

Are Star Funds Really Shining? Cross-Trading and Performance Shifting in Mutual Fund Families

Gianpaolo Parise¹ with A. Eisele² and T. Nefedova³

¹Bank for International Settlements

²UBS Global Asset Management

³Universite' Paris Dauphine

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An example of cross-trading

→ *“When Bill Gross stepped down from the Pimco Total Return Fund, traders anticipated that the world’s biggest bond fund would be forced to dump holdings at fire-sale prices to meet record client withdrawals.”*

→ *“The firm sold about \$18 billion of the fund’s assets to other Pimco funds and accounts between October and March, helping it meet \$100 billion of redemptions. (Bloomberg)*

What is a cross-trade?

- ▶ Cross-trade: when the buy side and the sell side of an order are matched within the same “fund family”
- ▶ Internal market versus open markets
 - ▶ According to Reuters 40% of all U.S. stock trades take place outside of open markets
- ▶ Potential agency problems:
 - ▶ Total Return Fund had an incentive to sell, was it optimal for other Pimco funds to buy?
 - ▶ What is the “fair” price of cross-trades?

Why do funds cross-trade?

- “Good” story: cross-trades reduce transaction costs and commissions
 - ▶ Trade occurs at mid/market prices
 - ▶ No fund is favored over the other (Rule 17a-7 of the U.S. Inv. Comp. Act)
 - ▶ Both counterparties benefit from cross-trading
- “Bad” story: cross-trades shift performance from valuable funds to less valuable funds
 - ▶ Trade occurs at a price \neq mkt price (zero-sum game)
 - ▶ Each cross-trade has a winner and a loser

This paper

- ▶ Research question I: Why do institutions cross-trade?
- ▶ Research question II: Which cross-trades are more exposed to the risk of being mispriced?

Data

- ▶ We use trade level data from ANcerno
- ▶ More than 10 years of data (1999-2010)
- ▶ Equity trades from 260 U.S. based mutual fund families
- ▶ No fund identifiers
- ▶ We match it to CRSP and 13F to get stock and fund family characteristics

Data

- ▶ We identify cross-trades as trades from the same institution that occur in the same stock, price, volume, at the same time of the same day but in opposite trading directions
- ▶ These trades have:
 - ▶ Significantly lower (in most of the times zero) commission costs
 - ▶ Most of the times are not handled by a broker
- ▶ We identify 738,476 cross-trades
- ▶ We extract 1% random sample (including both open market trades and cross-trades) to keep the data manageable

Empirical strategy: an example

Fund A wants to buy stock the same stock that fund B wants to sell it. Bid is \$9, Ask is \$11, market price (last trade) is \$10

Trade	\$Gain Fund A	\$Gain Fund B
1) Open market trade	-1	-1
2) Cross-trade at \$10	0	0
3) Cross-trade at \$11	-1	1
4) Cross-trade at \$12	-2	2

Empirical strategy: an example

Fund A wants to buy stock X and fund B wants to sell it. Bid is \$9, Ask is \$11, market price (last trade) is \$10

Trade	\$Gain Fund A	\$Gain Fund B
1) Open market trade	-1	-1
2) Cross-trade at \$10	0	0
3) Cross-trade at \$11	-1	1
4) Cross-trade at \$12	-2	2

$$\text{Execution Spread} = \frac{|\text{Execution Price} - \text{Market Price}|}{\text{Market Price}}$$

Empirical strategy: does it make sense?

Security and Exchange Commission administrative proceeding No. 3-15688 of January 27, 2014 against Western Asset Management: “[...] *By cross trading securities at the bid, rather than at an average between the bid and the ask, Western favored the buyers in the transactions over the sellers, even though both were advisory clients of Western and owed the same fiduciary duty [...] Western deprived its affected selling funds an amount totaling approximately \$6.2 million.*”

Empirical design

- The ideal control group of cross-trades are open market trades executed by the same fund family, in the same stock, in a close interval of time.

We run the following regression:

$$ES_{i,f,t} = \beta(CT \text{ Dummy}_{i,f,t}) + \Gamma'X_{i,t} + \gamma_i + \gamma_f + \gamma_t$$

CT Dummy = 1 if a trade is a cross-trade and 0 otherwise

X = Time-varying stock level controls

$\gamma_i, \gamma_f, \gamma_t$ = stock, family, and time fixed effects

Results: the pricing of cross-trades

- ▶ “Good” cross-trades should exhibit *lower* execution spread than open market trades
- We find that cross-trades exhibit on average a 18 bps *higher* execution spread than open market trades
- ▶ Cross-trades should not occur in highly illiquid securities and when the price is not readily available (Rule 17a-7)
- We find that cross-trades exhibit higher execution spread when the security is illiquid

Cross-trades and execution spread

	<i>Execution Spread = β(CT Dummy) + controls + ϵ</i>				
CT Dummy	0.0019*** (5.44)	0.0018*** (5.35)	0.0018*** (5.35)	0.0019*** (5.40)	0.0018*** (5.37)
Volume		0.0002*** (12.00)	0.0002*** (12.01)	0.0002*** (11.57)	0.0002*** (11.24)
Illiquidity			0.0402*** (3.83)	0.0265*** (4.63)	0.0287*** (4.55)
Bid-Ask Spread				-0.0057 (-0.40)	-0.0041 (-0.37)
1/Price				0.0037*** (4.04)	0.0027*** (3.69)
Market Equity Decile					-0.0001** (-2.00)
S&P 500 Dummy					-0.0003*** (-3.17)
Volatility					0.0195*** (17.97)
Stock, Time, and Family FE	Yes	Yes	Yes	Yes	Yes

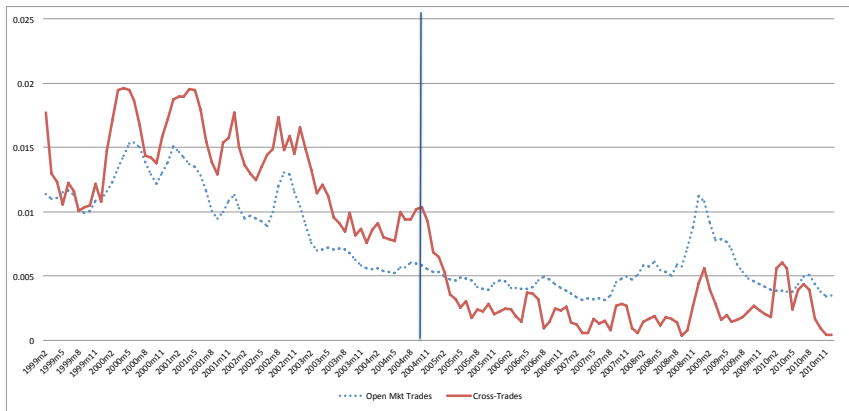
Endogeneity concerns

- ▶ Reverse causality is potentially a concern
- ▶ The decision to cross-trade is not random
- ▶ E.g., a trader can choose to cross-trade if she expects ES in the market to be high

Endogeneity concerns

- ▶ Use an exogenous increase in regulatory scrutiny to assess causality
- ▶ Late trading scandal in 2003 led the regulator to require fund families to appoint independent compliance officers
- ▶ Cross-trading procedures typically administered by the fund's chief compliance officer (pursuant to Rule 38a-1)
- ▶ Asset managers had to comply to the new rules by October 2004
- ▶ Compare the execution shortfall of cross-trades (treatment) to open market trades (control) at the introduction of the law

Execution spread over time



Execution spread after the regulatory change

	$Execution\ Spread = \beta(CT\ Dummy \times Post\ Reg) + controls + \epsilon$				
CT Dummy x Post Regulation	-0.0066*** (-16.30)	-0.0061*** (-15.74)	-0.0059*** (-15.65)	-0.0059*** (-15.79)	-0.0059*** (-15.67)
CT Dummy	0.0049*** (15.41)	0.0048*** (15.82)	0.0047*** (15.47)	0.0047*** (15.63)	0.0046*** (15.52)
Post Regulation	-0.0030*** (-7.16)				
Volume			0.0002*** (11.89)	0.0002*** (11.44)	0.0002*** (11.11)
Illiquidity			0.0403*** (3.83)	0.0265*** (4.62)	0.0287*** (4.54)
Bid-Ask Spread				-0.0051 (-0.36)	-0.0036 (-0.33)
1/Price				0.0037*** (4.03)	0.0027*** (3.68)
Market Equity Decile					-0.0001** (-2.03)
S&P500 Dummy					-0.0003*** (-3.12)
Volatility					0.0195*** (17.96)
Stock, Time, and Family FE	No	Yes	Yes	Yes	Yes

Which cross-trades exhibit the highest execution spread?

- ▶ Stock characteristics: Illiquid assets, highly volatile
- ▶ Family characteristics: large internal markets, weak governance, large fees dispersion
- ▶ Market conditions: large dispersion in asset returns

Who is benefiting from cross-trading?

- ▶ For each “mispriced” cross-trade there will be a winner and a loser party
- ▶ In many cases cross-trading funds may be managed by the same fund manager or the same team
- ▶ Where does the performance go?

Cooperation

Funds systematically help distressed siblings, e.g., subsidizing fire-sales



Winner-picking

Star funds cannibalize cheap and distressed fund siblings



Motivation for subsidizing the stars

- ▶ Fund flow-performance convexity: winners gain more than losers lose (Sirri and Tufano, 1998)
- ▶ Positive spillovers from star funds, no negative externalities from under-performers (Nanda et al., 2004)
- ▶ Evidence that fund families favor top funds (Gaspar et al., 2006)
- ▶ In the conglomerate literature, headquarters may want to shift resources to few successful projects (Stein, 1997)

Methodology

- ▶ Define high flows/fees as star funds, and low flows/fees as junk funds
- ▶ Regress difference in performance (star-junk) on percentage of cross-trading at the family level

Fund performance and cross-trading

H1 Cooperation: $\beta < 0$

H2 Winner-picking: $\beta > 0$

	$r_{it}^{Star} - r_{it}^{Junk} = \beta(CT\%) + controls + \epsilon$			
CT%	0.1254*** (3.53)	0.1431*** (4.11)	0.1253*** (3.68)	0.1536*** (4.47)
Family Size			-0.0012 (-1.31)	-0.0010 (-0.99)
Return Dispersion			0.0862 (1.40)	0.0633 (1.11)
$\Delta Size$			-0.0002 (-0.84)	-0.0027** (-2.49)
$\Delta Flows$			0.0788*** (8.57)	0.0707*** (6.78)
$\Delta PastFlows$			-0.0306*** (-3.66)	-0.0238*** (-3.14)
$\Delta PastReturns$			0.0071 (0.11)	-0.0727 (-1.24)
Fund Pair Fixed Effect	No	Yes	No	Yes
Family Fixed Effect	Yes	No	Yes	No
Time Fixed Effect	Yes	Yes	Yes	Yes

Conclusions

- ▶ Internal markets within asset managers generally under-explored
- ▶ When the internal market is opaque cross-trades are executed at relevant spreads with respect to open market trades
- ▶ With internal supervision cross-trades become cheaper than similar market trades *on average*
- ▶ Still some spread in execution persists in fund families with strong incentive to reallocate performance (e.g., high fee dispersion)
- ▶ Star funds benefit from cross-trades at the expense of cheap (e.g., ETFs, passive funds) and distressed fund siblings