

“The Impact of Hedge Funds on the Global Foreign Exchange Markets: Overview, Implications & Trends“

Foreign Exchange Contact Group

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Current Developments
and
Economic Background

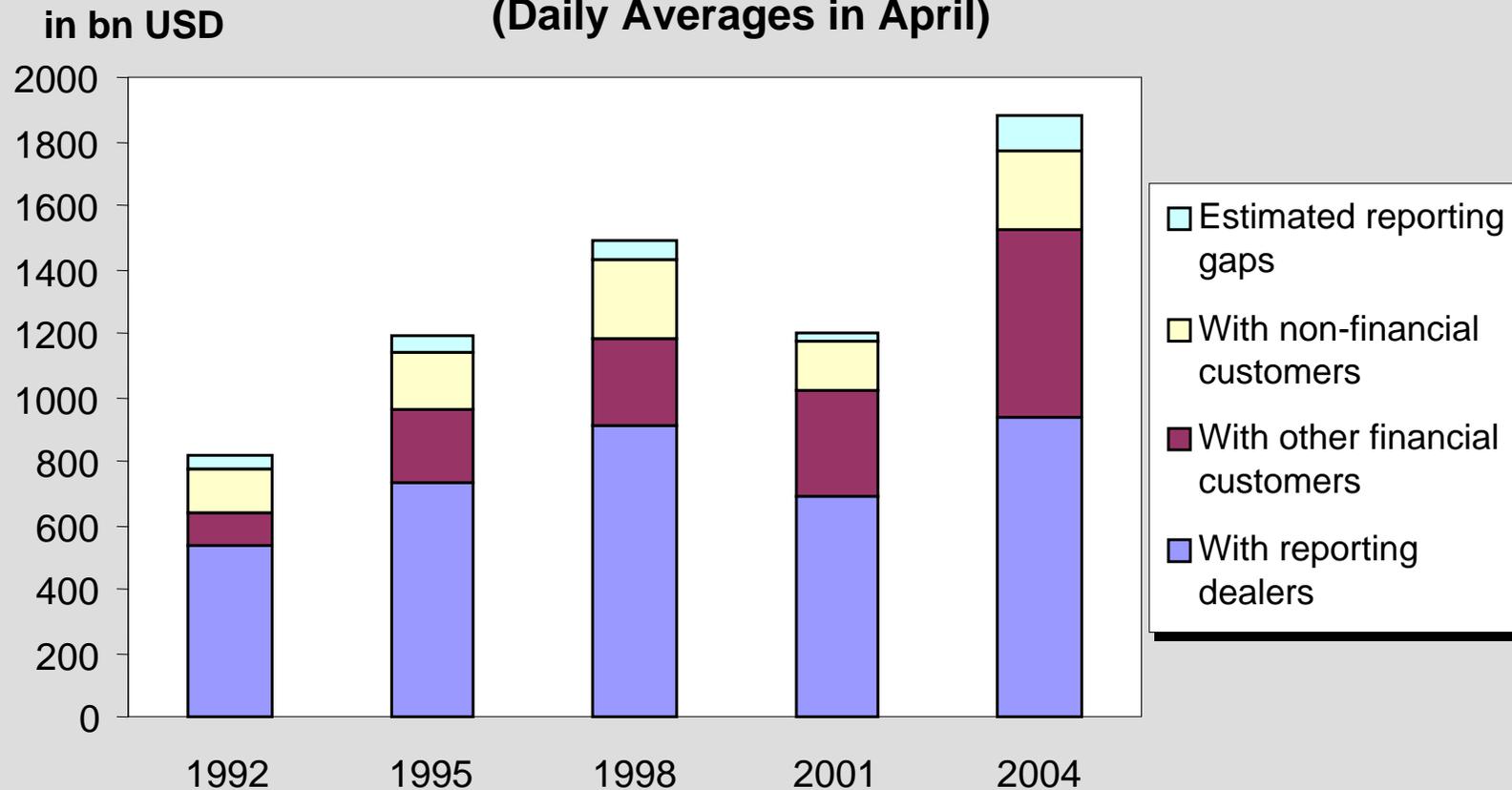
Deutsche Bundesbank
Peter Griep

Data

- Commercial Hedge Fund databases provided by Lipper/TASS, Centre for International Securities and Derivatives Markets (CISDM), Hedge Fund Research (HFR)
- Hedge Fund manager report on a voluntary basis
- Databases
 - ... cover only a part of the global Hedge Fund industry
 - ... comprise quantitative (AUM, returns) and a variety of qualitative data (strategy, geographical focus, leverage etc.)
 - ... are subject to biases (survivorship bias, self selection bias, backfill bias)
 - ... suffer from accuracy and consistency
- Other statistics: Hedge Fund data included in other aggregates reported by banks (e.g. BIS, Euromoney statistics)

FX Markets

Global FX Market Turnover (Daily Averages in April)



Source: BIS Triennial Central Bank Survey (2005).

Share of FX on Hedge Funds' Asset Under Management (TASS Data)

bn USD

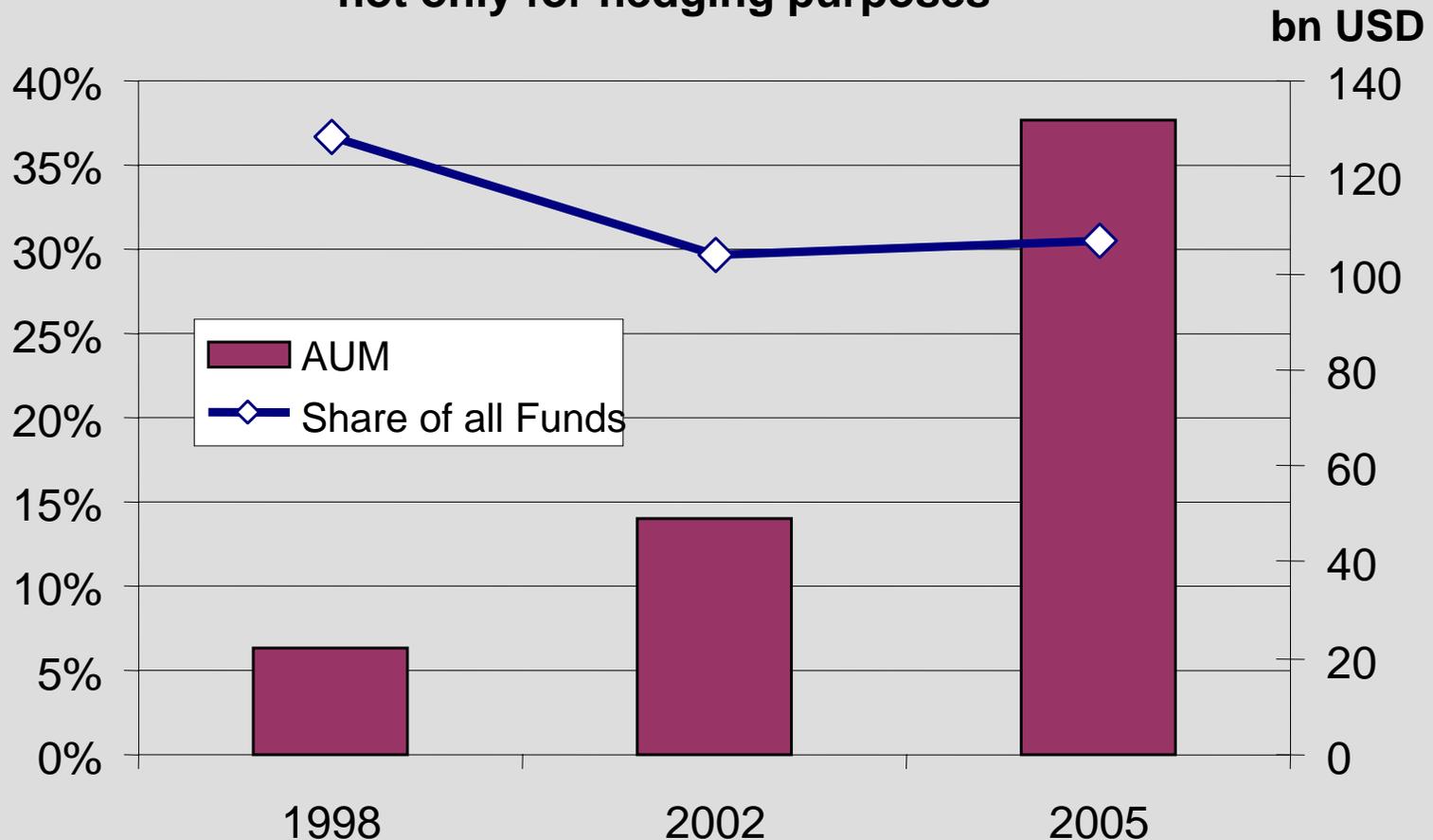
Strategy	1998	1999	2000	2001	2002	2003	2004	2005
Directional								
Long/ Short Equity	20.8	34.8	49.0	58.2	61.3	77.9	113.2	147.4
of which: FX incl. in assets	43%	45%	47%	49%	51%	52%	51%	50%
FX for hedging on	7%	10%	17%	23%	24%	23%	22%	23%
primary FX focus	5%	5%	4%	3%	4%	4%	4%	3%
Global Macro	2.9	2.7	2.9	3.8	5.6	16.2	20.0	24.2
of which: FX incl. in assets	99%	99%	99%	98%	97%	98%	96%	92%
FX for hedging on	3%	5%	7%	7%	15%	11%	13%	8%
primary FX focus	89%	80%	77%	69%	66%	76%	59%	46%
Emerging Markets	3.1	6.2	4.9	5.9	8.2	17.3	26.6	38.8
of which: FX incl. in assets	45%	47%	59%	60%	61%	58%	56%	55%
FX for hedging on	23%	30%	30%	25%	22%	20%	20%	20%
primary FX focus	1%	1%	2%	5%	6%	6%	6%	6%
Managed Futures	3.2	3.9	4.0	6.1	9.1	17.5	25.9	26.5
of which: FX incl. in assets	99%	98%	96%	92%	92%	93%	89%	82%
FX for hedging on	0%	0%	0%	0%	0%	0%	0%	0%
primary FX focus	90%	82%	80%	71%	71%	72%	65%	62%
Event Driven	9.6	11.0	14.5	21.7	24.8	39.7	62.1	83.4
of which: FX incl. in assets	66%	61%	62%	58%	64%	58%	51%	51%
FX for hedging on	45%	42%	43%	42%	47%	44%	40%	41%
primary FX focus	7%	6%	6%	5%	5%	4%	3%	3%

Share of FX on Hedge Funds' Assets Under Management (TASS Data)

bn USD

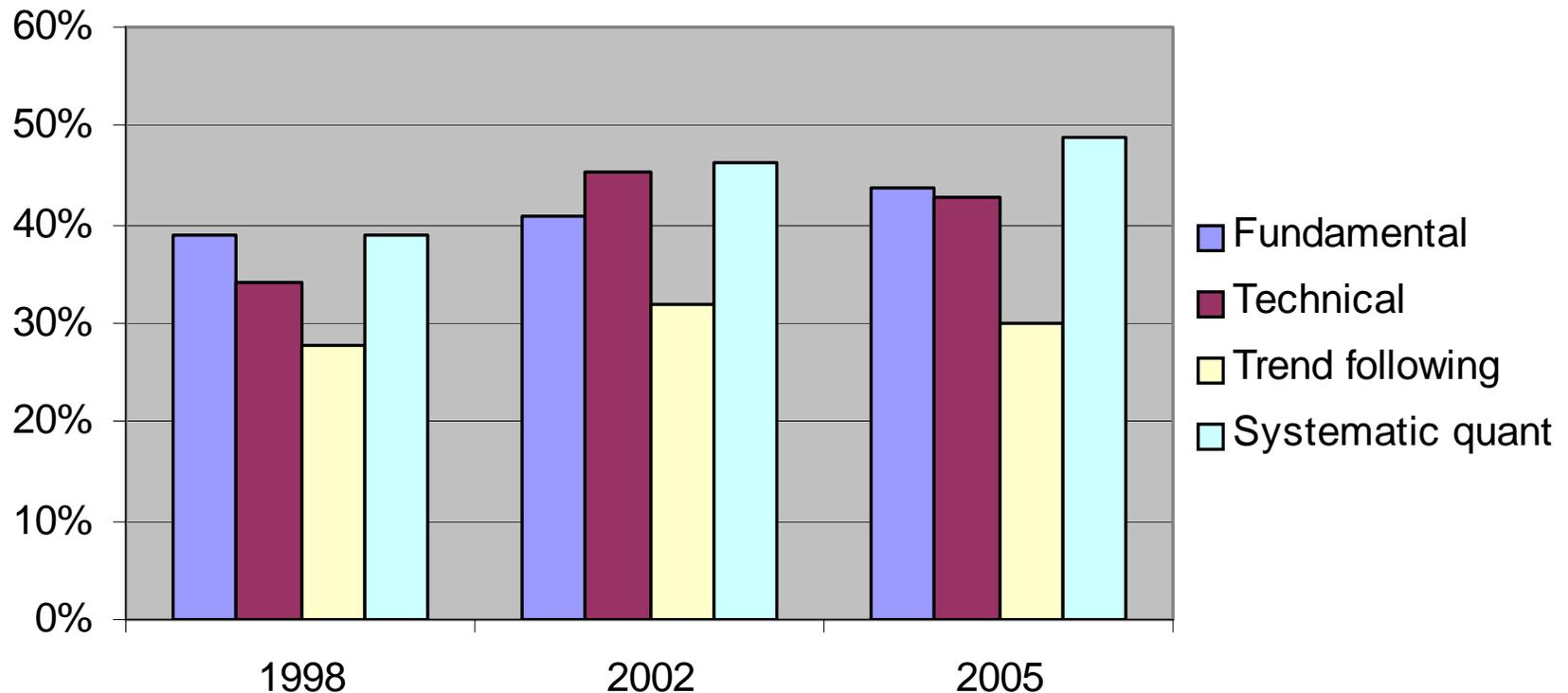
Strategy	1998	1999	2000	2001	2002	2003	2004	2005
Market Neutral								
Fixed Income Arbitrage	4.7	5.2	5.1	7.3	12.2	18.7	29.4	37.2
of which: FX incl. in assets	32.1%	21.1%	29.1%	31.1%	33.7%	43.5%	43.2%	42.5%
FX for hedging on	32.6%	21.6%	28.1%	28.3%	28.9%	30.3%	30.9%	32.8%
primary FX focus	0.2%	0.1%	1.3%	4.8%	7.8%	13.3%	13.9%	13.6%
Equity Market Neutral	5.0	7.3	10.0	14.7	16.8	19.9	24.3	23.7
of which: FX incl. in assets	56.2%	59.6%	60.2%	53.2%	49.1%	46.4%	46.0%	42.1%
FX for hedging on	39.4%	42.4%	38.5%	30.3%	30.4%	30.2%	29.2%	30.2%
primary FX focus	0.0%	0.1%	0.1%	1.3%	1.4%	1.6%	0.1%	0.3%
Convertible Arbitrage	2.2	2.6	3.0	8.1	10.2	15.6	18.8	14.0
of which: FX incl. in assets	42.9%	35.1%	33.6%	63.1%	57.7%	52.9%	56.0%	61.4%
FX for hedging on	42.4%	34.6%	32.9%	59.2%	48.9%	39.8%	43.9%	49.6%
primary FX focus	6.3%	5.4%	5.1%	2.4%	3.8%	4.8%	4.5%	4.4%
Total	61.1	85.3	104.4	139.9	165.1	246.2	354.1	433.7
of which: FX incl. in assets	58.0%	54.5%	54.4%	55.6%	57.0%	58.5%	55.6%	53.5%
FX for hedging on	21.4%	20.6%	24.4%	28.2%	28.4%	26.0%	25.9%	26.4%
primary FX focus	20.2%	15.8%	10.7%	10.1%	11.7%	15.6%	12.6%	10.8%

Funds with currencies included in assets not only for hedging purposes



Source: TASS Database; own calculations.

Investment approach of funds with primary focus on currencies



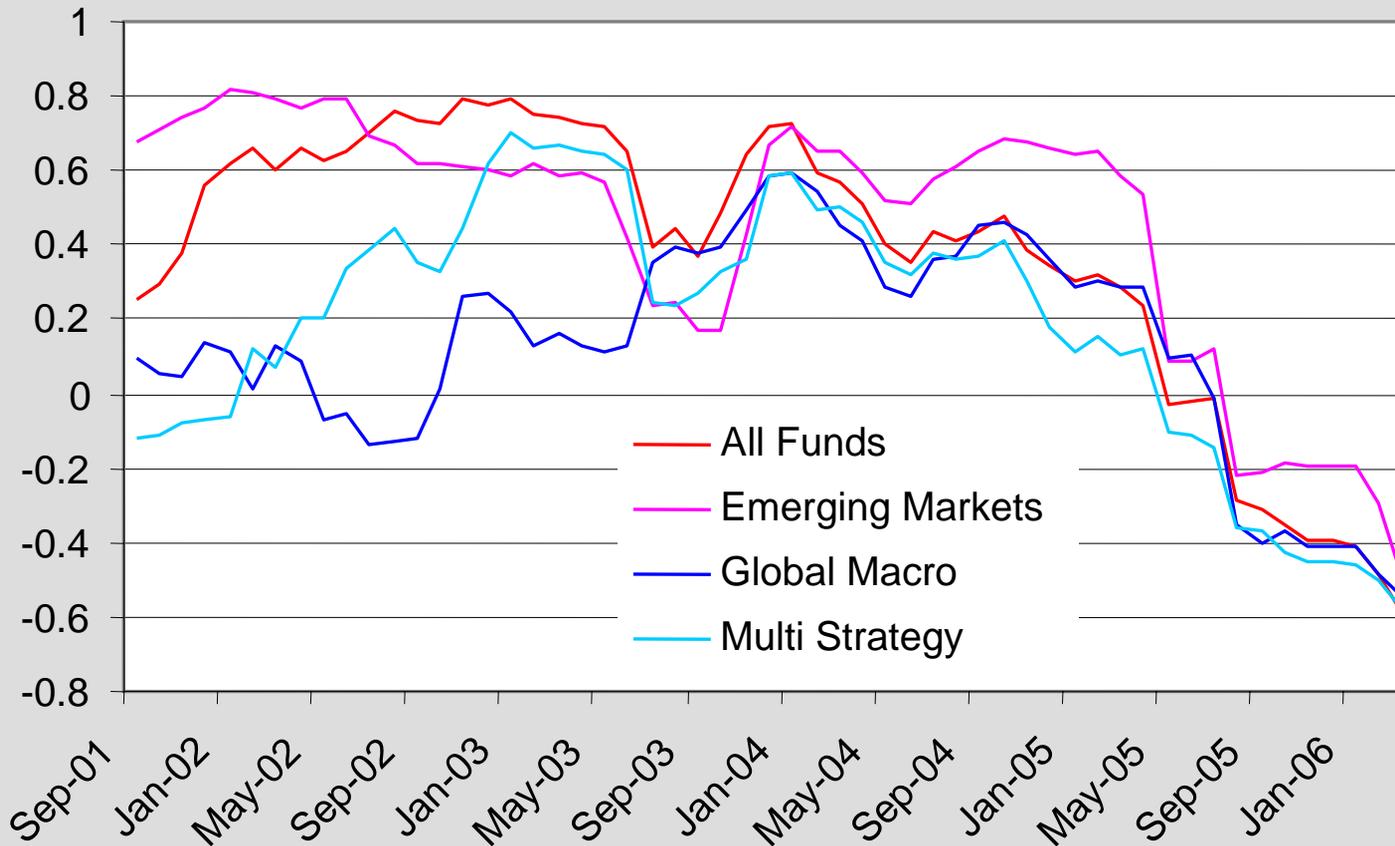
Source: TASS database; own calculations.

Impact of Hedge Funds on Market Dynamics

- Increasing technical trading might amplify price movements
- Empirical evidence of Hedge Funds' impact on volatility not clear
 - Momentum traders vs. fundamental, contrarian and mean reversion strategies
 - Speculation can stabilize prices (e.g. futures markets)
- Possible feedback effects of volatility trades on cash markets
- Carry trades might prolong currency trends
- Crowded trades make Hedge Funds vulnerable to adverse market dynamics

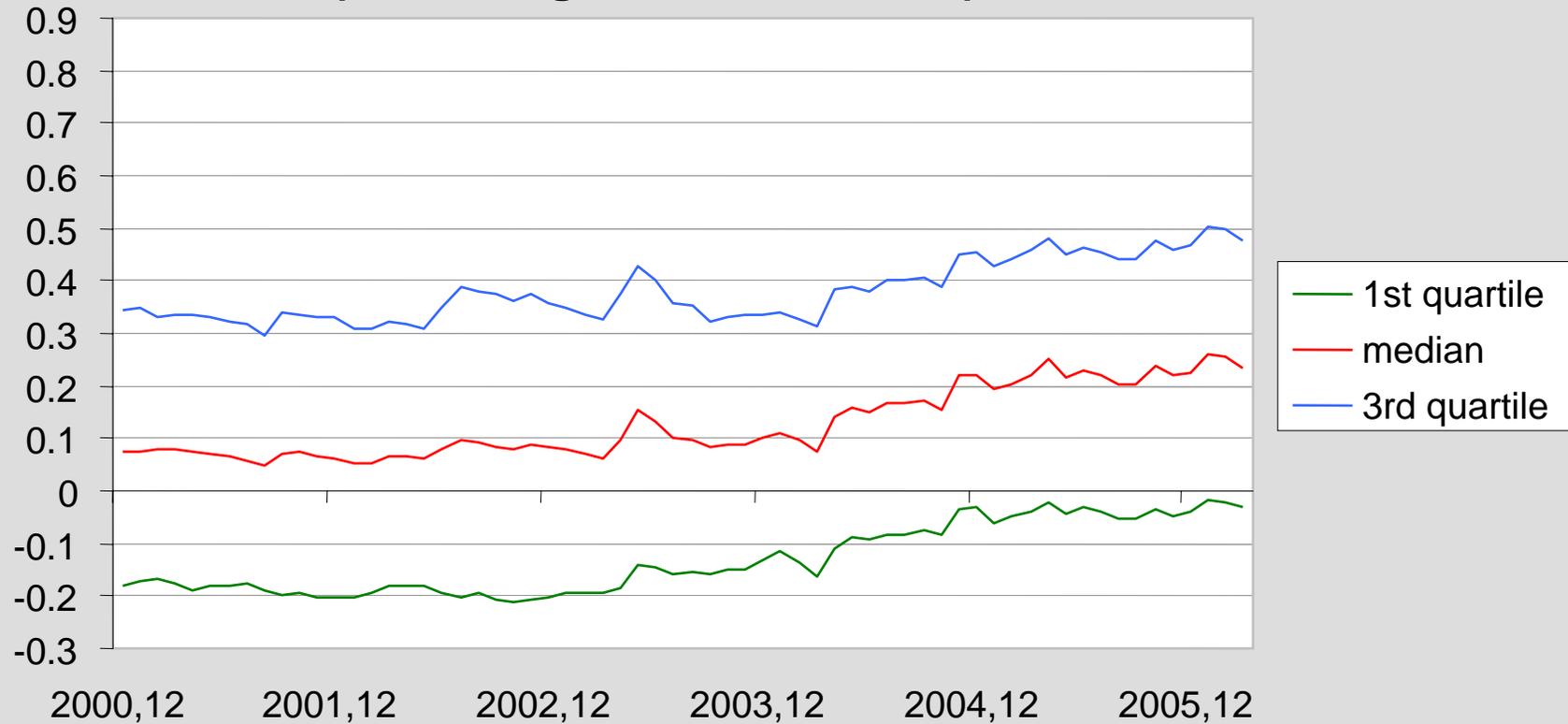
Carry Trades

Correlations of Hedge Fund Returns with DB Global Currency Harvest USD



Crowded Trades?

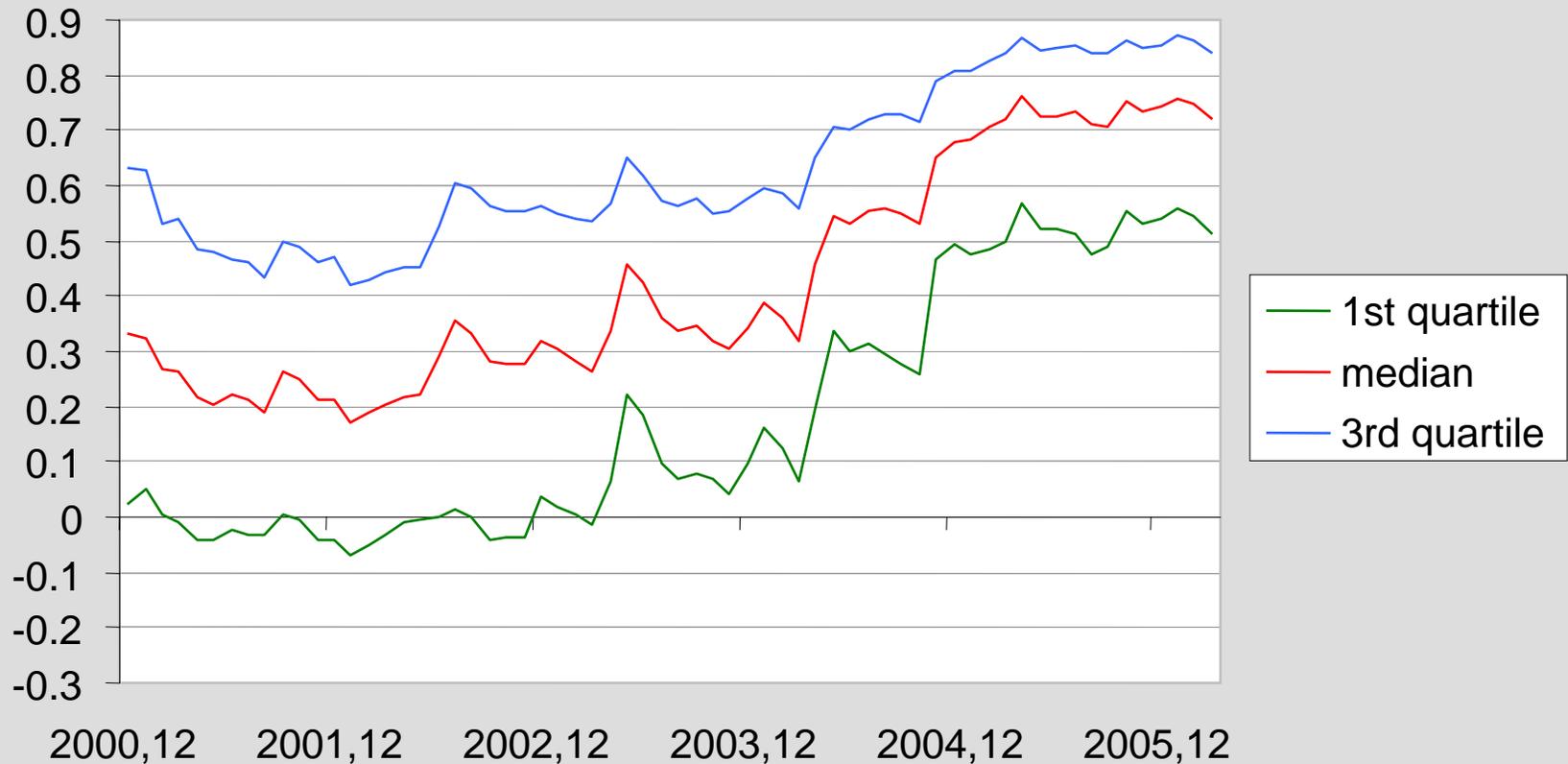
Correlation of Hedge Fund Returns (excluding Funds of Funds)



Source: TASS Database; own calculations.

Crowded Trades?

Correlation of Fund of Hedge Funds Returns



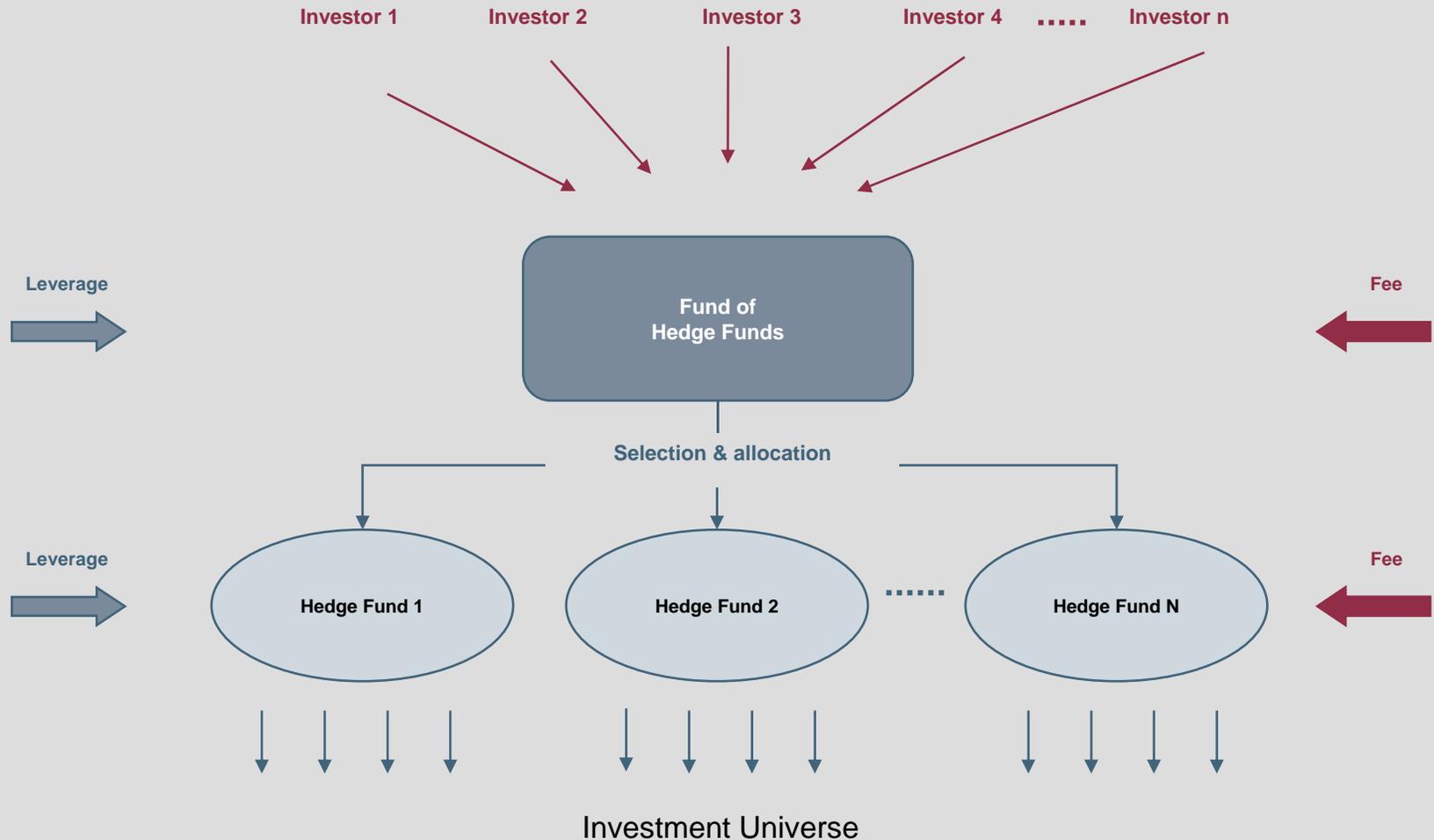
Source: TASS Database; own calculations.

Performance, Leverage and Risk

BHF Bank

Jörg Isselmann

Fund of Hedge Funds: Structure



Fund of Hedge Funds: Some Stylized Facts

➤ Importance

FOHF account for **more than half of the capital provided to single-hedge funds** (about US\$bn700 of the US\$bn1,350 in 2005)

➤ Leverage

- BIS/BoE estimates for hedge fund leverage indicate that leverage has been **relatively stable over the 2004-06 period**; overall, leverage is significantly lower than in the 90s
- FOHF use less „own“ leverage than single-hedge funds

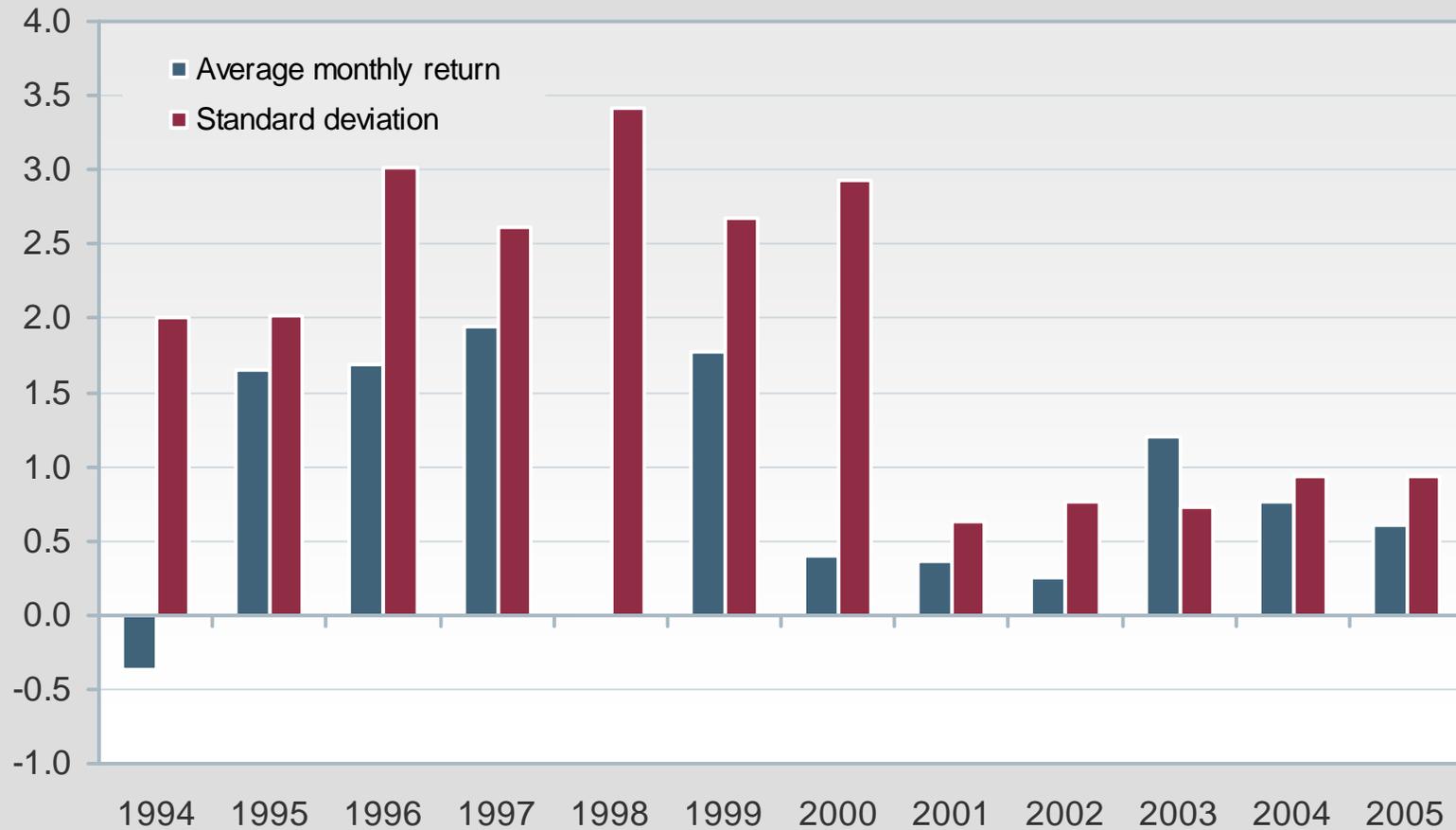
➤ Liquidity constraints

- FOHF tend to have shorter lock-up periods (about 76% have no lock up at all, as compared to 69% for single-hedge funds), but redemptions can be made less frequent and payout periods tend to be longer
- **side letters or separately managed accounts** possibly provide for preferential treatment of FOHF (and other institutional investors) from single hedge funds; investor redemptions could constitute a bigger risk for hedge funds than indicated by standard liquidity constraints as published in hedge fund databases

➤ Correlation

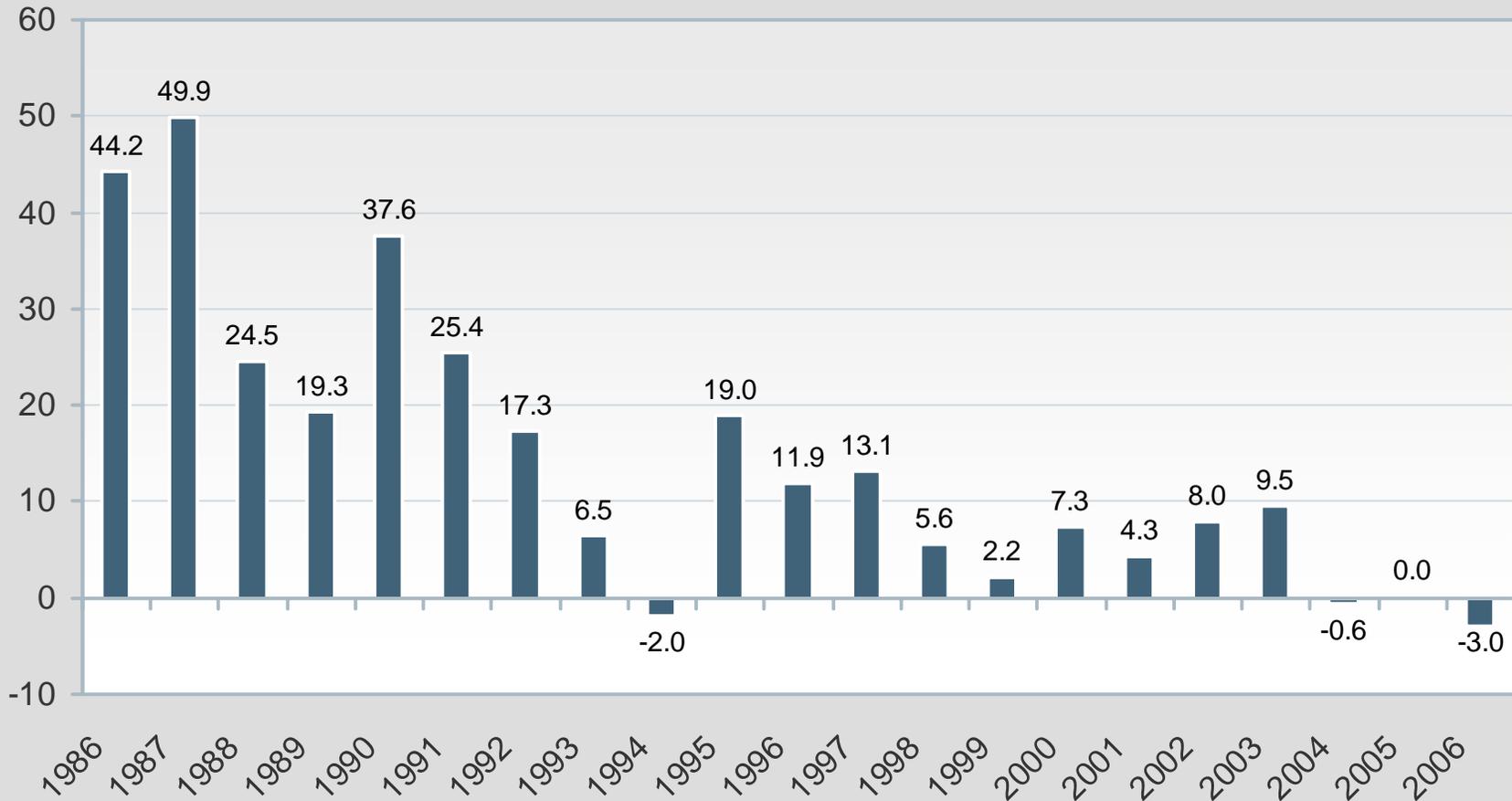
- **correlation of returns within the group of FOHFs** is higher than within any other hedge fund strategy; little diversification is achievable by investing in different FOHF
- correlation between hedge fund returns has risen steeply since 2004 (from 0.4 to nearly 0.8); could be an indication of „**herding behaviour**“

Hedge Fund Return and Risk*)



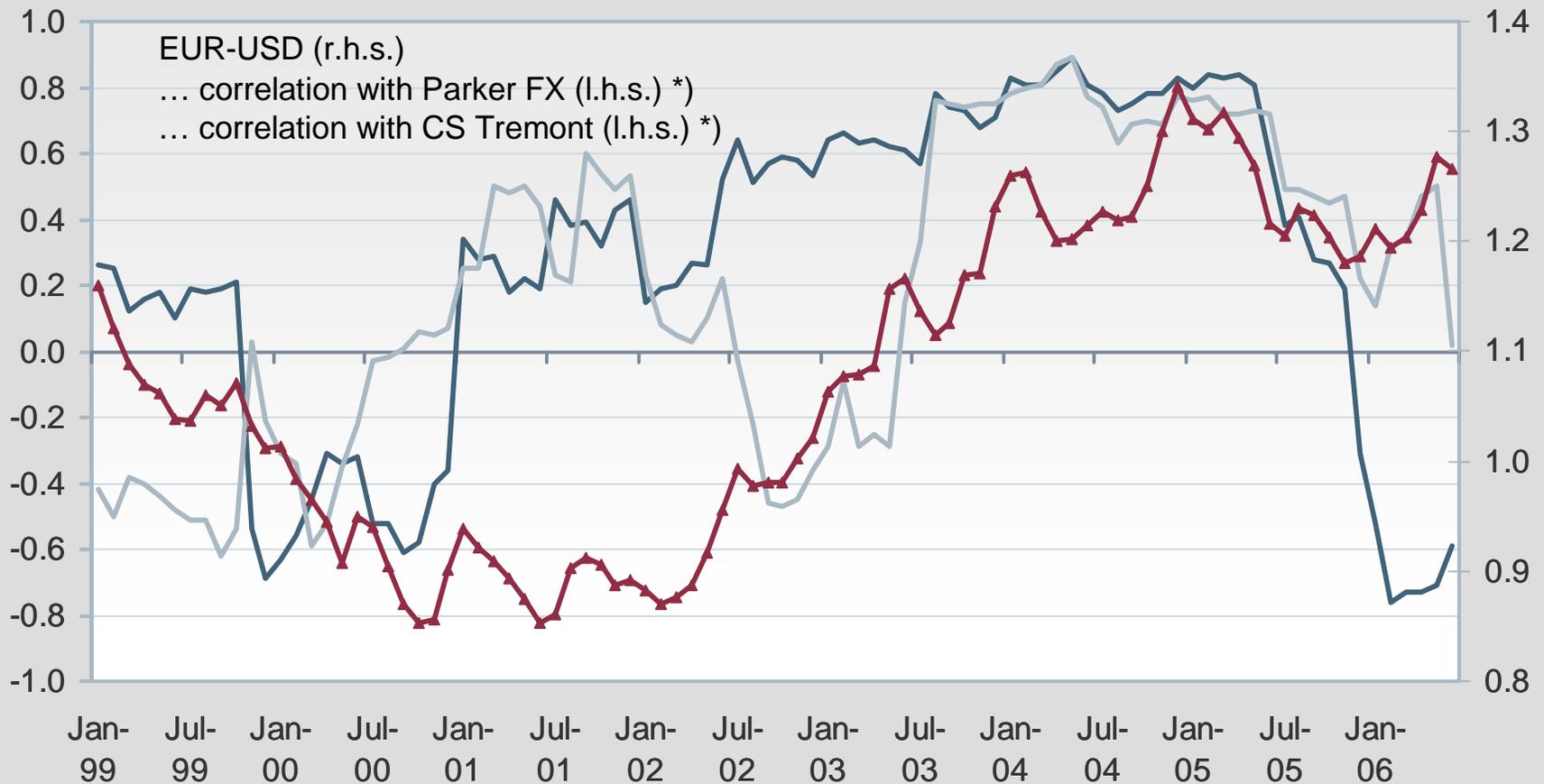
*) Credit Suisse Tremont Hedge Fund Index

Annual Returns of FX Hedge Funds*)



*) Parker FX Index

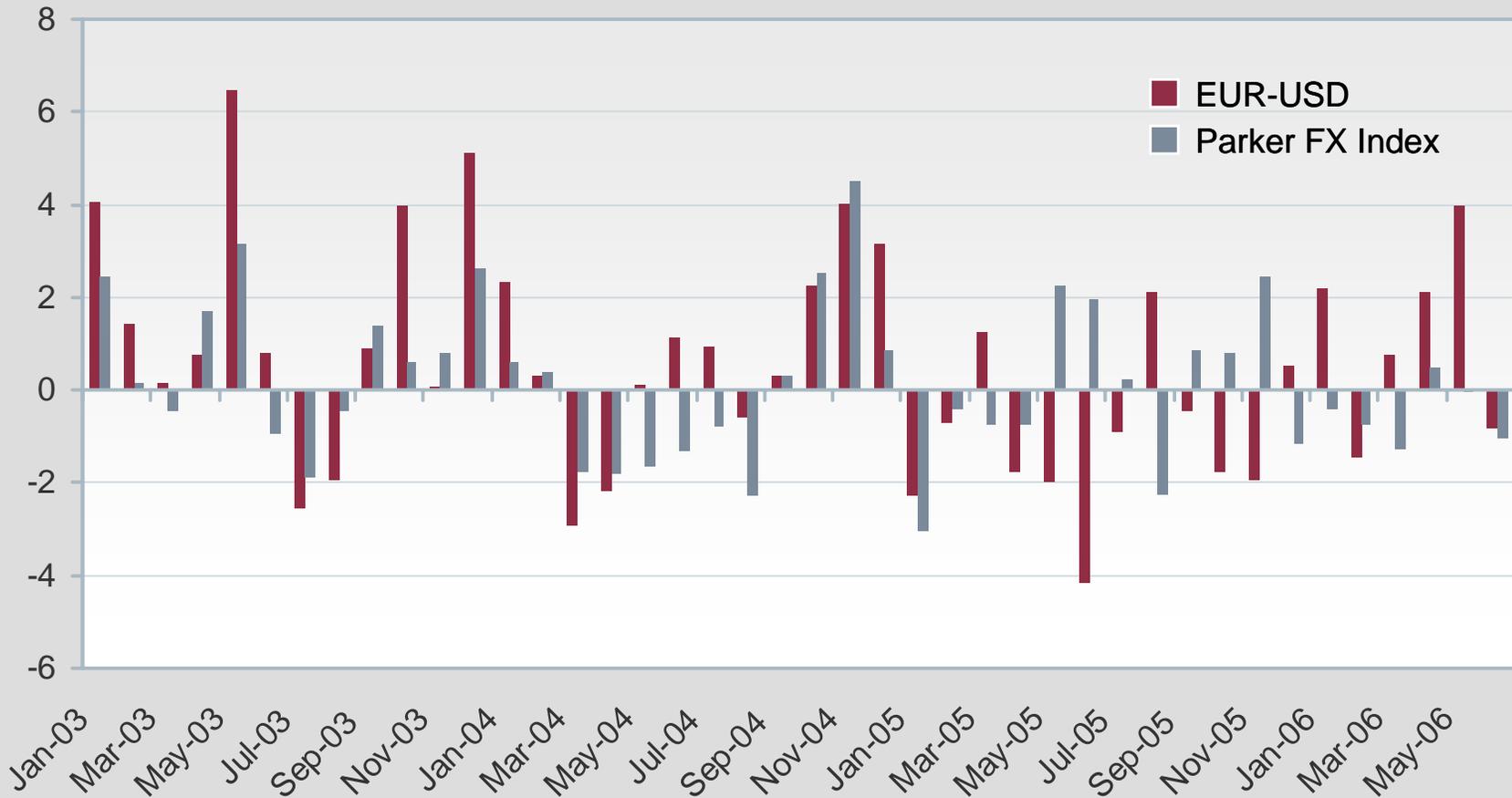
FX Markets and Hedge Fund Positioning



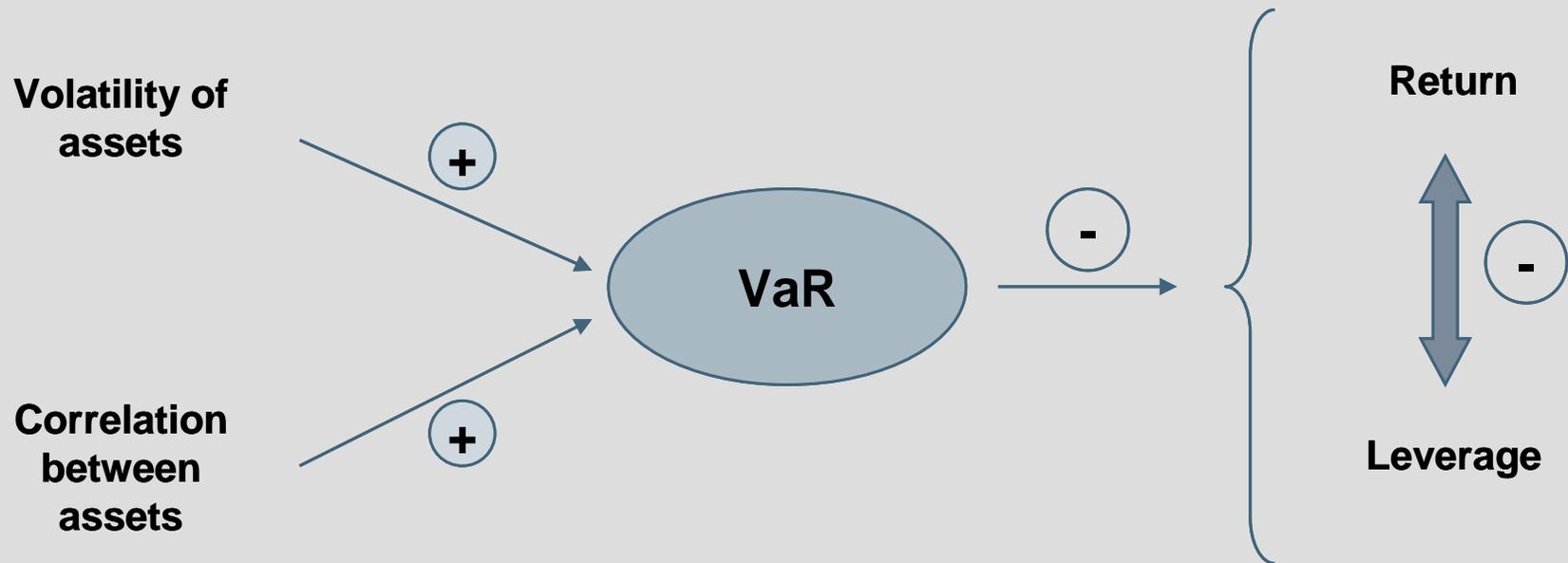
*) Rolling 12 months correlation of monthly returns

EUR-USD and FX Hedge Funds

Monthly returns in %

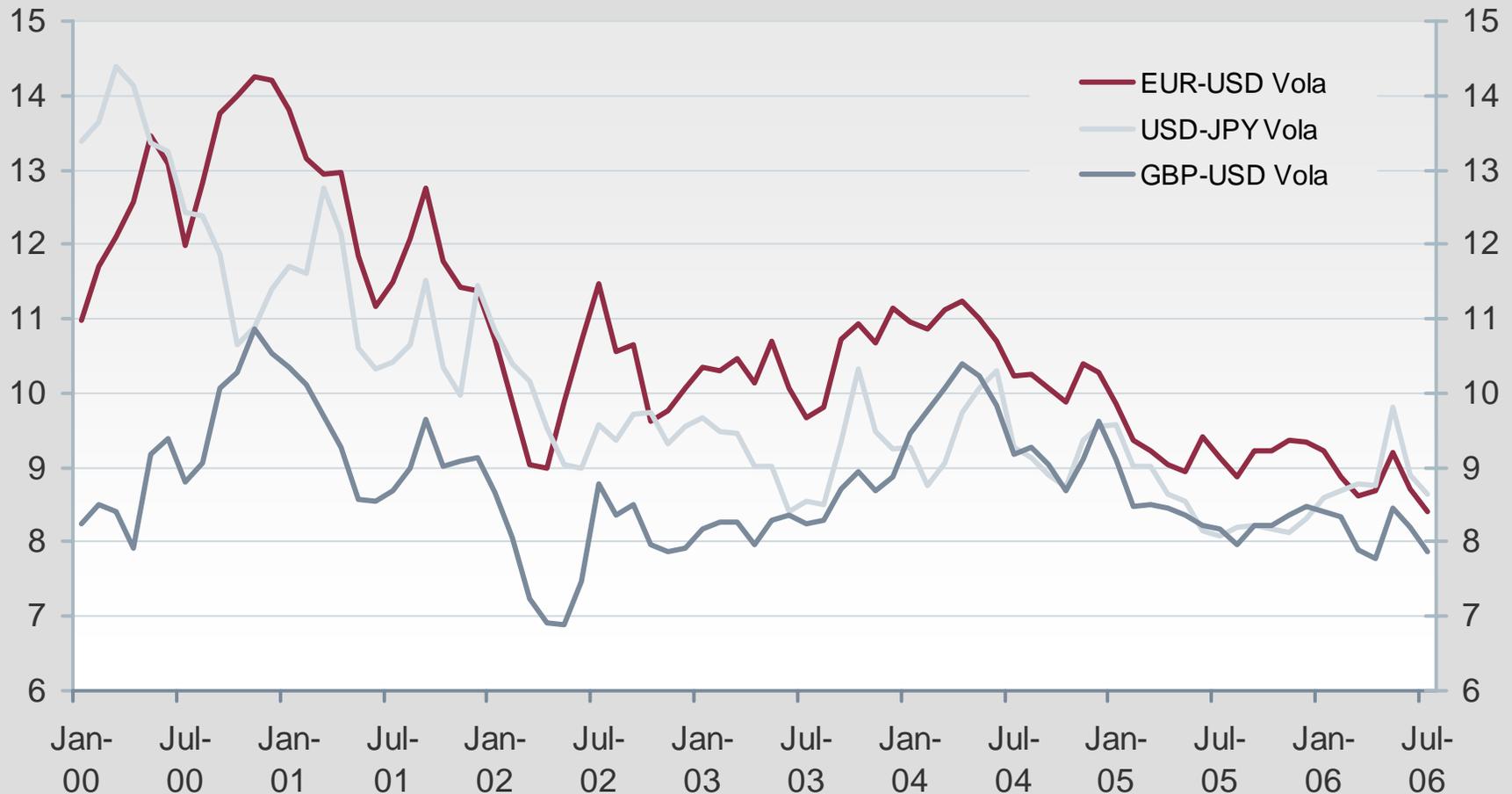


Risk and Leverage



Low Volatility Environment in Forex Markets

Option implied volatility 6 months in %

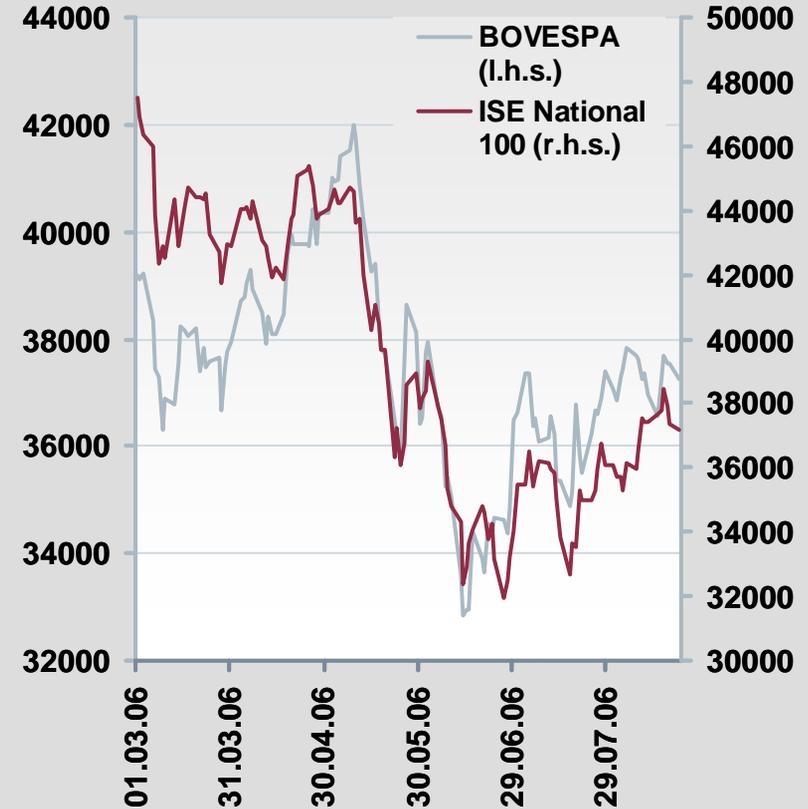


Globalization of Correlation

Forex Markets



Stock Markets



Concluding Remarks

- Tough times for FX Hedge Funds
 - No trending markets
 - Low volatility
 - Expected dollar weakness difficult to play
- Reported returns over the last decade strong
- Short term performance - on average – disappointing
- Hedge Funds follow less aggressive trading strategies than several years ago, less leverage, investment styles of hedge fund managers and traditional asset managers converging
 - targeting medium-sized institutional investors (pension funds, insurances,...)
 - targeting wealthy retail customers (esp. FOHF, index products)
- increasing pressures to achieve constant returns, even short term; favouring herding behaviour

FX as an Asset Class:
Products & Developments

Deutsche Bank AG

Stefan Bender

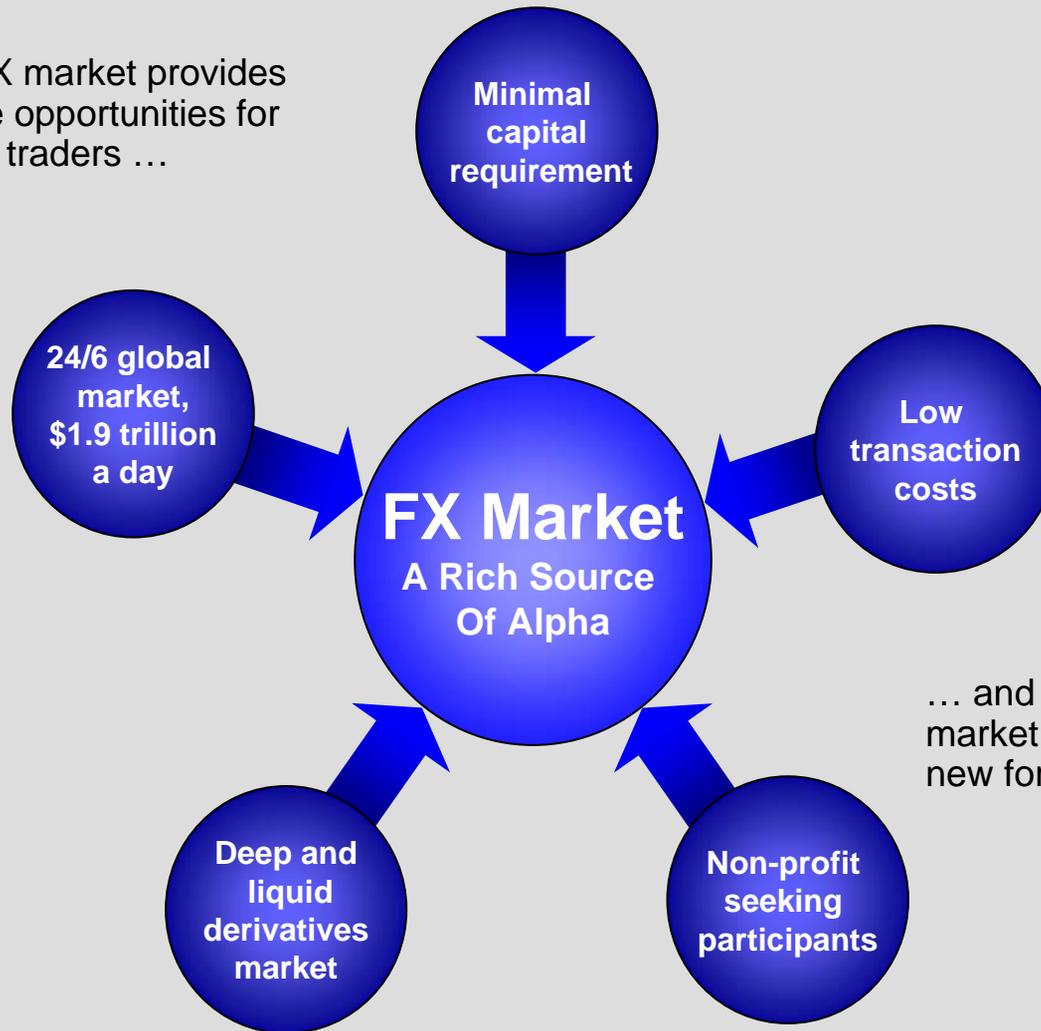
FX as an Asset Class: Statement

FX is an ideal market for active participants and return seekers

- Liquid, deep, well-developed market which requires minimal capital
- Large number of market transactions which are not profit motivated
- FX specialist managers have persistently generated positive excess return
- Average 10.3% returns over the last 15 years according to the Parker FX Index

FX as an Asset Class: Statement

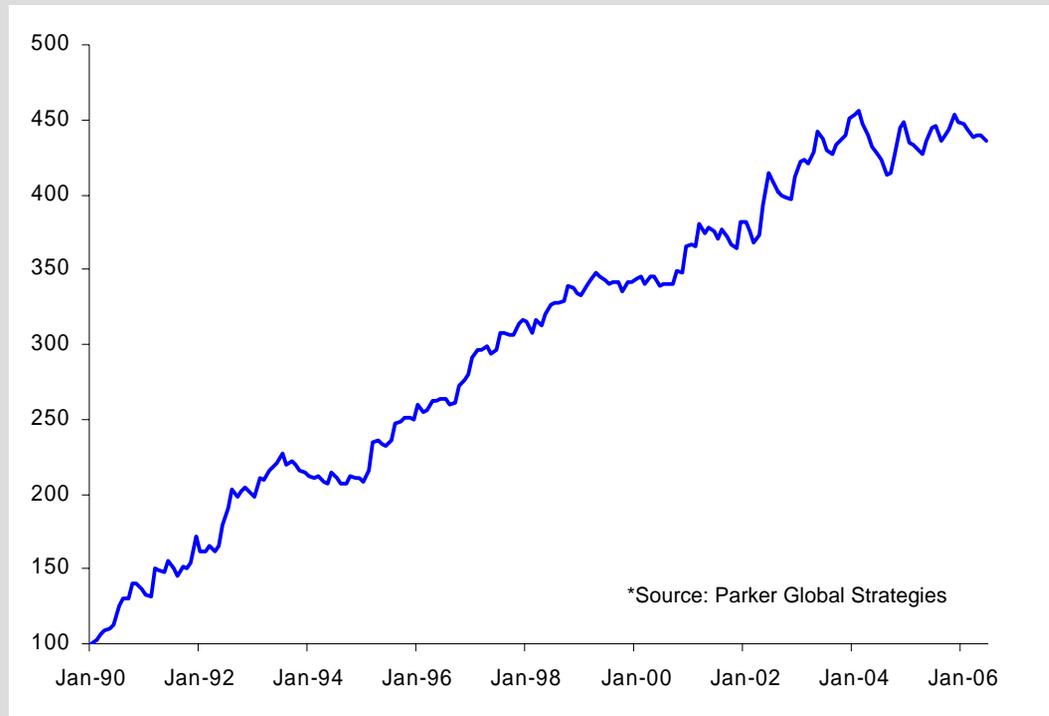
The FX market provides unique opportunities for skilled traders ...



... and is virtually the perfect market for investors seeking new forms of Alpha

Historical Manager Returns

Chart below shows historical returns of the universe of FX managers, as measured by the Parker FX Index, re-based to 1990



■ Average annual returns 1990-2005 are 10.3%

Annual returns	
1990	37.6%
1991	25.4%
1992	17.3%
1993	6.5%
1994	-2.0%
1995	19.0%
1996	11.9%
1997	13.1%
1998	5.6%
1999	2.2%
2000	7.3%
2001	4.3%
2002	8.0%
2003	9.5%
2004	-0.6%
2005	0.04%

The indices illustrated are based on material we believe to be reliable; however, we do not represent that the indices are accurate, current, complete, or error free.

Assumptions, estimates and opinions contained in the indices constitute our judgment as of the date of the material. The past performance of an investment is no guarantee of future returns. Its value may go down as well as up and you may not get back the amount you have originally invested.

Multi-Manager Approach... Captures Full Benefits

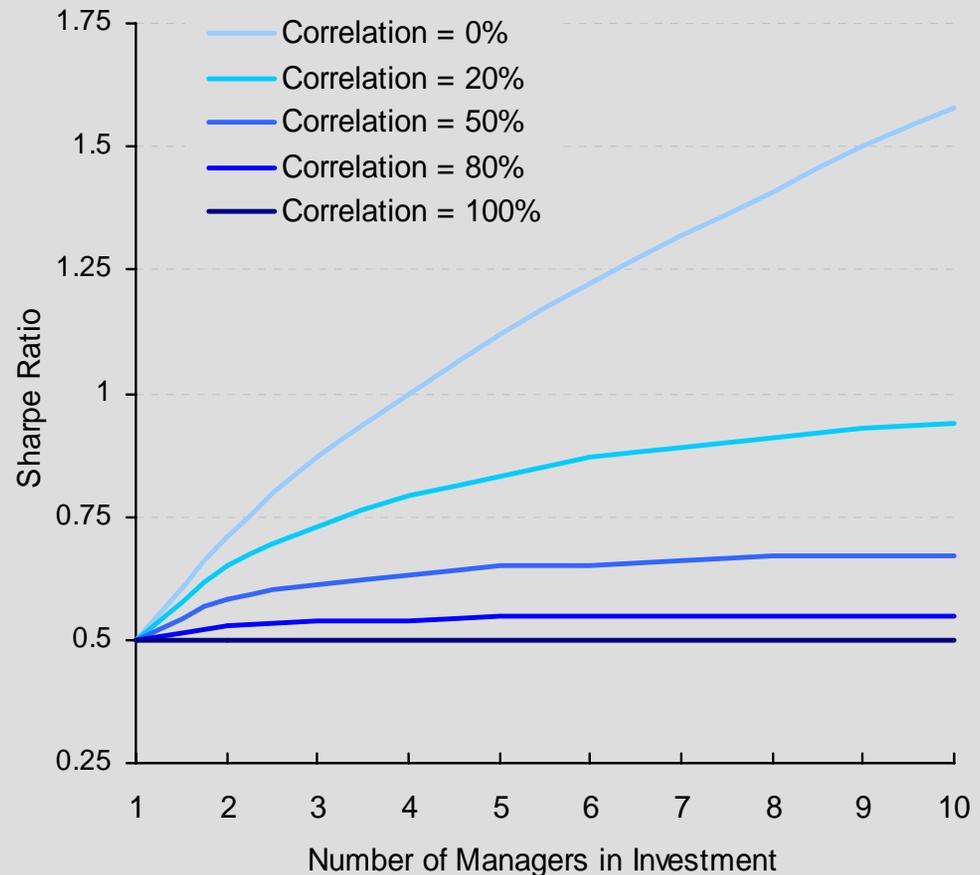
Benefits of Multi Manager Approach

Diversification is not only valid for uncorrelated assets, but also uncorrelated investment managers with positive Sharpe Ratios.

- The FX manager universe average return is positive which means the real risk is manager concentration and a lack of style diversification

A multi-manager approach captures the full diversification benefits of FX manager investments

DIVERSIFICATION BENEFIT THROUGH MULTI-MANAGERS



Creating Indices

When creating an index, the managers to include (and their weightings) can be chosen in three ways:

➤ Full Client Discretion

- Choose from the full investable universe
- Anonymously hire and exit managers at will (re-weight index on a daily basis)
- No transaction costs
- Dynamic risk and leverage control (discretionary or rule based)

➤ “Fund-of-Funds” Portfolio Manager

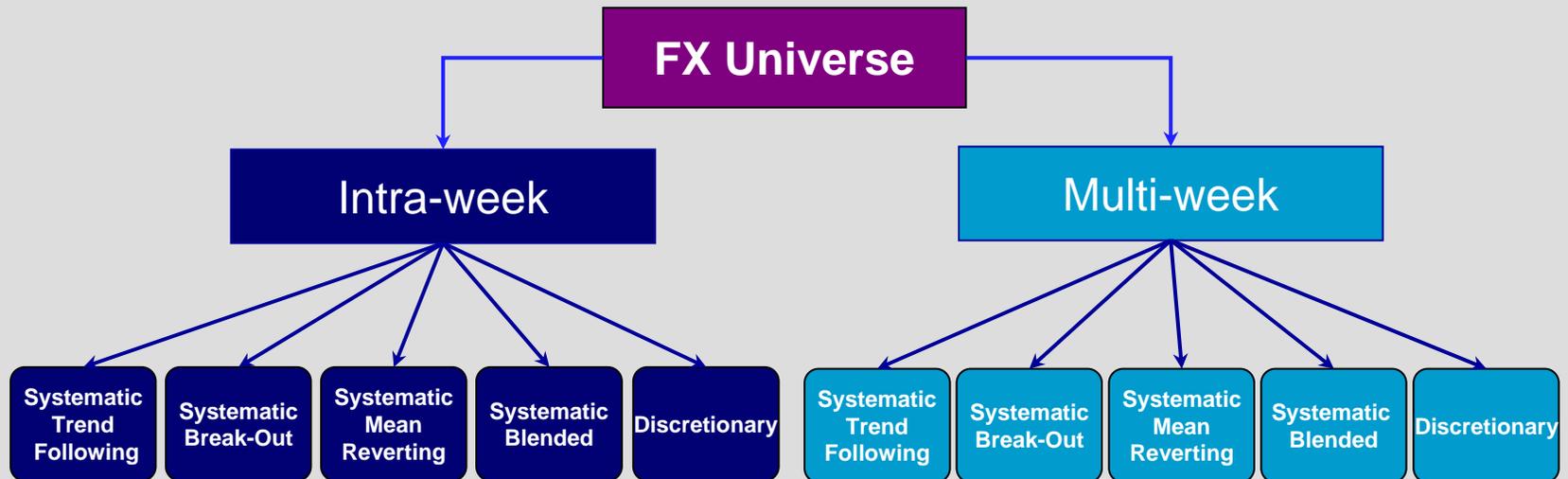
- As above, but third party manages selection process
- DB cannot advise, but can identify organisations to perform this function

➤ Systematic

- Rule-based manager selection (e.g. the FXSelect TOP Diversified Index)

FXSelect Top Diversified Index

Diversified Index: Ensuring Style Diversification



- External advisor classifies each manager according to trading style, with a total of 10 different trading styles possible
- Annually, the top performing manager in each style category is selected to create the Diversified index. This selection process ensures that best of breed in each style is selected, while the style classification ensures that correlation between the managers remains low.

Systematic Index Construction

Principles:

- A systematic (rule-based) approach could incorporate the following principles:
 - Rank managers using a (Return / Max Drawdown) measure
 - Rank based on the last 12 months' return
 - Index should contain between 8-25 managers to take advantage of diversification benefits
 - Rebalancing of managers should occur on a yearly basis, with the rebalancing occurring in June
 - There should be a Hurdle Level where the performance of existing managers is increased by 10%

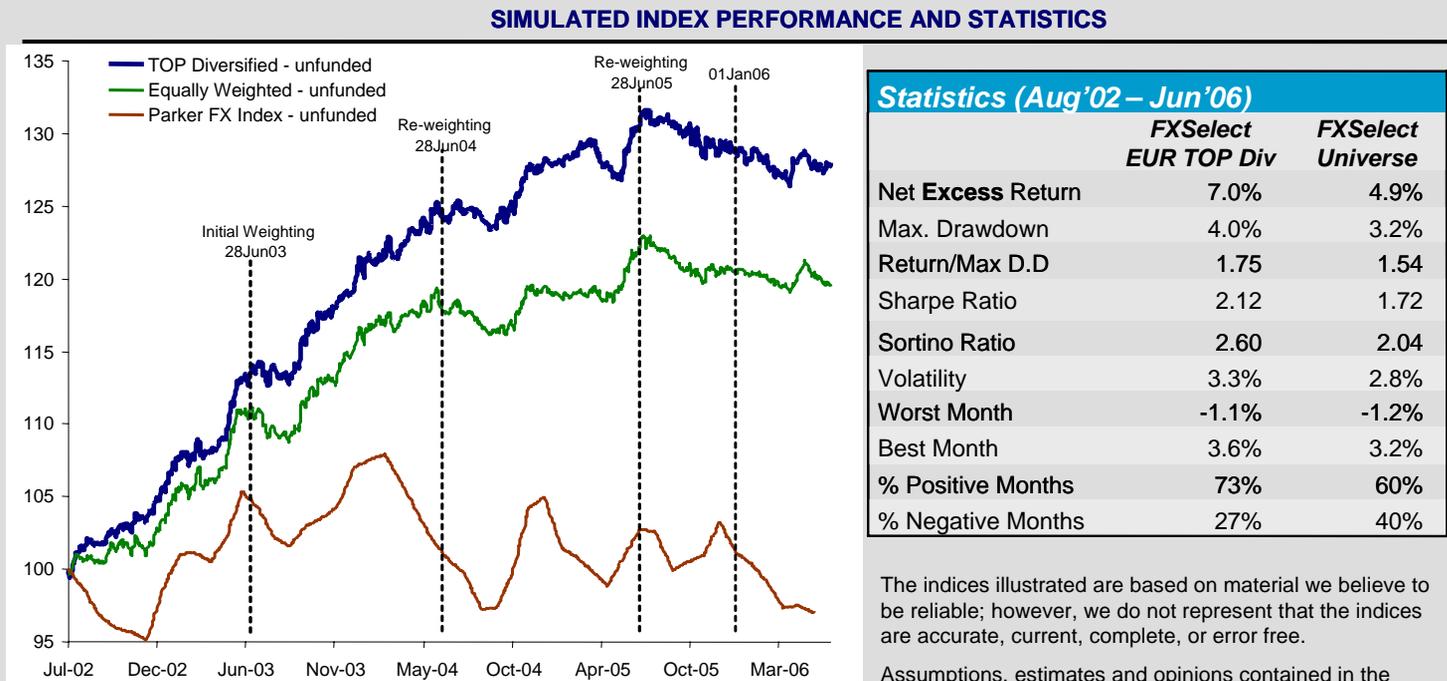
- An implementation of this is the TOP Diversified Index
 - Hybrid of 2 indices: **Diversified Index** and **TOP Index**

FXSelect TOP Diversified Index

Performance and Statistics

Chart below shows the excess returns, net of fees, of a simulated TOP Diversified Index versus the current FXSelect Universe constructed from over 60 managers, and the Parker FX Index (Jul. 2002=100)

These returns are excess over Libor. A funded investment would mean that even in a year when the TOP Diversified was flat, the investor would still receive the prevailing interest rate return on the notional



Source: Deutsche Bank

The indices illustrated are based on material we believe to be reliable; however, we do not represent that the indices are accurate, current, complete, or error free.

Assumptions, estimates and opinions contained in the indices constitute our judgment as of the date of the material. The past performance of an investment is no guarantee of future returns. Its value may go down as well as up and you may not get back the amount you have originally invested.

FX as an Asset Class: Summary

- FX is an ideal market for active participants and return seekers
 - Liquid, deep, well-developed market which requires minimal capital
 - Large number of market transactions which are not profit motivated
 - FX specialist managers have persistently generated positive excess return

- Currency manager returns are additive to existing asset portfolio returns
 - Currency excess returns are uncorrelated with traditional asset classes (e.g. fixed income, equity)

- Multi-Manager approach captures the full potential
 - Intra-manager correlations are low thus the Sharpe ratio benefits as further managers are added
 - Investment style diversification can create the “bullet-proof” portfolio, which should perform in most market conditions
 - Risks normally associated with multi-manager products are managed efficiently by FXSelect

- Introducing the investable TOP Diversified Index
 - TOP Diversified methodology intelligently marries a focus on performance with diversity
 - Access to this index provided through familiar structured products such as a principal protected MTN or limited loss Total Return Swap