P/E and Dividend Yield: An Effective Portfolio Strategy?

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O'Shaughnessy chooses stocks with large market cap, low P/E, and high dividend yield

Large market cap and low P/E

- Generates above average returns with less systemic risk and higher Sharpe ratio than just large market cap

Large market cap and high dividend yield (DY)

- Generates lower returns than P/E, but with a higher Sharpe ratio than P/E

"Using multifactor models dramatically enhances returns. Whether your focus is All Stocks or Large Stocks, you're better off using several factors to choose stocks."

We tested 3 different portfolio strategies

Large market cap and low P/E

- Choose 10 best P/E stocks above a minimum market cap

Large market cap and high dividend yield (DY)

- Choose 10 best dividend yield stocks above a minimum market cap

Combined strategy with random sampling

- Choose 10 stocks from 100 best P/E and DY stocks randomly

Data was obtained from CRSP and COMPUSTAT databases

- Company fundamentals data
  - Obtained from CRSP/COMPUSTAT merged database
  - Companies with missing data elements were removed
- Annual returns data
  - Obtained from CRSP database (converted from monthly data)
  - Include dividend payments and split adjustments
- P/E and DY were calculated using two different methods
- 1970 was chosen as an initial start date because of regulatory and technological changes

Our algorithm combines low P/E with high dividend yield

1. **Subset**
   - Positive P/E ratio
   - Above minimum market cap ($300M, inflation adjusted)
   - Two universes: Dividend yield ϵ (0,8) or (0,4.5)
   - Price ϵ (1,5000)
2. **Rank**
   - Equal-weight best stocks by P/E and DY and choose top 100
3. **Add returns**
   - Assumes DY applies to FY ending 5/30/xx
   - $R = [P_1 / P_0] - 1 + Div$

We randomly choose 10 stocks from the 100 best combined rank stocks

4. Sample portfolio

- No partial shares, but odd lots allowed
- Extra money kept as cash
- 10 stocks chosen (achieve some diversification, minimize fees)
- # of shares = rounddown [(V/10) * (1/P)]
- $7 commission per trade

5. Calculate portfolio returns

- $P/10 * R_i' = R*x_i*P_i$
- $R_p = \sum R_i'$
- $V_1 = (1+R_p) * V_0$

x = number of shares, R_p = portfolio returnsV = Portfolio value, P = price of stock

P/E is the best consistent performer and there is tremendous volatility among sampled portfolios

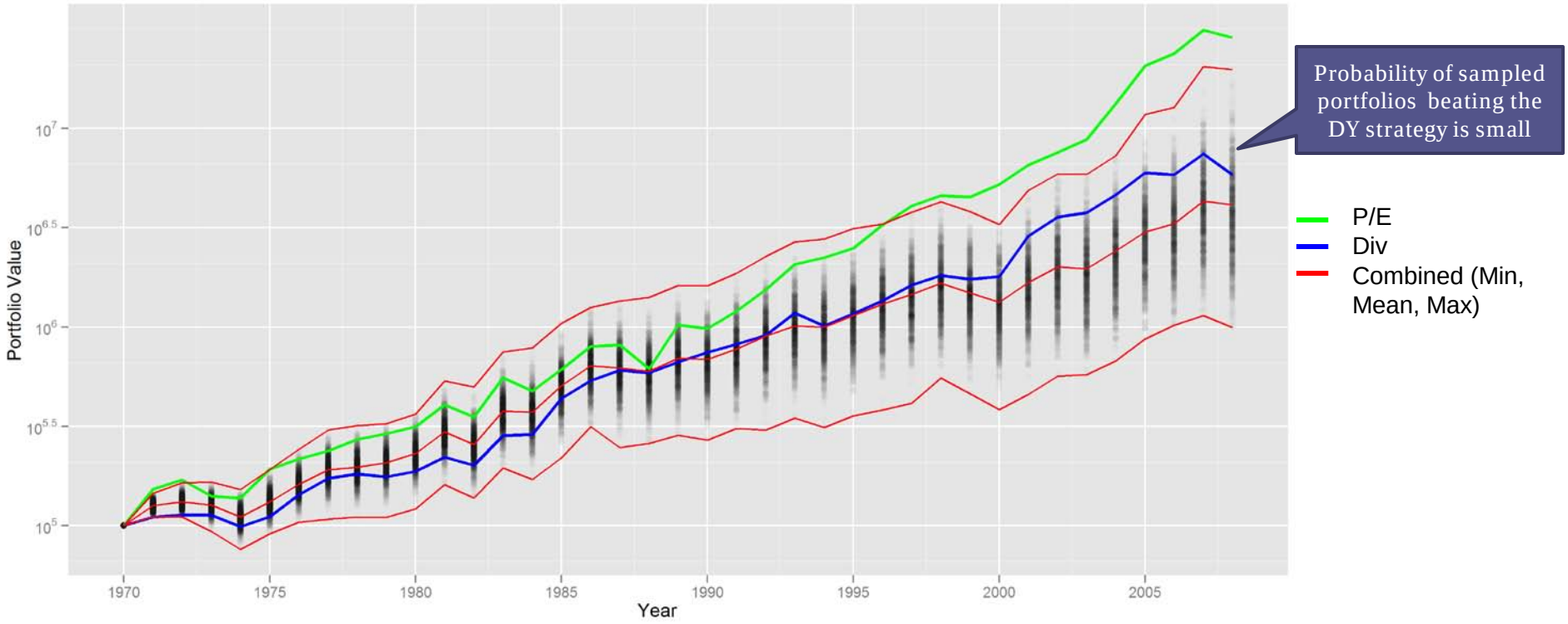

Figure 1. Portfolio value using 8% DY bound, 1970-2008.

Removing the highest dividend yield stocks from the universe most affects the P/E strategy

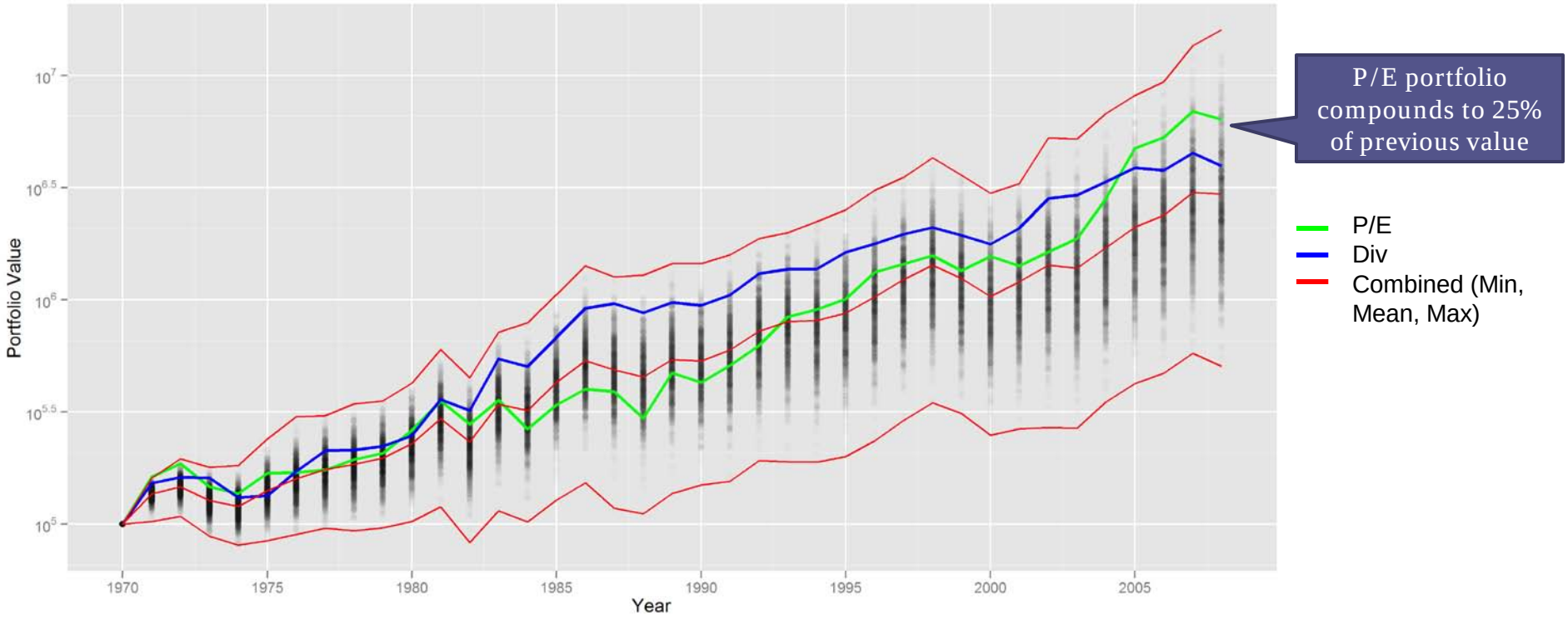

Figure 2. Portfolio value using 4.5% DY bound, 1970-2008.

P/E still outperforms other strategies but with higher (downside) risk

		P/E	DY	Combined Max	Combined Min	Combined Mean	S&P 500
8% DY Bound	Mean	16.32	11.34	37.73	-12.27	10.05	7.98
	Median	15.24	12.20	34.31	-0.09	12.10	11.55
	Standard Deviation	23.56	18.44	25.13	15.05	16.01	17.54
4.5% DY Bound	Mean	12.24	10.65	40.52	-15.68	9.33	-
	Median	11.82	7.16	38.18	-13.07	11.89	-
	Standard Deviation	25.09	19.75	26.19	14.35	16.90	-

Figure 3. Summary statistics for annual portfolio returns (%).

Best combined strategies can generate higher returns than either individual strategy

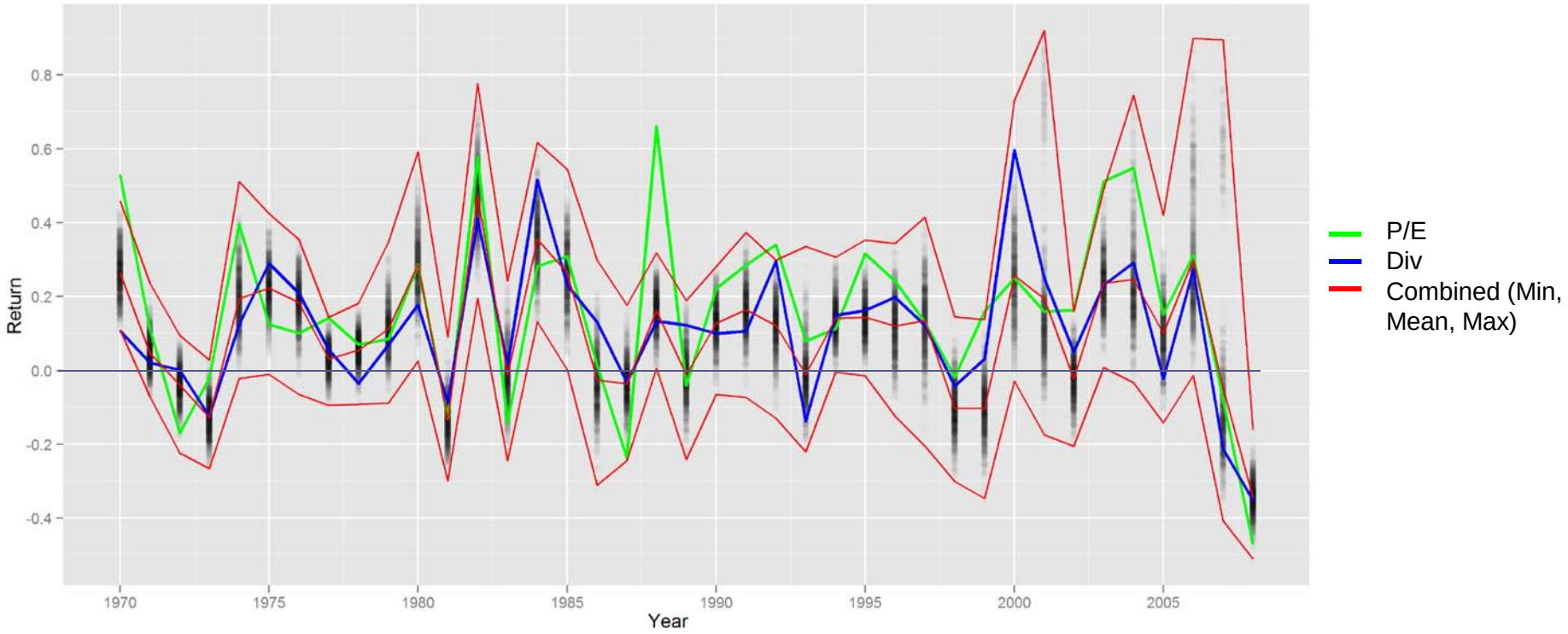

Figure 4. Annual returns on the portfolio using 8% DY bound, 1970-2008

Returns are more volatile in the 4.5% dividend yield universe

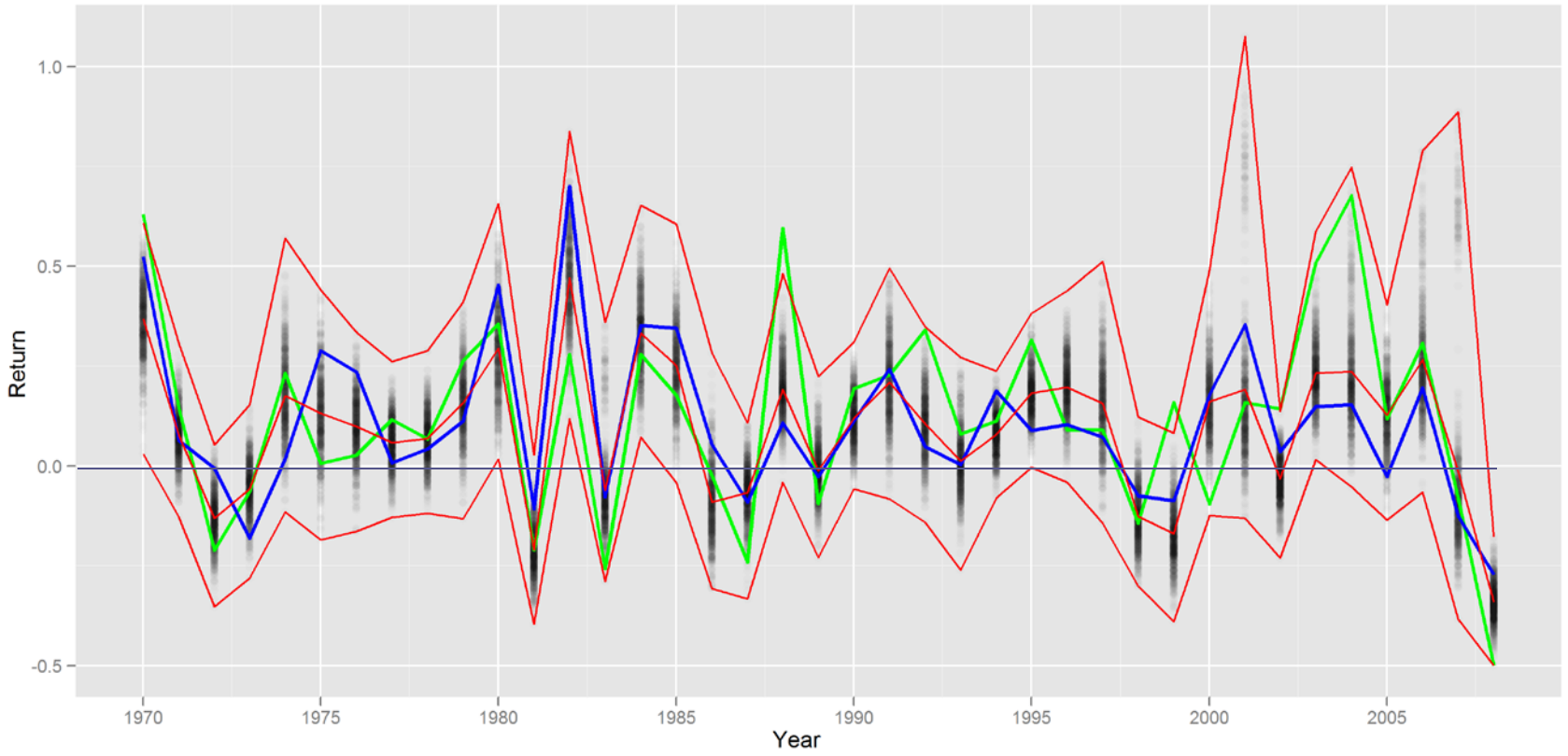

Figure 5. Annual returns on the portfolio using 4.5% DY bound, 1970-2008

Worst sampled portfolios perform worse than cash in either universe

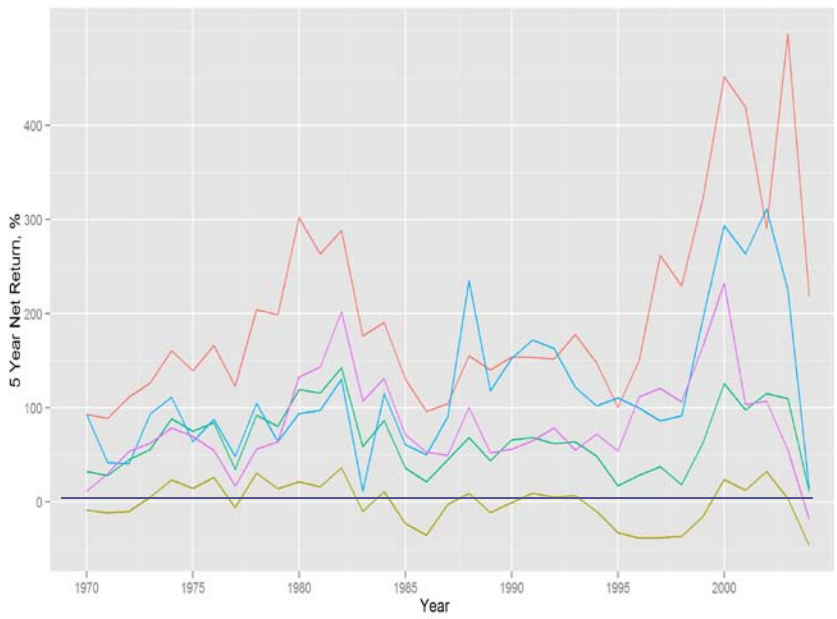

Figure 6. Forward 5 year net returns on strategies using 8% DY bound, 1970-2005.

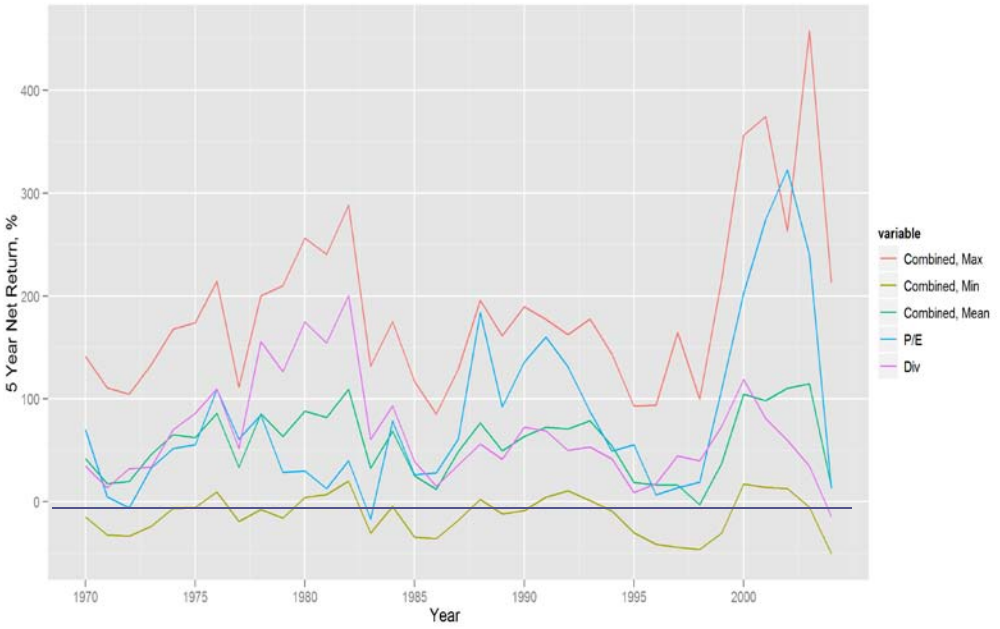

Figure 7. Forward 5 year net returns on strategies using 4.5% DY bound, 1970-2005.

The choice between P/E and DY largely depends on investment goals

- Investing in best P/E stocks gives **higher return** but with **greater risk** of losing money in a given year (we found P/E has higher Sharpe ratio)
- Random sampling from best 100 combined stocks provides **worse results** on average with unclear benefits
- All but the worst sampled portfolios **beat the S&P 500** index on average

Acknowledgements and sources

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3. Raw price data obtained from the Center for Research on Security Prices (CRSP) and COMPUSTAT databases, available via Wharton Research Data Services (WRDS) at http://wrds-web.wharton.upenn.edu/wrds/ds/crsp/index.cfm
4. CPI data obtained from FRED at http://research.stlouisfed.org/fred2/\
5. Special thanks to Sean Wilkinson for helping develop the backtesting algorithm.

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