KCG

Market Commentary

Market Insights

By Phil Mackintosh and Rachel Liang

May 25, 2016

Where in the world is liquidity?

Taking Stock

Scouring the world for liquidity?

Futures: an asset allocation tool

Options: following in the steps of giants

Looking at underlying asset liquidity

Fixed Income – Too big to overlook

Stock and ETF markets

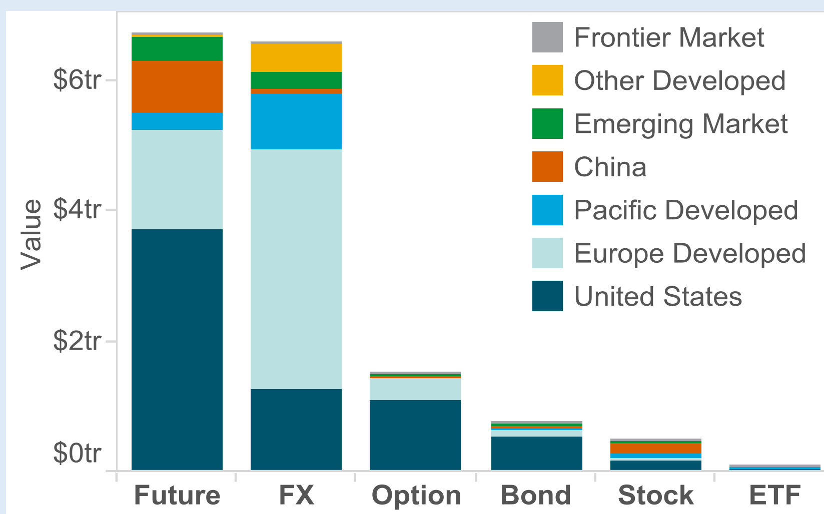
Crib Sheet:

Every single day, US Equities trade over $200bn, before we include ETFs. That seems like a lot, but it's not nearly the half of it - literally.

Looking at trading all around the world, we see that global financial markets trade trillions of dollars per day, around $US 16tr reportedly. Some key points stand out:

- The US is a leader in "real" assets like stocks and Bonds – but those asset classes combined add to just 8% of total daily trading.
- Futures and FX are where most liquidity is – with FX liquidity focused in the UK.
- China's surprisingly large in a few areas, despite its status as an "emerging" market, and the fact that its markets are mostly restricted to locals.

Exhibit 1: Global liquidity by instrument and region.



Based on 2015 1H data

Source: KCG Data, Bloomberg, Reports published by Central Banks, Clearing houses, exchanges and various web sources. World-Exchanges.org, Bank of International Settlement Tri-annual report, The worldbank.org

Scouring the world for liquidity?

Liquidity is one of the most important factors to institutional-size investors. It affects trading costs, fund capacity and execution times. Key drivers of liquidity seem to be:

- Simplicity
- Underlying market and economic size

But market structure can help too. In particular, cheaper trading leads to more liquidity. It's also consistent with **our own finding** that cost reductions in US equity trading boosted liquidity at the turn of the millennium. It seems different trading costs can affect **which instruments** investors trade. That's probably why futures are so popular.

Futures and FX dominate

Looking across all financial instruments, futures and FX stand out. Both trade multi-trillions of dollars each day. Futures liquidity is dominated by the US while FX is predominantly traded in Europe (Exhibit 1).

In contrast, "real assets" like bonds, stocks and ETFs have relatively low liquidity – totaling just $1.3tr per day.

On a geographic basis:

- United States leads in global liquidity – with almost $7tr in liquidity per day, as well as having the world's largest underlying markets. However, 70% of trading exposures come from derivatives (futures and options, see Exhibit 2).
- Europe is a close second, thanks to the UK's FX market share.
- China is a big surprise (see sidebar below)

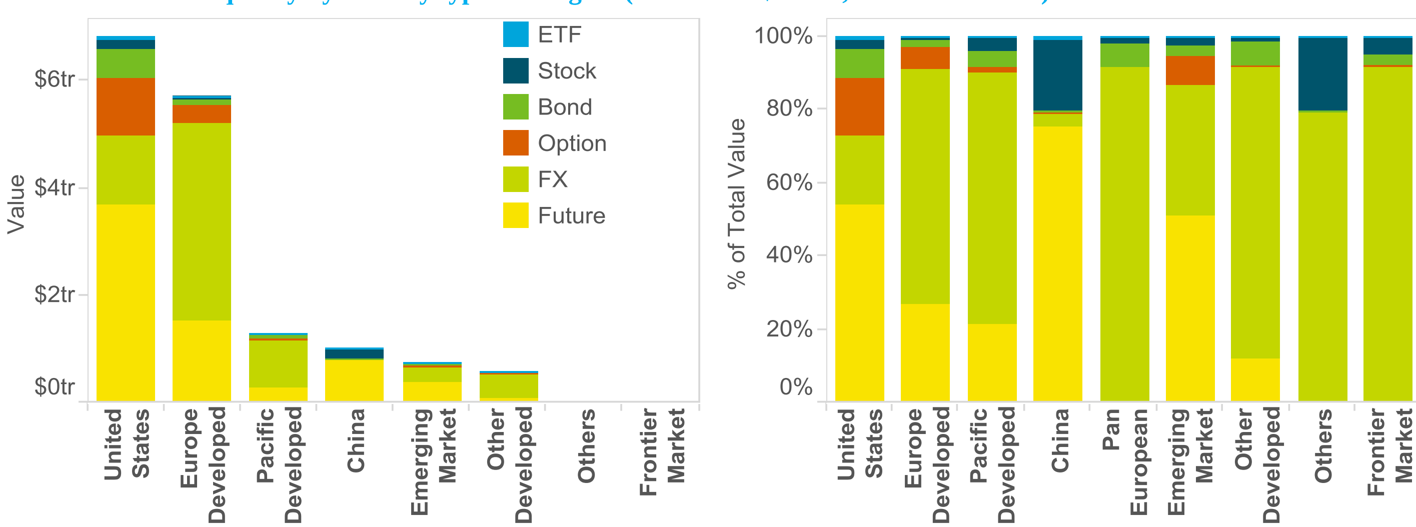
Scouring the world for data!

Dislcosure of trading data is far from consistent. Each country and asset class have their own ways of recording liqudity data, ften with significant limitations or omissions.

So we can't confess to have uncovered all liquidity in this report – especially if it's privately traded.

But we've done our best to scour sources for each asset class and across most countries to show material (public) liquidity on a global scale.

Exhibit 2: Global liquidity by security type and region (LHS: total $ value; RHS: % of total)



Source: KCG Data, Bloomberg, Reports published by Central Banks, Clearing houses, exchanges and various web sources. World-Exchanges.org, Bank of International Settlement Tri-annual report

Futures: an asset allocation tool

Futures are the most liquid financial instrument asset class in the world, with over $6.7tr in notional trading every day.

Futures are, of course, derivatives – meaning they represent different underlying asset classes (see Exhibit 3). However, futures are often:

- Cheaper to trade
- Operationally simpler to trade
- Regulated differently from the underlying markets

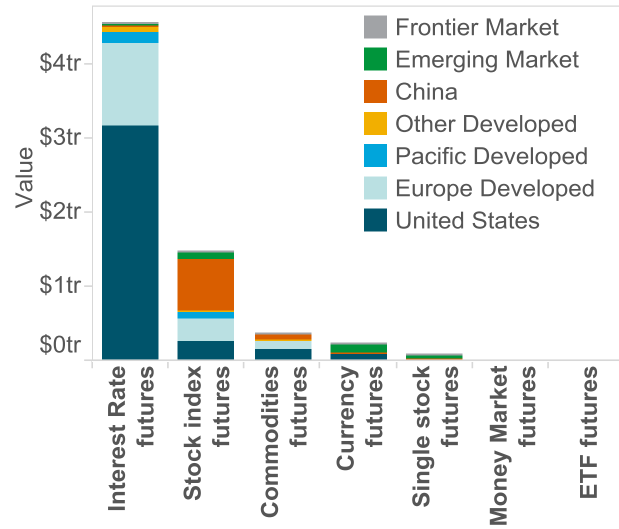
For example, in the US the CFTC regulates futures. However, it is the SEC that regulates stocks & options and the Treasury and Fed regulate Government bonds.

Futures are biggest in US and Rates

The US is a clear leader in Futures liquidity with around $3.5tr traded per day. However, most of that is in rate products, which may be partly due to the fact that bond market structure makes it **difficult** and expensive to trade actual bonds for short-term exposures.

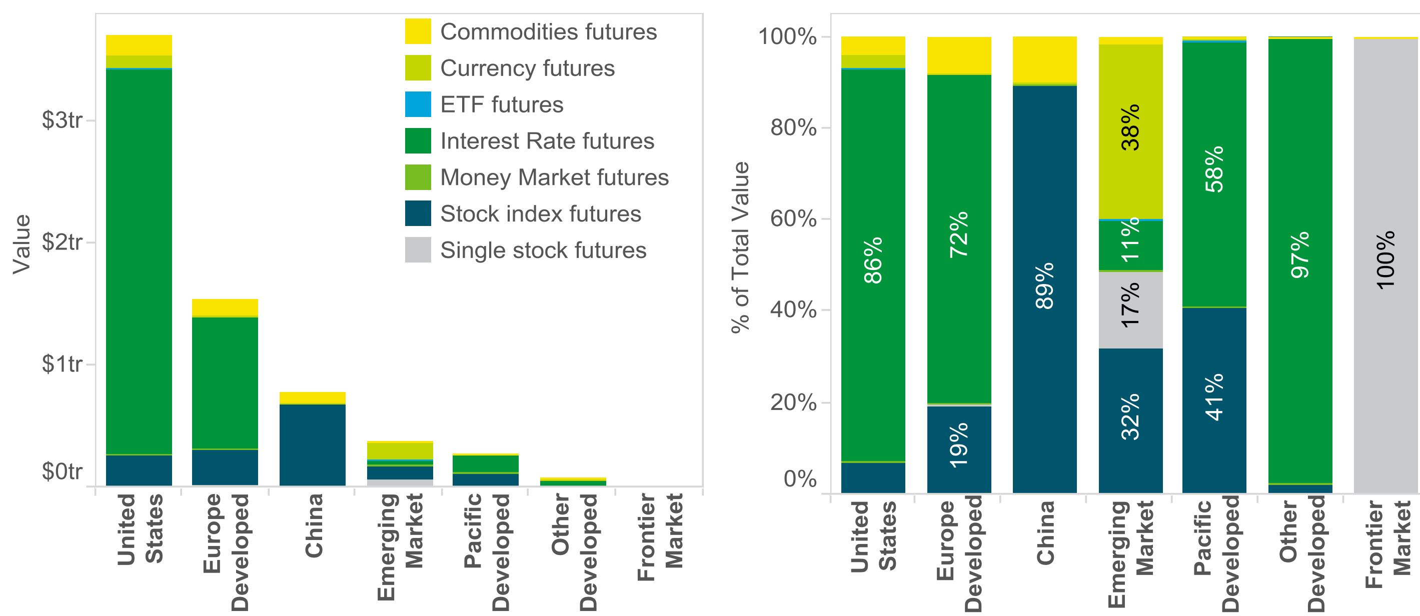
Chicago Mercantile Exchange is the largest future exchange in the world. By our estimates they handle over half of the futures liquidity, or around $3.7tr per day.

Exhibit 3: Futures by underlying asset class.



Source: KCG Data, Bloomberg, Reports published by Central Banks, Clearing houses, exchanges and various web sources. World-Exchanges.org, Bank of International Settlement Tri-annual report

Exhibit 4: Futures by country.



Source: KCG Data, Bloomberg, Reports published by Central Banks, Clearing houses, exchanges and various web sources. World-Exchanges.org, Bank of International Settlement Tri-annual report

Options: following in the steps of giants

Like futures, options also offer derivative exposures to all asset classes - unless you consider volatility to be an asset class. Also, just like futures, options liquidity is mostly on US debt exposures.

Options markets, however, are nowhere near as large as futures markets, based on reported liquidity of $1.5tr per day.

Listed options are relatively rare in less-developed countries – although those markets may have OTC markets that don't disclose public data. China's options market is also small – but new as the first equity options weren't **launched** until February 2015.

What's an option trade worth?

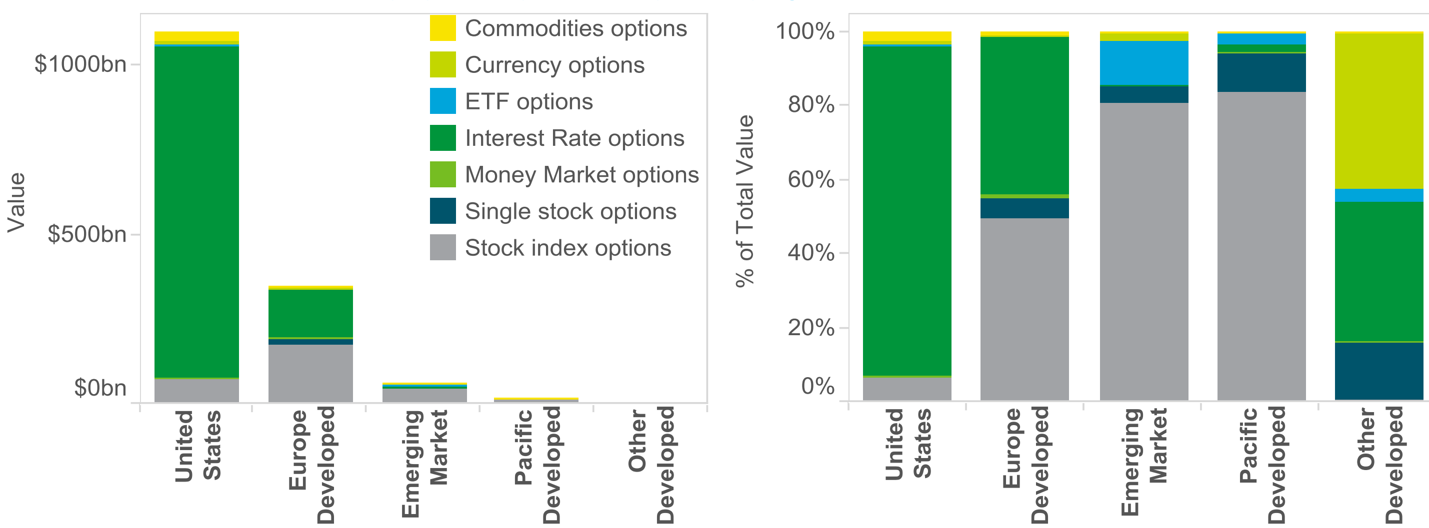
Not only are options leveraged products, they also have a value that can vary significantly over time, including expiring "worthless." This makes it a little tricky to measure "liquidity," as it could measure some very different values:

- Intrinsic value (or in-the-money-ness)
- Traded value or premium (which includes Theta), or even
- Total underlying notional exposure

The industry mostly measures volume (contracts) instead of value. But given contracts are worth such different amounts, this is useless to compare across underlying exposures.

Where value is computed, convention seems to be to measure the **underlying notional** exposure – effectively the value insured rather than the cost of the insurance. This exaggerates the real liquidity in the market.

Exhibit 5: Options market liquidity by country (colored by underlying asset).



Source: KCG Data, Bloomberg, Reports published by Central Banks, Clearing houses, exchanges and various web sources. World-Exchanges.org, Bank of International Settlement Tri-annual report

Looking at underlying asset liquidity

Underlying markets, as we saw in Exhibit 1, are surprisingly *illiquid*. However, trading in futures and options represents exposures to these asset classes too, so it makes sense to compare futures and options liquidity in each asset class alongside the underlying asset liquidity.

US and UK have the most financial liquidity

Although allocating derivatives liquidity to the underlying will inevitably result in some "double counting" of arbitrage trading, the results show that:

- US and Europe have most of the world's underlying liquidity
- Although European liquidity is dominated by the UK's market share in FX

FX: the #1 asset class

The Forex market is a global and decentralized market catering to participants like central banks, companies, importers and speculators. But the UK continues to be the centerpiece of FX liquidity, with over 40% of the liquidity trading in London.

US FX trading is just a third of the $3.7tr that trades daily in Europe.

Developed Asian countries are also active in forex trading, perhaps helped by the fact that their time-zone overlaps less with Europe. Together, they make up over 14% of the whole market value, which makes Forex more liquid than other financial assets combined.

China: a surprise of frenzied trading

China is a big surprise in many of these charts, especially given its emerging-market status and the fact that it's markets are mostly closed to global investors.

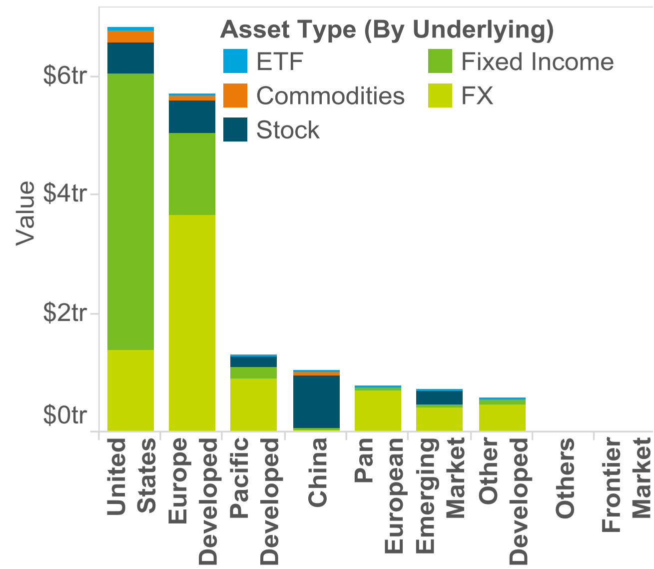
For example, during 2015, China's stock market became the most liquid in the world – before a meltdown that eventually led to **Aug 24, 2015,** in US equity markets and their own **circuit breaker triggers** in Jan 2016.

Subsequent actions **curbed speculative** trading in stocks and stock futures, but may have just shifted activity **elsewhere**.

Activity on China's largest commodity exchanges has surged in recent days with turnover in key steel contracts exceeding the combined volume of the Shanghai and Shenzhen stock exchanges recently. It is now a **major** player in **commodities**, although this is at least consistent with their relative consumption of commodities.

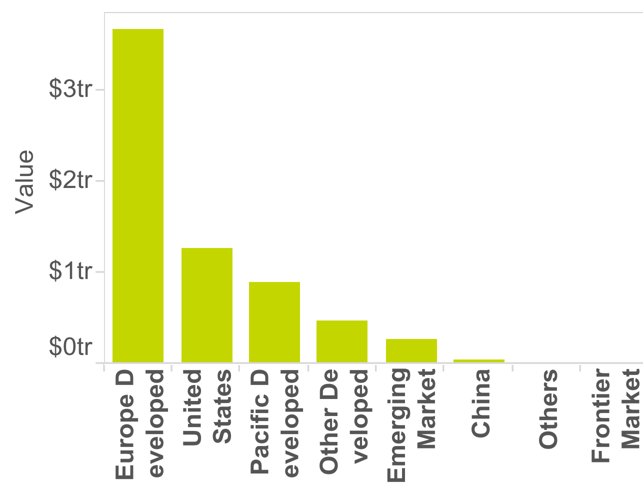
Despite that, China remains highly liquid for its size and wealth.

Exhibit 6: Underlying asset liquidity by country.



Source: KCG Data, Bloomberg, Reports published by Central Banks, Clearing houses, exchanges and various web sources. World-Exchanges.org, Bank of International Settlement Tri-annual report

Exhibit 7: Global Forex liquidity distribution.



Source: KCG Data, Bloomberg, Reports published by Central Banks, Clearing houses, exchanges and various web sources. World-Exchanges.org, Bank of International Settlement Tri-annual report

Fixed Income – Too big to overlook

As the least risky and most basic asset type, fixed income securities are a widely used investment. Global rate trading adds to $6.5tr, although most of that is in futures.

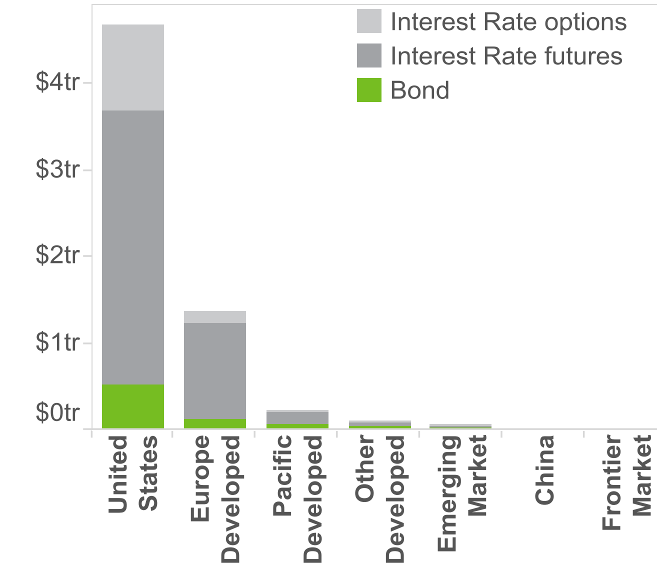
It seems that in most countries bonds trade over-the-counter, unlike stocks that are mostly listed on an official exchange. As a consequence, complete data on trading was especially difficult to compile – even in the US as we recently discussed in **Tracing the Bond Market**.

Despite that, the data we did collect shows that:

- United States, has by far the most bond liquidity – trading an average of $522bn per day in physicals and $3.7tr in futures.
- All other countries combined add up to only $240bn.

This would seem to confirm the power of the US Treasury as the ultimate "risk free" asset – at least for now.

Exhibit 8: Bond liquidity (by instrument and region).



Source: KCG Data, Bloomberg, Reports published by Central Banks, Clearing houses, exchanges and various web sources. World-Exchanges.org, Bank of International Settlement Tri-annual report

Stock and ETF markets

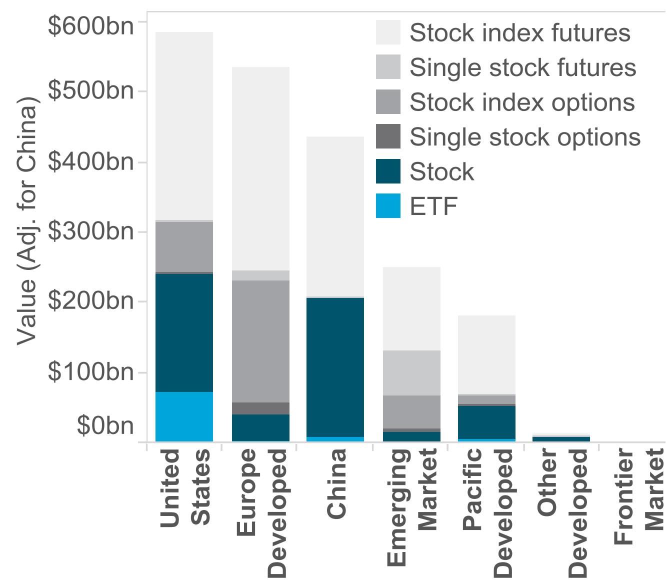
The asset class we all spend the most time in is actually the least liquid of the ones we investigated.

Globally, we estimate stocks trade around $572bn per day, although almost 50% comes from China (see sidebar).

The US stock market stands out on a number of levels:

- United States is the biggest player in accessible stocks, representing 60% of globally investible[1] stocks.
- US ETF markets account 83% of global ETF liquidity.
- US ETFs are also so large that they add 42% to the liquidity of the US "stock" market.

Exhibit 9: Stock liquidity (by instrument and region).



Source: KCG Data, Bloomberg, Reports published by Central Banks, Clearing houses, exchanges and various web sources. World-Exchanges.org, Bank of International Settlement Tri-annual report

Averaging China over (a longer) time

Note: During our data collection period for all other countries (2015 1H) China saw abnormally high liquidity in their equity markets (futures included). In our charts, we have averaged Chinese liquidity over more than that 6-month period to show more "normal" global liquidity distribution.

For example, we adjusted the stock index futures traded to **around 70%** of its reported value, which is more in line with its current level.

[1] Excluding China given restrictions (like QFII, RQFII and StockConnect) that limit investments by global investors.