Comments on: Fire sales forensics: measuring endogenous risk

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Brief Summary

- presents an intuitive and tractable framework which takes into account the impact of possible fire sales triggered by an exogenous rule the such as fire sales triggered by capital ratio constraints.

- Obtain analytical formulas for the realized covariance in the presence of fire sales. This excess covariance is characterized by a liquidation matrix M, which contains all the info about the liquidation flows during a given period of time.

- M is identifiable; build an estimator for M based on price series. Consistent and obeys a central limit theorem, which allows a statistical test for the presence of fire sales.

- Apply this estimation methodology on two empirical examples.

Comments

Plausible liquidity events (run on the bank)

Model of the transmission mechanism:

Market$(-)$ shock $\longrightarrow$

negative returns $\longrightarrow$ outflows of capital $\longrightarrow$ redemptions

accelerated reductions of capital through the *de-leveraging schedule*

more negative returns due to *price impacts* of fire sales $\longrightarrow$ downward spiral of capital

could $\longrightarrow$ end of fund if capital falls below lower threshold $\longrightarrow$ liquidation — BUMMER

Comments

Under Assumptions the setup define price (portfolio values) dynamics S which is a discrete-time Markov process

But what about funds (a fund is a vector of portfolio weights) that get liquidated, i.e. extinguished?

Does the system settle down into a stochastic steady state with a small (one?) number of funds that never liquidate?

Develops a model were the drift and local volatility depend up the level of the price:

$$\frac{dP_t^i}{P_t^i} = \mu_i(P_t)dt + (\sigma(P_t)dW_t)_i \qquad 1 \leq i \leq n$$

The levels model has been empirically discredited.

Empirical Findings/Fundamentals

i) Observed Price

ii) Fundamental Price

iii) Discrepancy

Need to have a theory for ii) in order to say something about iii)

We have the Inter-Temporal Dynamic Asset Pricing Model

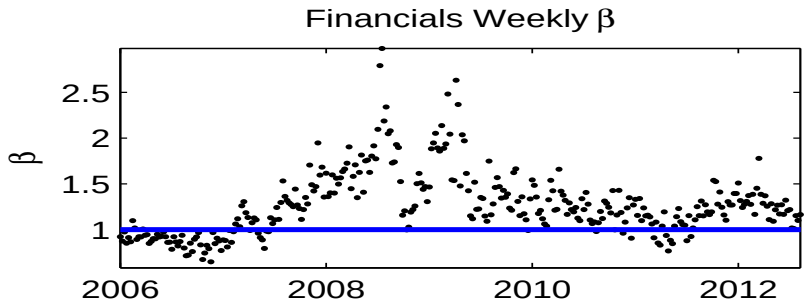
Here we just consider the classic static CAPM

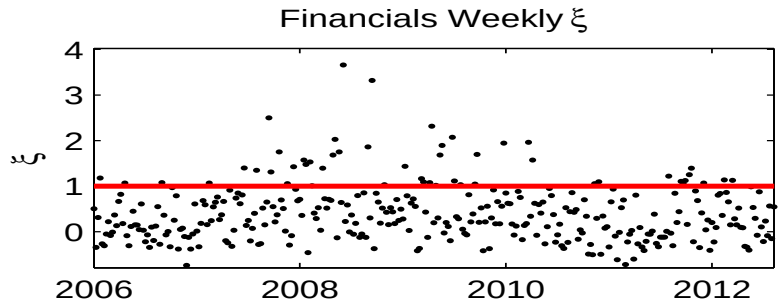
Estimated Daily Liquidations

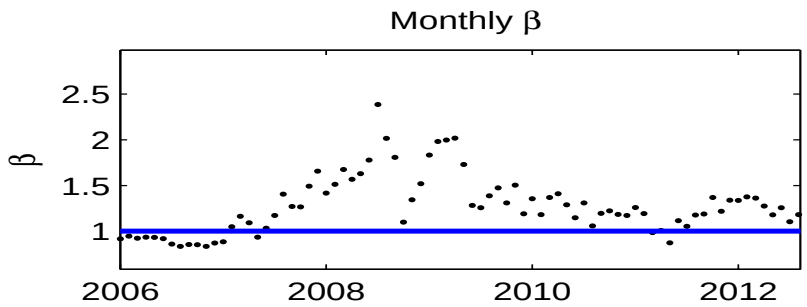
Sector SPDR	Daily amount liquidated $\times 10^6\$$	Weight
Financials	320	28%
Consumer Discretionary	55	5%
Consumer Staples	38	3.5%
Energy	300	26%
Health Care	63	5.5%
Industrials	90	8%
Materials	110	9.5%
Technology	65	5.5%
Utilities	100	9%

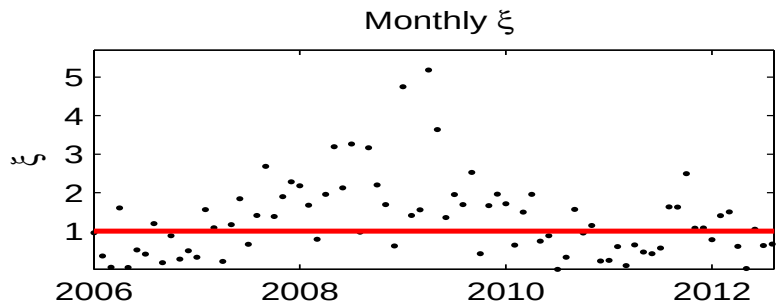
Table 1: Daily volume and proportions of fire sales for SPDR between September 15^{th}, 2008 and Dec 31,2008.

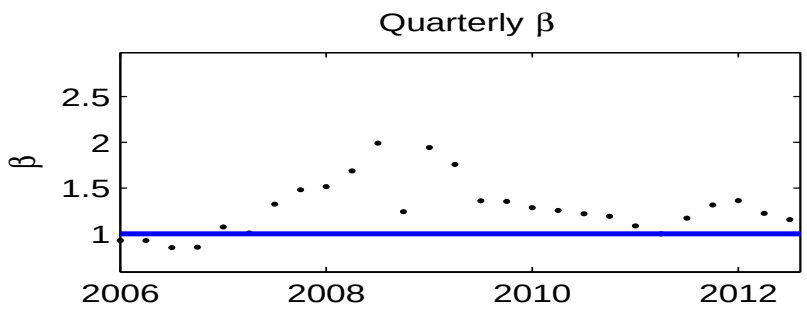
Financial ETF: Beta on S&P Index

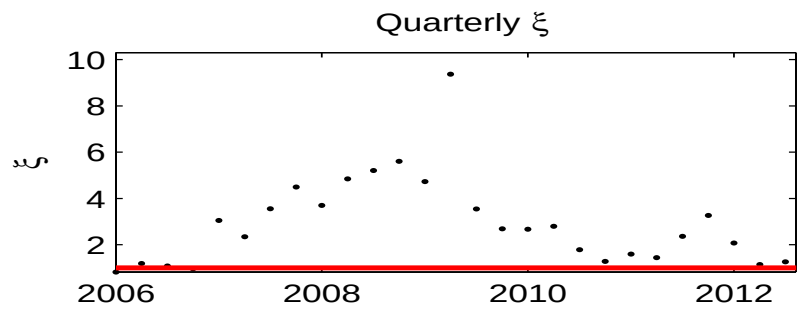




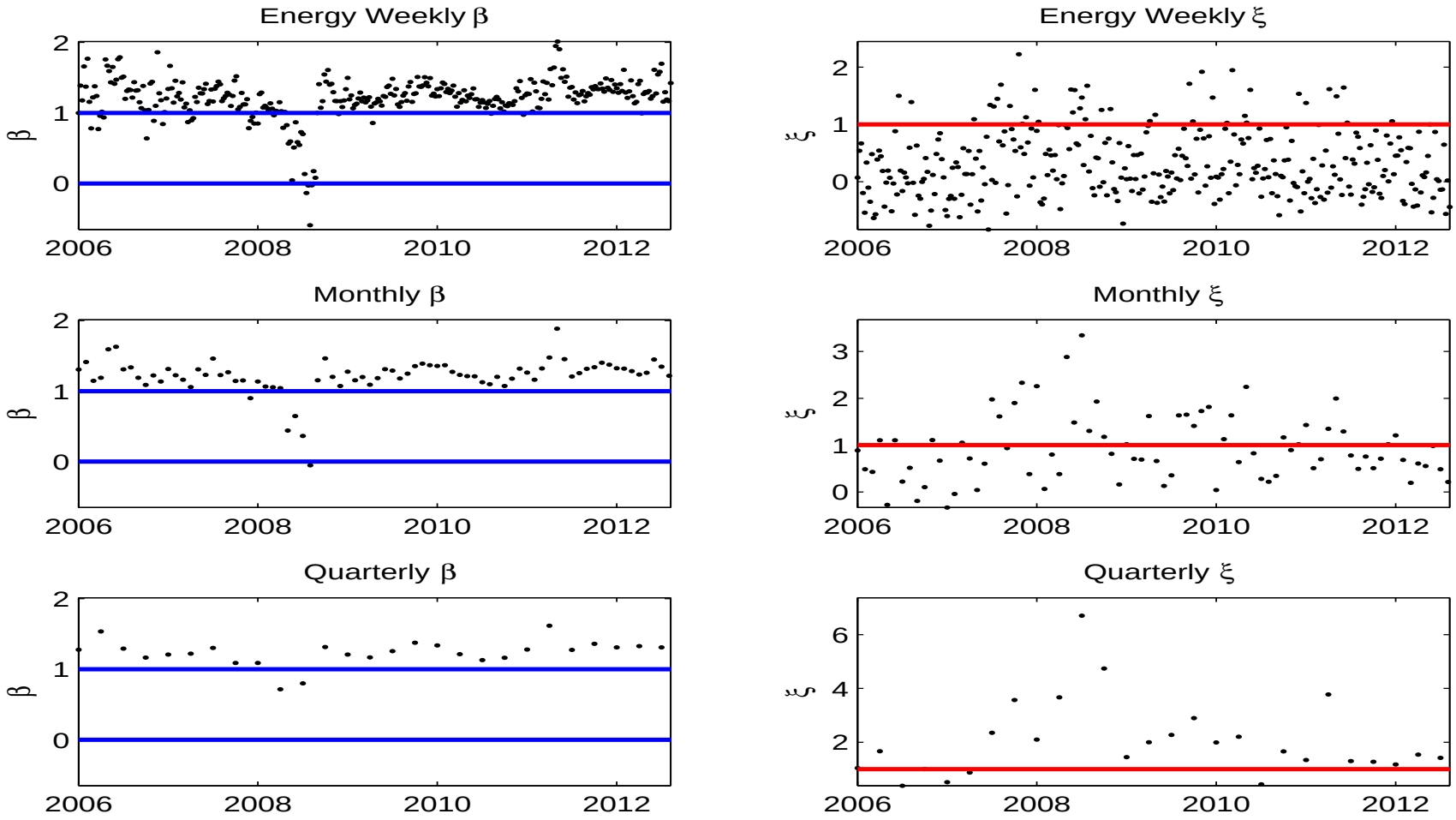




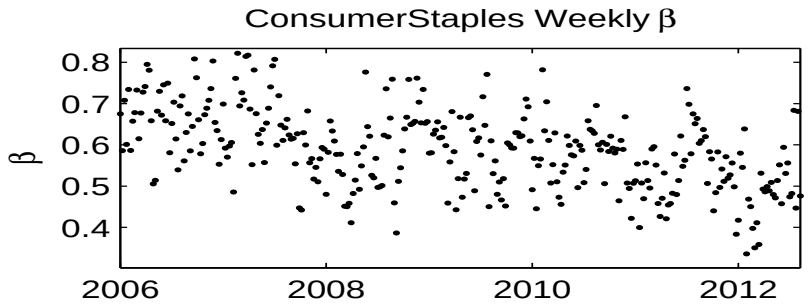


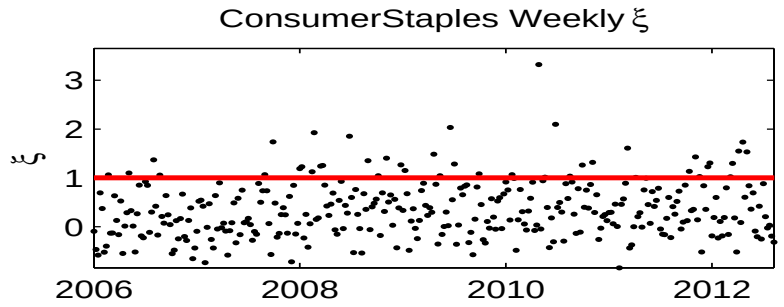


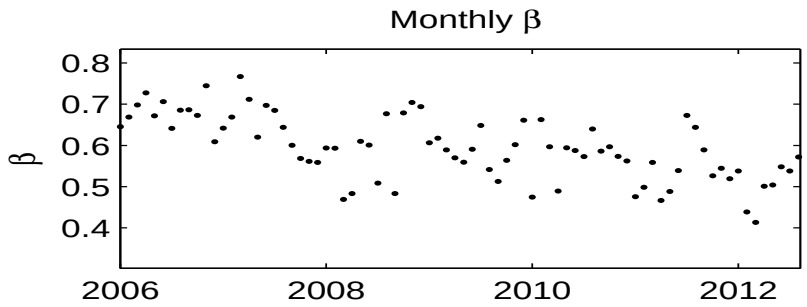
Energy ETF: Beta on S&P Index

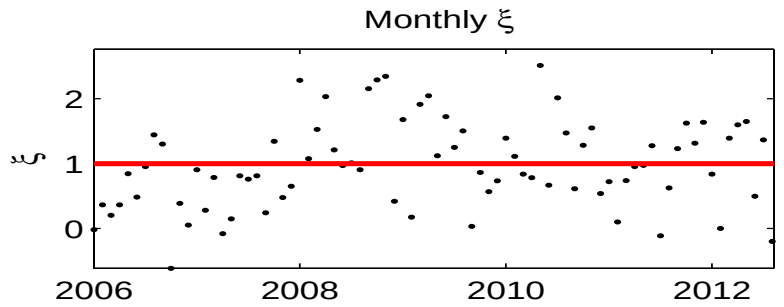


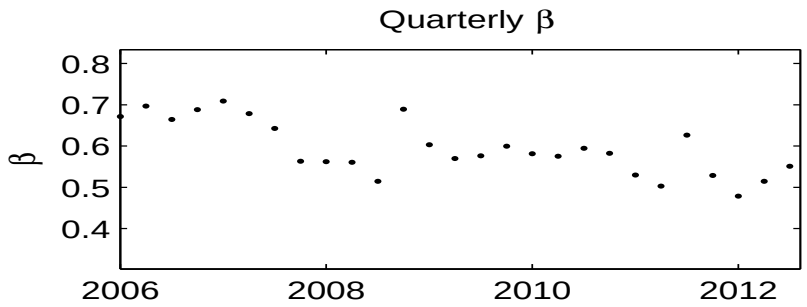
Consumer Staples ETF: Beta on S&P Index

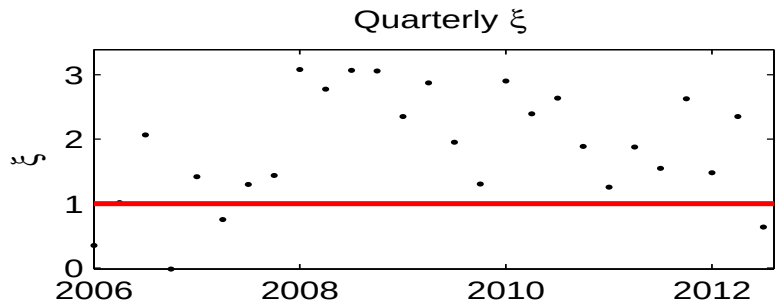












Empirical Findings/Fundamentals

i) Observed Price

ii) Fundamental Price

iii) Discrepancy (fire sale noise)

Without a theory for ii) the model likely over attributes to fire sale noise observed realized covariance measures

Concluding Remarks

Very nice paper with an elegant model of the fire sale transmission mechanism

Needs to incorporate a theory of the fundamental value, statistics and probability cannot accomplish this.

What about jumps??