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Leveraged and Short ETFs

Separating Fact from Fiction

Live Webinar
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13.30-14.30 BST
14.30-15.30 CET

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Fact or Fiction?

Leveraged and short ETFs should/may be banned

Leveraged and short ETFs are suitable for risky traders only

Leveraged and short ETFs must not be held overnight

It's better to short using other methods than by ETFs

How does this happen?

Direxion Daily Financial Bull 3* (FAS) ETF NAV ytd†	-63.25%
Direxion Daily Financial Bear 3* (FAZ) ETF NAV ytd	-86.77%
Russell 1000 Financials Index ytd	+18.58%
3* Russell 1000 Financials Index ytd	+55.74%

And this?

db x-trackers DAX ETF 2008 NAV change	-40.45%
db x-trackers ShortDAX ETF 2008 NAV change	+55.32%

31.12.2008-24.09.2009

History

1993	First leveraged index fund (Rydex Nova)
1994	First inverse fund (Rydex Ursa)
2005	First leveraged ETFs (XACT bull, bear, 1.5*)
2006	First European leveraged ETF (LevDAX)
2006	First leveraged ETFs in US (Proshares 2*)
2007	First daily short ETF in Europe (db x-trackers)
2008	Direxion (US) launches 3* leveraged ETFs
2009	FINRA (US regulator) warns on leveraged, inverse ETFs

US and Europe

	US	Europe
# Leveraged ETFs	46	17
AUM($bn)/% of market	10.4 (1.7%)	1.1 (0.6%)
# Leveraged Short ETFs	52	9
AUM($bn)/% of market	15.2 (2.5%)	1.1 (0.6%)
# Short ETFs	11	31
AUM($bn)/% of market	2.3 (0.4%)	2.7 (1.4%)

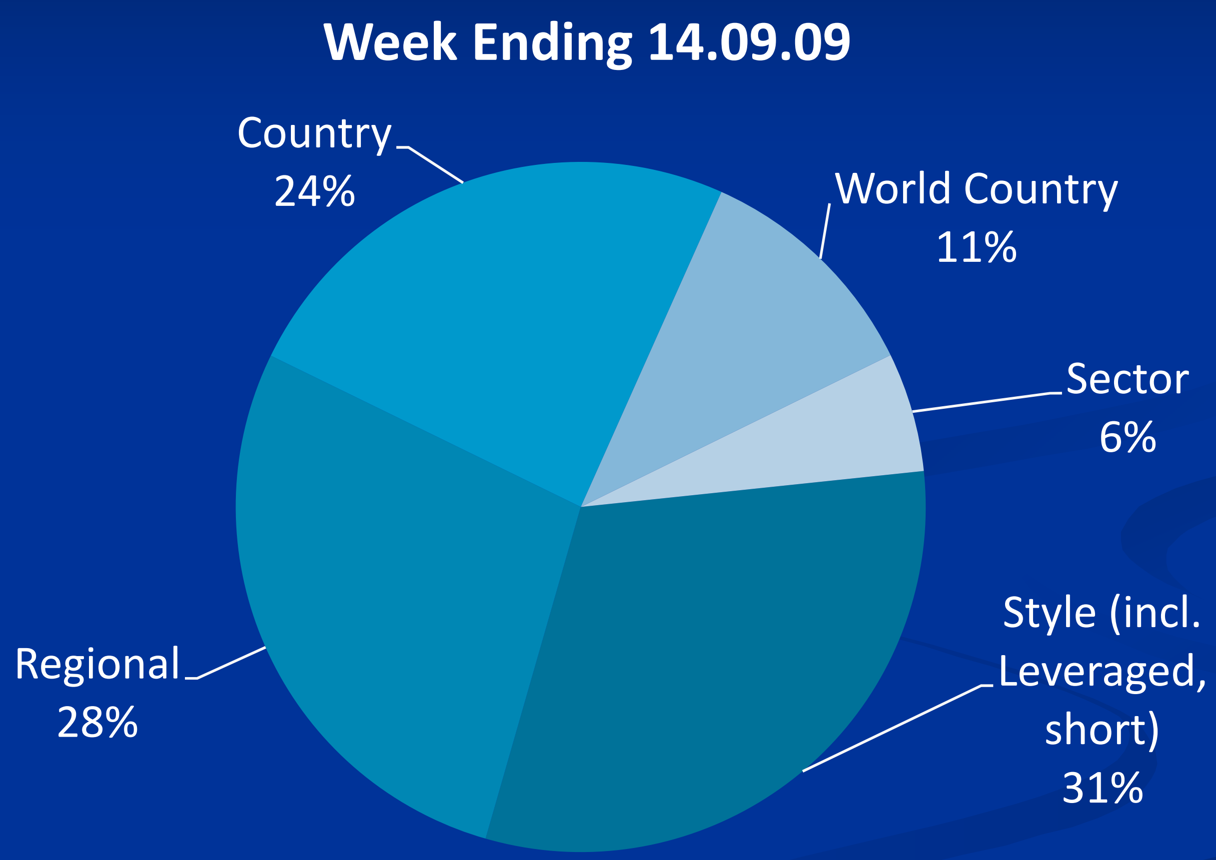
Source: Barclays Global Investors, ETF Landscape, Deutsche Bank ETF Liquidity Trends, 24.09.09, excludes ETCs in Europe

European Providers

ETF Issuer	#Leveraged ETFs	#Leveraged Short ETFs	#Short ETFs	Total Funds	Total AUM (€m)
db x-trackers	-	-	22	22	2171
Lyxor/SGAM	7	2	4	13	1204
ETF Securities	4	4	-	8	53
CASAM	4	-	5	9	69
XACT	2	2	-	4	531
EasyETF	-	3	-	3	22

Source: Index Publications, Deutsche Bank, as at 24.09.09. Excludes ETCs.

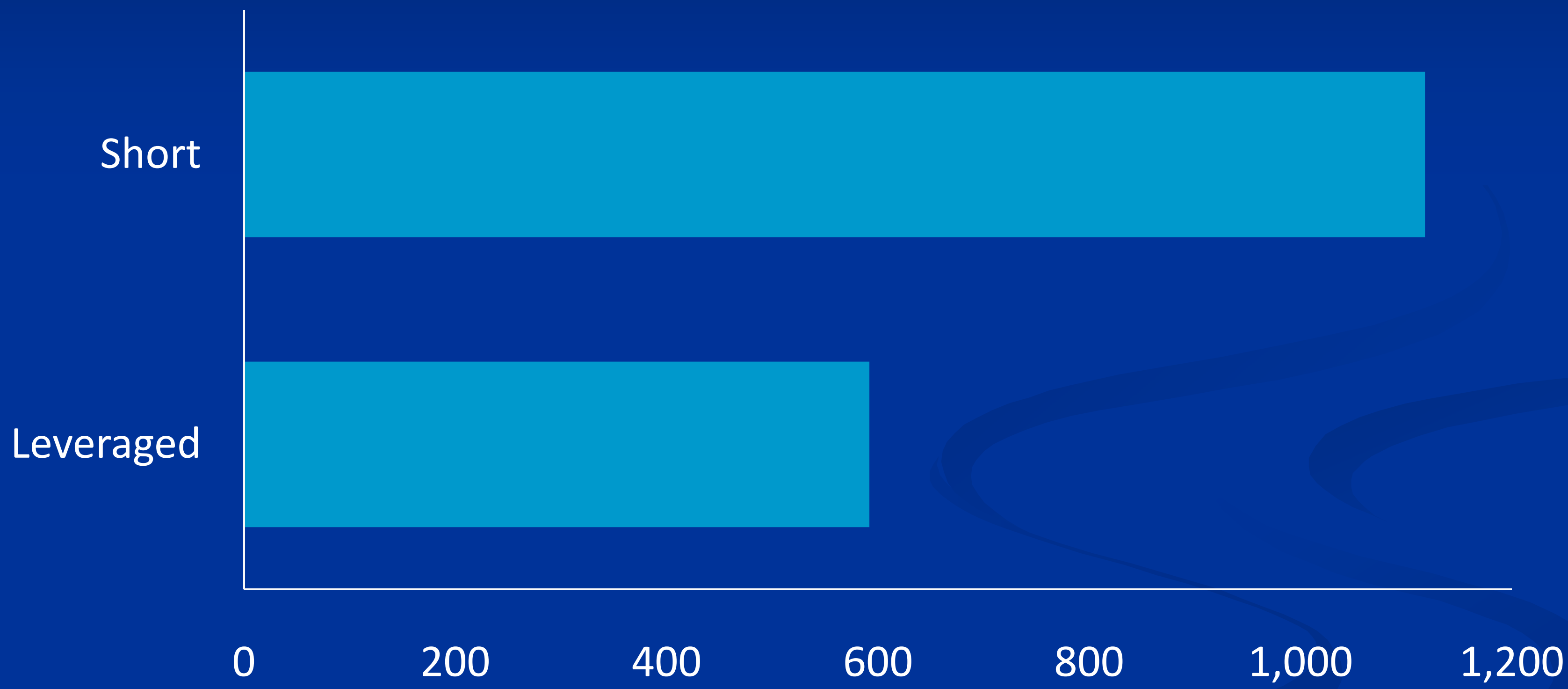
European Equity ETF Turnover by index type



Source: Deutsche Bank ETF liquidity trends, 16 September 2009

European Investor Flows Favour Short ETFs

12 month cumulative net new assets (€m, to 7/09)



Source: iShares ETP trends, end-July 2009

How do Short ETFs Work?

Performance of Daily Short ETF

=

\+ Inverse Performance of Total Return index

\+ 2 x overnight money market rate (interest term)*

− Management fee

− Cost of borrowing to go short**

Incorporated in the Index calculation

*increases when leverage is introduced

**an unknown variable. For the CAC40 Short Index, included in the calculation

How do Leveraged ETFs Work?

Performance of Daily Leveraged ETF = + Leveraged performance of total return index − Cost of financing for borrowed investment capital to produce leverage** − Management fee

incorporated in the index calculation

**increases with leverage factor

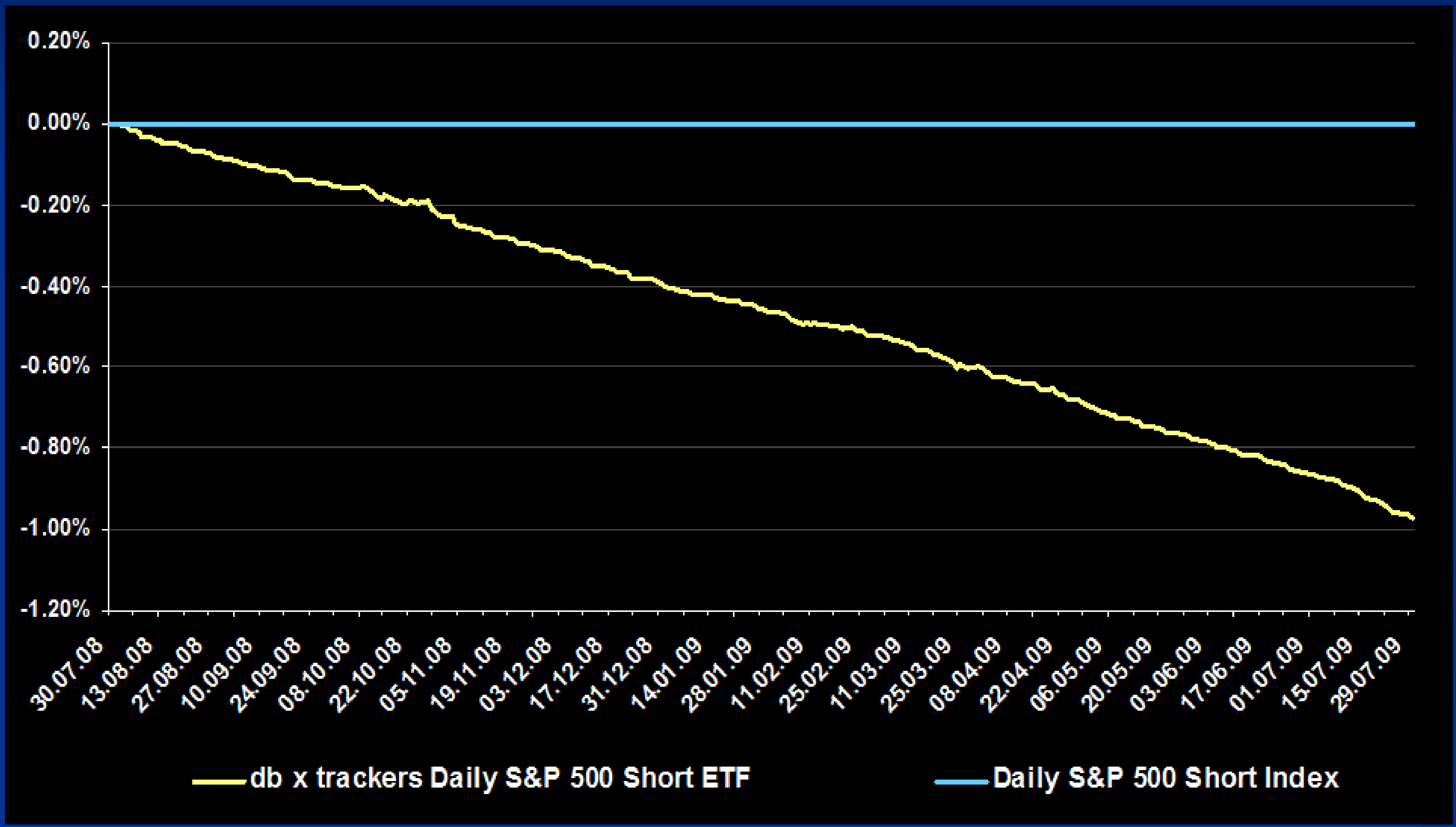
The Index Calculation

$$LevIndex_t = LevIndex_T \cdot \left[\underbrace{1 + L \cdot \left(\frac{Index_t}{Index_T} - 1 \right)}_{\text{LeverageTerm}} - \underbrace{(L-1) \cdot d \cdot \frac{Eonia_T}{360}}_{\text{Finanace / Interrest Term}} \right]$$

$Index$ = Underlying Index
$LevIndex$ = Leveraged Index
L = Leverage Factor
t = Time of caclulations
T = Last trading day from t
d = Number of business days between t and T

- The leverage term measures the inverse or leveraged return on the benchmark index over a given period
- L is the leverage factor (e.g. -1, -2, 2, 3)
- The interest term represents the interest income from selling the basket in case of a short index
- In case of a leveraged long index the finance term describes the cost of leveraging the index performance
- The leverage term is restored **daily** to the original lever (e.g. -1, -2, 2, 3)

Index Tracking



Deviation from the index performance is attributable to:

- TER of 0.5% p.a.
- Borrowing fees which depend on market conditions, roughly 0.5% p.a.

Source: Deutsche Bank, 30.07.2009

The Effect of Compounding

The returns of a 2*daily leveraged long index will not be two times the returns of the corresponding long index for periods longer than one day

	Start	Day 1	Day 2	2 day return
Long Index	100	110 (+10%)	104.5 (-5%)	+4.5%
2* daily leveraged long Index	100	120 (+20%)	108 (-10%)	+8%

Trending markets…

Steadily rising market

Day	1	2	3	4	5	Cumulative change
Daily change		2%	2%	2%	2%	
Long Index	100	102.00	104.04	106.12	108.24	8.24%
Daily Leveraged Long Index	100	(+4%) 104.00	(+4%) 108.16	(+4%) 112.49	(+4%) 116.99	16.99%

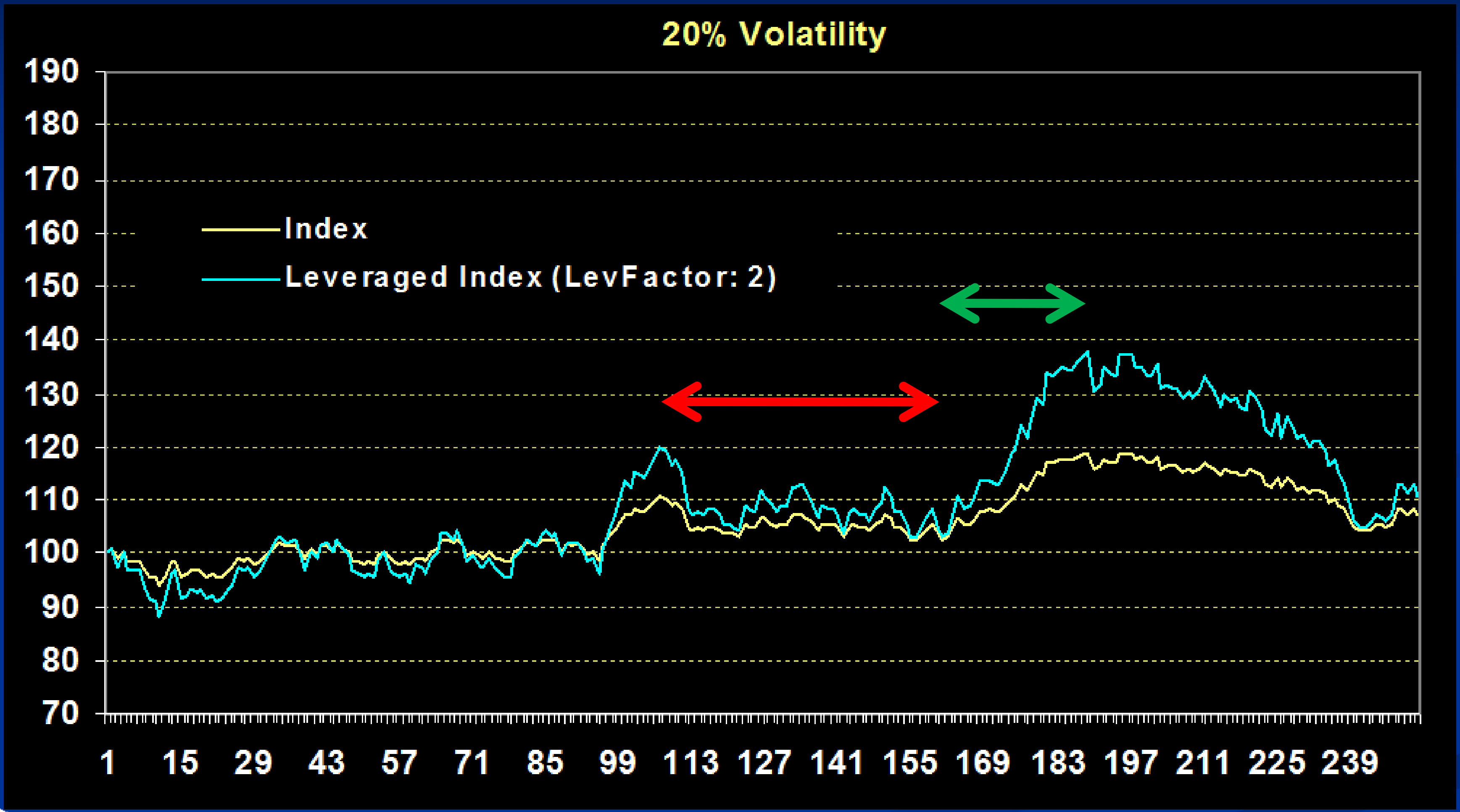
Steadily falling market

Day	1	2	3	4	5	Cumulative change
Daily change		-2%	-2%	-2%	-2%	
Long Index	100	98.00	96.04	94.12	92.24	-7.76%
Daily Leveraged Long Index	100	(-4%) 96.00	(-4%) 92.16	(-4%) 88.47	(-4%) 84.93	-15.07%

And volatile ones…

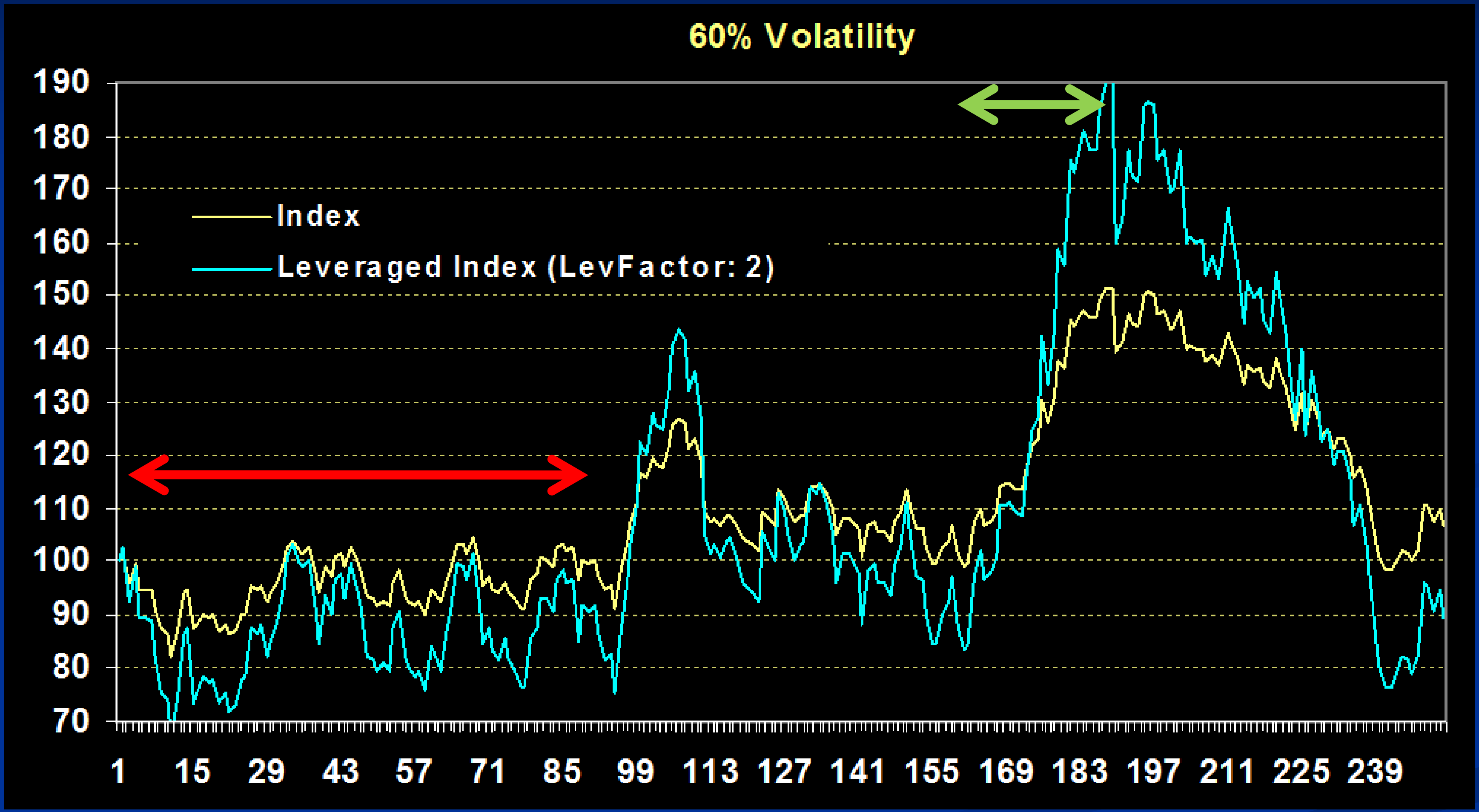
Day	1	2	3	4	5	Cumulative change
Daily change		11%	-12%	14%	-10%	
Long Index	100	111.00	97.68	111.36	100.22	0.22%
Daily Long Leveraged Index	100	122.00	92.72	118.68	94.95	-5.05%

Simulating the volatility effect



Source: Deutsche Bank

Simulating the volatility effect



Source: Deutsche Bank

Simulation Results

Volatility	Index returns	LevIndex 2 Returns
10%	7.15%	12.95%
20%	7.09%	10.64%
30%	7.02%	6.98%
40%	6.96%	2.11%
50%	6.89%	-3.79%
60%	6.82%	-10.53%

Simulation assumption: index follows a geometric diffusion process of the form $Index_{\Delta t} = Index_0 \cdot \exp\left(\mu \cdot \Delta t + \sigma Z \sqrt{\Delta t}\right)$

Expected return: 15%, EONIA constant at 1%, No. of trading days in simulations 252

Source: Deutsche Bank

Conclusions

The return on leveraged ETFs is *path-dependent*

What matters is not just the period index return but *how you get there*

The greater the leverage factor the greater the likely divergence

The greater the index volatility the greater the likely divergence

Some Actual Results For Short (-1*) ETFs

YTD performance of selected db x-trackers long/short ETFs

ETF	[A] Long fund return ytd† (%)	[B] Short fund return ytd† (%)	[A+B]/2
iBoxx Euro Sovereigns €zone TR	+4.06	-3.13	0.46
iTraxx Eur. Sub. Financials 5y TR	+6.45	-6.55	-0.05
CAC 40	+17.40	-22.72	-2.66
DJ Euro Stoxx 50	+17.41	-22.07	-2.33
DJ Stoxx 600 Banks	+59.61	-48.49	+5.56
DJ Stoxx 600 Health Care	+7.61	-8.51	-0.45

† NAV change 31.12.09-24.09.09 (Source: db x-trackers)

Some Actual Results For Leveraged (2*, -2*) ETFs

YTD performance of selected US ETFs/indices

ETF	[A] Long fund return ytd† (%)	[B] Short fund return ytd† (%)	[A+B]/2
ProShares Ultra Financials	-5.97	-74.58	-40.27
ProShares Ultra S&P 500	+27.90	-41.77	-6.94
ProShares Ultra Consumer Gds.	+25.59	-32.82	-3.62

Benchmark	[C] Index return ytd† (%)	2* [C] (%)	-2* [C] (%)
DJ US Financials Index	+13.81	+27.62	-27.62
S&P 500	+15.62	+31.24	-31.24
DJ US Consumer Goods Index	+12.56	+25.12	-25.12

† Price change 02.01.09-25.09.09

Source: Google Finance

Hedging with Short (-1*) Indices in History

Historic Stress Test	DAX vol. (p.a., %)	DAX (%) [A]	ShortDAX (%) [B]	Hedged Rtn. (%) [A+B]/2
2003 (second Iraq war)	46.5	-36.1	34.8	-0.7
2008/9 credit crunch	42.6	-59.9	70.7	5.4
1998 Russia default/LTCM	35.3	-24.4	22.2	-1.1
2001 9/11 crisis	33.4	29.5	-33.3	-1.9
1990 Gulf war	30.4	-35.9	54.1	9.1
1999 Brazil currency crisis	30.2	-7.1	4.5	-1.3
1997 Asian currency crisis	29.8	9.8	-11.6	-0.9
1990 US recession	29.2	-24.2	40.3	8.0
2001 US recession	28.3	-25.3	30.7	2.7

Source: Deutsche Boerse analysis

Portfolio Uses Of Short ETFs

For example:

- Switch between long/short ETFs at given volatility levels
- Use short ETFs to hedge long exposure
- Take outright short views in long/short portfolio
- Use as trading tool

Short ETFs vs. Short Selling

Pros of short ETFs

- Allow shorting for broad range of investors
- Maximum loss limited to initial investment
- No margin requirements
- UCITS 3 fund compliance
- ETF short-selling market underdeveloped in Europe
- Avoid onerous short sale disclosure requirements

Cons of short ETFs

- Only short sale generates "true" short return
- Borrowing/finance costs explicit in short sale
- Index drift over long term

Further Ways to Gain Short/Leveraged Exposure

Futures

- Very liquid but possibly limited choice
- Active margining required

Options

- Option buying limits risk
- Time decay problem
- Expensive when most needed

CFDs/spread betting

- Popular in UK and tax-advantaged
- Rollover costs significant
- Counterparty risk

Fact or Fiction?

Leveraged and short ETFs should/may be banned

Unlikely, though keep an eye on regulation

Leveraged and short ETFs are suitable for risky traders only

No, they are a useful tool in managing portfolios

Leveraged and short ETFs must not be held overnight

Depends on leverage factor/underlying index volatility

It's better to short using other methods than by ETFs

Depends on investor category/restrictions

Panel Discussion

Manooj Mistry
db x-trackers

Konrad Sippel
Deutsche Boerse

- Heads ETF Structuring and UK operation, db x-trackers
- Developed LDRS, first European ETFs, when at Merrill Lynch
- Economics and Finance graduate, Brunel University

- Heads index development & sales, Deutsche Boerse
- Responsible for calculation of ShortDAX, LevDAX indices
- BSc Mathematics (London University), MBA (Duke Univ.)