Private equity investing

Tim Jenkinson

Professor of Finance & Director, Private Equity Institute

Said Business School, University of Oxford

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Agenda

This presentation addresses three questions:

- Why invest in private equity (when it costs more)?
- What are the trends in the performance of private equity, relative to public equity?
- How well have the Pennsylvania pension funds' private equity investments performed?

Why invest in private markets?

- There are two broad reasons, which really apply to any asset:

  <u>diversification</u> and <u>returns</u>

Diversification

- Public markets have been changing significantly
- In the last 20 years the number of U.S. public companies has fallen by 50% - to around 3600 today
  - Similar trends in many other countries: e.g. UK listed companies have also fallen by around 50%
- US stock market capitalization is at about the same level – but as a ratio of GDP is about 20% lower
- Small firms have been disappearing from stock markets – proportion of listed firms with market cap < $100m has halved
- Average market cap of listed firms in US has tripled – to $6bn

See Doidge, Karolyi and Stulz, 2018, The eclipse of the public corporation or eclipse of the public market? Journal of Applied Corporate Finance

Equity

- Economic growth ultimately pays pensions
- Equity allocations are therefore key
- Public equity gets you access to a sample of more mature companies in particular sectors and countries
- Private equity – buyouts, growth and venture capital – can access many other sources of economic growth

- Increasingly, investors think of private equity as just another way to get equity exposure, rather than an “alternative asset”

The world's largest public equity manager…

- … is "expanding its private investment abilities"
- Blackrock poached Mark Wiseman, former CIO of the Canadian Pension Plan, who says "most investors are heading in that direction [towards private market investments] because the liquid pubic markets are shrinking"

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BlackRock looks to private investments

Asset manager worried about surge in buybacks and lack of new listings

ROBIN WIGGLESWORTH — NEW YORK

BlackRock plans to ramp up its private investment activities, concerned that the US stock market is being shrunk by the surge in buybacks and a dearth of new listings, but also enticed by the burgeoning opportunities in the private debt market.

Mark Wiseman, head of active equities at BlackRock and chairman of its "alternative" investing business, said that expanding its private investment abilities has become an "increasingly big priority" for the $6tn asset manager.

"It's one of the most exciting things happening in BlackRock today," Mr Wiseman said. "I think that most investors are heading in that direction. In part they're heading in that direction . . . [because] the liquid public markets are shrinking."

"Private markets" is a broad term for any assets that do not trade on an exchange, such as direct loans or unlisted shares. JPMorgan analysts estimate that pension fund allocations to traditional equity investments have shrunk about 10 per cent over the past two decades, but allocations to private markets have increased roughly 20 per cent over the same period.

Interest has been particularly strong in recent years, driven by a profound shift. The value of the US stock market, measured by the S&P Total Market Index, has roughly doubled over the past decade to $31.6tn — but mainly because of rising prices rather than a greater number of listed companies.

Initial public offerings have slowed sharply since the dotcom boom and US corporations have instead emerged as the single biggest buyers of their own stock, both via mergers and acquisitions and massive repurchase programmes.

This year's corporate tax cut has further stirred the buyback frenzy. Bernstein analysts estimate that US companies are on track to repurchase $1.2tn of their own shares this year. That would lift the total since 2010 to more than $5tn — bigger than the Federal Reserve's entire post-crisis quantitative easing programme.

20% Increase in pension fund allocations to private markets in past two decades

$1.2tn Expected value of buybacks by US companies this year

BlackRock announced earlier this year that it would raise up to $10bn for a new "long-term private capital" vehicle, and bought Tennenbaum Capital Partners, a $9bn investment group, to bulk up its private debt investments. Together with infrastructure and real estate, these four areas will be the main "pillars of growth" for BlackRock, Mr Wiseman said.

The Tennenbaum acquisition increased BlackRock's "illiquid alternative" assets by $9bn to about $76bn, and Mr Wiseman indicated that this was just a start of a broader private market push by the BlackRock Alternative Investors unit led by David Blumer.

"There's a lot of capital looking for risk and they're not finding that risk in the public markets," Mr Wiseman said.

Returns

- The case for private equity investing ultimately depends on the net returns relative to public equity – but why might private equity generate attractive returns?

- Private equity is best thought of as a different form of corporate governance
  - Ownership and control reside in the same hands
  - Focus on medium term (3-5 year) value creation – often with significant investment, transformation, growth
  - Very sharp economic incentives for management
  - Efficient use of leverage to increase equity returns while managing risk

Talent

- Being in the C-suite of a public company has become less attractive over the years, with increased regulation and scrutiny following each crisis/scandal
- Many new innovative businesses stay private for as long as possible, often over a decade after inception

- Private equity has attracted many talented people – working both for the funds and the portfolio companies
  - However, such people do not come cheap, and there are certainly issues with the fee structures of funds

Measuring returns

- The industry tends to focus on internal rates of return and investment multiples
- But these are influenced by macro trends in markets
- Of more relevance are <u>private equity returns relative to public market returns</u>

- This allows one to address the question: “is it worth allocating funds to private equity when there is a low cost diversified alternative – namely passive indexed funds?”

Focus on net returns

- Clearly, what matters to investors is the net return – net of all fees charged by the fund manager (to the fund or the portfolio company), as well as any profit shares

- This is precisely what I am going to present evidence on for private equity

- For public equity, I will use gross index returns, but the fees charged are low
  - One should, in principle, allow for both the fees charged by index funds and the additional costs of running a private equity program. Over recent years the former have almost certainly exceeded the latter, so ignoring both biases the results somewhat against PE

Private vs public equity returns

- Public market equivalent (PME) returns compare the returns gained from private equity funds to the returns that would have been earned had the same cash-flows been invested (and divested) in a public market index at the same time
  - PMEs can be thought of as market-adjusted multiples
  - If PME > 1 private equity beat the public market index
  - If PME < 1 the public market index beat private equity

- So a PME of 1.2 implies that the investor ended up with 20% more wealth from private equity than if they had made similarly timed investments (and divestments) to public markets

Complexities

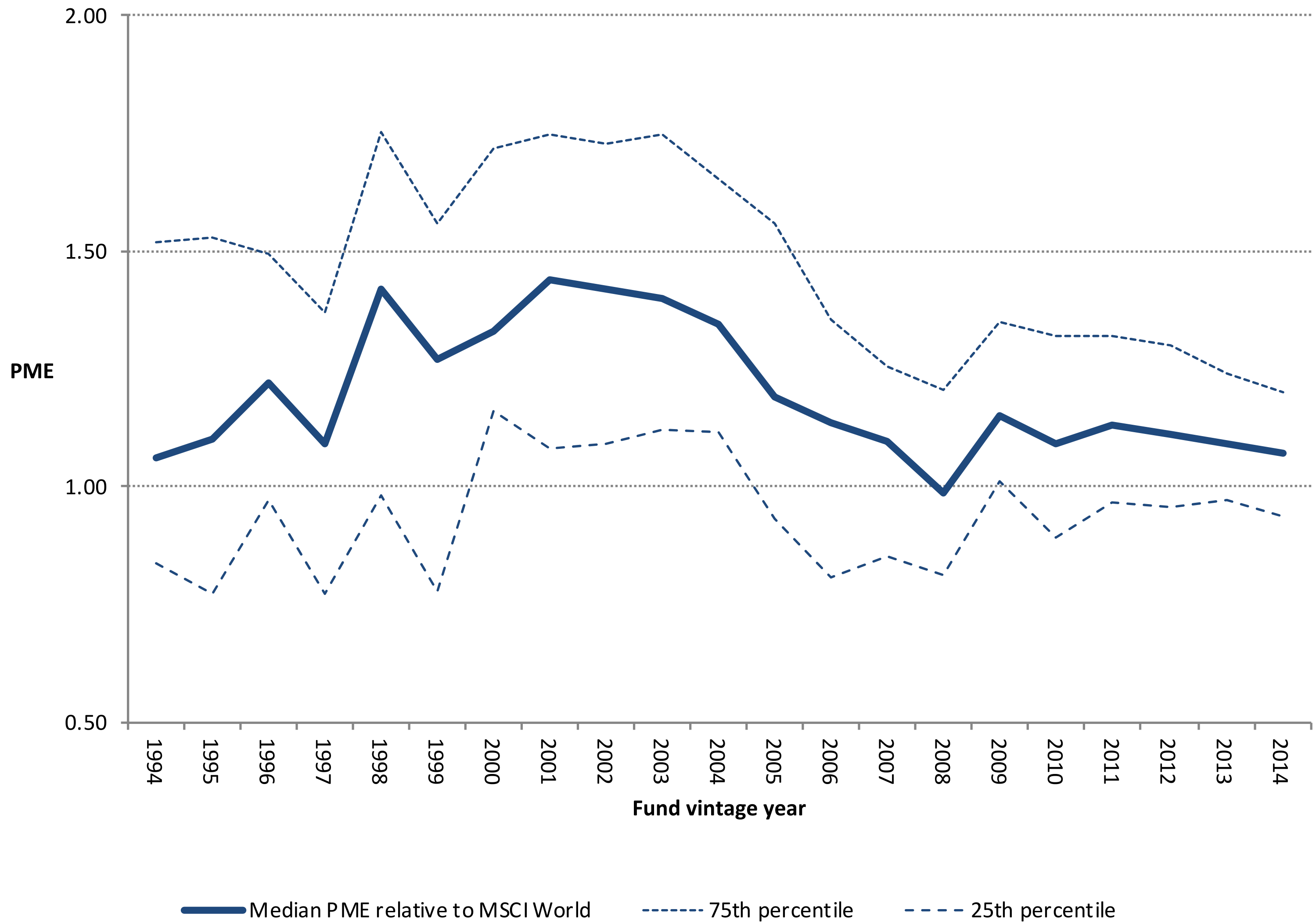
- It matters which public index you choose as a benchmark, even within a country (see the appendix slides)
- It matters even more when you consider international investments, where currency is also an issue

- Standard PMEs essentially assume that the risk of each PE portfolio is similar to the market, which may not be the case
- The private equity portfolio is a long-term commitment that cannot easily be traded, unlike a public equity portfolio which has high liquidity

Data

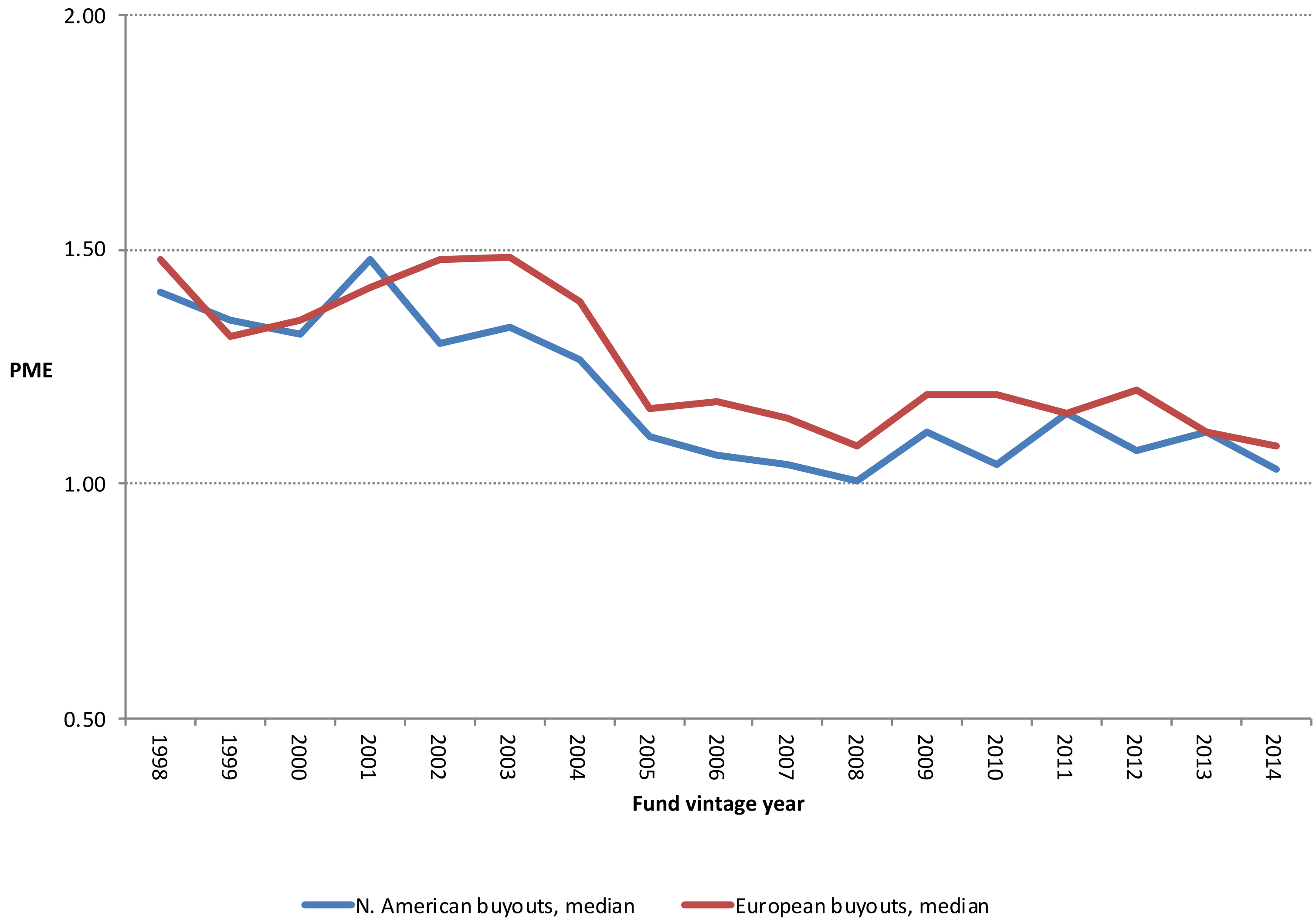
- I am using the latest 2018Q1 update to the Burgiss data
  - This is recognized as the best database for analyzing private equity, as the data is derived entirely from investors
  - Both PSERS and PA SERS use Burgiss
  - Includes the complete transactional history for > 8,000 private capital funds representing around $6 trillion in committed capital
  - I focus on buyout and VC funds
  - Database includes 2,009 buyout funds and 2,250 VC funds
  - I focus on vintage years up to 2014, more recent funds are too immature
  - The more recent vintages will be largely un-realized, but I use the latest asset valuations

Globally, median buyout funds have beaten the MSCI World index, but there is high variability in performance



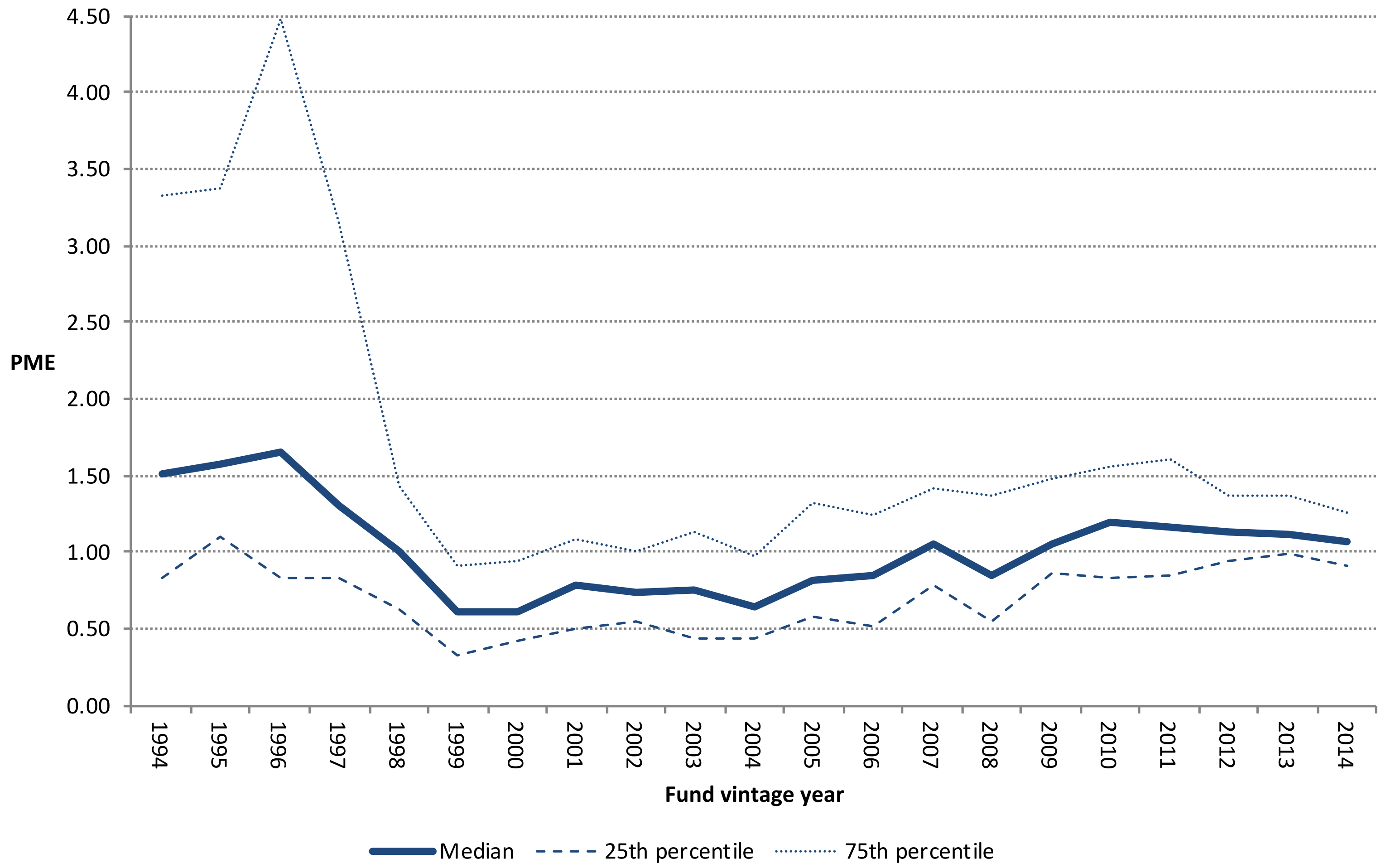
Source: Burgiss Private iQ, global buyouts
Cash-flows and NAVs up to 2018Q1,
PMEs measured relative to MSCI World

Buyouts have beaten local public markets … but the premium has fallen over time



Source: Burgiss Private iQ. N. American PMEs measured relative to S&P 500 in $; European PMEs relative to MSCI Europe in euros. Cash-flows and NAVs up to 2018Q1. Comparison starts in 1998 as there were few European PE funds before that date

VC returns were disappointing after the dot-com period, but have been steadily improving

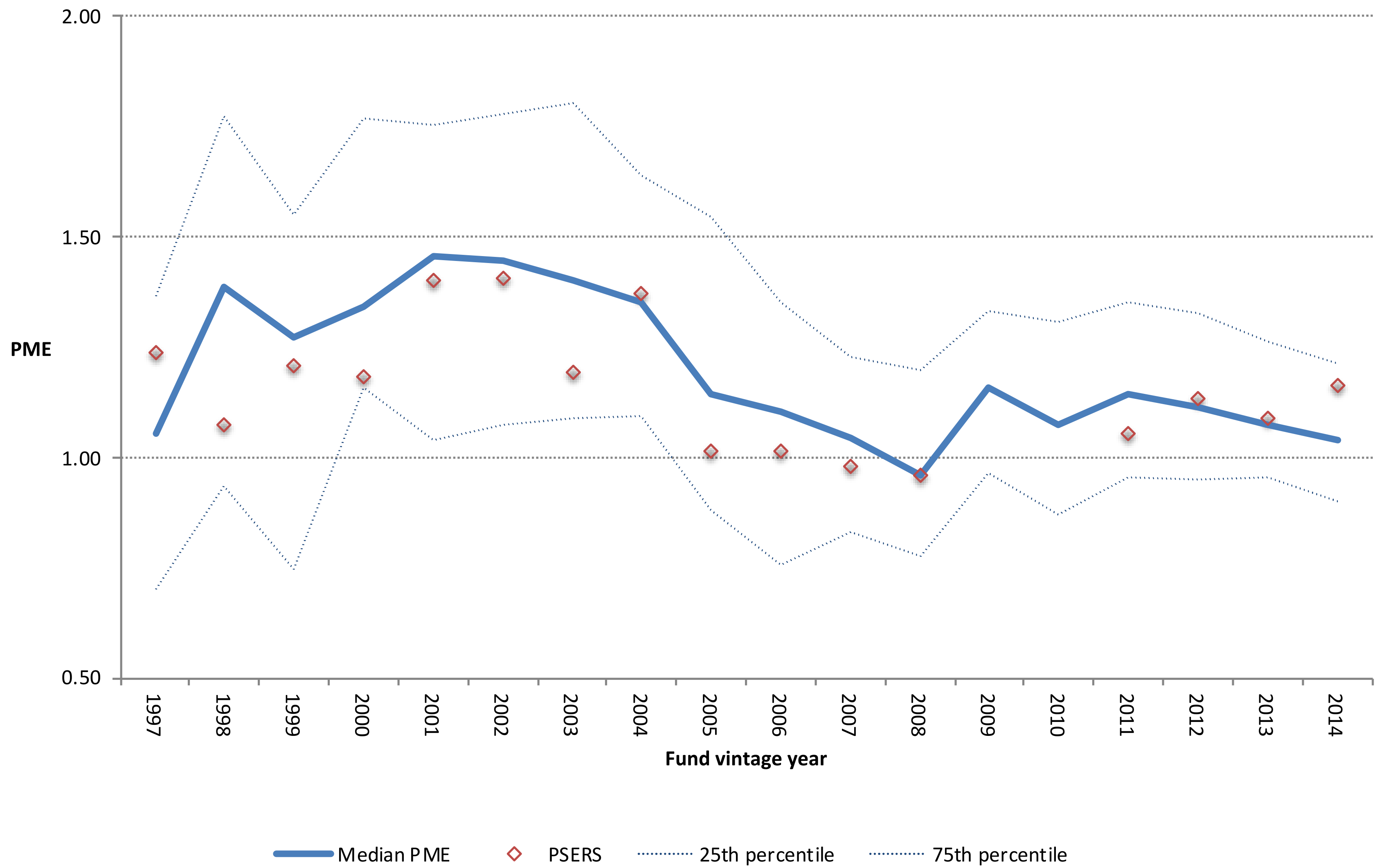


Source: Burgiss Private iQ, global VC funds.
Cash-flows and NAVs up to 2018Q1,
PMEs measured relative to MSCI World

The performance of the PA schemes: PSERS

- PSERS have invested about $20bn in buyouts, $3bn in VC and $5bn in ‘special situation’ funds
- They started a co-investment program for buyouts in 2012
- They invest internationally, and use a blended benchmark of 70% Russell 3000 and 30% MSCI World ex USA IMI
- I created a vintage year PME for their fund investments and co-investments weighted by capital contributions
  - I include special situation funds with buyouts
- I then compare this to the global fund returns using the same benchmark

PSERS buyout performance



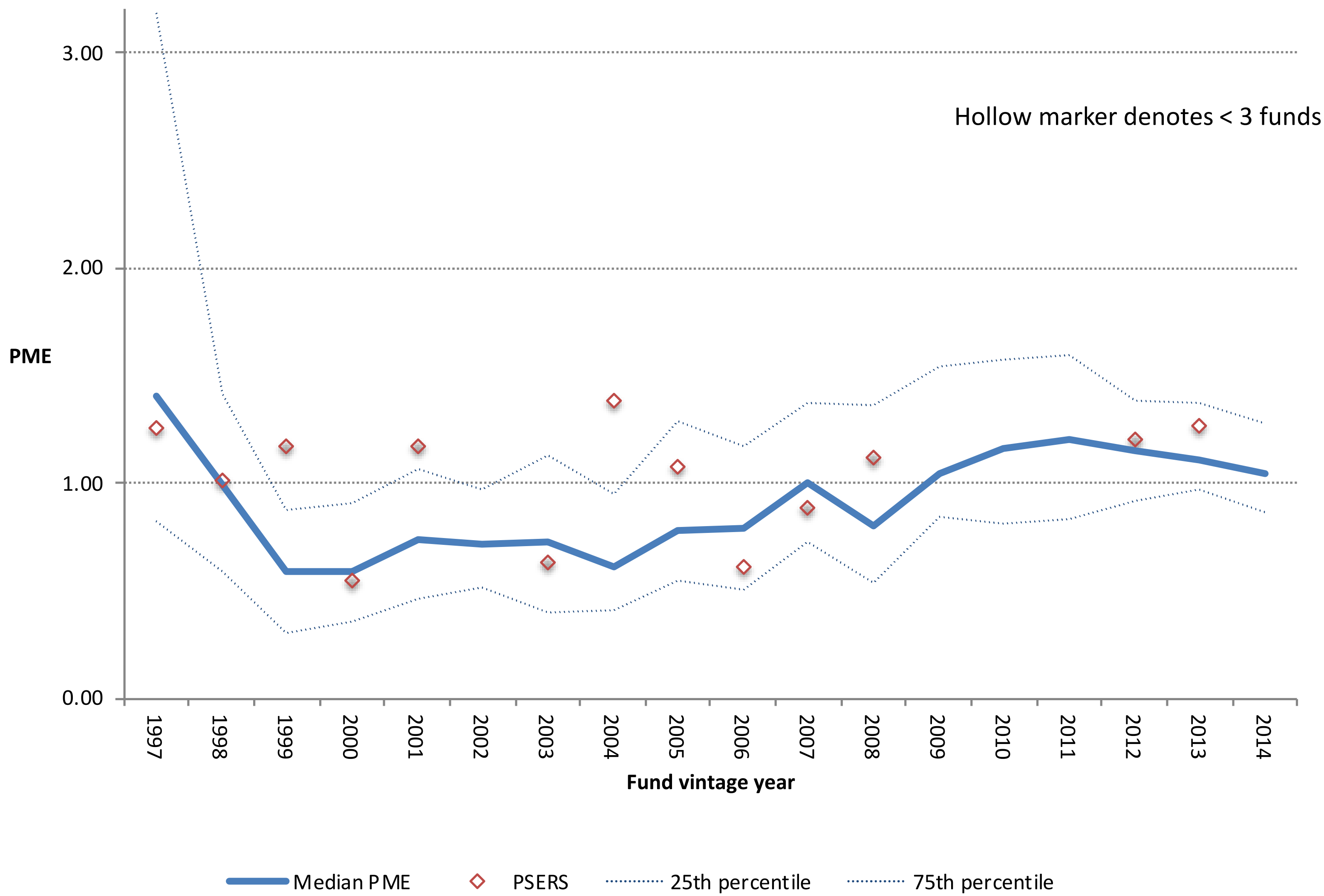
Source: Burgiss PrivateiQ, global buyouts. PMEs measured relative to index of 70% Russell 3000 / 30% MSCI World ex US IMI Cash-flows and NAVs up to 2018Q1. Vintage year weighted average PMEs for PSERS include special situations funds

PSERS buyout performance

- Before the financial crisis, PSERS buyout performance was generally below that of the median fund
- But performance still exceeded public market returns in most years

- Since the financial crisis, when allocations to the PE program resumed, the performance has been in line with median returns
  - Co-investments (started in 2012) have contributed positively
- Performance has exceeded public market returns, but by less than in early years, as the private equity premium has fallen

PSERS VC performance



Source: Burgiss PrivateiQ, global VC funds. PMEs measured relative to index of 70% Russell 3000 / 30% MSCI World ex US IMI. Cash-flows and NAVs up to 2018Q1. Vintage year weighted average PMEs for PSERS VC funds

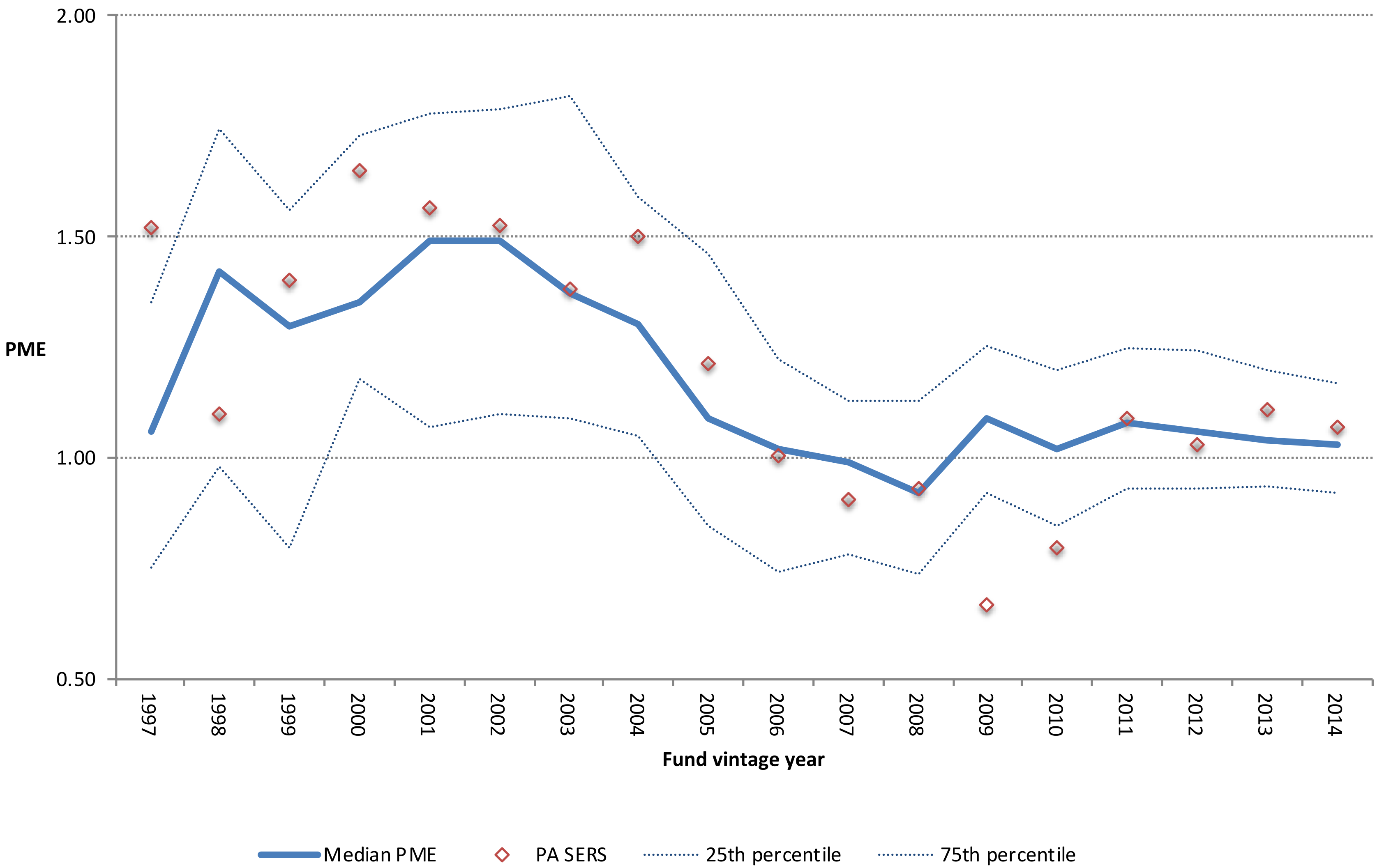
PSERS VC performance

- PSERS have made far fewer VC investments
  - In some years there was just one fund commitment
- In general, PSERS’ VC returns have exceeded median fund returns, and were sometimes into the top quartile
- As a result, PSERS VC returns have exceeded public market returns in 8 of the 13 vintage years when there were investments

The performance of the PA schemes: PA SERS

- PA SERS have invested about $10bn in buyout funds, $3.3bn in VC funds, and $2.5bn in special situation funds
- Returns are measured relative to the S&P 500 – which I use as the benchmark
- As with PSERS, I include special situation funds with buyouts and create a capital weighted average return by vintage year
- Be aware that the VC program has been limited since the financial crisis, with only 6 funds after 2008

PA SERS buyout performance



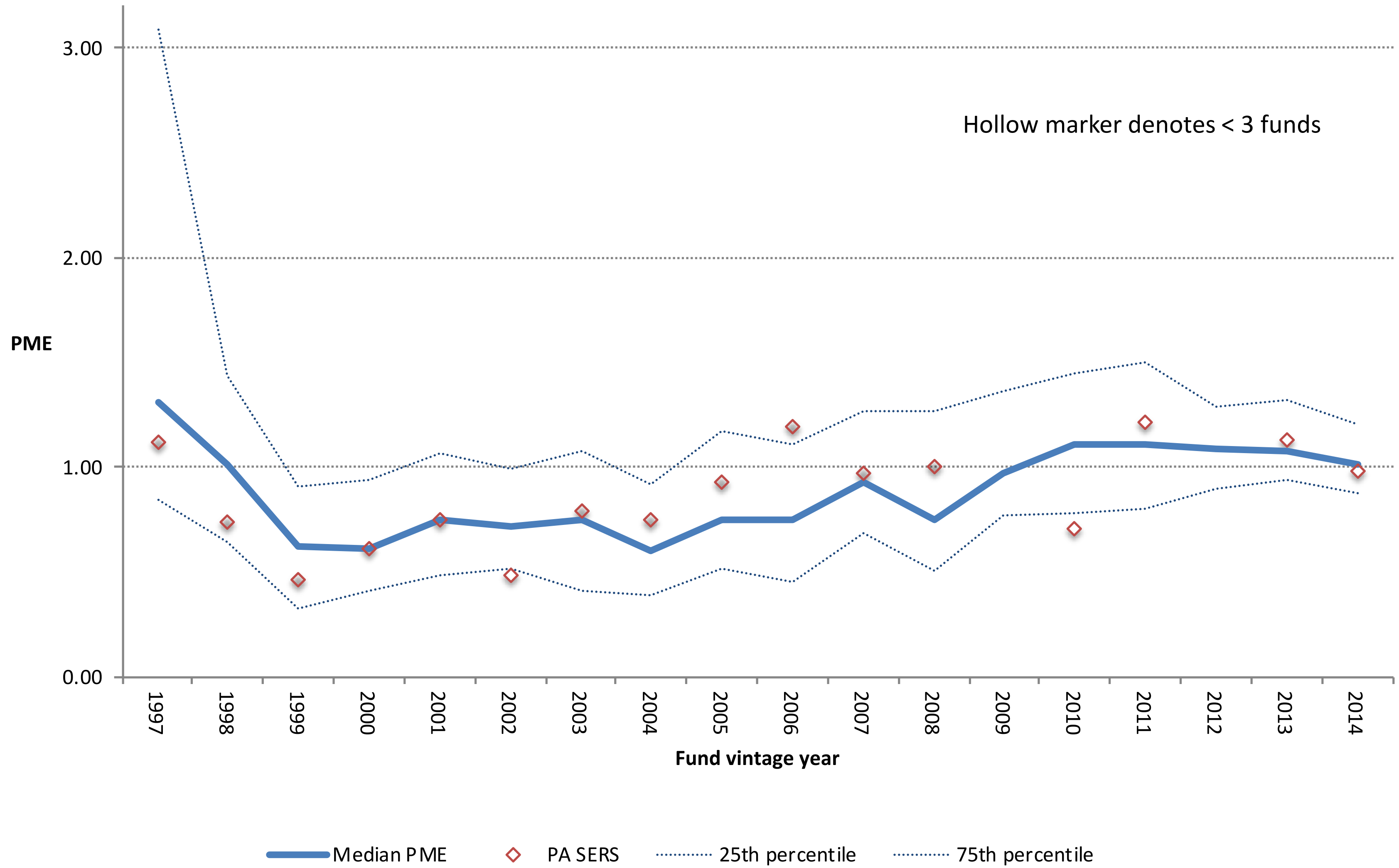
Source: Burgiss Private iQ, global buyouts. PMEs measured relative to S&P 500. Cash-flows and NAVs up to 2018Q1. Vintage year weighted average PMEs for PA SERS include special situations funds

PA SERS buyout performance

- PA SERS buyout performance has generally been at or above that of the median fund
- 2009 and 2010 are obvious exceptions to this, but only limited investments were made in these years (8 funds totaling $150m across these vintages)
- PA SERS does not have a direct co-investment program

- Private equity fund performance has exceeded public market returns in all vintages except 2007-2010, but (as with PSERS) the premium has fallen

PA SERS VC performance



Source: Burgiss Private iQ. Global VC funds. PMEs measured relative to S&P 500. Cash-flows and NAVs up to 2018Q1. Vintage year weighted average PMEs for PA SERS VC funds

PA SERS VC performance

- From 1997-2002 performance of the PA SERS venture capital portfolio was at or below median
- From 2003-2008 performance was above median

- Investment in VC funds was largely wound down after 2008 - but at this point the median returns in the sector finally started to exceed public markets

To conclude

- Most large institutional investors include a significant part of their portfolio in private assets – including private equity – to access a larger proportion of global economic growth
- Net returns on buyouts have been attractive, relative to public market returns, and despite the high costs associated with private equity; VC returns have been more variable
- These market trends are reflected in the actual returns earned by the Pennsylvania funds
- The private equity premium has been falling as the sector has grown and matured, but strategies like co-investment programs can help to increase returns, if done at scale

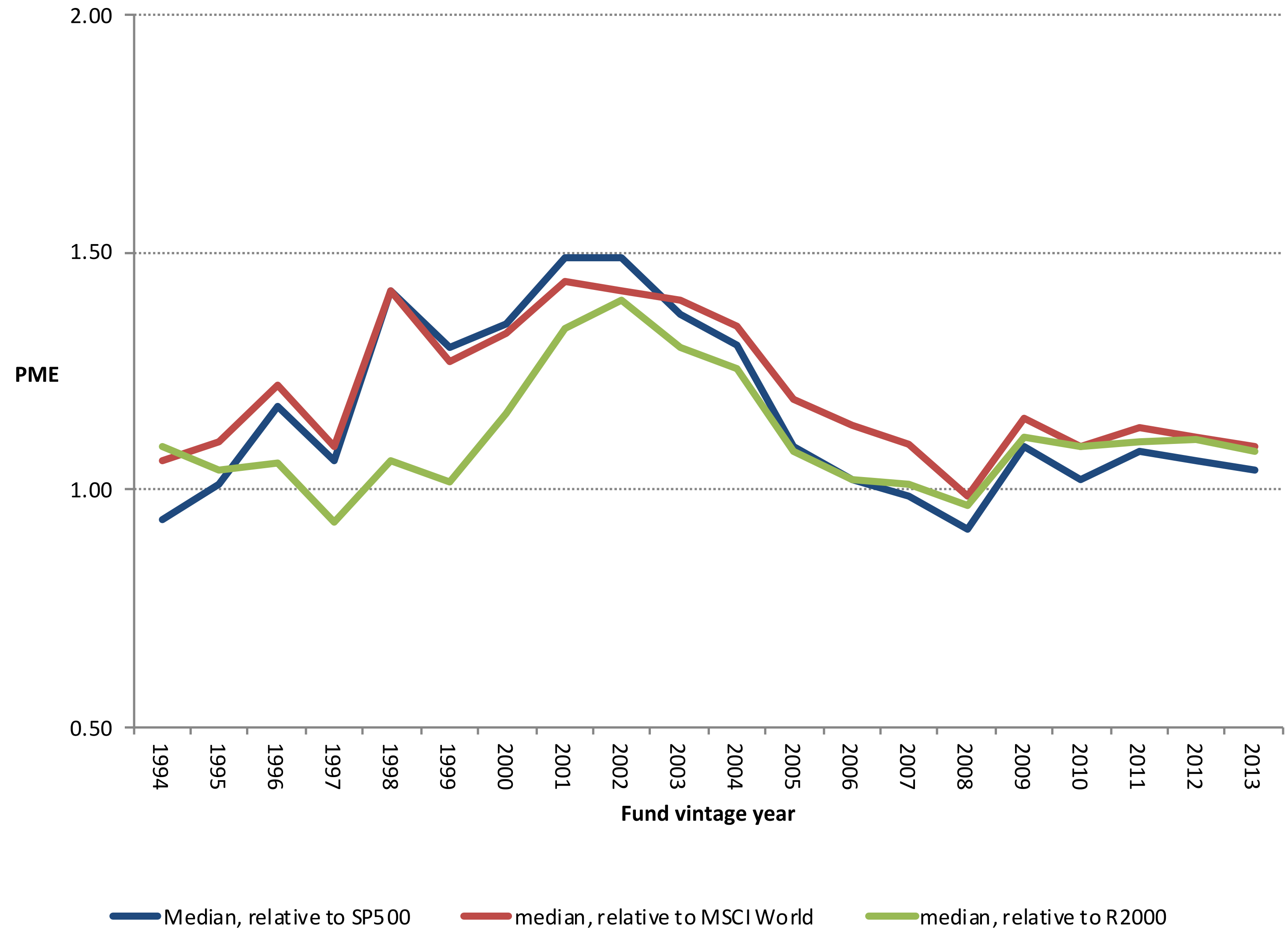
More?

- Google Tim Jenkinson, Private Equity
- Or go to SSRN.com where all my papers are available

- See, in particular
  - Private equity performance: What do we know? (with Bob Harris and Steve Kaplan), Journal of Finance, 2014
  - How do private equity investments perform compared to public equity? (with Bob Harris and Steve Kaplan), Journal of Investment Management, 2016
  - How persistent is private equity performance? Evidence from deal-level data (with Ingo Stoff and Reiner Braun), Journal of Financial Economics, 2017
  - Financial intermediation in private equity: how do funds of funds perform? (with Bob Harris, Steve Kaplan and Rudiger Stucke), Journal of Financial Economics, 2018
  - Adverse selection and the performance of private equity co-investments (with Reiner Braun and Christoph Schemmerl). Working paper, December 2017.

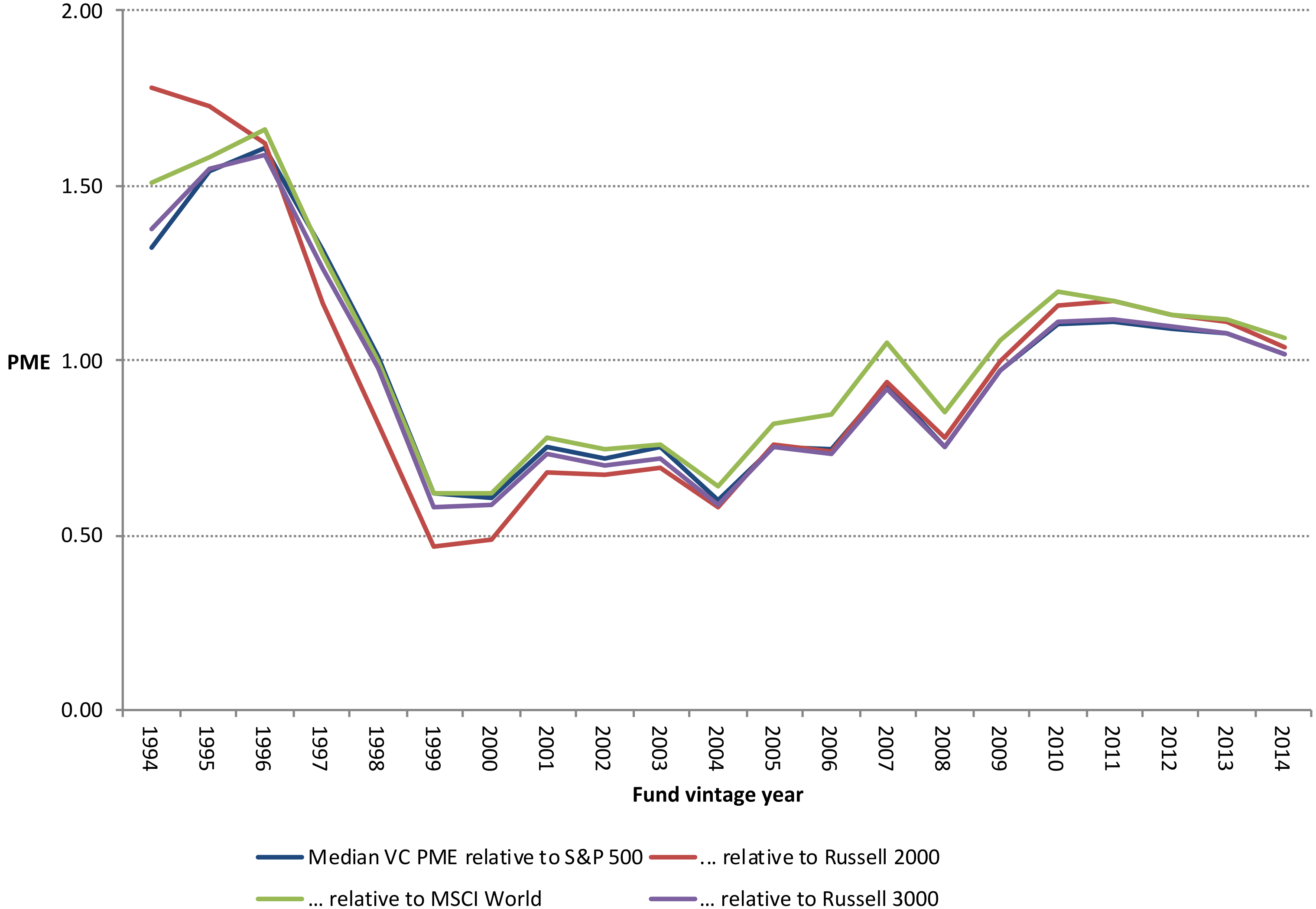
Appendix slides

Alternative indices for buyout PMEs



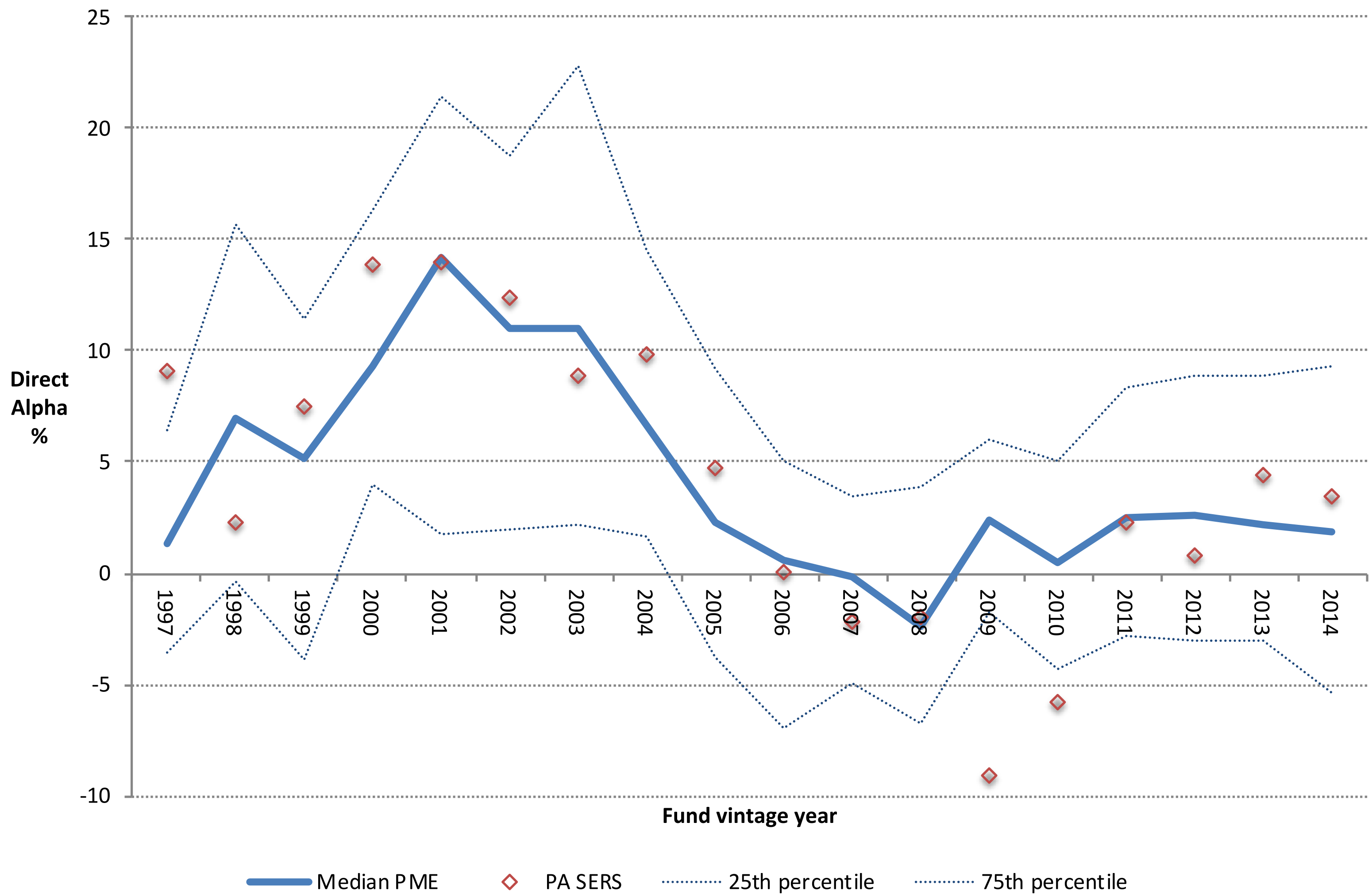
Source: Burgiss Private iQ. Global buyouts. PMEs measured relative to S&P 500, MSCI World and Russell 2000. Cash-flows and NAVs up to 2018Q1

Alternative indices for VC PMEs



Source: Burgiss Private iQ, global VC funds. Cash-flows and NAVs up to 2018Q1. PMEs measured relative to S&P500, Russell 2000, Russell 3000 and MSCI World

Alternative relative performance measures: Direct alpha for PA SERS buyouts



Source: Burgiss Private iQ. Global buyouts. Direct alphas measured relative to S&P 500. Cash-flows and NAVs up to 2018Q1. Vintage year weighted average Direct Alphas for PA SERS include special situations funds