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The Risk Exposures of Asia-focused Hedge Funds

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Newsletter of the BNP Paribas Hedge Fund Centre at SMU

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Mission of the BNP Paribas Hedge Fund Centre

The mission of the BNP Paribas Hedge Fund Centre is to facilitate, encourage, and sponsor high-level academic research on hedge funds. The Centre also provides outstanding education to students, executives, and investors, and publishes objective and independent information on hedge funds, while promoting understanding and awareness of alternative investment strategies. Through excellence in research on alternative investments, the Centre is recognized for its capacity to foster stimulating exchange of opinions, and to develop a knowledgeable and objective information base regarding hedge funds.

Specifically, the primary objectives of the BNP Paribas Hedge Fund Centre at the Singapore Management University are to

1. conduct and disseminate high quality academic hedge fund research
2. educate finance practitioners and the investor public on hedge funds, and
3. raise the profile of the hedge fund industry in Asia and Singapore

To achieve these goals, the Centre will collaborate closely with academics at the London Business School. Moreover at all times, the Centre is absolutely committed to the highest ethical conduct and will actively avoid any conflicts of interest with outside parties.

The risk exposures of Asia-focused hedge funds

Melvyn Teo[1]

Abstract

How have Asia-focused hedge funds adjusted their risk exposures in response to the recent financial crisis? By evaluating fund performance relative to an augmented Fung and Hsieh (2004) model, we find that Asia-focused hedge funds have broadly trimmed risk exposures post-crisis. They have reduced their exposure to small stocks relative to large stocks, scaled back their loadings on high yield corporate bonds relative to low yield U.S. sovereign debt, and pared their allocation to the Japanese equity markets. At the same time, however, they are now more exposed to Asian equity markets.

The global financial crisis of 2008 marked a pivotal shift in the way investors think about hedge fund risks. Re-hypothecation and the Lehman Brothers collapse brought to fore the importance of counterparty risk. The widespread use of redemption gates by hedge funds reminded investors of liquidity and commingling risk. The Madoff scandal underscored the impact of operational, headline, and career risk.

At the same time, the financial crisis may have also changed the way hedge fund managers themselves approach risk taking. After all, the crisis must have been firmly etched onto the minds of those managers who had to contend with dismal performance, waves of redemptions from panicked investors, and margin calls from spooked prime brokers. In this newsletter, we explore this issue by investigating the risk exposures of hedge fund managers who invest in Asia.

To do so, we merge the Eurekahedge, and Asiahedge databases. Eurekahedge is a global database that contains both non-Asia focused funds and Asia focused funds. By including the funds from Asiahedge, we increase our coverage of Asia focused hedge funds. The sample period extends from January 2000 to April 2011. In total, the combined database consists of 2,455 Asia focused funds of which 1,204 stopped reporting returns at the end of our sample period.

To quantify risk, we evaluate the performance of hedge funds relative to the Fung and Hsieh (2004) factor model. The Fung and and Hsieh (2004) factors are S&P 500 return minus risk free rate (SNPMRF), Wilshire small cap minus large cap return (SCMLC), change in the constant maturity yield of the U.S. 10-year Treasury bond adjusted for the duration of the 10-year bond (BD10RET), change in the spread of Moody's BAA bond over 10-year Treasury bond appropriately adjusted for duration (BAAMTSY), bond PTFS (PTFSBD), currency PTFS

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(PTFSFX), and commodities PTFS (PTFSCOM), where PTFS is primitive trend following strategy. Following Teo (2009), we augment the Fung and Hsieh (2004) factors with a Japan equity market factor (JAPMRF) derived from the excess return of the Nikkei 225 index and an Asia ex Japan market factor (ASIAMRF) derived from the excess return on the MSCI Asia ex Japan index. The data for the Fung and Hsieh (2004) trend following factors extend to June 2010.

We estimate regressions on the equal-weighted[2] portfolio of hedge funds for the entire sample period January 2000 to April 2011 as well as for two sub-periods, namely the pre-crisis period January 2000 to September 2008 and the post-crisis period October 2008 to April 2011. The regression coefficient estimates are reported in Table 1. The *t*-statistics are in parentheses and the coefficients in bold are statistically significant at the 5% level. The results for the full sample indicate that (i) Asia focused hedge funds have delivered positive alpha of about 5.58% per annum since 2000 (ii) Asia focused hedge funds load positively on both the Japanese equity market (JAPMRF) and the Asia ex Japan equity market (ASIAMRF) (iii) unlike their US counterparts, Asia focused hedge funds tend to long US Treasury bonds and short corporate bonds in line with the positive coefficient estimate on the default spread BAAMTSY. We note that the R-square for the regression is 0.884 which indicates that augmented Fung and Hsieh model well explains variation in the hedge fund portfolio returns.

Table 1: Risk exposures of Asia-focused hedge funds pre- and post-crisis

	Sample period		
	Jan 2000 - Apr 2011	Jan 2000 - Sep 2008	Oct 2008 - Apr 2011
Alpha	**0.465**	**0.490**	**0.406**
	(5.515)	(4.893)	(2.685)
SNPMRF	-0.015	-0.033	0.035
	(-0.566)	(-0.936)	(0.578)
SCMLC	0.030	0.039	-0.070
	(1.305)	(1.468)	(-1.376)
BD10RET	-0.009	-0.006	-0.032
	(-0.232)	(-0.116)	(-0.473)
BAAMTSY	**0.121**	0.116	0.123
	(2.879)	(1.552)	(1.855)
PTFSBD	-0.010	-0.008	-0.009
	(-1.503)	(-1.044)	(-0.578)
PTFSFX	0.004	0.002	0.005
	(0.699)	(0.347)	(0.271)
PTFSCOM	0.004	0.002	0.018
	(0.664)	(0.287)	(0.725)
JAPMRF	**0.161**	**0.172**	**0.109**
	(8.700)	(8.117)	(2.398)

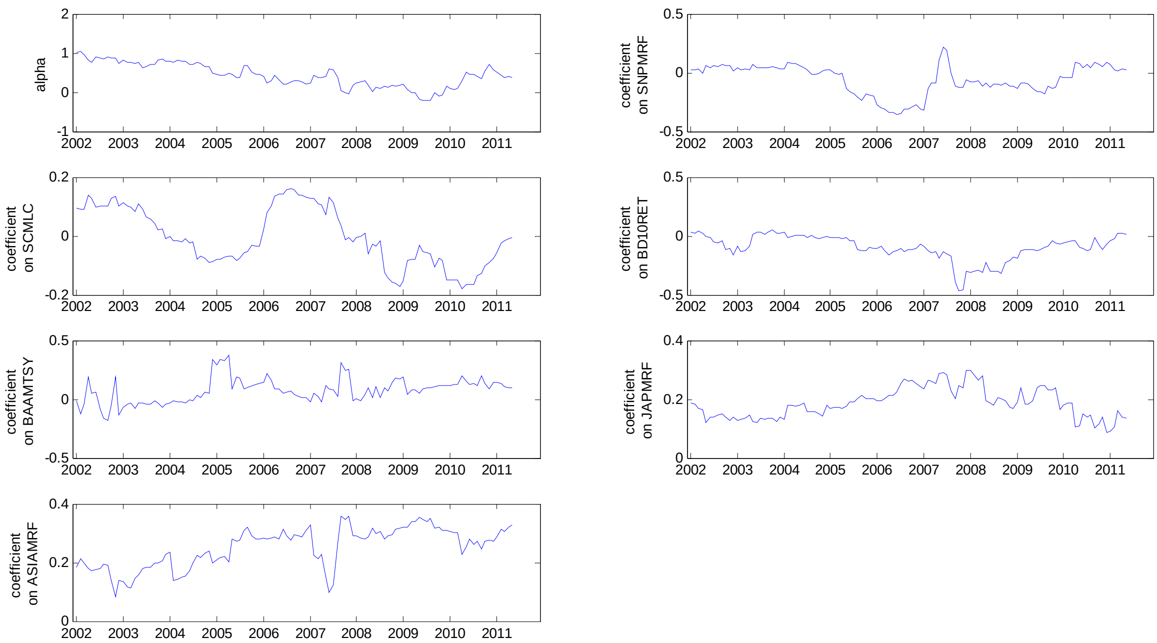
[2] Inferences do not change when we value-weight the portfolios or adjust for backfill bias by removing the first 12 months of returns for each fund.

ASIAMRF	**0.251**	**0.241**	**0.312**
	(11.763)	(9.211)	(6.753)
R-squared	0.884	0.851	0.969

When we split the sample into the pre-crisis and post-crisis period, we observe some interesting dynamics in the risk exposures. In line with the view that the crisis has tempered fund appetite for risk taking, hedge funds have reduced their exposure to risky small capitalization stocks (relative to large capitalization stocks), to the Japanese equity market, and to corporate bonds (relative to US Treasuries). These observations follow from the smaller coefficient estimates on SCMLC and JAPMRF and from the slightly larger coefficient estimate on BAAMTSY in the post-crisis period. At the same time, the increase in the coefficient estimate on ASIAMRF suggests that funds are increasing their exposure to Asia ex Japan equities.[3]

Some market watchers argue that hedge fund alpha should have improved post-crisis as there are now fewer arbitrageurs in the market. The crisis may have also wiped out less successful funds leaving the more successful funds in its wake. The Volcker rule also implies that the number of proprietary traders competing with hedge funds for investment opportunities has significantly diminished. However the data fails to bear this out. We find that the average alpha has fallen post crisis. This may be due to the fact that although competition is less fierce in the investment markets, hedge funds have to contend with heightened compliance and regulatory costs.

Figure 1: Dynamic risk exposures of Asia-focused hedge funds



[3] One caveat is that none of the coefficient changes are statistically significant. When we run a full sample regression of the fund portfolio returns on the augmented Fung and Hsieh (2004) factors and on the interaction between the factors and a dummy variable that takes a value of one between October 2008 and April 2011, we find that the most significant interaction variable is that associated with the SCMLC. The coefficient on the interaction variable with SCMLC has a *t*-statistic of -1.49.

Figure 1 plots the risk exposures of Asia-focused hedge funds on a rolling basis for each 24-month window in the sample period. Specifically, the coefficient estimates displayed for January 2002 correspond to those estimated between January 2000 and December 2001. Similarly, the coefficient estimates displayed for January 2011 correspond to those estimated between January 2009 and December 2010. The rolling estimates in Figure 1 broadly corroborate the findings from Table 1 and deliver some additional insights into the time variation in factor loadings for Asia-focused funds.

First, Asia-focused hedge funds had a relatively high exposure to US equities going into the crisis in mid-2007, scaled back their exposure in 2008 and 2009, and gradually increased their exposure after 2009. Second, there was an increase in the loading on BD10RET or the term spread factor post-2008 that was not picked up by the Table 1 regressions. This suggests that hedge funds were off loading less liquid long-term US Treasuries for more liquid short-term US Treasuries, in line with a general flight to quality. Third, hedge funds had unusually low exposure to Asian equities and high exposure to small versus large stocks going into the crisis which reversed when the crisis struck.

Summary

In summary, we have shown that hedge funds investing in Asian markets have clamped down on risk taking on several fronts since the global financial crisis. Fund managers have reduced their exposure to equity markets in Japan, and allocated more capital to more liquid assets such as US Treasuries and large capitalization stocks. Investors may find these developments heartening. Yet at the same time, the crisis has done little to reverse the troubling long-term downward trend in average hedge fund alpha. Clearly, there is a lot of cross-sectional heterogeneity in fund alpha and risk exposure. The ability to identify managers that outperform the average will be even more critical for investors going forward.

References

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Teo, M., 2009, The geography of hedge funds. Review of Financial Studies 22, 3531-3561.

Update on the Centre's Activities

Education

Our annual 2 and 1/2 day hedge fund executive education program will take place on 19-21 October 2011. It will be taught by renowned hedge fund expert Professor Bill Fung, visiting Research Professor in Finance from the London Business School who will share, among other things, his latest research findings on institutional quality hedge funds. To ground knowledge, real world Harvard Business School case studies will be discussed. The course will also feature, as guest speakers, prominent industry leaders, including Bart Broadman from Alphadyne, Stephen Diggle from Vulpes, Tan Chin Hwee from Apollo, and James Liu from OAKs family office. This is the third year that we are mounting the program and the comments from past participants have been exceptionally positive. To reserve a slot in this year's program, please email Ms Karyn Tai at hfc@smu.edu.sg.

Research

The centre director presented his research on quantitative hedge fund selection at a hedge fund seminar organized by Shinhan BNP Paribas Asset Management in Seoul on 7 July.

Working versions of centre sponsored papers are available for download from our research webpage at http://www.smu.edu.sg/centres/hfc/research.asp

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For more information regarding the BNP Paribas Hedge Fund Centre at SMU and our upcoming activities, please contact Ms Karyn Tai, centre coordinator (Tel: +65-6828-0933, E-mail: hfc@smu.edu.sg) or visit our webpage at http://www.smu.edu.sg/centres/hfc/index.asp. We look forward to receiving your suggestions and comments.