# Private Equity Indices based on Secondary Market Transactions

Brian Boyer, Taylor Nadauld, Keith Vorkink, and Michael Weisbach

## Discussion

Pierre Collin-Dufresne
SFI@EPFL and CEPR

EHL July 2018

- Summary
- Comments
- Conclusion

# Background

- Controversy on private equity performance:
  - Do PE returns outperform public market returns?
  - Is there a difference between buyout and venture investment performance?
- Because of lack of data on PE returns, literature has relied on constructs such as the Public Market Equivalent (PME).
- The PME is the net future value of PE cash-flows assuming distributions are reinvested in the S&P500 and cash calls are funded by shorting the S&P500.

$\rightarrow$ Assumes PE has same risk and liquidity characteristics as the S&P500!

- What is the market beta of PE?
- What is the liquidity beta of PE?

# Summary

- This paper exploits a new (unique?) data-set on 1246 secondary market transactions of 294 buyout funds and 230 venture funds from 2006 to 2017 merged with the Preqin universe.
- Because transactions are rare and not synchronuous, use a Heckman sample selection model to construct a hedonic price index that controls for various common and deal specific factors (volatility, size, age,. . . )
- Main findings:
  - Funds typically trade at an 80% discount to NAV.
  - 'Fairway' funds, that trade more often, trade at a 90% discount to NAV.
  - Funds that transact are larger and older than average.
  - PE transaction betas are large (1.8 for buyout and 1.2 for venture).
  - Alphas are not significantly different from zero.
    - Though Buyout alpha becomes significant when excluding 2008 and 2009 data
  - Adding PE to a mean-variance efficient portfolio of commodities, bonds, small, medium, and large caps improves the Sharpe ratio from:
    - 1 to 1.25 using transaction indexes,
    - 1 to 1.59 using NAV-based index.

→ authors conclude: *"we find strong evidence that buyout funds outperformed public equity market on both absolute and risk-adjusted basis. In contrast, venture funds performed as well as public equity markets. . ."*

# Comments and Questions

- Beauty of having an index is that one can plot it (against various other indexes such as S&P, small and mid cap indexes)!

→ How different is the hedonic index from simple repeat sales index?

- What is the right risk-benchmark to compute alpha for PE returns: is it the CAPM?

→ If PE is rather small to mid-cap and very illiquid, then clearly need to have illiquidity risk-factors and size factors in the risk-model.

→ Pratt (1989) and Silber (1992) find that rule 144 (restricted) stocks trade at 30% to 40% illiquidity discount to unrestricted stocks, so we expect sizable 'alpha' relative to the CAPM.

→ What is the illiquidity beta of PE, what is its size beta?

# Comments and Questions

- Who sells these PE stakes and in what conditions? Are these liquidity constrained investors?

→ Would imply that the returns to the "secondary market" transactions include a "liquidity premium."

→ Add controls in the selection equation to account for seller characteristics?

- Add funding and market liquidity factors (swap spread, GS-repo spread) to selection equation.

- Is a mean-variance investment Sharpe Ratio of 1.25 or 1.59 reasonable?

→ Are numbers based solely on the historical mean and covariance matrix from 2006 to 2016? (typically not very robust, e.g., Black-Litterman (1992)).

# Conclusion

- Very interesting data-set and useful empirical methodology.
- Might finally help researchers in this area agree on PE investment performance.
- Actually, I doubt it (unfortunately)!