Discussion:
Risk and Dependence Analysis of Australian Stock Market - The Case of Extreme Value Theory

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Introduction

- *Objective* is to derive a *risk measure* for heteroscedastic financial return series. In particular, to measure extreme *market risk* that is risk of losses on a trading book due to some adverse market movements.

- *Challenge* is to estimate *tails* of the profit and loss distribution for financial time series that exhibit *stochastic volatility*. It implies that returns are not necessarily independent over time and that conditional return distributions are leptokurtic.

- *Relevant* for risk management (or capital adequacy) of portfolios in which the main concern is loss due to adverse market movements over some time horizon that is tails of the conditional return distribution.

Contributions

- *Big question*: How to measure and forecast extreme losses in portfolios of Australian stocks?

- Why is it *interesting*:
  1) novel *forward looking* technique that goes beyond past observations due to its EVT and GARCH heritage
  2) incorporates *fat-tails* of conditional return distributions
  3) measures *asymptotic dependence* between Australia and US, JAP, GER and HK stock markets.

Comments (1/2)

1) Model is *forward-looking*:
   - equity prices are forward looking but GARCH forecasted volatilities are based on historical data.
   - ➔ are forward looking *implied volatilities* a possible alternative?

2) Model's *predictions*:
   - can you see which way does the riskiness of post-crisis Australian stock market go?
   - or even better, can you predict the recovery?

Comments (2/2)

3) Empirical results do not fully take the benefit of a *natural experiment* which was the recent financial crisis:
   - given the objective to measure and forecast extreme market risk it is interesting to see if the proposed metric works well in turbulent times relative to normal times
   - ➔ compare performance of the proposed metric *before and during the financial crisis*

4) Asymptotic dependence due to heteroskedasticity in return time series.
   - ➔ *fundamental* dependency between stock markets?

Conclusions

- Paper with lots of potential
- Contributions to
  - measurement and forecasting of extreme events
  - market risk measurement of Australian stocks
  - interesting empirical results for cross-county dependence in stock market returns.
- May be also policy relevant
  - Applications to 10-day VaR