



Liquidity on the Rocks

The Liquidity Crisis Facing U.S. Equities Markets
and the Need for a Proactive Liquidity Sourcing Solution.

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Executive Summary

For years, the money management industry was built on the principles of risk and return. Increasingly, however, academics and leading money managers are recognizing a critical third component to the investment equation: liquidity. While portfolio models have long assumed a “frictionless” world, savvy market participants are recognizing that trading costs can have a substantial impact on investment performance.

Unfortunately for money managers and their investors, liquidity is getting harder, not easier, to find in today's equity markets. In a recent survey of top buyside traders by The Tower Group, “finding liquidity” is still their #1 concern. As leading money managers and hedge funds look to enter and exit bigger positions rapidly, they are running into substantial liquidity challenges.

While it is relatively easy to trade smaller positions in heavily-traded issues, trading costs mushroom for larger trades in small-cap, mid-cap and momentum stocks, especially when you consider the “total” costs of trading, including the costs of market impact, delay and missed trades. What's more frustrating for fund managers is that it is these tough-to-trade stocks where many of the alpha-capture opportunities lie.

However, through a Proactive Liquidity Sourcing Solution™ (PLSS) money managers can dramatically reduce liquidity risk, reduce total costs of trading and capture substantial alpha. PLSS should be an integral part of every trading desk's arsenal, alongside exchanges and ECNs, algos, programs, dark pools and capital. Ever-more-sophisticated pre-trade analysis tools are being developed to help portfolio managers and traders determine when it makes sense to “go proactive.”

For roughly two decades, equity markets on both sides of the Atlantic have been experiencing remarkable technological developments, major shifts in their regulatory environments, and the growth of institutional investing. All of the major market centers in Europe now have fully electronic trading platforms. Currently, we are entering an era of global markets. In recent years, the pace of change has accelerated. This might leave us all breathless, but is further development still needed? Yes. The major problem is that market structure does not cater adequately to the needs of institutional customers.

Robert A. Schwartz and Reto Francioni

Equity Markets in Action

The Missing Link in Portfolio Management: Liquidity

Many of the bedrocks of modern portfolio management theory, such as the Capital Asset Pricing Model (CAPM), are based on the assumption that markets are “frictionless,” that positions can be easily bought and sold without regard to transaction costs. While such an assumption makes for effective modeling, it completely breaks down in the real world of buying and selling stocks - where transaction costs can have a substantial, even crippling, effect on investment returns.

The academic community has begun to recognize this reality. As finance professor Michael Pagano has said in his [Reflections of a Finance Professor](#), “...our students graduate knowing a great deal about a risk/return world. There is only one trouble with this: the real world is not two-dimensional. Three factors, not two, matter in the real world - risk, return and...liquidity!”

As the academic community has recognized the importance of liquidity in the overall investment management process, so too have leading-edge portfolio managers and analysts. Trading was once considered an almost clerical function. “Clerks” who often doubled as administrative assistants at money management firms and mutual funds were given orders to “execute.” This meant little more than filling out an order ticket and sending it to the broker designated by the portfolio manager.

However, as the markets have evolved and as the importance of liquidity and trading costs have risen to the surface, the trading function and traders themselves have become much more integral to the investment management process. Indeed, many buy-side traders have on their desks the same technology and tools that their sell-side counterparts also have.

Much of this trend of raising the awareness of trading and the profile of traders has been driven by hedge fund managers, many of whom consider themselves traders first and portfolio managers second. In many ways, the investment community can be broadly divided into two camps: those who “get it” - those who understand the integral role that trading plays in the investment process - and those who do not.

The Liquidity Challenge: Availability and Access in Today's Environment

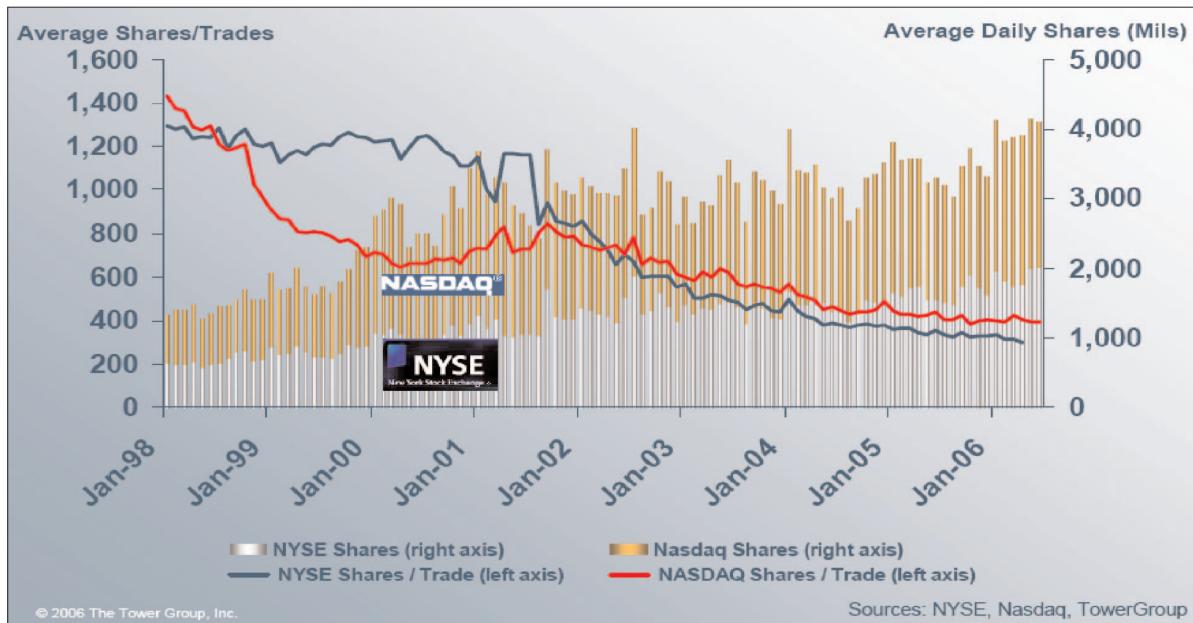
While stock market operators such as the NYSE and Nasdaq point to growing volumes and declining spreads, there is substantial evidence that the search for liquidity (with its associated costs) continues to be a substantial challenge for institutional investors.

Growth in equity trading has been impressive over the last 25 years. In 1980, the average daily trading volume on the NYSE was approximately 45 million shares a day. In 2005, the average amount traded exceeded 1.7 billion shares. Certainly, declining transaction costs and growing automation have contributed to this impressive growth.

However, this increase is less impressive when you consider asset growth. According to McKinsey & Company's annual Global Capital Markets study, the financial assets of the U.S. amounted to just \$12 trillion in 1980. By 2004, these financial assets had grown to \$136 trillion, divided between equity, private debt, government debt and bank deposits.

Also, the character of investors had changed substantially during that period, a shift from retail to institutional investors. A study by Paul Gompers and Andrew Melnick showed that large, institutional investors doubled their share of the stock market from 1980-1996. With the growth of hedge funds over the last ten years and their high turnover, the influence of institutional investors is even greater today.

However, as institutional investors and their need for larger orders has played a much greater role in the markets, the average trade size on both the NYSE and Nasdaq has diminished to less than 1,000 shares per trade.



What's most important in terms of market depth is whether a market has kept up with the customers appetite for trading. Wayne Wagner, from the Plexus Group, estimates that 80 percent of institutional orders exceed half the relevant stock's average daily trading volume. This means that the threat of market impact is substantial for the vast majority of institutional orders.

With large orders that most often represent a substantial portion of the daily trading volume, institutional investors often resort to using algorithms to break the order up into multiple execution lots and then time the market for order entry. However, as Robert Schwartz and Reto Francioni point out, "...they run the risk of being front-run on the one hand and incurring opportunity costs on the other hand."

All of these liquidity challenges are echoed in interviews with portfolio managers, analysts and traders who are operating in the markets every day. A recent Tower Group study on Global Equity Trading identified "finding liquidity" as the #1 difficulty facing buyside trading desks.

Total transaction cost is the largest cost borne by investors over time, in most cases being a larger drag on performance than management and administrative fees. Yet these figures are never disclosed, and often are dismissed by a manager as merely "part of the process."

Wayne Wagner, *Plexus Group*

The Costs of Liquidity

As finance professor Michael Pagano noted, asset prices reflect not only risk but also an illiquidity premium. How big is this premium?

Wayne Wagner of the Plexus Group has analyzed the total costs of trading, taking a sample set of data that represents trading history of funds that represent 25 percent of the world's trading volume. His analysis shows a cost of approximately 157 basis points broken down as follows:

Commissions	17 bps
Market Impact	34 bps
Delay	77 bps
Missed Trades	29 bps
Total	157 bps

This equates to 47 cents for trading a \$30 stock. Assuming that an institutional investor bought a stock and paid 157 bps on the way in and then sold the stock a year later, paying another 157 bps on the way out, an expected 10 percent return would be knocked down to 6.86 percent. This is a 30 percent drop in return or, essentially, the difference between being a superstar investment manager and an also-ran.

As you can see from the example above, commissions represent only 11 percent of the estimated total costs of trading. As Wagner points out, this is only the tip of the iceberg and yet it receives by far the most scrutiny. Next in line is market impact, which is also generally visible to astute traders.

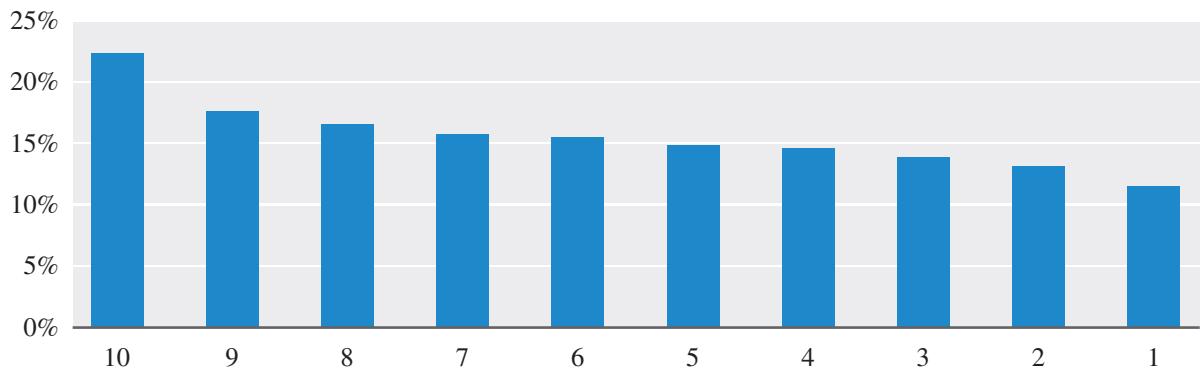
Below the “water line” lies the costs of delay and missed trades, both of which can be substantial. The costs of delay means that a portfolio manager or analyst came up with an investment idea and by the time they could implement the idea, the price moved away from them. In today’s “slice-and-dice ‘em” trading world, which we discuss below, implementing ideas can take hours if not days or even weeks. And the cost of a missed trade is the opportunity cost that you came up with a winning investment thesis but were never able to implement the trade.

However, the biggest cost of illiquidity may be the trades that never took place at all. In other words, what investment ideas are not even being pursued because of a lack of liquidity? For instance, many larger funds shy away from small- and mid-cap companies because of fear of the roach motel effect: they may be able to get into the investment but they can't get out. Ironically, it is among many of the tougher-to-trade companies where alpha capture opportunities lie.

Tough Trades and Alpha

What is most frustrating for portfolio managers and traders is that liquidity challenges are often the greatest barrier to capturing true alpha. In other words, above average investment returns are generally not found among the top stocks that are picked over by every analyst on Wall Street, but among the less popular stocks where truly unique ideas can be discovered. The challenge becomes getting liquidity in those stocks before others seize onto the idea.

The chart below shows the total return to shareholders for all publicly traded stocks from 1926 to the present, organized by deciles, from the smallest companies by market cap to the very largest.



There is an almost direct, inverse relationship between company size and total returns to shareholders. In other words, the smaller the company, the bigger the potential return. In fact, the total return of the smallest companies are nearly twice that of the very largest companies.

Getting to the Liquidity

This phenomenon is nothing new and has been termed the “small company” effect by academics. The real question becomes what accounts for the small company premium.

Many have posited that smaller companies are simply riskier and therefore command a premium. The source of the risk, according to those who advance this view, is the fact that smaller firms are less diversified than larger ones. However, this same argument was used to justify inefficient industrial conglomerates in the 1960s and 70s. Since then, modern portfolio theory has argued that investors can diversify their own portfolio and therefore do not place a premium on company diversification.

Returning to our original theme that risk and return are not the only variables in investment management, liquidity must be considered. Smaller companies are simply tougher - and therefore more expensive to trade - and thus exact a high illiquidity premium.

Paul Gompers and Andrew Metrick, in their 2001 paper on “Institutional Investors and Equity Prices,” looked at the small company effect. Their research showed that while small companies earned a significant premium from 1926-1979, it began to reverse itself in the 1980s and 90s. In fact, small companies actually underperformed large companies from 1980-1996, through much of the bull market of the 80s and 90s.

They concluded that it was the growing influence of the institutional investor - and especially the very large institutional investor - that accounted for this decline. Institutional investors doubled their share of trading volume from 1980 to 1996 and the largest 100 institutions increased their holdings from 19 percent of assets to 37 percent. Larger investors, the authors concluded, had an appetite for less risky and more liquid stocks.

In summary, smaller, tougher-to-trade companies have potential for alpha capture and above-average returns. However, liquidity challenges get in the way of capturing that alpha.

As institutions slowly meter trades into the market, they leave tracks that cannot be totally obscured from prying eyes. The result is that prices move ahead of institutional trading.

Robert Schwartz and Reto Francioni

Equity Markets in Action

The Causes of the Liquidity Crisis

The Death of the Old Middlemen...

The stock market was founded by middlemen, mainly brokers. In 1792 when the Buttonwood agreement was signed, investors were separated by space and time and therefore needed a middleman who could complete the transaction. The farmer in Virginia could trade his stock with the merchant in Boston only by using the services of a broker in New York. The stock market was born.

With the power of technology, investors are no longer separated by either space or time. However, do not expect the middleman to die easily. Middlemen, whether in real estate or stock markets, are hard to replace. The real question is whether they add value to the customers or manipulate their position to their advantage.

The stock markets have changed radically over the last ten years, mainly from a more principal-based model to a more agency-based model. The order-handling rules in 1997 and the roll-out of decimalization in 2000 had a dual impact on Nasdaq market makers, whose role has greatly diminished. And with the NYSE launching a hybrid market, many expect the role of the NYSE specialist to be greatly diminished as well.

Certainly, the abuse of their privileged position contributed to the decline of Nasdaq market makers and NYSE specialists. In a class action settlement in 1998, Nasdaq market makers were accused of collusion and settled with the government for over \$1 billion. This suit, among others, was a major reason for the 1997 order-handling rules. Subsequently, in 2004, NYSE specialists were accused of front-running orders and settled with the government for \$240 million without admitting or denying guilt. These accusations were part of the reason for the elimination of NYSE Rule 390, which disallowed off-exchange principal transactions.

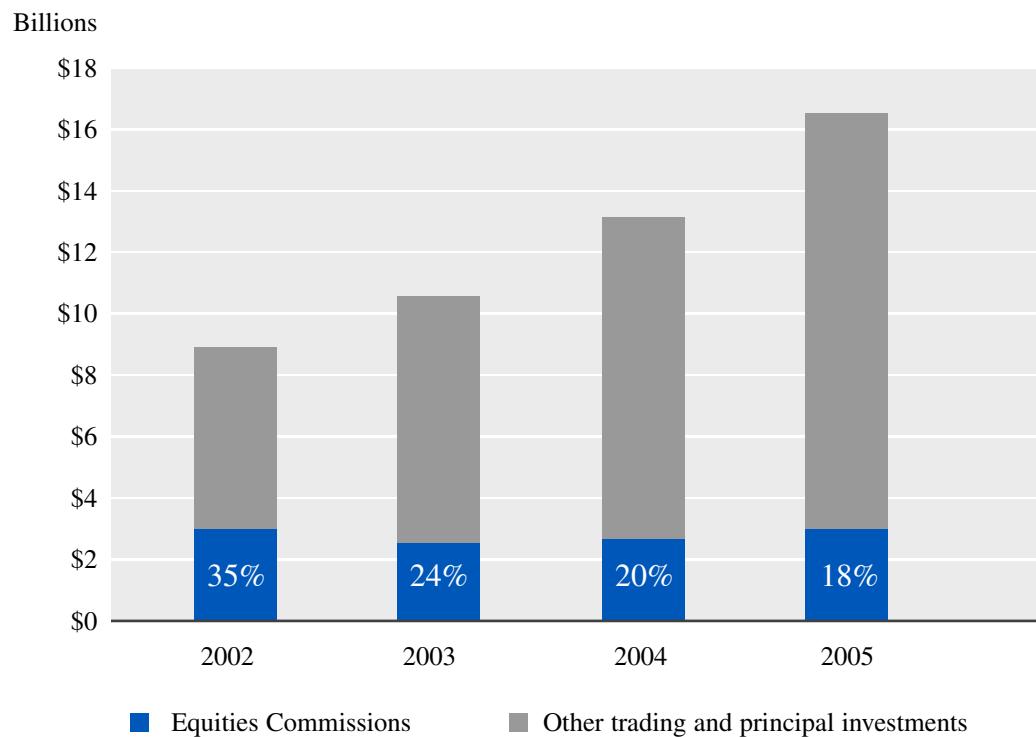
...and the Rise of the New Middlemen

As the influence of the old, designated middlemen has declined, a new, perhaps less transparent middleman has emerged, mainly the large, integrated investment banks who have discovered an extremely lucrative business in committing capital on trades.

Certainly, capital commitment plays a role in any efficient stock market. Inevitably, buyers and sellers will not come together at exactly the same time at exactly the same price. A broker committing capital in the middle can effectively smooth over the temporal imbalances in supply and demand for stock. This was the role of the market maker and specialist and has now been assumed, in many cases, by the large investment banks.

The difference is that a market maker or specialist has a designated role and a fiduciary responsibility to ensure orderly markets. No one minds if they make money on their trades - this is compensation for the risk they are assuming - but it should be controlled and monitored. An outside investment bank committing capital on a trade, however, has no such responsibility for fair and orderly markets. Certainly, the customer can decide whether it wants to use capital on a trade and under what terms, but there is no limit to the profits that the intermediary can earn on that trade.

A simple look at the equity business of a major investment bank shows how the role of the middleman has changed over the last five years. The chart below shows the mix of business of a major investment bank from 2002 to 2005. The bar at the bottom shows the traditional equity commissions business. The bar on top shows the principal transactions. As you can see, the traditional commissions business has actually declined while the principal business has mushroomed.



The Liquidity Crisis May Get Worse

Institutional investors find themselves between a rock and a hard place. They need liquidity on demand, priced fairly, in size, with reasonable execution costs. On the one hand, they have the displayed markets, the exchanges and the ECNs, which offer pint-sized liquidity and the risk of leaving “footprints” in the form of multiple, smaller orders executed in the displayed markets. On the other hand, they have the welcoming arms of the investment banks willing to provide capital, but who also maintain growing proprietary trading operations.

Faced with these unappealing choices, many institutional investors have turned toward the crossing networks in search of anonymous low-cost execution. The Tower Group estimates that crossing networks account for 12 percent of order flow from buyside desks and are growing rapidly.

Today, nearly every major broker and every national and regional exchange has announced their own plans for a crossing network. At last count, The Tower Group estimated the existence of more than 30 crossing networks.

On the upside, crossing networks do offer institutional-size execution as most of them average 50,000 shares per trade. Also, to varying degrees of success, crossing networks allow for anonymous execution, although complaints over gaming and fading have grown as the membership ranks of crossing networks have swelled. However, as successful as crossing networks have been, they suffer from two flaws.

First, the most significant drawback of crossing networks is that they do not work often enough. Tower Group estimates that only 6 of every 100 trades that goes into a crossing network actually gets executed. As more and more crossing networks emerge and liquidity fragments, this hit rate could go even lower. In general, institutional investors like to use crossing networks...when they work. But they do not work often enough.

Second, crossing networks generally have limited means of price discovery. Many systems are based on simply crossing stock at the midpoint. What this means is that price discovery occurs at the exchanges, where small retail orders play a more prominent role.

Essentially, we have a market structure where price discovery occurs in the exchanges and size discovery, where available, happens in the crossing networks. But this is less than ideal for several reasons. First, price and size discovery should go hand in hand, just as they do in almost all other markets. If you are buying a shipload of bananas, you expect to pay a different price than if you are buying a bunch at the grocery store. Institutional investors should be able to play off both size and price when negotiating their trades.

Second, why are retail orders on an exchange determining the price rather than well-informed institutional orders? Shouldn't this be the other way around? Also, is it really the retail investor that is placing the 100-share limit order on an exchange that sets the price or is it a highly sophisticated stat arb black box? Who is really setting the prices on exchanges and ECNs? Once sophisticated algorithms understand the link between exchange prices and crossing volume, they may be able to use this information to their advantage.

Just when institutional investors have retreated to the dark pools for safety, they find that their interests can still be compromised.

Liquidity and Regulation: Finding the Right Balance

In 2004, three of the five SEC commissioners approved a sweeping new regulation of U.S. equities markets called Regulation NMS. The most controversial aspect of the regulation was the so-called trade-through rule, which effectively takes the old NYSE trade-through rule and applies it across all markets and all market participants.

What the trade-through rule means is that if you are a broker-dealer or exchange and a customer gives you an order to execute, you must satisfy the best bid or offer that is available on a fast market. You cannot "trade through" a better bid or offer to execute your customer's order.

Institutional investors have not paid much attention to Reg NMS as the trade-through rule largely applies to intermediaries, broker-dealers and exchanges. However, the rule will have a profound impact on the markets and the investors' desperate search for liquidity. The unfortunate news is that, despite its best intentions, Reg NMS is likely to make things harder, not easier, for institutional traders.

Oddly enough, Reg NMS was designed, in part, to address many of the liquidity issues we have discussed in this paper, most particularly the lack of displayed liquidity in the markets. The solution, according to regulators, was to encourage the display of limit orders. Limit orders are the lifeblood of a market because they set the price that market orders are executed against. Limit orders supply liquidity to a market while market orders demand or take liquidity from a market. More limit orders are good for liquidity. Most market observers would agree with this proposition.

However, the problem emerged when regulators began to look at the root causes of a lack of limit orders. In their view, investors did not post displayed limit orders for fear of being traded through. Why post liquidity if someone else can execute ahead of me?

However, is it really the fear of being traded through that prevents displayed limit orders or is it the fear of being taken advantage of? Certainly, in the case of institutional investors, the lack of displayed liquidity is a direct result of the fact that their displayed intentions will move the market.

As mentioned above, institutional investors have turned to crossing networks and agency brokers to avoid the “prying eyes” of prop traders and other market participants and deal directly with other institutional investors on an agency basis.

Reg NMS, however, could have an unintended consequence on the market and on institutional investors in particular. This is because the trade through rule has the potential of pushing price as the single most important determinant of best execution.

As best execution gets more closely associated with only price, it gets further away from the needs of institutional investors, who use a variety of factors when deciding where and how to trade. Obviously, price is one key variable. But so is the size of the order. As well as speed. And, most importantly, the total cost of execution. As we mentioned above, a multitude of small orders that are executed within the bid/ask spread could be very costly to an institutional investors if their orders are in fact moving the market. And, yet, under a narrow view of best execution, the broker handling the trade would have done just fine.

Also, regarding the issue of price discovery discussed above, institutional investors may be even less prone to set prices in the market. This bifurcated market, where price is set in the displayed markets and quantity discovered - to a limited extent - in the non-displayed markets, will be more or less set in stone. And, in the end, it will not be the widow in Iowa that is setting the price with a limit order, it will be one of the market intermediaries. Reg NMS may strengthen rather than reduce the role of certain middlemen in the market, to the potential disadvantage of institutional investors.

For large orders particularly, improper order handling can lead to sizable market impact costs, and by offering more intelligent direction, the human tortoise can outpace the electronic hare.

Paul L. Davis, Michael S. Pagano, Robert A. Schwartz
Life After the Big Board Goes Electronic, September/October 2006

The Need for a Proactive Liquidity Sourcing Solution

Ultimately, buyside traders will adapt to a post-NMS, post-Hybrid trading environment and they will use a variety of tools and techniques to achieve the investment objectives of their funds. A key component of any buyside's arsenal of weapons will be what JonesTrading is calling the Proactive Liquidity Sourcing Solution.

JonesTrading's PLSS helps traders find and release pent-up liquidity that is not available in the markets - displayed or non-displayed. That is because the liquidity may reside even in stock holdings themselves and may become available only when a performance or trading opportunity arises. By liquidity, we mean that a trader can satisfy each and every one of their trading criteria: the price of the security, the size of the order, the speed of execution and the total cost of execution. All of these criteria must be balanced. For instance, perhaps you could get an order completed rapidly, but at a massive market impact cost. Or perhaps you can get the price you want, but not the quantity. Any time the markets cannot deliver all of these elements in an optimal fashion, it is time to turn to PLSS.

PLSS is not a passive technology model that allows orders to "sit" awaiting a counterside while simultaneously releasing trading information and signaling intention. Rather, JonesTrading's PLSS is comprised of three elements: a trader, a network and technology. Only by combining all three elements will institutional trading needs be fully addressed and met.

The trader may sit on the "sellside" but is, in effect, an extension of the customer's trading desk. To achieve this status, the trader must be absolutely empowered. An order going to this traders desk must be controlled by that trader. It should not be passed off to a position trader, a market maker, an OTC desk, or another intermediary.

The trader must be completely unconflicted and only work for the benefit of the customer. Therefore, that trader has to be an agency-only trader. Using capital on trades always seems like an easy way to "facilitate" trades - and there are times when it comes in handy - but inevitably it throws a wrench into the conflict-free nature of the relationship. The PLSS starts and ends with an execution trader that the buyside trader can trust implicitly and completely.

The trader must be highly skilled, essentially a liquidity-sourcing expert, someone who knows what moves markets and how to source and draw liquidity to create size without revealing customers intentions. It is a person who can use multiple trading tools, execution venues and complex techniques, all in combination to achieve the trading objectives of the client.

The next component of the PLSS is a network, essentially a network of leading money managers, mutual funds and hedge funds.

First of all, the network should be large. The larger the network, the more participants, the better the chance of finding liquidity. For many stocks, on many days, there can be three to four players that matter. It is critical that the network reaches a wide swath of the investment management community. However, what is most important to the network is not who is in the network, but who is NOT in the network. The network should include customers that want to buy and sell stock, not those who want to gather information to use to their advantage and another investor's detriment.

Second, the network should be diverse. It should include investment managers with a wide array of investment strategies. After all, it is divergent expectations that create trading opportunities. If everyone in your network is a long-only value manager, then they will more likely all be on the same side of trades. You need diversity to create trades and to create liquidity. Many crossing networks have suffered a low hit rate partly because their communities are relatively homogenous.

Finally, and most importantly, the network must be completely secure. The network should be built on a long track record of trusted relationships. The customers' investment and trading objectives must be understood intimately and should be used when trying to bring together parties with compatible interests. The network should be actively policed and monitored and prudently culled of anyone trying to take advantage of the system.

The third and final component of an effective PLSS is technology. The trader must be armed with advanced technology that gives them access to all markets, visible and invisible, and have sophisticated tools for sourcing liquidity internally.

How Does JonesTrading's Proactive Liquidity Sourcing Work

The real magic to PLSS is not simply the components themselves, but how they are used in combination to meet the liquidity needs of customers. We call this “Search, Show and Source.”

“Search” means that the trader has the ability to instantly search all available pools of liquidity, including national exchanges, ECNs, regional exchanges, and dark pools, in order to rapidly get a picture of the available liquidity options in the market. Obviously, every buyside desk has access to the same venues, but the astute execution trader uses search capabilities as only one means of an integrated strategy to source liquidity. The more pertinent issue may be discerning what the available liquidity (or lack thereof) is telling the trader about what is really going on in the markets.

“Show” means that the execution trader can execute a trade in order to attract liquidity that is not currently in the marketplace. Execution traders will often discuss the importance of having a “working order” in hand and that is because the ability to execute orders then attracts buyers and sellers out of the woodwork and often allows a much larger trade to be put together.

“Source” means that execution traders tap their network to find potential buyers or sellers. For some highly sensitive trades, sourcing may not be the right approach. However, for many trades, sourcing is a highly effective tool, when implemented properly.

Sourcing liquidity presumes a proactive stance to the markets and is necessary, again when the existing liquidity options do not meet the needs of the customer. The key to successful sourcing is who you contact and how you contact them. First, who to contact: only those customers who have a demonstrated interest or ability to trade the stock. They could be a registered holder of the stock. They could have been active in the stock previously. They could have an expressed interest in the particular sector.

Next, how to make the contact. The communication must never reveal the initiating customer's intentions, certainly not before the responding customer has expressed theirs. In a proper negotiation sequence, information is only disclosed when the counter party makes their intentions known. Through this process, buyer and seller can come together safely in a way that is unavailable in any other market venue.

A Proactive Liquidity Sourcing Solution is very closely aligned with the customer need for best execution. Many leading institutional investors take a holistic and comprehensive view of best execution. As the Association for Investment Management and Research (AIMR) - now the CFA Institute - determined in its November 2001 report on Best Execution, “...it is not feasible to define a single measurement basis for best execution on a trade-by-trade basis.”

For institutional investors, the search for performance is neither simple nor sure. Buyside trading professionals, with the skills and expertise they bring to the investment equation and the choices they make in execution, can make the difference between marginal and significant increases in alpha. Quickly sourcing cost-effective and fairly-priced liquidity in size is not only one of their greatest challenges; it is, if achieved consistently, one of their greatest accomplishments. JonesTrading’s Proactive Liquidity Sourcing Solution is a key tool available to the buyside in meeting these goals.