PIMCO

Liquidity Risk

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6 September 2019
Chapman University
Orange, California

Defining Liquidity

Portfolio Liquidity Risk

the risk that available liquid assets will be insufficient to meet changing market and business conditions including:

- liabilities (for example margin calls for derivatives),
- funding of asset purchases,
- increases in client demands for cash in Funds providing redemption options to investors.

Market Liquidity Risk

which refers to the ability to purchase or sell securities in the market.

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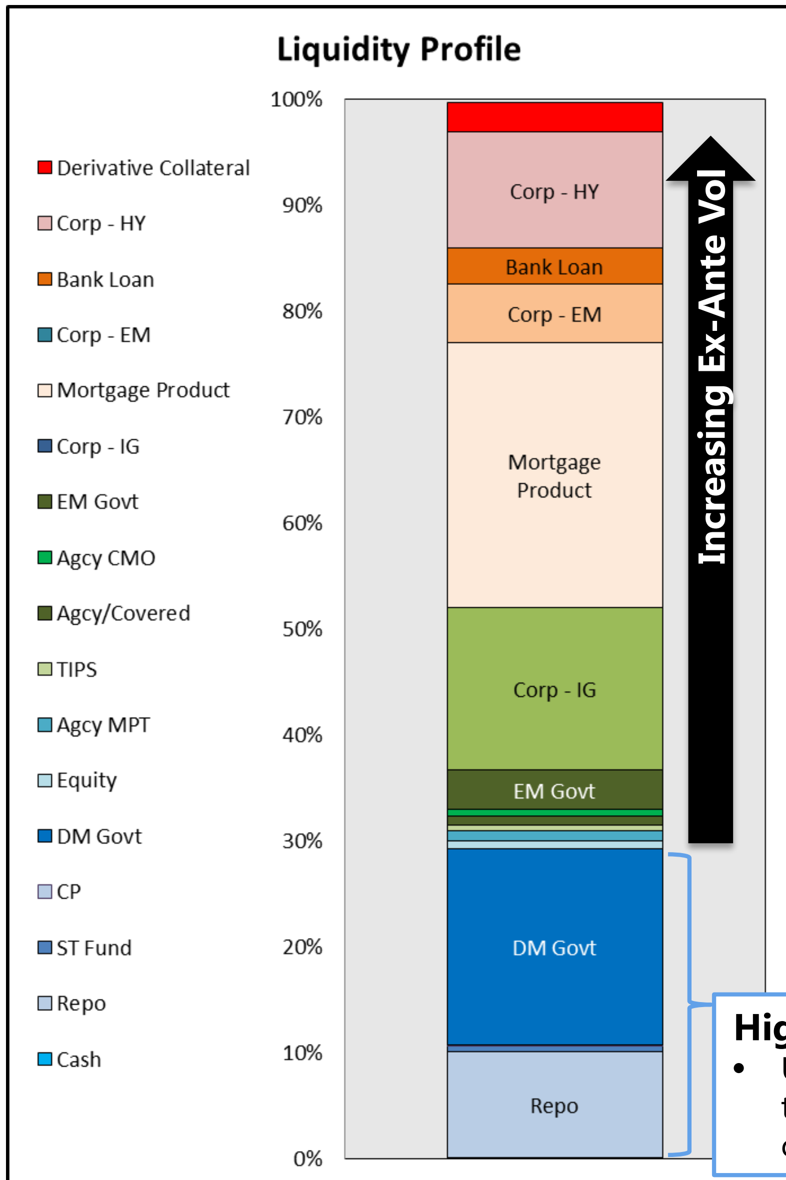
Portfolio Liquidity Risk Program

Designed to ensure that portfolios are well-positioned to withstand stress scenarios, and allow portfolios to potentially take advantage of opportunities provided by market dislocations.



- **Daily Stress testing** to estimate worst-case cash needs related to forward settling or derivative positions on a forward looking horizon.
- **Redemption Analysis** of historical fund flows by strategy with a focus on the tail of the distribution of realized flows.
- **Minimum True Cash Buffers** established for each portfolio which are met with holdings in assets which can be sold or financed via the repo market for same day settlement.
- **Tier and Monitor strategic holdings by Volatility**. Security volatility estimated utilizing multiple approaches including ex-ante risk models (PROTEUS), market implied risk (spread/OAS) and historical simulation (CVAR).
  - **Concentration limits** framework applied to single-name (issuers) and asset classes. Limits scale with an assessment of the credit risk of the issuer with higher risk issuers subject to lower percent market value limits.
  - **Early warning credit process** to escalate and review changes in price or spread (OAS).

Highly liquid, high quality assets

- US Treasuries bonds, AAA-rated Agency mortgage pass-through, Cash and overnight investing Repo which may be converted to cash in stress market conditions.

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Quantitative Research : Liquidity in Corporate Credit Markets

Liquidity cost has a strong relationship to volatility (VIX) and spread (OAS).
Higher cost bonds tend to have higher beta to liquidity shocks (for example Energy in early 2016).

Positive long-term Correlation of liquidity innovation to Change in Spreads and VIX

Table 3: Summary statistics of liquidity innovation

2007 to 2017	CONSUMER	EMMP	FINANCIAL	INDUSTRIAL
Volatility	0.14	0.20	0.28	0.15
Kurtosis (excess)	63	38	38	44
Skewness	7	5	4	5
Corr to VIX	33%	40%	40%	36%
Corr to BarC A OAS	22%	23%	19%	23%
2010 to 2017	**CONSUMER**	**EMMP**	**FINANCIAL**	**INDUSTRIAL**
Volatility	0.04	0.10	0.07	0.05
Kurtosis (excess)	7	5	18	4
Skewness	1	2	3	1
Corr to VIX	25%	31%	27%	25%
Corr to BarC A OAS	32%	41%	39%	42%

Source: PIMCO

Impact of Oil shock on Energy Sector. Correlation between liquidity cost and liquidity beta <u>increase</u> in turbulent periods.

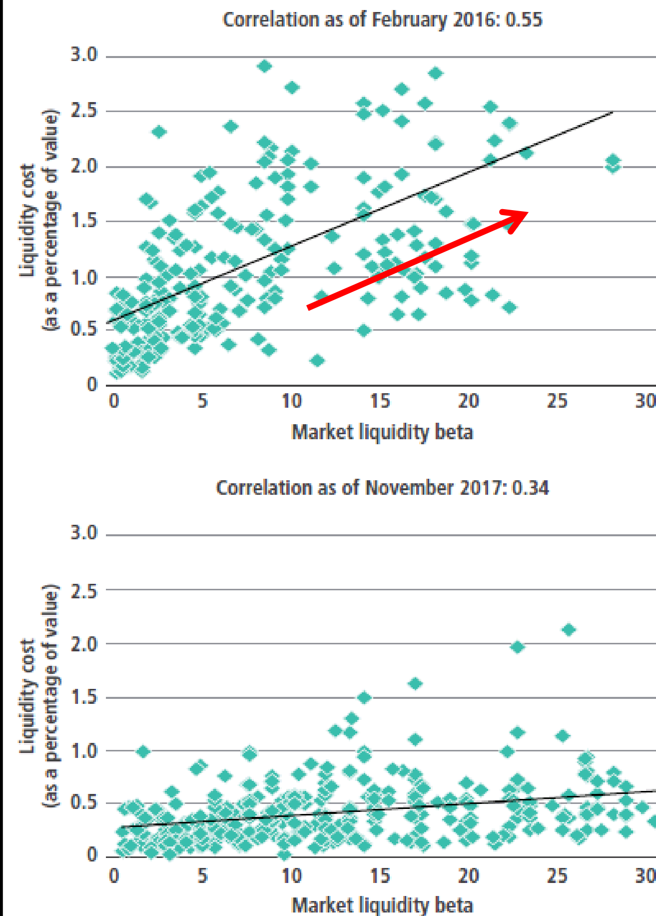

Figure 7: Correlations between beta and cost in the EMMP sector

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