



Private Equity: Past, Present and Future

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Overview

- What is PE?
- What does PE really do?
- What are the cycles of fundraising and performance?
- What about performance?
 - How is it measured?
 - Do PE partnerships generate superior performance?
 - Does performance persist for particular GPs?
- What does the future hold for GPs and investors?

What is private equity?

- Long-term investments in non-publicly traded companies / securities.
- Areas include:
 - Venture Capital (VC)
 - Leveraged Buyouts (LBOs)
 - Growth Equity
 - Mezzanine
 - Distress (?)
- For some, also include:
 - Oil & Gas (?)
 - Real Estate (?)
- Today, PE is a combination of LBO and Growth Equity.

Three ways to invest in PE

- Directly into company.
 - Invest in equity of the privately-owned company.
 - Little or no diversification.

- Fund.
 - Invest in one or a few PE funds.
 - » Blackstone, Carlyle, KKR etc.
 - PE fund invests directly into portfolio companies.
 - Some diversification.

- Fund of Funds.
 - Fund of funds invests in many PE funds.
 - More diversification.

The Private Equity Process

- Managers of PE firm are the general partners (GPs), investors are the limited partners (LPs).
 - GPs = Blackstone, Carlyle, KKR etc.
 - LPs = pension funds, endowments, wealthy individuals etc.
- GPs raise first fund. Say BCK I
 - LPs commit to a certain amount of investment. Say \$1 B.
 - » Commitment includes management fees.
 - GP draws down funds usually over first 3 to 5 years.
 - Average life of fund is usually 10 to 13 years.
 - GP compensation:
 - » Annual management fee (1.5% to 2.0%) of committed capital.
 - » Carried interest = % of profits (usually 20%, sometimes more).
- After investment period, raise BCK II.

- What happens if BCK I investments are successful and increase in value to \$3 billion?
 - BCK I returns investments to LPs.
 - » Through sale or as public shares after an IPO.
 - BCK GPs earn:
 - » 20% of (\$3 B - \$1 B) = 20% of \$2 B profit = \$400 M.
 - » With 2% management fee, would also have received \$20 M per year (2% of \$1 B) for up to 10 years of fund.
 - Total of \$150 to \$200 million.
 - Gross return = 25% per year / Multiple = 3 X
 - Net of fees: IRR to LP = 19% per year / Multiple = 2.3 X
 - Note the difference: 6% per year / 0.7 X.

- Fund of funds.
 - Fund of funds invest in funds.
 - Charge fees on top of funds. Generally:
 - » 1% management fee.
 - » 5% carried interest (% of profits).
 - So, total fees equal:
 - » 2.5% to 3.0% management fee.
 - » 25% of profits.
- Let's go back to BCK I:
 - Gross IRR = 25% per year.
 - Net IRR to LPs = 19% per year.
 - Net IRR to fund of funds LPs = 16%.
 - » Assume 1%fee / 5% carry

PE is controversial. Why?

- Systemic effects of so much leverage?
- Effect on workers?

■ “Incredible Wealth, Incredible Disparity”?

- “Though exact figures are hard to come by, the hallmark of the private equity industry is the incredible wealth being created for the small number of individuals who drive the buyout business.”
 - » Service Employees International Union (SEIU)
- Perception that PE investors enjoy low tax rates.



What do PE transactions / LBOs really do?

- Early investors -- KKR and others -- discovered benefits of LBOs. Benefits are now applied in most LBOs.
 - Financial Engineering:
 - » High equity to management ==> improved incentives.
 - CEOs receive more upside (and more downside) than in public companies.
 - In '80s public-to-privates:
 - Median CEO from 1.4% pre- to 6.4% post-buyout equity.
 - Median mgmt. ownership increased by a factor of 4 X.
 - Still true recently. In deals from '96 to '04:
 - In 43 U.S. deals, Kaplan and Stromberg (2008) find CEO gets 5.4%, team 16% of equity
 - In 59 large UK deals, Acharya and Kehoe (2008) find CEO gets 3%, team 15% of equity.

— Governance Engineering:

- » PE investors control boards of portfolio companies.
 - Boards are smaller than comparable public companies.
- » PE investors work closely with CEO and management of portfolio companies.
 - In UK study, 12 formal meetings / year and many more informal contacts.
- » PE investors closely monitor CEO and portfolio companies.
 - In Acharya and Kehoe (2008):
 - 1/3 of CEOs replaced in first 100 days.
 - 2/3 of CEOs replaced at some point (over 4 years).

- Do financial and governance engineering actually matter?
Virtually all empirical evidence is positive re portfolio companies.
None is negative.
 - For deals in the 1980s, Kaplan (1989), Kaplan (1991) and others find LBOs associated with:
 - » Improved operating margins (absolutely and relative to industry).
 - Up by 10% to 20%
 - » Improved cash flows margins.
 - Up by 40%.
 - » Substantial increases in value.

- For deals in the 1990s and early 2000s (relative to industry):
 - » Higher operating margins in:
 - UK.
 - France.
- But since 1980s, public-to-privates may be different:
 - » Modest increase in operating performance in U.S. public-to-privates (Guo, Hotchkiss et al. (2008)). (But high returns).
 - » Modest increase in operating performance in UK public-to-privates (Achary et al. (2009) and Weir, Jones, Wright (2007)).
 - » Management practices at public companies similar to PE companies. (Bloom et al. (2009)).

- Employment.

- » Do PE investments create jobs (PE Firms)? or
- » Destroy jobs (SEIU)?

- Both!
- U.S. (Davis, Haltiwanger, Lerner et al (2011))
 - » Look at 70% of U.S. buyouts from 1980 to 2005.
 - » Relative to industry,
 - employment down at 3% over 2 years at existing locations.
 - employment up 2% at new locations.
 - net employment is down 1%.
 - » Job losses greater in
 - public-to-private buyouts,
 - service and retail sectors. (Wal-mart effect?).
 - » They acquire and divest establishments more rapidly.
 - » Creative destruction?
- In France, PE creates jobs (Boucly, Sraer, Thesmar (2009)).
- In UK, modest decline in employment (Ames and Wright (2007)).

- R&D (Lerner, Sorensen, Stromberg (2008)).
 - » No decline in patenting.
 - » More efficient patenting.
- Reverse LBOs outperform market post-IPO. Cao and Lerner (2007).
 - » Changes are not temporary.

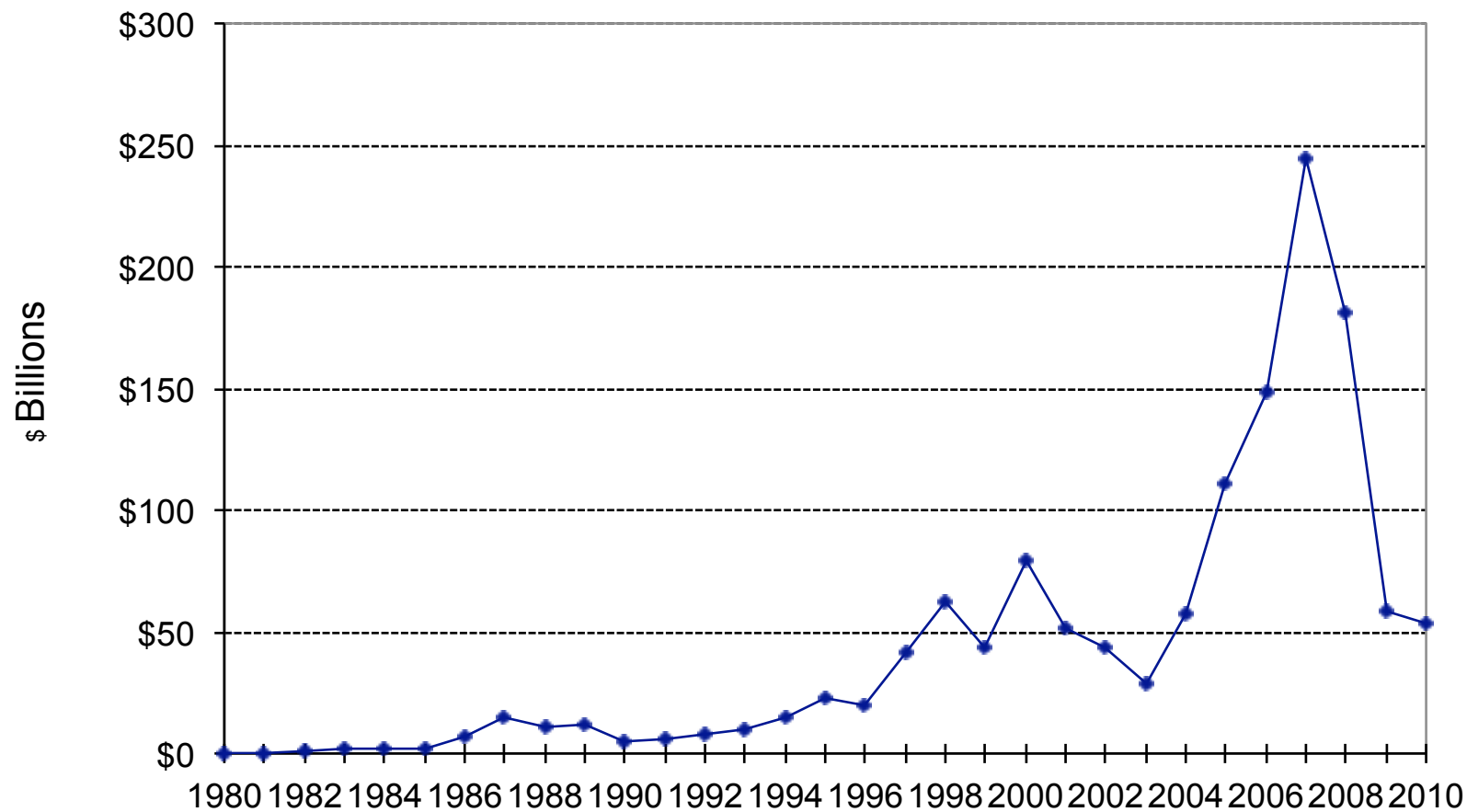
- “There is a general consensus across different methodologies, measures, and time periods regarding a key stylized fact: LBOs and especially MBOs enhance performance and have a salient effect on work practices.” Cumming, Siegel, Wright (2007)
- Caveat -- public-to-privates may be different.

- More recently -- in the last 5 to 10 years -- most top PE firms have added “operational engineering” to financial and governance engineering.
 - Most top firms organized around industries.
 - » Use industry expertise to generate deal flow.
 - » Use industry expertise to identify improvements.
 - » Use industry expertise to help drive change.
- At time PE firms invest, they have a value creation plan in mind:
 - Identified cost cutting opportunities / productivity improvements.
 - Identified strategic changes / repositioning.
 - Identified organic growth opportunities.
 - Identified acquisition opportunities.
 - Management changes and upgrades implemented, if necessary.
 - Pioneered by Bain Capital (and Mitt Romney).

How did we get to today in PE?

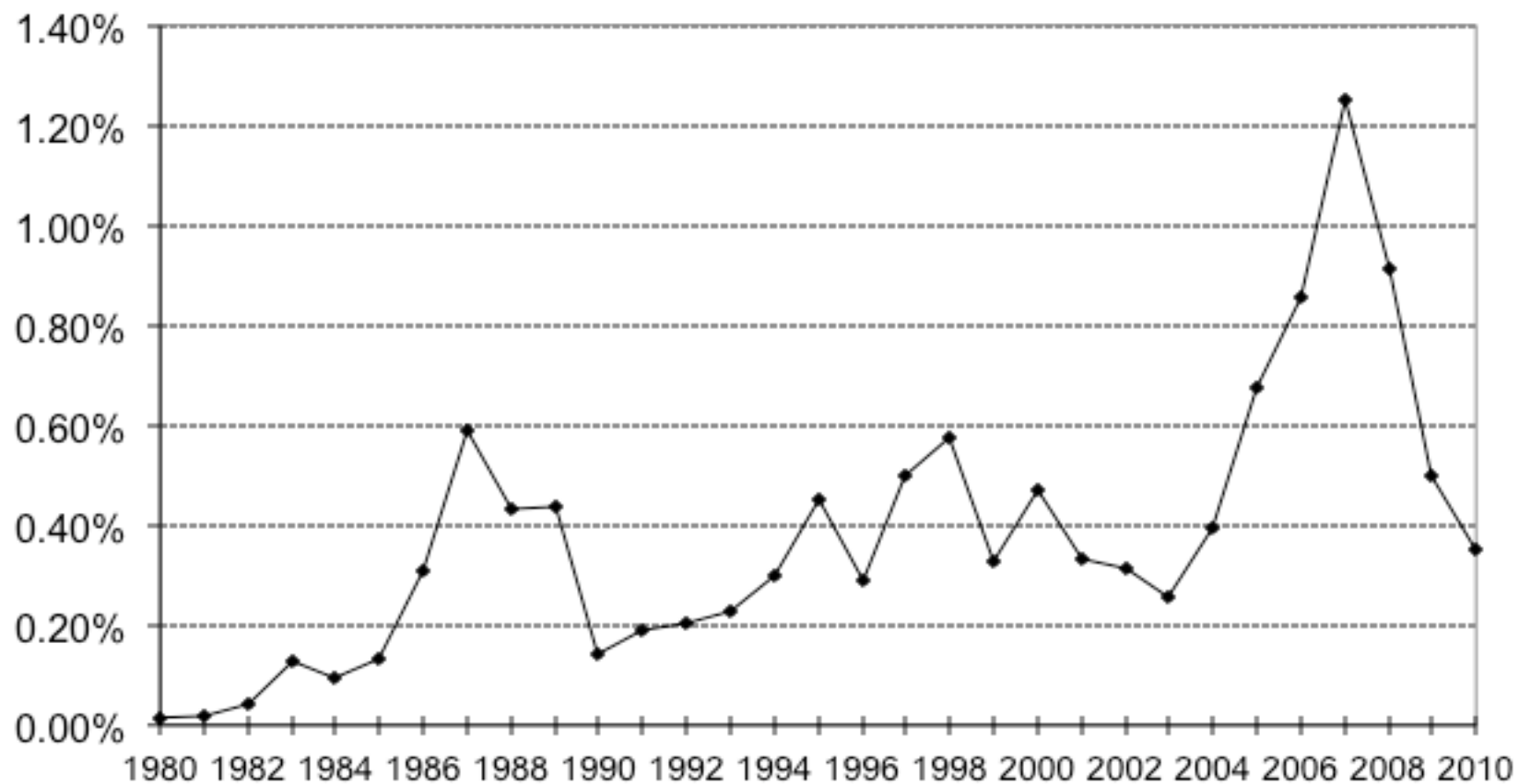
- Fundraising?
- Investing?
- Performance?

Commitments to U.S. Private Equity Partnerships 1980 - 2010 (in \$ billions)



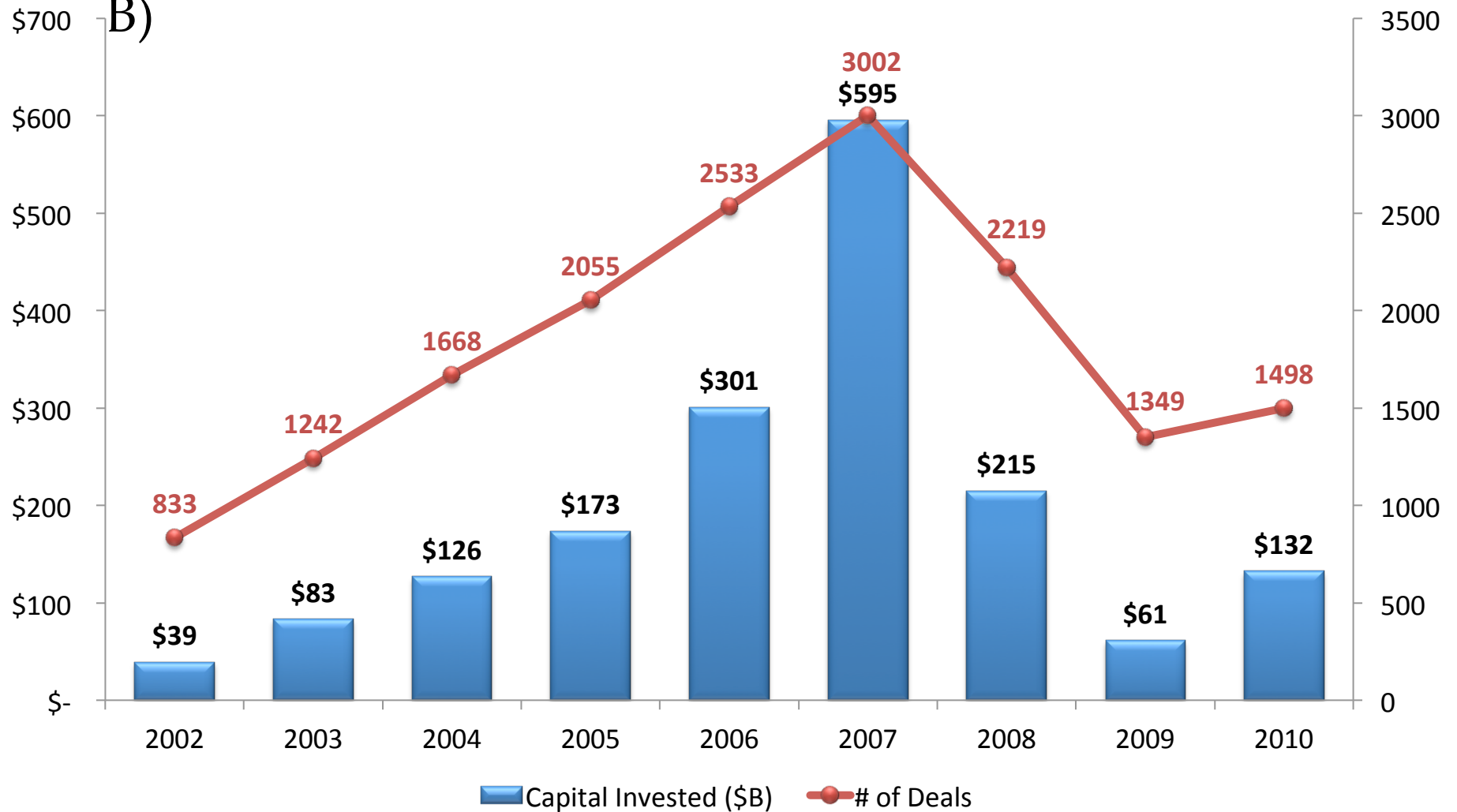
Source: Private Equity Analyst, Steven N. Kaplan

Commitments to Private Equity Partnerships in U.S. as Fraction of Stock Market Capitalization 1980 - 2010



Source: Private Equity Analyst, Steven N. Kaplan

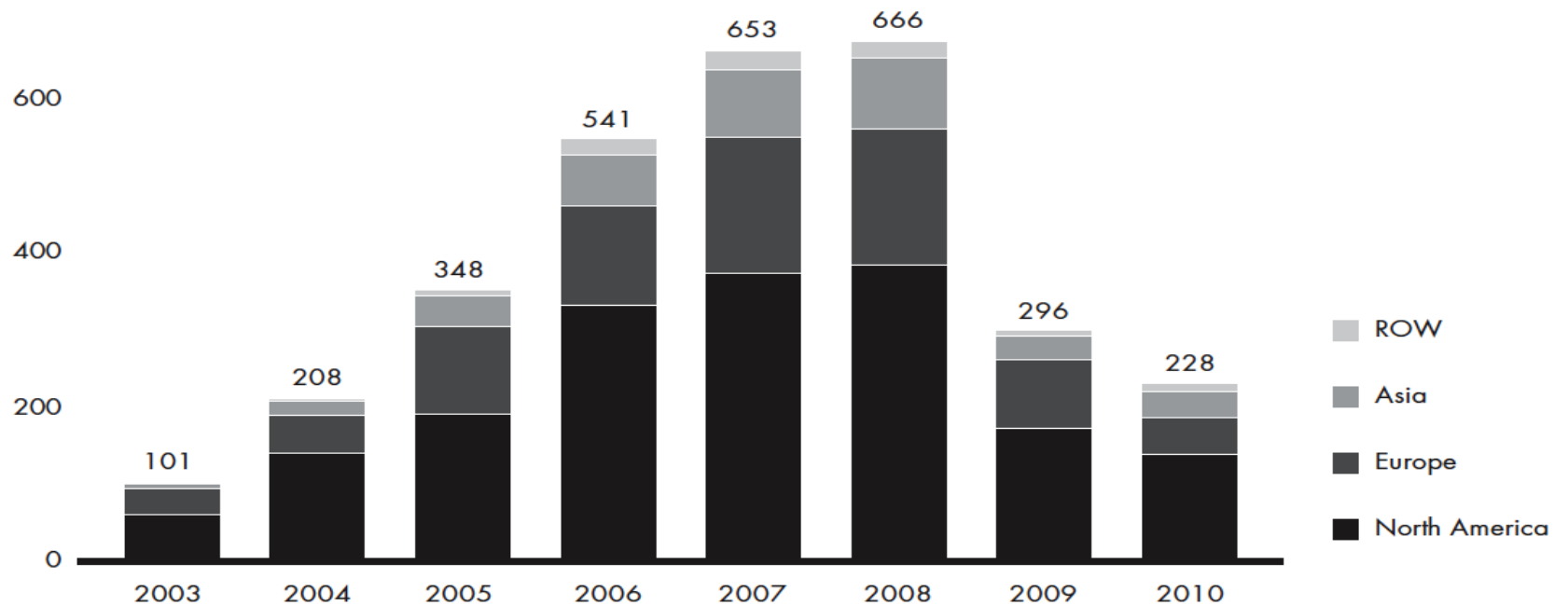
US Private Equity Deal Activity and Capital Invested (\$B)



Global Buyout Fundraising

Global PE capital raised
(by regional investment focus)

\$800B

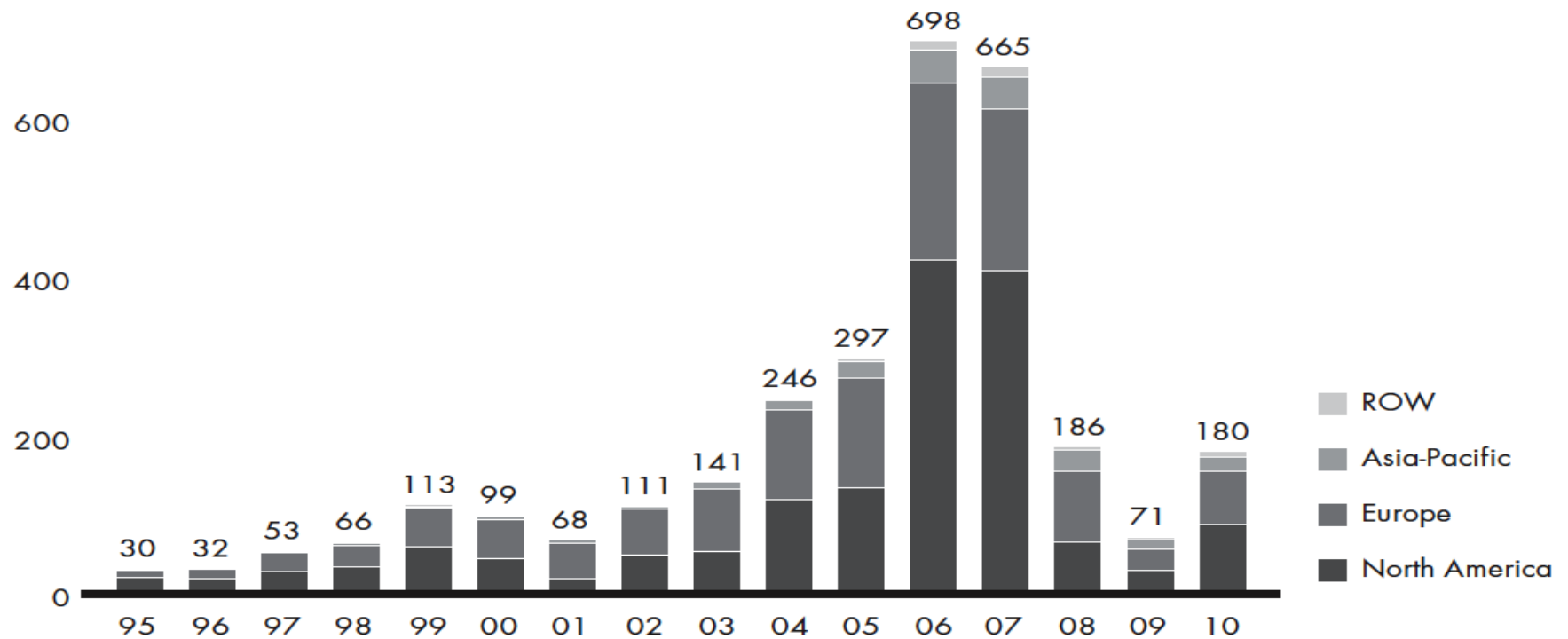


Notes: Includes funds with final close; represents year funds held their final close
Source: Preqin

Global Buyout Deals

Global buyout deal value

\$800B



Notes: Excludes add-ons, loan-to-own transactions and acquisitions of bankrupt assets; based on announcement date; includes announced deals that are or pending, with data subject to change; geography based on the location of targets

Source: Dealogic

What about performance for LPs?

- Improved operating performance does not necessarily mean that PE funds generate out-performance net of fees.
 - It depends on what the PE funds paid to acquire the companies.
 - » Premiums go to selling shareholders.
 - It depends on fees.

What about performance for LPs?

- How is performance measured?
- Who measures performance?
- What has performance been on average?
- Are there good GPs?
- Summarize results from Harris, Jenkinson, Kaplan (2011).

How is Performance Measured?

- Two industry standards:
 - Annualized IRR (net of fees).
 - Multiple of Invested Capital (MIC).
 - » Total Value Returned / Invested Capital.
 - » (Distributed Value + Residual Value) / (Capital in Cos. + Fees)
- Each has its drawbacks.

How is Performance Measured?

- Each has its drawbacks:
 - Net IRR:
 - » Does not control for the market.
 - » Is sensitive to sequencing of investments.
 - » Does not control for leverage / beta.
 - Multiple of Invested Capital:
 - » Does not control for the market.
 - » Does not control for leverage / beta.
- Good news re beta:
 - Most estimates of beta for PE are about.
 - See Jegadeesh et al. (2010).

How is Performance Measured?

- A 3rd method - PME (Public Market Equivalent).
- Compare two investments:
 - 1. Invest \$10 million.
 - » 3 years later it returns \$20 million.
 - » IRR = 26% ; Multiple of Invested Capital = 2X
 - 2. Invest \$10 million.
 - » 3 years later it returns \$10 million.
 - » IRR = 0% ; Multiple = 1X
 - Which investment is better?

How is Performance Measured?

■ Investment 1:

- Invest \$10 million in March 1997.
- Return \$20 million in March 2000.
- Instead, if you had invested the \$10 million in the S&P 500, you would have had \$20.7 million in March 2000.
- Gross PME = $\$20 / \$20.7 = 0.97$.
- Net PME = $\$18 / \$20.7 = 0.87$.

■ Investment 2:

- Invest \$10 million in March 2000.
- Return \$10 million in March 2003.
- Instead, if you had invested the \$10 million in the S&P 500, you would have had \$5.9 million in March 2003.
- Gross PME = Net PME = $\$10 / \$5.9 = 1.70$.

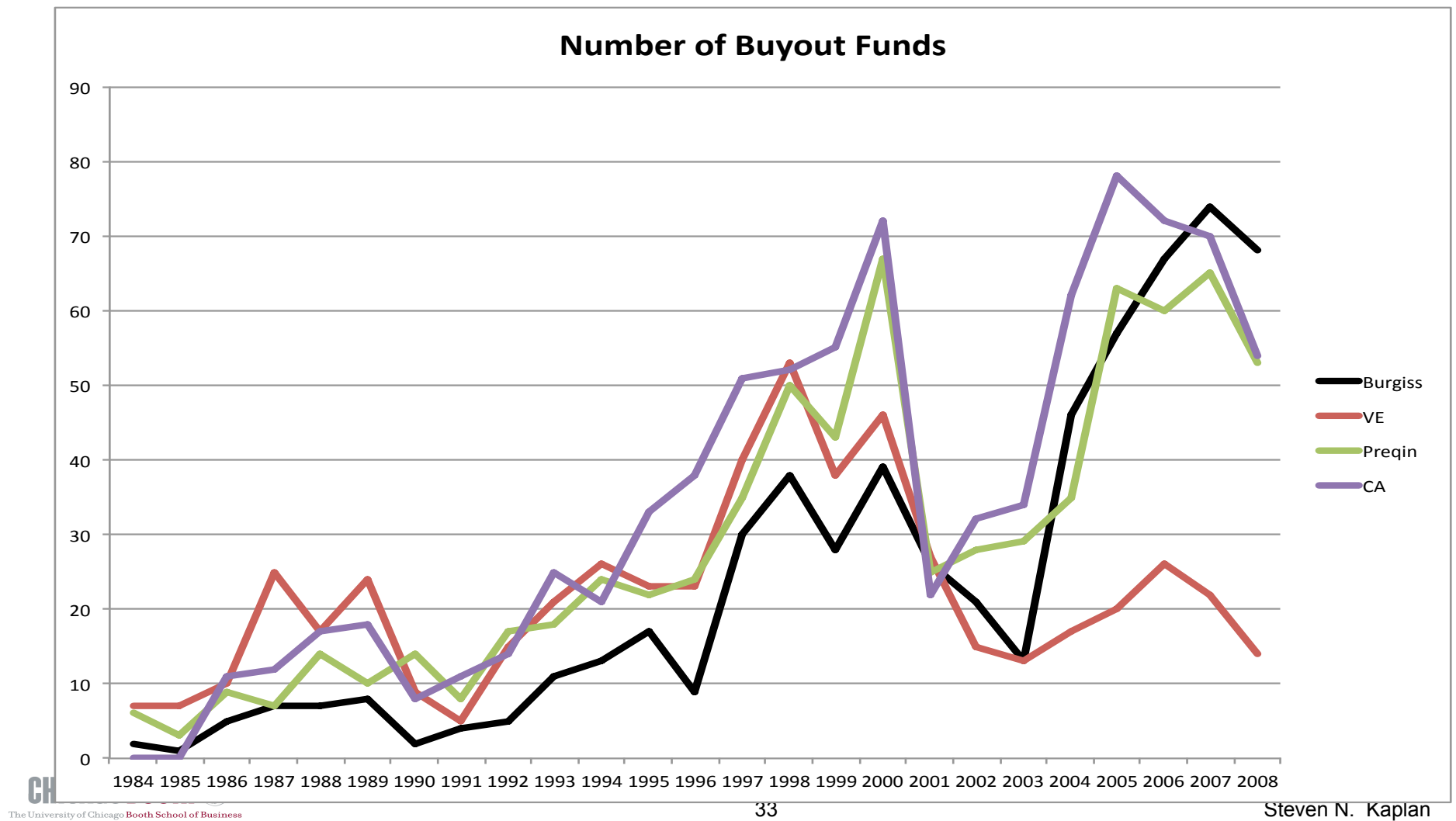
How is Performance Measured?

- Public Market Equivalent (PME) is an improvement.
 - Grow LP inflows / investments at S&P 500 (or other return).
 - Grow LP returns / distributions at S&P 500 (or other return).
 - Compare value of outflows to inflows.
 - If $PME > 1$, then LPs did better than S&P 500.
 - » + Does control for the market.
 - » + Not sensitive to investment sequence.
 - » Still does not control for beta.

Who measures performance?

- Four commercial databases:
 - Cambridge Associates (CA)
 - Thomson Venture Economics (VE)
 - » Dwindling coverage in the last several years.
 - Preqin
 - Burgiss

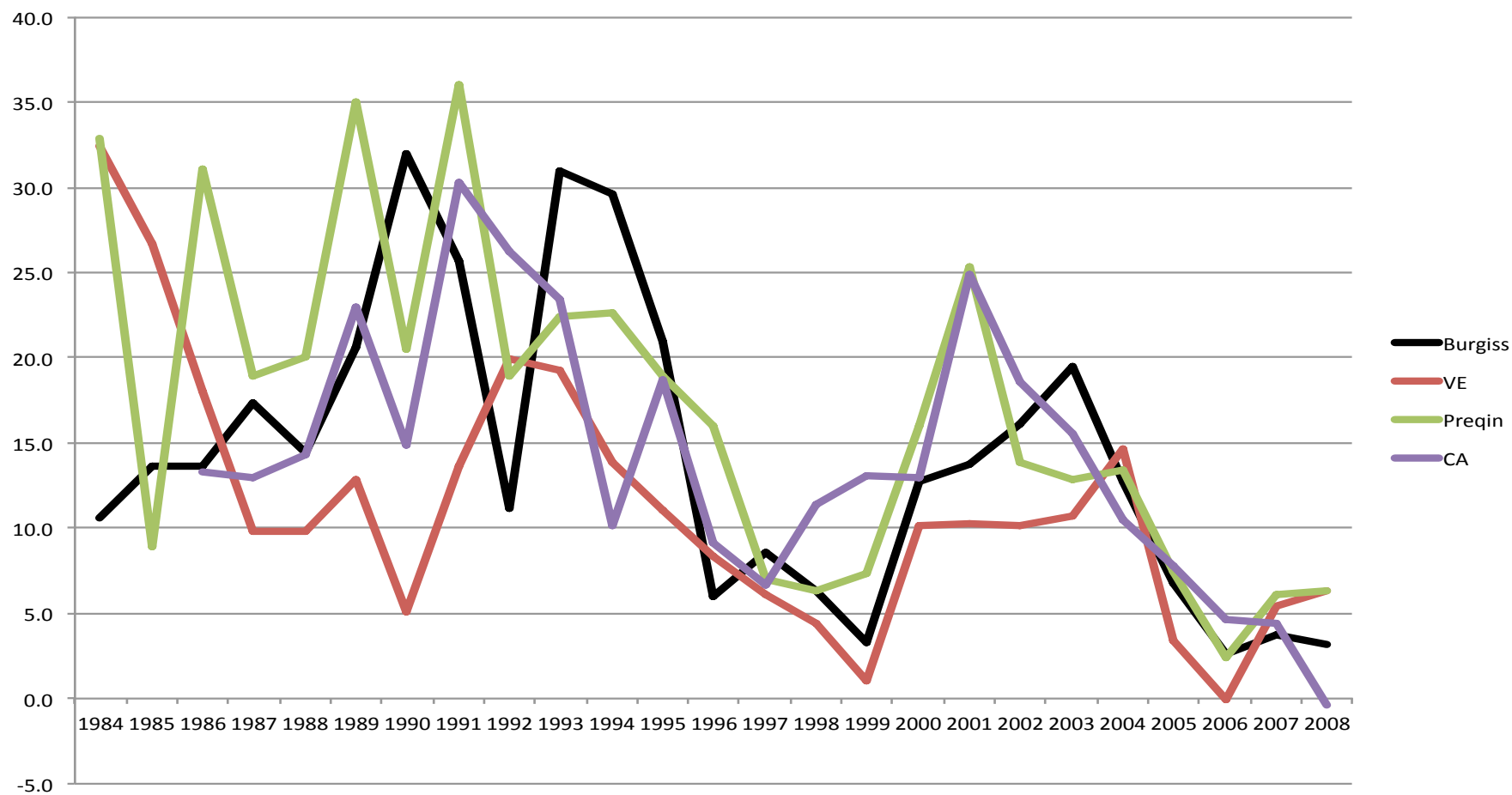
Who measures performance? US Buyout Funds



What has performance been on average?

Vintage Year IRRs

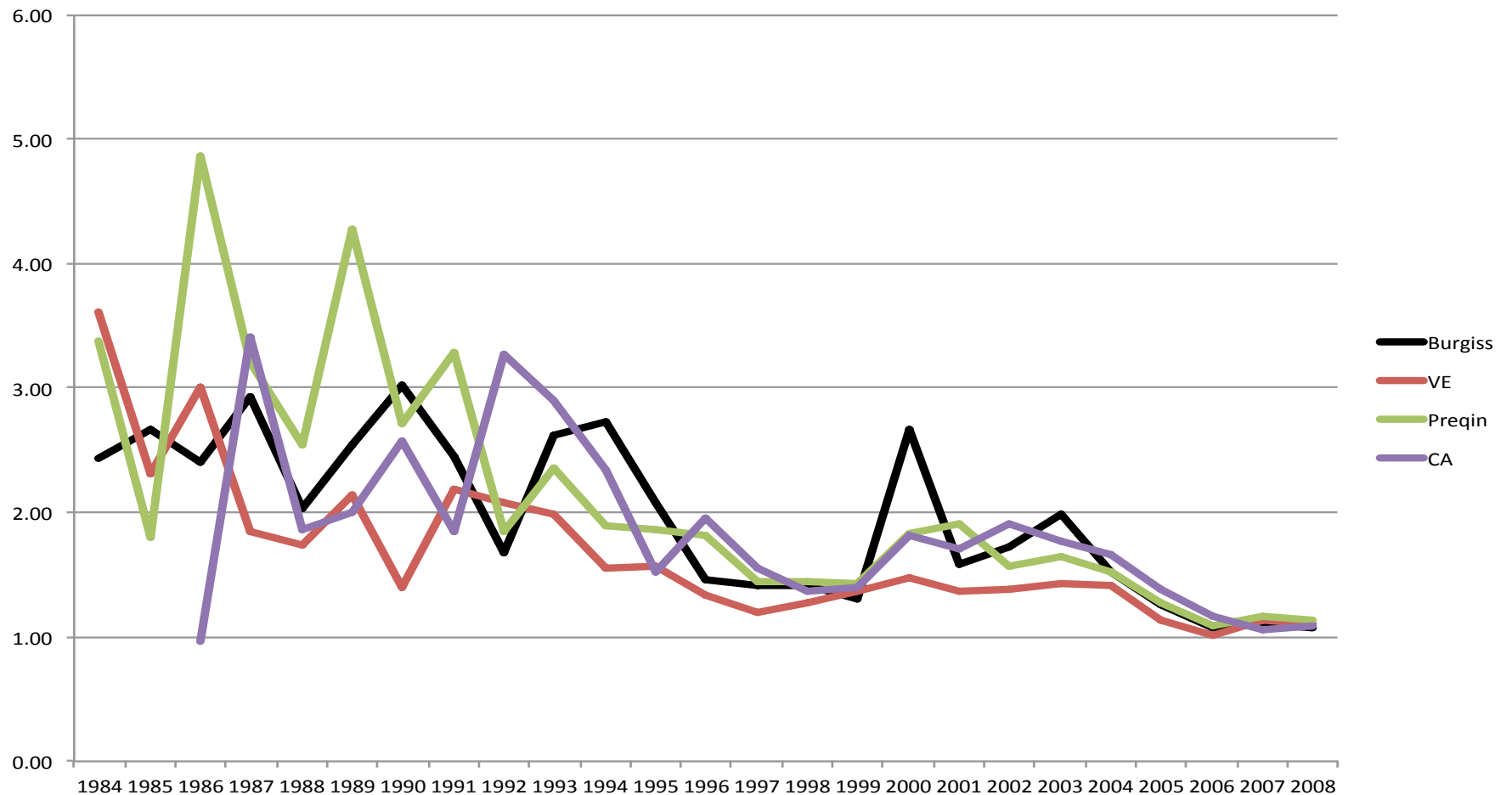
LBO IRRs - Average



What has performance been on average?

Vintage Year Multiples

LBO Multiples - Average

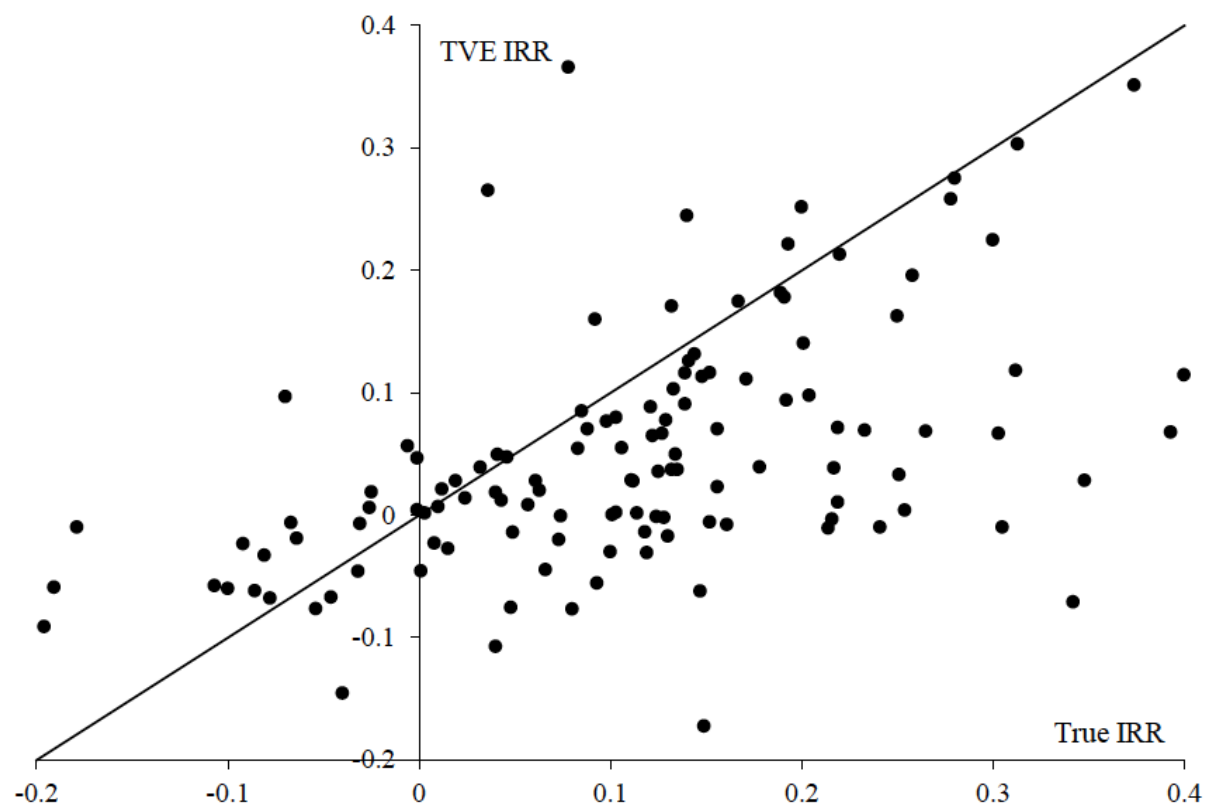


What has performance been on average?

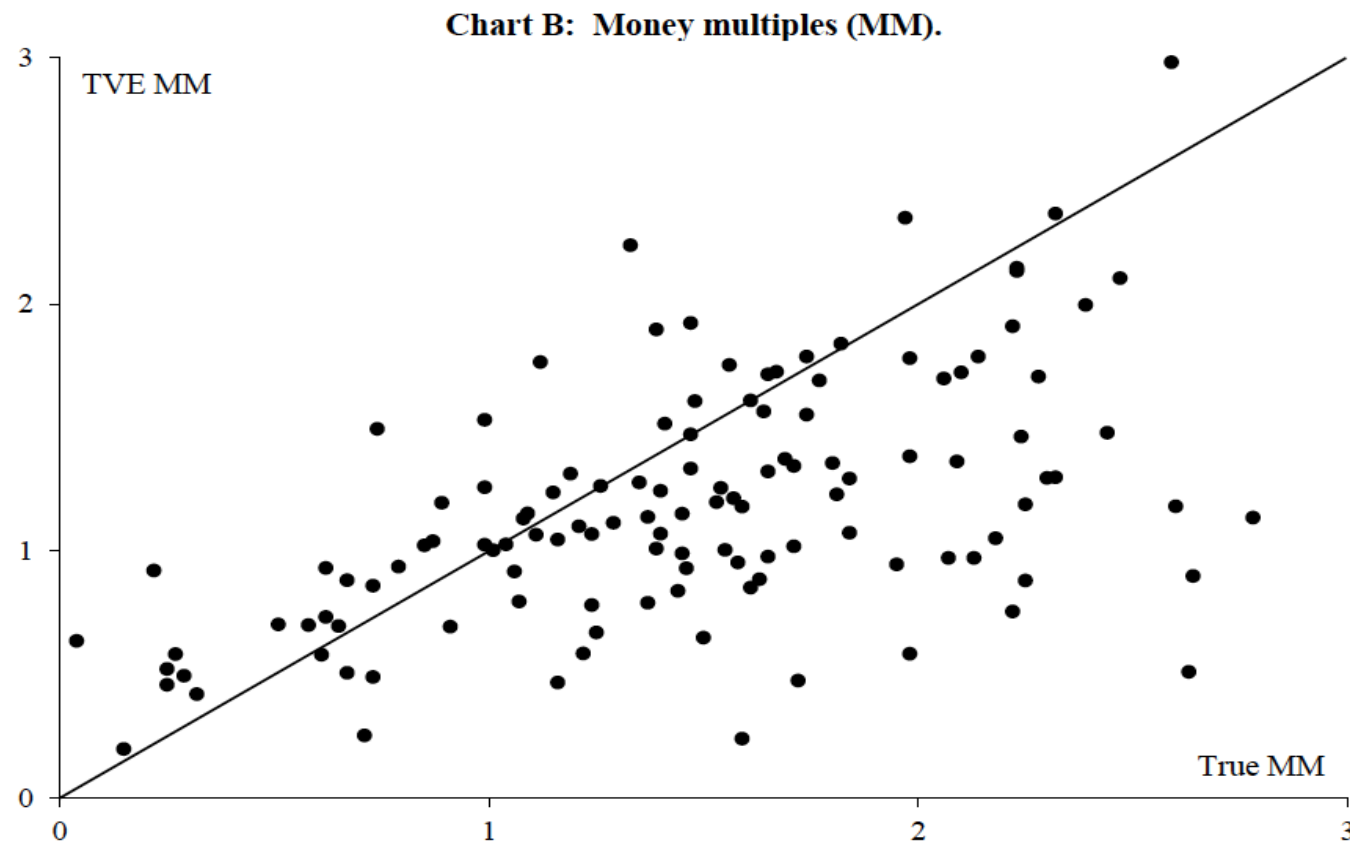
- Vintage year IRRs vary a lot.
- Vintage year Multiples of Invested capital vary less.
 - Generally between 1.0 and 2.0 since mid-1990s.
- VE, curiously, lower than the other 3 databases.
 - Strong evidence that VE understates buyout returns.
 - Stucke (2011).
 - » Gets individual VE fund performance.
 - » Compares to actual fund performance from large LP.
 - » Should line up on 45 degree line.

VE IRR vs. Actuals from Stucke (2011)

Chart A: Internal rate of returns (IRR).



VE Multiples vs. Actuals from Stucke (2011)



Source: TVE Performance Statistics, own sample data, calculations and illustration.

What has performance been on average?

- VE, curiously, lower than the other 3 databases.
 - That is why so many funds are top quartile.
 - They compare themselves to VE.
 - Recommendation: Do not use VE any longer.
 - » Biased downward.

Do PE Funds Outperform Public Markets?

- Cannot say whether PE outperforms public markets in previous slides.
- Need to compare individual fund cash flows to public markets.
 - Among commercial databases, only Burgiss does this correctly (by calculating PME).
- Attempted to answer these questions.
 - First attempt, my paper with Antoinette Schoar of MIT.
 - » Appeared in Journal of Finance in August 2005.
 - » But used VE data which we now know were flawed.
 - Second attempt, Harris, Jenkinson, Kaplan with Burgiss data.
 - » Burgiss get data from LPs.
 - LPs use Burgiss software to record / monitor performance.
 - No bias in Burgiss for specific LPs.
 - Superior to CA, Preqin and VE who have to rely on LPs or GPs to provide data.

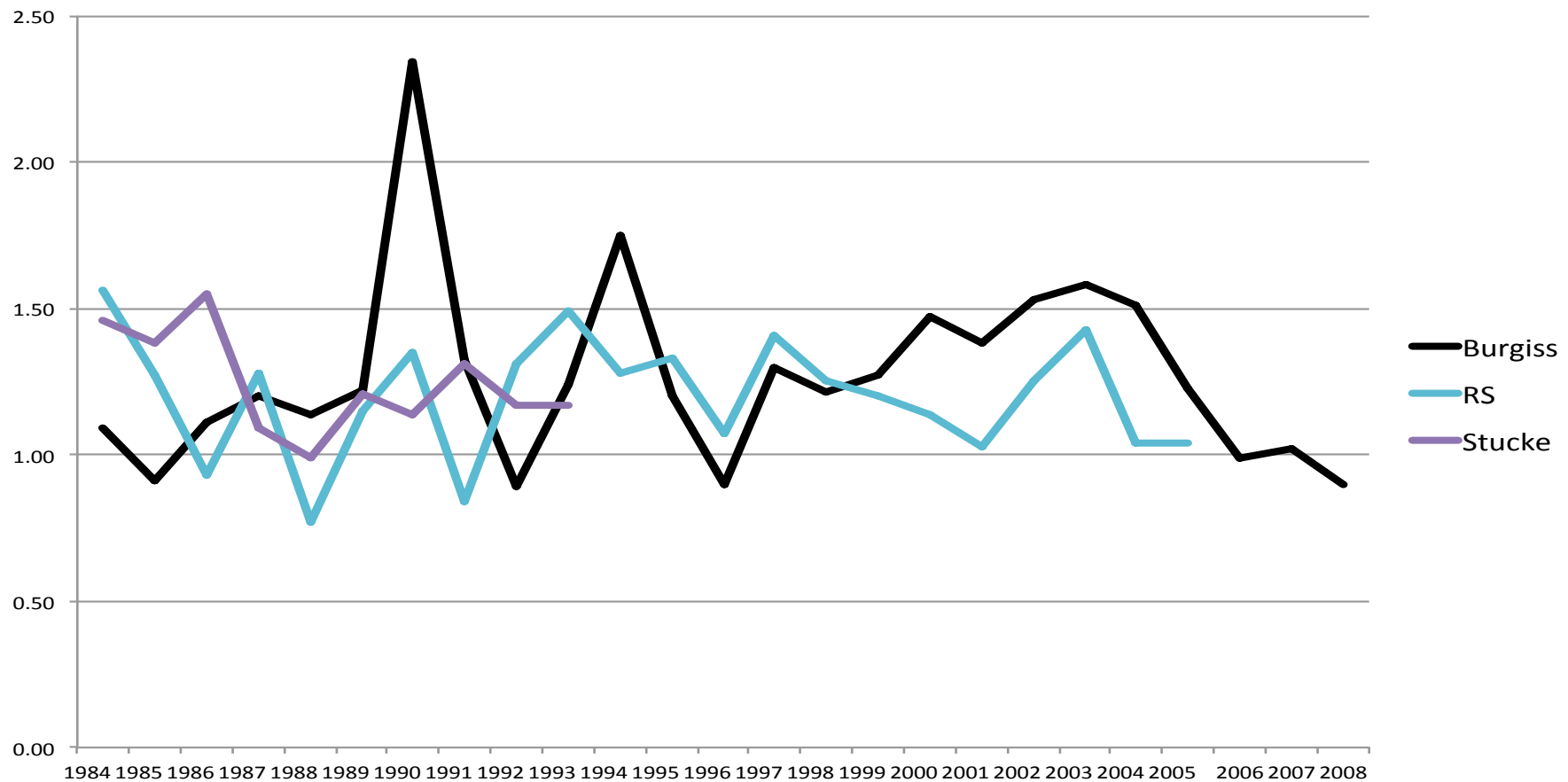
Do PE Funds Outperform Public Markets?

- Cannot say much about whether PE outperforms public markets in previous slides.
- HJK use Burgiss individual fund cash flow data to calculate performance.
- We also show results from Robinson and Sensoy (2011) who have performance data for a very large LP.

What has performance been on average?

Vintage Year PME

Buyout PMEs From Different Sources



Do PE Funds Outperform Public Markets?

- PMEs consistently greater than 1.0.
 - Average fund PME is 1.20.
 - Median fund PME is 1.11.
 - Top quartile is 1.42.
- Similar results in RS.

Do PE Funds Outperform Public Markets?

- What about CA and Preqin?
 - They do not calculate PME's.
 - They do calculate vintage year IRRs and Multiples.
- We look at the Burgiss data and see if we can predict PME's using IRRs and Multiples.
 - For a given vintage year, IRRs and Multiples explain over 93% of the variation in PME's in most years.
 - In other words, IRRs and Multiples very good predictors of PME if you know the right conversion factor.
 - Aside:
 - » Multiples explain more of variation in PME's than IRRs.
- Focus on Multiples.

Do PE Funds Outperform Public Markets?

Vintage	Buyout Funds			N	R ²
	IRR	Multiple	Constant		
1993	1.08** [0.22]	0.32*** [0.04]	0.18 [0.05]	11	0.99
1994	0.80** [0.30]	0.37*** [0.05]	0.22 [0.06]	13	0.99
1995	1.04** [0.45]	0.37*** [0.08]	0.34 [0.08]	17	0.99
1996	3.04 [2.84]	0.38 [0.38]	0.39 [0.18]	9	0.89
1997	-0.53 [0.33]	0.95*** [0.09]	-0.08 [0.10]	30	0.98
1998	0.08 [0.50]	0.91*** [0.10]	0.05 [0.12]	38	0.95
1999	0.25 [0.34]	0.81*** [0.07]	0.13 [0.08]	28	0.99
2000	-1.11** [0.45]	1.03*** [0.09]	-0.16 [0.10]	39	0.96
2001	0.56 [0.42]	0.70*** [0.11]	0.14 [0.11]	26	0.98
2002	0.28 [0.34]	0.76*** [0.08]	0.07 [0.09]	21	0.98
2003	0.13 [0.64]	0.94*** [0.09]	-0.14 [0.11]	13	0.97
2004	-0.52* [0.27]	1.04*** [0.07]	-0.12 [0.07]	46	0.98
2005	0.04 [0.29]	1.00*** [0.08]	-0.06 [0.08]	57	0.96
2006	-0.25 [0.14]	1.00*** [0.14]	-0.03 [0.14]	67	0.93
2007	-0.34*** [0.12]	1.12*** [0.06]	-0.20 [0.07]	74	0.94
2008	-0.01 [0.10]	0.72*** [0.08]	0.14 [0.08]	68	0.87

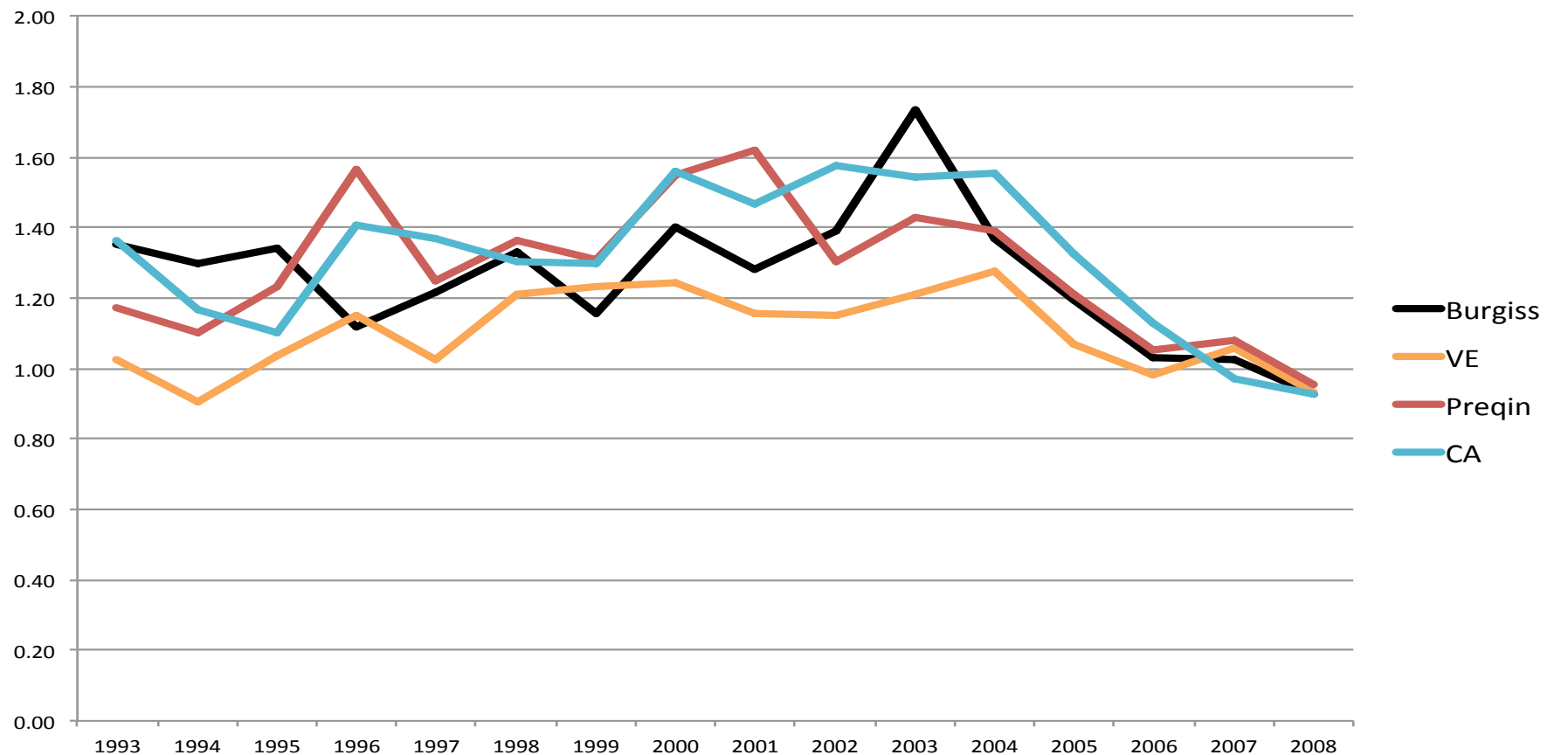
Do PE Funds Outperform Public Markets?

- What about CA and Preqin?
 - They do not calculate PME's.
 - They do calculate vintage year IRRs and Multiples.
- We use the relationships between PME's, IRRs and Multiples from the Burgiss data to estimate the PME's in CA, Preqin (and VE).

What has performance been on average?

Vintage Year PME

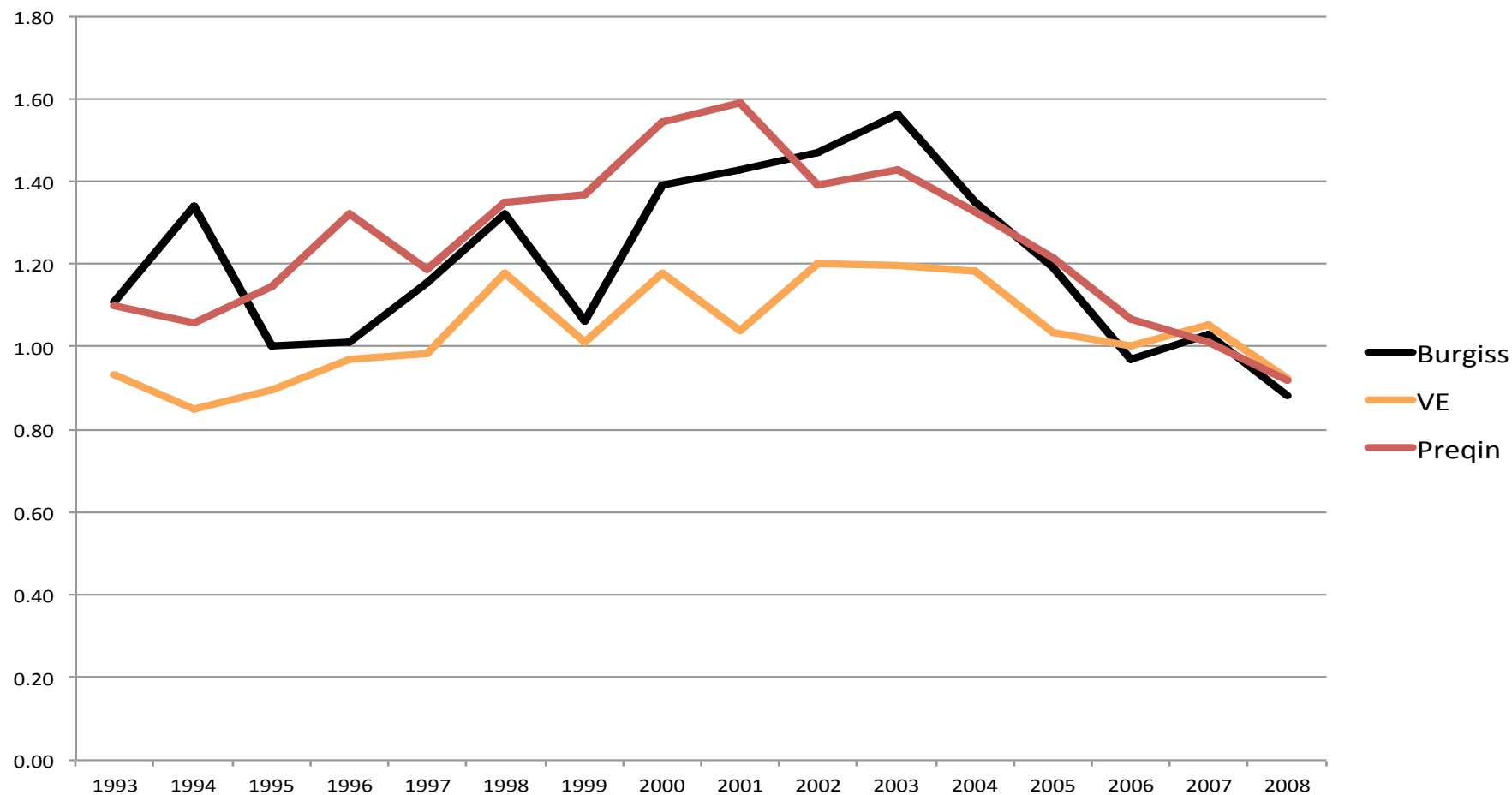
Estimated Average Buyout PMEs From Commercial Datasets
1993 - 2008



- All vintages for all commercial datasets average PME's well above 1.0.
 - All vintages before 2007 in Burgiss, CA, and Preqin have $PME > 1.0$
 - Most vintages above 1.0 even for VE despite its downward bias.
 - In fact, median funds in most vintages have PME above 1.0.

- What does this mean?
 - PE has outperformed S&P net of fees by a wide margin.
 - » Results in Burgiss, CA, Preqin and RS remarkably similar despite very different sample selection criteria.
 - » Seems unlikely that all of these can be upward biased.
 - PE has outperformed S&P gross of fees by a very wide margin.

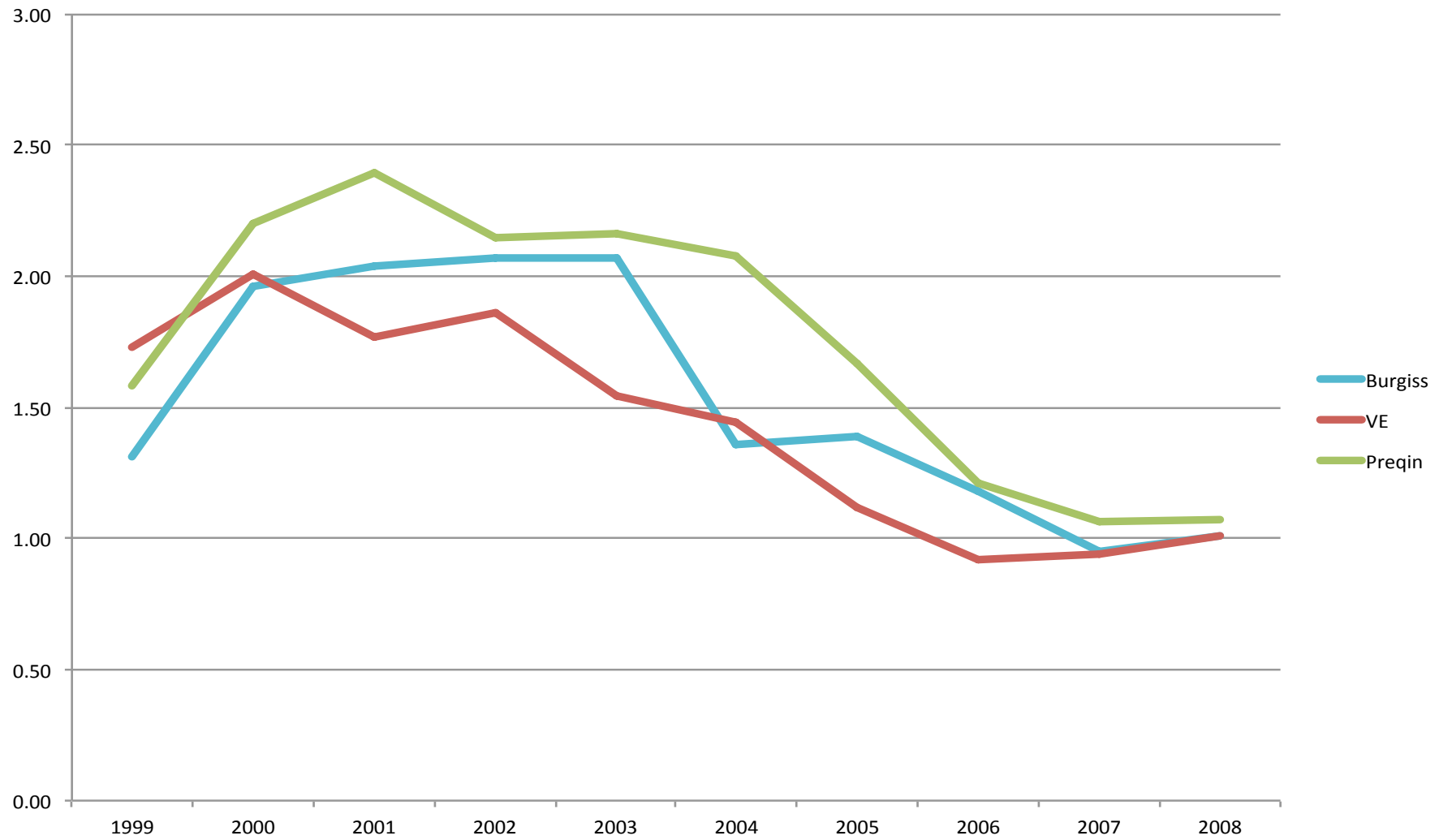
Estimated Median Buyout PME From Commercial Datasets



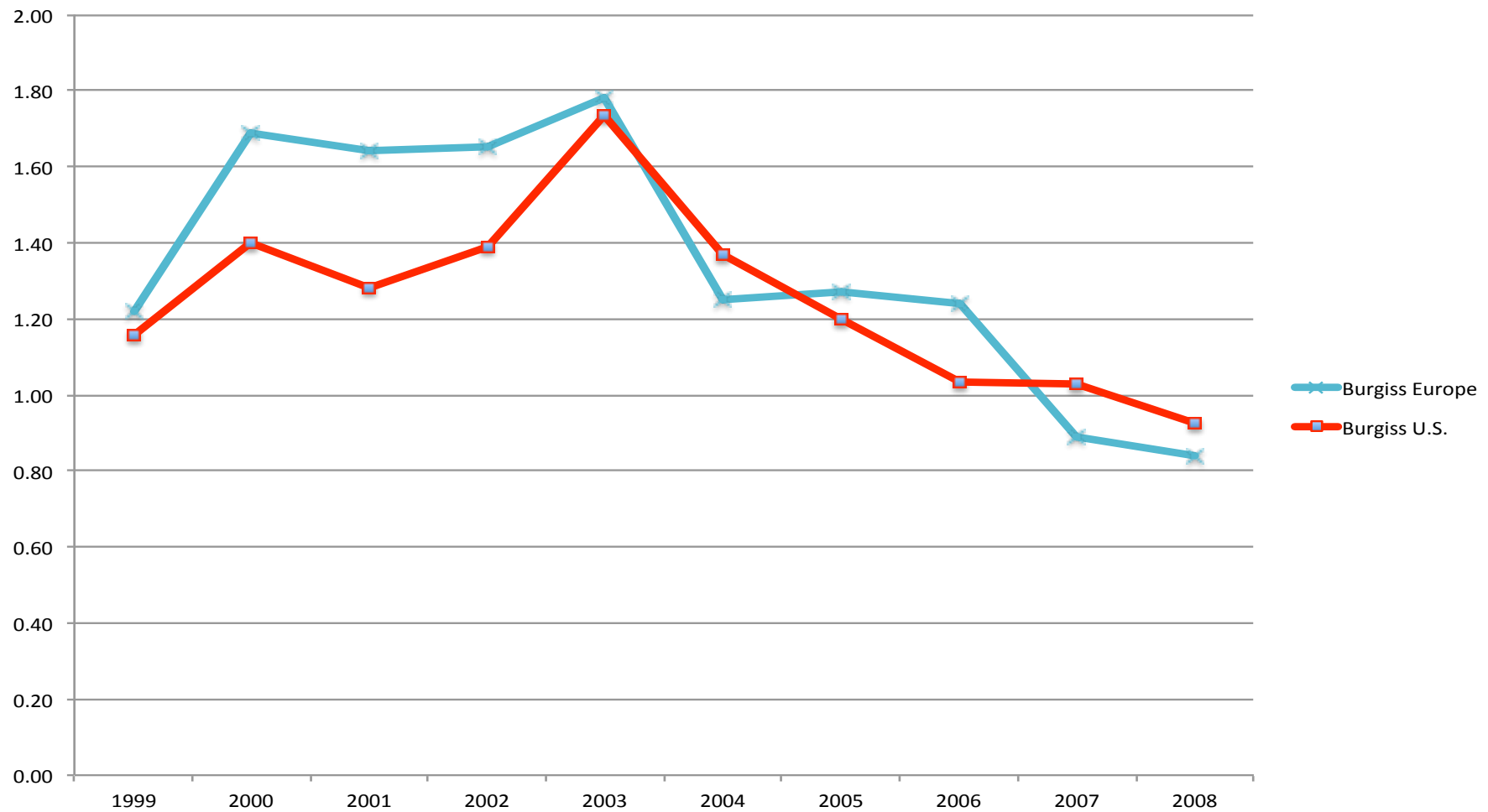
What about Europe?

- Similar results.

Europe Buyout Fund Multiples - Average



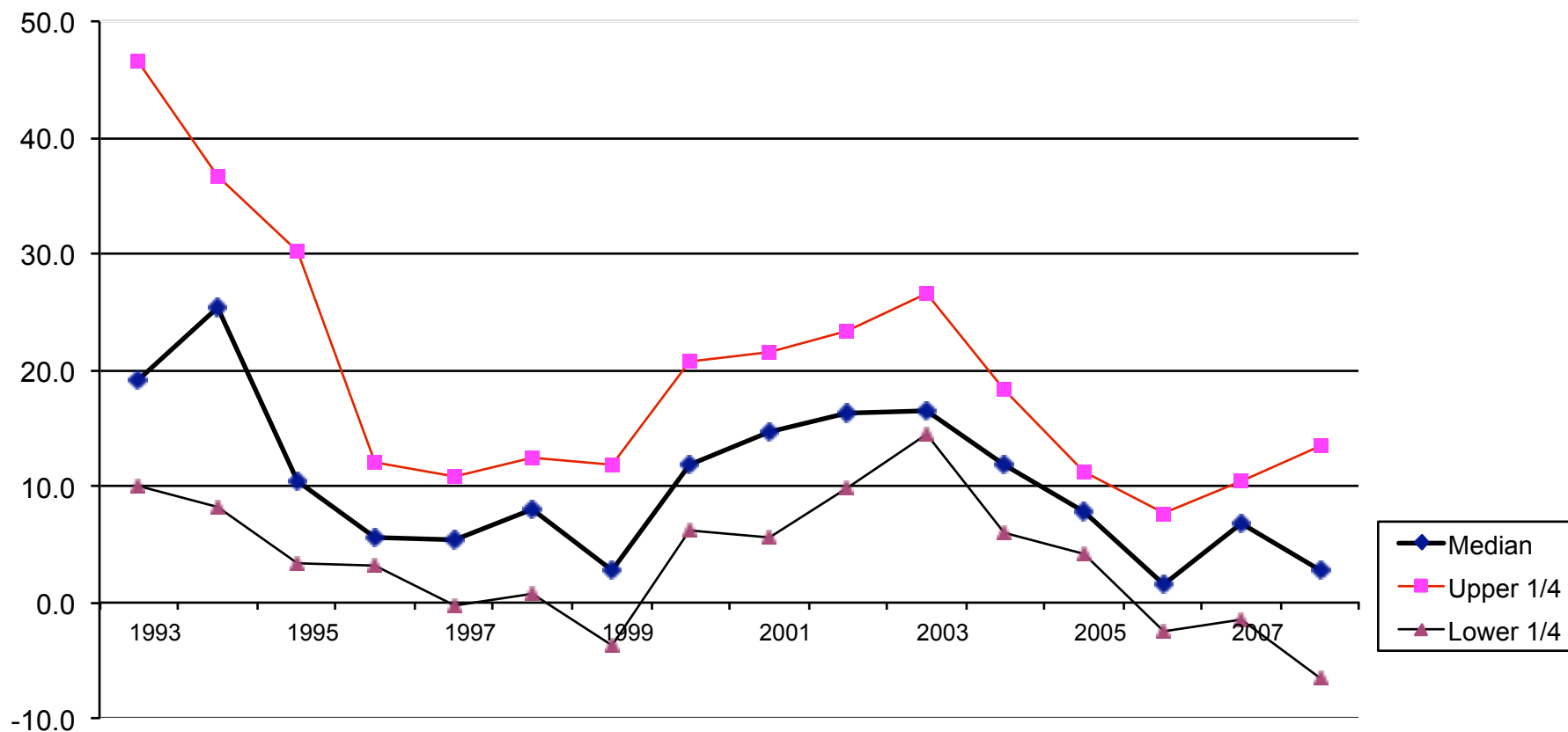
U.S. and Europe Buyout PME - Average



Persistence in Performance:

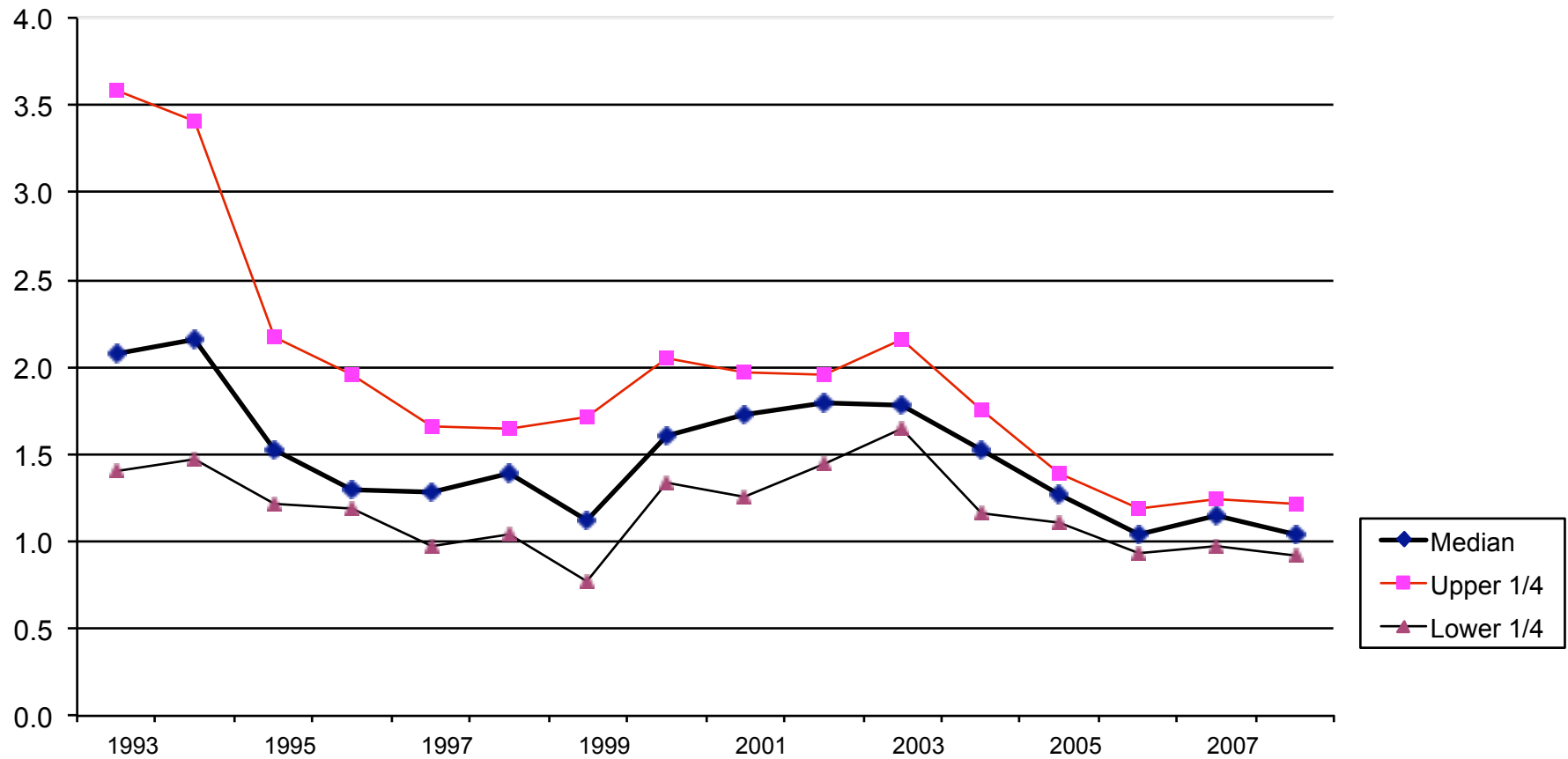
- Are there good GPs?
- Do the good GPs repeat?

U.S. Buyout IRR by Vintage Year Median, Upper and Lower Quartiles



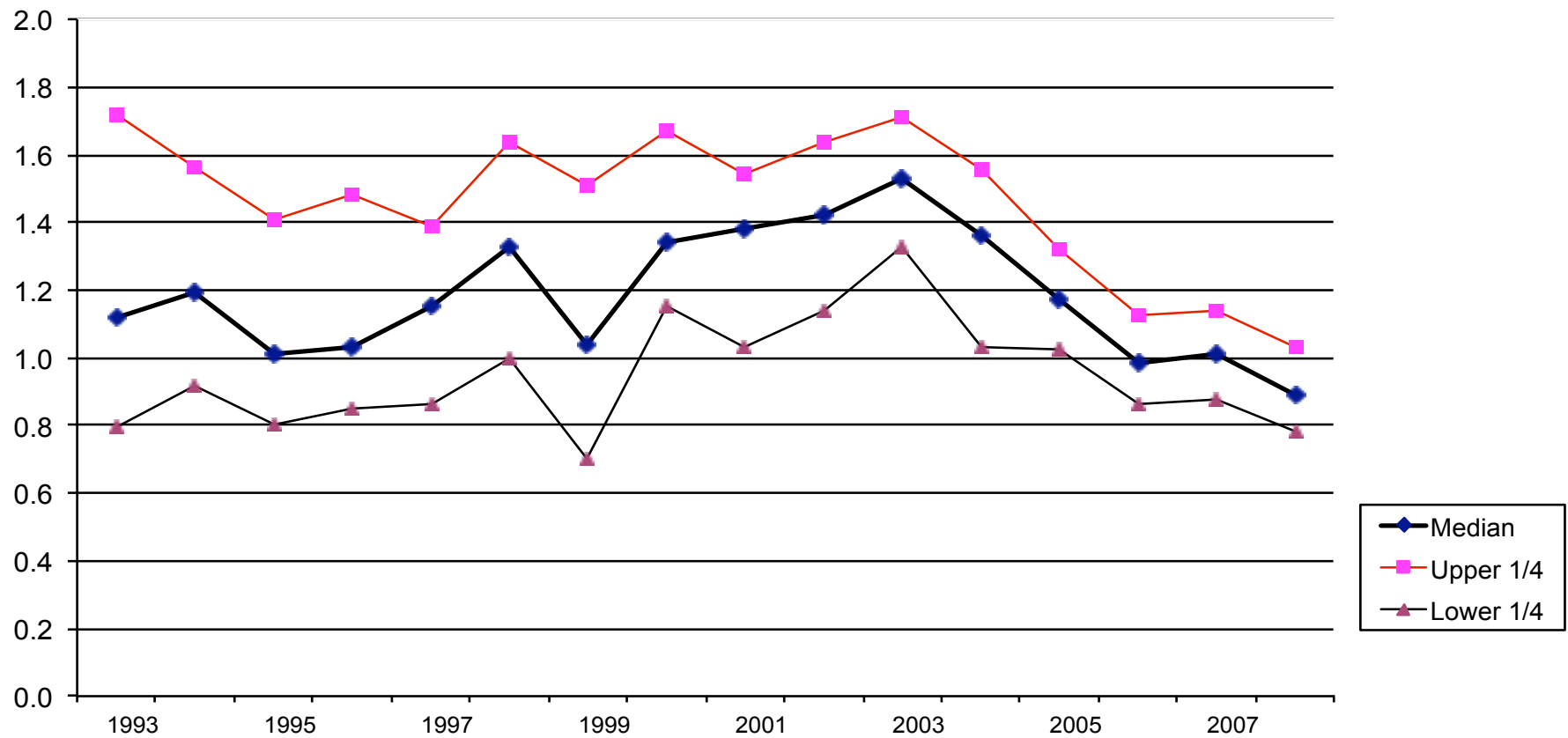
Source: Burgiss

U.S. Buyout Multiple of Invested Capital by Vintage Year Median, Upper and Lower Quartiles



Source: Burgiss

U.S. Buyout PME by Vintage Year Median, Upper and Lower Quartiles



Source: Burgiss

Persistence in Performance:

- Are there good GPs?
 - Large differences between top and bottom quartile funds.
- Do the good GPs repeat?
 - Do not have data from Burgiss (yet).
 - Do have data from Kaplan and Schoar.
 - » VE data problems less of an issue for persistence.
 - Do have data from Robinson and Sensoy.

Persistence in Performance: Are there good GPs? Historically yes.

- KS and RS find large and significant amount of persistence in returns across funds of the same GP.
 - Coefficient is roughly 0.23 meaning that 23% of outperformance is reliably repeated. Not 100%, but
 - » statistically significant.
 - » much greater than for mutual funds or hedge funds.
- KS also collected all data made available by public pension funds because of FOIA concerns.
 - Persistence results are at least as strong.

Persistence from KS:

Next Fund Tercile

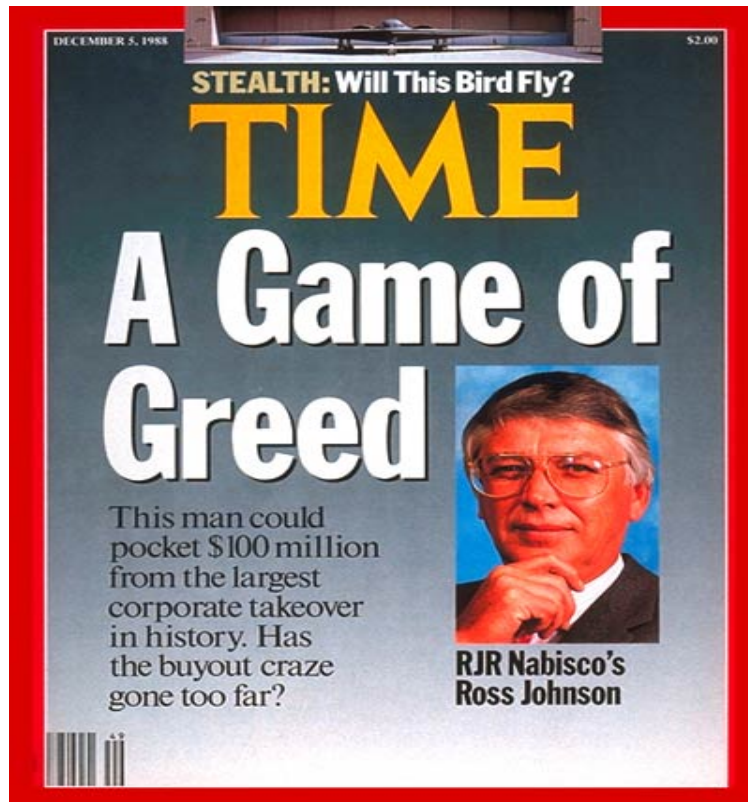
		Lower	Medium	Upper
Panel A: PME				
Previous FundTercile	Lower	44	37	19
	Medium	24	34	42
	Upper	11	34	55
		Lower	Medium	Upper
Panel B: IRR				
Previous FundTercile	Lower	49	31	20
	Medium	30	38	32
	Upper	21	31	48

Past Performance, Fundraising, Future Performance

- Capital flows into specific GPs related to past performance.
 - Good funds raise more money.
- Capital flows into industry related to recent performance.
 - Money comes in after good returns.
- Subsequent performance is negatively related to the amount of money flowing into the industry.
 - Poor returns follow money coming in.
- I.e., a boom and bust cycle.
 - Come back to the implications of this later.

What will happen going forward? Returns?

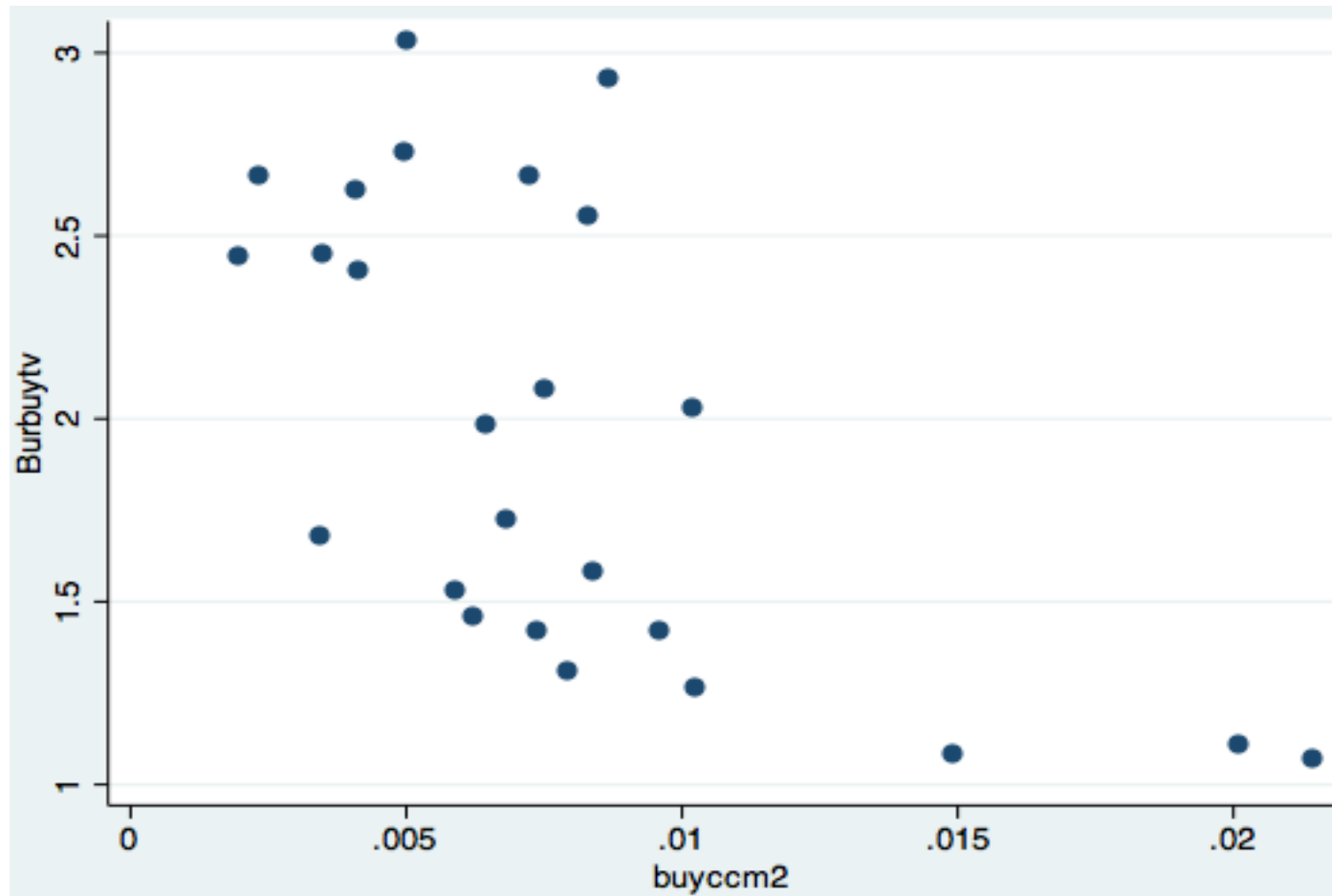
History repeats itself:



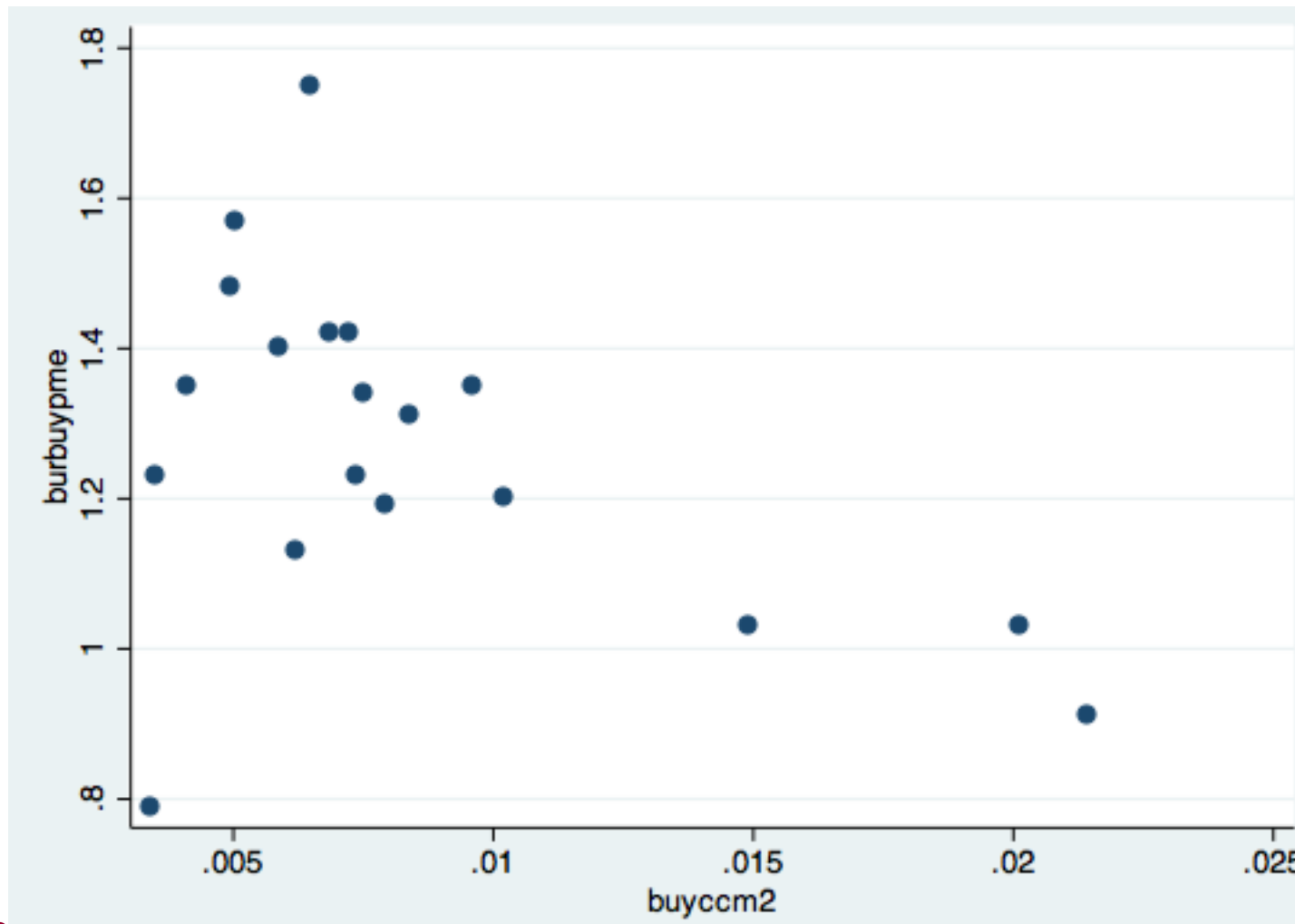
Go back to the historical record

- PE market is cyclical. IRRs, Multiples and PMEs related to funds raised.
 - IRR in Vintage Year =
 - » 24% - 12 x PE inflows in current and prior year as % of stock mkt.
 - Multiple in Vintage Year =
 - » 2.30 - 72 x PE inflows in current and prior year as % of stock mkt.
 - Multiple in Vintage Year =
 - » 1.58 - 32 x PE inflows in current and prior year as % of stock mkt.
 - On average PE inflows = 0.4% of stock market. (2 years 0.8%).
 - Not exactly an efficient markets conclusion.

Vintage Year Multiples vs. Capital Committed



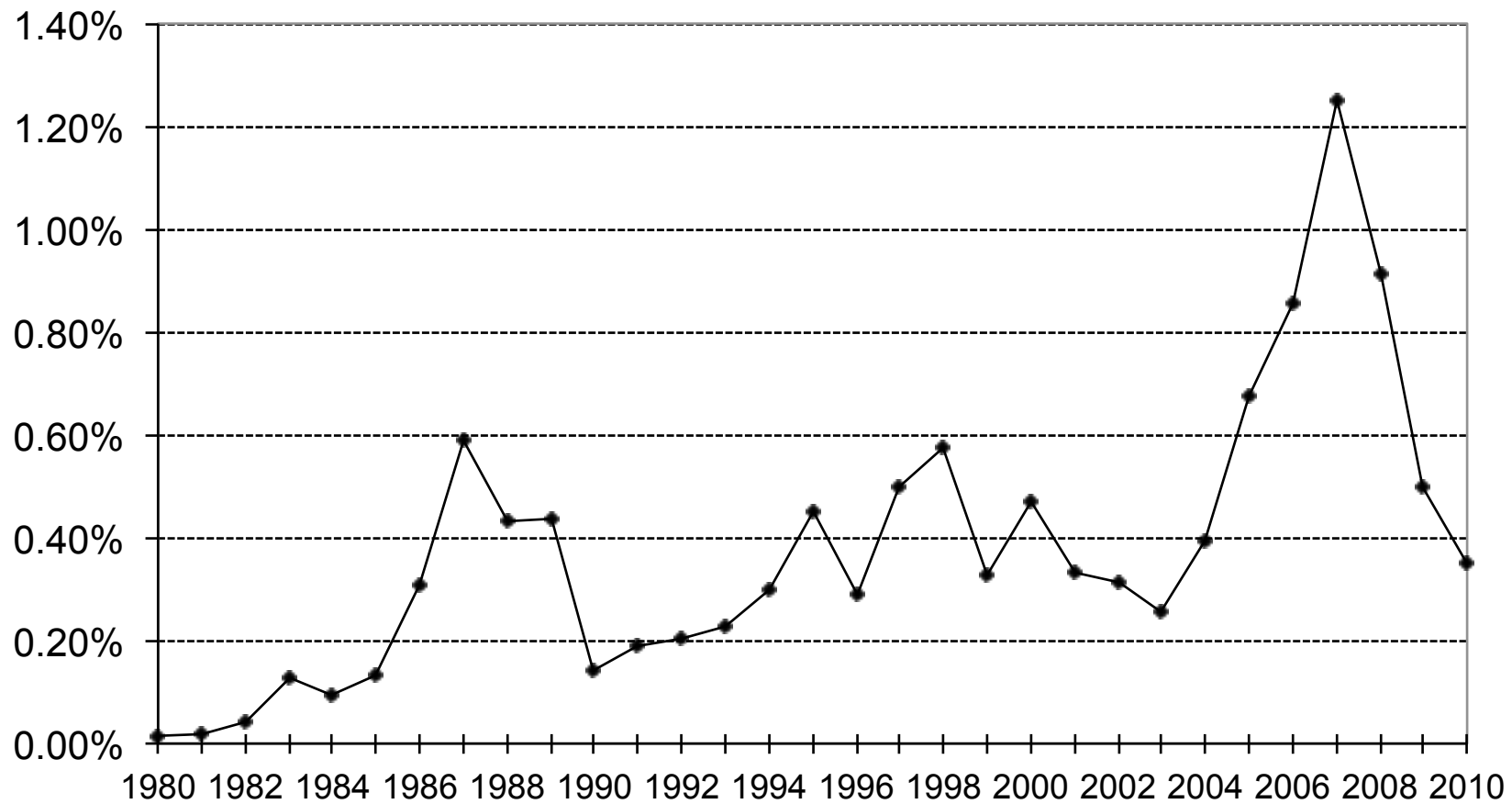
Vintage Year PME vs. Capital Committed



Go back to the historical record

- Where are we in the cycle?

Commitments to Private Equity Partnerships in U.S. as Fraction of Stock Market Capitalization 1980 - 2010



Source: Private Equity Analyst, Steven N. Kaplan

- Record (two year) fundraising levels in 2006, 2007 and 2008.
 - 1.5%, 2.0%, and 2.1% of the stock market.

- Record fundraising levels in 2006, 2007 and 2008.
 - 0.86%, 1.25%, and 0.91% of the stock market.
- If historical relationships are repeated, 2006, 2007, and 2008 vintages will have low IRRs.
 - » $24\% - 12 \times 1.5\% = 6\%$
 - » $24\% - 12 \times 2.1\% = -1\%$
 - » $24\% - 12 \times 2.2\% = -3\%$
- Looks like that could happen?

What about 2009 and 2010 Vintages?

- Commitments declined in 2009 and 2010. Came in at
 - 0.50% and 0.34%.
- For 2010 vintages, that is almost exactly the historical average.
 - Predict average performance which has been pretty good over time.
 - Caveat is overhang from 2008 funds is greater than usual.

PE in 5 years?

- The reports of the death of PE are exaggerated / premature.

- PE is one of few asset classes where duration of capital matches duration of assets.
 - Long-term capital making long-term investments in companies.
 - Contrast with hedge funds, investment banks (and even mutual funds).

- CEOs / execs of public companies more receptive to PE than in past.
 - More pay / upside.
 - Less grief from regulation, litigation, media, activist shareholders.
 - PE investors are partners not raiders.
 - Likely to accelerate if attacks by shareholder activists and governments on governance and CEO pay continue.

- Operational engineering capabilities are real and improving.
 - May not be fully reflected in performance yet.

Bottom Line:

- PE industry will likely contract (relative to 2007 / 8).
 - Just like PE in early 1990s.
 - Just like PE in early 2000s.
 - Just like VC in early 2000s.
- In the medium-term, PE industry likely to do well relative to:
 - investment banks / commercial banks.
 - hedge funds.

Summary

- What do PE transactions / LBOs really do?
 - Empirical evidence is favorable.
 - » LBOs lead to operating improvements, more cash flow.
 - » LBOs have mixed (but unsurprising) effects on employees.
 - » Solid evidence that PE is a positive at the portfolio company level.
 - » Less true for public-to-privates which appear more driven by financial market conditions / engineering.
- Why do PE transactions do what they do?
 - Combination of financial, governance, and, now, operational engineering.

- How good have returns really been?
 - While PE firms add value to portfolio companies, PE firms charge fees and pay premiums to buy companies.
 - Nevertheless:
 - » returns net of fees have consistently beaten the S&P 500.
 - » returns gross of fees have beaten the S&P 500 by a wide margin.
 - Venture Economics has historically understated returns.
- Good firms do appear to persist.

- What will happen next? Is the PE explosion temporary or permanent?
 - Negative:
 - » Returns to 2006 to 2008 vintages likely to be low.
 - » LP commitments will decline.
 - » PE industry likely to contract (relative to 2007 peak).

— Positive:

- » PE performance has been remarkably good for a long period of time.
- » Deals structures of 2005 to 2007 less fragile than in first wave.
- » PE funds have expanded capabilities that are real.
- » PE investors are more attractive to CEOs, top executives, and boards than in the past.
- » Duration of PE firm capital matches that of PE firm assets.

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