Single Stock Futures on Exchange-Traded Funds

Gary L. Gastineau
ETF Consultants LLC
382 Springfield Avenue
Suite 206
Summit, New Jersey 07901

908-598-0440 - Telephone
908-598-0467 - Fax
gary@etfconsultants.com

Abstract

Single stock futures (SSFs) contracts on exchange-traded funds (ETFs) are an attractive product, particularly for retail investors who find it difficult to borrow modest lots of ETF shares to take short positions. Arbitrage among related index-linked instruments helps keep spreads tight.

Introduction

Single stock futures (SSFs) on Russell 2000 ETFs have been the most successful single stock futures contract introduced since these instruments began trading late in 2002. The trading volume of the Russell 2000 contract on NQLX has been erratic, but the notional share volume often approximates the volume on the underlying ETF shares on the AMEX, the listing market for the ETF shares. Volume in SSFs on the QQQs and on the DIAMONDS traded on OneChicago has also been significant. It is useful to examine some of the factors that determine the attractiveness of an ETF as the underlying for a single stock futures contract. Also, some peculiarities of the carrying cost characteristics of single stock futures contracts on ETFs, the absence of the need to borrow ETF shares and the quirky tax treatment of single stock futures may enhance their relative attractiveness for some investors.

Suitability of an Index as a Fund Template and as the Ultimate Underlying of a Single Stock Futures Contract

We have written extensively about index suitability for investors in ETFs.[1] Somewhat ironically, the features making a benchmark index relatively *unattractive* as the template for an ETF may make it uniquely interesting to some users of single stock futures contracts on the ETF by adding elements of uncertainty or bias to the ETF return. Most positions in single stock futures on ETFs are not motivated by long-term investment objectives. SSFs are typically used by hedgers looking for short-term protection from a well-defined risk or by speculators looking for short-term exposure to a particular stock market sector, style or capitalization range. The transaction costs embedded in a benchmark index and its ETF can increase the usefulness of the SSF contract – particularly on the short side of the market.

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[1] Gastineau (2002a) and Gastineau (2002b).

The fact that an index is popular, that an ETF is relatively large and, most importantly, that the ETF and the single stock futures contract on the ETF are traded on tight spreads will tend to attract activity to this market just as the availability of index futures contracts tends to attract index-linked trading activity to all financial instruments linked to an index. The principal attractions for an investor using single stock futures contracts on an ETF are probably that the SSF position can be carried in a securities account and that the SSF contract can be used to sell short without an uptick and, most importantly, *without the hassle of borrowing shares to short the ETF shares directly*.[2]

As we see in Exhibit 1, ETF shares on the Russell 2000 benchmark index have significantly underperformed the index and a conventional mutual fund based on the same index. The Vanguard Small-Cap Index fund switched from the Russell 2000 index to the MSCI 1750 earlier this year, after the period covered in Exhibit 1. ETF underperformance of its index by approximately the amount of the expense ratio of the ETF is typical, but, on occasion, a fund will underperform by substantially more than its expenses or, alternatively, outperform the index.[3] The underperformance of the iShares Russell 2000 ETF illustrated in Exhibit 1 has moderated and the performance lag seems to be approximately equal to the expense ratio in more recent periods. Erratic performance by an ETF relative to its benchmark may lead to greater volume in the ETF and related instruments as some traders recognize directional trading and arbitrage opportunities.

(Insert Exhibit 1 about here.)

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[2] Selling ETF shares short is a popular strategy. The short interest in a number of ETFs exceeds 30% of the fund's shares outstanding and the August 2003 short interest in the QQQs was about 45% of shares outstanding. This percentage compares to a short interest ratio on NYSE listed stocks of about 2%.

[3] For extensive ETF versus index tracking comparisons, see Mazzilli and Kittsley (2003).

Arbitrage of Single Stock Futures and Underlying ETFs Against Other Index Products

Arbitrage among index derivative instruments, ranging from ETFs through SSFs on ETFs to options and futures on the index itself as well as to conventional funds and OTC derivative contracts, is complicated by asymmetries in the tax treatment of the various instruments. Tax asymmetries are particularly common when index futures and single stock futures are part of the picture. Under certain circumstances, a market participant may find futures particularly attractive or unattractive as a result of their tax treatment. The tax attractiveness or unattractiveness is, in large measure, a function of the investment outcome, but the interaction of the recent changes in dividend and long-term capital gains tax rates, investment interest deductions and the Alternative Minimum Tax (AMT) make tax results highly personal. Apart from tax issues, leverage and borrowing costs and securities lending terms may affect an investor's choice of instruments. For example, an individual investor with limited resources who wants a leveraged position in an index product might find that the low margin requirement and the low embedded interest rate that determines the pricing of single stock futures contracts makes these contracts more attractive than using a margin loan to carry the ETF shares themselves. The *relative* attractiveness of both sides of the single stock futures contract to most individual investors may increase as interest rates rise from recent lows.

Liquidity in Index and Index ETF Markets

As a sweeping generalization, one liquid instrument in an index arbitrage complex – whether that instrument is the ETF, the index future, an SSF contract on the ETF or an option on any of these – spreads its liquidity to the other instruments in the group. In a particular case, of course, trading costs and other economic characteristics of one of the component markets of the arbitrage complex may bring most of the participants to a single product. However, the links between and among the index products which make up an arbitrage complex assure that arbitrage transactions will prevent the related markets from getting very far out of line, barring unusual constraints on interaction among the markets. Market makers in ETFs typically recognize that ETF trading makes them natural market makers in single stock futures on the ETFs and participants in any other related index futures market.

Of course, there are fewer active index futures markets and fewer SSFs contracts on ETFs than there are ETFs. Often the relationship between the ETF and its underlying securities portfolio makes the ETF easier for a market maker to use in risk management transactions than an illiquid futures contract. The ultimate common source of liquidity in all these basket and basket derivative products is the market in the underlying securities.

While the arbitrage activities of a market maker in an index or index-linked arbitrage complex may be complicated by asymmetries in the tax treatment of the various products, this is usually neither a great problem nor a conspicuous opportunity for these dealers. The fact that dealers participate in a variety of markets enables them to provide exposures to the best product for each of their customers. For customers, there may be significant transaction and carrying cost differences among markets based on a common index. Researchers affiliated with the major trading and market-making firms analyze, evaluate and publish information on these cost differences for their clients.[4] This research facilitates economically attractive choices. The trading of market makers across multiple markets provides necessary inter-dealer and customer links to facilitate transactions by market participants who, for a variety of reasons, simply do not use some of the instruments that make up the index arbitrage complex.

[4] See, for example, McNally and Emanuel (2002) and Garnick, et al (2003).

More than any other index-related instrument, the addition of index ETFs enriches the arbitrage opportunities surrounding an index. Because both instruments can be carried in securities accounts, SSFs on one or more ETFs on the same or similar indices can compound the opportunities. As Exhibit 1 suggests, to the extent that there is more than one fund using the same or a similar underlying index, being short a single stock futures contract on an ETF where the manager seriously underperforms the index will be especially attractive to someone attempting to hedge a long portfolio that behaves much like that index. Exhibit 1's comparison of performance over two years for the Vanguard SmallCap Fund and the iShares Russell 2000 index ETF illustrates how dramatic the difference can be – in an admittedly extreme case.

Effective inter-product arbitrage often depends on an efficient securities lending process. In active markets, net securities lending debits and credits are typically small. In less active markets and for smaller transactions, the ability to sell short without either an uptick or securities borrowing can enhance the attractiveness of SSFs. Short positions in ETFs are not feasible for small investors because securities lending departments at major investment firms decline to handle small transactions. Partial exceptions might occur in the market for selling SPDRs and Q's short if adding a small investor's borrowing requirement to other transactions makes short positions in these instruments available to a wider range of investors. One of the attractions of single stock futures on ETFs is the lack of any necessity to borrow securities to take a short position.

Contract Size

Setting the optimum contract size or trading price range for a financial instrument is often very difficult. The heavy trading in regular futures contracts on popular indices and corresponding heavy volume in "e-mini"-contracts on some of the same indices confirm that there is not necessarily a single ideal contract size. Similarly, there is no reason to believe that one size fits all in single stock futures on ETFs. The traditional contract size has been 100 shares of the underlying, but a number of ETFs, most notably the Sector SPDRs and the iShares MSCI Series feature very low share prices. These market segments could be very popular, but a SSF contract on 100 shares would be a non-starter on a transaction cost basis.

For many low-priced shares, the appropriate contract size is clearly larger than 100 shares. To the extent that two contract sizes trade side-by-side, arbitrage will keep prices in line and lower costs associated with trading in the larger contract will make it appropriate for large users who find costs embedded in the small contract unattractive.

Conclusion

Investors planning index-linked investment or hedging transactions often face a variety of closely related choices. If single stock futures contracts are available, they should be one of the choices considered. Research or trading support staff at securities and futures firms can help investors choose appropriately.

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Exhibit 1 – Fund Performance and Tracking Error for Two Russell 2000 Funds

	2001		2002	
	Performance	Tracking Error	Performance	Tracking Error
Vanguard Small Cap Investor Shares	+3.10%	+.61%	-20.02%	+.46%
Russell 2000 Index	+2.49%	-	-20.48%	-
iShares Russell 2000 ETF	+1.96%	-.53%	-20.52%	-.04%
Vanguard Outperformance of iShares		+1.14%		+.50%