Global Markets

Private Equity Insights

TWENTY-THIRD EDITION | Q3 2021

CURRENT QUARTER PERFORMANCE SUMMARY

The State Street® Private Equity Index (SSPEI) reverted to a normal pace of growth with a 6.25 percent return in the third quarter of 2021, a decrease from the 11.08 percent in 2021Q2. Venture Capital funds led the group with 7.59 percent increase, followed by 6.04 percent return from Buyout funds and 3.91 percent return from Private Debt funds (Exhibit 1).

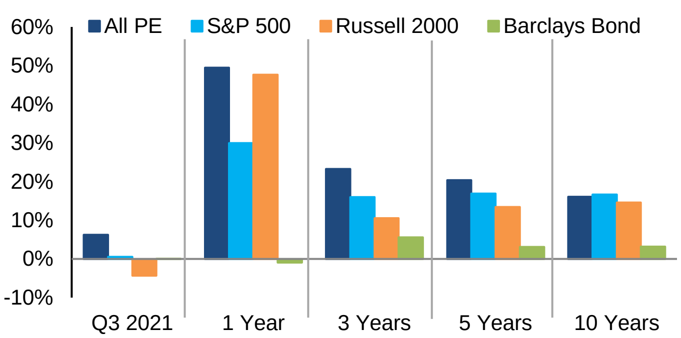
Exhibit 1. Private Equity Performance by Strategy

Column1	All PE	Buyout	VC	Private Debt
2021 Q3	6.25%	6.04%	7.59%	3.91%
2021 Q2	11.08%	11.69%	11.23%	5.96%
2021 Q1	9.76%	8.45%	14.93%	5.95%
YTD	29.59%	28.63%	37.11%	16.85%

Source: State Street®, as of Q3 2021.

As shown in Exhibit 2, SSPEI outperformed the US bond market (proxied by Bloomberg Barclays US Aggregated Bond Index) and small-cap stocks (proxied by Russell 2000) at all time periods. Compared to the US public equity market (proxied by S&P 500), SSPEI exceeded in the short to mid-term horizons but slightly underperformed S&P500 over the 10 year horizon.

Exhibit 2. Investment Horizon Returns



Source: State Street®, DataStream, Bloomberg Barclays US Aggregate Bond Index (total returns as of Q3 2021).

Continued on page 4.

THE CHANGING SECONDARY MARKET

Insights from Harvard University and the Private Capital Research Institute

By Leslie Jeng and Josh Lerner

The secondary market for private equity and venture capital investments has risen from obscurity, with a mere $9 billion of transactions in 2009 growing to over $100 billion in 2021. In the early 2000s, the secondary market was primarily a tool for large limited partners ("LPs") to obtain liquidity for their portfolios when under financial or regulatory pressure.

Attitudes about the secondary market have shifted tremendously in the past decade. These markets were no longer viewed solely as vehicles for LPs to provide liquidity. Rather, they have evolved to enable complex general partner ("GP")-led restructurings of mature funds and are an important part of the strategy for many private equity and venture capital funds. This creativity to address constituent needs has been a hallmark of the secondary industry.

Research on the performance of secondary funds suggests that these investments have historically done quite well, achieving an annualized internal rate of return of around 20% for the period from 2006 to 2017, largely driven by transactions in involving funds established four to nine years before.[1] Exhibit 3 compares the returns from investing in an index of secondary transactions involving buyout funds with the returns from a public market index and the indexes of (primary) buyout funds from Burgiss and Preqin.[2] The outperformance of the secondary transactions is evident.

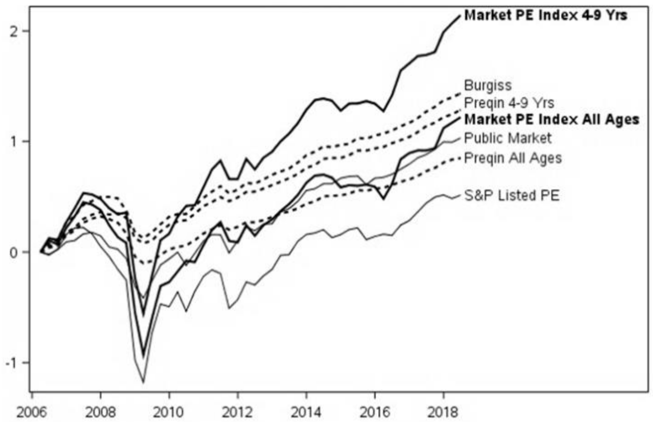
[1] Brian H. Boyer, Taylor Nadauld, Keith Vorkink, and Michael S. Weisbach, Private Equity Indices Based on Secondary Market Transactions (November 2018). Available at SSRN: https://ssrn.com/abstract=3278507.

[2] Ibid., Exhibit 3.

Continued on page 2.

Exhibit 3. Buyout Indices Over Time

This figure illustrates the value of investing $1 in an index at the beginning of 2006 in each buyout index as labeled. "Market PE Index All Ages" and "Market PE index 4-9 Yrs" represent the indices based on PE secondary market transactions. The "Public Market" index represents the public market return as posted on Ken French's website. "Preqin All Ages" and "Preqin 4-9 Yrs" represent the indices using NAVs as reported in Preqin for the exact same funds that are in our PE market-based indices. The Burgiss index is a NAV-based buyout index. The S&P Listed Private Equity Index is an index comprised of publicly-traded private equity funds. The chart uses a log scale for the vertical axis.



Source: Boyer et al. [2018].

One possible explanation for this strong performance is that the steep discount offered when the secondaries are purchased sold. The average price discount over the full sample is 13.8% of NAV, though this discount varies with fund age and overall market conditions.[3] Since NAV is often already at a discount to an asset's underlying value, this implies an even greater discount. Furthermore, the risks involved are likely to be lower than traditional private equity and venture capital investments: the assets have a history and are typically more mature and already "locked in." Lastly, considering that the deal performance above was measured assuming all-equity transactions, the performance of levered secondary funds could potentially be even more amplified.

However, the superior return of secondaries is often not due exclusively—or even primarily—to the initial purchase discount. The true discount or premium in a secondary transaction is difficult to assess, because it is based on NAVs that are updated infrequently. What is critical to performance is understanding the fundamental value of an asset, regardless of its stated NAV. Also, it is important to note that sellers often focus on aspects other than price alone. Some sellers may value the speed of a transaction or the ability to undertake a particularly large transaction over the highest price.

The Shift from LP to GP-Led Secondaries

As the longevity of private equity and venture capital funds increased over the years, with some funds not winding up until fifteen or even twenty years after formation, GPs have found that they have trillions of dollars locked up in funds. Along with increased volume of and narrowing spreads in secondary markets, longer holding periods have led to a huge growth in GP-led secondaries. These transactions now represent about 50% of the secondary market transactions.

The motivations for GP-led deals are different from traditional LP secondaries. Rather than focusing on liquidity (as characterizes LP-driven deals), GPs use secondaries as an avenue to preserve the assets they want to maintain, while addressing the needs of their investors. Thus, when a GP has an asset that the fund partners want to keep owning, but are feeling pressure to return capital to their LPs, using a secondary with a continuation fund is an attractive option. The GP can keep the assets that they like and continue to create value in a new structure, essentially recapitalizing the deal while maintaining the current management and business plans. For an LP, there is an opportunity to cash out or stay in the asset.

GP-led deals are different in some respects from LP transactions. In GP-led deals, the discount offered may be relatively smaller than with an LP sale. This is in part due to the asymmetric information issues in GP-led deals. In GP-led deals, there is an inherent conflict: if the GPs price the transaction too cheaply or too steeply, they will have either unhappy current or former LPs. In addition, getting the pricing wrong could raise the attention of government securities regulators. Thus, GP-led secondaries tend to be priced closely to the underlying asset value. Given the information problems, there may also be more due diligence by the buyer than in a typical LP-driven process. Lastly, because GPs often feel passionately about their assets, they will likely spend more time on marketing.

3 Taylor D. Nadauld, Berk A. Sensoy, Keith Vorkink, Michael S. Weisbach, The Liquidity Cost of Private Equity Investments: Evidence from Secondary Market Transactions, Journal of Financial Economics, Volume 132, Issue 3, 2019, Pages 158-181.

The Future

With the secondary markets exceeding $100 billion in volume in 2021, it is unlikely the market will soon disappear. However, the extent of future growth will depend on several factors:

• The growth of assets under management in private capital more generally, which has experienced explosive growth over the last 15 years.

• Equally important is the rate at which these assets turn over. Currently, turnover is around 1% in each calendar year. The lengthening of expected fund life may increase this rate.

• Furthermore, the ability of secondary funds and investors to attract talent and capital will also be important in driving the growth of this sector. The good news is that secondaries are no longer an oddity in the market and the ease of recruiting talent into this sector has improved over time.

Josh Lerner is Director of the Private Capital Research Institute and Jacob H. Schiff Professor of Investment Banking and Head of the Entrepreneurial Management Unit at Harvard Business School.

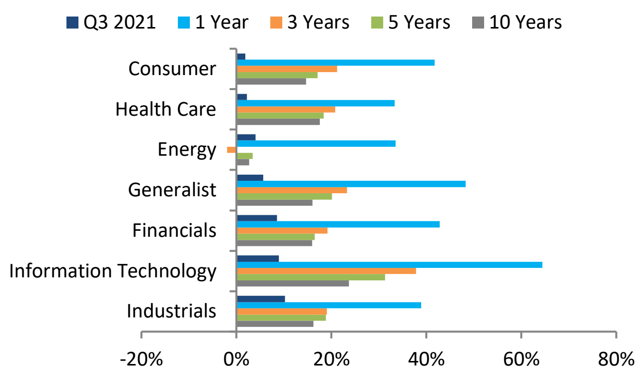
Leslie Jeng is Director of Research of the Private Capital Research Institute.

The Private Capital Research Institute is a not-for-profit 501(c)(3) corporation formed to further the understanding of private capital and its global economic impact through a commitment to the ongoing development of a comprehensive database of private capital fund and transaction-level activity supplied by industry participants. The PCRI, which grew out of a multi-year research initiative with the World Economic Forum, also sponsors policy forums.

CURRENT QUARTER PERFORMANCE SUMMARY – CONTINUED FROM PAGE 1

Among sectors, Industrials funds ranked at the top for the first time since 2017Q4 with a 10.23% quarterly return, followed by Information technology funds and Financials funds with a quarterly return of 8.94% and 8.56% respectively. Consumer funds, however, became lagged once again posting a quarterly return of 1.88% in Q3, which decreased significantly from the 10.04% return in Q2 (see Exhibit 4).

Exhibit 4. Returns of Sector Focused Private Equity Funds



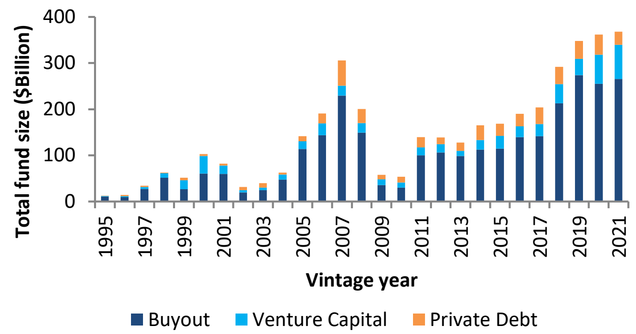
Source: State Street®, as of Q3 2021.

Fund Raising and Dry Powder

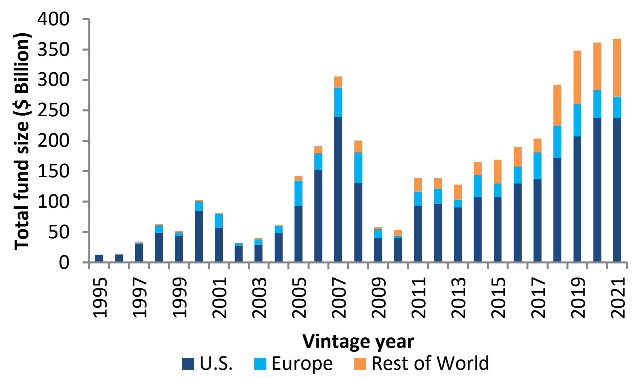
2021 is on course to set the highest fund raising on record in history. Over the first three quarters of this year, Buyout funds raised $265 billion and Venture Capital funds raised $74.5 billion, already surpassing activities in 2020 of $255 billion and $63 billion respectively. However, Private Debt fundraising slowed to approximately $28.1 billion in the first three quarters of the year, representing 65.2% of their previous year's total capital raised (see Exhibit 5(A)). Across regions, Rest of World funds continued its strong pace in fundraising with $95.3 billion, surpassing the amount raised in 2020 by more than 22%. US funds collected $237.5 billion, approaching the same amount raised in 2020. European funds maintained at the same pace as they did last year, with $35 billion raised so far or 76% of their total raised capital in 2020 (see Exhibit 5(B)).

The average fund size continued to rise for Buyout funds. As of the third quarter of 2021, the average size of Buyout funds reached a new all-time high with $3.12 billion. The average fund sizes for Venture Capital funds and Private Debt funds were stable compared to their average sizes in 2020, recording $0.78 billion and $1.34 billion respectively (see Exhibit 6).

Exhibit 5. Total Fund Size (USD Billion)
(A) By Strategy

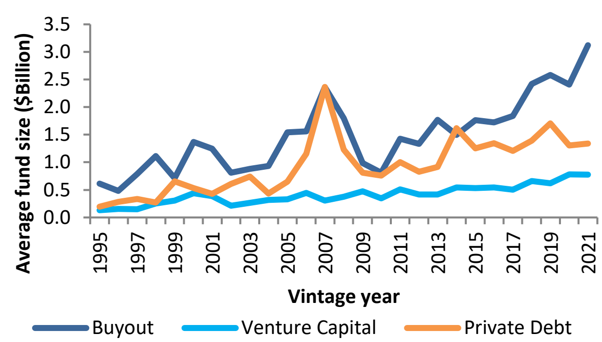


(B) by Region



Source: State Street®, as of Q3 2021.

Exhibit 6. Average Fund Size (USD Billion)

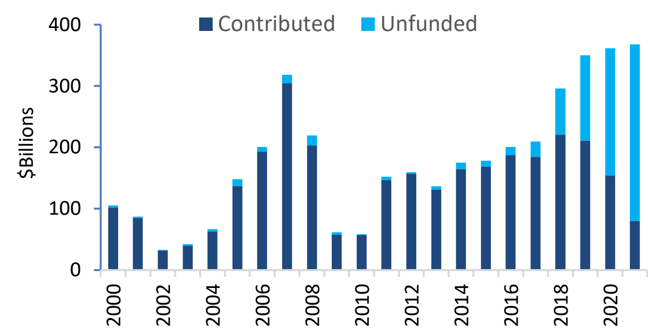


Source: State Street®, as of Q3 2021.

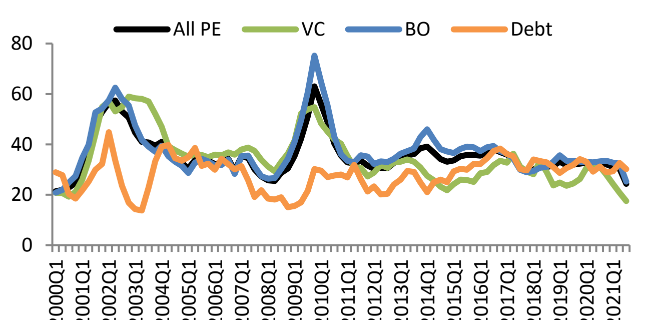
Dry powder is the part of the fund's committed capital that has not yet been called by the fund manager. It represents the amount of capital that can be used for future investment opportunities. As of the end of Q3 2021, SSPEI posted a dry powder of $817 billion. Exhibit 7(A) shows that majority of the committed capital from earlier vintage year funds has been called, while funds from more recent vintage years contributed to the most of current unfunded dry powder. Although the dollar amount of dry powder is high, quarterly dry powder normalized by the average contribution of the past 12 months, which measures how long the current dry powder inventory can last at the recent average capital call rate without new fund raising activities, stayed at the relatively low level in recent years for overall PE (see Exhibit 7(B)). The dry powder inventory for all three strategies trended down in Q3 2021, where Venture Capital has the lowest dry powder supply of only 18 months.

Exhibit 7. Dry Powder

(A) Dry Powder by Vintage Years (2000 – 2021Q3)



(B) Quarterly Dry Powder Normalized by Average Contribution



Source: State Street ®, as of Q3 2021.

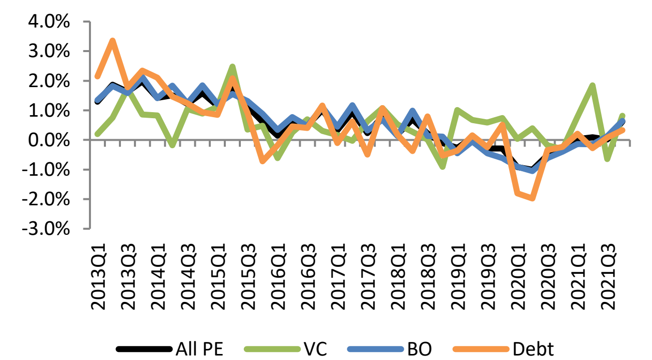
Cash Flow Activity

As shown in Exhibit 8(A), the net cash flow for all three strategies recovered rapidly toward their pre-Covid levels over 2021. The net cash flow of Venture Capital turned positive again in Q4 2021 to 0.8%, and net cash flow of Buyout and Private Debt increased to 0.6% and 0.3% respectively.

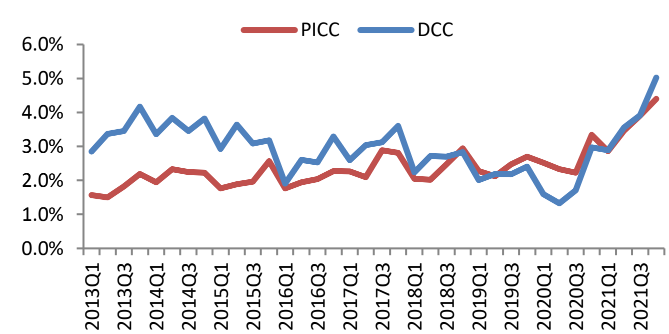
The improving net cash flow trend was driven by the increasing investment activities coupled with higher level of cash flow distributed to investors for overall PE market (see Exhibit 8(B)). Both the quarterly Distribution over Committed Capital (DCC) and quarterly Paid-in Capital over Committed Capital (PICC) posted their highest level since 2013 at 5% and 4.4% respectively.

Exhibit 8. Quarterly Cash Flow Ratios Normalized by Commitment (2013Q1 – 2021Q4)

(A) Net Cash Flow By Strategy



(B) Contribution and Distribution for All PE



Source: State Street ®, as of Q3 2021.

Valuations

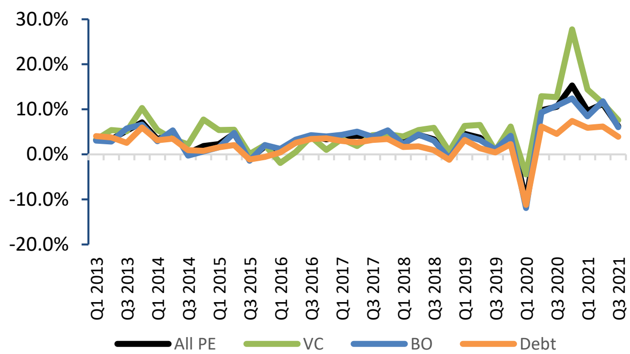
The Dollar Value Added (DVA) is the sum of NAV changes and net cash flows. It measures the realized and unrealized gain and loss in dollar amounts.

$$DVA = EndingNAV - BeginningNAV + Distribution - Contribution$$

In Q3 2021, the return of overall Private Equity continued the trend of reverting to a normal growth pace (see Exhibit 9). The movement of the quarterly returns in 2021 has remained in line with the movement of its DVA changes (see Exhibit 10).

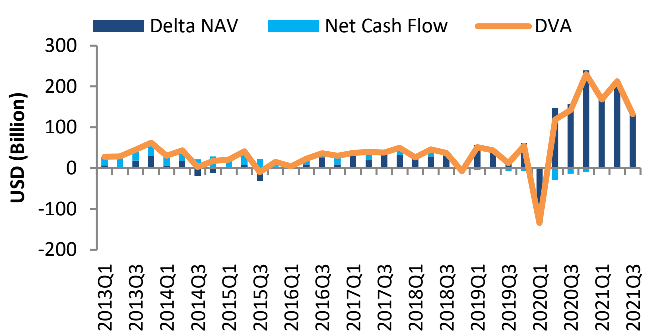
DVA of overall PE in Q3 2021 recorded $132 billion, which decreased from $213 billion in Q2 2021. This downward trend in DVA is mainly driven by a 37% slowdown of growth in the remaining value (Delta NAV) over the quarter.

Exhibit 9. Rolling Quarterly Returns by Strategies



Source: State Street ®, as of Q3 2021.

Exhibit 10. Dollar Value Added for All PE



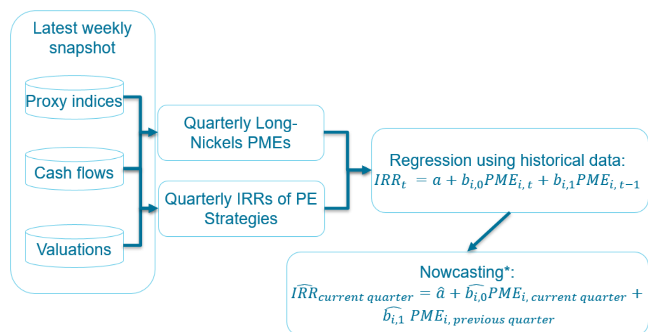
Source: State Street ®, as of Q3 2021.

NEXT QUARTER PERFORMANCE FORECAST

Nowcasting

Nowcasting – a term originated in meteorology that pertains to prediction of the present, the very near future and the very recent past, has just become popular in economics for assessing the current state of an economy, with GDP growth being one of the most studied example[1]. Inspired by the concept of Nowcasting and research conducted by Brown, Ghysels and Gredil (2020), SSPEI research team also developed a model, aspiring to estimate the concurrent performance of private equity market, of which the reporting is otherwise delayed at least by one quarter. The essence of the modelling method (illustrated in Exhibit 11) is using the information set available at current time – cash flows and public indices (in form of PMEs) – to estimate the IRR of PE index of current quarter with no or largely shortened lag by a linear regression model. In this model, we regress quarterly PE returns of All PE, Buyout, Venture Capital, and Private Debt strategies against the contemporaneous and one quarter lagged Long-Nickel's PMEs of selected public indices[2] in each 5-year rolling window.

Exhibit 11. Nowcasting Model Based on Public Market Equivalents



* $PME_{i,current\ quarter}$ has almost no lags, because it only depends on previous quarter valuation, current quarter cash flows and public indices.

Source: State Street.

As shown in Exhibit 12, Nowcasting results are out-of-sample predictions based on the regression coefficients from the past 5 year rolling window and the observed public market returns

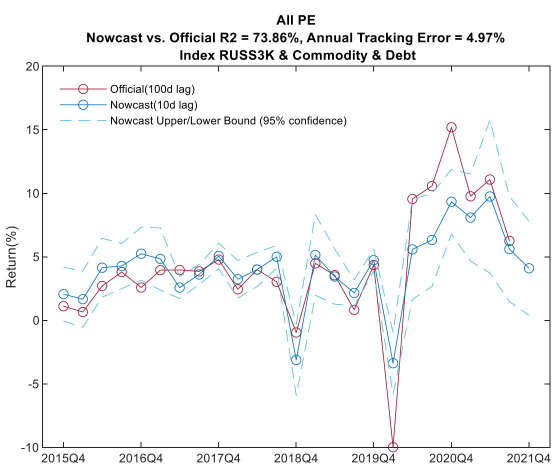
[1] Brown, Gregory W. and Ghysels, Eric and Gredil, Oleg, Nowcasting Net Asset Values: The Case of Private Equity (January 16, 2021). Kenan Institute of Private Enterprise Research Paper No. 20-02, Available at SSRN: https://ssrn.com/abstract=3507873 or http://dx.doi.org/10.2139/ssrn.3507873

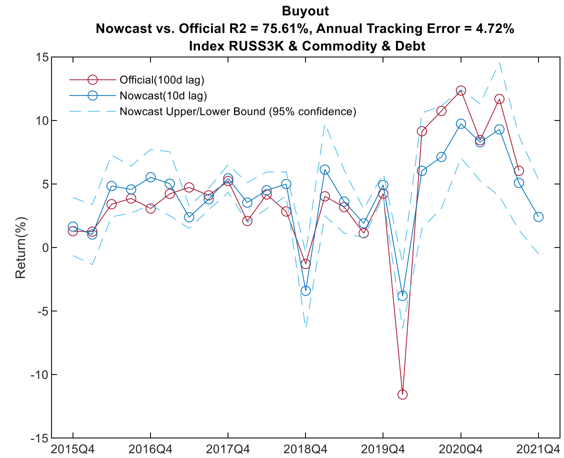
[2] As shown in the figure titles of Exhibit 12, we used PMEs of Russell 3000 Index (RUSS3K), Bloomberg Commodity Index (Commodity), Bloomberg Barclays US Aggregate Index (Debt) as regressors for All PE and Buyout; we used PMEs of NASDAQ Composite Index (NASDAQ) as regressors for Venture Capital; we used PMEs of Bloomberg Barclays US Corporate High Yield Index (HY), Bloomberg Commodity Index (Commodity), Bloomberg Barclays US Aggregate Index (Debt) as regressors for Private Debt.

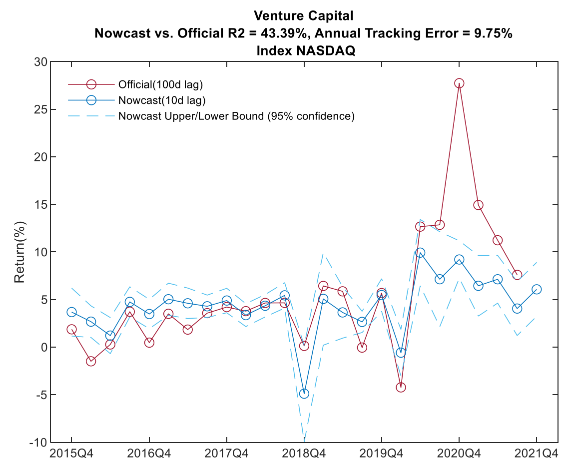
and private market cash flows in the first quarter after the 5 year rolling regression window. Two interesting patterns emerge. First, even with such a minimalist model, the overall out-of-sample prediction matches pretty well with actual PE returns. The Buyout out-of-sample R-squared is as high as 75.61% in the past 6 years. Second, not surprisingly, the model does not always work well. For example, during the COVID crisis from 2020Q1 to 2021Q2, due to extremely high volatility followed by a strong recovery in valuation in venture capital, the returns reported by SSPEI were outside the range of the model predicted 95% confidence interval. The model is likely missing some important factors that drove the VC valuation during COVID crisis; or the true beta of VC return against the public market was changing too fast than the model can adapt to; or maybe the VC valuation itself was indeed too optimistic.

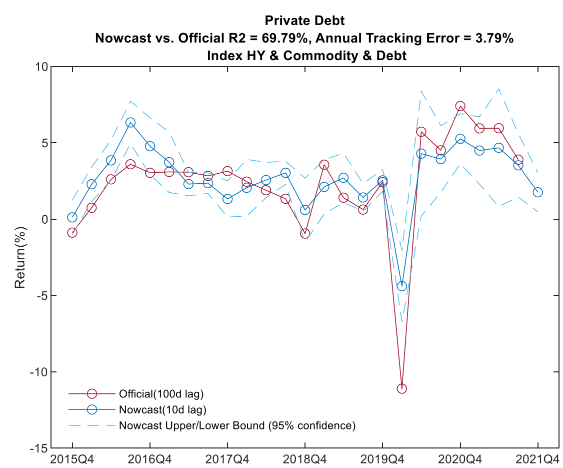
That said, for Q4 2021, the model predicted IRRs for all PE, Buyout and Private Debt strategy are 4.09%, 2.41%, 1.76% respectively, all declining slightly from Q3. Whereas Venture Capital funds see a return of 6.07% – as suggested by nowcasting model, which is a 2.02% increase from the previously nowcasted 2021Q3 return (i.e. 4.05%) or a 1.52% decrease from the actual reported 2021Q3 return (i.e. 7.59%).

Exhibit 12. Actual vs. Out-of-sample Nowcast IRRs









Source: State Street ®, as of Q3 2021.

ABOUT THE STATE STREET PRIVATE EQUITY INDEX

Participants in private capital markets need a reliable source of information for performance and analytics. Given the non-public nature of the private equity industry, collecting comprehensive and unbiased data for investment analysis can be difficult. The State Street Private Equity Index ("SSPEI") helps address the critical need for accurate and representative insight into private equity performance.

Derived from actual cash flow data of our Limited Partner clients who make commitments to private equity funds, SSPEI is based on one of the most detailed and accurate private equity data sets in the industry today. These cash flows received as part of our custodial and administrative service offerings are aggregated to produce quarterly Index results. Because the SSPEI does not depend on voluntary reporting of information, it is less exposed to biases common among other industry indexes. The result is an index that reflects reliable and consistent client data, and a product that provides analytical insight into an otherwise opaque asset class.

- Currently comprises more than 3,500 funds representing more than $3.9 trillion in capital commitments as of Q3 2021
- Global daily cash-flow data back to 1980.
- The Index has generated quarterly results since Q3 2004.
- Published approximately 100 days after quarter-end.

AUTHORS

Maggie Miao, CFA qmiao@statestreet.com

Yaoyun Zhang Yzhang50@statestreet.com

Yaonan Zhang, CFA, PhD (Former employee)

Nan R. Zhang, CFA, PhD nzhang2@statestreet.com

Disclaimers and Important Risk Information

State Street Global Markets® is the business name and a registered trademark of State Street Corporation® and is used for its financial markets business and that of its affiliates. State Street Associates® is a registered trademark of State Street Corporation, and the analytics and research arm of State Street Global Markets.

The products and services outlined herein are only offered to professional clients or eligible counterparties through State Street Bank and Trust Company, authorized and regulated by the Federal Reserve Board. State Street Bank and Trust Company is registered with the Commodity Futures Trading Commission as a Swap Dealer and is a member of the National Futures Association. Please note that certain foreign exchange business, including spot and certain forward transactions, are not regulated.

This document is a communication intended for general marketing purposes, and the information contained herein has not been prepared in accordance with legal requirements designed to promote the independence of investment research. It is for clients to determine whether they are permitted to receive research of any nature. It is not intended to suggest or recommend any transaction, investment, or investment strategy, does not constitute investment research, nor does it purport to be comprehensive or intended to replace the exercise of an investor's own careful independent review and judgment regarding any investment decision.

This communication is not intended for retail clients, nor for distribution to, and may not be relied upon by, any person or entity in any jurisdiction or country where such distribution or use would be contrary to applicable law or regulation. This communication and the information herein does not constitute investment, legal, or tax advice and is not a solicitation to buy or sell securities or any financial instrument nor is it intended to constitute a binding contractual arrangement or commitment by State Street of any kind. The information provided does not take into account any particular investment objectives, strategies, investment horizon or tax status. This communication or any portion hereof may not be reprinted, sold or redistributed without the prior written consent of State Street Global Markets.

The views expressed herein are the views of State Street Global Markets as of the date specified and are subject to change, without notice, based on market and other conditions. The information provided herein has been obtained from sources believed to be reliable at the time of publication, nonetheless, we make no representations or assurances that the information is complete or accurate, and you should not place any reliance on said information. State Street Global Markets hereby disclaims any warranty and all liability, whether arising in contract, tort or otherwise, for any losses, liabilities, damages, expenses or costs, either direct, indirect, consequential, special, or punitive, arising from or in connection with any use of this document and/or the information herein.

State Street Global Markets may from time to time, as principal or agent, for its own account or for those of its clients, have positions in and/or actively trade in financial instruments or other products identical to or economically related to those discussed in this communication. State Street Global Markets may have a commercial relationship with issuers of financial instruments or other products discussed in this communication.

This document may contain statements deemed to be forward-looking statements. These statements are based on assumptions, analyses and expectations of State Street Global Markets in light of its experience and perception of historical trends, current conditions, expected future developments and other factors it believes appropriate under the circumstances. All information is subject to change without notice. Clients should be aware of the risks trading foreign exchange, equities, fixed income or derivative instruments or in investments in non-liquid or emerging markets. Derivatives generally involve leverage and are therefore more volatile than their underlying cash investments. Past performance is no guarantee of future results.

The products and services outlined in this document are generally offered in the **United States and Latin America** by State Street Bank and Trust Company. This communication is made available in **Japan** by State Street Bank and Trust Company, Tokyo Branch, which is regulated by the Financial Services Agency of Japan and is licensed under Article 47 of the Banking Act. **EMEA**: (i) State Street Bank and Trust Company, London Branch, authorised and regulated by Federal Reserve Board, authorised by the Prudential Regulation Authority, subject to regulation by the Financial Conduct Authority and limited regulation by the Prudential Regulation Authority. Details about the extent of regulation by the Prudential Regulation Authority are available upon request; and/or (ii) State Street Bank International GmbH, authorised by Deutsche Bundesbank and the German Federal Financial Supervisory Authority and, in respect of State Street Bank International GmbH, London Branch, subject to limited regulation by the Financial Conduct Authority and Prudential Regulation Authority. Details about the extent of regulation by the Financial Conduct Authority and Prudential Regulation Authority are available upon request. **Brazil:** The products in this marketing material have not been and will not be registered with the Comissão de Valores Mobiliários - the Brazilian Securities and Exchange Commission ("CVM"), and any offer of such products is not directed to the general public within the Federative Republic of Brazil ("Brazil"). The information contained in this marketing material is not provided for the purpose of soliciting investments from investors residing in Brazil and no information in this marketing material should be construed as a public offering or unauthorized distribution of the products within Brazil, pursuant to applicable Brazilian law and regulations. The products and services outlined in this document are generally offered in **Canada** by State Street Bank and Trust Company. This communication is made available in **Hong Kong** by State Street Bank and Trust Company which accepts responsibility for its contents, and is intended for distribution to professional investors only (as defined in the Securities and Futures Ordinance). This communication is made available in **Australia** by State Street Bank and Trust Company ABN 70 062 819 630, AFSL 239679 and is intended only for wholesale clients, as defined in the Corporations Act 2001. This communication is made available in **Singapore** by State Street Bank and Trust Company, Singapore Branch ("SSBTS"), which holds a wholesale bank license by the Monetary Authority of Singapore. In Singapore, this communication is only distributed to accredited, institutional investors as defined in the Singapore Financial Advisers Act ("FAA"). Note that SSBTS is exempt from Sections 27 and 36 of the FAA. When this communication is distributed to overseas investors as defined in the FAA, note that SSBTS is exempt from Sections 26, 27, 29 and 36 of the FAA. This advertisement has not been reviewed by the Monetary Authority of Singapore. The products and services outlined in this document are made available in **South Africa** through State Street

Bank and Trust Company, which is authorized in South Africa under the Financial Advisory and Intermediary Services Act, 2002 as a Category I Financial Services Provider; FSP No. 42671. This communication is made available in **Israel** by State Street Bank and Trust Company, which is not licensed under Israel's Regulation of Investment Advice, Investment Marketing and Portfolio Management Law, 1995. This communication may only be distributed to or used by investors in Israel which are "eligible clients" as listed in the First Schedule to Israel's Regulation of Investment Advice, Investment Marketing and Portfolio Management Law 1995. This communication is made available in **Qatar** by State Street Bank and Trust Company and its affiliates. The information in this communication has not been reviewed or approved by the Qatar Central Bank, the Qatar Financial Markets Authority or the Qatar Financial Centre Regulatory Authority, or any other relevant Qatari regulatory body. This communication is made available in **Malaysia** by State Street Bank and Trust Company, which is authorized and regulated by the Federal Reserve Board. State Street Bank and Trust Company is not licensed within or doing business within Malaysia and the activities that are being discussed are carried out off-shore. The written materials do not constitute, and should not be construed as constituting: 1) an offer or invitation to subscribe for or purchase securities or futures in Malaysia or the making available of securities or futures for purchase or subscription in Malaysia; 2) the provision of investment advice concerning securities or futures; or 3) an undertaking by State Street Bank and Trust Company to manage the portfolio of securities or futures contracts on behalf of other persons. This communication is made available in **Turkey** by State Street Bank and Trust Company and its affiliates. The information included herein is not investment advice. Investment advisory services are provided by portfolio management companies, brokers and banks without deposit collection licenses within the scope of the investment advisory agreements to be executed with clients. Any opinions and statements included herein are based on the personal opinions of the commentators and authors. These opinions may not be suitable to your financial status and your risk and return preferences. Therefore, an investment decision based solely on the information herein may not be appropriate to your expectations. This communication is made available in **United Arab Emirates** by State Street Bank and Trust Company and its affiliates. This communication does not, and is not intended to, constitute an offer of securities anywhere in the United Arab Emirates and accordingly should not be construed as such. Nor does the addressing of this communication to you constitute, or is intended to constitute, the carrying on or engagement in banking, financial and/or investment consultation business in the United Arab Emirates under the rules and regulations made by the Central Bank of the United Arab Emirates, the Emirates Securities and Commodities Authority or the United Arab Emirates Ministry of Economy. Any public offer of securities in the United Arab Emirates, if made, will be made pursuant to one or more separate documents and only in accordance with the applicable laws and regulations. Nothing contained in this communication is intended to endorse or recommend a particular course of action or to constitute investment, legal, tax, accounting or other professional advice. Prospective investors should consult with an appropriate professional for specific advice rendered on the basis of their situation. Further, the information contained within this communication is not intended to lead to the conclusion of any contract of whatsoever nature within the territory of the United Arab Emirates. This communication has been forwarded to you solely for your information, and may not be reproduced or passed on, directly or indirectly, to any other person or published, in whole or in part, for any purpose. This communication is addressed only to persons who are professional, institutional or otherwise sophisticated investors. This communication is made available in **Saudi Arabia** by State Street Bank and Trust Company and its affiliates. The information contained in this communication is not intended to invite or induce any person to engage in securities activities nor does it constitute an offer to sell securities or the solicitation of an offer to buy, or recommendation for investment in, any securities within the Kingdom of Saudi Arabia or any other jurisdiction. The information in this communication is not intended as financial advice. Moreover, this communication is not intended as a prospectus within the meaning of the applicable laws and regulations of the Kingdom of Saudi Arabia or any other jurisdiction and this communication is not directed to any person in any country in which the distribution of such communication is unlawful. This communication provides general information only. The information and opinions in this communication are stated as at the date indicated. The information may therefore not be accurate or current. The information and opinions contained in this communication have been compiled or arrived at from sources believed to be reliable in good faith, but no representation or warranty, express or implied, is made by State Street Bank and Trust Company and its affiliates as to their accuracy, completeness or correctness. This communication is made available in **South Korea** by State Street Bank and Trust Company and its affiliates, which accept responsibility for its contents, and is intended for distribution to professional investors only. State Street Bank and Trust Company is not licensed to undertake securities business within South Korea, and any activities related to the content hereof will be carried out off-shore and only in relation to off-shore non-South Korea securities. This communication is made available in **Indonesia** by State Street Bank and Trust Company and its affiliates. Neither this communication nor any copy hereof may be distributed in Indonesia or to any Indonesian citizens wherever they are domiciled or to Indonesian residents except in compliance with applicable Indonesian capital market laws and regulations. This communication is not an offer of securities in Indonesia. Any securities referred to in this communication have not been registered with the Capital Market and Financial Institutions Supervisory Agency (BAPEPAM-LK) pursuant to relevant capital market laws and regulations, and may not be offered or sold within the territory of the Republic of Indonesia or to Indonesian citizens through a public offering or in circumstances which constitute an offer within the meaning of the Indonesian capital market law and regulations. This communication is made available in **Oman** by State Street Bank and Trust Company and its affiliates. The information contained in this communication is for information purposes and does not constitute an offer for the sale of foreign securities in Oman or an invitation to an offer for the sale of foreign securities. State Street Bank and Trust Company is neither a bank nor financial services provider registered to undertake business in Oman and is neither regulated by the Central Bank of Oman nor the Capital Market Authority. Nothing contained in this communication report is intended to constitute Omani investment, legal, tax, accounting, investment or other professional advice. This communication is made available in **Taiwan** by State Street Bank and Trust Company and its affiliates, which accept responsibility for its contents, and is intended for distribution to professional investors only. State Street Bank and Trust Company is not licensed to undertake securities business within Taiwan, and any activities related to the content hereof will be carried out off-shore and only in relation to off-shore non-Taiwan securities. **Peoples Republic of China ("PRC").** This communication is being distributed by State Street Bank and Trust Company. State Street Bank and Trust Company is not licensed or carrying on business in the PRC in respect of any activities described herein and any such activities it does carry out are conducted outside of the PRC. These written materials do not constitute, and should not be construed as constituting: 1) an offer or invitation to subscribe for or purchase securities or futures in PRC or the making available of securities or futures for purchase or subscription in PRC; 2) the provision of investment advice concerning securities or futures; or 3) an undertaking by State Street Bank and Trust Company to manage the portfolio of securities or futures contracts on behalf of other persons.

Products and services may not be available in all jurisdictions. Please contact your State Street representative for further information. SSA MMD 2022-01

To learn how State Street looks after your personal data, visit: http://www.statestreet.com/utility/data-processing-and-privacy-notice.html