Implications of the Shrinking U.S. Publicly Traded Corporate Sector (PTCS)*

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Presidential Address Approaches

- Frank (MFA, 2018)
  - Machine Learning For Finance
- Scharfstein (AFA, 2018)
  - Pension policies and financial systems. Implications for corporate finance, banking sector, and financial sector size.
- Zingales (AFA, 2015)
  - How to enhance the benefits of finance to society.
- French (AFA, 2008)
  - The cost of active investing

Commonality: Big picture, recent developments, encourage broad research agenda

Keynote Addresses

- Wei Jiang (FMA, 2018)
  - Short-termism in Markets
- David Denis (FMA – Asia, 2018)
  - Intangible Investment and the Changing Face of Public Corporations
- Chares Trcszinka (7th Conference on Financial Institutions and Investments)
  - Data in Financial Economics

Additionally: No identification, not talking about clustered standard errors, no litany of robustness checks

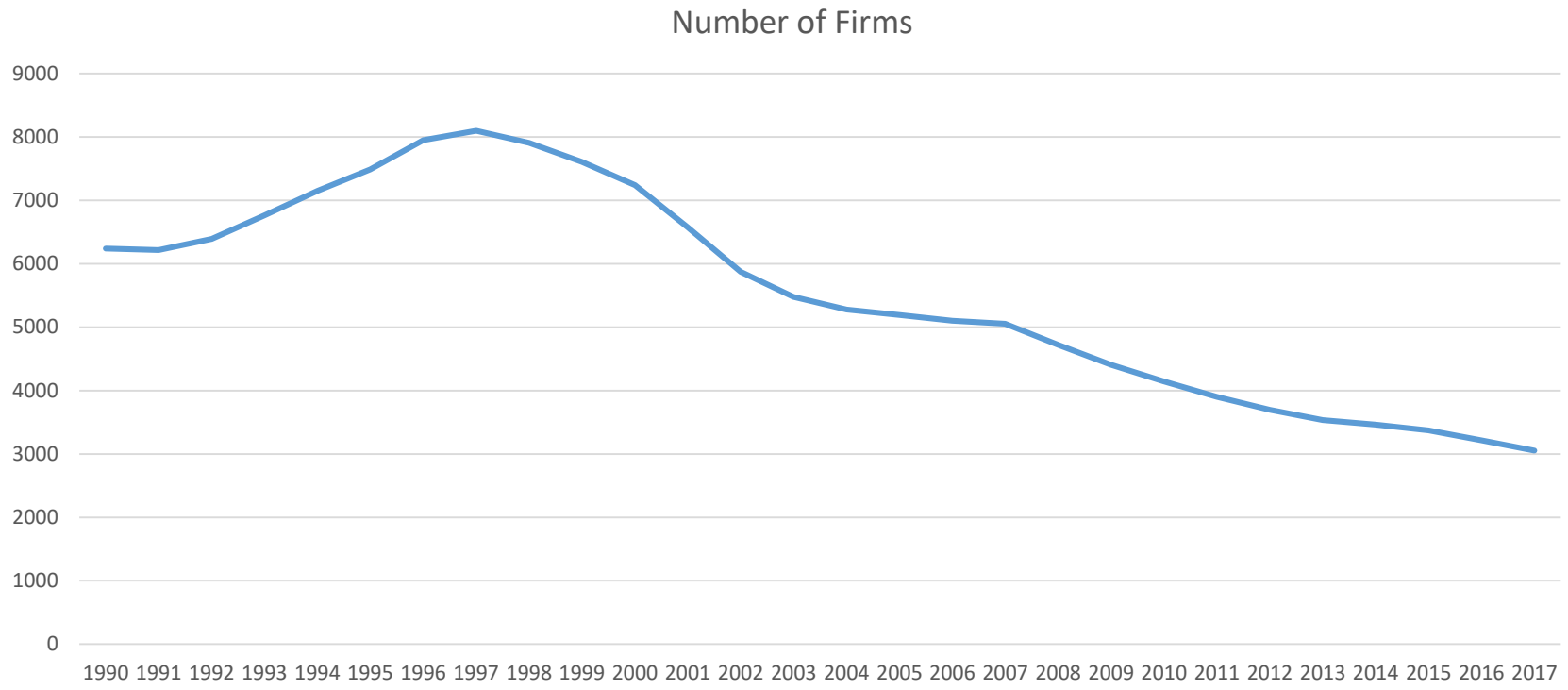
Plan

- Reminder of the recently highlighted phenomenon (Doidge et al. 2017)
- Why should we care?
  - Some big-picture questions. One (likely) underlying – and my focus
- Measure and basic view of result
- Patterns in likely drivers
- Implications (some tangential)

A view of the Shrinking PTCS

(CRSP-only version, picture highlights 1990 onward, extend to 2017)

- U.S. publicly traded corporate sector (CRSP)
  - NYSE/AMEX/NQ, share code = 10 or 11, Exclude SIC = 6722, 6726, 6798, 6799, 9xxx)



Market Value Version [suggests consolidation – later point]

What does it mean?

Benefits of Active Public Security Markets

- For investors
  - Liquidity (but costs of trading have declined)
  - Diversification (but proliferation of ETFs…)
- For firms
  - Access to Capital / Financing (but private capital is plentiful…)
    - Particularly for long-term innovative investment
  - More fluid ownership
    - M&A and restructuring
  - Employee/manager incentives

➔ Common Denominator?

Information Production

- My focus for this talk

Drivers of the shrinkage in # of Public Firms

- Both inflows and outflows
  - New List rate is “low”
  - Delist rate is “high”
- Decline in net benefits to listing
  - Access to capital easier for non-publics

Why would this matter for information production?

- Shrinking PTCS size particularly among smaller firms
  - New lists tend to be smaller firms
  - Delists are concentrated among smaller firms

➔Shrinking PTCS effects more evident among smaller firms

- Smaller firms are more sensitive to capital market access benefits, but the shrinkage in these benefits (Doidge et al.) correspondingly decreases listing incentive
- (Asymmetric) Information Problems are pronounced in this sample

➔Information production and incentives likely changing with composition of shrinking market

What's happened to information production?

Assessing Information Production in Markets

One possible summary measure: Stock Price Informativeness

$$\frac{E_{i,t+h}}{A_{i,t}} = a_{t,h} + b_{t,h} \log\left(\frac{M_{i,t}}{A_{i,t}}\right) + \frac{E_{i,t}}{A_{i,t}} + d^{s}_{t,h} + 1^{s}_{i,t} + \epsilon_{i,t,h} \qquad \left(\sqrt{\mathcal{V}_{FPE}}\right)_{t,h} = b_{t,h} \times \sigma_t(\log(M/A))$$

- Bai et al. (JFE, 2016) show S&P500 stock price informativeness (SPI) has risen (1960 to 2014).
- But *whole sample* of firms shows opposite effect [Appendix C]

Non-S&P500 Firms

$$\left(\widehat{\sqrt{\mathcal{V}_{FPE}}}\right)_{t,h} = a_h + \sum_d b_{d,h} \times \mathbf{1}_t^d + \epsilon_{t,h},$$

Decade dummies organization:

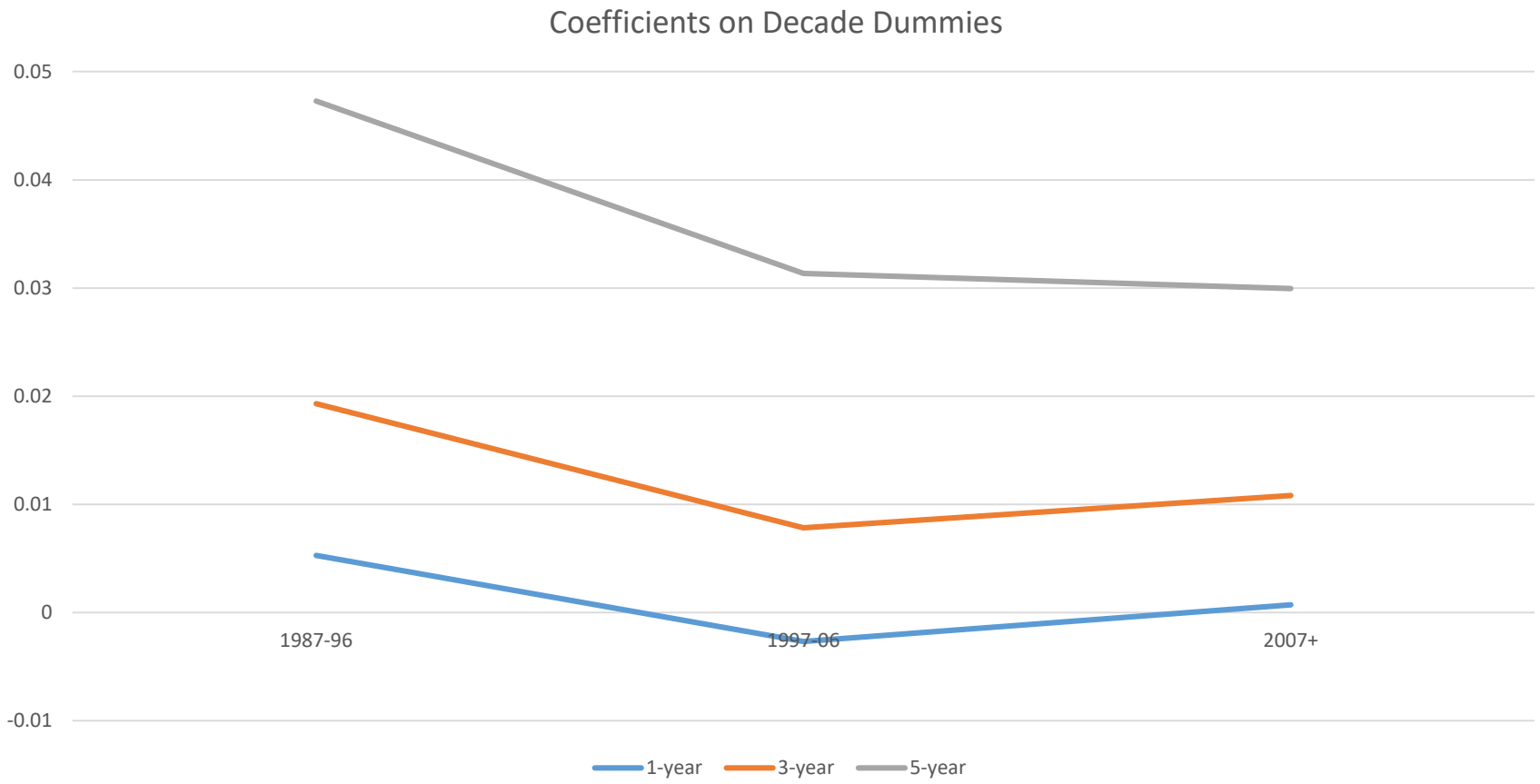
[1967-1976], [1977-1986], **[1987-1996]**, [1997-2006], [2007-2016]

[Baseline Decade]

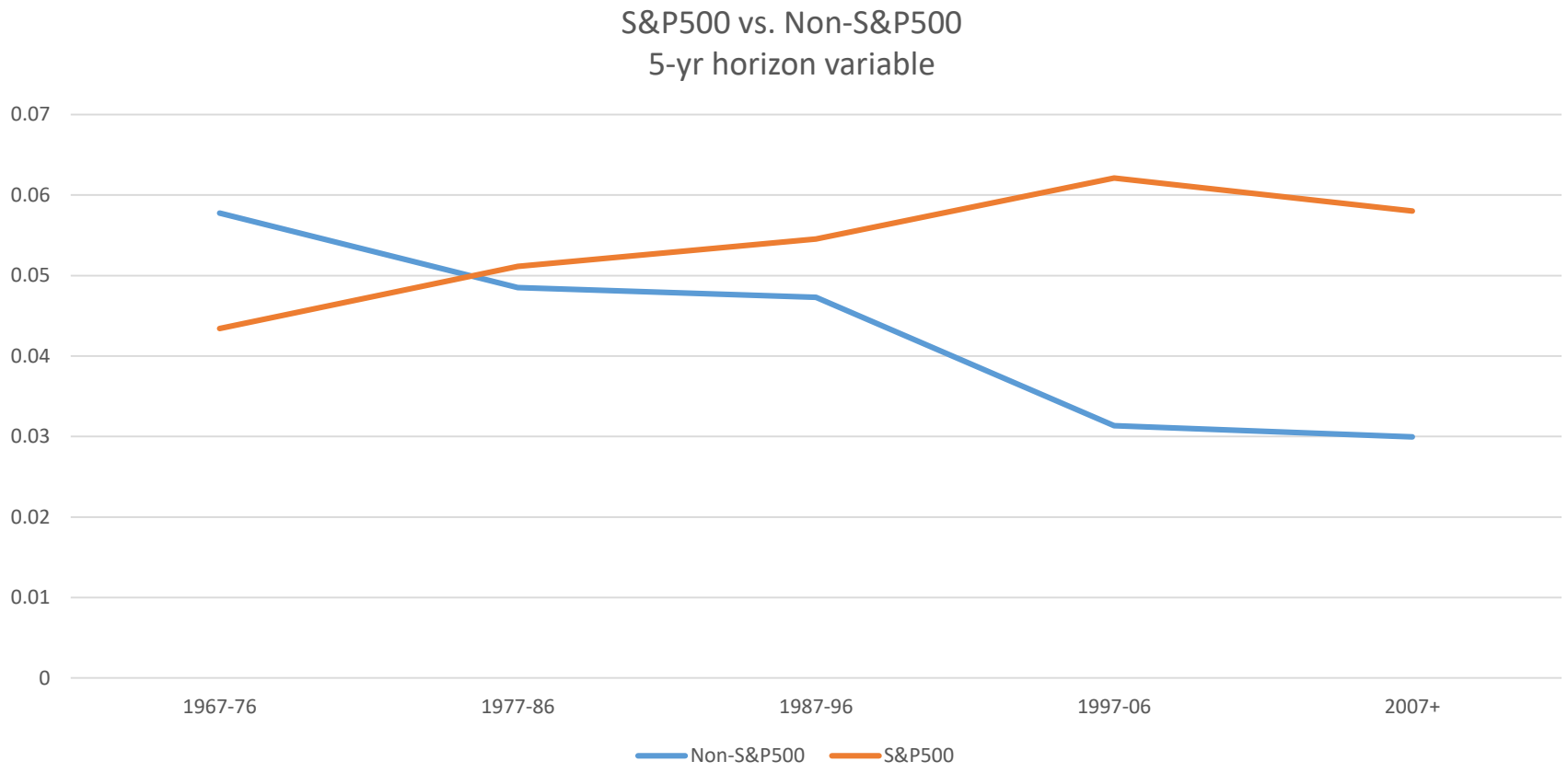
Bai et al. – style regression results

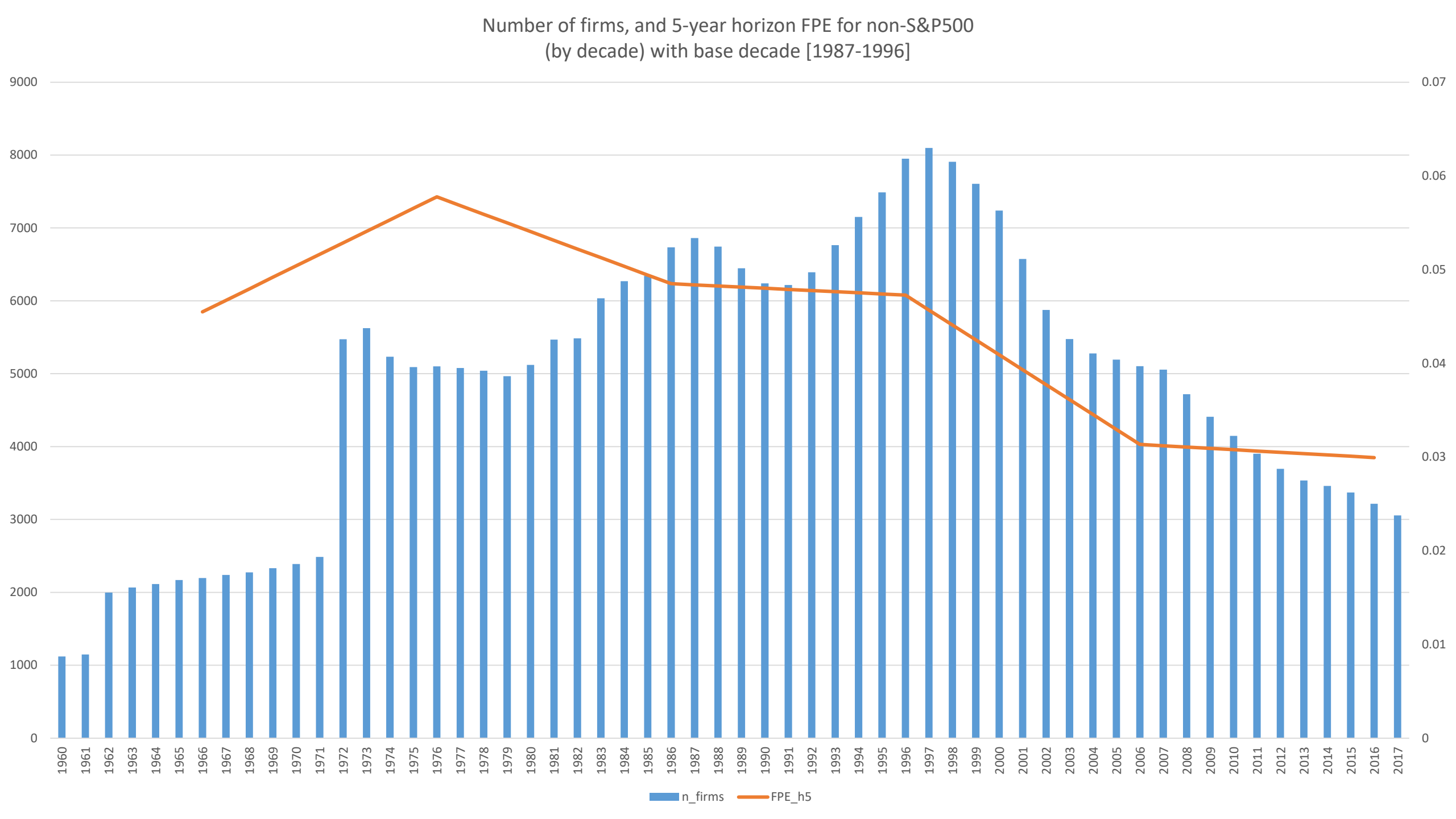
window_dum	SPI_1yr	SPI_3yr	SPI_5yr
1960-1966	.0183***	.0117**	-.0018
1967-1976	.0237***	.0257***	.0105*
1977-1986	.0109***	.0107**	.0012
1997-2006	-.0080***	-.0115**	-.0159***
2007-2016	-.0046*	-.0085*	-.0173**
1987-1996	.0053**	.0193***	.0473***
[i.e. constant]			
Observations	57	55	53

Non-SP500 Firms' Stock Price Informativeness



Compare with S&P500




Number of firms, and 5-year horizon FPE for non-S&P500
(by decade) with base decade [1987-1996]
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
1960 1961 1962 1963 1964 1965 1966 1967 1968 1969 1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017
n_firms
FPE_h5

Summary to this point

- The shrinking PTCS is largely a phenomenon at the smaller end of the firm size spectrum
- These firms tend to have greater asymmetric information problems
- Documented lower forecasting price efficiency among those firms as that sample shrinks

Mechanisms/Channels

Who produces information?

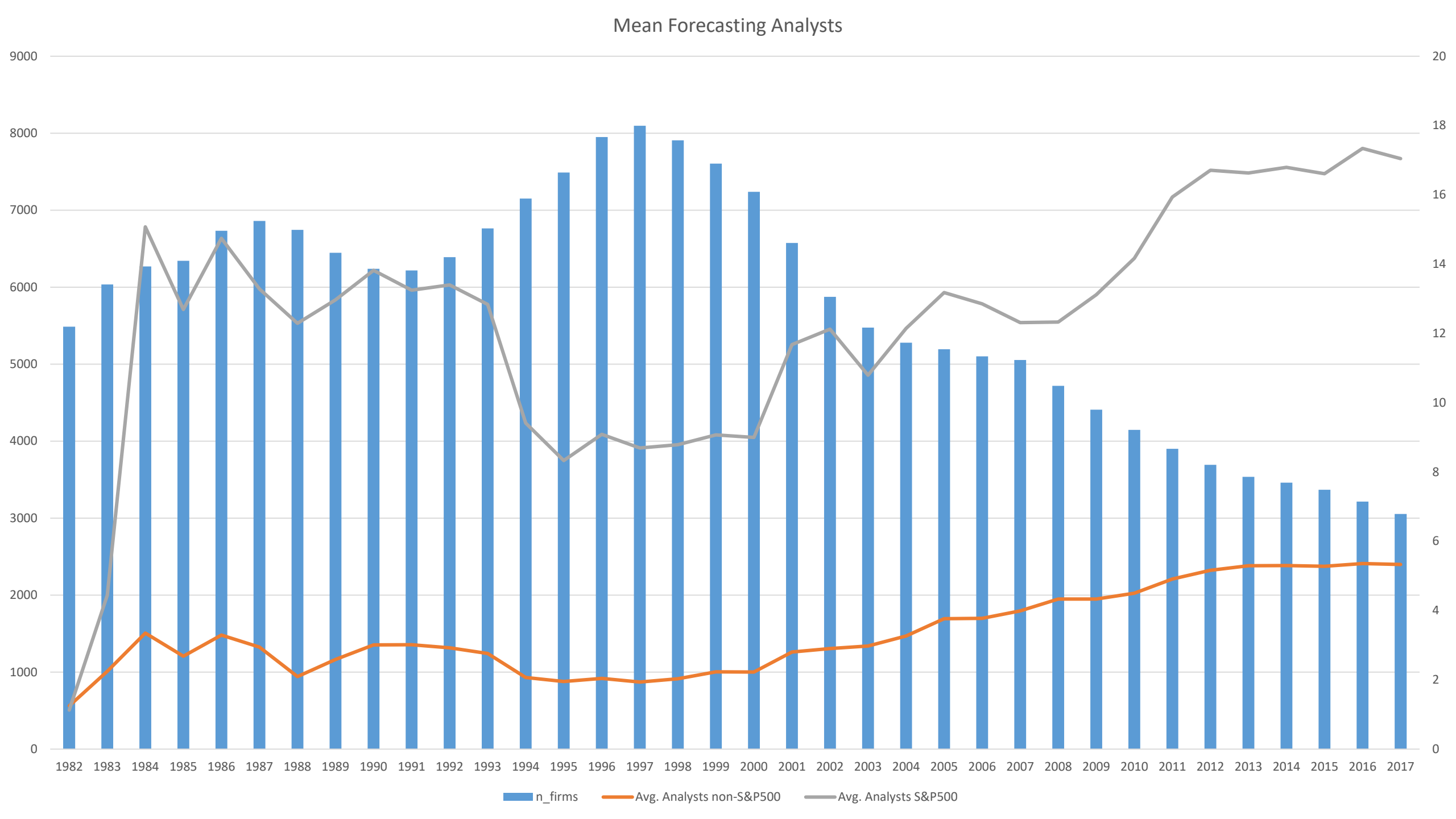
What changes among them would reduce information production?

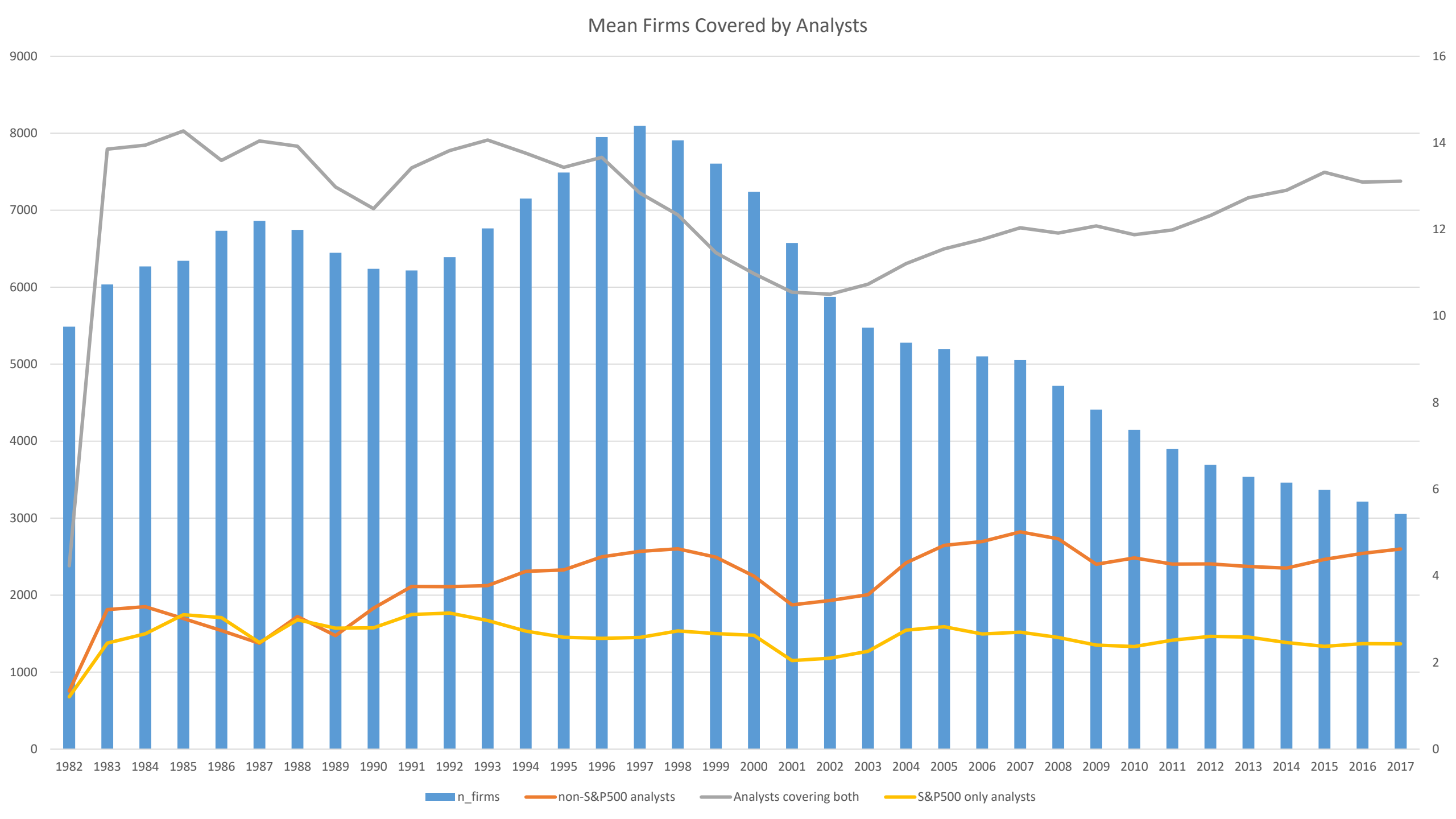
What to look for: widening gaps (S&P vs. non-S&P) in…

- Analyst information production proxies
  - Coverage, busy-ness, greater forecast dispersion?
- Investor information production
  - Institutional ownership (count and %own)?
  - *Passive* institutional ownership?
- Corporate disclosure
  - Managerial guidance?

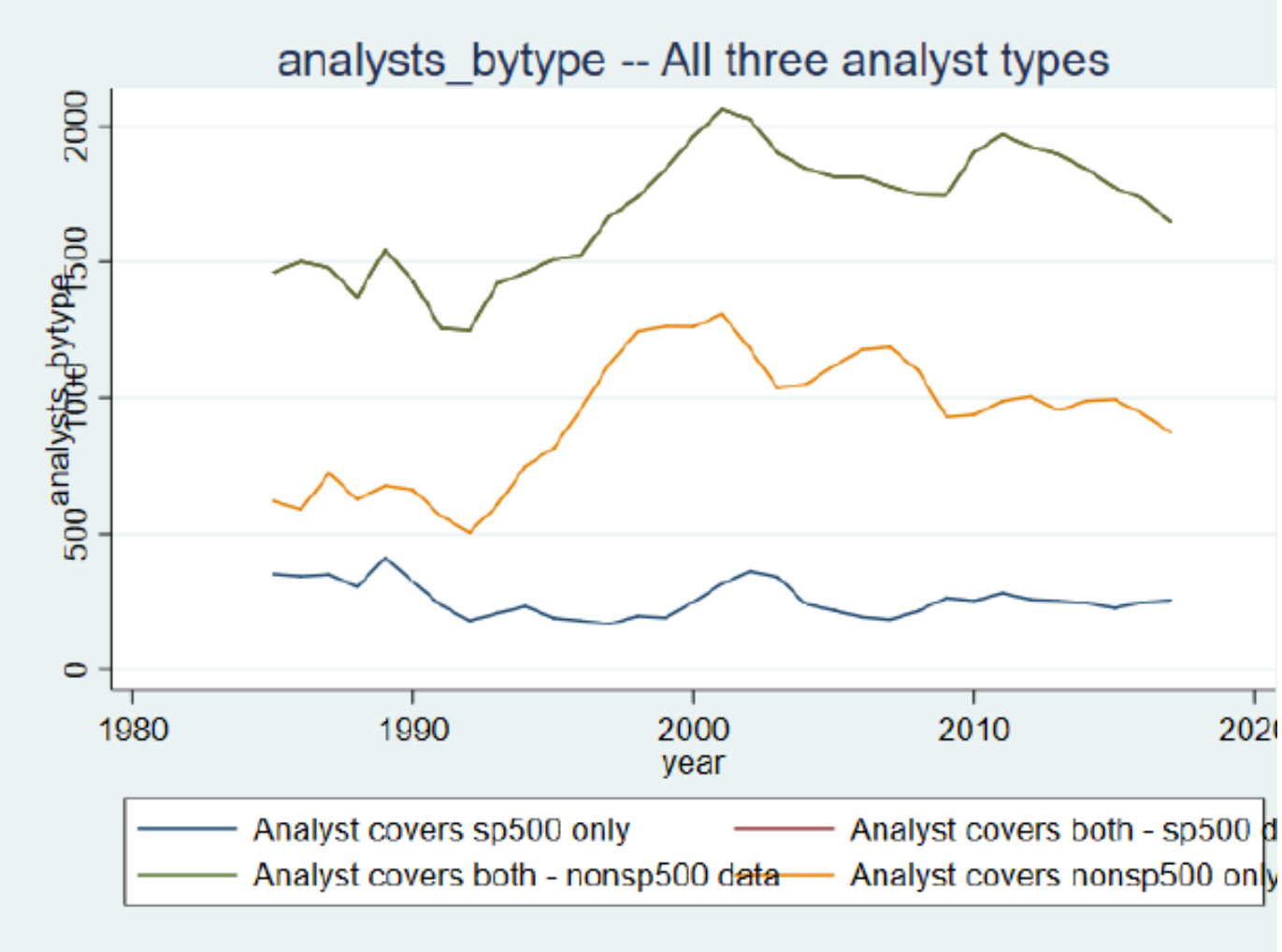
Analyst-oriented results

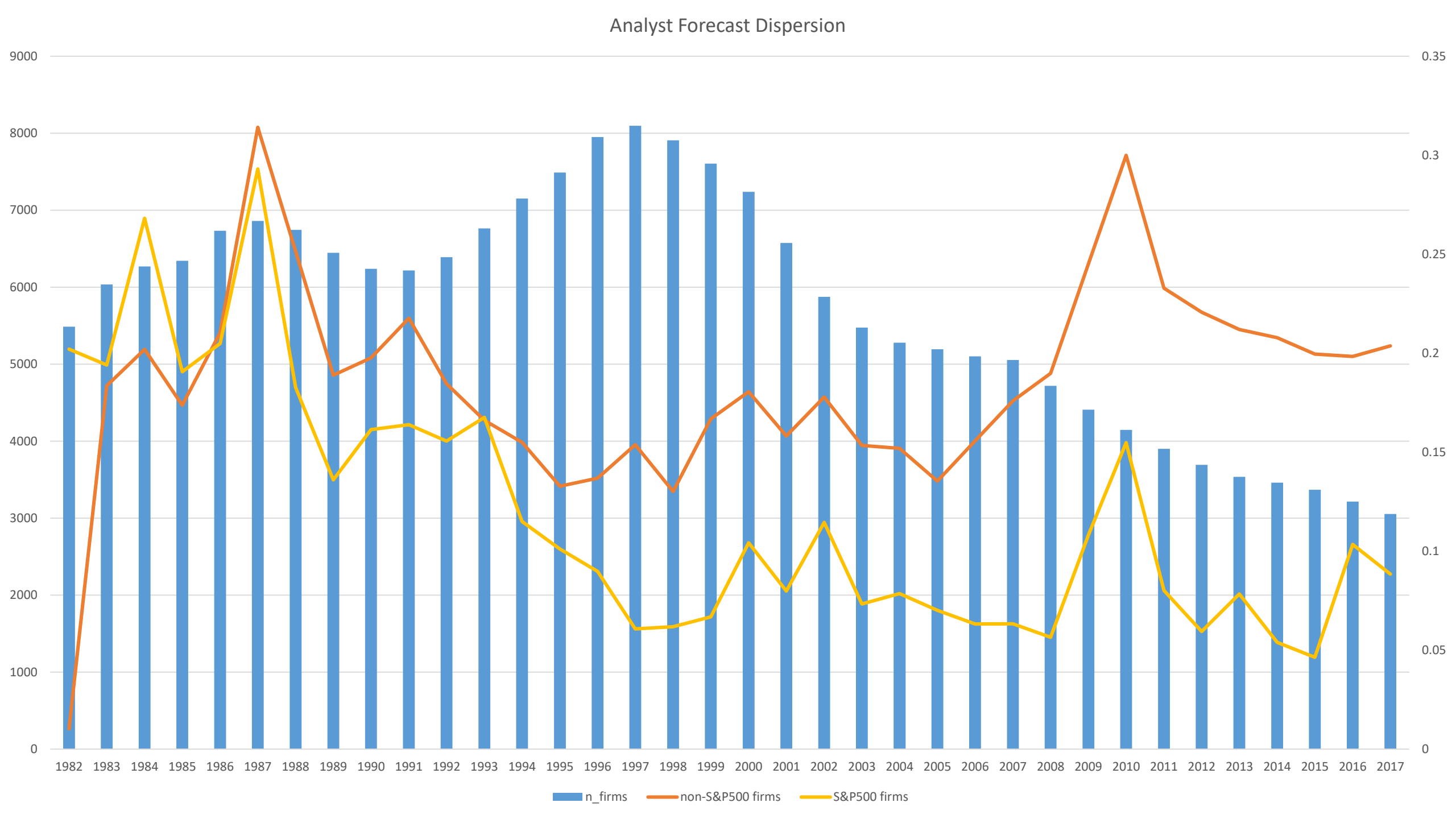
Coverage, busy-ness, forecast dispersion


Mean Forecasting Analysts
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
20
18
16
14
12
10
8
6
4
2
0
1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017
n_firms
Avg. Analysts non-S&P500
Avg. Analysts S&P500


Mean Firms Covered by Analysts
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
16
14
12
10
8
6
4
2
0
1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017
n_firms
non-S&P500 analysts
Analysts covering both
S&P500 only analysts

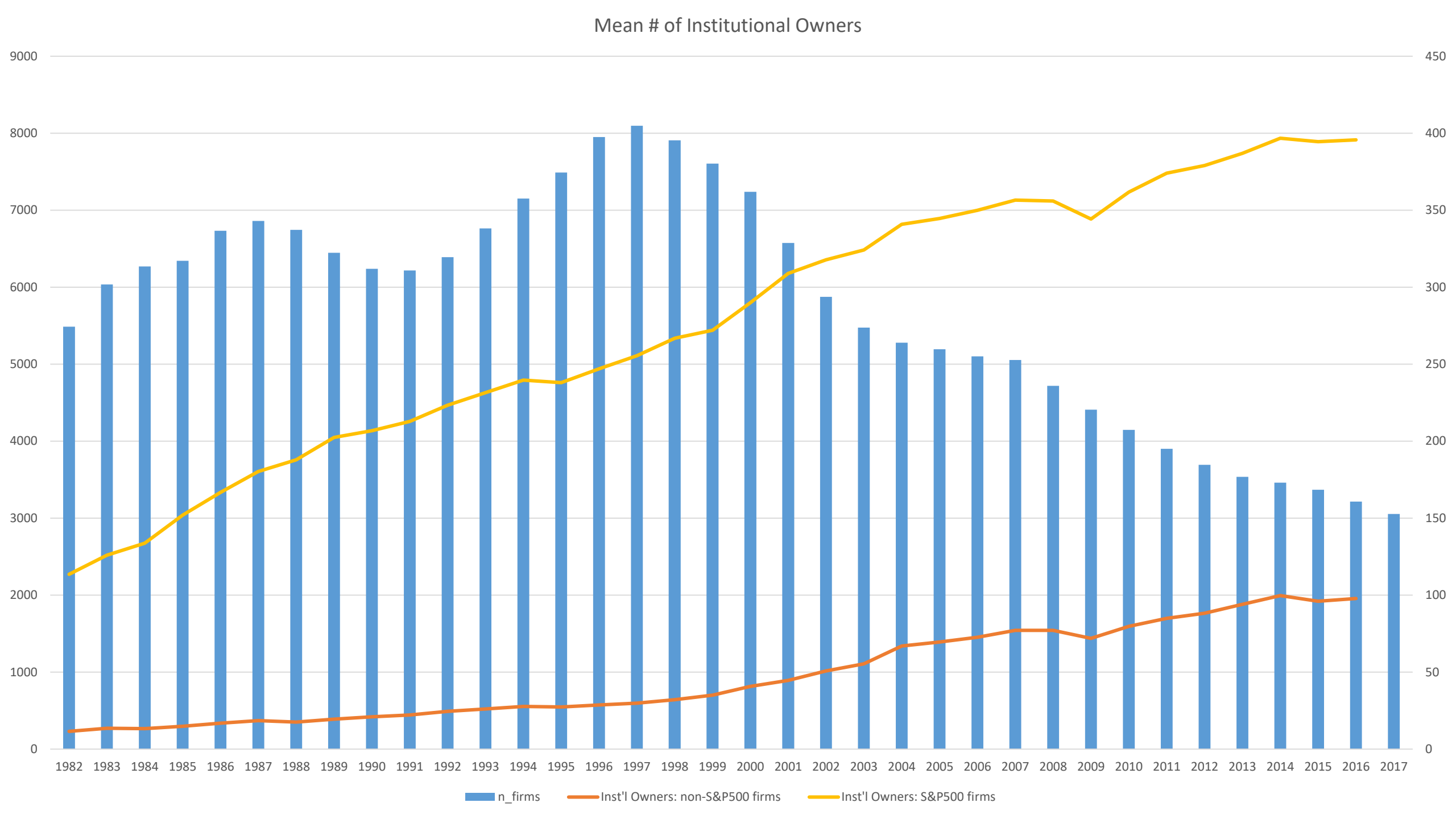
But notably, it's more common that analysts cover both S&P500 and non-S&P500 firms.

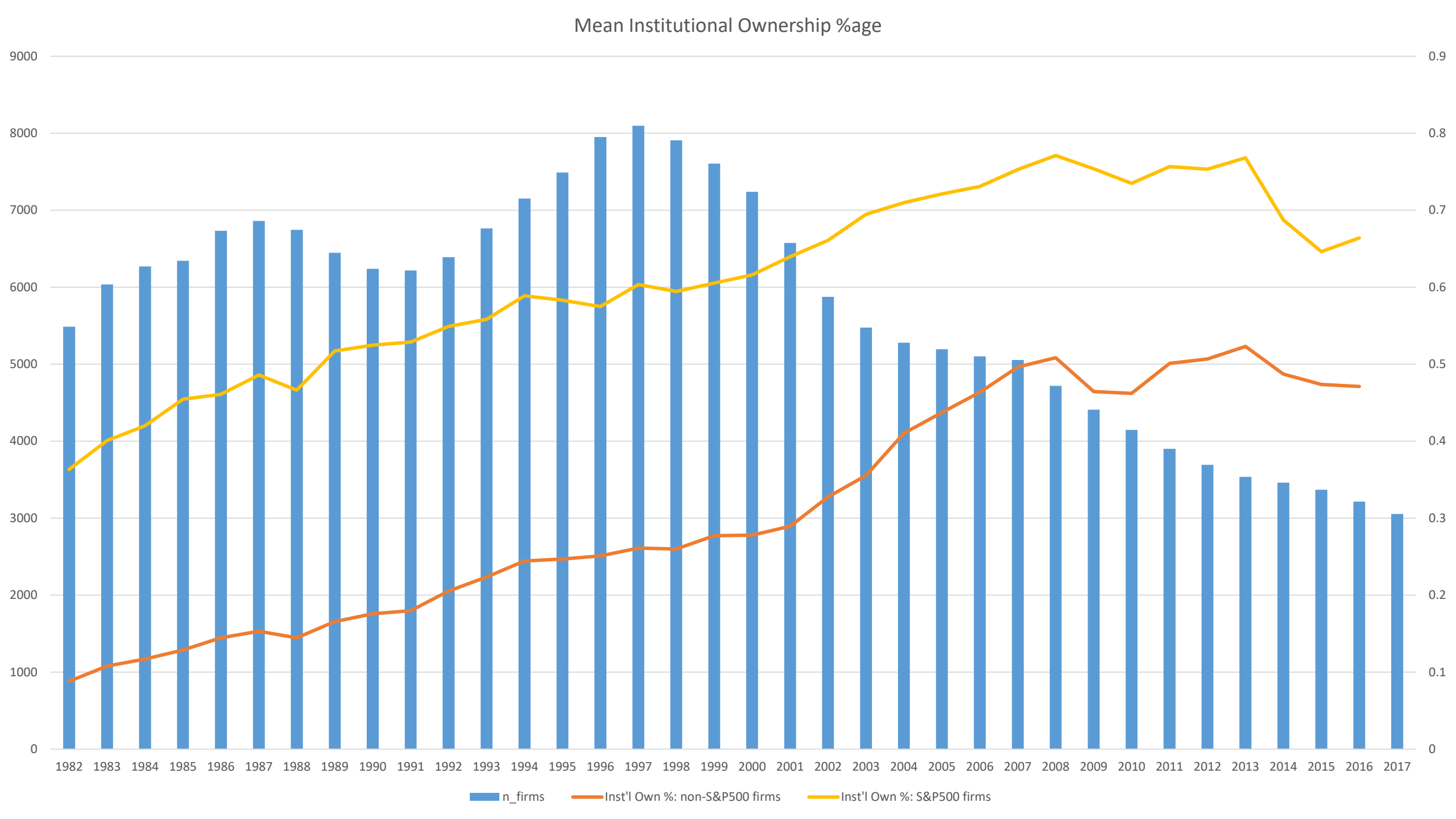


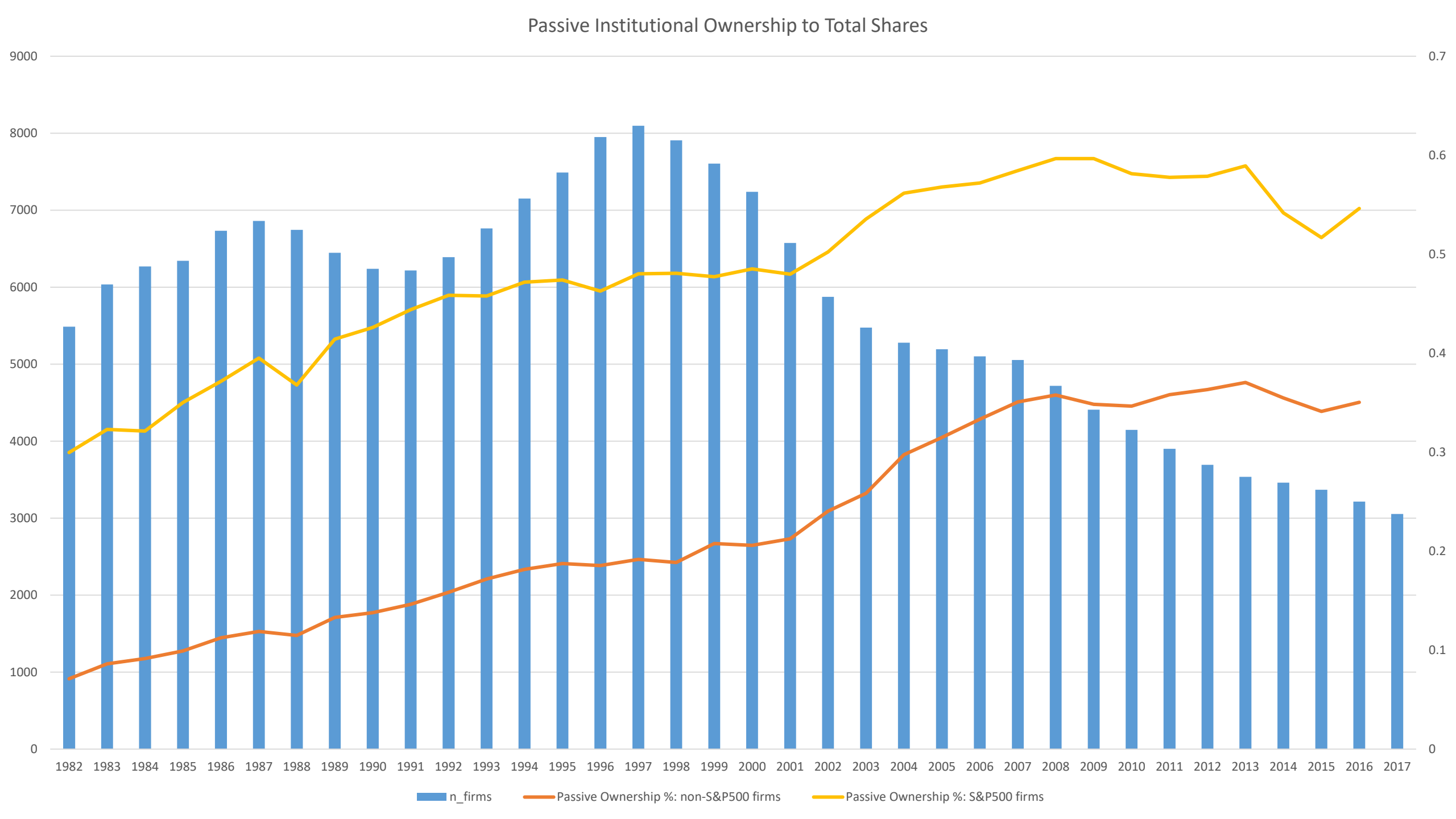

Analyst Forecast Dispersion
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017
n_firms
non-S&P500 firms
S&P500 firms

Institutional Ownership – oriented results

Number of Inst'l Owners, Inst'l Ownership Percentages, Active/Passive


Mean # of Institutional Owners
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
450
400
350
300
250
200
150
100
50
0
1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017
n_firms
Inst'l Owners: non-S&P500 firms
Inst'l Owners: S&P500 firms


Mean Institutional Ownership %age
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017
n_firms
Inst'l Own %: non-S&P500 firms
Inst'l Own %: S&P500 firms


Passive Institutional Ownership to Total Shares
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017
n_firms
Passive Ownership %: non-S&P500 firms
Passive Ownership %: S&P500 firms

Do Analyst and Institutions results align?

Not necessarily the right question. Probably not independent.

Extant evidence of substitution

- Chen, Kelly, Wu (2018)
- Exogenous shocks (brokerage house closures) reduce analyst coverage
- Increased information acquisition/production by hedge funds
  - More aggressive trading
  - Higher abnormal returns
- Mitigates the market efficiency impairment that would be due to coverage reduction
  - Price efficiency measures: PEAD, variance ratio (Lo and MacKinlay), Bai et al. measure

Analysts and HFs further…
(analysts still matter, even if there's substitution)

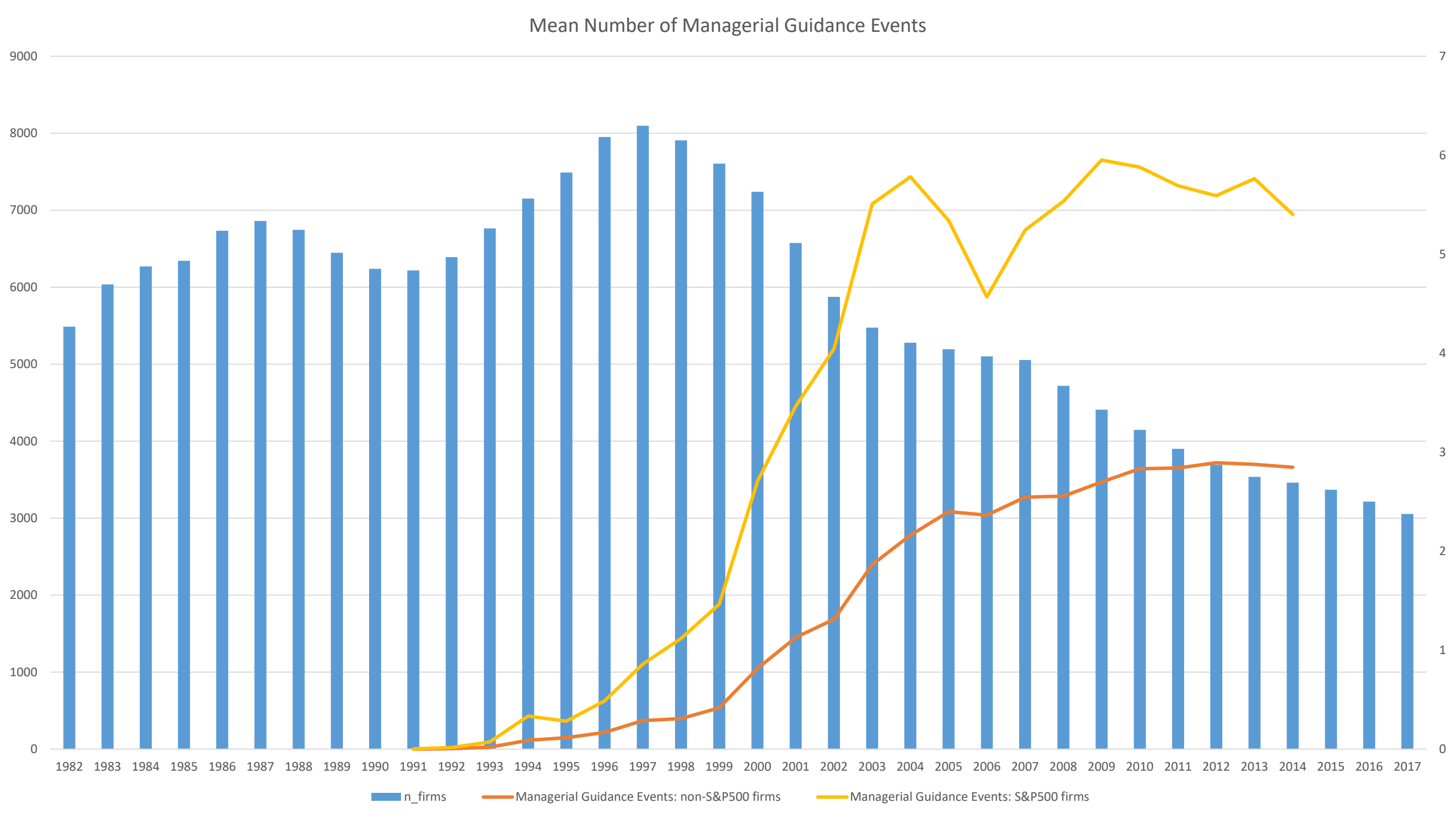
- Voice and Action: Sell-Side Analysis and Hedge Fund Activism
- Chen and Shohfi (2018 wp)
  - Admit: Hedge fund activism important external corporate governance mechanism
  - Sell-side analysts - idea generation / analysis to buy-side clients (incldg HFs)
  - Examine sell-side analyst activity around hedge fund activism and find
    - Declining trends in analyst coverage begin in the year before hedge fund intervention and continue afterward.
    - Stock market responses to analyst reports are negative before hedge fund intervention but revert to positive after.
  - Results suggest that critical voice of sell-side analysis, reveals coverage firm flaws, that influence subsequent hedge fund intervention outcomes.

Careful interpretation necessary

- The shrinking PTCS likely affects resource allocation across the whole variety of information producers.
- Supporting theory: Goldstein and Yang (JF, 2015)
  - There are potential *strategic complementarities* in trading and information acquisition.
  - Differs from substitution.
  - The key is the extent to which there is balance between the trading intensity on the two pieces of fundamental information.
    - Almost certainly this is affected by the shape of the PTCS (particularly when we soon recognize the contemporaneous change in industry competitiveness)

Other Information Production

Managerial Guidance


Mean Number of Managerial Guidance Events
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
7
6
5
4
3
2
1
0
1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017
n_firms
Managerial Guidance Events: non-S&P500 firms
Managerial Guidance Events: S&P500 firms

Taking stock of the results

Mostly supportive vs. mixed bag

What other offsetting factors might be considered?

Where else might we see substitution?

- Foucault and Fresard (JFE, 2014)
- Learning from peers vs. own stock price.
- If own stock price is less informative, need to rely on peers
- Peer stock price informativeness requires peers
  - What if more industry concentration (Grullon, Larkin, Michaely [RoF, forth])

Why is less information being produced?

- What are the incentives driving this?
- Need theory (some exists, but more needed)
- I submit that we should revisit Bolton and Scharfstein (1990).
  - Tri-partite relation between Asymmetric Information, Predation, and Governance

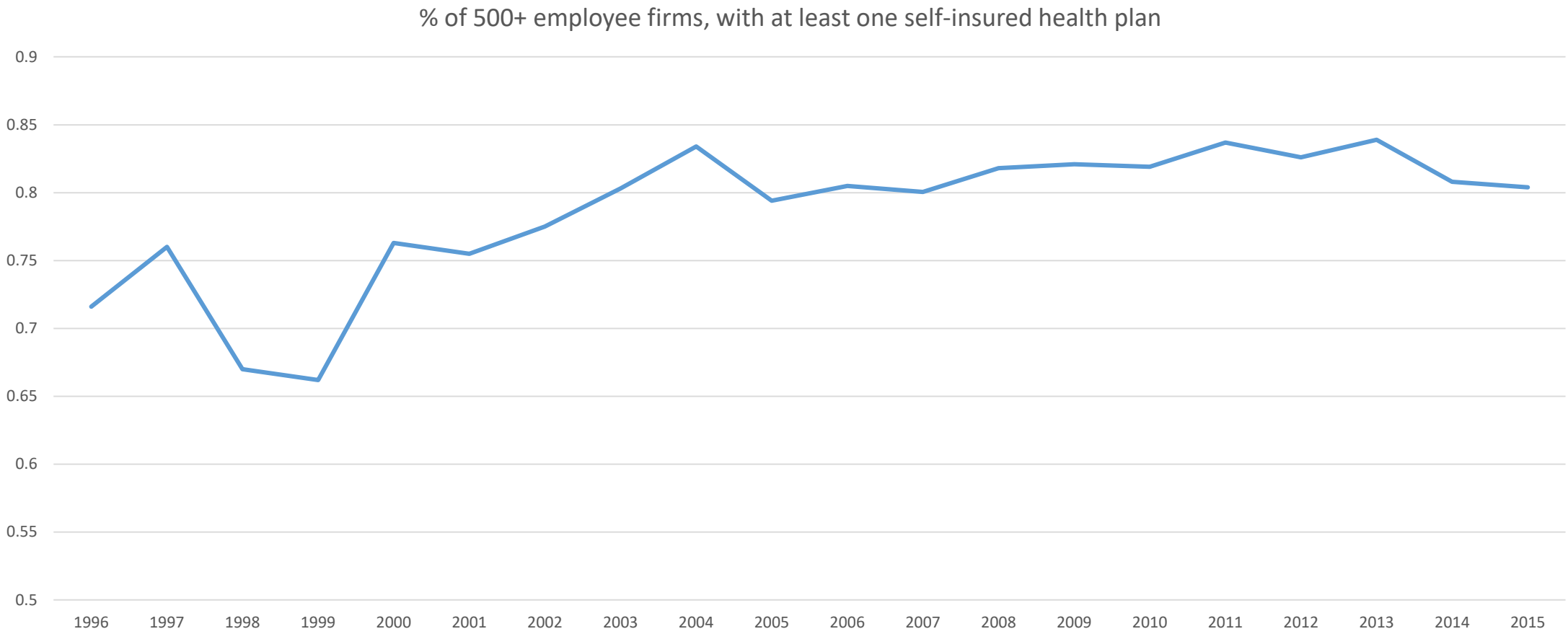
The Theory of Bolton and Scharfstein (1990)

- High asymmetric information associates with greater efforts by investors to govern more tightly, when outcomes are bad. But this invites predation.
  - 3 pieces: AI, governance (active investors), predation (competition)
- Several explorations seem worthwhile.
  - Changing shape of activist investing over time as PTCS shrinks.
  - More clarity on the channel (changing shape of product market spaces over time as PTCS shrinks).
  - AI may be less costly (weaker tradeoff between screw-turning and predation); so disclosure and coverage and other forms of information production may drop.

Hidden Implications

- GM new health care coverage plan (WSJ August 6, 2018)
  - Agreement with Henry Ford Health System [single provider] to cover all health care needs of employees.
    - General term for this type of setup is “Occupational Medicine” (Occ-Med)
- The shrinking publicly traded corporate sector is partly driven by ever-larger firms buying up smaller ones. More large firms may imply more Occ-Med / self-insurance type arrangements.
  - Data shows this happening during the sample window [particularly after dip in 1998-1999 window when there were more 500+ employee tech bubble firms]

(Very) Preliminary Evidence



1996 – 1999 unusual (more tech-bubble firms with 500+ employees). Focus on afterward.

Understanding the channels (more research needed)

- Two big things influence choice of self-insured plans

    1. Population (in plan) size – Law of Large #s… predictability

LL#s comes at cost

    2. Outliers – particularly expensive today with specialty drugs; influences willingness to face huge expenditure risk

Thank you

Questions?