



JASPER CAPITAL

THE JASPER CAPITAL NEWSLETTER

August 2019



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Liquidity Premiums in China

While Jasper Capital does not deploy traditional BGI/Fama-French factors, there are certain academic discoveries in the factor architecture of markets that are an excellent starting point for our process. Previously, we discussed how we adjust to the idiosyncrasies of the Chinese equity market to extract reversion signals and calculate crowdedness. In this monthly, we dive into the liquidity factor.

The Liquidity Factor

The concept of liquidity in asset management has always been critical in designing and implementing client portfolios as it has been important to know how quickly a client can liquidate while avoiding deleterious effects on the portfolio itself and the manager. Similarly, in the 1960s financial academics started to research the relationship between transaction costs and transaction volumes, or the “price of immediacy” and the effect of economies of scale in securities transaction costs.¹

It was not until the 1980s that financial academics to view liquidity as an input into the investment process when Yakov Amihud and Haim Mendelson opened the academic literature to the importance of using liquidity in securities pricing in their seminal work,

¹ Demstet, Harold. The Cost of Transacting, Quarterly Journal of Economics. (1968)

“*Asset Pricing and the Bid-Ask Spread.*” In their work, Amihud and Mendelson connected liquidity characteristics and expected returns finding that higher spread (more illiquid) assets yield higher expected returns, which they deemed as a “rational response by an efficient market to the existence of the spread.”²

Since then, a number of empirical analysis on the excess returns of less-liquid assets over more-liquid assets have been published and strategies have proliferated. While not part of any of the canonical factor models (CAPM, Fama-French 3 and 5, or Carhart’s 4 factor model), liquidity has grown in importance as a critical feature to analyze as the entire asset management product pipeline (from construction to implementation) relies on liquidity measures in one form or another.

As with most factors outside of those in the canon of factor investing, liquidity has its naysayers. There have also been a number of academic studies suggesting that a liquidity effect is either an artifact of sampling bias³, factor construction⁴, or really just the size factor in disguise.⁵

We contend that the structure of the Chinese market is unique, and our six years of actively researching and deploying strategies has honed our ability and credibility to weigh-in on the topic.

Ownership Structure Effects

As with most things in China, even the definition of liquid is not straightforward because of the structure of the market and the distortions they beget in practical applications. In order to understand fully the nature of the liquidity factor in China we must first delve into the ownership structure of the A-share market and the effects it has on volumes and price formation.

The prevalence of state actors and the ownership structure of the A-share market makes it a lot harder to apply traditional templates for understanding price discovery and, thus, forecasting expected returns. According to Bai et al’s model of price information and Carpenter et al’s applications thereof, if a market is governed by prices and corporate managers are sensitive to those prices, then their pursuit of maximizing firm value creates a link between prices and profits, and thus expected returns⁶ (or what Carpenter calls the correlation between “price informativeness and investment efficiency⁷”).

However, in enterprises where investment decisions are not always driven by profit-maximizing decisionmakers but rather driven by Party policy, as is the case in state-owned enterprises and increasingly in private enterprises, then the information content of prices is impeded. Government ownership is well-known in the Shanghai Composite. The chart below shows shareholder ownership in the top 20 largest companies listed in Shanghai.

² Amihud, Yakov, and Mendelson, Haim. *Asset Pricing and the Bid-Ask Spread*. Journal of Financial Economics (1986)

³ Drienko et al. *A Review of Return-Illiquidity Relationship*. Critical Finance Review (2017)

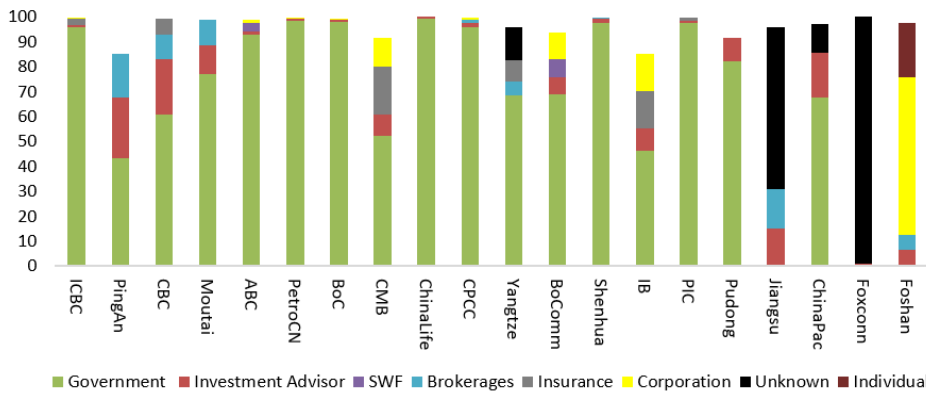
⁴ Hou et al. *Replicating Anomalies*. NBER (2017)

⁵ Li et al. *Liquidity risk and asset pricing*. Critical Finance Review (2017)

⁶ Bai et al. *Have Financial Markets Become More Informative?* NBER (2016)

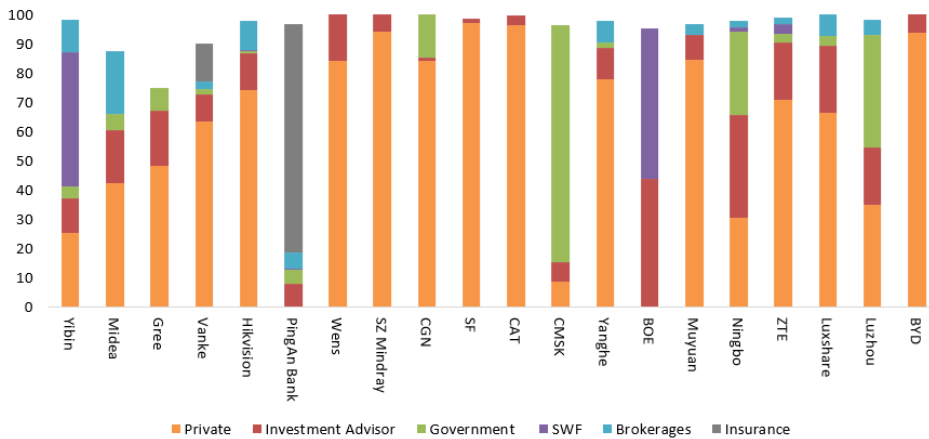
⁷ Carpenter et al. *The Real Value of China’s Stock Market*. NBER (2019)

Shanghai Composite



While private enterprises have a slightly more diverse set of investors, with more participation from institutional investors, there is still a concentration of ownership of a different kind. That majority ownership is held by founders through an array of holding companies when not listed as individual ownership.

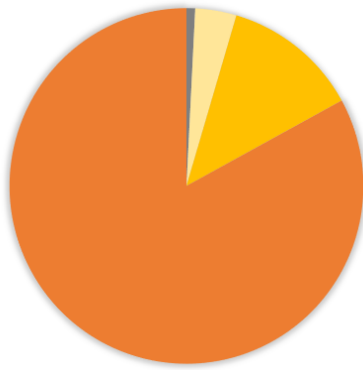
Shenzhen Composite



This ownership structure begets another question, with these levels of concentration and vested interest, do you think regulators will ever truly let short selling become a common practice, particularly when one realizes the cross-pollination of ownership between industries, e.g. insurance are major shareholders in banks as are some state telecoms?

The important aspect of the ownership structure for our cause of understanding liquidity as a factor in China is in how shareholder concentration and regulation affect the public market. On one side of the argument is the aforementioned controlling interest that is political or founder-led in nature. These are vested interests holding for the long haul, even though the founder concentrations became systemic risks last year when share-loans became a pervasive issue for lenders. The other side of the equation is comprised on the plethora of regulatory designations that lead to shares being restricted or suspended for various reasons and for various lengths of time. All of these factors have led China to become notorious for having a significantly lower amount of free floating in the equity market. Compared to the S&P500, which on average has 95% of shares in free float, the Shanghai and Shenzhen Composites have 79% and 75%, respectively.

S&P 500



Shenzhen Composite



Shanghai Composite



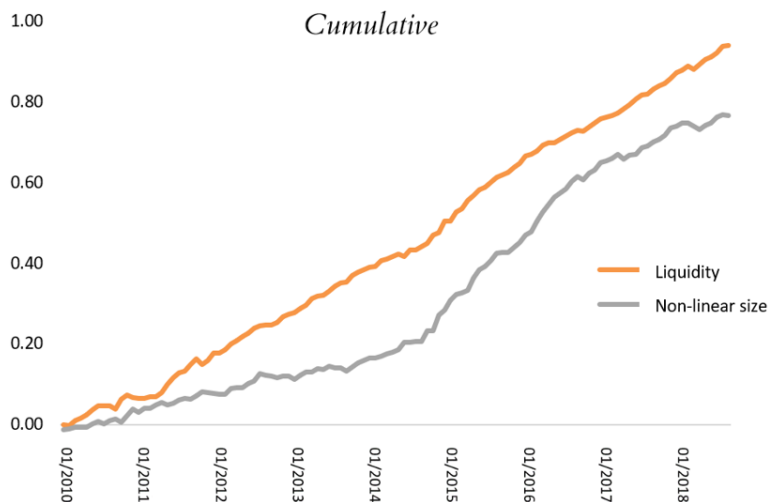
■ ≤ 25% ■ > 25% and ≤ 50% ■ > 50% and ≤ 75% ■ > 75% and ≤ 90% ■ > 90% and ≤ 100%

The Liquidity Factor in China

There are several ways to measure liquidity, most of which are predicated upon transaction-level data or turnover. We begin our analysis with the MSCI Barra Risk model definition of liquidity, which “captures variations in stock returns due to the amount of relative trading and differences in the impact of trading on returns⁸” over various time horizons. A quick analysis across Barra’s risk factor time series illustrates how the Chinese market is dominated by liquidity and size, putting to rest academic notions that liquidity is an artifact. If it provides returns, then in our view it should be exploited, particularly if those returns are in excess of those provided by the size factor.

	BETA	B/P	EARNYILD	GROWTH	LEVERAGE	LIQUIDITY	MOMENTUM	RESVOL	SIZE	SIZENL
Mean	5.5%	1.0%	2.0%	1.0%	-0.6%	-9.7%	2.9%	-3.2%	-4.2%	-7.9%
Standard Deviation	4.3%	3.0%	2.7%	1.8%	1.9%	2.4%	3.8%	5.0%	5.5%	3.1%
Sharpe Ratio	1.29	0.32	0.73	0.55	-0.31	-4.11	0.77	-0.65	-0.77	-2.54

Barra Factor Return
Cumulative



⁸ <https://www.msci.com/>

Taking into consideration the composition of the Barra liquidity factor and the characteristics of A-share ownership outlined above, we adapt the factor by adjusting for various measures of transactions to see which yields the best information coefficient.

IC of Adjusted Measures				
	Barra Factor (Turnover)	Transaction Volume-Adj	Transaction Value-Adj	Free-Float Adjusted Turnover
CSI 300	0.01	0.09	0.12	0.15
CSI 500	0.00	0.13	0.15	0.16
CSI 1000	-0.01	0.12	0.13	0.15

A quick analysis and comparison against classic turnover, used in Barra, yields positive results with information coefficients become highly significant across the three main equity indices traded in our products.

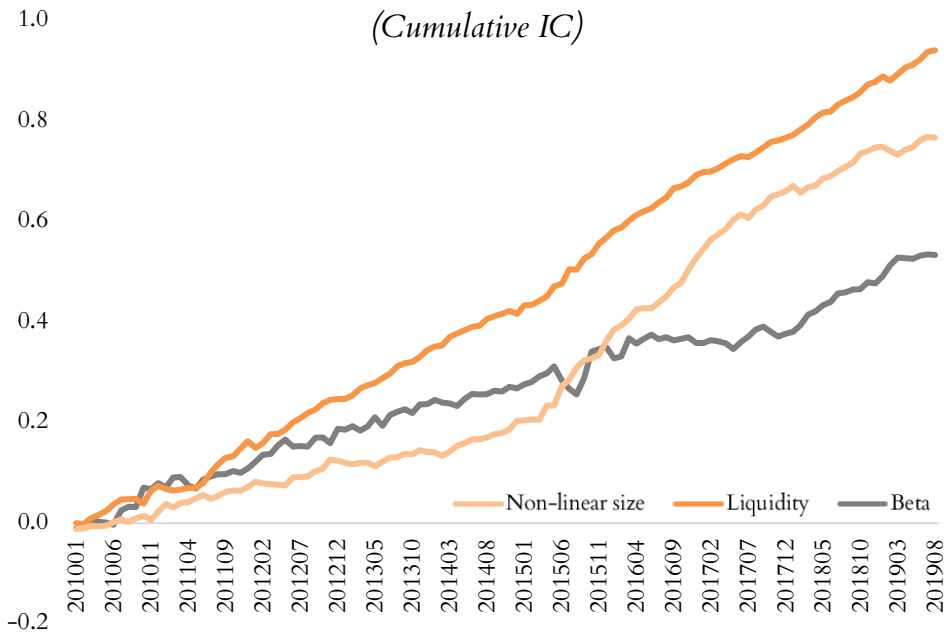
Cumulative Information Coefficient (Monthly Average, 2010-2019)		
	Turnover	Free Float-Adjusted Turnover
CSI 300	0.13	0.34
CSI 500	0.10	0.47
CSI 1000	0.06	0.45

These returns confirm results from Cui and Wu (2007) who found a strong negative correlation between expected returns and the size of the non-tradable shares even after controlling for liquidity measures.⁹ While prior studies linked the liquidity effect as a byproduct of size, Cui and Wu found that liquidity plays an important role in the size effect when it comes to the Chinese market. We agree. Our returns take this concept a step further and prove the significance that liquidity has as a return feature on its own, as shown above, and can be cajoled into yielding more than advertised, as shown further below.

We apply this knowledge by developing a sample alpha signal and compare it across size and beta factors, the most common factors used in factor models particularly in China, to illustrate its cumulative performance using the entire cross-section of 1800 stocks in the CSI-300, CSI-500, and CSI-1000. This gives us the gamut of stocks varying in size and ownership structures as discussed above. The result is that a liquidity signal on its own is capable of outperforming beta names and the size factor by a large margin.

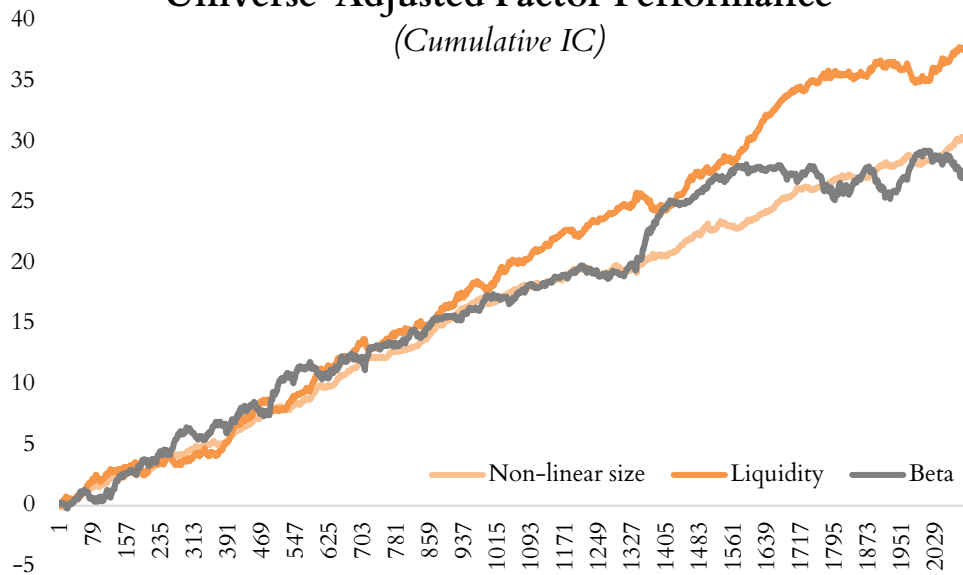
⁹ Cui, Rong and Wu, Youchang. Disentangling Liquidity and Size Effects in Stock Returns: Evidence from China. (2007)

Raw Factor Performance (Cumulative IC)



Further, we can make the same selection criteria as Cui and Wu, eliminating stocks that were harder for academics to analyze in 2007, by removing limit up/down, suspended, and special trading stocks in our construction process. Even with these criteria, liquidity maintains a palpable outperformance while size experiences a downward shift and beta an upward shift in cumulative information coefficient performance over the test horizon. These results show that even in a stricter stock universe, liquidity proves significant alpha while size and beta converge on the expected returns they can deliver to investors.

Universe-Adjusted Factor Performance (Cumulative IC)

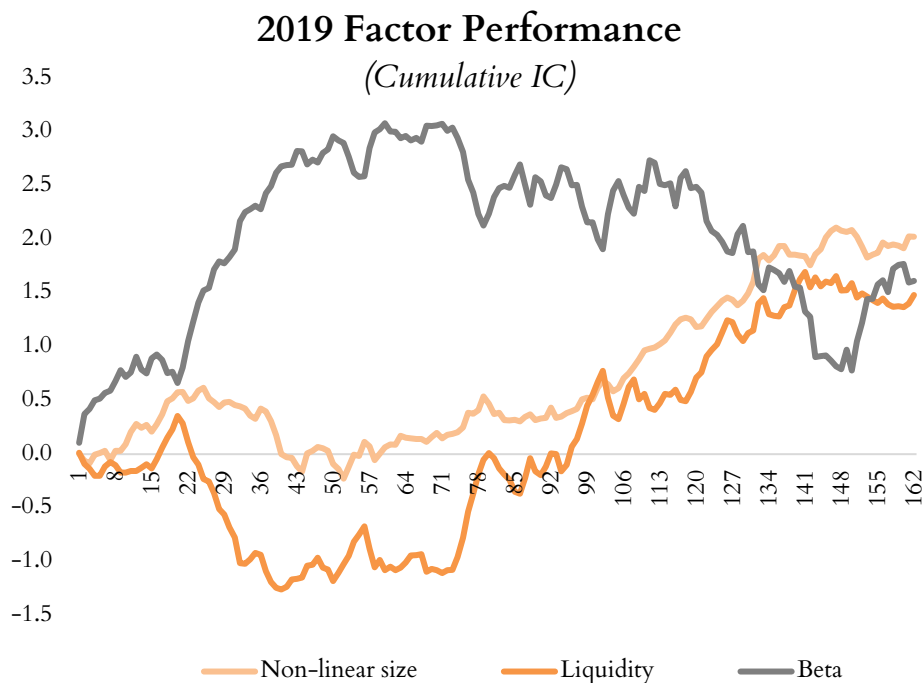


This illustrates the importance of understanding liquidity as a factor in the A-share market. No matter how you slice the universe, including a liquidity alpha signal in a model has the potential to deliver outperformance over a long horizon, which is the underlying

stipulation of most factor models. But what about the short-term? The chart above does show corrective phases in the cumulative performance of liquidity over the horizon.

Indeed, this has been particularly apparent this year as shown in the chart below. The steep reversal in the distribution of returns across indices at the start of the year was defined by a similarly rapid change in leadership from large cap, which dominated in 2018 given the plethora of macro concerns, to small cap. This caused significant gyrations in factor performance (noted in our January newsletter, *Factor Fracas*).

The weighted average nature of the Barra liquidity factor, which deploys a recency-bias tilt, caused for an underperformance of the factor when tailwinds rapidly shifted to favoring small caps, which rallied significantly. As macro and geopolitical headlines have reemerged to the status quo of heightened risk, there has been a slow reversal in tandem with reversion to the new normal.



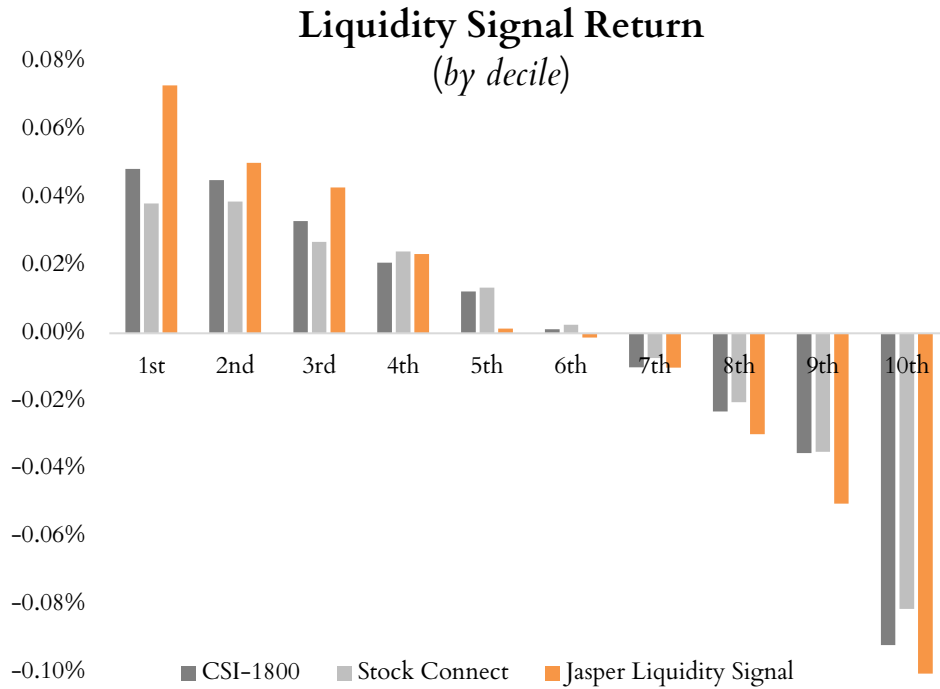
What can one do to make the factor work more consistently?

Jasper’s approach takes advantage of our six years operating in the onshore market along with the latest techniques in machine learning to create methods and state-of-the-art signals that enable us to exploit the idiosyncrasies of the A-share market, and even allow us to maximize the return of more traditional factors, even if their existence is disputed by academics.

We run our methodology on the same universe of stocks to create our proprietary liquidity alpha and compare it against the liquidity signal described in detail above. We also take the original liquidity signal and replicate it for the Stock Connect universe, which is more limited than the cross-section of stocks onshore.

Following the traditional quant strategy research framework, after we create our signals, we calculate daily IC, aggregate them into monthly averages, and then divide our data set

into deciles to understand the best method for creating long/short selections to construct our portfolio. We see that in each decile, our signal outperforms traditional signals in each universe of equities, onshore CSI-1800 and Stock Connect, throughout this year.



The creation of unique high-performance signals rooted in our deep expertise and knowledge of operating in China’s A-share market is at the heart our process. We believe the combination of tenured operating experience, expertise in quantitative strategies, and investment in technology infrastructure is the key to developing signals capable of adapting to the rapidly changing environment that defines the Chinese equity market. We will continue to provide our clients with our best ideas and next generation methods as we strive to stand out in this increasingly competitive landscape.

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