Dealing with Excessive Concentration to Stocks in Small Markets

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Should this drive your investments?

Nortel → 27% of TSE300

Vodafone → 12% of FTSE100

Nokia → 73% of Finnish index

BHP+Rio → 16% of ASX200 (May08)

Westfield → 51% of AREIT200

How have we got here?

CAPM pseudo-science + pragmatism or laziness	→	Capitalisation weighted indices
Nutty benchmarking + over specialisation + business risk mgmt	→	Obsessive focus on tracking error, an irrelevant risk metric
Familiarity, patriotism, tax, costs, currency, liability-matching etc	→	Home country bias

My questions

- How much single company concentration is acceptable in a total wealth portfolio?
- How can this be achieved?

Soft issues

- Does diversity of business operations matter?
- Does one group strategy and one senior management weaken operational diversity?
- Does diversity of operations across industries matter?
- Does one share price matter? Does this affect analysts' behaviour? Does it create model risk?

“Idiosyncratic shock” defined

- Negative contribution to total return attributable to any one stock
- Estimated in the paper:
  - using an arbitrary evaluation period (say 3 months)
  - ignores correlation effects
  - assumes normal distribution
  - function of dominating stock’s weight in total portfolio and its volatility

Example: BHP

- Monthly return volatility: 6.9% (Apr00 – Jun08)
- Assuming serial independence → 12%pq
- BHP weight in index: 12.6%
- Australian equities allocation: 40%
- 2 standard deviation → 1.2% shock across whole fund

If BHP and Rio Tinto merged

- Combined weight in index: 16%
- 6.4% of total portfolio
- 2 standard deviation → 1.7% shock across whole fund
- Virtual wipe-out (ala Lehmans) → 6.4% of total portfolio!
  (The paper was written pre Lehman's collapse)

Acceptable idiosyncratic risk

- If acceptable idiosyncratic shock is 1%
- Then maximum allocation to dominant company → 4% of total portfolio
- Or 10% of Australian equities allocation
- Based on 12% volatility per quarter and 2 standard deviation event
- Implies losing 4% of wealth due to failure of one company is just acceptable
- Open question: Are there better ways to specify this risk?

Mandating multiple investment managers

- Assume:
  - Portfolio of independent managers with different approaches
  - All managers assumed to have skill
  - Liberal mandates should extract maximum benefits from skill
  - Portfolios are independent, i.e. no overlay on manager portfolios
- → the highest stock weighting in the aggregate portfolio will have a probability distribution

Rule of thumb

- Rule of thumb:
  - 95% of the time the total portfolio will hold no more than 3% in any one stock as a result of the independent actions of investment managers
- Consistent with the occasional occurrence of 4% of the portfolio held in just one stock
- Ignores other sources of idiosyncratic risk (e.g. holding the company’s debt as well as equity)

Model

- For each manager use Monte Carlo simulation to rank stocks
- All pair-wise correlations between manager stock ranks assumed to be 0.4
- Build portfolio based on various portfolio construction rules
- Graph the distribution of highest stock weight in the total portfolio

Common parameters

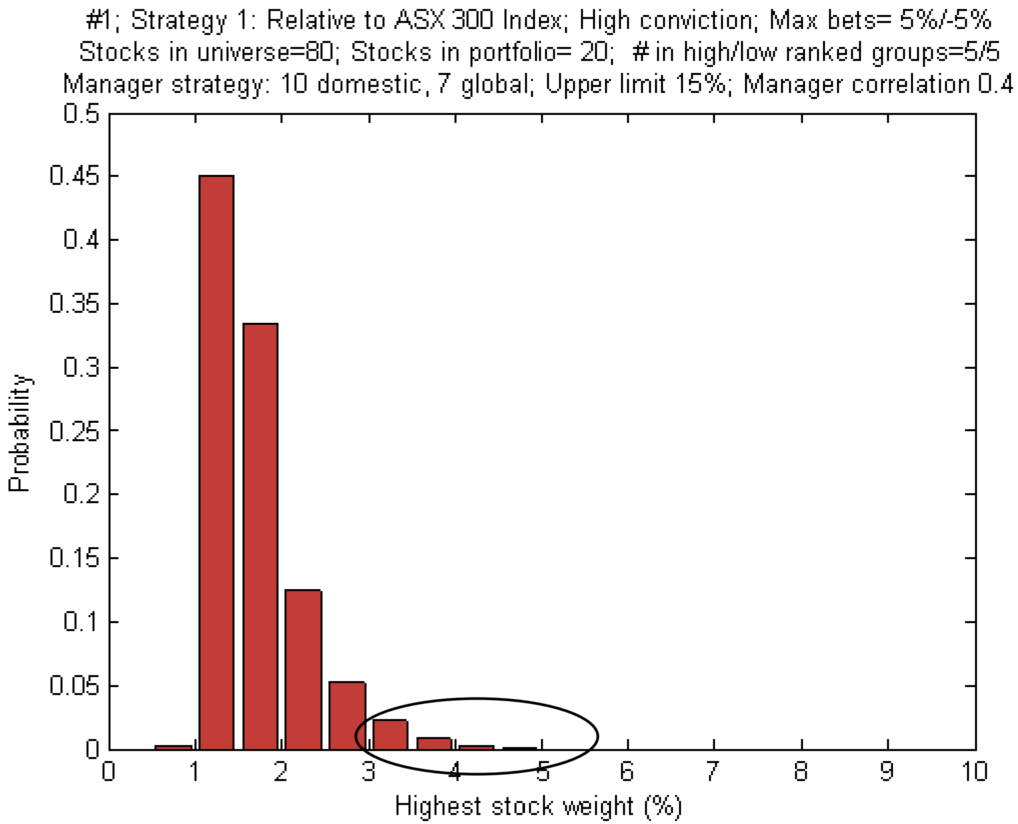
- 35% in Australian equities; 10 managers
- 38% in global equities; 7 managers
- Managers constrained to 15% to one stock and no shorting
- Global managers buy Australian stocks an absolute allocation. Index weights in world index small and ignored.
- Restrict pool of Australian stocks to 80 largest

Strategy 1 (base case)

- All domestic managers adopt a high conviction, index-aware approach
- 20 stocks are held in the portfolio
- Five highest ranked stocks held 5 percentage points overweight*
- Five lowest ranked stocks held 5 percentage points underweight*
- The same bet to all other stocks to complete the portfolio (see page 13 of the paper)

* subject to mandate constraints of absolute weight <15% and no shorting

Strategy 1 (base case)



4% chance of highest stock concentration > 3%

→ not undue risk based on rule of thumb

Strategies

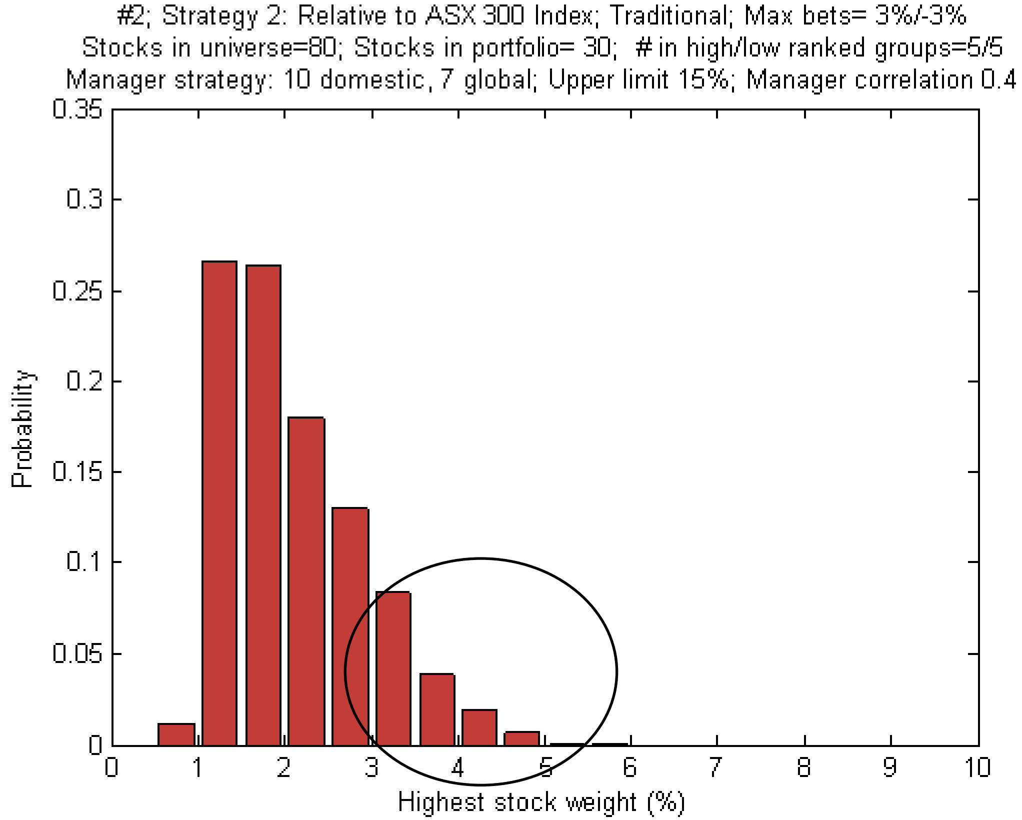
Seven different strategies for domestic managers

1. High conviction index-aware managers (base case)
2. Traditional index-aware managers
3. Extremely concentrated index-aware managers
4. Closet indexers
5. Diversified index-agnostic managers
6. High conviction index-agnostic managers
7. Extremely concentrated index-agnostic managers

Strategies defined

Strategy:	*1*	*2*	*3*	*4*	*5*	*6*	*7*
Domestic managers							
Index-aware or agnostic	index-aware	index-aware	index-aware	index-aware	agnostic	agnostic	agnostic
Mandate risk	high conviction	traditional	extreme	closet indexers	diversified	high conviction	extreme
Stocks in portfolio	20	30	15	45	40	20	15
Limits[1]	15% 0%	15% 0%	15% 0%	15% 0%	15% 0%	15% 0%	15% 0%
Bet[2]	+5% -5%	+3% -3%	+7% -7%	+1% -1%	4% 0%	7% 0%	10%[3] 0%
# in hi/lo group[4]	5/5	5/5	5/5	10/10	5/0	5/0	5/0
Global managers							
# domestic stocks	1	1	3	2	1	1	3
Weight to each	3%	5%	7%	2%	4%	5%	7%

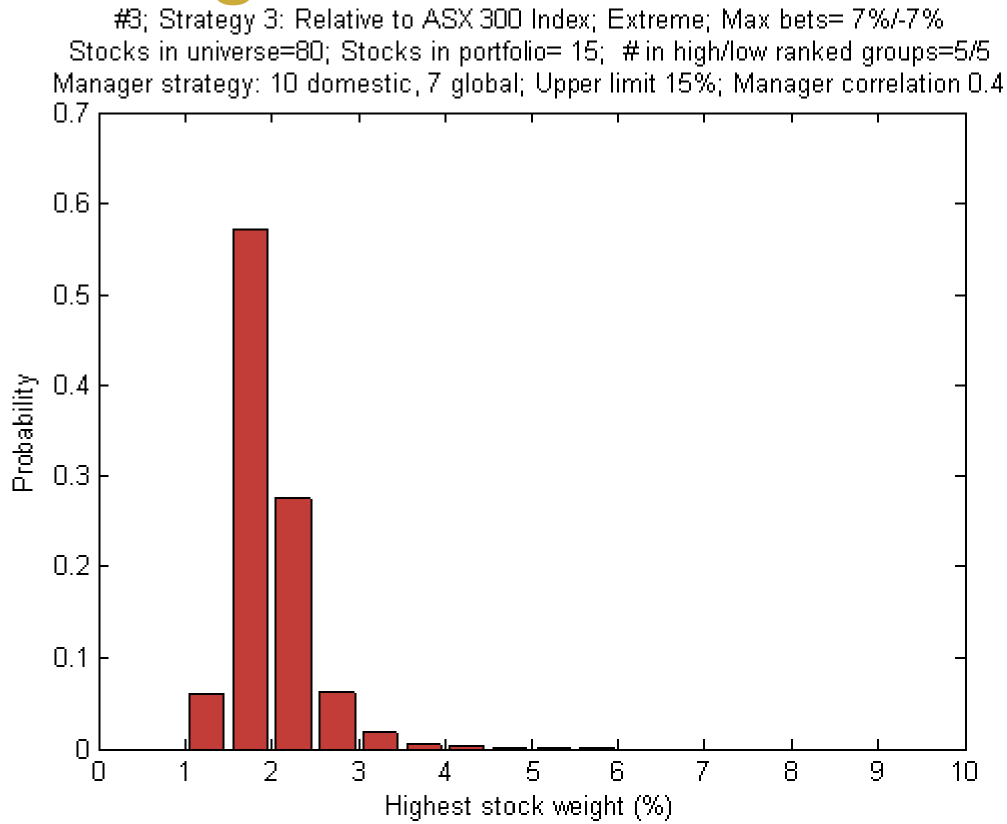
Strategy 2: Traditional index-aware



15% chance of idiosyncratic risk!!

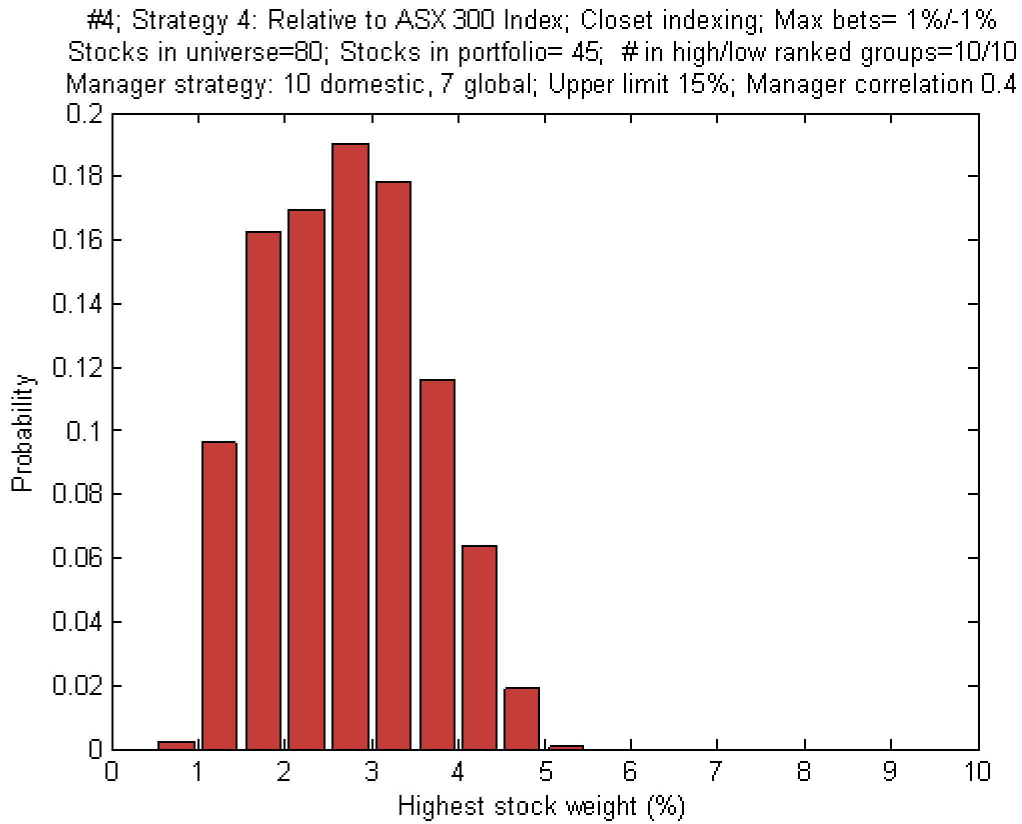
More risky than using high conviction managers

Strategy 3: Extreme high conviction index-aware



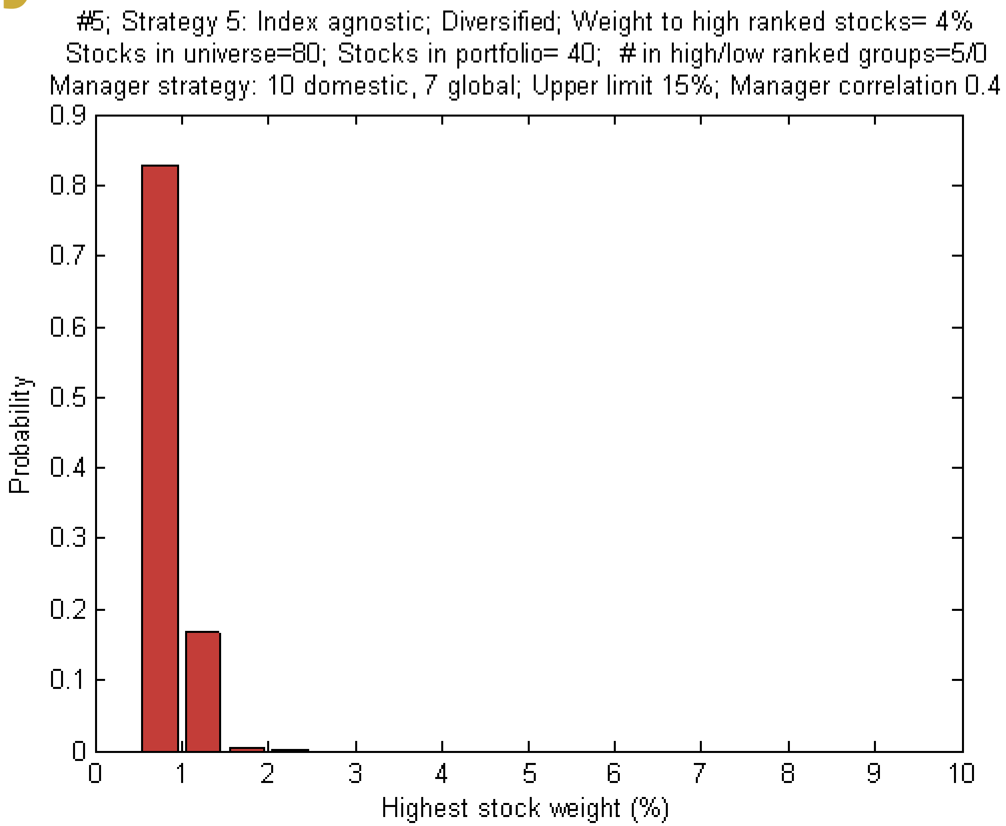
Even less risky. Tiny chance of idiosyncratic shock.

Strategy 4: Closet indexing



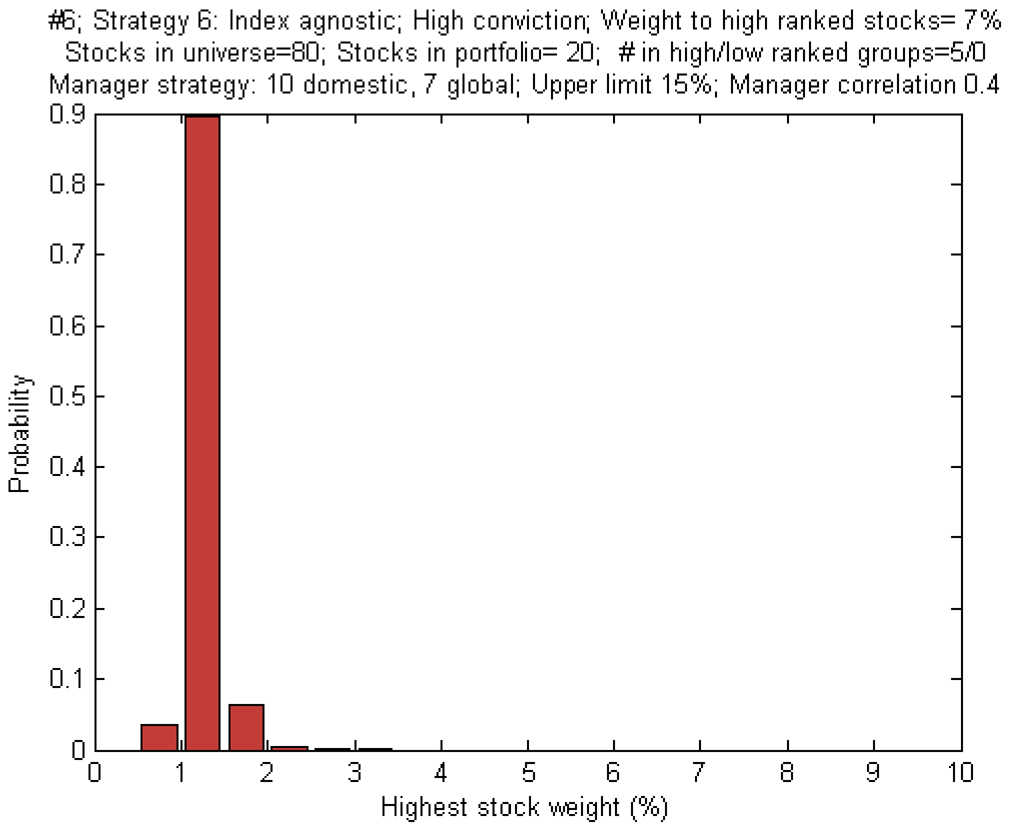
Whopping 38% chance of highest allocation >3%.
Awful idiosyncratic risk.

Strategy 5: Diversified index-agnostic



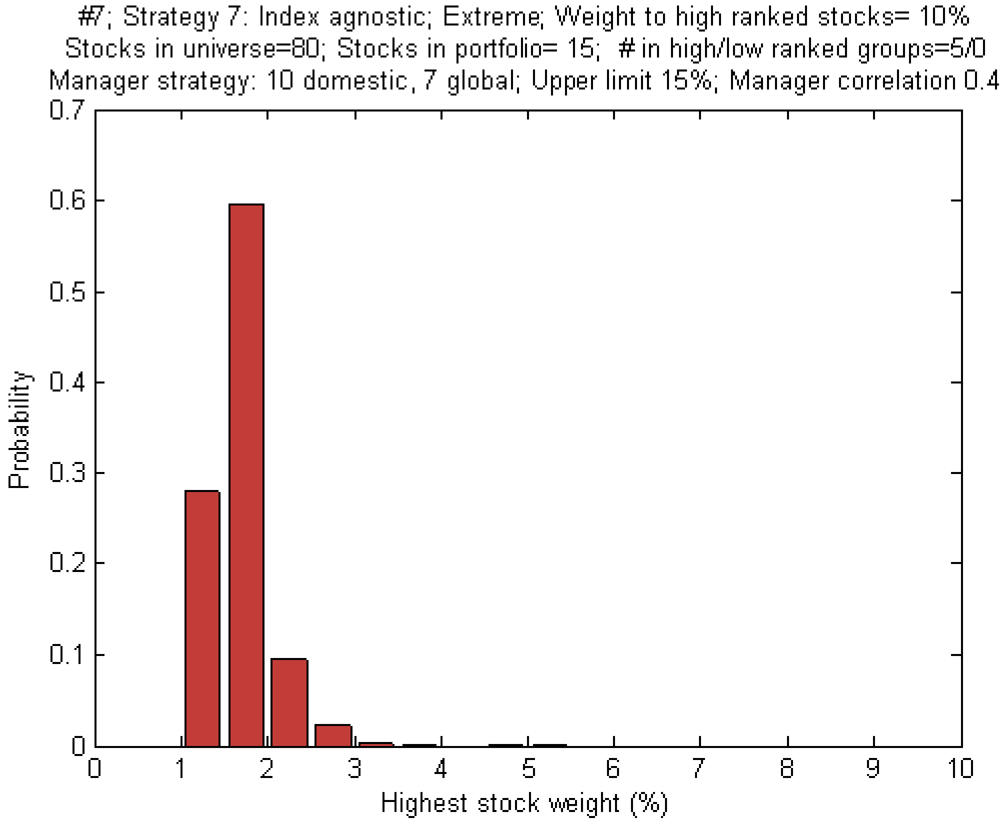
Virtually no idiosyncratic risk.
But huge tracking error and peer risk.

Strategy 6: High conviction index-agnostic



Ditto to Strategy 5; very low idiosyncratic risk.

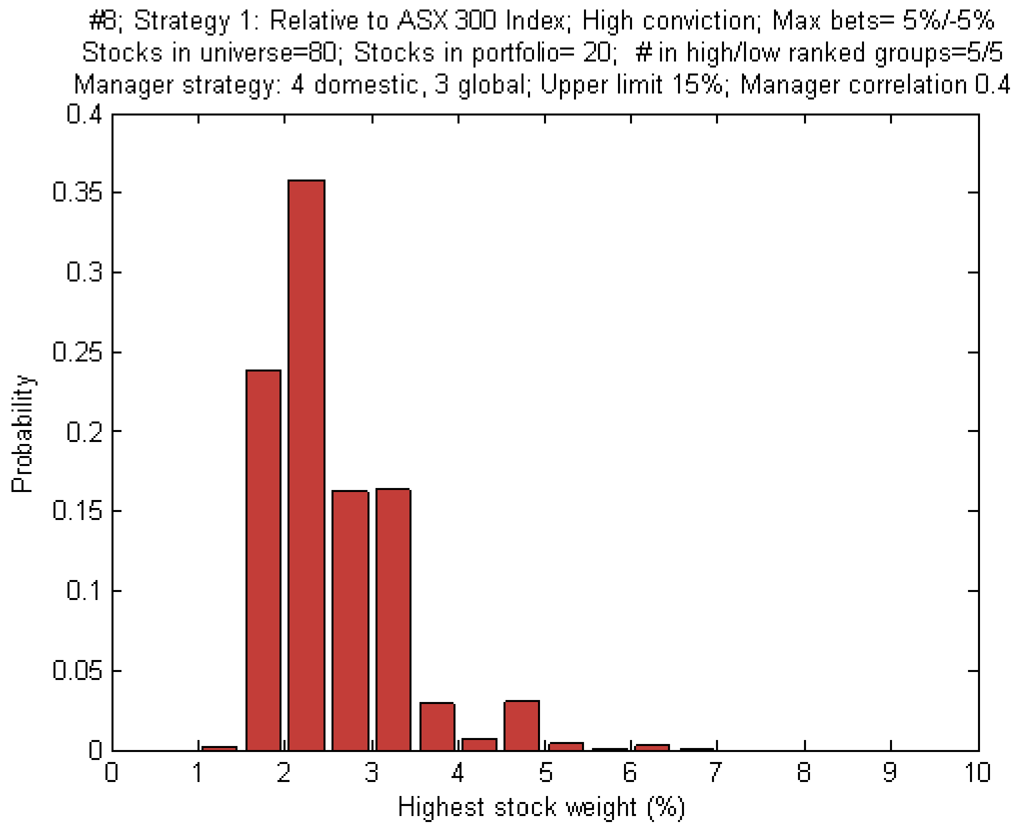
Strategy 7: Extreme index-agnostic



Some chance of idiosyncratic risk,
but lower than index-aware approaches

Impact of fewer managers

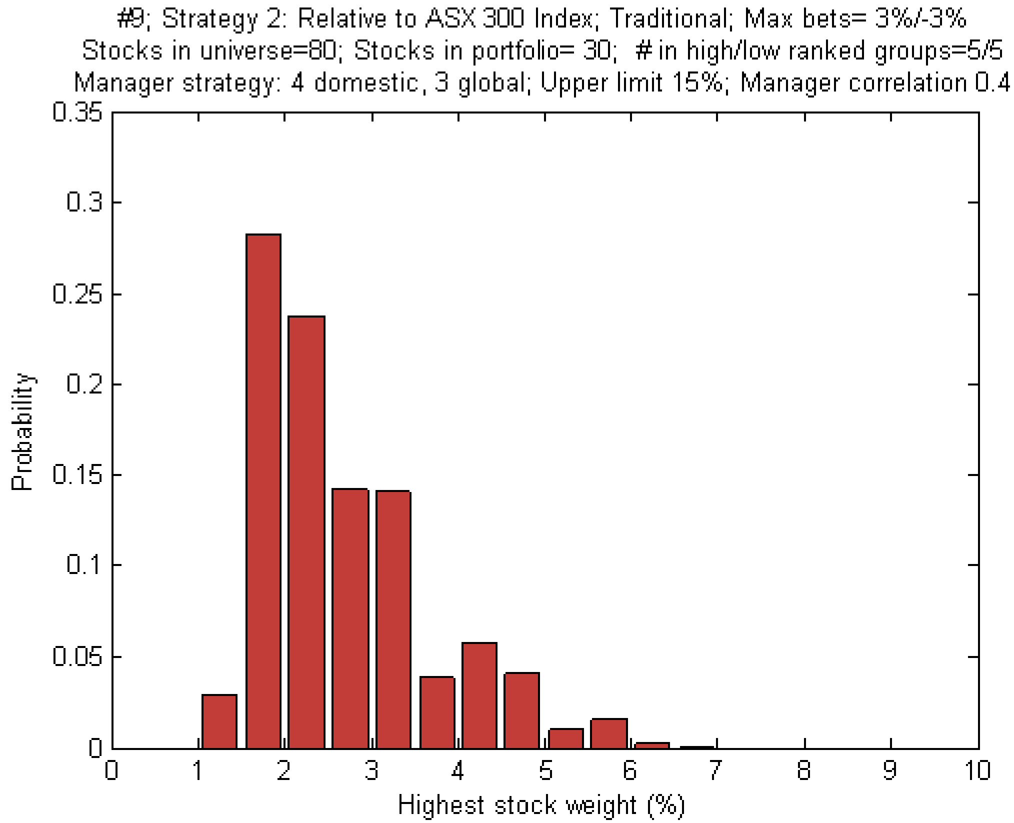
Strategy 1 with 4 domestic managers



13% chance of highest stock weight > 3%

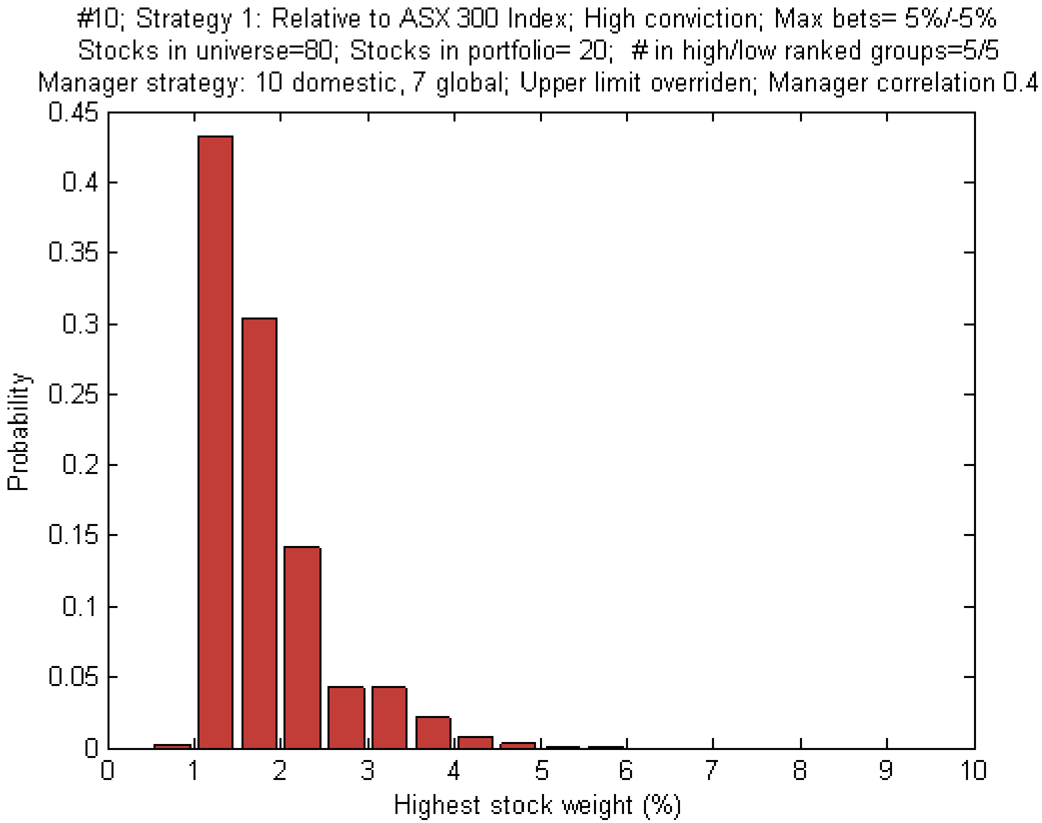
→ manager diversification is important

Traditional index-aware with 4 managers



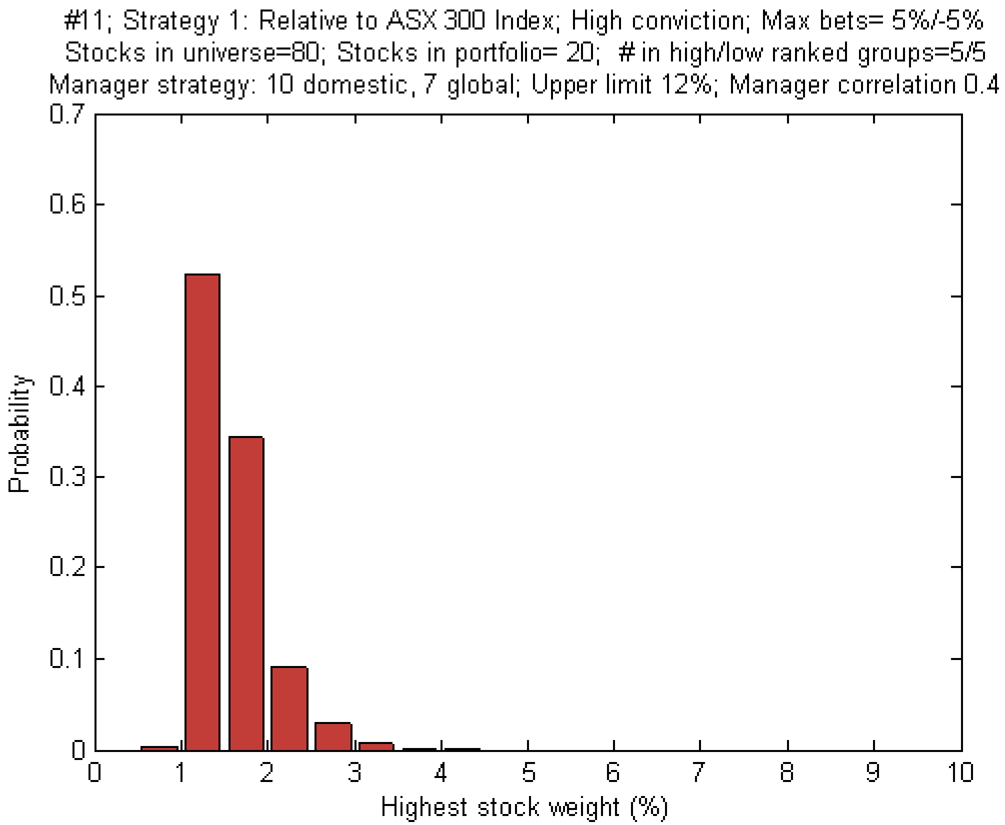
20% chance of idiosyncratic risk. Awful.

Impact of removing 15% limit to one stock



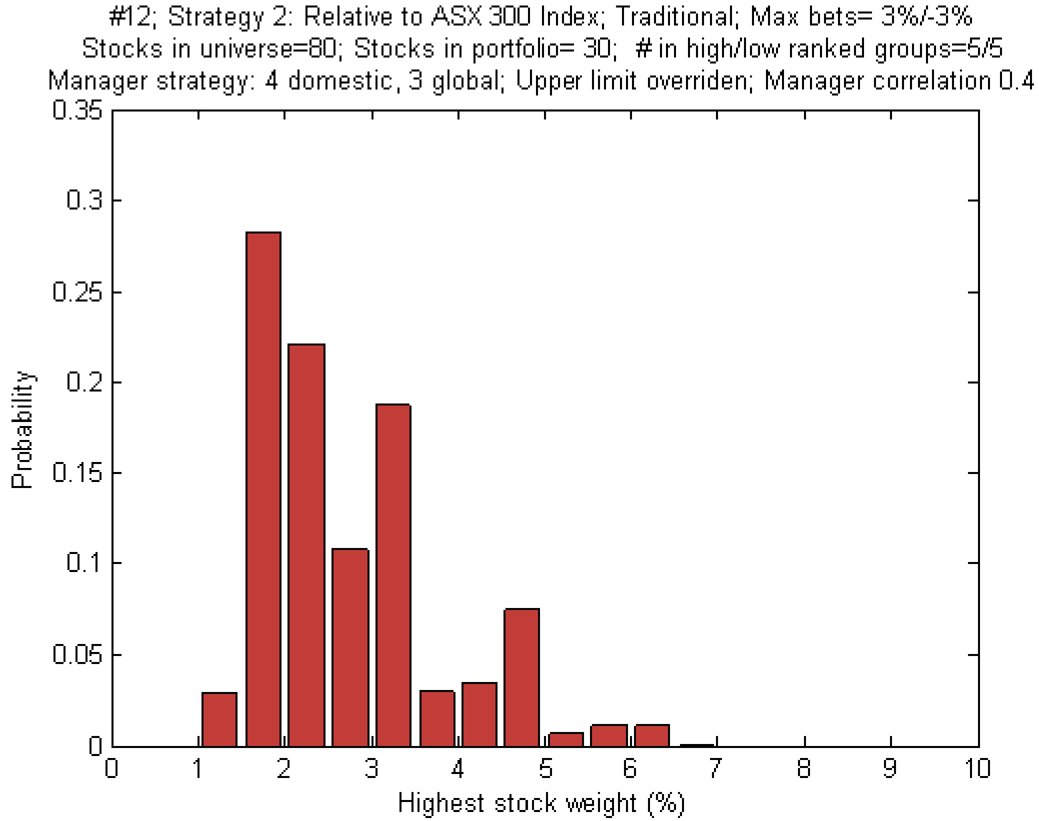
15% limit to one stock helps, but not much

Lower (12%) limit to one stock



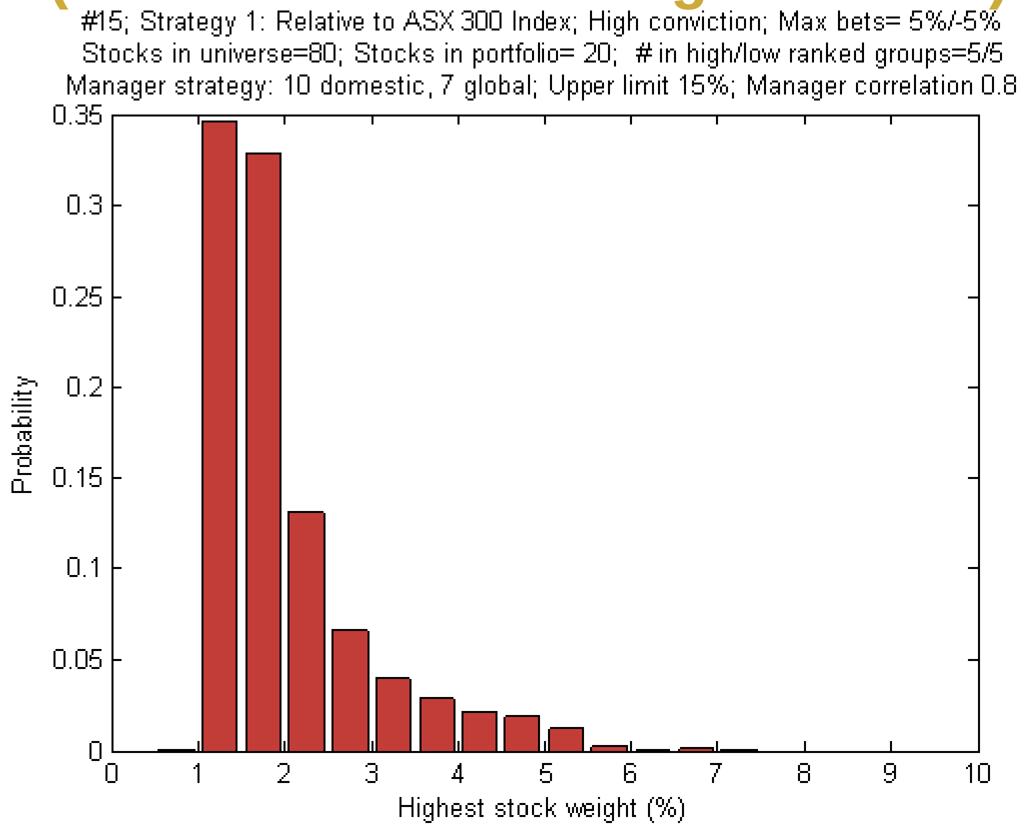
Reduces chance of idiosyncratic risk from 4% to 1%.
But managers would be forced to underweight BHP!

The 15% limit helps with fewer managers



Without a limit chance of idiosyncratic risk (in #9) rises from 20% to 36%

Importance of manager diversification
(Correlation of ranking 0.4 → 0.8)



Considerable impact:

chance of idiosyncratic risk goes from 4% to 13%

How to ameliorate idiosyncratic risk

1. **Reduce allocation to domestic equities**
2. Live with it
3. Impose maximum absolute limits in mandates
4. Improve manager diversification
5. Use index-agnostic managers
6. Manage maximum individual concentration at total portfolio
7. Use capitalisation-capped indices
8. Use non-capitalisation weighted indices

- Obvious and effective
- Reasons for home country bias (e.g. peer risk) tend to trump this approach

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- If most managers loaded up on the stock, then it could be for good reasons
- Need
  - many managers
  - none dominating
  - different approaches and styles
  - high conviction, if not index agnostic

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- Limited marginal use when using many managers
- Necessary if not using many managers

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- The more managers the better
- Provided they are differentiating
- But too many index-aware managers will tend the total portfolio to the index

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- Most effective
- Hard to find
- Beware of lip-service

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- Possible overlays:
  - leave manager portfolios unchanged and short excessive holdings
  - instruct managers to sell down
  - dynamically budget manager mandates
- All are unattractive:
  - operational risk
  - complexity
  - unwanted manager behaviour

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- Need clear and transparent index rebalancing rules
- Requires clear understanding of manager behaviours
- Custom index to be built
- Could be effective

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8. **Use non-capitalisation weighted indices**

- E.g. fundamental indexing
- Unlikely to be superior to capitalisation-capped index (in terms of objectivity, transparency and simplicity)

Conclusions

Real issue for Australian investors

Most effective solutions:

- reduce allocation to Australian equities
- use index agnostic managers
- use capped index for benchmark
- use many different, high convication managers

These require varying levels of bravery!