International diversification

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Diversification is cool

- Don't put all your eggs in one basket
- "Diversification is the only free lunch in all economics"
- Let's hold more and more stocks. What kind of risk reduction do we gain?

HW 1. Gains from increasing N

1. Pick a portfolio size N
2. Form 1000 random portfolios, measure the mean σ^2.
3. Repeat this for N from 1 to 500.
4. Compare against the Nifty SD.

The construction of Nifty, 1996

- Susan and I did this kind of calculation, while factoring in liquidity oconstraints.
- Our answer then was : 50.
- The answer today might be a bit bigger.

Can we do better?

- All companies in India are impacted by Indian macroeconomics and politics
- By the time you diversify enough in India, the Indian equity portfolio is all about *Indian* politics and economics. The identities of firms and industries are wiped out.
- To diversify further: Go abroad!

HW 2. International diversification

- Assemble data for the stock market indexes of 50 countries.
- Form random portofios of 1,2, 3, etc. countries.
- How much risk reduction do you see?

A rough estimate: Well diversified international portfolios have half the variance of the pure India portfolio.

HW 3. How much to hold outside India?

- If you had to form an optimal equity portfolio, how much would you put outside India?
- Make graphs where you put w_1, the weight on India, on the x axis and the variance on the y axis.

Interpretation as risk sharing

1. We hold assets all over the world, we share risk.
2. Example: A swap between the Indian and a Japanese pension fund, where they pay out home country index fund dividend on a notional $1B to each other.
3. Or do this for the total returns on a notional $1B index fund.
4. Example: An Indian pays rent to a Japanese home owner, the Japanese person lives in a house owned by the Indian, they settle the net difference between the two rents.
5. Key insight: My human capital is my biggest asset. This is correlated with Indian asset prices. So the bulk of my investments should be outside India.

Implications

1. Individuals bear less financial risk when they are globally diversified.
2. Micro-prudentially regulated entities require lower equity capital to achieve the same target failure probability, when their assets are globally diversified.
3. Insurance risk should really be spread worldwide.
4. Pension assets are best placed worldwide - this best serves the interests of the workers / pensioners. This is "phase 2" of pension reforms in many places.

The global curse: Home bias

- As a thumb rule, most of your financial wealth should be outside India.
- But in practice, this is not the case.
- This problem is called “home bias”.
- Why does home bias exist?
    1. Capital controls. (Mostly gone, other than China and India).
    2. Complexities of international taxation
    3. You don’t like to send money to places with weak institutions, too much risk of large loss events.
    4. Lack of information or Stupidity.

Currency risk

- You live in India, you keep score in rupees.
- It's not just returns on the Nikkei 225 index, this has to be translated into rupees.

HW 4. International diversification with currency risk

- Repeat above problems while converting everything into rupees.

Full currency hedging is often very expensive

- E.g. you buy a 30 year US government bond
- You ask for a 30 year USD/INR hedge?
- Many LDCs don't have these markets and if they exist, the hedging is expensive.

Not all currency risk should be hedged

- You can hedge currency risk. But this is expensive and infeasible for the long horizons that matter in most portfolio problems.
- The currency movements of numerous countries tend to cancel out.
- A thumb rule: Once a country achieves macro stability, it enters a club of countries where large depreciations tend to not happen.
- Build a sound central bank, do well on with a 2% inflation target, achieve an AAA rating on government debt.

Conclusion – the power of international diversification

- Most humans are xenophobic. Most humans like to only deal with their own tribe.
- Globalisation is unnatural.
- Gains from trade is the fundamental economic force that has overcome xenophobia and created global trade.
- Gains from international diversification is the fundamental economic force that has overcome xenophobia and created the integrated global financial system.

Thank you.