

Learning from Recent Errors

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The analysis and conclusions in this presentation are my own and should not be interpreted as those of the Congressional Budget Office

Which Errors?

- Residuals in forecasting equation
 - Estimated 1952-2006
 - Residuals for 2004, 2005
- Residuals show:
 - What the equation still cannot explain
 - After it has full information on 2004-05

Forecasting Equation

Dependent Variable: Growth rate of gains

- Explanatory variables:
 - Growth of S&P 500, Dollar volume of trades
 - Growth of housing starts
 - Growth of business cycle indicators
 - Change in US tax rate on gains,
 - Change in dummies for 1986, 1987

Equation Errors (as dlog of gains)

| | Actual | Predicted | Error |
|---------|--------|-----------|-------|
| 2004 | 0.434 | 0.188 | 0.246 |
| 2005 | 0.324 | 0.109 | 0.215 |
| 1952-06 | | | 0.120 |

What gains did equation miss?

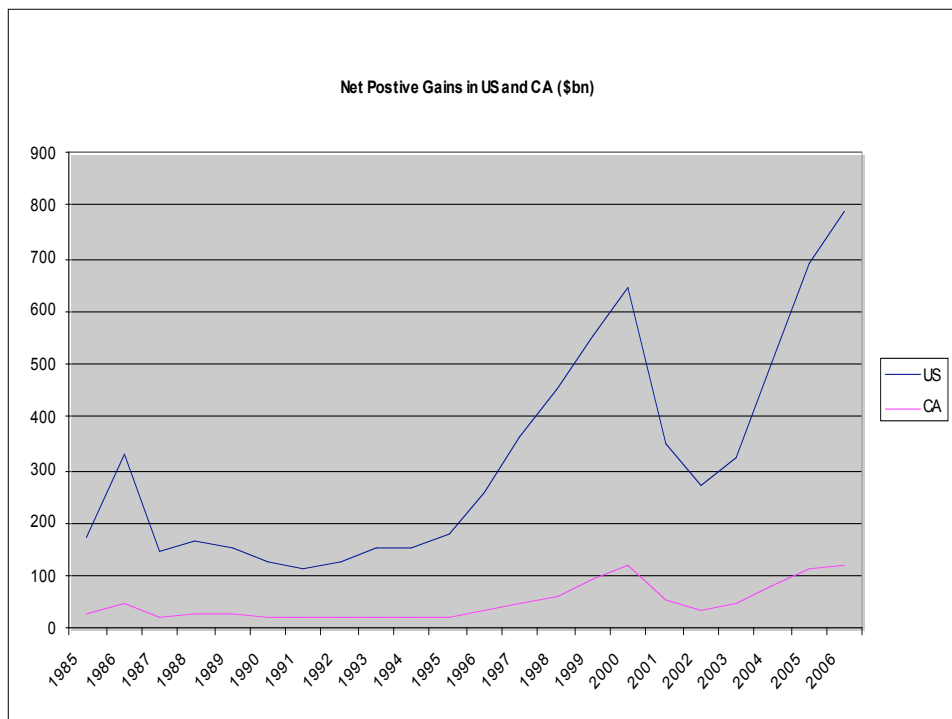
- Real estate?
- Private equity and hedge funds?
- 2003 tax cut?
- Any suggestions?

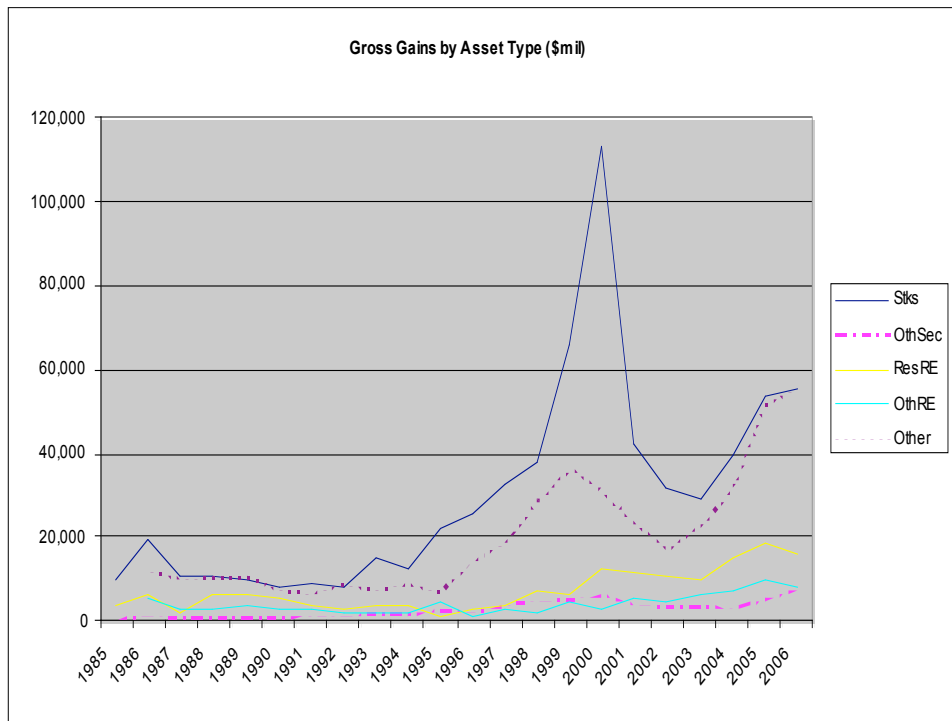
California Data May Help

- Gross gains by asset type
 - Stocks
 - Other securities
 - Residential Real Estate
 - Other Real Estate
 - Other Assets
- Annually, 1985 or 1986 to 2006

Ask 3 questions

- Were Gains in CA like gains in US?
- Which assets pushed up gains?
- Which assets stumped CBO equation?





Which Assets Stumped CBO Equation?

- Estimate CBO-type equation for each asset
- Predict dollar gain and error in 2004-05
 - By asset
- Add errors in 2004-05 by asset
- Compute share of total \$ error by asset

Simplified CBO Equation

- Dep. Var.: Growth rate of gains
- Explanatory Vars:
 - Growth of S&P 500
 - Growth of housing starts (not S.F.)
 - Growth of personal income
 - Change in federal cap gain tax rate
 - Change in dummy var. for 1986

Simpler equation, similar errors

- Errors similar to CBO eq's in 2004-05 when simpler eq. fit to
 - US net positive gains
 - CA net positive gains
 - CA gross gains
- So simpler eq errors by asset type probably tell us about errors in CBO eq.

Contributions to Dollar Error 04-05

- Other Assets 49%
- Stocks 35%
- Other real estate 7%
- Residential real estate 6%
- Other securities 3%

Implication & Ideas for Eq

- Better explanatory vars for Other Assets and Stocks are most important.
- What's in "Other Assets"?
 - Flow-through from sale of what?
- Did easy credit inflate gains on many assets?

Implications for 2008

- Gains grew *about* 11% in 07
- Eqs probably predict -5% to -10% in 08
 - RMSE of forecasts = 20 percentage points
- Unexplained surge raises risks to forecast
 - If cause of surprise surge is reversing, decline could be larger than equation predicts

Background Information

Forecast Errors (% points)

| | Actual | Forecast | Error |
|---------|--------|----------|-------|
| 2004 | 54.4 | 22.9 | 31.5 |
| 2005 | 38.3 | 12.6 | 25.7 |
| 1988-06 | | | 20.1 |

Which explanatory vars work?

- S&P500 (dollar volume)
 - Stocks, Other Securities, Other Assets
- Starts don't work
- Personal Income
 - Residential real estate, but seems big.
- Tax Rate
 - Res. Real Estate, but seems big.

Which eqs have higher S.E.?

- Real estate equations
 - Larger variance in dep. var.
 - Explanatory variables less successful

Eqs w/ higher residu 04-05

- Other assets
- Other real estate

Net positive vs. gross gains

- Net pos gains grew faster in 2004
 - Loss offsets must have been falling
- Equation has bigger error explaining growth of net pos than gross in 04
 - Explaining changes in loss offsets on 04 is part of problem
- In other years, equation has bigger errors explaining gross gains. (2000, 2003)
- Understanding loss offsets should help