5to Congresso Internacional de Mercado Financiero e de Capitais,
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A Revolucao dos Fundos de Indice: Perspectivas Internacionais e Brasileiras

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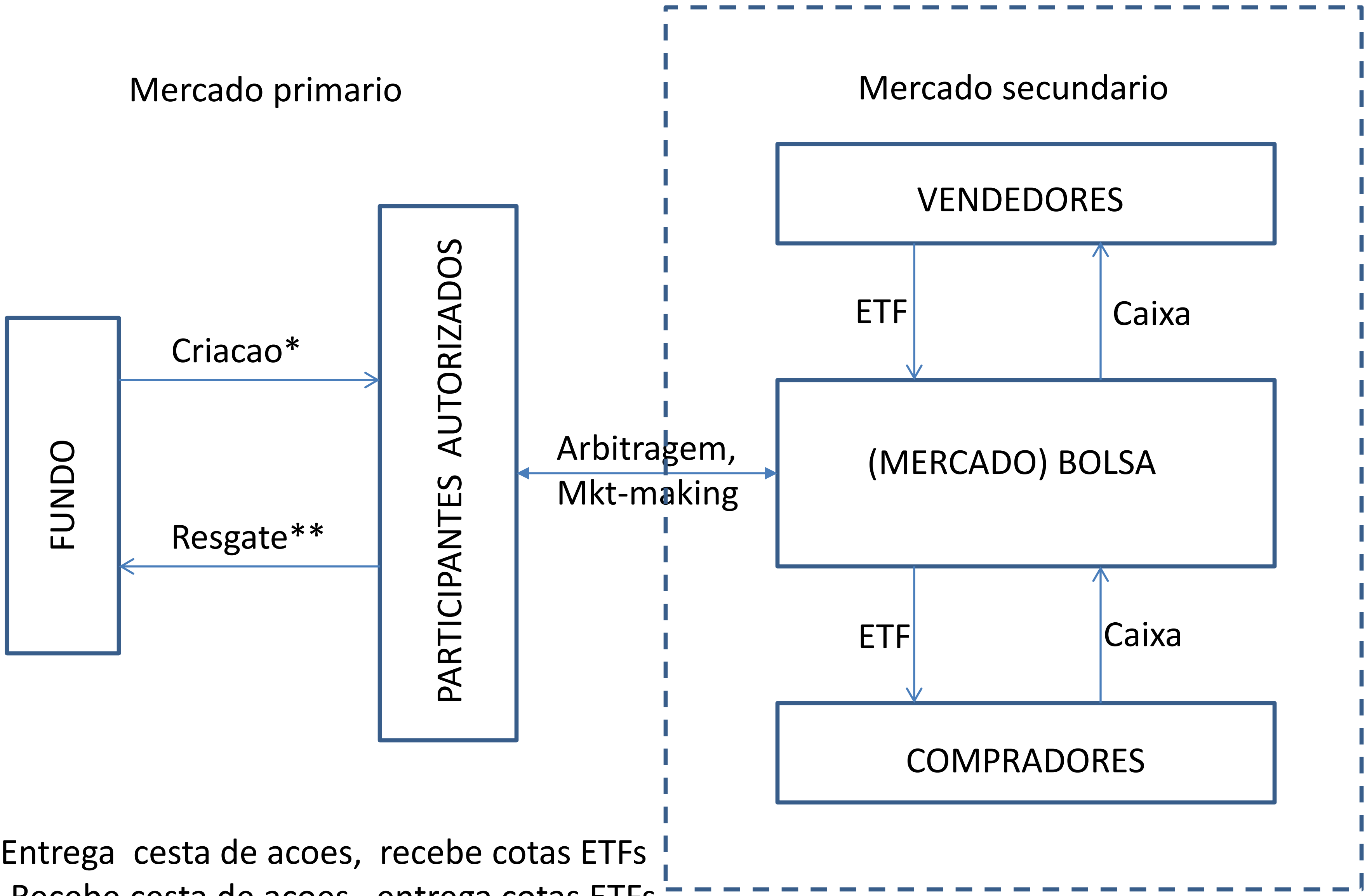
Fundos de Indice (ETFs)

Semelhantes aos fundos de investimento classicos, com maior flexibilidade:

-- cotas operam no mercado, como acoes PETR, VALE, etc
-- trading semelhante as acoes (bid/ask, venda a descoberto, margem)
-- opcoes sobre ETFs (calls, puts)
-- comecaram como fundos sobre <u>carteiras de acoes</u>
-- gestao ativa e ETFs sinteticos desde 2006

Arbitragem: <u>participantes autorizados</u> podem <u>criar</u> ou <u>resgatar</u> ETF
-- unidades de criacao: 25K to 100K cotas
-- PAs operam como *market-makers*, providenciando liquidez

ETFs: A estrutura basica



*   Entrega cesta de acoes, recebe cotas ETFs

** Recebe cesta de acoes, entrega cotas ETFs

Breve Historia

Datas chave:

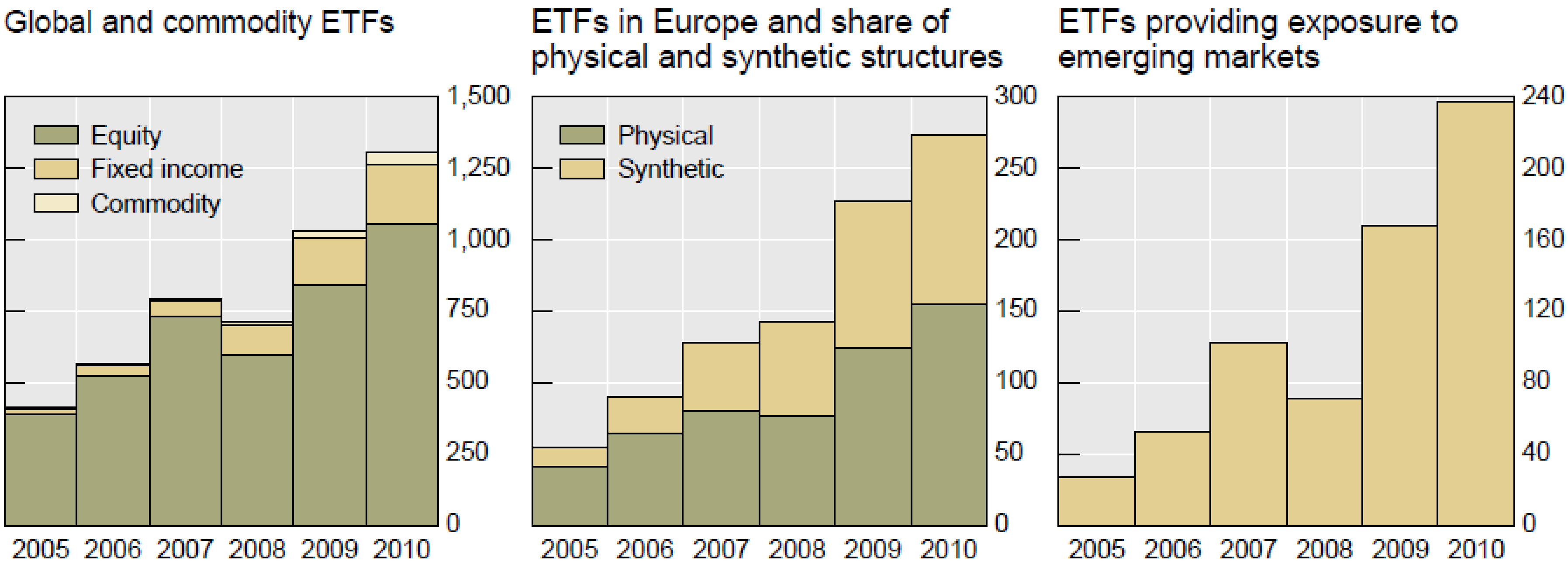
1993: primeiro ETF US
1998: primeiro ETF Europeu
2006-2008: ETPs, primeiros ETFs de gestao ativa

Historia:

1989: Index Participation Shares, proibidos pela Chicago Mercantile Exchange (PI)
1993: SPY Tracking S&P 500 (Spiders or SPDRS, emissor: State Street)
1996: BGI cria WEBS (World Equity Benchmark Shares), mais tarde conhecidos como iShares (*e.g.:* EWZ: MSCI Brazil Index Fund)
1998: ETFs setoriais: SPDRS sobre 9 setores industriais do indice S&P 500
2008: 680 ETFs nos US with 610B sob gestao, aumento de 125B em 12 meses
Janeiro 2010: Mercado ETF americano ultrapassa 1,000 B em ativos sob gestao (ASG)

ETPs= ETFs cobrindo , renda fixa, cambio, commodities, volatilidade (VIX)

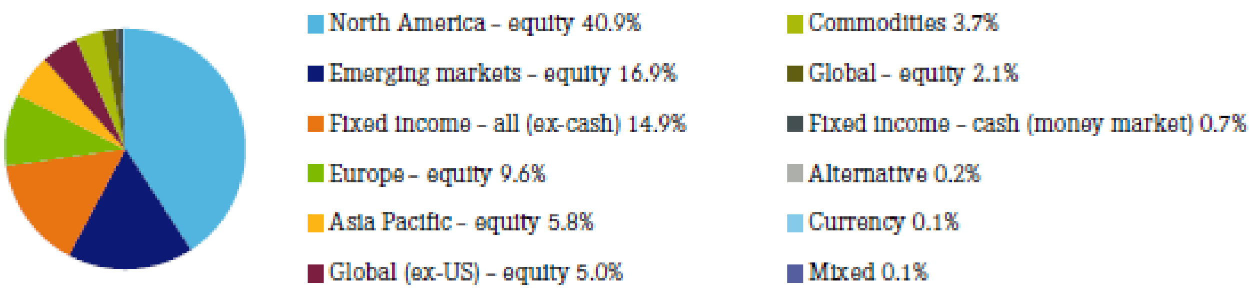
Evolucao dos Ativos sob Gestao



Source: BlackRock (2011).

ETFs Globais nos US: Tipos de Exposicao

Region of exposure	Q1-11 # ETFs	Q1-11 # total listings	Q1-11 AUM (US$ Bn)	Q1-11 % total	Q1-11 ADV (US$ Bn)	YTD change # ETFs	YTD change # total listings	YTD change AUM (US$ Bn)	YTD change % AUM	YTD change % total
Equity	**1,965**	**4,544**	**$1,124.3**	**80.3%**	**$67.4**	**80**	**220**	**$70.5**	**6.7%**	**0.0%**
North America	609	1,065	$573.0	40.9%	$52.3	30	72	$49.9	9.5%	1.1%
Emerging markets	465	1,002	$236.2	16.9%	$8.4	35	81	-$1.4	-0.6%	-1.2%
Europe	489	1,516	$135.0	9.6%	$3.3	-1	10	$13.6	11.2%	0.4%
Asia Pacific	189	435	$81.7	5.8%	$1.8	5	22	-$0.6	-0.7%	-0.4%
Global (ex-US)	73	94	$69.5	5.0%	$1.3	2	4	$5.7	9.0%	0.1%
Global	140	432	$28.9	2.1%	$0.3	9	31	$3.3	12.8%	0.1%
Fixed income	**412**	**962**	**$218.4**	**15.6%**	**$3.1**	**35**	**83**	**$11.2**	**5.4%**	**-0.2%**
Fixed income – all (ex-cash)	387	888	$209.2	14.9%	$2.9	30	68	$9.3	4.7%	-0.3%
Fixed income – cash (money market)	25	74	$9.3	0.7%	$0.2	5	15	$1.8	24.9%	0.1%
Commodities	149	304	$51.1	3.7%	$1.5	19	32	$5.4	11.8%	0.2%
Alternative	21	30	$2.4	0.2%	$0.0	5	8	$0.4	18.8%	0.0%
Currency	17	22	$1.8	0.1%	$0.0	2	2	$0.3	21.8%	0.0%
Mixed	41	43	$1.3	0.1%	$0.0	4	5	$0.3	28.3%	0.0%
Total	**2,605**	**5,905**	**$1,399.4**	**100.0%**	**$72.0**	**145**	**350**	**$88.1**	**6.7%**	



Source: Global ETF Research and Implementation Strategy Team, BlackRock, Bloomberg.

Nao inclui ETFs emitidos na Europa

1 Trimestre 2011, 60 Maiores ETFs nos US por ASG (em $BB; em amarelo: iShares MSCI Brazil)

Rank	Ticker	Description	Market Cap
1	SPY	SPDR S&P 500	90.21
2	GLD	SPDR Gold Shares	56.03
3	VWO	Vanguard MSCI Emerging Markets	43.73
4	EFA	iShares MSCI EAFE Index	38.15
5	EEM	iShares MSCI Emerging Markets	36.24
6	IVV	iShares S&P 500 Index	26.95
7	QQQQ	PowerShares QQQ	24.21
8	TIP	iShares Barclays TIPS Bond	19.89
9	VTI	Vanguard Total Stock Market	18.98
10	IWM	iShares Russell 2000 Index	15.39
11	IWF	iShares Russell 1000 Growth	13.29
12	LQD	iShares iBoxx Investment Grade	12.98
13	EWZ	iShares MSCI Brazil Index	12.54
14	SLV	iShares Silver Trust	12.38
15	IWD	iShares Russell 1000 Value	11.80
16	VEA	Vanguard MSCI EAFE ETF	11.34
17	MDY	SPDR S&P MidCap 400	11.11
18	AGG	iShares Barclays Aggregate Bond	11.06
19	BSV	Vanguard Short-Term Bond ETF	10.72
20	IJH	iShares S&P MidCap 400	10.72
21	XLE	Energy Select Sector SPDR	10.38
22	BND	Vanguard Total Bond Market	9.25
23	DIA	SPDR Dow Jones Industrial	9.21
24	VNQ	Vanguard REIT ETF	8.58
25	HYG	iShares iBoxx High Yield	8.32
26	XLF	Financial Select Sector SPDR	8.05
27	SHY	iShares Barclays 1 3	7.93
28	CSJ	iShares Barclays 40546 Year	7.82
29	IJR	iShares S&P SmallCap 600	7.38
30	FXI	iShares FTSE China 25	7.25

Rank	Ticker	Description	Market Cap
31	VEU	Vanguard FTSE All-World ex-US	7.21
32	JNK	SPDR Barclays Capital High	7.06
33	IWB	iShares Russell 1000 Index	7.00
34	PFF	iShares S P U	6.79
35	XLK	Technology Select Sector SPDR	6.79
36	EWJ	iShares MSCI Japan Index	6.47
37	IWR	iShares Russell Midcap Index	6.37
38	VIG	Vanguard Dividend Appreciation ETF	6.10
39	IVW	iShares S&P 500 Growth	6.05
40	DVY	iShares Dow Jones Select	5.99
41	EWC	iShares MSCI Canada	5.97
42	TBT	Proshares UltraShort 20+tsy	5.68
43	IAU	iShares Gold Trust	5.67
44	VUG	Vanguard Growth ETF	5.42
45	SDY	SPDR S&P Dividend	5.37
46	VTV	Vanguard Value ETF	4.84
47	VB	Vanguard Small-Cap ETF	4.64
48	VV	Vanguard Large-Cap ETF	4.61
49	IWN	iShares Russell 2000	4.56
50	IVE	iShares S&P 500	4.51
51	EWY	iShares MSCI South Korea	4.38
52	SHV	iShares Barclays Short TSY	4.16
53	IWO	iShares Russell 2000	4.02
54	XLU	Utilities Select Sector	3.91
55	EPP	iShares MSCI Pacific ex-JP	3.80
56	XLI	Industrial Select Sector	3.69
57	VO	Vanguard Mid-Cap ETF	3.66
58	DBA	DB Agriculture Fund	3.59
59	IWS	iShares Russell Midcap	3.42
60	IWV	iShares Russell 3000	3.42

60 Maiores ETFs US por ASG (em $BB; amarelo: commodities)

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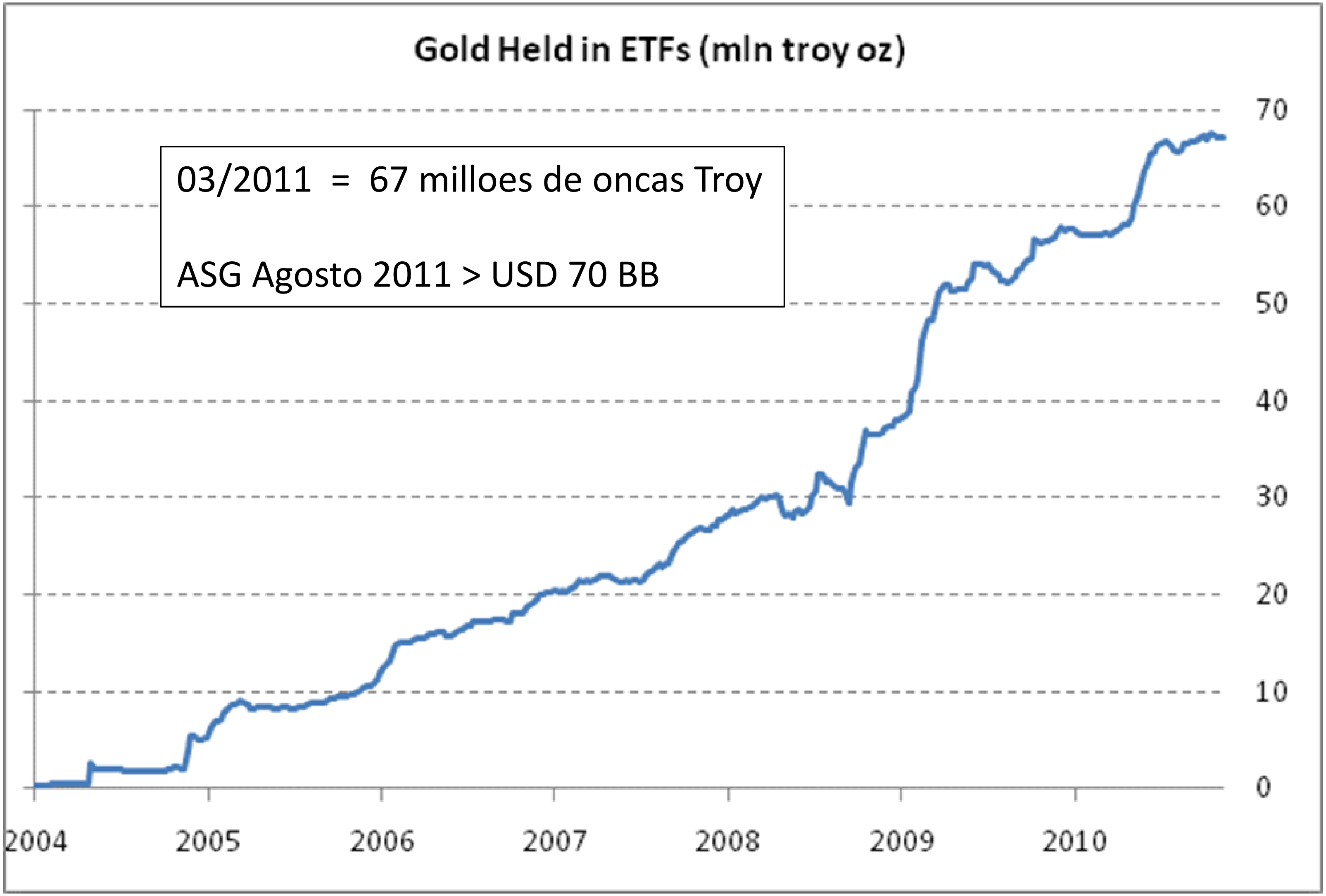
Crescimento dos ETFs de Ouro Fisico (ultimos 6 anos)



Vantagens do ponto de vista dos investidores

Varejo

-- Diversificacao a preco razoavel

-- Flexibilidade superior a cotas de fundos de investimento classicos

-- Ordens limites, aluguel, opcoes

-- Taxas de administracao menores (?)

-- Tributaria : menor volume de vendas (nao e preciso vender acoes do fundo cada vez alguem vende a cota; menor tributacao a curto prazo)

Profissionais & Fundos de Investimento

-- Utilizados para trading & hedging (fundos de hedge, fundos de pensao)

-- Atuam como ``fatores de mercado'' (completando o mercado)

-- Alocacao tactica (core/satellite, …..)

-- ``Equitificacao'' de commodities, cambio e renda fixa, operando como acoes

Aumento da participacao institucional projetada , com ETFs substituindo progressivamente os fundos tradicionais

Principais categorias de ETFs

- Fundos de indices: setores industriais, indices
- Fundos de indices: paises
- Cambio: baseados em *non-deliverable forwards* (swaps)
- Commodites: baseados no produto fisico
- Commodities: baseados em contratos futures
- Gestao ativa
- ETFs alavancados e inversos

ETFs emitidos nos US cobrindo indices de paises

SIMBOLO	DESCRICAO	ASG ($B)	VMN ($M)
EWZ	MSCI Brazil	12.5	830
EWJ	MSCI Japan	8.2	500
FXI	Xinghua 25	6.7	600
EWT	Taiwan	3.4	150
EWY	Korea	5.0	180
EWC	Canada	5.5	90
EWH	Hong Kong	2.1	80
EWS	Singapore	1.9	30
RSX	Russia	3.1	120
EWA	Australia	3.0	90
EWW	Mexico	1.7	100

VMN= Volume medio de negociacao/dia

ETFs US com exposicao ao Brasil

Index Trackers		**ASG ($ million)**
EWZ	- iShares MSCI Brazil Index Fund	1250 ←
BRF	- Small Cap	900 ←
BRXX	- Infrastructure	900 ←
EWZS	- Small Cap	60
BRAQ	- Consumer	30
BRAZ	- Mid Cap	30
BRAF	- Financials	8

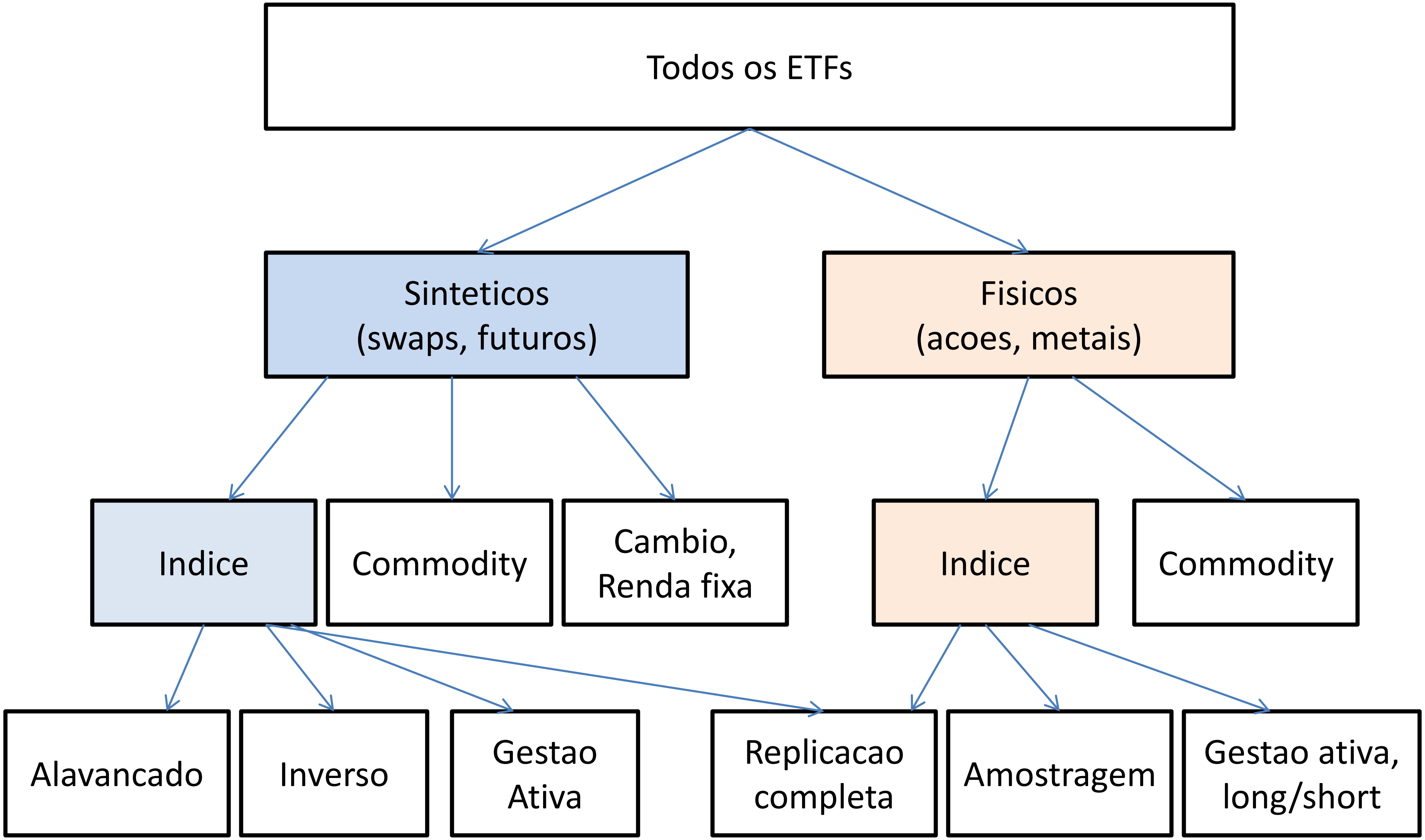
Alavancados

UBR	- (2X) MSCI Ultra-long	20
BZQ	- (-2X) MSCI Ultra-short	10

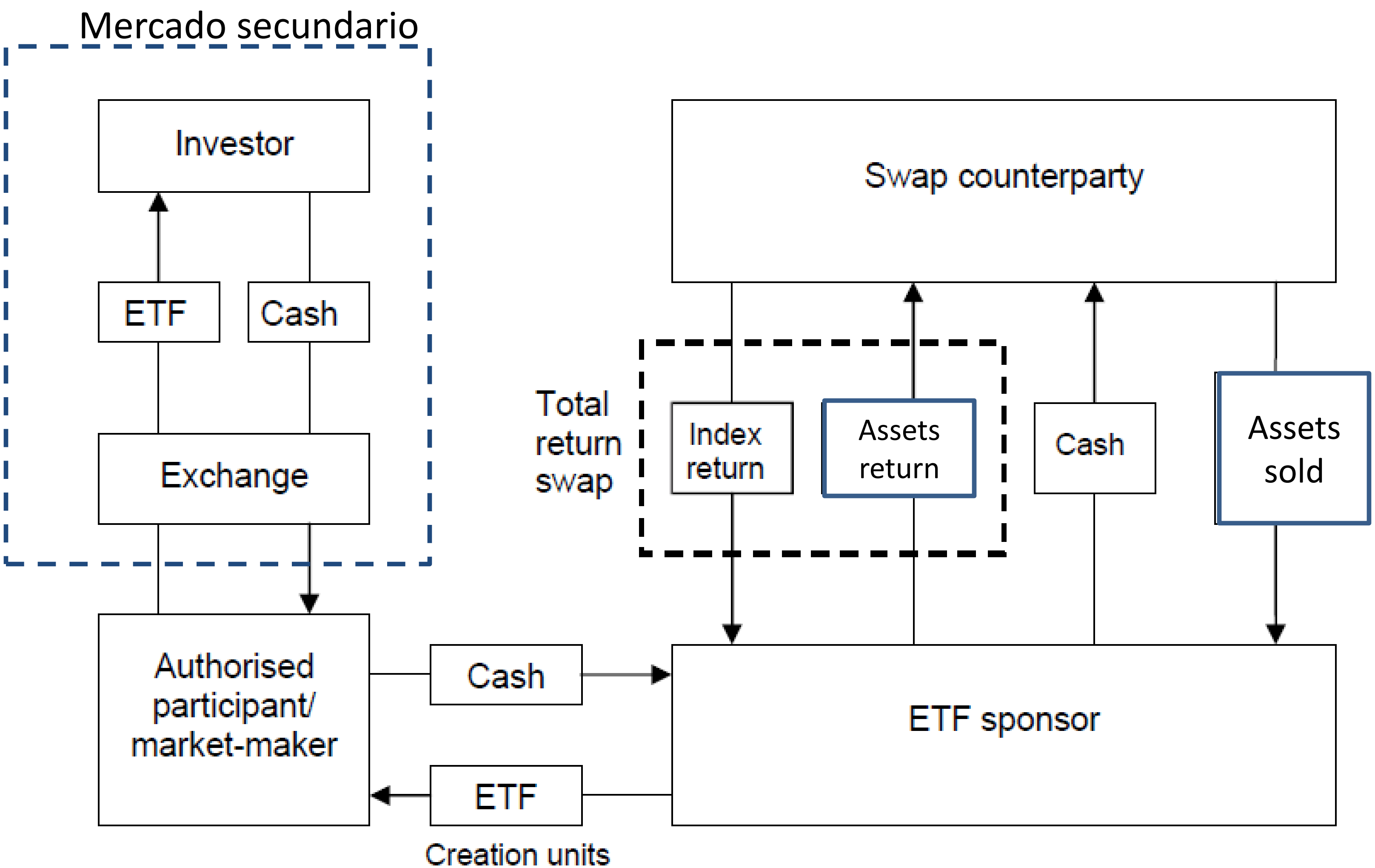
Cambio

BZF	- Real Money Market Fund	500 ←

Estruturacao:
Zoologia dos ETFs



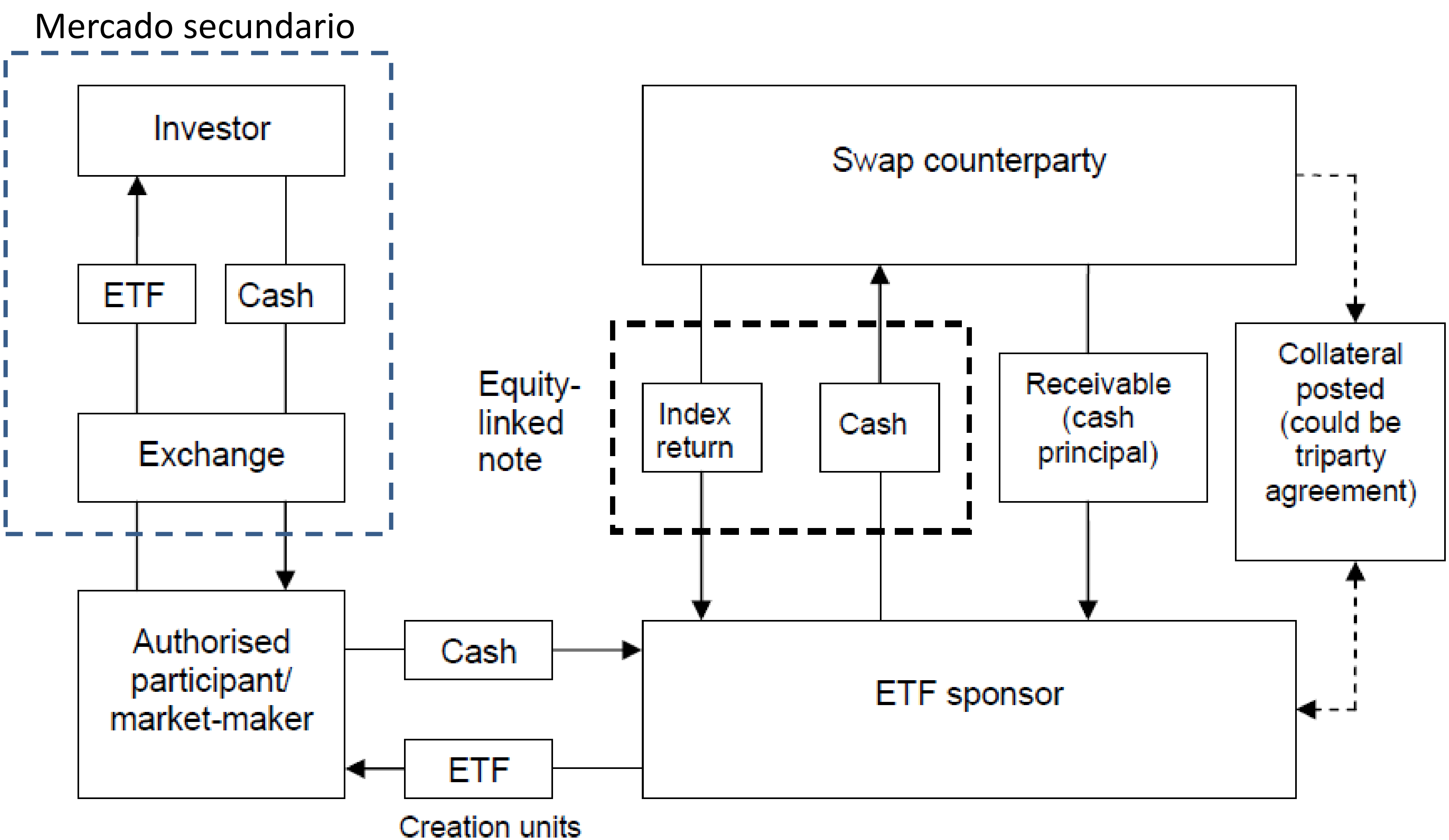
Estrutura sintetica (via swap)



Colateral (ativos) podem ou nao estar relacionado com o indice associado ao ETF

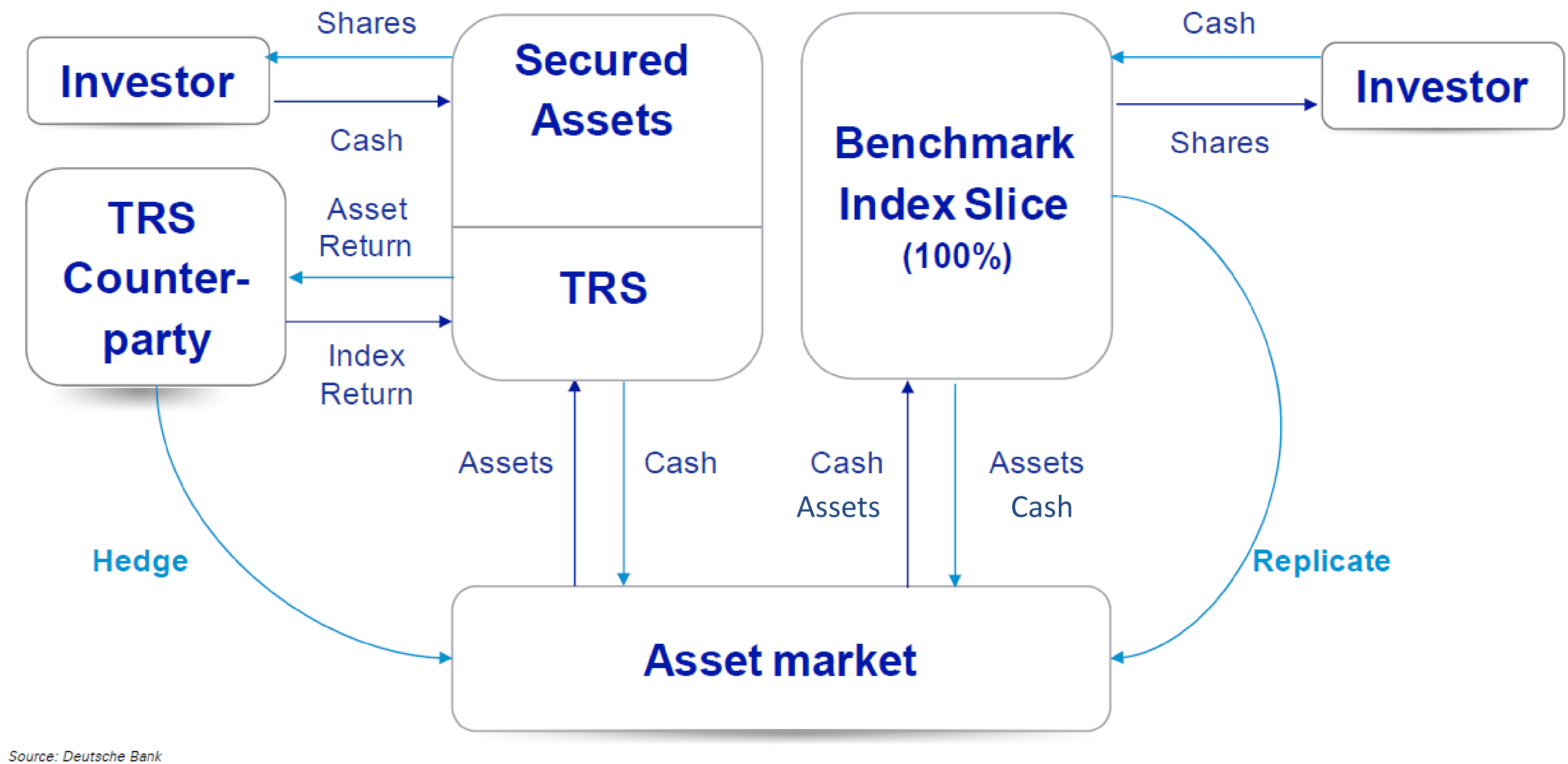
(fonte: BIS)

Estrutura sintetica (via nota estruturada)



(fonte: BIS)

Como funciona o hedge de um ETF sobre indice ``tipico''?



Uma mistura de acoes e swaps

Estruturacao Fisica ou Sintetica?

- **ETFs fisicos** sao preferidos por Administradoras (BlackRock, Vanguard) com expertise en gestao de carteira e indexacao passiva, amostragem
- **Sinteticos** preferidos por bancos que tem negocios de swaps e derivativos de balcao importantes, assim como distribuicao para o mercado de varejo
- Isto explica o surgimento recente de ETFs sinteticos na Europa. Bancos possuem redes de distribuicao assim como atividades nos mercados de derivativos
- ETFs baseados em futuros sao geralmente emitidos por bancos (como DB) e tambem operadores de commodities
- ETFs alavancados/inversos sao sempre sinteticos (swaps)

Rentabilidade da industria ETF na Europa

(estudo da Deutsche Bank , Julho 2011)

Europe ETF Industry Profitability Estimate

All figures in bps	Physical	Synthetic
Profit and Loss Estimate		
Management fees	0.45%	0.43%
Securities lending	0.26%	0.20%
Other enhancements	0.05%	0.05%
Trading P&L	0.00%	0.35%
Total revenues	0.75%	1.03%
Management costs	0.20%	0.05%
Collateral cost	0.00%	0.20%
Administration	0.05%	0.05%
Other expenses	0.02%	0.02%
Total costs	0.27%	0.32%
Profilt/(Loss)	0.48%	0.71%
Profitability	*64.2%*	*69.1%*

Source: Deutsche Bank

In EUR million

ETF Provider	AUM EUR million	Replication Method	Estimated annual profit
Blackrock	77,886	Physical	377.6
Lyxor	36,448	Synthetic	260.6
Deutche Bank	35,434	Synthetic	253.3
Credit Suisse	12,265	Physical	59.5
Amundi	6,745	Synthetic	48.2
Comstage	6,488	Synthetic	46.4
Source	4,846	Synthetic	34.6
UBS	6,970	Physical	33.8
Rest of industry**	29,658	Mixed	89.0
Total	216,740	0.55%	1,202.9

* As of June 17, 2011

** Rest of industry profitability assumed at half of the top 8 average

Beneficio neto EUR 1.2 B na Europa, EUR 5B global (including US)
Receita devida a aluguel de acoes: 498 mm EUR (2500 MM globally)
Receitas indiretas sao muito importantes!

O ponto de vista dos reguladores: transparencia

ETFs fisicos

Mais informacoes sobre:

- Aluguel de acoes
  - -- Percentagem dos ativos que estao alugados
  - -- Transparencia sobre o colateral
  - -- Quem recebe os lucros?
- Composicao do indice : cual e a composicao da carteira?
- Metodos de tracking
  - -- Replicacao completa ou ``amostragem''?
  - -- Efetividade dos metodos de amostragem

O ponto de vista dos reguladores: transparencia

Sinteticos

Melhor divulgacao sobre:

- Metodos de hedge (swaps, derivativos de balcao)
- Quem sao as contrapartes dos swaps?
- Colateral dos swaps
- Custodia/ segregacao do colateral
- Opinioes juridicas sobre o recurso para investidores em caso de default da contrapartida do swap

ETFs emitidos na America Latina

	Registrados	Ativos Locais	Total	Emissores	ASG (USD B)
Brasil	9	9	9	2	1.8
Chile *	350	-	50	-	-
Mexico	348	19	348	3	8.3
Peru *	295	-	-	-	-

- (*) Chile e Peru so permitem investimento em ETFs por fundos de pensao
- A maioria dos ASG no Mexico AUM sao em Indices US/Japao (Nasdaq, S&P, Dow Jones, Canada, Japao)
- Maior emissor (de longe) : Black Rock
- Grande expansao em termos de produtos registrados

(Fontes: Black Rock, BM&F Bovespa)

ETFs Made in Brazil

- A **Instrucao CVM 359**, autoriza somente ETFs sobre acoes brasileiras, com replicacao fisica (pelo menos 95% dos ASG em fisico)

- Segundo fontes bem informadas, a CVM esta analisando uma nova Instrucao que podera autorizar ETFs sobre commodities, cambio e renda fixa

Fundo	Simbolo	ASG ($B BRL)	VMN(`000)	VMN($m)
• PIBB Fundo Indice Brasil 50	PIBB11	1.2	13	1.8
• iShares Brasil Fundo de Indice	BOVA11	0.45	507	21

PIBB11, emitido pelo Banco Itau, foi o primeiro ETF brasileiro (2004)

BOVA11 da BlackRock esta capturando parte de mercado rapidamente (2008)

Algumas ideas sobre ETFs para o mercado brasileiro

- **Commodities,** especialmente metais preciosos (ouro, prata), Agronegocios , petroleo.

- BDRs nao sobre acoes individuais , mas sobre os principais indices US/Europa/Asia
  (``tupiniquizar'' QQQ, SPY, Eurostoxx, Nikkei, Russell 2K)

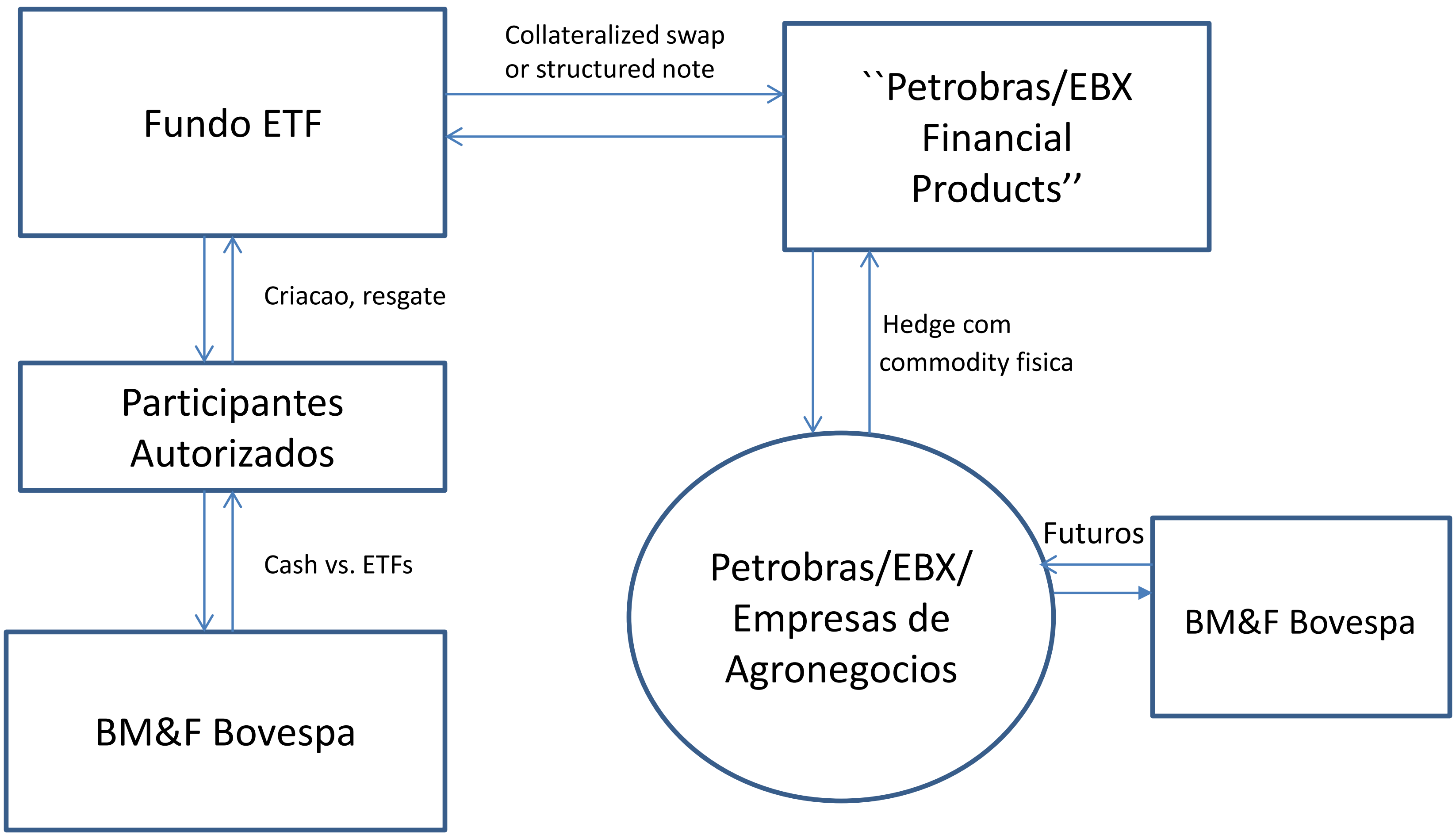
- **ETFs internacionais baseados em acoes regionais** (incluindo Argentina, Chile, p. ex. acoes de agronegocios regionais)

- 2011, 2012: um excelente momento para desenvolver mais a oferta de ETFs no Brasil,

  … mas…

- A arquitetura dos fundos deve ser feita para evitar problemas bem conhecidos no universo ETF

Estrutura sintetica de ETFs sobre commodities para o Brasil (proposta)



Apendice: Problemas tecnicos com ETFs de commodities baseados em futuros

Hedging fisico: GLD (StreetTracks Gold Shares)
IAU (iShares Comex Gold Trust)

Futuros: DGL (Powershares DB Gold Fund)

ETFs baseados em contratos de futuros mantem uma posicao com prazo medio constante, passando de um vencimento para o seguinte

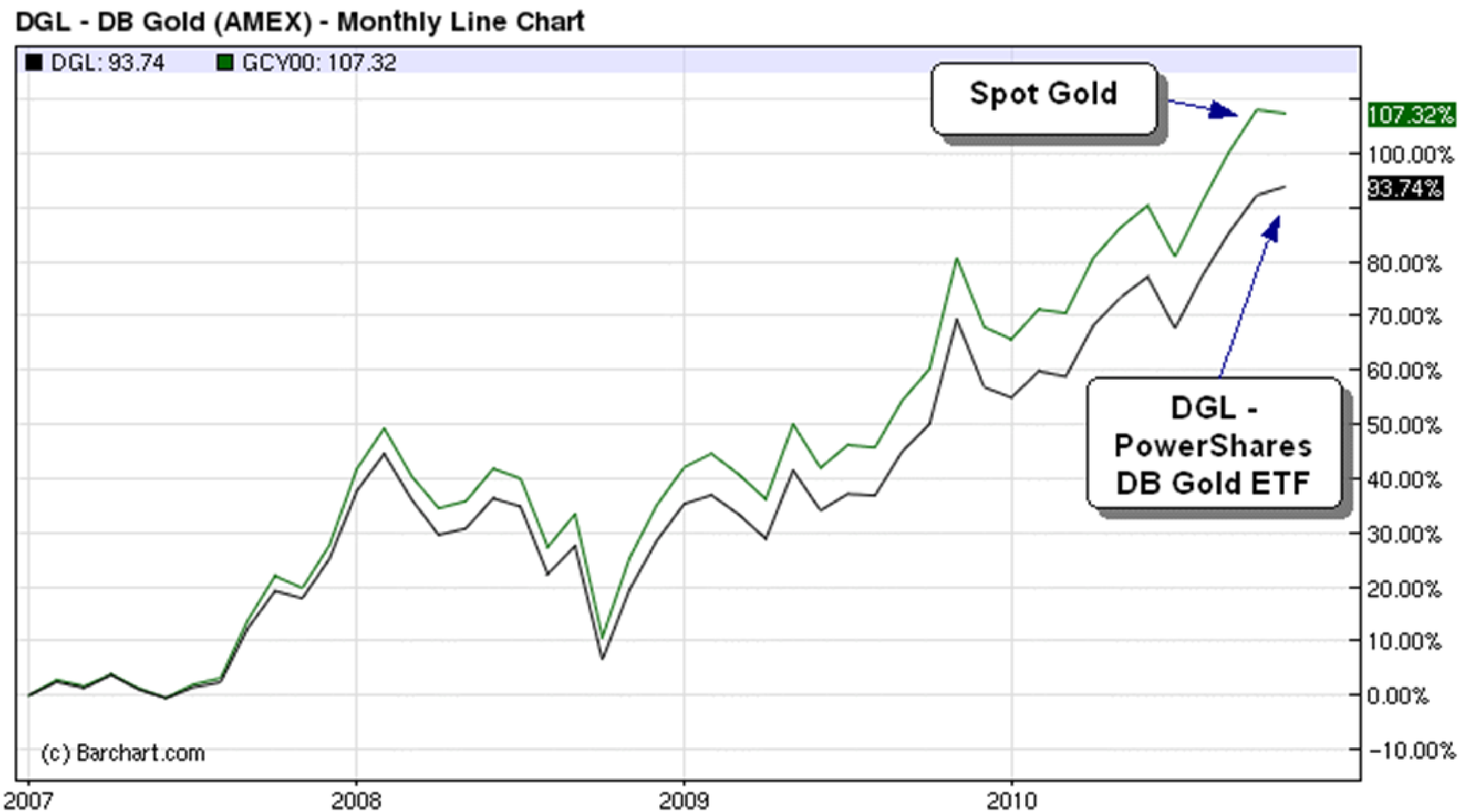
Isto pode resultar em uma perfomance inferior a commodity devido a:

-- custos de ``rolagem'' (incluindo impacto no preco)

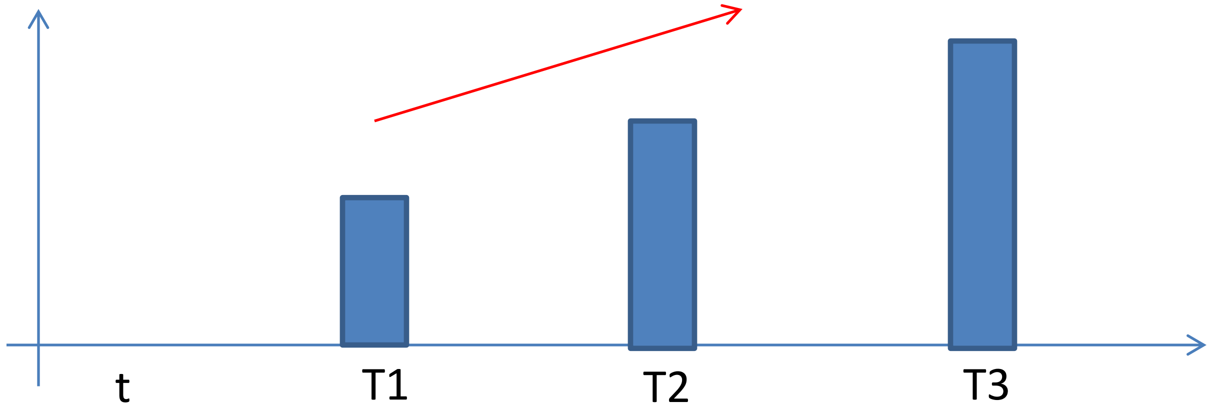
-- limites sobre posicoes nos mercados de derivativos

-- contango /backwardation

Diferenca entre ouro a vista (GLD) e a principal ETF c/futuros (DGL)

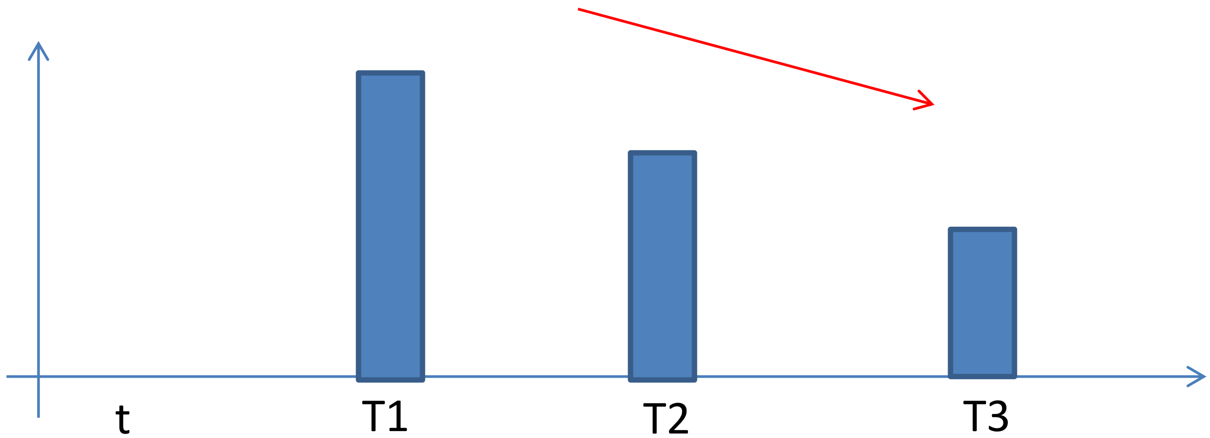


Futuros sobre commodities: Contango



Futuros estao em contango se o preco aumenta com o vencimento

Futuros sobre commodities: Backwardation



Futuros estao em **backwardation** se o preco diminui a medida que o vencimento esta mais longe

Associado com *convenience yield* alto. Por exemplo o aluguel de ouro podes ser caro. Petroleo esta as vezes em backwardation e outras vezes em contango.

O ``enigma'' do rolamento de contratos

Mandato do fundo:

-- manter uma posicao um, dois ou varios vencimentos, com o objetivo de ter um vencimento medio constante

-- ajustar a quantidade investida em cada vencimento (roll) ao curso do tempo

$$\frac{dI_t}{I_t} = a(t)\frac{dF_t^{(1)}}{F_t^{(1)}} + (1-a(t))\frac{dF_t^{(2)}}{F_t^{(2)}} + rdt$$

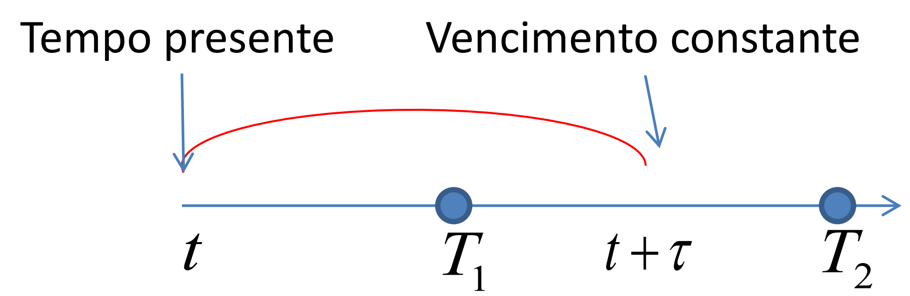
$I_t =$ value of the index at date t

$F_t^{(i)} =$ futures with settlement date T_i

Mantendo vencimento constante τ

Discrete rolling (USO, UNG)

$$a(t)=\begin{cases}1, & \text{if } t+\tau<\frac{1}{2}\left(T_1+T_2\right)\\ 0, & \text{if } t+\tau\geq\frac{1}{2}\left(T_1+T_2\right)\end{cases}$$



Continuous rolling (VXX, VXZ)

$$a(t)=\frac{T_2-(t+\tau)}{T_2-T_1}$$

Typically, tau > T2-T1

Contango implica que o <u>preco futuro cai</u> com a passagem do tempo

Modelo simples para F

$$F_t^{(i)} = S_t e^{(r_i - d_i)(T_i - t)} \qquad \text{contango} \Rightarrow r_i - d_i > 0$$

$$S_t = \text{spot price}$$
$$r_i = \text{ rate for expiration } T_i$$
$$d_i = \text{convenience yield - storage cost for mat.} \, T_i$$

$$\frac{dF_t^{(i)}}{F_t^{(i)}} = \frac{dS_t}{S_t} - \left(r_i - d_i\right)dt,$$

Se a taxa de juros e maior do que o *convenience yield d,* o retorno do futuro e mais baixo que o retorno do investimento na commodity.

Consequencia para o ETF baseado sobre futuros

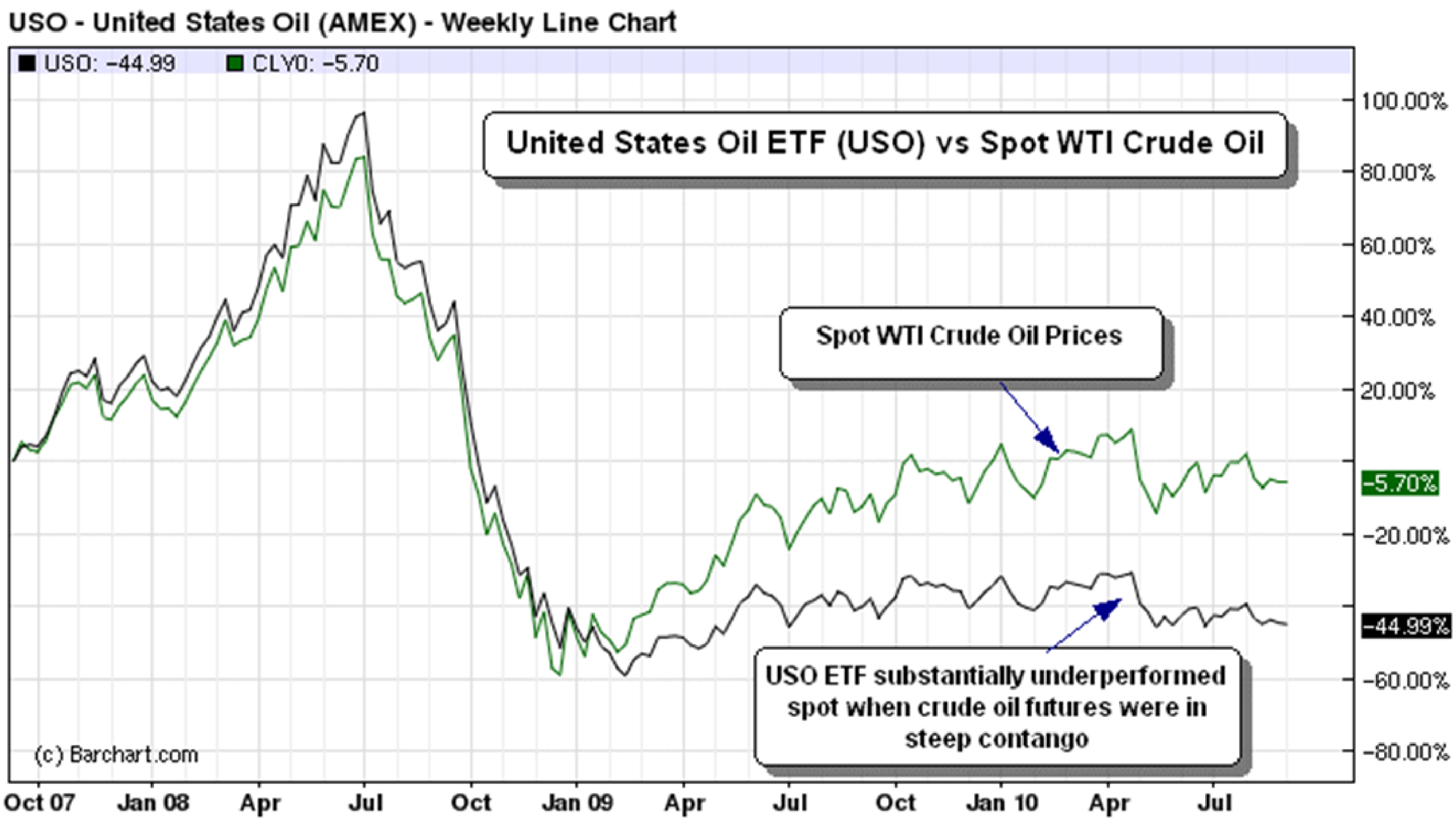
$$\frac{dI_t}{I_t} = a(t)\frac{dF_t^{(1)}}{F_t^{(1)}} + (1 - a(t))\frac{dF_t^{(2)}}{F_t^{(2)}} + rdt$$

$$= \frac{dS_t}{S_t} - [a(t)(r_1 - d_1) + (1 - a(t))(r_2 - d_2)]dt + rdt$$

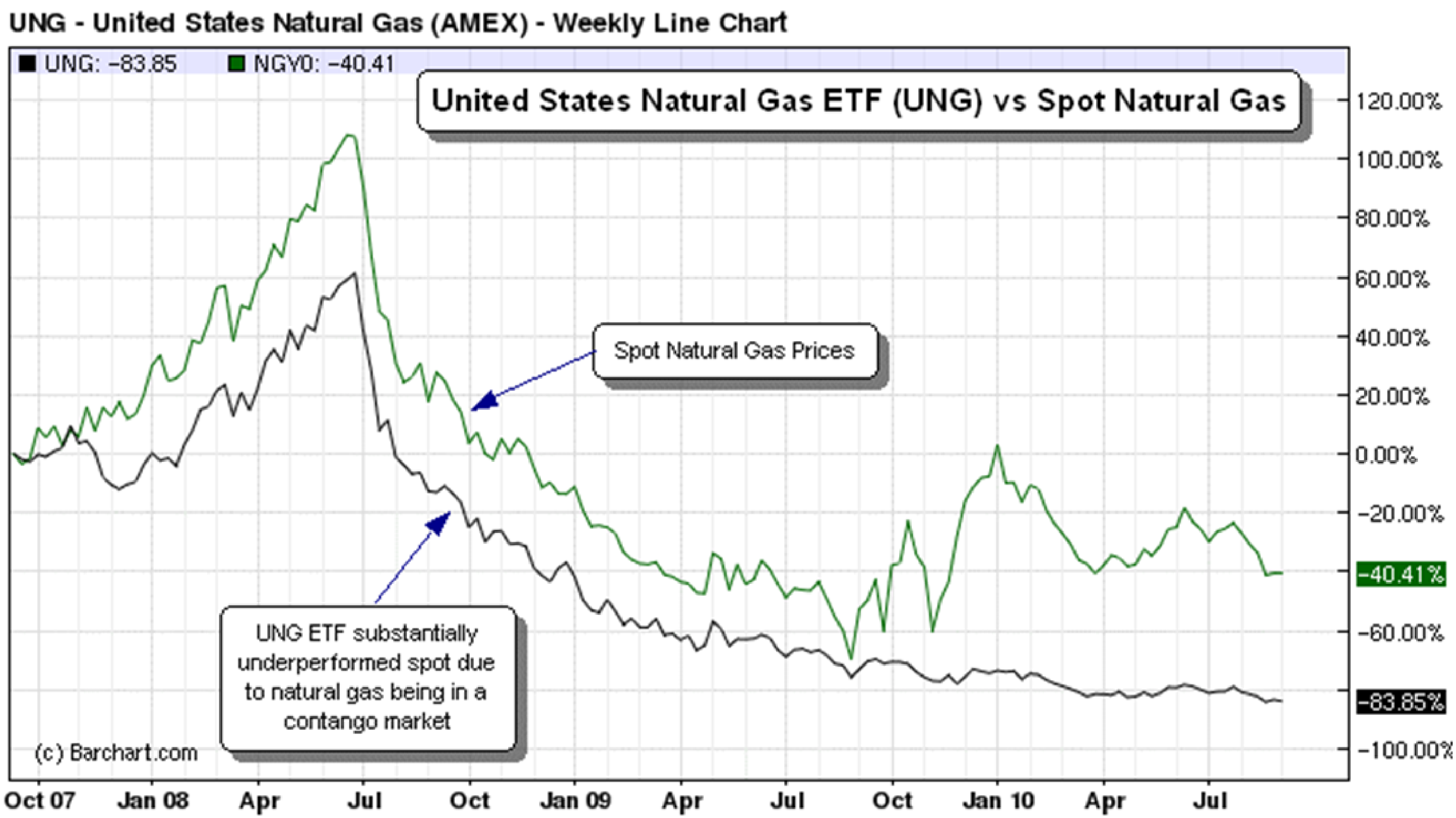
$$= \frac{dS_t}{S_t} + [a(t)d_1 + (1 - a(t))d_2]dt$$

Deriva negativa se d_i forem negativos

USO: ETF de petroleo baseado sobre futuros



UNG: ETF de gas natural baseado sobre futuros



ETFs com alavancamento

Produtos oferecem um multiplo do *retorno diario* sobre um indice de referencia

Exemplos

Proshares Ultra Financials ETF (UYG)
Offers a daily exposure to 2 times the Dow Jones Financial Index
(long 200% of underlying index, via TRS)

Proshares UltraShort Financials ETF (SKF)
Offers a daily exposure to -2 times the Dow Jones Financial Index
(short 200% of underlying index, via TRS)

Incovenientes dos ETFs alavancados para investidores individuais

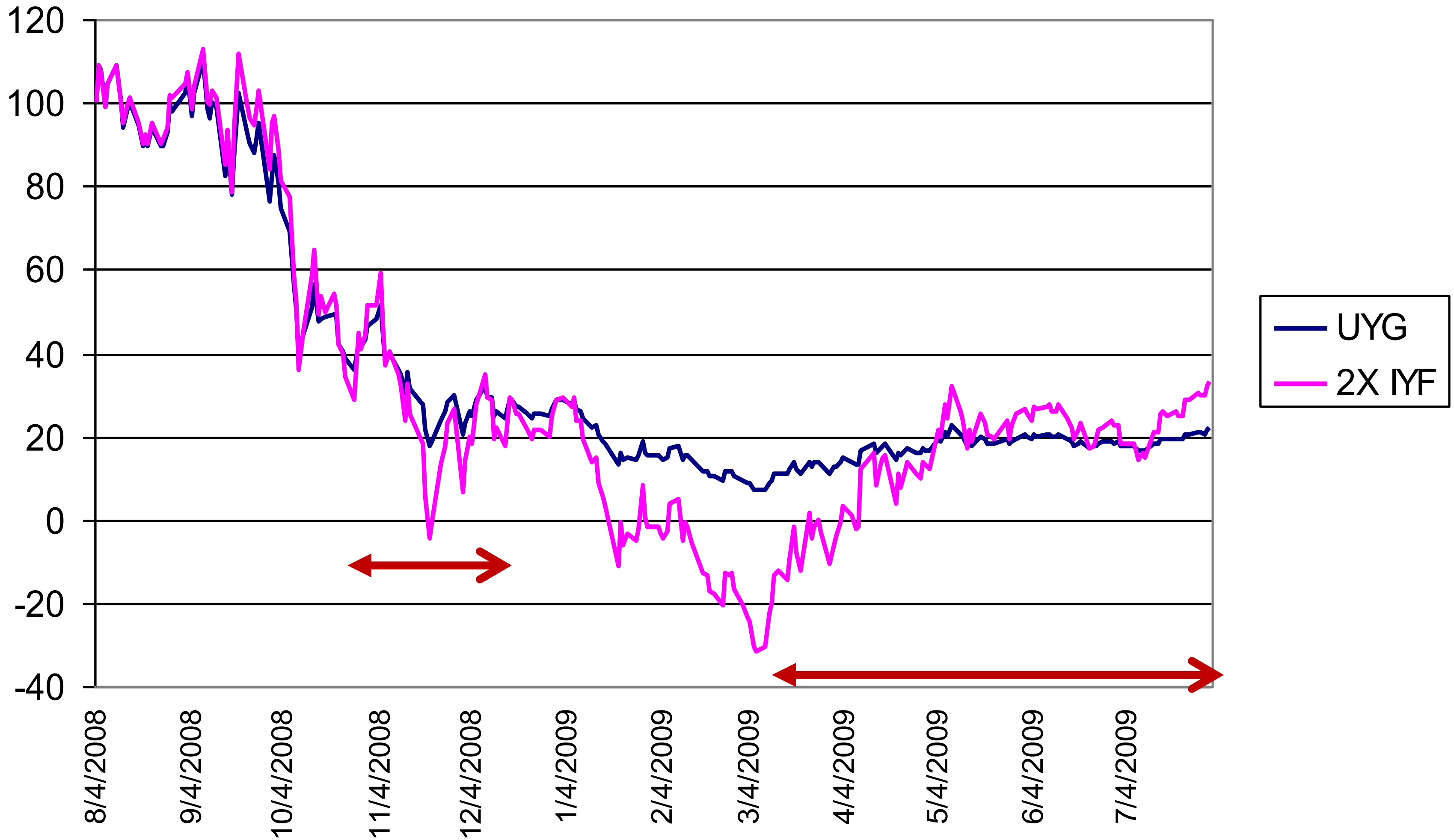
- Issues have been raised in the marketplace pertaining to the suitability of leveraged ETFs for long-term investors seeking to replicate a multiple of an index performance

- ``UBS AG U.S. brokerage business stopped selling ETFs that use leverage because such products do not conform to its emphasis on long-term investing'' *Bloomberg News, July 27, 2009*

- `` Due to the effects of compounding, their performance over longer periods of time can differ significantly from their stated daily objective. Therefore, inverse and leveraged ETFs that are reset daily typically <u>are unsuitable for retail investors who plan to hold them longer than one trading session</u>, particularly in volatile markets'' *FINRA Regulatory Notice, June 31, 2009*

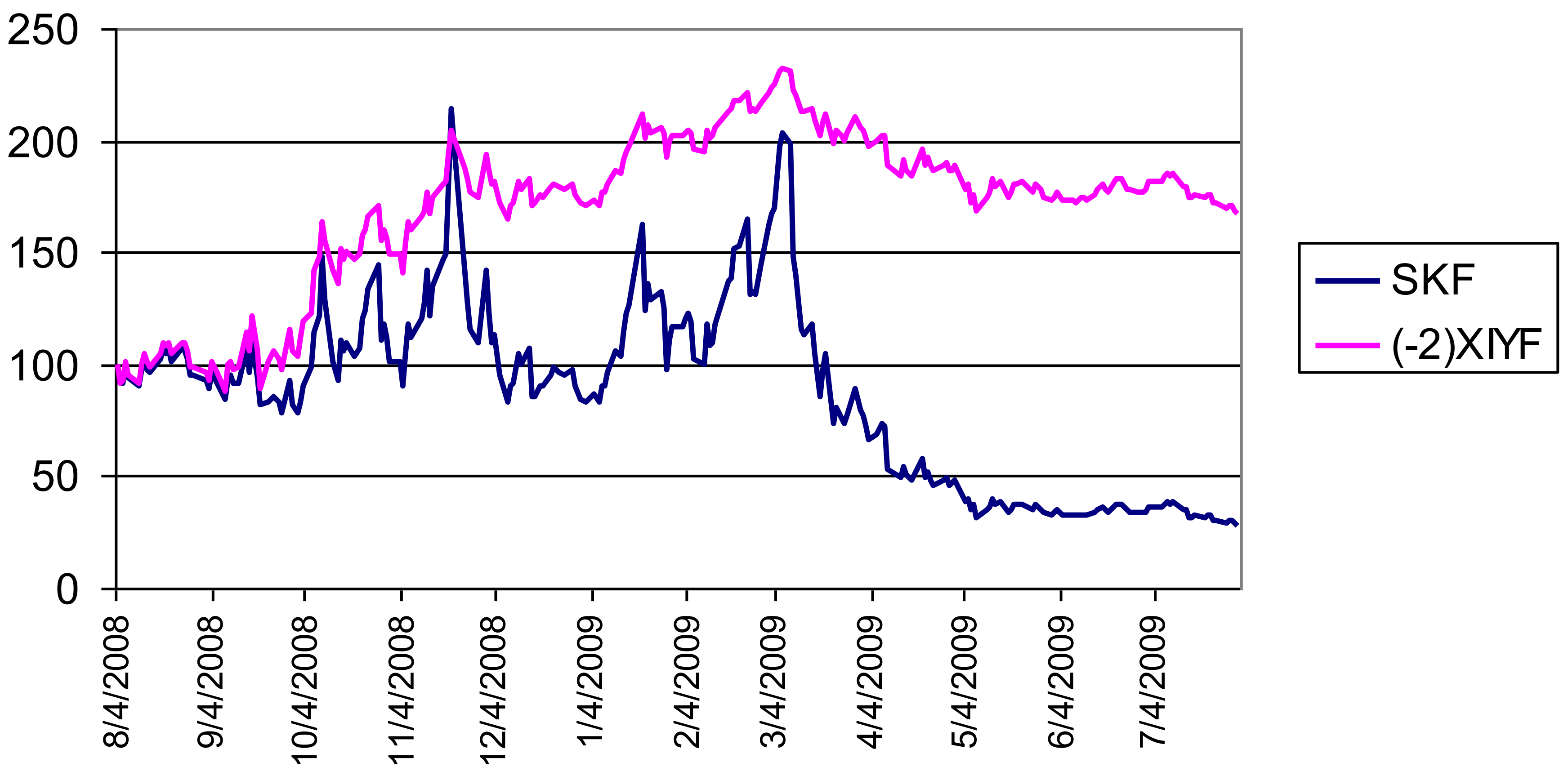
- SEC issued a similar warning notice in 2009

Tracking error: UYG vs. 2X IYF, 1 year

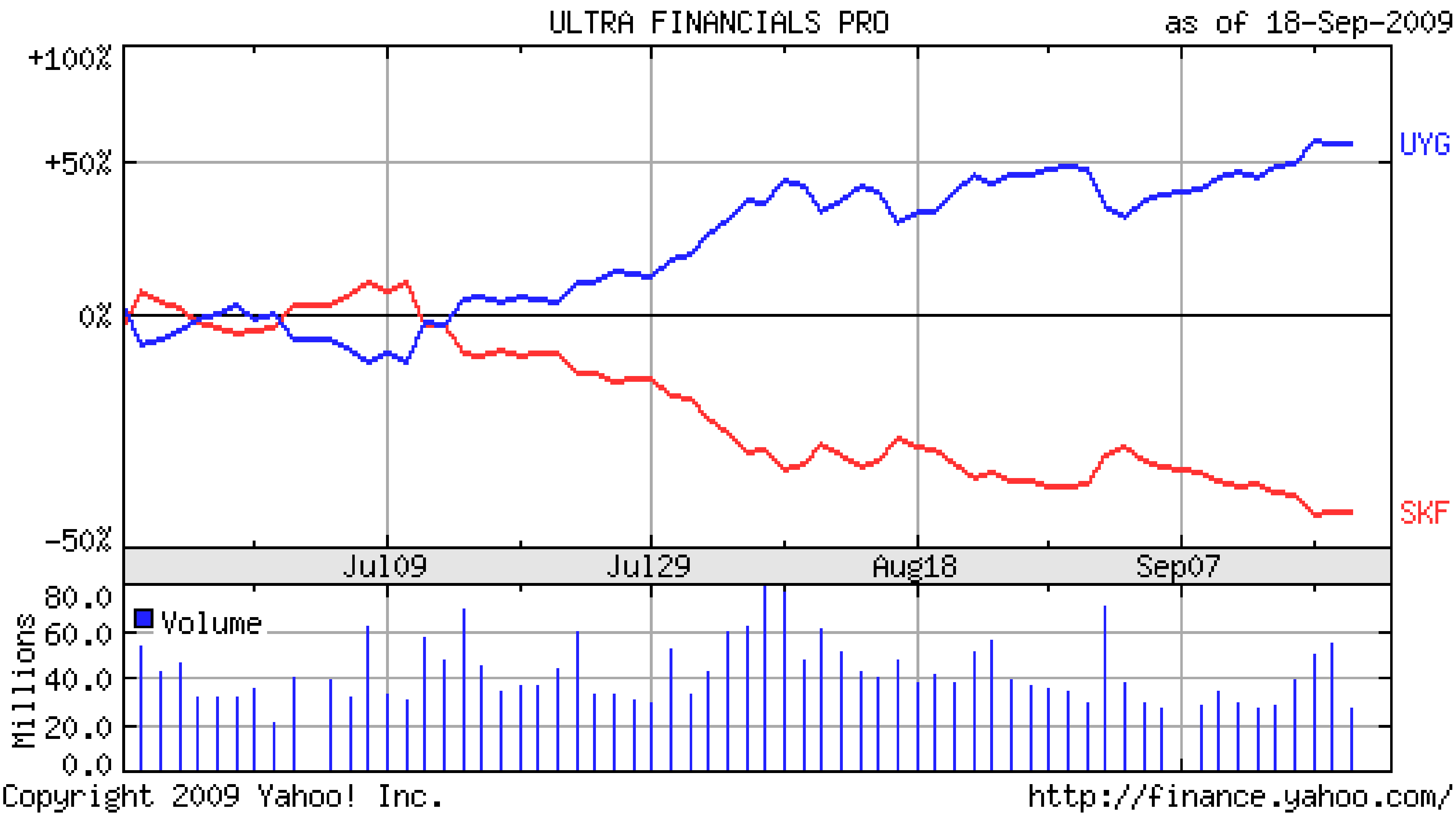


Lack of recovery in the bull mkt of Q1 09

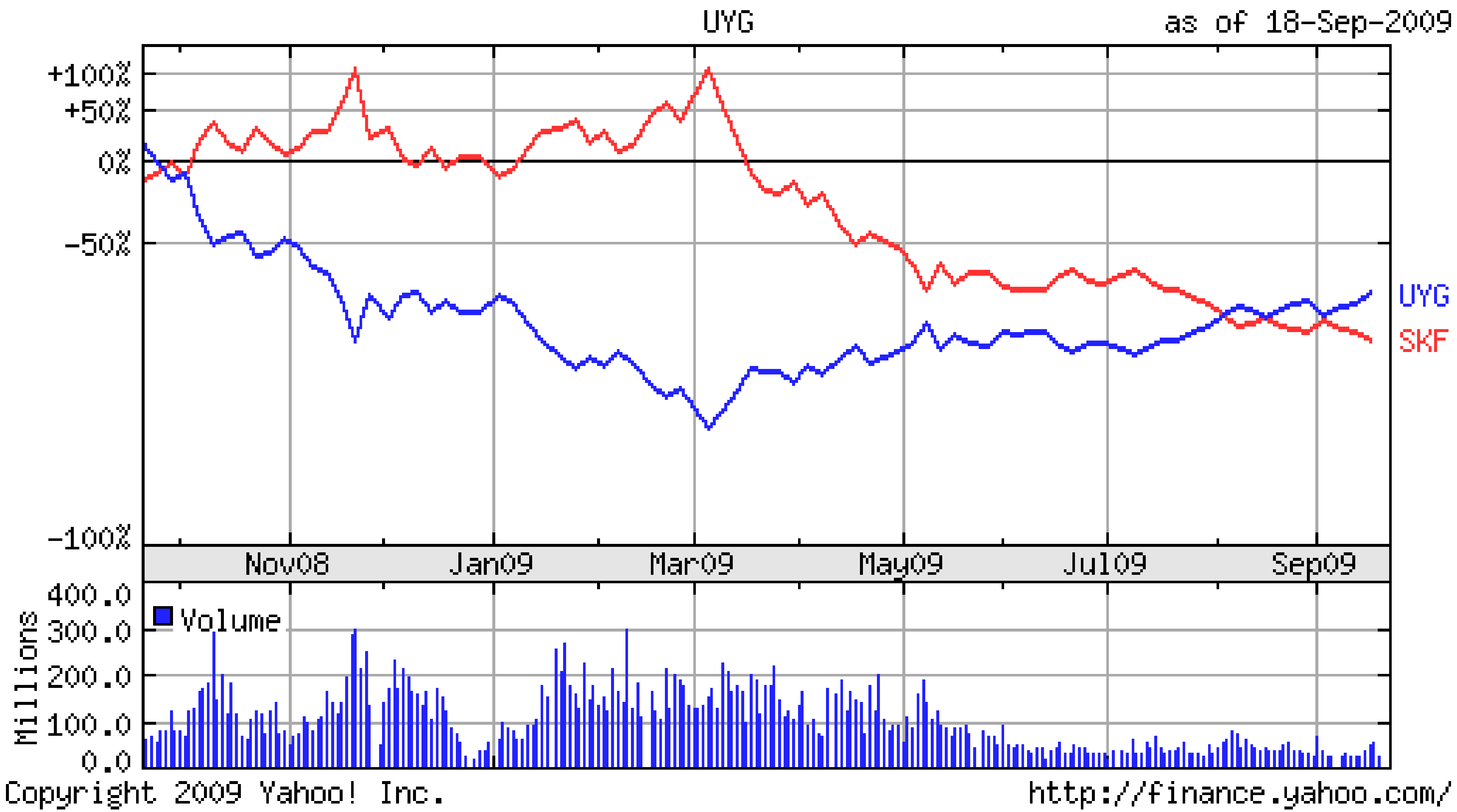
Tracking error: SKF vs. -2X IYF



SKF/UYG Past 3 months

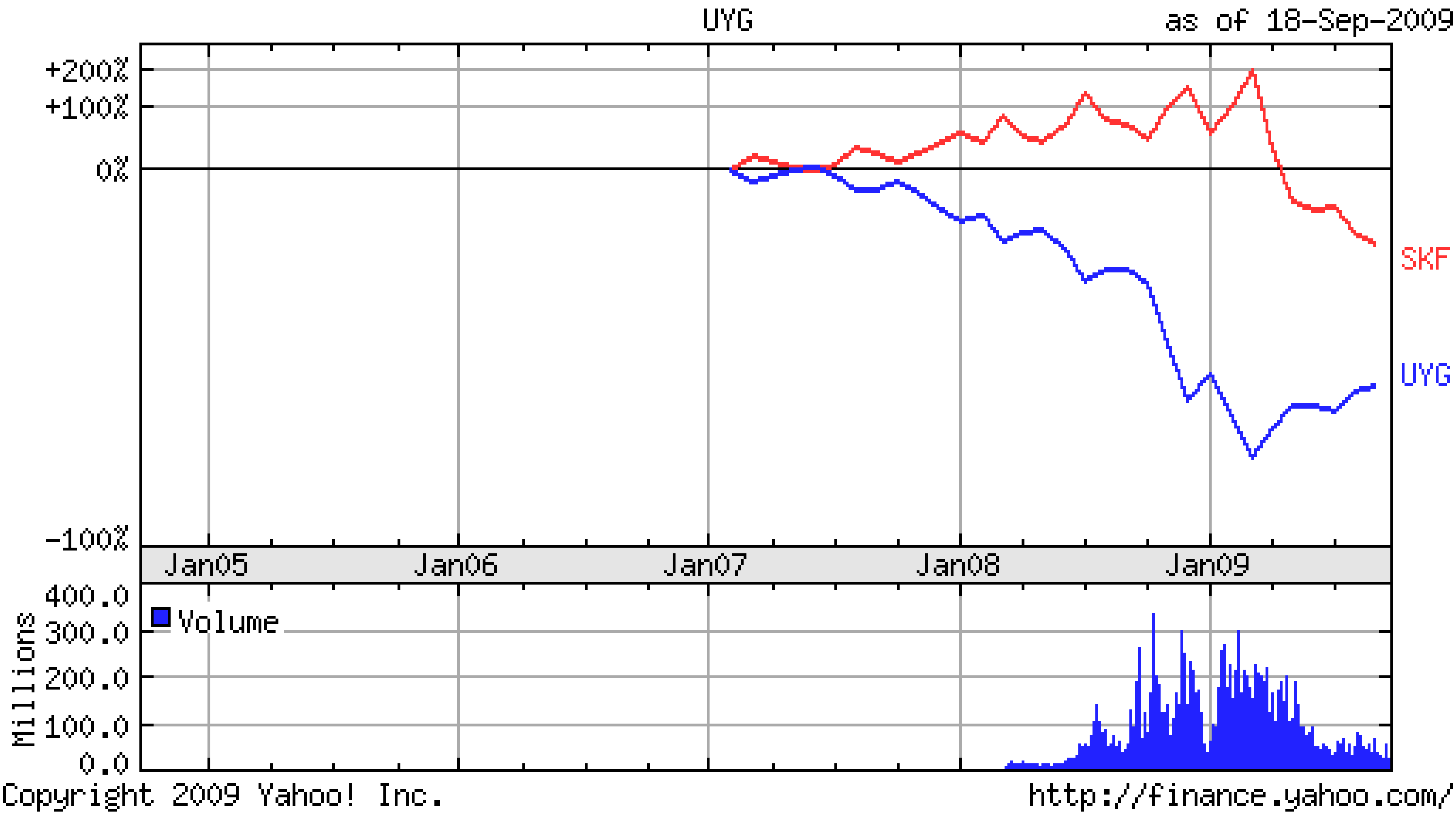


9/2007-9/2009

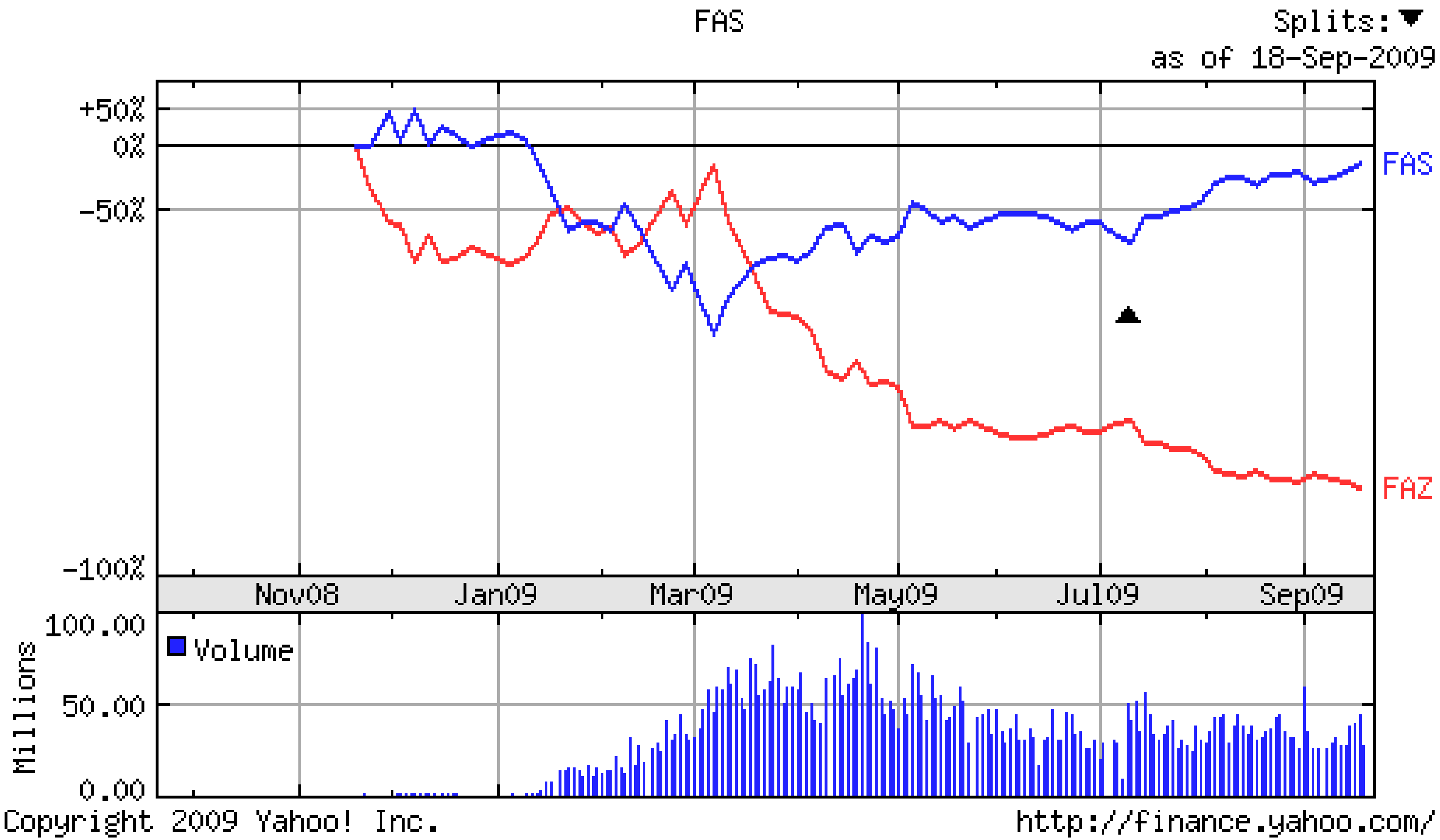


Notice that both returns are negative (big) over 1 year

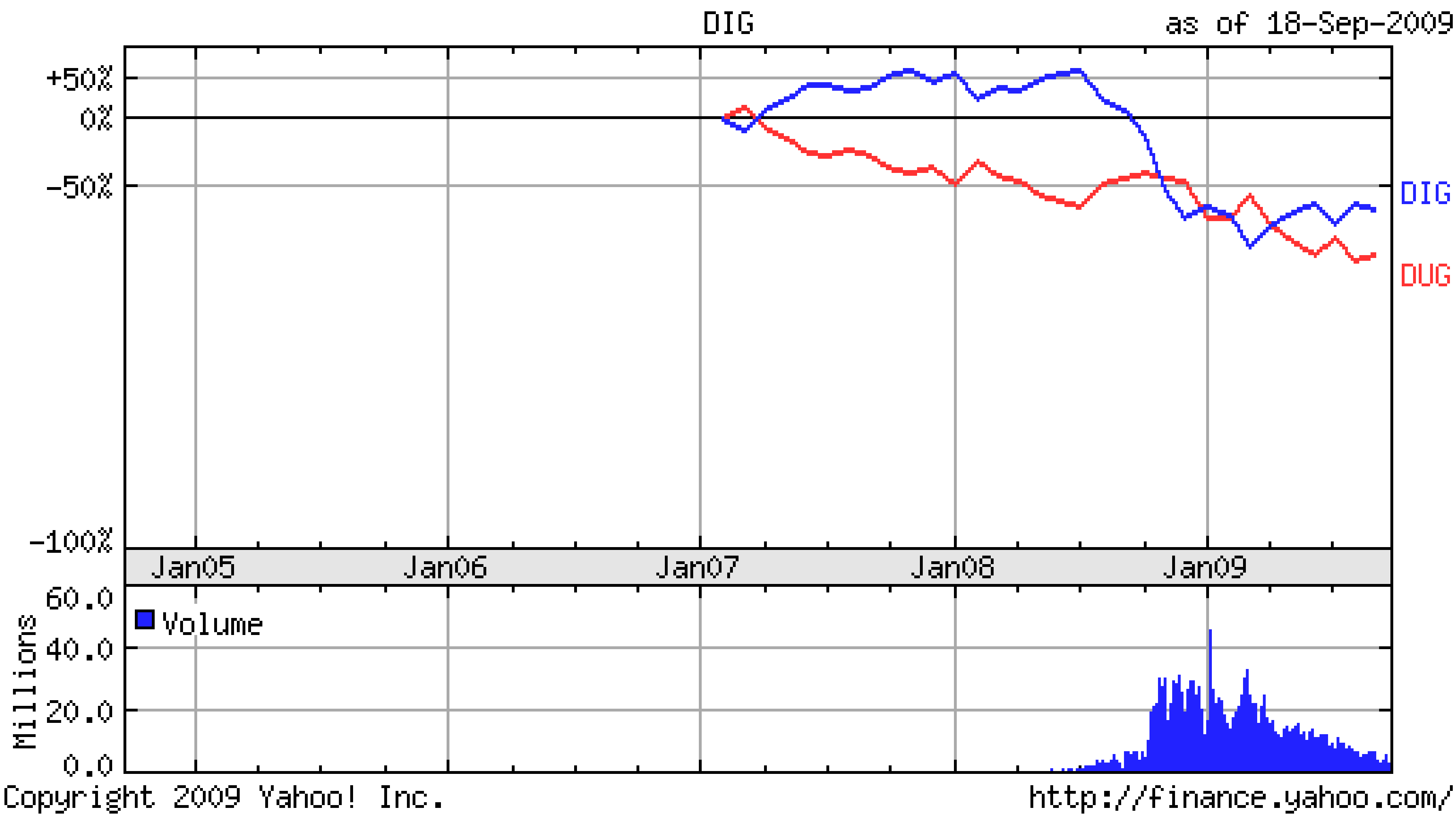
Desde o lancamento



Outro exemplo: FAS/FAZ
Direxion 3X e -3X Financial ETF



Oil & Gas Proshares DIG (long) DUG (short)



LETFs: The discrete model

$R_{S,n} = \text{return of the underlying index over the nth period}$

$R_{L,n} = \text{return of the leveraged ETF over the nth period}$

$S_t = \text{price of the underlying index or ETF}$

$L_t = \text{price of the leveraged ETF}$

$f \quad = \text{expense ratio for leveraged ETF}$

$$R_{L,n} = \beta R_{S,n} + (1-\beta) r\Delta t - f\Delta t$$

$$\begin{aligned} L_t &= \prod_{n=1}^{N} \left(1 + R_{L,n}\right) \\ &= \prod_{n=1}^{N} \left(1 + \beta R_{S,n} + (1-\beta) r\Delta t - f\Delta t\right) \end{aligned}$$

Relation between LETF and underlying index

$$\frac{L_t}{L_0} = \left(\frac{S_t}{S_0}\right)^{\beta} \exp\left[(1-\beta)rt - ft - \frac{1}{2}\left(\beta^2 - \beta\right)\int_0^t \sigma_s^2 ds\right]$$

convexity due to daily compounding

financing & fees

volatility

Avellaneda & Zhang (2009), Cheng and Madhavan (2009)

Path-dependence of LETFs is caused by exposure to volatility

Tracking error:

$$\varepsilon_t = \frac{L_t}{L_0} - \left(\frac{S_t}{S_0}\right)^{\beta} \exp\left[(1-\beta)rt - ft - \frac{1}{2}(\beta^2 - \beta)\int_0^t \sigma_s^2 ds\right]$$

Avellaneda and Zhang (2009) examined 56 LETFs since their inception and showed that the formula provides reasonable explanation for the variations of LETF prices, i.e. that the tracking error is small

Double leveraged bullish ETFs, 2/2008 to 3/2009

Double-Leveraged Bullish ETFs

Underlying ETF	Tracking Error average,%	Standard Deviation %	Leveraged ETF
QQQQ	0.04	0.47	QLD
DIA	0	0.78	DDM
SPY	-0.06	0.4	SSO
IJH	-0.06	0.38	MVV
IJR	1.26	0.71	SAA
IWM	1.26	0.88	UWM
IWD	1	0.98	UVG
IWF	0.5	0.59	UKF
IWS	-0.33	1.2	UVU
IWP	-0.02	0.61	UKW
IWN	2.15	1.29	UVT
IWO	0.5	0.74	UKK
IYM	1.44	1.21	UYM
IYK	1.2	0.75	UGE
IYC	1.56	1.04	UCC
IYF	-0.22	0.74	UYG
IYH	0.4	0.42	RXL
IYJ	1.05	0.74	UXI
IYE	-0.73	1.71	DIG
IYR	1.64	1.86	URE
IYW	0.51	0.55	ROM
IDU	0.25	0.55	UPW

Double leveraged bearish ETFs, 2/2008 to 3/2009

Double-Leveraged Bearish ETFs

Underlying ETF	Tracking Error average,%	Standard Deviation %	Leveraged ETF
QQQQ	0.22	0.8	QID
DIA	-2.01	3.24	DXD
SPY	-1.4	2.66	SDS
IJH	0.69	0.64	MZZ
IJR	-0.55	0.86	SDD
IWM	0.94	0.91	TWM
IWD	0.32	1.4	SJF
IWF	-0.3	1.34	SFK
IWS	-2.06	3.03	SJL
IWP	0.93	0.92	SDK
IWN	-2.21	1.8	SJH
IWO	-0.19	0.79	SKK
IYM	1.82	0.99	SMN
IYK	-0.76	1.98	SZK
IYC	0.79	0.92	SCC
IYF	3.3	3.03	SKF
IYH	1.04	0.91	RXD
IYJ	0.32	0.74	SIJ
IYE	0.43	3.09	DUG
IYR	2	2.07	SRS
IYW	0.01	0.8	REW
IDU	1.75	1.06	SDP

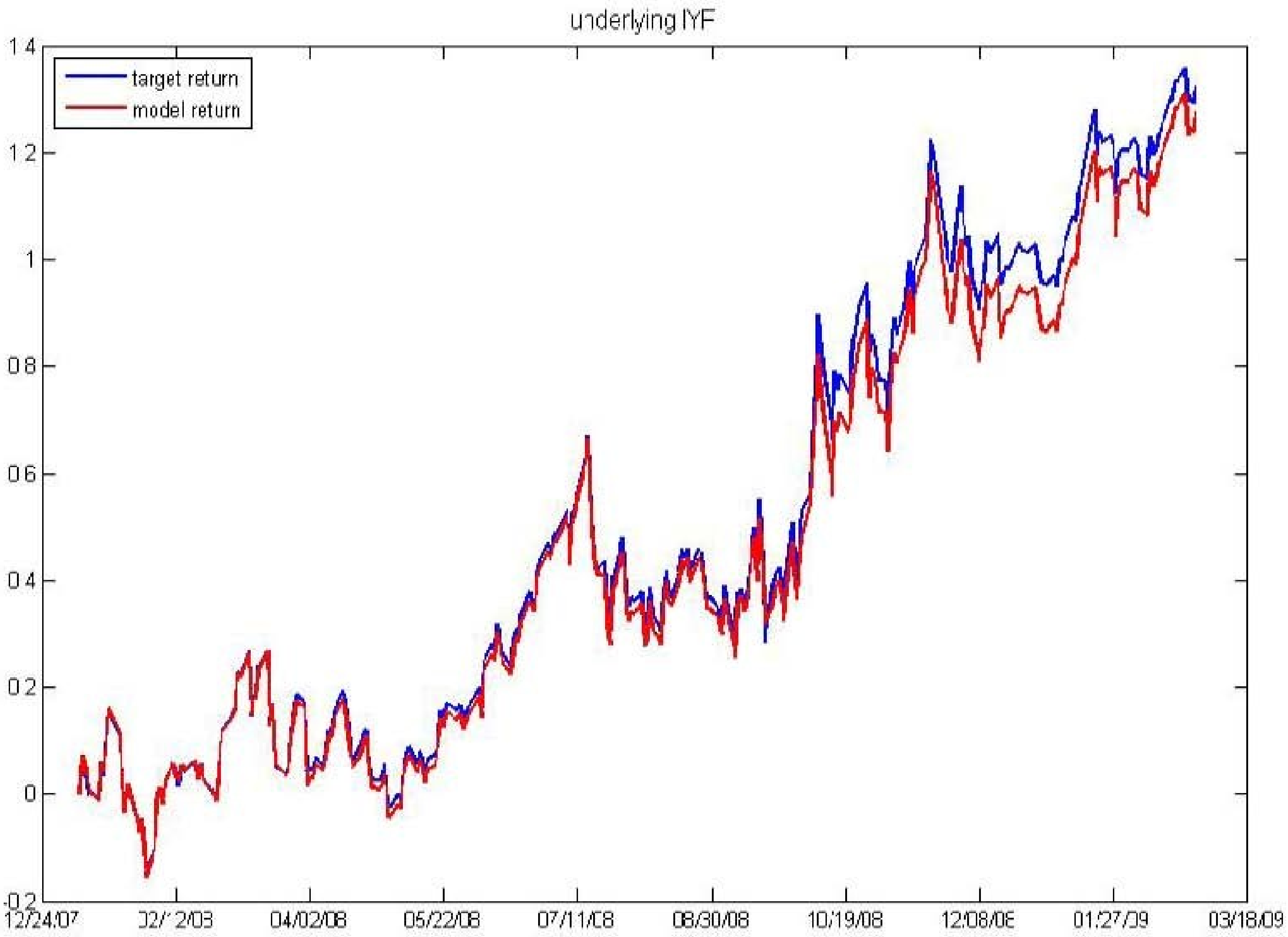
Triple leveraged ETFs, since inception (Nov 2008 – Mar 2009)

Triple-Leveraged Bullish ETFs

Underlying ETF/Index	Tracking Error average,%	Standard Deviation %	Leveraged ETF
IWB	0.44	0.55	BGU
IWM	0.81	0.75	TNA
RIFIN.X	3.67	2.08	FAS
RIENG.X	2.57	0.7	ERX
EFA	1.26	2.32	DZK
EEM	1.41	1.21	EDC

Triple-Leveraged Bearish ETFs

Underlying ETF/Index	Tracking Error average,%	Standard Deviation %	Leveraged ETF
IWB	-0.08	0.64	BGZ
IWM	0.65	0.76	TZA
RIFIN.X	-1.63	4.04	FAZ
RIENG.X	-1.41	1.01	ERY
EFA	-1.54	1.86	DPK
EEM	0.49	1.43	EDZ



Tracking SKF since December 2007 using the actual prices and the formula

Conclusoes

- ETFs oferecem vantagens importantes para investidores de **varejo** (maior acesso), investidores **institucionais** (alocacao tactica, hedge), e para **emisores** (excelente rentabilidade!)

- BM&F Bovespa, como lider no mercado de capitais a nivel regional e mundial apresenta um habitat natural para aumentar a oferta e negociacao em produtos ETFs locais e regionais

- Commodities: esta e uma area na qual o Brasil pode brillar, sobre tudo na estruturacao de ETFs sobre commodities <u>**fisicas,**</u> ou a traves de <u>**swaps**</u> de acordo com as melhores praticas sobre transparencia e colateralizacao

- Evitar complexidade na medida do possivel. Evitar estruturas complicadas (tipo ETFs alavancadas) ou baseadas sobre futuros no caso de commodities.

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