risk compared to stocks and bonds in all regions. On a risk-adjusted basis (Sharpe, Sortino & Omega Ratios), PE has outperformed stocks in all regions of the world. However, PE underperformed bonds in North America, but outperformed bonds in UK and Europe on a risk-adjusted basis. PE also created much higher wealth compared to other asset classes. Overall, results indicate that PE has created tremendous value for their investors.

Keywords: private equity, risk-adjusted performance

INTRODUCTION

Equity (PE) firms raise funds from institutions and wealthy individuals and then invest that money by buying and selling businesses. The funds raised are used to buy whole companies. PE firms have long holding periods to turn around these private firms and make them more profitable by increasing their growth rate and/or cutting operating expenses. After raising a specified amount, a fund will close to new investors. Over time, each fund will be liquidated, selling all its businesses within a preset time frame, usually no more than ten years. The PE firm then sells shares of the target company through an IPO or arranges a sale to another company. PE investors make money when a target company is sold at a much higher multiple. On the other hand, if the target company fails, the PE firm and its investors will both lose money. PE firms often use a combination of their own money and some borrowed money to make the purchases. The leverage used can be as high as 60% - 70% in some cases.

As to be expected, a firm's track record of returns generated from previous funds drives its ability to raise money for future funds. Private equity firms accept some constraints on their use of investors' money. For example, a fund management contract may limit the size of any single business investment. Once money is committed, investors in the fund – in contrast to shareholders in a public company – have almost no control over management. Although most funds have an investor advisory council, it has far fewer powers than a public company's board of directors (Barber and Goold, 2007).

With large buyouts, private equity funds typically charge investors a fee of about 1.5% to 2% of assets under management, plus, subject to achieving a minimum rate of return for investors, 20% of all fund profits. Fund profits are mostly realized via capital gains on the sale of portfolio businesses (Barber & Goold, 2007). This compensation structure is similar to that of Hedge Fund (HF) managers (Brav et al., 2010).

PE firms also have different metrics on how to measure the performance of their holding companies. Public firms are fixated with Earnings Per Share (EPS) or in some cases a non-GAAP measure of performance. According to Posen (2007), public firms make countless decisions based on how they may affect EPS such as decisions that will lead to higher leverage or a decline in debt ratios; holding excess cash; choosing to repurchase shares; hanging on to the portfolio even when it is failing to earn its WACC; making acquisitions that will never justify their cost, etc. PE firms on the other hand neither reward general partners nor their managers based on EPS. This helps them avoid traps faced by many public companies.

Kiechel III (2007) says that PE firms have a long-term focus for their target firms along with the following characteristics—

- I) They use debt aggressively.
- II) They focus on cash flow, not on earnings (EPS) reported for accounting purposes.
- III) They reduce costs relentlessly.
- IV) They identify a strategy that favors the line of business in which the acquisition dominates its competitors, and then they often sell off its other businesses.
- V) They think imaginatively about who would constitute the best owner for the business and ask how long an owner should hold on to the property.

If the stock market truly values a company's future prospects, then, at least for some enterprises, a short, perhaps even painful, strategy workout at the hands of a private equity firm is likely to boost shareholder value over the long term.

PE FUND PERFORMANCE

There have been a number of studies that have focused on the performance of PE funds. Harris, Jenkinson, and Kaplan (2014) studied the performance of 1,400 U. S. buyout and venture capital funds beginning with a vintage year of 1984 and ending in 2008. Their results using cash flow data from Burgiss show that PE funds outperform the public markets as measured by the S&P 500 averages by 20% - 27% over a funds life. Other studies have reached similar conclusions as to the outperformance of PE funds relative to the public markets using other data sets.

Kortewega and Sorensenb (2017) studied the performance of 1,924 fully liquidated buyout, venture capital and other firms beginning with a vintage year of 1969 and ending in 2001. They found that performance is persistent, with PE firms consistently producing high or low net-of-fees returns. They found high long-term persistence: with the spread in expected net-of-fee future returns between top and bottom quartile PE firms to be between 7 to 8 percentage points annually. Braun, Jenkinson, and Stoff (2017) use a unique database containing data on 13,523 portfolio company investments by 865 buyout funds with a vintage year of 1989 and ending in 2008. They find that PE has largely conformed to the pattern found in most other asset classes in which past performance is a poor predictor of the future. Kanuri and Hanby (2020) use the Thomson Reuters Venture Capital and Thomson Reuters Buyout indices as proxies for U.S. Private Equity (PE) performance beginning with a vintage year of 1997 through 2018. They compare the indices to U.S. stocks and bonds. They find that both PE indices have outperformed stocks and bonds in the and have higher average and median monthly returns. They also find that PE has outperformed stocks

but underperformed bonds on a risk-adjusted basis. Harris, Jenkinson, Kaplan, and Stucke (2020) present new evidence on the persistence of U.S. private equity (buyout and venture capital) funds using cash-flow data sourced from Burgiss's large sample of institutional investors. Previous research, studying largely pre-2000 data, finds strong persistence for both buyout and venture capital (VC) firms. They confirm previous findings on persistence overall as well as for pre-2001 and post-2000 funds; however, find little or no evidence of persistence for buyouts, both overall and post-2000.

Our paper analyzes the performance of PE firms that are listed and trade on exchanges throughout the globe (LPEs). We use index data from LPE developed by LPX Group for our analysis.

CONSTRUCTION OF LPX INDICES

LPX Group was the first to publish a Listed Private Equity (LPE) index family. LPX Group provides global LPE indices widely used by institutional investors. Moreover, the index family provides a basis for various alternative investment vehicles. Thereby, the design, development and delivery of the LPX indices ensure that they are investable, tradable and transparent being key factors that underlie their commercial success.

A database of LPE companies listed worldwide, to the extent known to LPX Group, serves as the base universe for the construction of LPX index family. In order to be eligible for the inclusion in the database, the predominant business purpose of the company (at least 50% of total assets) must lie in the area of Private Equity (stake in companies not admitted for exchange quotation). Total assets are calculated by LPX Group daily through a standardized model that is applied to every company of the universe. The Private Equity part contains direct Private Equity investments, indirect Private Equity investments ("limited partnerships"), the valuation of the Private Equity fund management business as well as the position "cash & cash equivalents" and "listed investments". Additionally, the company must be quoted at a stock exchange.

Within the framework of a continuous research process, LPX Group checks whether a company currently in the base universe is still an eligible constituent or whether new companies that have previously not been considered should be included. Thereby, the design, development, and delivery of the LPX indices ensure that they are investable, tradable, and transparent being key factors that underlie their commercial success. LPX Group also offers real-time prices for all LPX indices, which are available via the data providers Thomson Reuters and Bloomberg. Official closing prices from the primary stock exchange of the respective index constituent security are used for the calculation of the LPX indices. The previous day's value of all indices is calculated and published daily. LPX Group publishes the indices for every day except for Saturdays and Sundays. Appendix 1 shows all the LPX PE indices used in the study.

DATA

We look at the performance of PE in UK, Europe, North America, and the total World using LPX indices from January 1999 – December 2016 and compare them to domestic stock and bond markets. Appendix 1 shows the construction methodology for different LPX. All the indices were downloaded from Bloomberg. We use domestic stock and bond indices as proxies as stock and bond markets. We use MSCI Gross Return (GR) indices as proxies for stock market performance in North America, UK, Europe, and the total World. We also regional bond indices for bond market performance. The bond indices for North America, UK, Europe, and World are Citi USBIG North America TR, BofAML UK Gilts TR, Pan-Europe Broad Market TR, and Citi WGBI TR, respectively.

As a robustness test, we form a portfolio 65% stocks and 35% bonds. Following Stout and Mitchell (2006) and Davidoff et al. (2003), a portfolio of 65% in a broad index of domestic equities (FTSE Indices) and 35% domestic bonds is formed. This allocation is the one suggested in the Social Security Savings Act of 2003.

All these indices returns are in US \$ for an equal or apples-to-apples comparison. The first PE index was formed in January 1994. Other indices were created later. For purposes of this paper, the analysis was done from January 1999 – December 2016 for an equal comparison.

CORRELATION

We use Spearman Rank Correlation test to for correlation between PE, stocks, and bonds in all the regions. Results indicate that PE have high correlations with stocks while having moderate or low or moderate correlations with bonds in all the regions.

TABLES 1A, B, C & D
SPEARMAN RANK CORRELATION BETWEEN PE, STOCKS, BONDS AND 65% STOCK/35% BOND PORTFOLIO IN ALL REGIONS DURING THE PERIOD OF OUR STUDY

Jan 1999 -- Dec 2016 World	LPX Buyout TR US\$	LPX 50 TR US\$	LPX Major Market TR US\$	LPX Direct US\$	LPX Venture TR US\$	Stocks - MSCI World GR US\$	Bonds - Citi WGBI US\$	65% Stock/35 % Bond
LPX Buyout TR US\$	1							
LPX 50 TR US\$	0.8440***	1						
LPX Major Market TR US\$	0.8522***	0.9733***	1					
LPX Direct US\$	0.9447***	0.9055***	0.8936***	1				
LPX Venture TR US\$	0.6566***	0.8670***	0.8253***	0.7383***	1			
Stocks - MSCI World GR US\$	0.7935***	0.8850***	0.8757***	0.8541***	0.7670***	1		
Bonds - Citi WGBI US\$	0.1999***	0.1259***	0.1661**	0.1622**	0.0467	0.1477**	1	
65% Stock/35% Bond	0.7921***	0.8603***	0.8629***	0.8399***	0.7362***	0.9696***	0.3541***	1

Jan 1999 -- Dec 2016 North America	LPX North America TR US\$	Stocks - MSCI North America GR US\$	Bonds - Citi USBIG North America TR US\$	65% Stock/35 % Bond
LPX North America TR US\$	1			
Stocks - MSCI North America GR US\$	0.7987***	1		
Bonds - Citi USBIG North America TR US\$	-0.0357	-0.1617**	1	
65% Stock/35% Bond	0.8064***	0.9874***	-0.0389	1

Jan 1999 -- Dec 2016 UK	LPX United Kingdom TR US\$	Stocks - MSCI United Kingdom GR US\$	Bonds - BofAML UK Gilts TR US\$	65% Stock/35 % Bond
LPX United Kingdom TR US\$	1			
Stocks - MSCI United Kingdom GR US\$	0.5793***	1		
Bonds - BofAML UK Gilts TR US\$	-0.0028	0.3483***	1	
65% Stock/35% Bond	0.4966***	0.9635***	0.5625***	1

Jan 1999 -- Dec 2016 Europe	LPX Europe TR US\$	Stocks - MSCI Europe GR US\$	Bonds - BofAML Pan-Europe Broad Mkt TR US\$	65% Stock/35 % Bond
LPX Europe TR US\$	1			
Stocks - MSCI Europe GR US\$	0.8814***	1		
Bonds - BofAML Pan-Europe Broad Mkt TR US\$	0.3968***	0.4507***	1	
65% Stock/35% Bond	0.8616***	0.9703***	0.6250***	1

DESCRIPTIVE STATISTICS

We measure the average monthly risk and returns for PE, stocks, bonds and the 65/35 portfolio in all regions from January 1999 -- December 2016. PE has outperformed stocks and bonds in all regions of the world with higher average and median monthly returns. LPX Buyout, LPX 50 and LPX Major Direct

outperformed global stocks (MSCI World) and global bonds (Citi WGBI). Only LPX Venture TR index has underperformed stocks and bonds and has inferior performance compared to global stocks and bonds. Results were similar in Europe, UK and North America and PE outperformed stocks and bonds. However, PE indices also had higher risk (standard deviation of returns) compared to stocks and bonds in all regions of the world.

TABLES 2A, B, C & D
SHOWS DESCRIPTIVE STATISTICS FOR PE, STOCKS, BONDS AND 65% STOCK/35% BOND PORTFOLIO IN DIFFERENT COUNTRIES OF THE WORLD DURING THE PERIOD OF OUR STUDY. ALL RETURNS ARE IN US \$ FOR AN EQUAL OR APPLES-TO-APPLES COMPARISON

Jan 1999 -- Dec 2016 World	Average Monthly Returns	Median Monthly Returns	Standard Deviation of Monthly Returns	P Value of Average Monthly Returns
LPX Buyout TR US\$	0.90%	1.77%	6.88%	<0.01
LPX 50 TR US\$	0.76%	1.32%	7.50%	<0.01
LPX Major Market TR US\$	0.96%	1.33%	7.56%	<0.01
LPX Direct US\$	0.88%	1.62%	6.84%	<0.01
LPX Venture TR US\$	0.41%	0.09%	8.28%	<0.05
Stocks - MSCI World GR US\$	0.49%	0.85%	4.43%	<0.01
Bonds - Citi WGBI US\$	0.33%	0.22%	1.98%	<0.01
65% Stock/35% Bond	0.43%	0.59%	3.06%	<0.01
Jan 1999 -- Dec 2016 North America	Average Monthly Returns	Median Monthly Returns	Standard Deviation of Monthly Returns	P Value of Average Monthly Returns
LPX North America TR US\$	0.86%	1.37%	7.79%	<0.01
Stocks - MSCI North America GR US\$	0.53%	1.00%	4.34%	<0.01
Bonds - Citi USBIG North America TR US\$	0.40%	0.43%	1.02%	<0.01
65% Stock/35% Bond	0.48%	0.70%	2.80%	<0.01
Jan 1999 -- Dec 2016 UK	Average Monthly Returns	Median Monthly Returns	Standard Deviation of Monthly Returns	P Value of Average Monthly Returns
LPX United Kingdom TR US\$	0.59%	1.47%	5.64%	<0.01
Stocks - MSCI United Kingdom GR US\$	0.35%	0.43%	4.76%	<0.01
Bonds - BofAML UK Gilts TR US\$	0.35%	0.33%	2.63%	<0.01
65% Stock/35% Bond	0.35%	0.24%	3.56%	<0.01
Jan 1999 -- Dec 2016 Europe	Average Monthly Returns	Median Monthly Returns	Standard Deviation of Monthly Returns	P Value of Average Monthly Returns
LPX Europe TR US\$	0.73%	1.52%	7.01%	<0.01
Stocks - MSCI Europe GR US\$	0.45%	0.47%	5.33%	<0.01
Bonds - BofAML Pan-Europe Broad Mkt TR US\$	0.38%	0.39%	2.94%	<0.01
65% Stock/35% Bond	0.42%	0.36%	4.09%	<0.01

RISK-ADJUSTED PERFORMANCE

A portfolio may have higher returns, but it could have achieved them by taking higher risk. Therefore, we compute risk-adjusted performance to compare the different portfolios. We calculate Sharpe Ratio (1966), Sortino Ratio (1991) and Omega Ratio (2002) for each portfolio from January 1999 -- September 2017 to compare their risk-adjusted performance.

SHARPE RATIO

The Sharpe Ratio (1966) evaluates how well an ETF compensates its investor for each unit of risk they incur. The higher the Sharpe ratio (Equation 1), the better is the performance of the ETF.

$$\text{Sharpe Ratio} = \frac{(R_p - R_f)}{\sigma_P} \quad (1)$$

where R_p denotes the monthly returns on the portfolio.
 R_f is the monthly risk-free rate.
 σ_p is the standard deviation of portfolio's excess returns.

Sortino Ratio

The Sortino ratio (1991 – Equation 2) differentiates between good and bad volatility in the Sharpe ratio. The differentiation of upward and downward volatility allows the calculation of the risk-adjusted return to provide a performance measure of an investment without penalizing it for positive returns. Like the Sharpe ratio, the higher the Sortino ratio, the better is the performance of a portfolio. The Sortino Ratio is shown as follows:

$$\text{Sortino Ratio} = \frac{(R_p - R_f)}{\sigma_d} \quad (2)$$

where R_p and R_f are described as above and σ_d is the standard deviation of portfolio's negative returns.

Omega Ratio

Introduced by Shadwick and Keating (2002), the Omega Ratio (Equation 3) is a way of measuring the performance of financial assets based on the level of returns they offer in return for the risk of investing in them. It is a ratio of weighted gains to weighted losses. The measure divides expected returns into two parts – gains and losses or returns above the expected rate (the upside) and those below it (the downside). Therefore, in simple terms, consider omega as the ratio of upside returns (good) relative to downside returns (bad). While the Sharpe Ratio covers only the first two moments of return distribution (means and variance), Omega Ratio covers all moments of return distribution or the Omega ratio is an alternative measure of asset performance that gives the investor the information the Sharpe ratio discards.

$$\Omega = \frac{\int_r^b (1-F(x))dx}{\int_a^r F(x)dx} \quad (3)$$

where $F(x)$ is the cumulative probability distribution (i.e., the probability that a return will be less than x), r is a threshold value selected by the investor and a and b are the investment intervals. It is effectively equal to the probability weighted gains divided by the probability weighted losses after a threshold.

RESULTS

Results from the total world indicate that all PE indices except LPX Venture TR have outperformed stocks and bonds and have superior risk-adjusted performance. Results from different regions indicate that PE has outperformed stocks in all regions of the world. However, PE has underperformed bonds in North America, but outperformed bonds in UK and Europe. Bonds also provided better downside protection (Sortino Ratio) in all the regions (North America, UK, and Europe).

TABLES 3A, B, C & D
SHOWS RISK-ADJUSTED PERFORMANCE (SHARPE RATIO, SORTINO RATIO & OMEGA RATIO) FOR PE, STOCKS, BONDS AND 65% STOCK/35% BOND PORTFOLIO IN DIFFERENT REGIONS DURING THE PERIOD OF OUR STUDY. ALL RETURNS ARE IN US \$ FOR AN EQUAL OR APPLES-TO-APPLES COMPARISON.

Jan 1999 -- Dec 2016 World	Sharpe Ratio	Sortino Ratio	Omega Ratio
LPX Buyout TR US\$	0.109	0.148	1.387
LPX 50 TR US\$	0.082	0.116	1.262
LPX Major Market TR US\$	0.108	0.159	1.362
LPX Direct US\$	0.106	0.147	1.358
LPX Venture TR US\$	0.031	0.046	1.087
Stocks - MSCI World GR US\$	0.056	0.079	1.159
Bonds - Citi WGBI US\$	0.089	0.137	1.255
65% Stock/35% Bond	0.092	0.131	1.273
Jan 1999 -- Dec 2016 North America	Sharpe Ratio	Sortino Ratio	Omega Ratio
LPX North America TR US\$	0.091	0.130	1.305
Stocks - MSCI North America GR US\$	0.087	0.123	1.253
Bonds - Citi USBIG North America TR US\$	0.249	0.420	1.914
65% Stock/35% Bond	0.119	0.172	1.364
Jan 1999 -- Dec 2016 UK	Sharpe Ratio	Sortino Ratio	Omega Ratio
LPX United Kingdom TR US\$	0.078	0.107	1.264
Stocks - MSCI United Kingdom GR US\$	0.042	0.060	1.118
Bonds - BofAML UK Gilts TR US\$	0.076	0.112	1.223
65% Stock/35% Bond	0.056	0.082	1.162
Jan 1999 -- Dec 2016 Europe	Sharpe Ratio	Sortino Ratio	Omega Ratio
LPX Europe TR US\$	0.083	0.114	1.266
Stocks - MSCI Europe GR US\$	0.056	0.079	1.159
Bonds - BofAML Pan-Europe Broad Mkt TR US\$	0.078	0.117	1.228
65% Stock/35% Bond	0.067	0.097	1.195

CUMULATIVE RETURNS AND WEALTH

Following Kanuri and McLeod (2015), Kanuri (2016) and Kanuri et al. (2018), we also construct Cumulative Wealth Index (CWI) for each category. The CWI measures the outcome of investing \$1,000 in each category at the beginning of January 1999, presuming reinvestment of dividends.

RESULTS

All PE indices except LPX Venture TR have outperformed stocks and bonds and have much higher cumulative returns in total world. PE indices have also outperformed stocks, bonds and the 65% stock/35% bond portfolio with created higher cumulative returns and wealth in North America, UK, and Europe.

TABLES 4A, B, C & D
SHOWS CUMULATIVE WEALTH INDEX (CWI) FOR PE, STOCKS, BONDS AND 65% STOCK/35% BOND PORTFOLIO IN DIFFERENT REGIONS DURING THE PERIOD OF OUR STUDY. ALL RETURNS ARE IN US \$ FOR AN EQUAL OR APPLES-TO-APPLES COMPARISON.

Jan 1999 -- Dec 2016 World	Cumulative Returns (1999 - 2016)	Cumulative Wealth Dec 2016 (Initial Wealth \$1000 in Jan 1999)
LPX Buyout TR US\$	302.69%	\$4,026.90
LPX 50 TR US\$	178.46%	\$2,784.56
LPX Major Market TR US\$	326.07%	\$4,260.67
LPX Direct US\$	290.47%	\$3,904.69
LPX Venture TR US\$	15.11%	\$1,151.09
Stocks - MSCI World GR US\$	131.07%	\$2,310.65
Bonds - Citi WGBI US\$	93.61%	\$1,936.05
65% Stock/35% Bond	128.79%	\$2,287.92
Jan 1999 -- Dec 2016 North America	Cumulative Returns (1999 - 2016)	Cumulative Wealth Dec 2016 (Initial Wealth \$1000 in Jan 1999)
LPX North America TR US\$	223.60%	\$3,235.97
Stocks - MSCI North America GR US\$	154.38%	\$2,543.80
Bonds - Citi USBIG North America TR US\$	135.62%	\$2,356.22
65% Stock/35% Bond	161.01%	\$2,610.08
Jan 1999 -- Dec 2016 UK	Cumulative Returns (1999 - 2016)	Cumulative Wealth Dec 2016 (Initial Wealth \$1000 in Jan 1999)
LPX United Kingdom TR US\$	151.48%	\$2,514.78
Stocks - MSCI United Kingdom GR US\$	66.58%	\$1,665.77
Bonds - BofAML UK Gilts TR US\$	97.57%	\$1,975.65
65% Stock/35% Bond	85.78%	\$1,857.82
Jan 1999 -- Dec 2016 Europe	Cumulative Returns (1999 - 2016)	Cumulative Wealth Dec 2016 (Initial Wealth \$1000 in Jan 1999)
LPX Europe TR US\$	177.83%	\$2,778.31
Stocks - MSCI Europe GR US\$	92.93%	\$1,929.32
Bonds - BofAML Pan-Europe Broad Mkt TR US\$	106.12%	\$2,061.23
65% Stock/35% Bond	108.23%	\$2,082.27

CONCLUSION

This paper looks at the performance of Private Equity (PE) indices in North America, Europe, UK, and World using LPX PE indices as proxy for regional PE performance. We also compare them to regional stocks, bonds, and a portfolio of 65% stocks/35% bonds. The period of this analysis was January 1999 – December 2016. Results indicate that PE have high correlation with stocks while having moderate or low or moderate correlation with bonds in all regions. PE has outperformed stocks and bonds in all regions of the world and higher average and median monthly returns. However, PE indices also had higher risk (standard deviation of returns) compared to stocks and bonds in all regions of the world. On a risk-adjusted basis (Sharpe, Sortino & Omega Ratios), PE has outperformed stocks in all regions of the world. However, PE underperformed bonds in North America, but outperformed bonds in UK and Europe. However, bonds provided better downside protection (Sortino Ratio) and lost less value compared to both PE and stocks in all regions (North America, UK, Europe, and the World). PE also much higher cumulative returns and

created much more wealth compared to stocks and bonds. Overall, our results indicate that PE have created tremendous value for their investors.

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APPENDIX 1

Source—

<http://www.lpxgroup.com/fileadmin/dataplugin/guides/Guide%20to%20the%20LPX%20Equity%20Indices.pdf>

LPX - Listed Private Equity Index Family

The LPX - Listed Private Equity Index Family consists of global, regional, and style indices, which are outlined in the following. The composition of the indices in terms of eligible index constituents follows the rules as described in Section 2.

LPX Composite— The LPX Composite is a broad global LPE index whose number of constituents is not limited. The LPX Composite thus describes the development of the whole liquid LPE universe covered by LPX Group that fulfills pre-defined liquidity criteria.

LPX50— The LPX50 is a global index that consists of the 50 largest liquid LPE companies covered by LPX Group.

LPX Major Market— The LPX Major Market represents the most actively traded LPE companies covered by LPX Group.

LPX Buyout— The LPX Buyout represents the most actively traded LPE companies covered by LPX Group whose business model consists mainly in the appropriation of buyout capital or in the investment in such funds.

LPX Mezzanine— The LPX Mezzanine represents the most actively traded LPE companies covered by LPX Group whose business model consists mainly in the appropriation of mezzanine capital or in the investment in such funds.

LPX Venture— The LPX Venture represents the most actively traded LPE companies covered by LPX Group whose core business lies mainly in the provision of venture capital or in the investment in venture capital funds.

LPX Direct— The LPX Direct represents the most actively traded LPE companies covered by LPX Group that mainly pursue a direct private equity investment strategy. A listed private equity company is an eligible candidate for the Index if its direct private equity investments, as well as cash and cash equivalent positions and post-Initial Public Offering listed investments, represent more than 80% of the total assets of the company. LPX Group considers direct private equity investments to be direct investments noted on the balance sheet of the listed private equity company in the equity, mezzanine or debt facility of an underlying private company or investments in limited partnerships managed by the management portion of the listed private equity company.

LPX FoF— The LPX FoF (Fund of Funds) represents the largest liquid LPE companies covered by LPX Group that mainly pursue an indirect private equity investment strategy through PE limited partnerships.

LPX America— The LPX America represents the most actively traded LPE companies covered by LPX Group that are listed on an exchange in North America.

LPX Europe— The LPX Europe represents the most actively traded LPE companies covered by LPX Group that are listed on a European exchange.

LPX UK— The LPX UK represents the largest liquid LPE companies covered by LPX Group that are listed on an exchange in the UK.