ORTEC FINANCE

Discussion of

"The liquidity risk premium for long-term investors"

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Summary

- This paper investigates whether time variation of trading costs has the potential to generate large liquidity risk premia.
- The authors solve a dynamic portfolio choice problem with time-varying trading costs.
- Allow for exogenous liquidity shocks (e.g. sudden fund outflows).
- Find that under typical parameter values liquidity risk premium is negligible.
- Implication: high empirical liquidity risk premium in literature perhaps due to forced selling and high trading costs during market downturns, or captures a liquidity level premium.

Summary (ctd.)

Setup:

- Dynamics given by

$$r_{t+1} = \mu_t + \sigma_r u_{t+1}, \tag{1}$$

$$\mu_t = \mu_0 + aF_t, \tag{2}$$

$$F_t = \rho F_t + v_{t+1}, \tag{3}$$

$$TC_t = \frac{1}{2} V_t^2 \sigma_r^2 \lambda_t, \tag{4}$$

$$\ln \lambda_t = \ln \lambda_0 + bF_t, \tag{5}$$

  where F_t is the common factor between returns r_t and transaction costs TC_t through the trading costs parameter λ_t.

- Rebalancing CRRA investor solves

$$\max_{\alpha_0,\ldots,\alpha_{T-1}} E_0 \left(\frac{W_T^{1-\gamma} - 1}{1-\gamma} \right). \tag{6}$$

Summary (ctd.)

Setting with exogenous liquidity shocks:

- During crisis times, market liquidity goes down, institutional investors are forced out of their positions. Depending on return r_{t+1}, impose the following:

$$\Delta\alpha_{(t+1)-} = \begin{cases} -\alpha_{(t+1)-} & \text{if } r_{t+1} < \mu_t - 3\sigma_r \\ \alpha_{(t+1)-} \cdot \frac{r_{t+1} - (\mu_r - \sigma_r)}{2\sigma_r} & \text{if } \mu_t - 3\sigma_r \leq r_{t+1} \leq \mu_t - \sigma_r \\ 0 & \text{if } r_{t+1} > \mu_t - \sigma_r \end{cases} \tag{7}$$

  Note: in the second line, $r_{t+1} \leq \mu_r - \sigma_r$, so $\Delta\alpha_{(t+1)-} \leq 0$.

- Alternatively consider standard normal shock ϵ_{t+1} instead of return.

- Idea: investors require compensation for running this risk.

Summary (ctd.)

Consider four cases:

1. constant expected return, exogenous liquidity shocks independent of returns, no trading costs;
2. time-varying expected returns, exogenous liquidity shocks independent of returns, no trading costs;
3. time-varying expected returns, exogenous liquidity shocks independent of returns, constant trading costs;
4. time-varying expected returns, exogenous liquidity shocks depending on returns, time-varying trading costs.

Initial position in risky asset is set to 100%.

Liquidity premium: difference in expected returns that makes investor indifferent between holding risky asset in benchmark case vs. this setting.

Summary (ctd.)

Findings:

- Premium generated by commonality between trading costs and returns is negligible at less than 3 bps per year.
- Larger trading amounts and higher trading frequency increase the liquidity level premium, but not the liquidity risk premium.
- Adding exogenous liquidity shocks does result in an economically significant liquidity risk premium. Still small at 20 bps vs. 1.1% or even 7% found in empirical literature.
- Conclude: large empirical liquidity risk premium could be due to forced selling and high trading costs during market downturns, or captures a liquidity level premium.

General comments

- The paper claims that the large liquidity risk premium documented in empirical papers is due to forced selling and high transaction costs during downturns.
- However: could you provide empirical support for this beyond the volume relation?
- What you could do: estimate regime-switching model for market-level liquidity and/or market-level returns. Test whether your prediction holds by estimating regime betas.
- You claim that a limit on trade size generates large liquidity premia, but that this is not realistic as stock markets rarely impose maximum amounts.
- However, in practice: finite depth on buy and sell side (also: order imbalance, see Chordia et al., 2000, 2005).

General comments

- Focus of paper on large institutional investors as they are more sensitive to market conditions, more exposed to liquidity risk, and require higher liquidity risk premia. However, aren't these long-term investors who are relatively unconcerned with liquidity risk?
- On a related note, how sensitive are your results to the 10-year horizon? Is the rebalancing motive as strong as having a repeated short horizon (think of investors who have to close out positions every day)?
- You set the risk aversion parameter to $\gamma = 2.5$, or in one case to $\gamma = 5$. Sensitivity? Also, which value of γ would you need to generate liquidity risk premia as found in the literature (think of Mehra and Prescott, 1985)?

General comments

- Why do you not include any pure liquidity risk? The only liquidity risk in the setup seems to originate from the common factor F_t. Does this matter? Also: difficult to separate time-variation from dependence.

- Even though Acharya and Pedersen (2005) report that liquidity commonality itself is not driving their liquidity risk premium, evidence by Chordia et al. (2000), Hasbrouck and Seppi (2001), Huberman and Halka (1999), and Karolyi, Lee, and Van Dijk (2012) suggests that it matters.

- Having a single risky asset could be a simple way to implement perfect liquidity commonality (would need pure liquidity risk?), but can't separate from market risk or other liquidity risk. Would having two risky assets help, or is that computationally expensive?

Minor comments

- Would it make things more readable to write F_t into r_{t+1} directly and leave out μ_t altogether?
- Who holds your risky asset when the investor does not? Would this matter for your findings? Consequences of having long-term and short-term investors?
- Does it create any distortions that transaction costs are paid out of the risky asset position? Does that generate further transaction costs in your setup or not? Would expect payment of costs out of cash account.
- Exogenous liquidity shocks seem naturally interpreted as outflow shocks. Avoids re-using terminology.

Minor comments

- In the motivation: "exposures to liquidity risk are highly correlated across stocks," but this actually applies to different liquidity risk exposures for the same stock, rather than different stocks.
- You write that large investors are more likely to be the marginal investors because they are more sophisticated, but isn't this simply due to their size (AUM)?
- The paper states that the liquidity shocks are exogenous, but are they? Outflows tend to occur in bad times (e.g. Woolley and Vayanos, 2013). However: you do include such dependence in your results, so matter of exposition?

Conclusion

- Interesting setup (factor structure, liquidity/outflow shocks) and thought-provoking results.
- Sheds light on distinction between liquidity level premium and liquidity risk premium, which is difficult to do statistically.
- Liquidity risk premium negligible unless we have forced selling (or a liquidity level premium).
- Would be interesting to see impact of having liquidity risk and separating it from liquidity/return (cross-)commonality.
- Could use a stronger link with the empirical facts. Any testable implications beyond increase in turnover?