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"Behavioural Thoughts on Equity Valuation."

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Presentation at UKSIP.

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Slide 1. Markets not Shares

- **My comments are going to be restricted to the value of markets, not of individual shares.**
- **In 30 minutes I am going to try and summarise a "Module" that normally takes a day.**
- **And then explain why value is ignored by fund mangers.**

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Slide 2. A Simple Point about Market Value.

- Cheap markets give high returns; expensive ones give low returns.
- A valid measure of market value must therefore be some guide to future returns.
- A measure must be invalid if it claims that subsequent high returns can have come from expensive markets.
- We can use this to demonstrate one of the two most commonly heard pieces of nonsense about value.

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Slide 3. Current PEs are No Guide to Value.

- **(1) They provide no guide to future returns. (See, for example, "Rational Pessimism: Predicting Equity Returns using Tobin's *q* and Price/Earnings ratios" by Matthew Harney and Ed Tower, published in *The Journal of Investing* January 2003.**

- **(2) An Outstanding Example. At the end of 1932, the US market was possibly its cheapest ever, as we know from subsequent returns, but the PE was way above average.**

- **Current PEs can thus be considered as a guide to value only by those who are ignorant of the stock market's history or who are "logically challenged".**

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Slide 4. Nor are Bond Yield Ratios.

- **They have no theoretical justification.**
- **They don't work.**
- **Their prevalence is a major triumph of "data mining".**

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Slide 5. Some Theoretical Objections.

- **Equities are titles to real assets, and give stable long-term real returns.**
- **Bonds are titles to nominal returns, which vary with inflation.**
- **They rely on current PEs, which are no guide to value.**
- **Bonds are just as likely to be mispriced as equities.**

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Slide 6. Practical Objections.

- **From 1981 to 1998 bond yields, dividend yields and earnings yields were positively correlated (Slide 7).**
- **From 1950 to 1968 they were negatively correlated (Slide 8).**
- **Over the long-term they are not related at all (Slides 9 and 10).**

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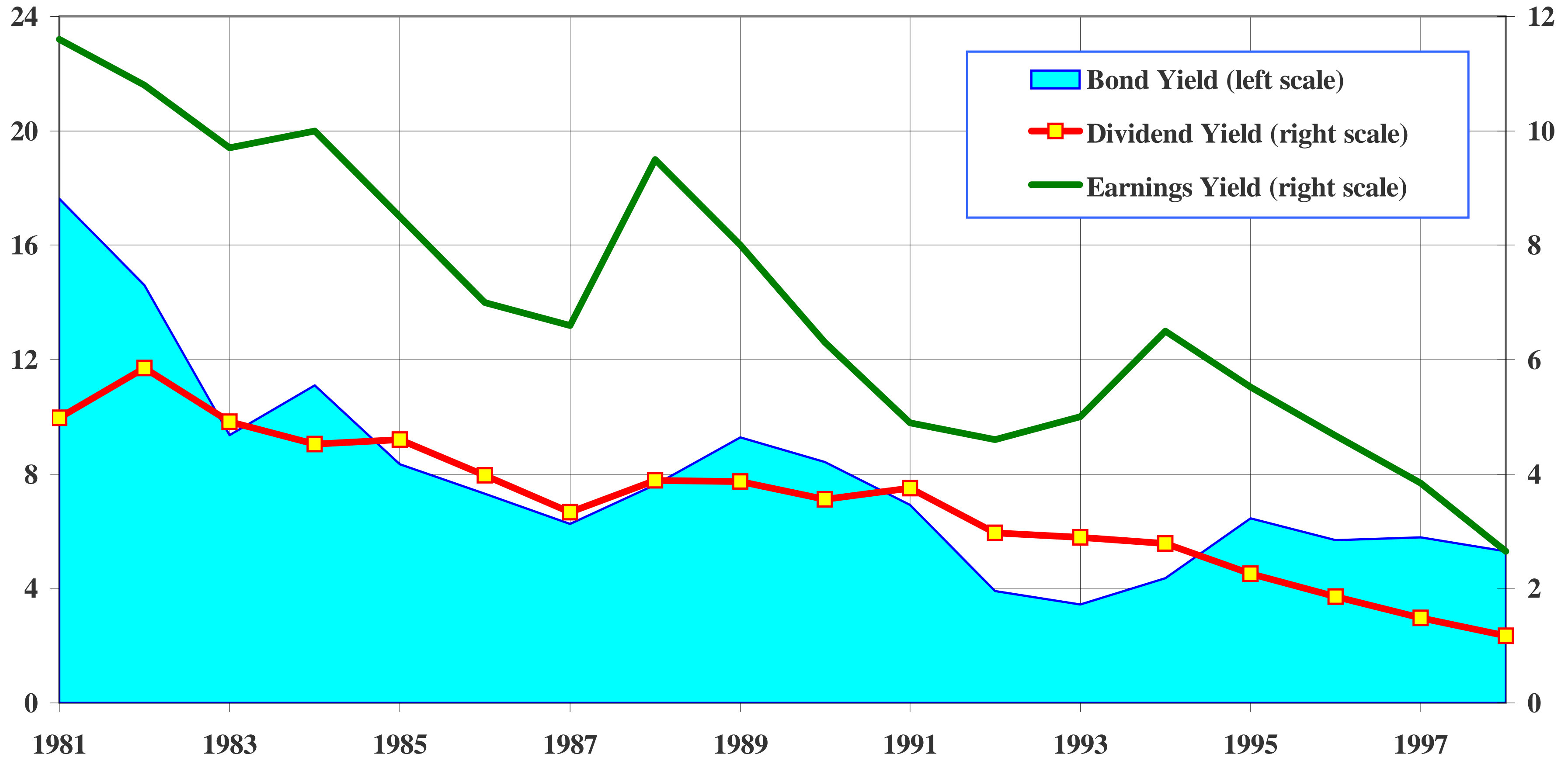
Slide 7. Do Bond and Equity Yields Move in the Same Direction? 1981 to 1998.



Source: Smithers & Co.

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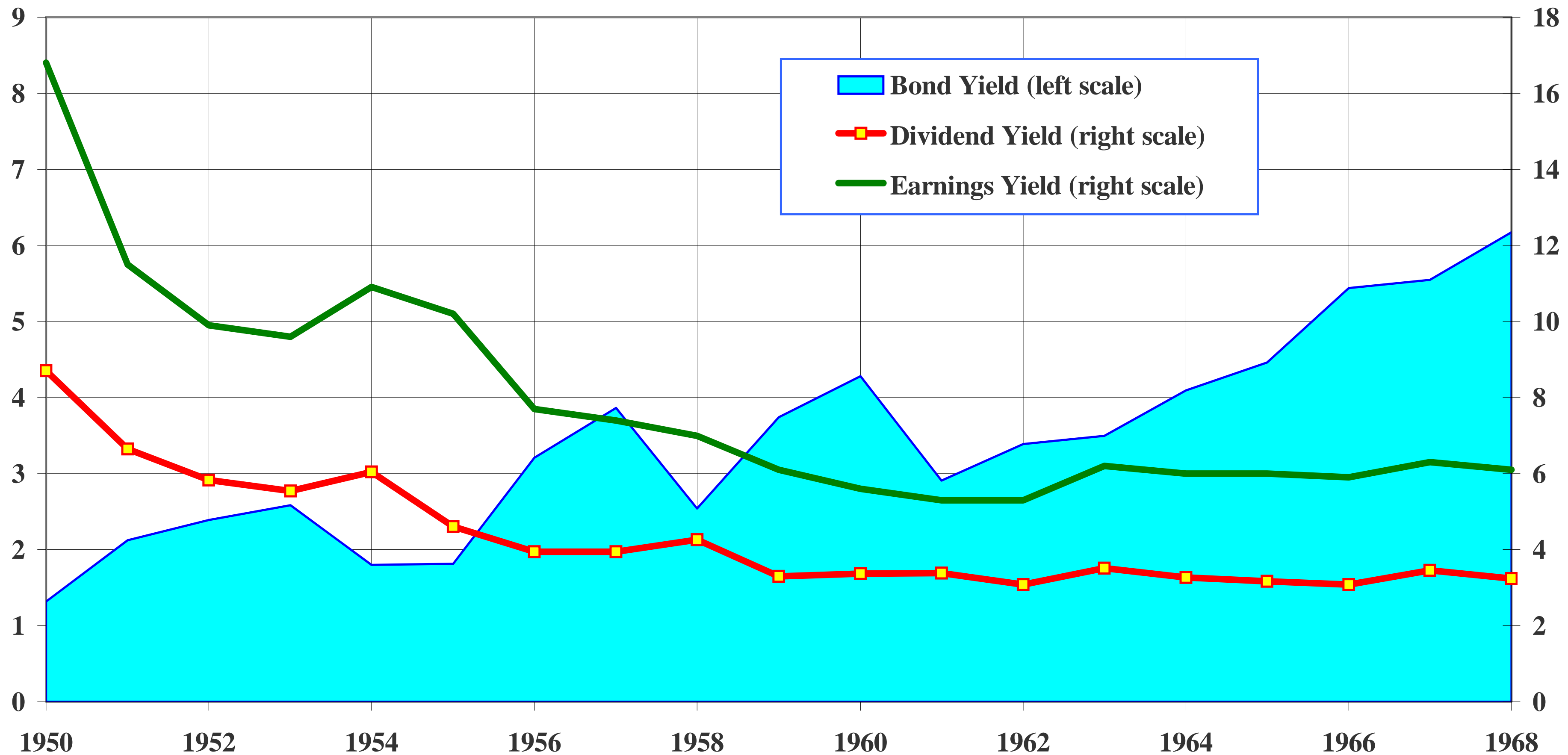

Slide 8. … Or Do Bond and Equity Yields Move in Opposite Directions?
1950 to 1968.
Bond Yield (left scale)
Dividend Yield (right scale)
Earnings Yield (right scale)
0
1
2
3
4
5
6
7
8
9
0
2
4
6
8
10
12
14
16
18
1950
1952
1954
1956
1958
1960
1962
1964
1966
1968
Source: Smithers & Co.
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Slide 9. Data Mining's Greatest Success Story.

1881 - 1997	Correlation Coefficient.
Bond and earnings yield	0.08
Bond and dividend yield	- 0.03

Time Period	Average Inflation Rate	Average Dividend Yield	Average Earnings Yield	Average Bond Yield
1881 – 1997	2.1	4.8	8.1	4.9
1928 – 1948	3.1	5.2	7.6	1.6
1948 – 1968	1.7	4.6	8.6	3.2
1968 – 1997	4.7	3.9	8.2	7.9

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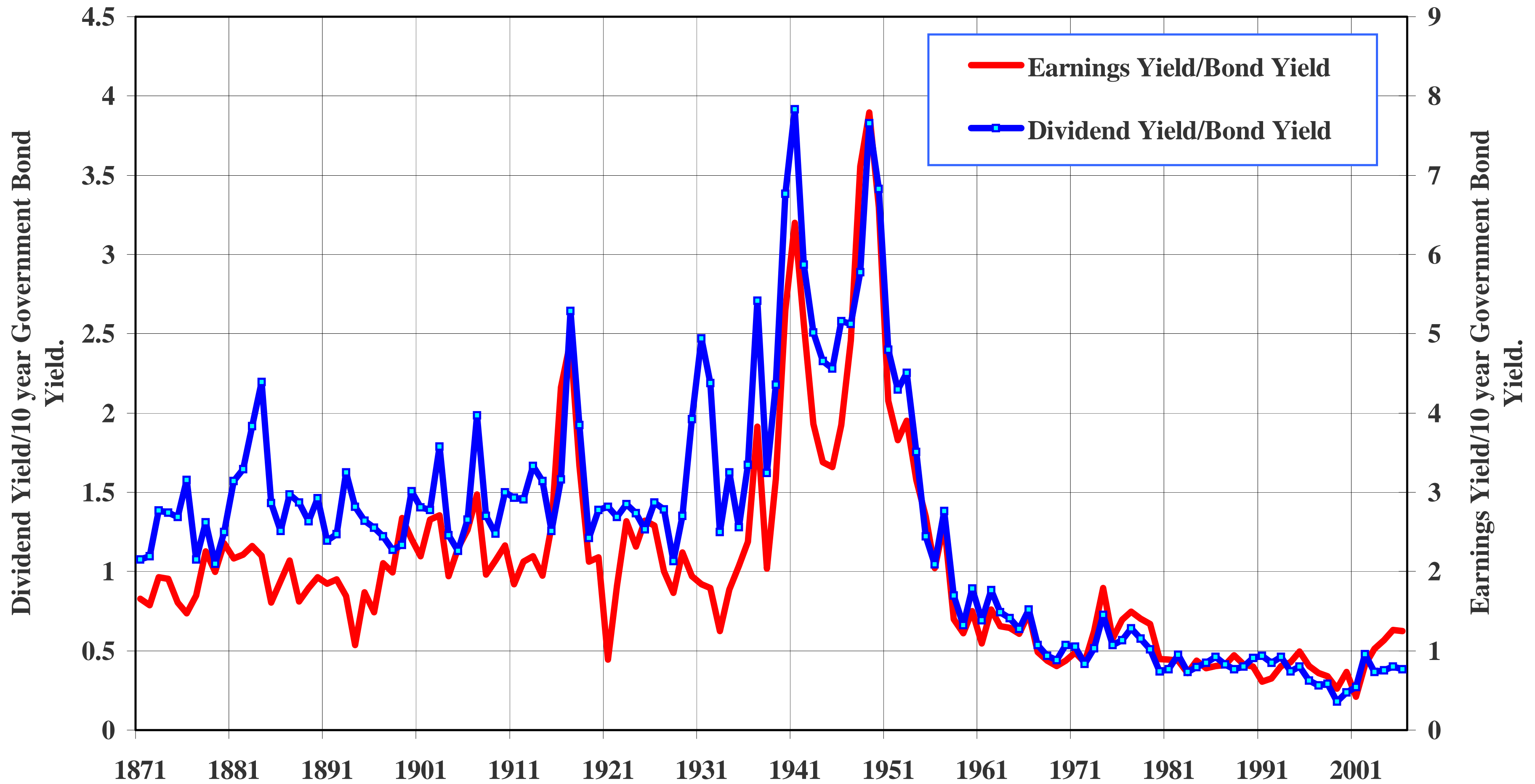

Slide 10. US Bond Ratios. 1971 to 2006.
Earnings Yield/Bond Yield
Dividend Yield/Bond Yield
Dividend Yield/10 year Government Bond Yield.
Earnings Yield/10 year Government Bond Yield.
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
9
8
7
6
5
4
3
2
1
0
1871
1881
1891
1901
1911
1921
1931
1941
1951
1961
1971
1981
1991
2001
Sources: Professor Shiller's website and Ecowin.
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Slide 11. Tests for a Valid Criterion of Value.

(1) "The fundamental" must be measurable, relatively stable and its ratio to price must mean revert.

(2) An indicator of value must make economic sense.

(3) An indicator of value must tell you something (but not too much) about future stock returns.

(4) It must be consistent with history – cheap markets must have given subsequent high returns.

(5) If there are more than one valid indicator of value, they must be mutually supportive.

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Slide 12. Valid Criteria.

(1) Cyclically adjusted PEs.

(2) *q*.

- **Both of these, and only these, fulfill our five tests.**
- **Slide 13 shows that they are mutually consistent and mean reverting.**
- **Both are weak predictors of future returns (see Harney & Tower).**
- **They make economic sense.**
- **They are consistent with history (Slides 14, 15 & 16).**

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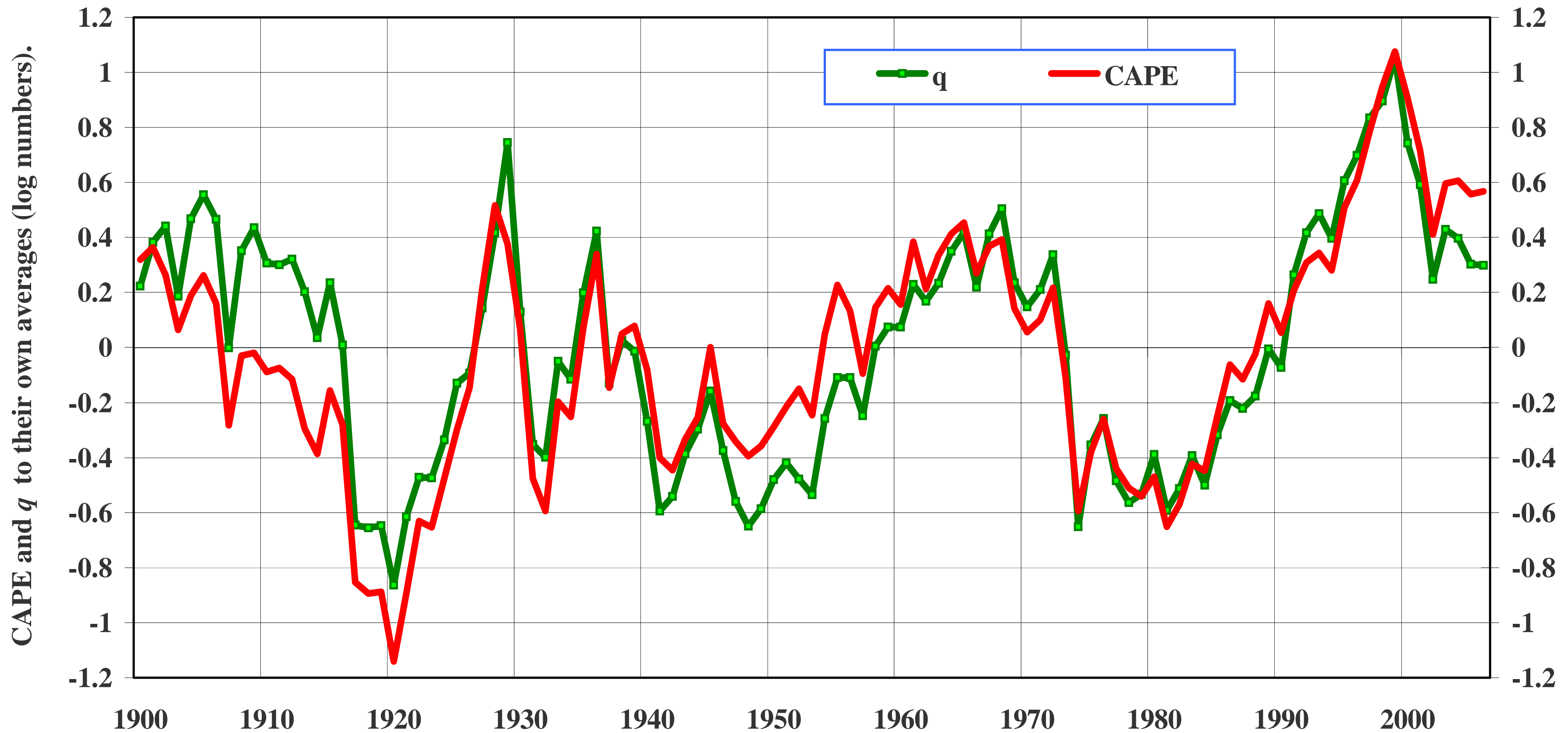
Slide 13. US Cyclically Adjusted PE ("CAPE") and *q* Compared. 1900 to 2006.



Sources: Professor Shiller's website, Stephen Wright & Z1 B.102.

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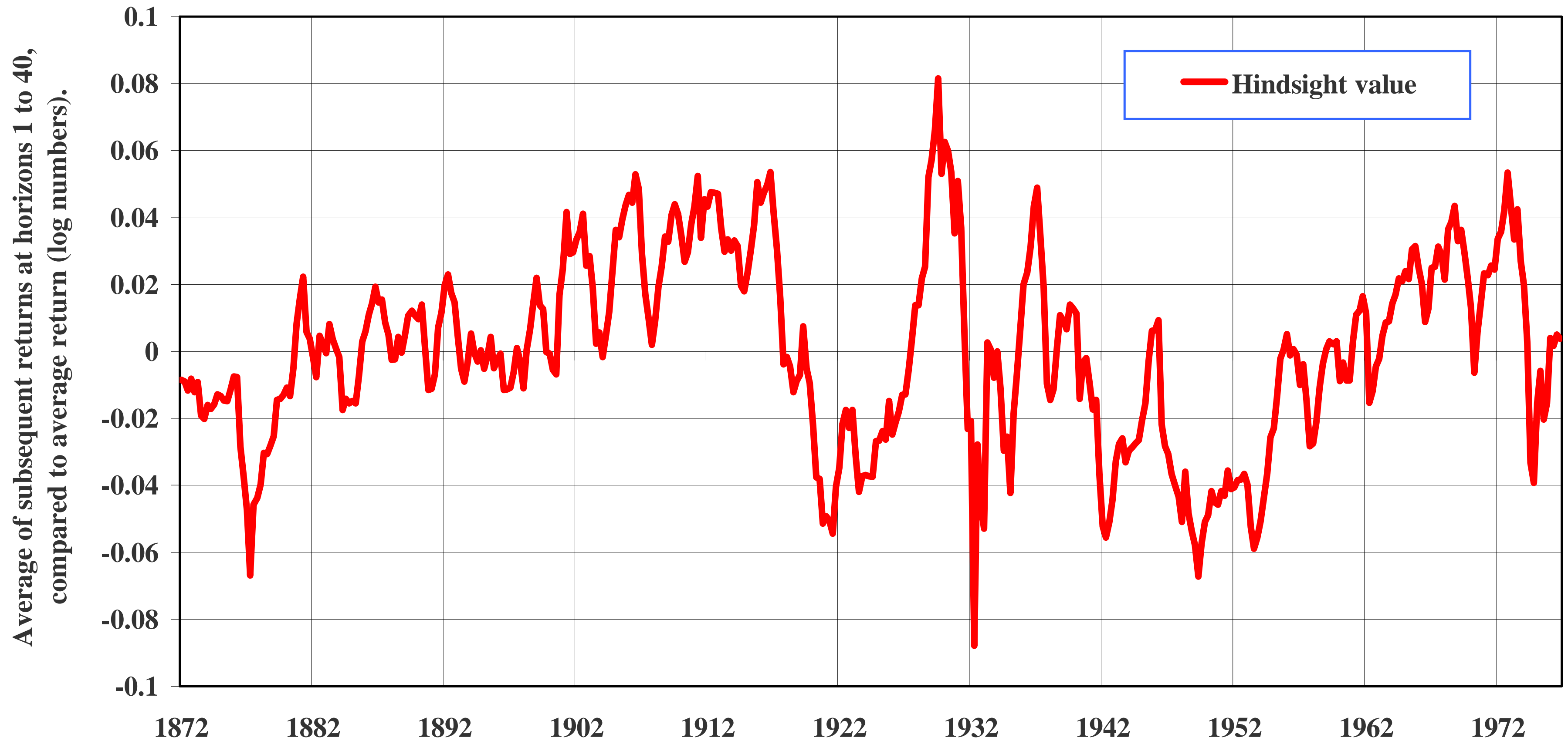
Slide 14. US Stock Market. Hindsight Value 30 to 40 Year Time Horizons. 1872 to 1976.



Source: Professor Shiller's website.

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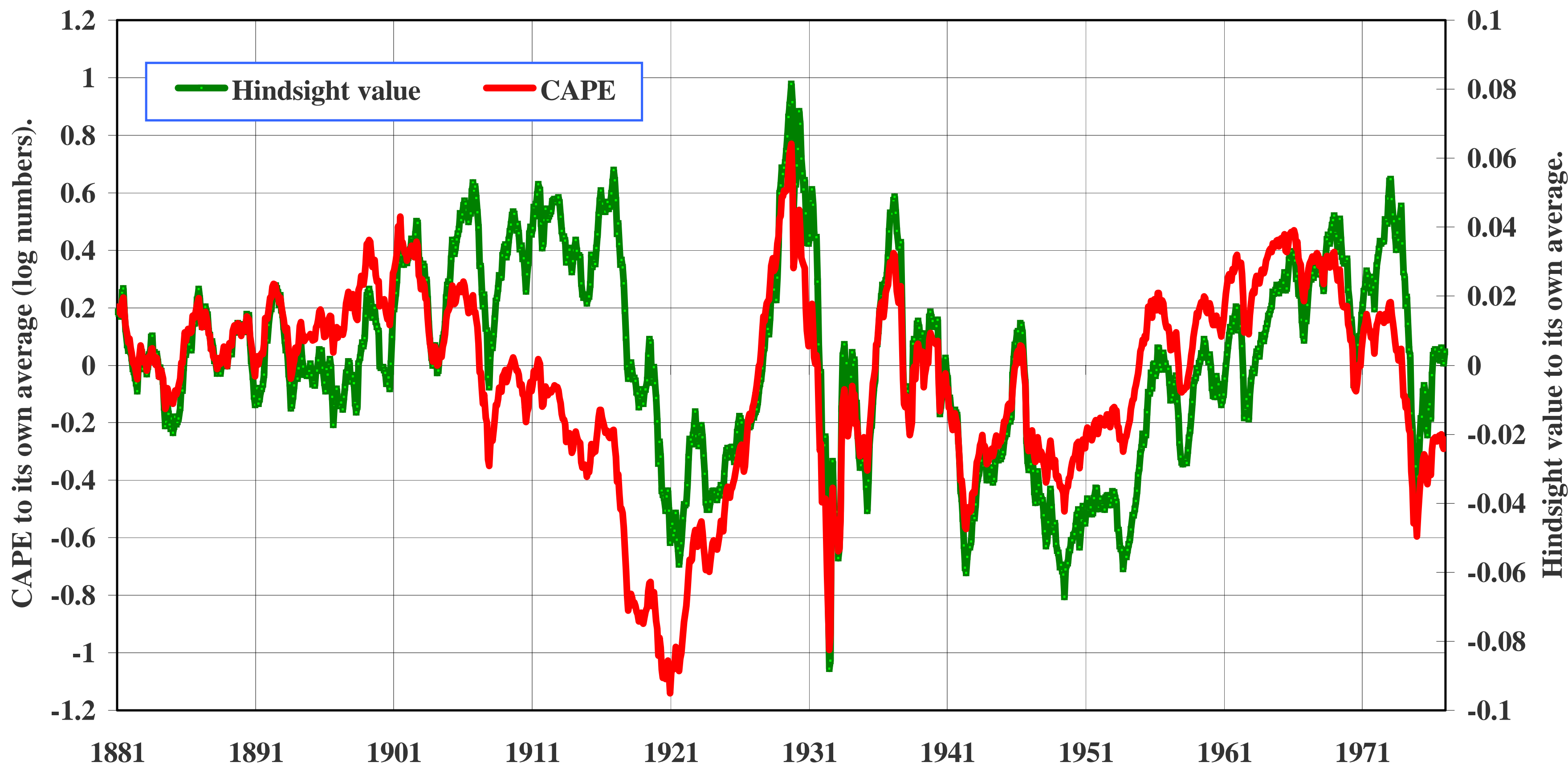
Slide 15. Hindsight Value and CAPE Compared. 1881 to 1976.



Source: Professor Shiller's website.

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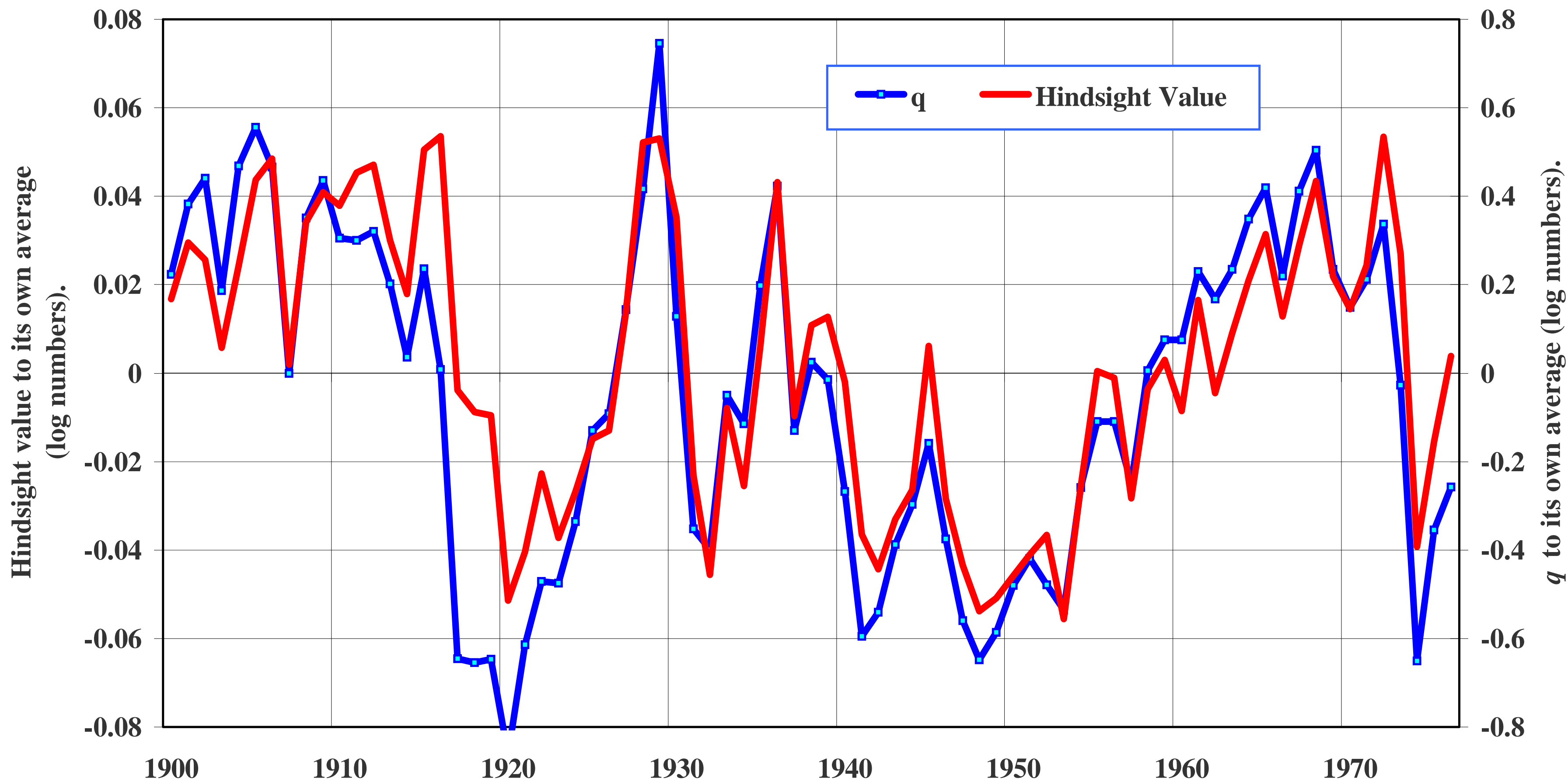
Slide 16. US Equities: q and Hindsight Value.
q
Hindsight Value
Hindsight value to its own average (log numbers).
q to its own average (log numbers).
0.08
0.06
0.04
0.02
0
-0.02
-0.04
-0.06
-0.08
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
1900
1910
1920
1930
1940
1950
1960
1970
Sources: Stephen Wright, Z1 B.102 and Professor Shiller's website.
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Slide 17. Why Do Fund Managers Ignore Value?

- **It pays to do so!!!!!!!!!!!!!!!!!!**
- **Value is a poor guide to short-term market movements.**
- **If it were not, markets would not deviate from fair value.**
- **At the peak of the US stock market in March 2000, the chances of the stock market falling over the next 1 year was around 70%, but over 90% over 4 years.**
- **A fund manager who understood this would have gone liquid for his own account but kept clients invested.**

A 30% chance of ruining your business or career is too high.

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Slide 18. Conclusions.

- **Markets can be valued and they are currently massively overpriced.**
- **Be careful – this knowledge can damage your wealth.**

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Additional Slides in Case of need for questions

- **Slide A1. Mean reversion of long-term equity returns.**
- **Slide A2. Negative serial correlation of equity returns.**
- **Slide A3. Ditto, showing returns are not random.**
- **Slide A4. Negative serial correlation applies globally.**
- **Slide A5. PEs are mean reverting.**
- **Slide A6. EPS are volatile and can fall over sustained periods.**
- **Slide A7. Profit margins are strongly mean reverting.**
- **Slide A8. *q* is mean reverting.**
- **Slide A9. A note on the equity risk premium.**
- **Slide A10. The equity return is more stable than the equity risk premium.**
- **Slides A11 to A15. Intangibles.**

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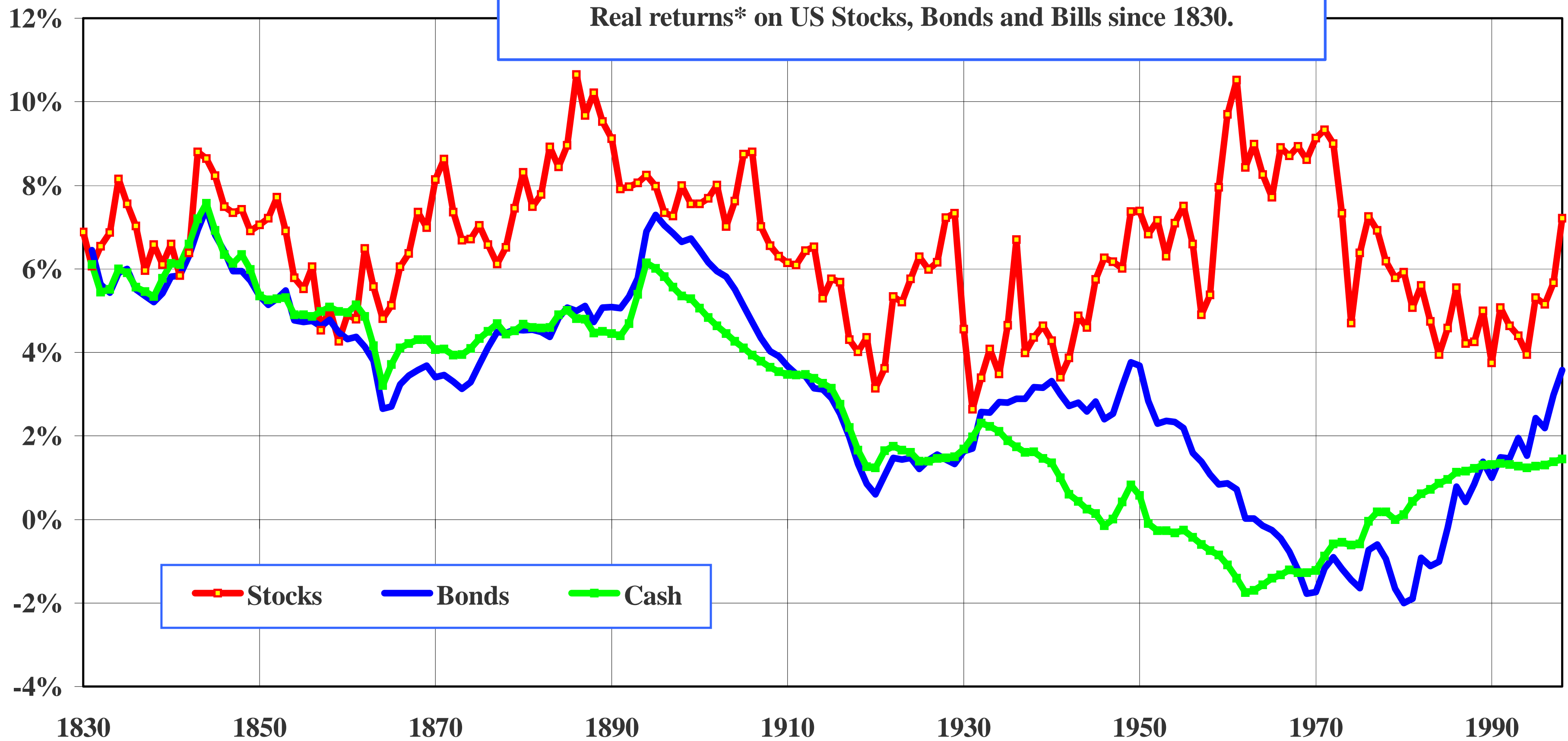
Slide A1. Mean Reversion of Long-Term Equity Returns.



* Rolling 30 year compound average returns.
Source: Calculations using data from Jeremy Siegel "Stocks for the Long Run"

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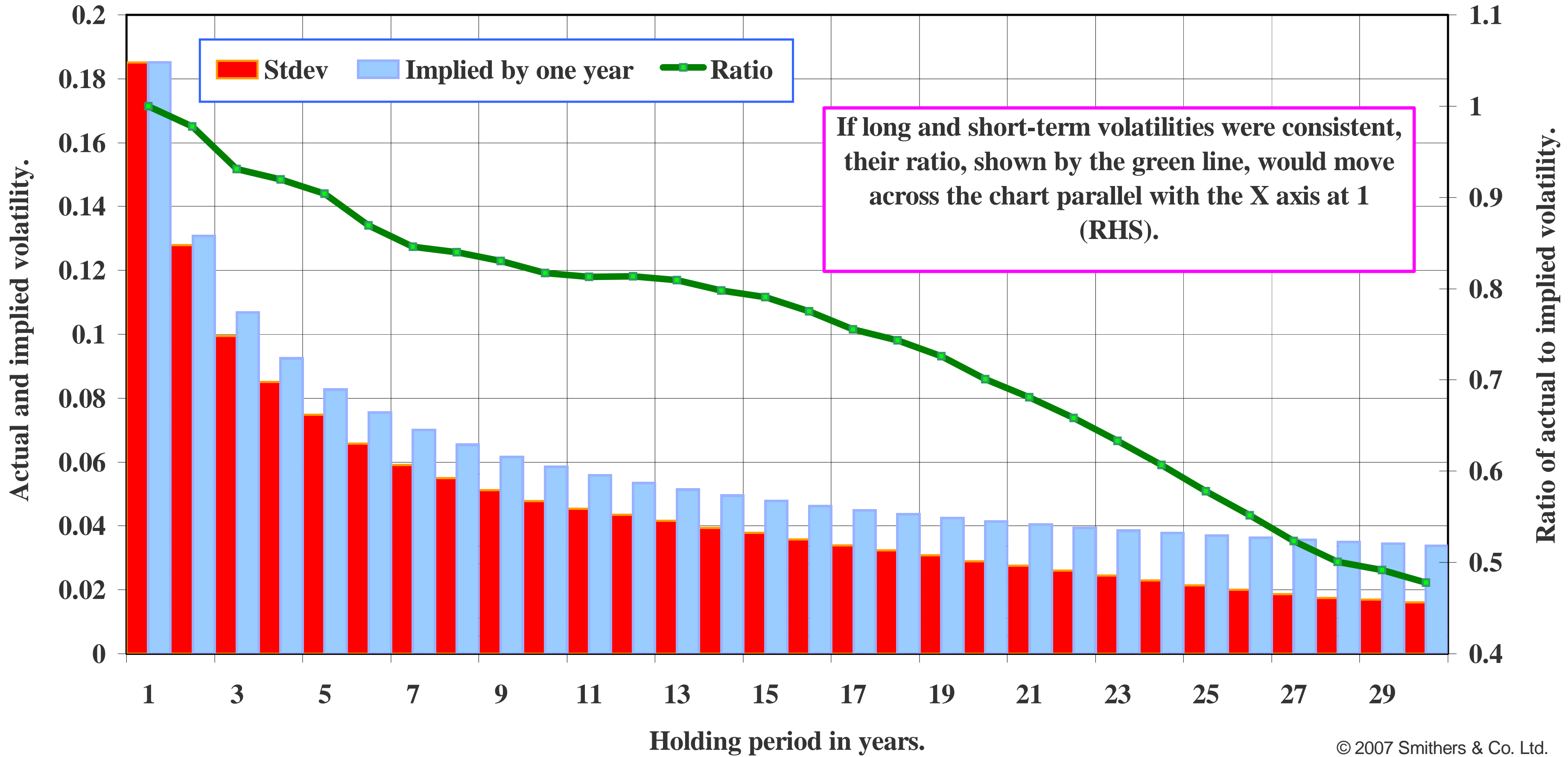
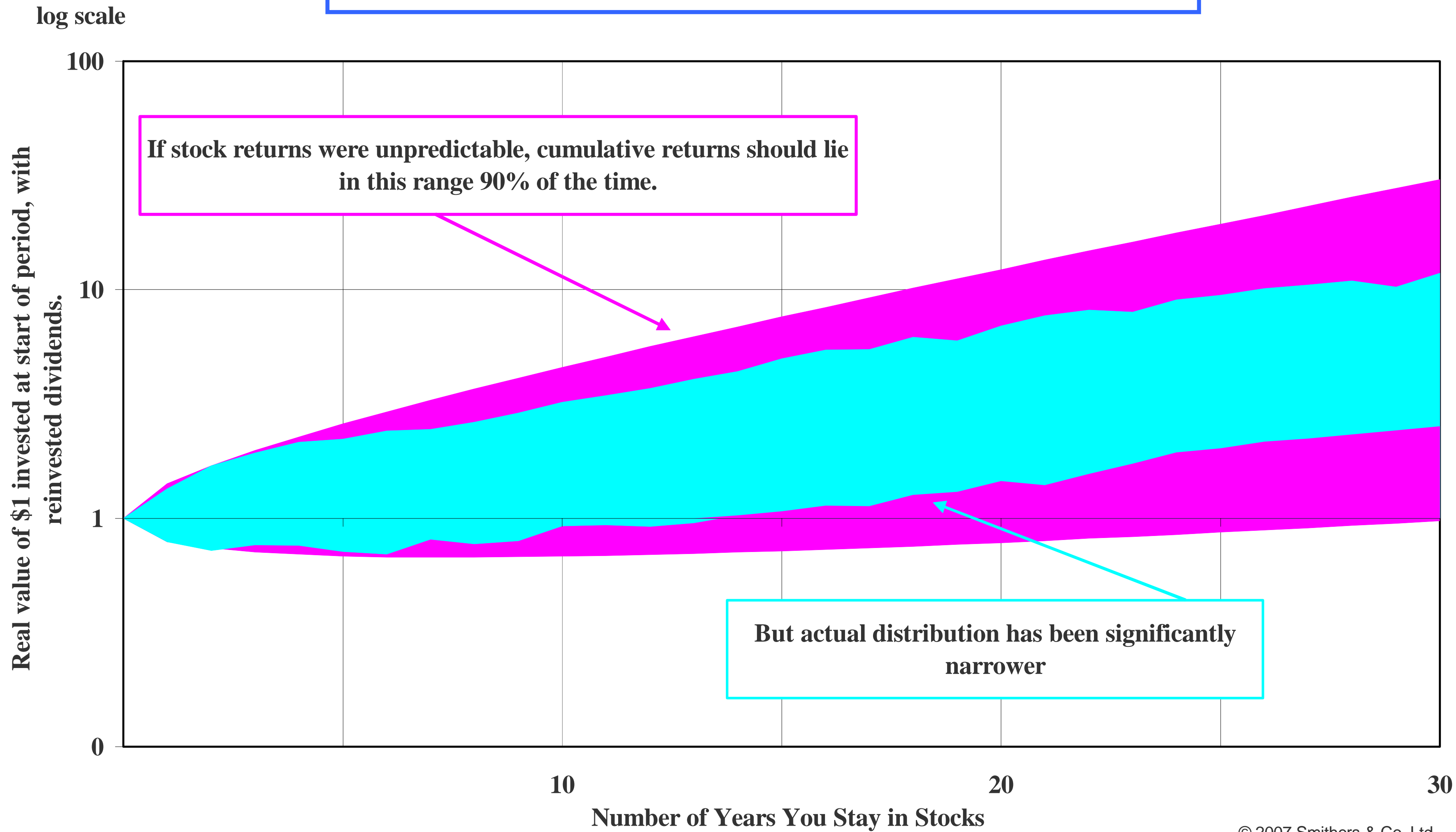
Slide A2. US Negative Serial Correlation of Real Equity Return. 1871 to 2006.

Source: Professor Shiller's website updated.




Slide A3. US Stock Market Returns are Not Random.
log scale
100
10
1
0
Real value of $1 invested at start of period, with reinvested dividends.
If stock returns were unpredictable, cumulative returns should lie in this range 90% of the time.
But actual distribution has been significantly narrower
10
20
30
Number of Years You Stay in Stocks
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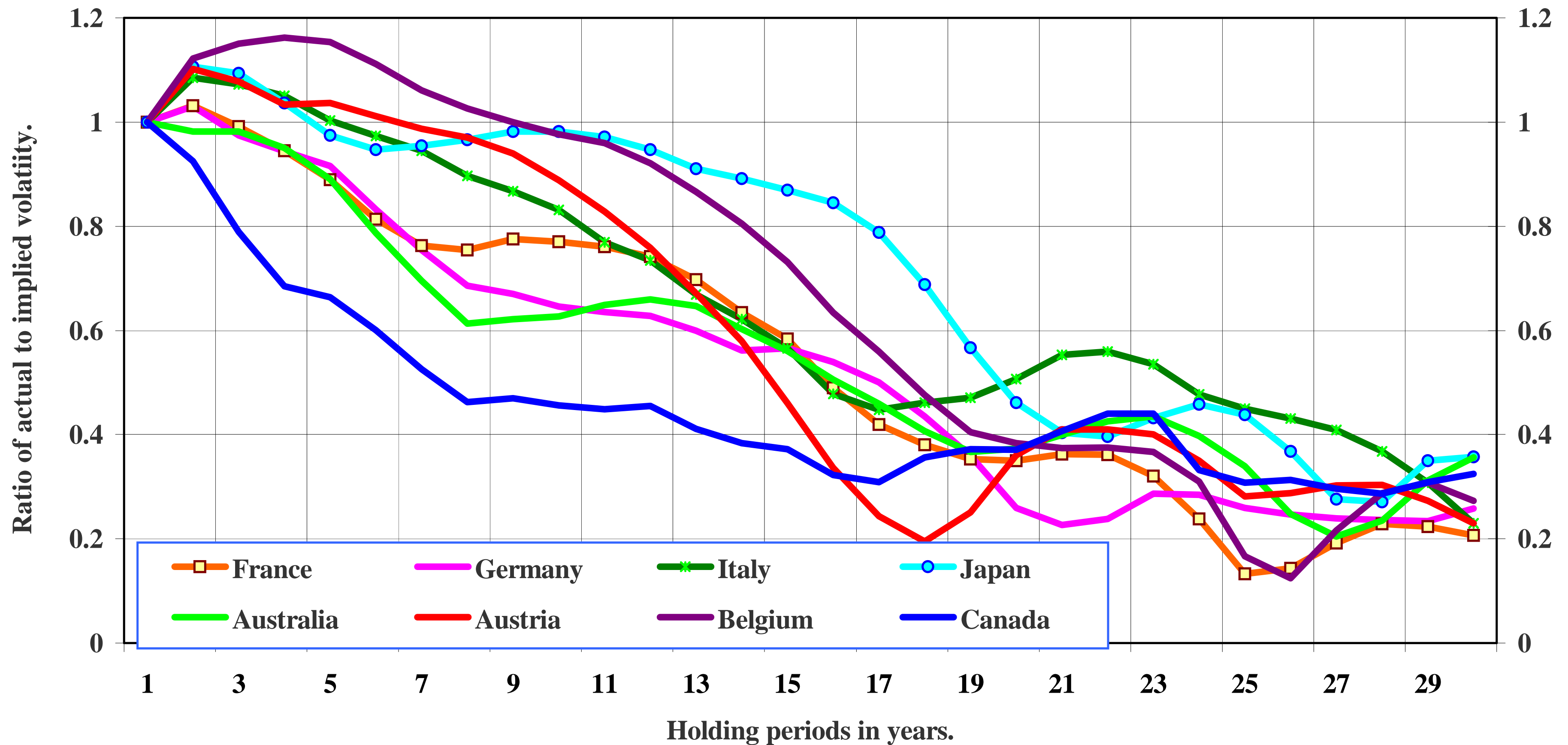
Slide A4. Negative Serial Correlation of International Real Returns (measured in US $). 1969 to 2005.



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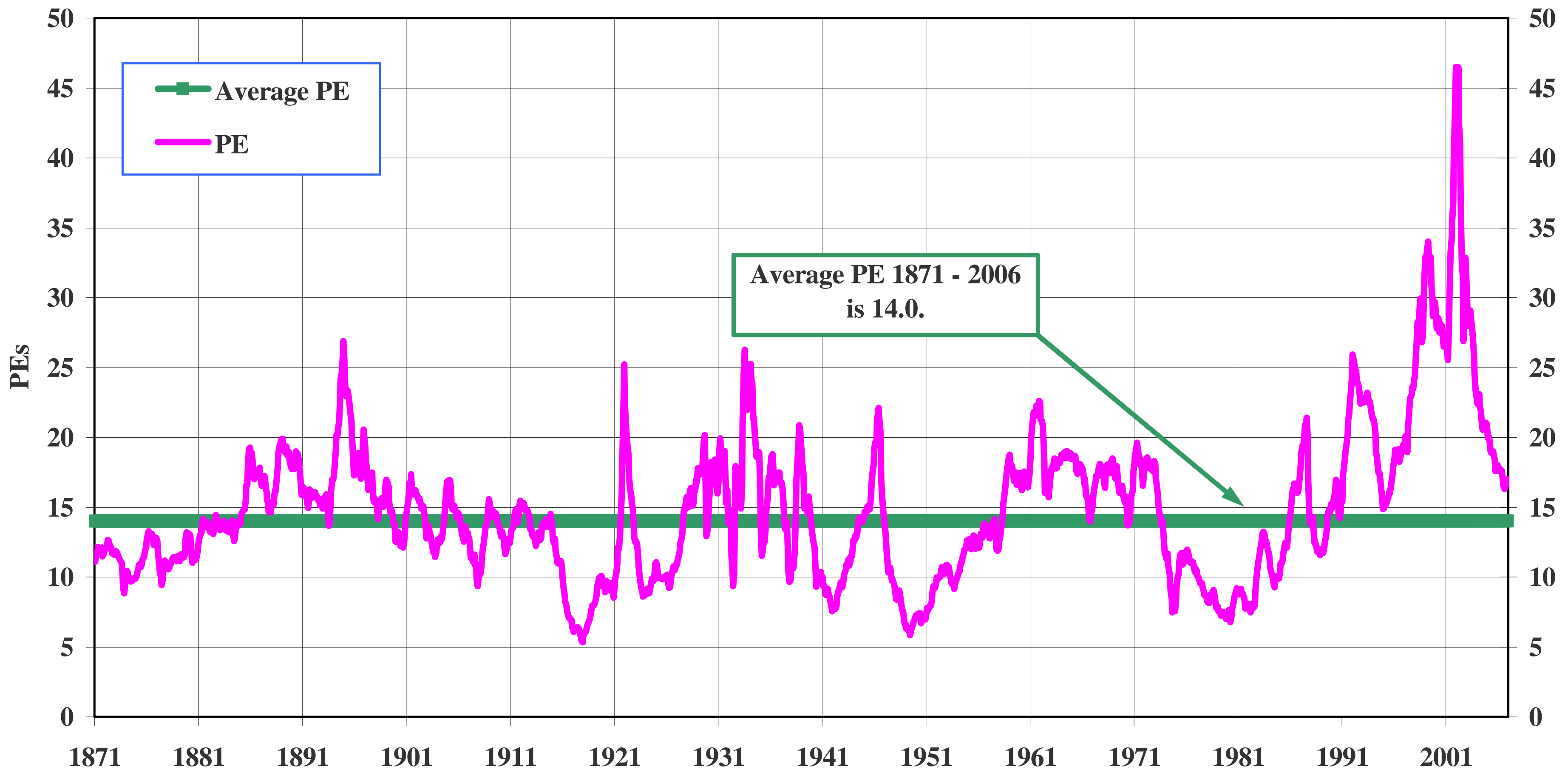

Slide A5. US PE Multiples are Mean Reverting.
Average PE
PE
Average PE 1871 - 2006
is 14.0.
PEs
0
5
10
15
20
25
30
35
40
45
50
1871
1881
1891
1901
1911
1921
1931
1941
1951
1961
1971
1981
1991
2001
Source: Professor Shiller's website updated.
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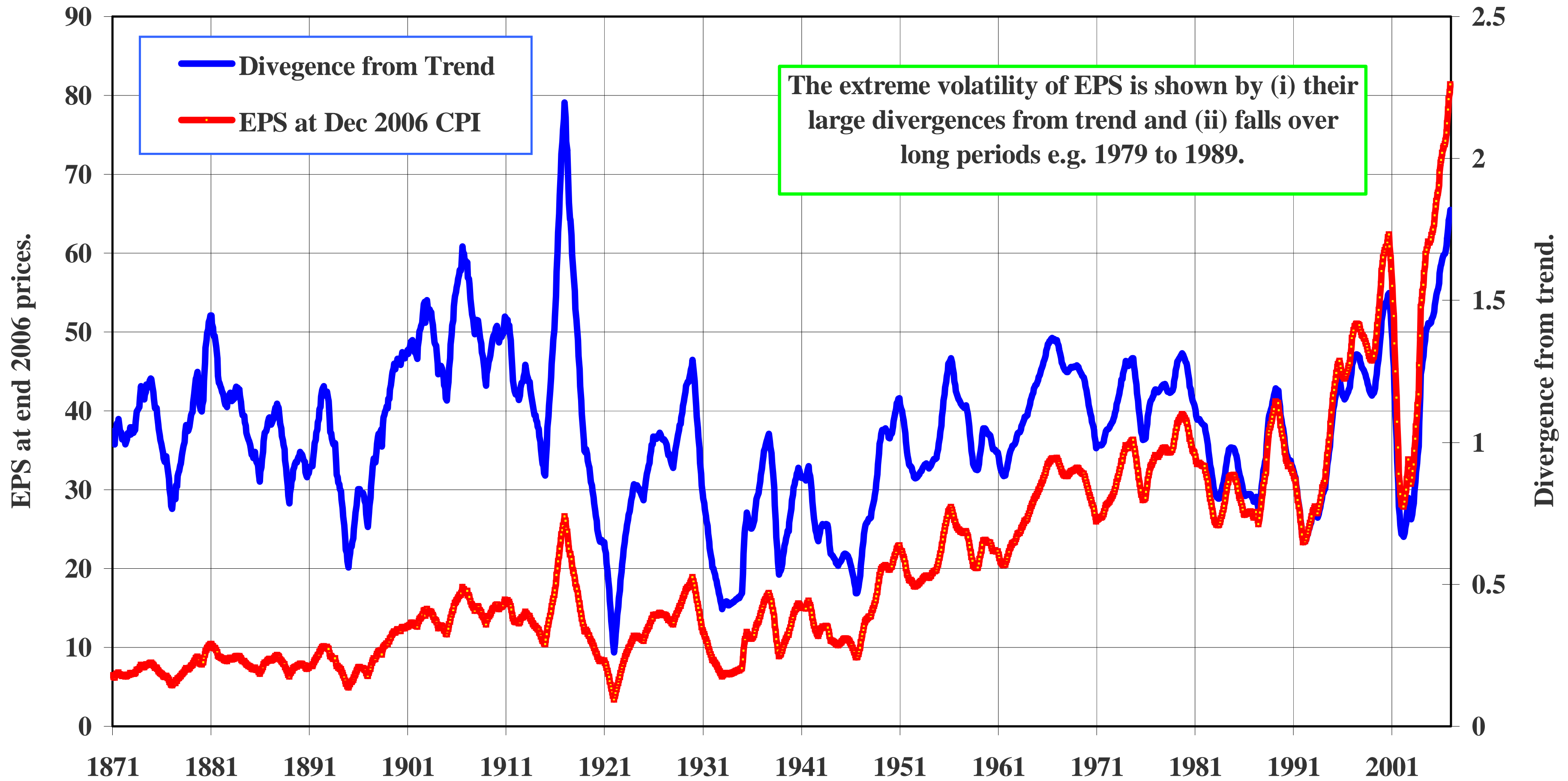
Slide A6. US Real EPS and Divergence from Trend.
Divegence from Trend
EPS at Dec 2006 CPI
The extreme volatility of EPS is shown by (i) their large divergences from trend and (ii) falls over long periods e.g. 1979 to 1989.
EPS at end 2006 prices.
Divergence from trend.
90
80
70
60
50
40
30
20
10
0
2.5
2
1.5
1
0.5
0
1871
1881
1891
1901
1911
1921
1931
1941
1951
1961
1971
1981
1991
2001
Source: Professor Shiller's website updated.
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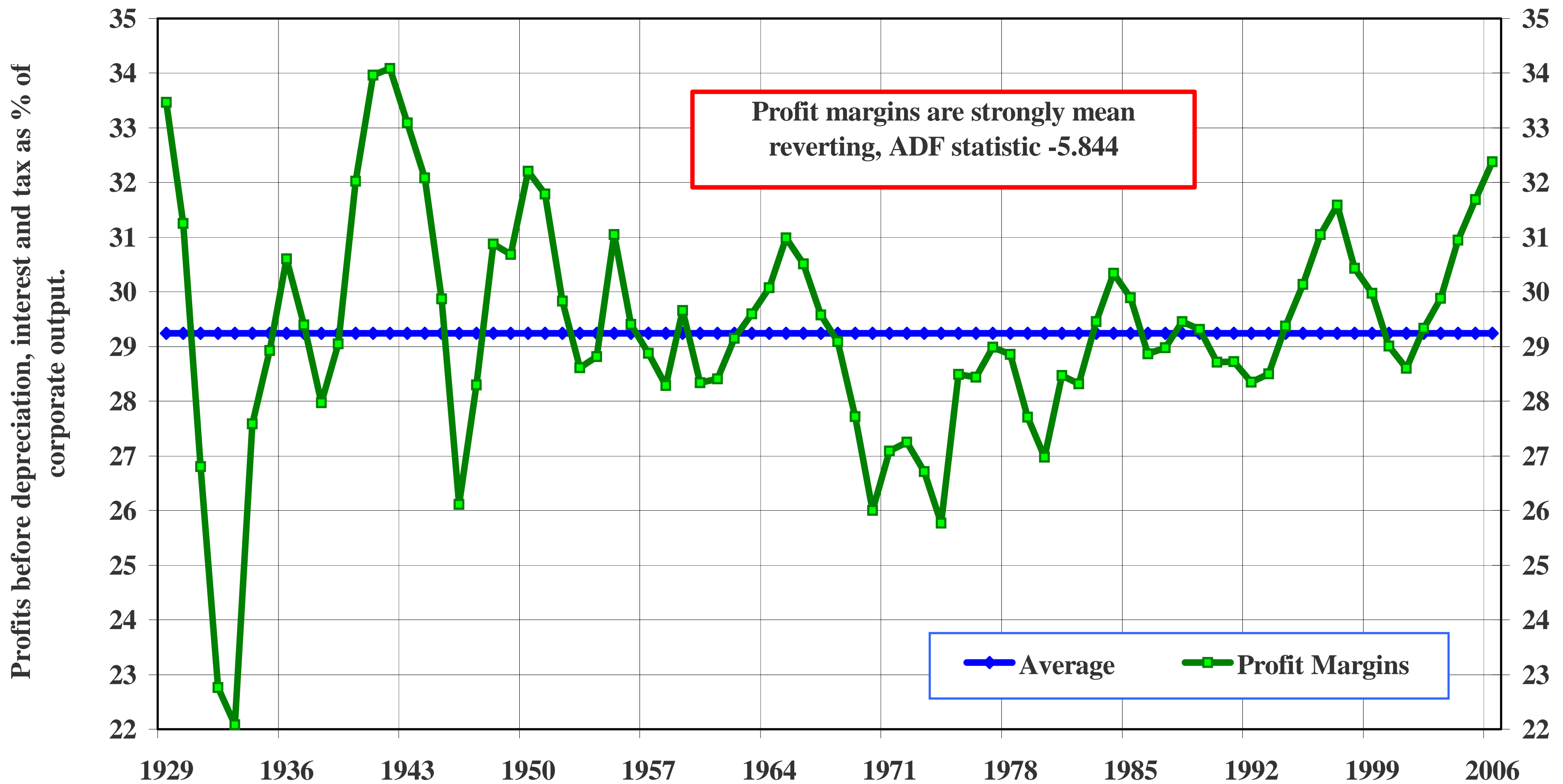
Slide A7. US Profit Margins.



Soource: NIPA Table 1.14 annual data 1929 -2005 and 9 months 2006.

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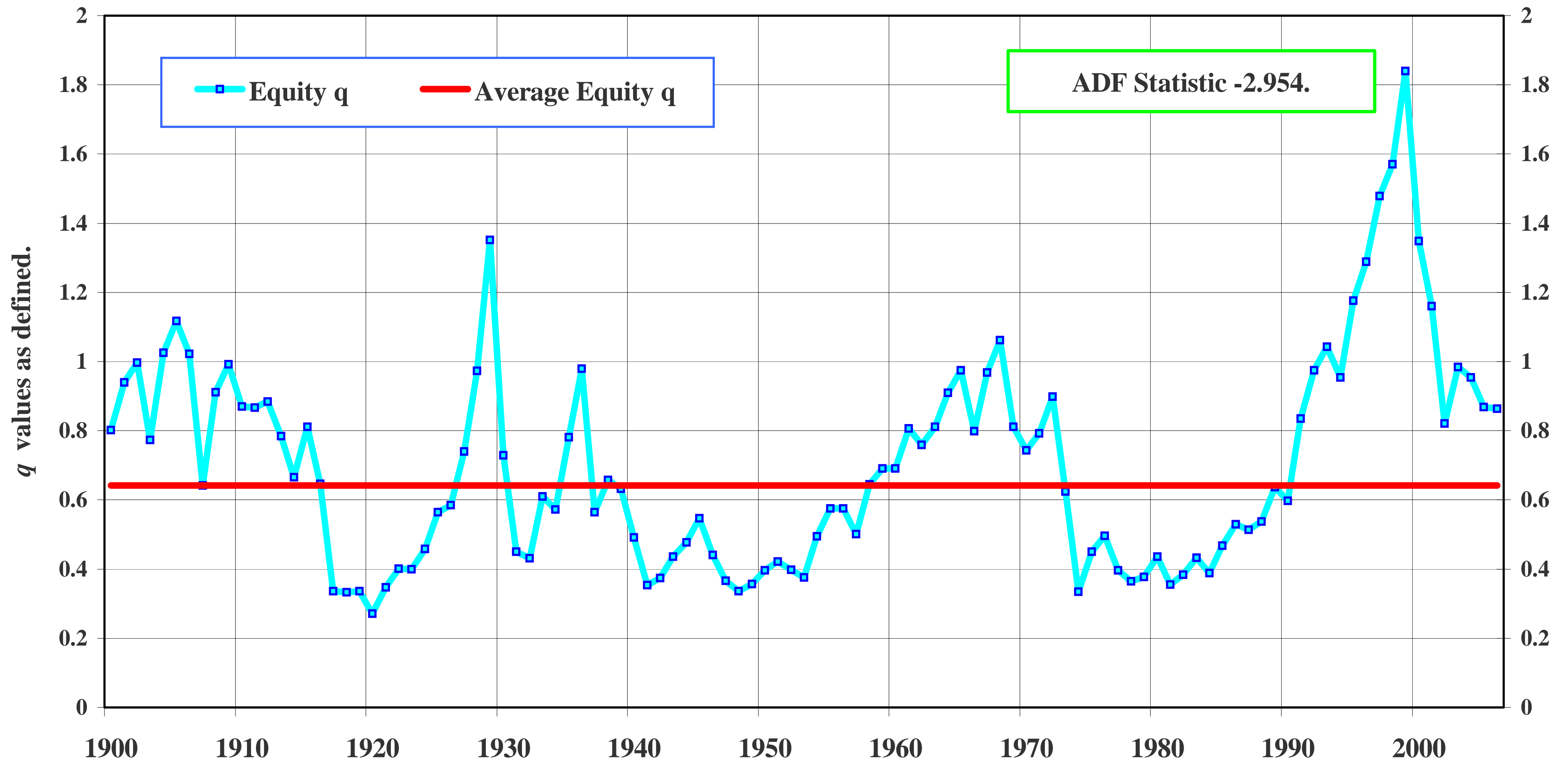

Slide A8. q is Mean Reverting.
Equity q
Average Equity q
ADF Statistic -2.954.
q values as defined.
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
2000
Sources: Stephen Wright and Z1 B. 102.
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Slide A9. A Note on the Equity Risk Premium.

- **The return on equities is more stable than the equity risk premium ("ERP") (Slide A10).**
- **It thus makes no sense to try to assess market value by reference to an assumed ERP, in preference to expected real returns on equity.**
- **95%, or perhaps more, of references to equity value which refer to the ERP are nonsense.**

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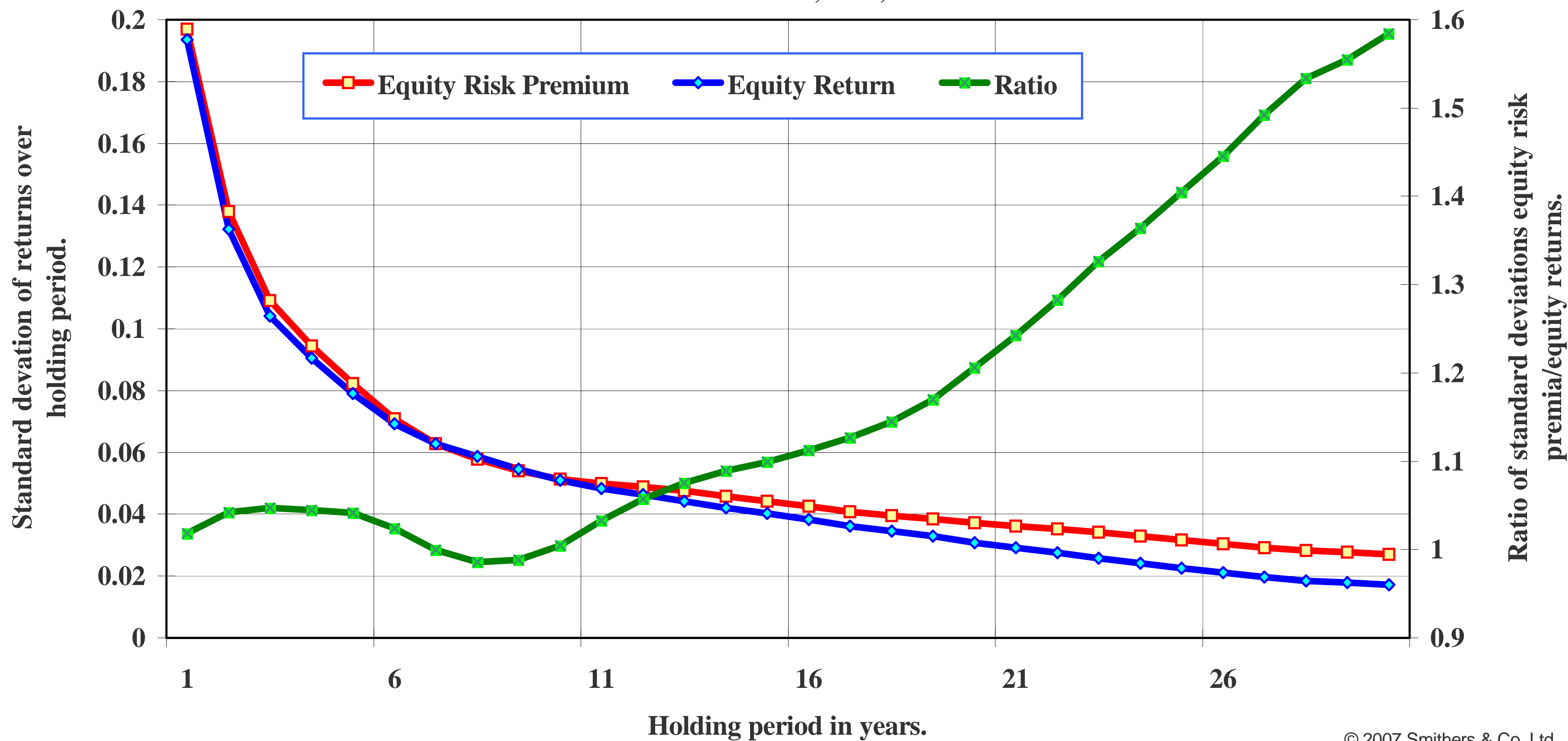
Slide A10. The Volatility of Equity Returns and the Equity Risk Premiun over Cash.



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