



WALKING THROUGH THE TRADE PROCESS

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- The purpose of this commentary is to give readers an idea of the amount of thought and effort that goes into the operational aspects of the work that we do, both in our offices and in those of partner firms. By many metrics, these efforts have borne fruit over the years, as we have gained efficiencies in the communication, management and—most importantly—the execution of our trades.
- Innealta continues to focus on progress on this front. And we continue to expand both our knowledge of how such trades play out and our ability to most successfully execute them. For sure, we welcome the ability to deepen the work that we do with the trading teams of our partners in those same efforts. Readers should trust that as we gain experience in the effort, we will share.

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WATCHING THE TRADE

Readers who have been with us for that long may recall our first experience with a trade representing a very large infusion into a specific ETF, relative to its daily liquidity and AUM. Back in December 2010, we were considering adding emerging market debt exposure to the fixed income portfolio. Options then were more limited, with the Market Vectors Emerging Markets Local Currency Bond ETF (EMLC) the only ETF with which we could gain comfort and which offered the exposure we desired.

We were concerned about the size of the ETF, which maintained only \$120 million in assets at the time. The heft of our trade, we figured, might exceed \$30 million. Little need to explain why we might be excused for our uneasiness with the daily dollar volume of the ETF, which in that time approximated \$2 million.

Now, hindsight is a funny thing when reviewing trading. There's the scene...set by volume, the bid, the ask and the trade price...and then there's everything that's behind the scene...the participants that manage the bid/ask prices and that are on either side of actual and potential trades. So, while it's possible to infer the impact of a particular trade on the price of a security, and even have the inference be well defensible, it's still just an inference.

Nonetheless, we could account for nearly 1.5 million shares going into EMLC on December 21, at a time when the 15-day average daily trading volume was close to 65,000 (sixty-five thousand). Gauging the impact, again, isn't an exact science, but the ETF closed the day prior at \$26.09. It opened at \$26.23, and we might assume there was no knowledge of our trade at that time. By noon, the worst price of the day was the \$26.25 achieved by a single, ~960,000-share block—a risk trade, in relevant vernacular—managed by a partner organization and a specific authorized participant, or AP. APs are entities charged with assisting the ETF share creation/redemption process¹. We'll discuss them in more detail in a bit. The close that day was \$26.21 and \$26.33 the next day.

What's to be made of the scenario? The reasons for this relative efficiency are many, but most relate to the design of the security type (meaning ETFs in general) and the market mechanisms built specifically to support ETF trading. We now attempt to review those most relevant to our work.

Size of the underlying

As we discussed in our March commentary, generally of utmost interest in such scenarios is the size of the index underlying the ETF under consideration, as it in the end is of greater matter in regard to the liquidity of the fund. In the case of our emerging market fixed income positions, for example, the market value of the underlying index at last check exceeded three-quarters of a trillion dollars and it is our understanding that it offers relatively strong underlying liquidity. A market of that size makes our trade look relatively tiny. So, even

¹ We won't go into much detail in re: the share creation/redemption process—the ETF providers cover this issue at great length, and in the case of one web video, with colorful metaphors: <http://isharesblog.com/blog/2011/10/07/special-video-the-aha-moment-understanding-etf-liquidity/>

though our trade was relatively large in comparison to the size and liquidity of the ETF, we found that the impact on the price of the ETF was relatively small.

With trades like the EMLC example above and another that we'll cover in a bit, we've come to the understanding that, given sufficient liquidity in the market underlying a particular ETF, and assuming a relatively well-contained (meaning relatively discrete) process of finding order flow using APs and other liquidity providers, we might expect to see the ETF handle even a very sizeable trade in relation to AUM and/or daily liquidity, without our suffering from our own onerous impact on the price of the ETF.

We haven't yet in this discussion answered 'why' the size of the underlying is important, and that's because we need to fill in a few more blanks first.

Exploring the NAV

ETFs, again, are meant to serve as tradable proxies for specific indices. That is, they own some portfolio of the same securities held in the index, with the goal of replicating the performance of the index in the real world. But, just like closed-end mutual funds, the value of the ETF can drift away from the value of the underlying holdings, known as the Net Asset Value, or NAV. Also a price series, the NAV represents the value of the securities held in the ETF, the per-share sum of which may or may not equal the price of the ETF. The gaps are the premiums/discounts to NAV. When the ETF is trading above the NAV, it is showing a premium. Conversely, an ETF price below the NAV represents a discount. NAVs are calculated at the end of the day of trading for equity ETFs and at 3pm for fixed income ETFs. Additionally, there is the intraday NAV, which can be calculated by various providers much as are intraday index prices.

The end-of-day NAV series are relatively accurate, and the history of these gaps can be informative in regard to the cost of trading in the underlying. There is some discussion in regard to the validity of intraday NAVs, and we continue to explore best options for the sources and uses of those data. Importantly, the NAVs, both end-of-day and intraday, can be useful checkpoints when evaluating execution prices for trades—one should not like to stray too far from the NAV, or at least what can be considered the normal premium/discount to NAV. They, too, can be utilized as another input in the broader trading process when executing trades directly in the market.

The APs are charged with maintaining a reasonable relationship between the NAV and the price of the ETF. In fact, they are incentivized to do so. Let's say excessive selling in an ETF opens up a discount to NAV. Again, ETFs are simply portfolios of the individual securities within the underlying index, constructed in such a manner as to best reflect the index. A market maker looking to arbitrage away the discount (meaning for two closely related securities, closing the gap between the two via the transaction mechanism of selling the overvalued security and buying the undervalued security) first buys the ETF at a discount and immediately sells short all the stocks in the underlying basket. The arbitrage is captured when they close out their positions in both the ETF and the basket. This can be done by redeeming ETF shares, as the market maker will deliver the ETF shares and receive the stocks at the equivalent NAV price. That basket of stocks is then used to cover the earlier shorts. The reverse happens for an ETF premium. Arbitragers will sell the ETF and buy the stocks. They then create ETF shares by delivering the stocks, receiving the ETF shares at the same price, thereby capturing the arbitrage.

The math is complicated by the bid/ask spreads of the underlying and the ETF, along with the time expected to be able to clear any level of volume in either the markets of either the underlying or the ETF, but one can imagine a relatively strong band of arbitrage for pricing developing over time.

About the 'risk trade'

Not meaning to jump over that important topic earlier, it makes sense to discuss separately how large ETF blocks get traded. For various reasons, we are limited in our ability to fully aggregate all the shares related to individual trades we direct. Foremost, the assets upon which we advise are spread across many partner platforms and many custodians. Due to technological, cost, process ownership, convenience and other reasons, it now proves impossible to aggregate the trade to the single basket to be taken directly to an AP. Rather, each platform currently manages the individual trade process on its own.

However, where the scenario permits, certain platforms have been able to aggregate trades to a size sufficient to warrant direct trading with an AP. These trades, generically speaking, are what connect parts of the trading volume we generate with the share creation/redemption process managed by the APs and the ETF providers. In that process, the AP generally provides us with immediate liquidity, shares for which may or may not actually exist. Not to worry...the shares generally will be created/redeemed where necessary within a three-day limit.

Particularly in those cases where the underlying markets are closed, the AP is taking on some amount of risk in delivering or accepting shares at a specific price before it knows at what price it might be able to obtain or sell those shares, either through the market or through the creation/redemption process. The APs seek to manage this risk via offsetting trades, which may include the use of derivatives and other hedging instruments. The cost of the risk trade is the premium (in the case of our buy) or discount (in the case of our sell) we might expect to pay in such cases over what might otherwise be considered a good price (e.g. between the bid and ask). As expressed with the trade example above, where we have been able to measure these costs, they have seemed reasonable. Still, in part because of the risk premium, the prices for block-executed trades might not seem best-executed under an analysis that looks at the volume-weighted average price, or VWAP (read: might not be among the better prices achieved that day).

And that brings us back to the size of the underlying market. The larger and more liquid the underlying market, generally speaking, the easier it is for the APs to manage the creation/redemption process for the relevant ETFs. And so, the larger and the more liquid the underlying market, the more efficiently the ETF will handle outsized trades.

Information in our trade

There's a surprise there, to some, in that it would seem such large trades in relation to the underlying assets of the ETF or its daily liquidity *should* have a large impact on the price, just as might be expected in the case of equity trading. Trading is the process through which information is incorporated into asset prices, after all. And the thinking goes that such relatively large flows must reflect some new and potentially private information about the security that counterparties might not so readily accommodate our flow, pushing the price of the security against our trade (e.g. higher in the case of a buy or lower in the case of a sell), perhaps even inciting others to mimic the trade.

That is, market participants are informed asymmetrically about true valuations. The asymmetry in this case comes from the thinking that the initiator of a trade knows more about the security than everyone else (which prompts the trade). Thus, market participants learn by inference through order flow. In stock markets, asymmetric information problems are large. For this reason, trades in individual stocks have significant price impact and traders go to great length to minimize this impact, often dividing orders, submitting limit orders to test market depth, etc. Traders learn about liquidity through execution and price response of their own order flow, and the market learns about the trader's information through that order flow.

In our context, the price impact is different, but still significant. ETF markets enjoy two layers of liquidity: the primary market where APs create/redeem shares and the secondary market where existing shares trade. One of the reasons it is important to work with APs is that, as we noted earlier, they take on a certain amount of risk when creating or redeeming shares since we're often trading when the underlying basket does not trade. In the secondary market, market makers (MMs) provide liquidity out of their own inventory. This is of course costly—these MMs do not want to be 'picked off' by better informed traders any more than MMs in individual stocks. So the reason we work with the APs is so they know the order flow is coming and our clients don't pay for the potential asymmetric information costs associated with the MMs' inventory.

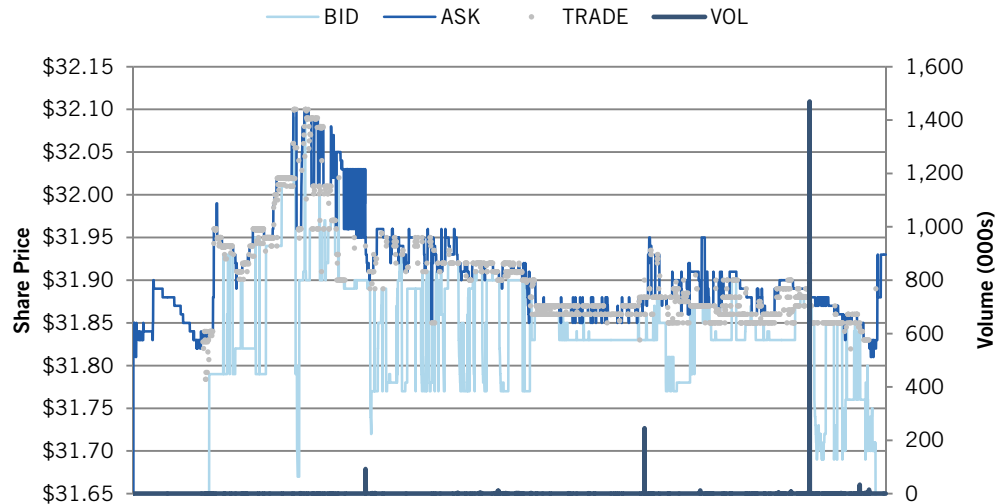
But there is no doubt that our trades do contain information—it is just systemic in nature instead of security specific so we do expect to influence the underlying to some extent. It's just that the underlying markets generally are so large in comparison to our trades that it is likely our information barely registers, if at all, above normal noise. It's surely possible that an ETF trade could be sufficiently large—meaning relatively ample in relation to the normal flow of the underlying—such that it could affect the value of the underlying, but we are likely to be speaking in terms of many billions of dollars in flows for most of the markets in which we currently are interested in investing. This arbitrage relationship is similar to that between the prices of options, futures and other derivative types and their underlying securities: the underlying securities drive the pricing of the derivative securities.

Another example

Via upgraded systems, we were better able to track the trade this past February into the SPDR Barclays Capital Emerging Markets Local Bond ETF (EBND), which we reviewed in the March commentary. Some metrics for that trade were as follows: 15-day trailing average daily volume as of 02.03.12 was just under 20,000 shares. The close that day was \$31.874. With the ETF opening at \$31.80, more than 2.4 million shares traded on 02.06.12, most of which were directed by our trade. The VWAP that day was \$31.91, while the range of prices was \$31.60² to \$32.10. The close that day was \$31.83.

We show the entire day's-worth of trading in Figure 1. Readers will note that the larger blocks occurred later in the day, over the course of which a wide range of prices hit the tape. What jumps out from the chart is the near 1.5 million-share trade late in the day. We know this to have been a negotiated price, which at the time came in just 4 cents above the prior trade and just 3 cents above the then asking price. Considering the underlying fixed income markets were at that point closed, the risk we asked the AP to take on resulted in a seemingly reasonable bump in the cost of the trade.

² There were 2 trades of 100 shares at \$31.60 and 1 trade of 200 shares at \$31.65. The next lowest trade went at \$31.78.

Figure 1: Trading in EBND on 02.06.12

Data for the full trading day. SOURCE: Bloomberg

ONGOING OPPORTUNITY

And that's a nice segue into what we see as the greater opportunity for our ongoing work in the trading department. Top of mind is the support of best execution not only for our AUM, but across all of the assets upon which we advise. We will continue to enhance the monitoring of our trades, both large and small, with the intention of improving trade efficiency. And we will continue to deepen our relationships with our partners' trading desks and those of the APs with the focus of enhancing the trading process. This effort is in its infancy, and will continue to evolve as we further our work with the various parties involved. Meantime, there are several ways we currently support the trades we trigger outside our organization.

Working with ETF providers

First, the management of our relationships with the ETF providers continues to strengthen the trading process. The foremost benefit from the ETF providers remains the additional insight only they can offer in regard to the particulars of their respective ETFs. We use these details, which often include competitor analyses, when we review existing and potentially new portfolio allocations. These analyses have proved especially useful in the fixed income space. For example, we maintain two slices for local-currency denominated emerging market fixed income in the portfolio: Market Vectors Emerging Markets Local Currency Bond ETF (EMLC) and SPDR Barclays Capital Emerging Markets Local Bond ETF (EBND). We do this not only to address any potential concerns about either one, which included the fact that the asset class exposure, packaged as an ETF, was relatively new, while both were relatively light in assets under management when we first invested in them.

As interesting to us was the fact that there are not-so-minor differences in the exposures at the country level: EBND added some country exposures not represented in EMLC, while also more broadly distributing the weights among the countries that overlap. With both in the portfolio now, we'll be able to more easily witness any trading differences between the two to support the ongoing ownership of both over time.

Similarly, our recent investment in the Russian equity market involved a more specific review in early March of three relatively distinct ETFs: the Market Vectors Russia ETF (RSX), the SPDR S&P Russia ETF (RBL) and the iShares MSCI Russia Capped Index Fund (ERUS). Much as the liquidity dynamic for ETFs must be viewed differently than other securities (equities in particular, considering the obvious trading similarities), we were

naturally drawn to RSX for its longer tenure and its vastly larger average daily dollar volume (\$175 million, \$1.7 million and \$3.2 million on 03.06.12, respectively) and assets under management (\$2.2 billion, \$42 million and \$120 million on 03.06.12, respectively). Even more, there were interesting sector-level distinctions that drew us further into the RSX camp.

The launches of the newer Russia funds no exception, the ETF providers keep us well informed of their new products, easing our review of asset class representation within the ETF space. We often also can get some advance peeks at products, which helps when we know our own intentions for changes in exposures within the portfolio might at some nearer-in future date be better met with an ETF that does not yet exist.

Timing the trade

We discussed earlier how there's additional risk in trading an ETF representing a market that's closed at the time of the trade. This fact is just one of several that inform best timing for trades. U.S. fixed income markets close at 3pm, while some equity markets are never open during U.S. market hours. The lack of an ability to directly figure the ETF's NAV will very likely add to the cost of the trade. Similarly, early morning trades are ill-advised as the lag in the opening in underlying securities, along with the lag as those securities find a price by working through the morning rush of orders, may well negatively impact the executed price...*for us, at least, if not the other side of the trade.* There's perhaps no better guidance to have learned than to understand that the folks willing to take our flow are doing so not out of the goodness of their hearts, but to profit from our activities. There are many ways in which we might enhance their profits at the expense of our own best execution. The manner in which we protect and convey the details of trades remains of utmost importance to the investment committee.

Bird's-eye view

For each trade we trigger, we maintain a unique vantage point, being the connection between each of our trading partners. We can extend that connection by offering to take part in discussions with APs. For example, if APs are known to be taking on flow, we can be sure that all parties involved are fully informed of the trade such that each is looking at all the trades as one order flow, rather than as a set of competing trades (sort of a, "we know that you know that we know..."). Additionally, where possible and appropriate, we might also pass along to other partner platforms the details of any planned or executed block trades (especially ETF share creates and redemptions) such that we can set others' expectations for their own impending trades. Even better, we can consider adding broader structure to the process above the platform level in order to potentially manage all the flow as one (e.g. in conversations with APs), perhaps in turn offering a better risk price for all trading partners.

Not all ETF providers are comfortable or even able to provide much detail in the realm of actual market activity, but where it exists we will continue to seek it out. Additional information we can gather by working with some providers—underlying liquidity, best times to trade and in some cases limit order pricing at which the provider feels the trades can best get done—can help greatly. Not only in terms of best execution, the flow of information can help to ease the minds of all parties as to our ability to exact the decisions we make based on our quantitative framework in a live ETF-based portfolio.

CONTINUING TO GET BETTER

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Investment in emerging markets subjects a fund to a greater risk of loss than investments in a developed market. This is due to, among other things, greater market volatility, lower trading volume, political and economic instability, high levels of inflation, deflation or currency devaluation, greater risk of market shut down, and more governmental limitations on foreign investment policy than those typically found in a developed market. In addition, the financial stability of issuers (including governments) in emerging market countries may be more precarious than in other countries. As a result, there will tend to be an increased risk of price volatility in a fund's investments in emerging market countries, which may be magnified by currency fluctuations relative to the U.S. dollar.

Diversification does not protect against loss in declining markets.

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