Do European Hedge Fund managers time market liquidity?

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Abstract

1- Motivation

The assets under management of the European hedge funds industry have grown substantially over the last decade. In fact, the total amount is equal to *$163.701 billion* in 2012 while it was *$ 1.9 billion* in 2000. However, their short average lifespan, the abundant compensation of managers as well as the negative performance generated during the *2008* financial crisis bring up the question of whether European hedge funds adjust market exposure when stock market liquidity changes.

It is important to note that various specialized centers of research on hedge funds have agreed that a European hedge fund is that investing primarily in Europe (regardless of where the manager is located) or whose management company is located in a European country (the fund is managed from Europe regardless of the country in which it is domiciled).[2]

Recently, several papers are interested in hedge funds but few studies are being carried out to understand the process and the quantitative extent of their liquidity risk. The focus has been on market risk analysis and systemic risk management. In the course of this work, we examine the relationship between European hedge funds liquidity and European stock market liquidity. Specifically, we study the changes in hedge funds' market exposure when market liquidity varies over time.

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In this paper, we focus on hedge funds that are investing exclusively in Europe and the ability of their managers to time market liquidity for different reasons: First, little attention has been addressed to European hedge funds industry by researchers and professionals. Secondly, at the end of 2012, around *70 percent* of global hedge fund assets were managed from the United States, down from *83 percent* a decade earlier. This decrease is explained by the emergence of the European hedge fund sector.[3] Thus, it is important to know whether European hedge funds become a strong competitor for American hedge funds. Moreover, there is a clear relationship between market liquidity and European hedge fund performance. Indeed, during the 2008 credit crisis, the sharp decrease in stock market liquidity was coupled with spectacular hedge funds market declines. Finally, this dimension has been explored by Cao, Liang, Chen, and Lo (2013) and to our knowledge no previous studies have been interested in this ability.

2- Litterature Review

Some recent papers have studied the liquidity risk of hedge funds. For example, Brunnermeier, and Pedersen (2009) propose a model that explains the dependence between an market liquidity and traders' funding liquidity and they show that the liquidity of hedge funds largely depends on the state of liquidity in markets. Sadka (2009) find some evidence that the outperformance of these funds can be partly related to their exposure to innovations in equity market liquidity. Also Jylhä, Rinne, and Suominen (2010) find that hedge funds act as suppliers of liquidity when the stock market is illiquid and users of liquidity when the stock market is liquid. However after the introduction of automated trading in 2003, the majority of hedge funds become users of liquidity. Siegmann, and Stefanova (2011) have investigated the relationship between the exposure of hedge funds to the American stock market and market liquidity. The results show that before 2003, hedge fund betas are positively related to the market illiquidity so these funds are suppliers of liquidity over this period, while after the

[3] The City UK, March 2012. "Hedge Funds 2012." Annual report

introduction of Autoquote on the New York stock exchange in 2003, managers possess liquidity timing ability. Brophy et al. (2009); Aragon, and Strahan (2012) argue that hedge funds are lenders of last resort. Moreover, Cao, Liang, Chen, and Lo (2013) have examined whether managers can time market liquidity. Using a large sample of hedge funds, they find strong evidence of liquidity timing.

3. Methodology

Timing models build on the framework of Treynor, and Mazuy (1966). In fact, portfolio returns are captured by the classical CAPM :

$$R_{p,t+1} - R_{Ft} = \alpha_p + \beta_{p,t}(R_{M,t+1} - R_{F,t+1}) + u_{p,t+1} \qquad t=0,\ldots\ldots\ldots\ldots, T-1 \qquad (1)$$

Where: $R_{p,t+1} - R_{F,t+1}$ is the excess return on portfolio P in month t. $R_{M,t+1} - R_{F,t+1}$ is the excess return on the market portfolio in month t.

The coefficient $\beta_{p,t}$ is determined by the manager in month t based on his expectations regarding market conditions in month t+1 and it is estimated as:

$$\beta_{p,t} = \beta_p + \gamma_p E(\text{Condition du marché}t+1/\text{It}) \qquad (2)$$

Where It is the information held by the manager in month t. The coefficient γ_p measures timing ability.

We estimate the timing ability for hedge funds that invest exclusively in Europe using the model proposed by Capocci, and Hübner (2004) as the main benchmark model. The original facet of our study is the evaluation of changes in hedge funds' European stock market exposure. Therefore we have to employ European financial market factors. Hence, the following regression model is estimated:

$$R_{P,t+1} - R_{F,t+1} = \alpha_p + \beta_{P,t}(R_{M,t+1} - R_{F,t+1}) + \beta_1 SMB_{t+1} + \beta_2 HML_{t+1} + \beta_3 MOM_{t+1} + \beta_4 (BCEABI_{t+1} - R_{F,t+1})$$
$$+ \beta_5 (WBIG_EUR_{t+1} - R_{F,t+1}) + \beta_6 (EACBAAI_{t+1} - R_{F,t+1}) + \beta_7 (DJUBSCI_{t+1} - R_{F,t+1}) + \varepsilon_{P,t+1}$$

(3)

3.1 The first approach

Cao, Liang, Chen, and Lo (2013) explore the liquidity timing ability and they specify equation (2) as:

$$\beta_{p,t} = \beta_p + \gamma_p (L_{M,t+1} - \overline{L_M} + v_{t+1}) \quad (4)$$

Where : γ_p is the manager's forecast of market liquidity; In this paper $L_{M,t+1}$ is the measure of market illiquidity in month t+1; v_{t+1} represents a forecast noise.

We estimate the following liquidity-timing model by substituting equation (4) in equation (3):

$$R_{P,t+1} - R_{F,t+1} = \alpha_P + \beta_P (R_{M,t+1} - R_{F,t+1}) + \gamma_P (R_{M,t+1} - R_{F,t+1})(L_{M,t+1} - \overline{L}_M) + \beta_1 SMB_{t+1} + \beta_2 HML_{t+1} + \beta_3 MOM_{t+1} + \beta_4 (BCEABI_{t+1} - R_{F,t+1}) + \beta_5 (WBIG_EUR_{t+1} - R_{F,t+1}) + \beta_6 (EACBAAI_{t+1} - R_{F,t+1}) + \beta_7 (DJUBSCI_{t+1} - R_{F,t+1}) + \varepsilon_{P,t+1} \quad (5)$$

3.2 The second approach

Siegmann, and Stefanova (2011) show that the time-variation in $\beta_{p1,t}$ is captured by:

$$\beta_{p,t} = \beta_p + \delta_p . ILLIQ_{t+1} + \lambda_p VIX_{t+1} \quad (6)$$

Where:
δ_p: It is the liquidity-timing measure; $ILLIQ_{t+1}$: It is the Amihud (2002) illiquidity measure; VIX_{t+1}: It is the CBOE VIX index.

Our study is conducted on the European stock market exposure. Therefore, we use $Vstoxx$ which is the counterpart of VIX in Europe. It measures also the fear of investors in this market. Then, the time-variation in $\beta_{p1,t}$ is estimated as:

$$\beta_{p,t} = \beta_p + \delta_p . ILLIQ_{t+1} + \lambda_p Vstoxx_{t+1} \quad (7)$$

Finally, we obtain a second liquidity-timing model by substituting equation (7) in equation (3):

$$R_{P,t+1} - R_{F,t+1} = \alpha_P + \beta_P (R_{M,t+1} - R_{F,t+1}) + \delta_p (R_{M,t+1} - R_{F,t+1}) ILLIQ_{t+1} + \lambda_p (R_{M,t+1} - R_{F,t+1}) Vstoxx_{t+1} + \beta_1 SMB_{t+1} + \beta_2 HML_{t+1} + \beta_3 MOM_{t+1} + + \beta_4 (BCEABI_{t+1} - R_{F,t+1}) + \beta_5 (WBIG_EUR_{t+1} - R_{F,t+1}) + \beta_6 (EACBAAI_{t+1} - R_{F,t+1}) + \beta_7 (DJUBSCI_{t+1} - R_{F,t+1}) + \varepsilon_{P,t+1} \quad (8)$$

3.3 The behavior of European hedge funds in extreme liquidity conditions

We consider two dummy variables, $D(L.LIQ)_t$ and $D(H.LIQ)_t$ to re-examine the hedge funds liquidity timing ability in extreme market liquidity circumstances.

3.4 Can European hedge funds' managers time market volatility and market return?

We reexamine European hedge funds liquidity timing ability by including the Treynor, and Mazuy(1966) market timing and the Busse (1999) volatility timing measures in our liquidity timing model.

4. Data Description

Hedge Funds : We use monthly returns of individual European hedge funds from the Eurekahedge database.

Our study period extends over *126* months from July 2002 through December 2012. Our sample consists of *1616* European hedge funds. We construct sixteen equal-weighted portfolios of (1) all 1616 hedge funds and (2) funds in each respective investment strategy and we assess European hedge funds' liquidity timing ability only at portfolio level.

Equities : we use the constituent individual stocks of the Next 150 index at December 2012.

Indices: The monthly returns of Bond indices are provided by EuroMTS, Barcap and Citi.

5. Main results

Our results suggest that there is strong evidence of the liquidity timing ability of fund managers. Thus, managers decrease (increase) their portfolios' market exposure when the European equity market illiquidity is high (low). Specifically, among the fifteen strategies we examine, Arbitrage, Dual Approach, Event Driven, Long Short Equities and Multi Strategy demonstrate strong liquidity timing ability. Furthermore, the findings show that the liquidity timing skills add economic value to investors according to both approaches. Hence this ability represents a major source of European hedge fund alphas.

It is important to note that results obtained regarding american hedge funds reveal that liquidity timing coefficient is positive and significant for all strategies followed by these funds (Cao, Liang, Chen, and Lo (2009)). Nevertheless, we find that the portfolios Fixed Income, Others, Relative Value display positive and significant liquidity timing coefficients at the 5 percent level, suggesting that these european funds are liquidity providers. In fact, their market exposure is positively linked to illiquidity. Thus, the market exposure is higher when liquidity is low and vice versa. Also we find no evidence of the liquidity timing ability of fund managers who follow the strategies Bottom-up, CTA/Managed Futures, Distressed Debt, Diversified Debt, Macro, Top Down et Value.

Then, it reveals that the majority of European hedge funds demonstrate liquidity timing ability especially during liquidity crisis. Thus, this ability is asymmetric. Finally, we find that our main results of liquidity timing ability are robust to controlling for market timing and volatility timing.

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