

DARK POOLS: 2011 IN REVIEW

A Look at Last Year's Trends in North America
and Europe, and What to Watch For in 2012

January 30, 2012

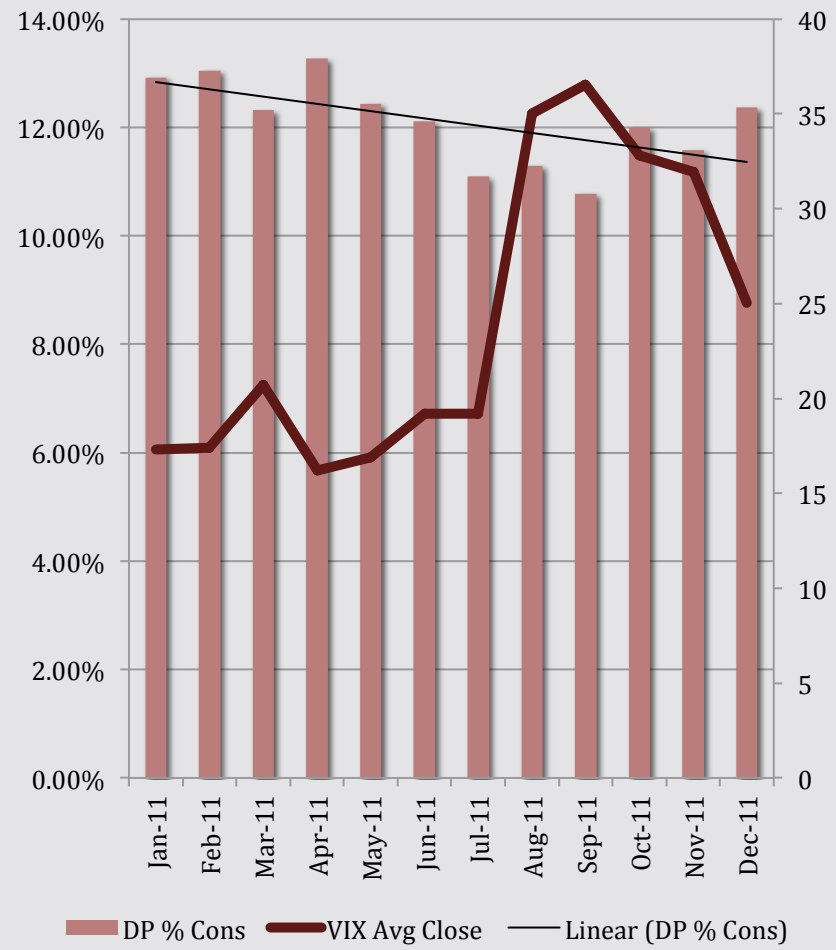
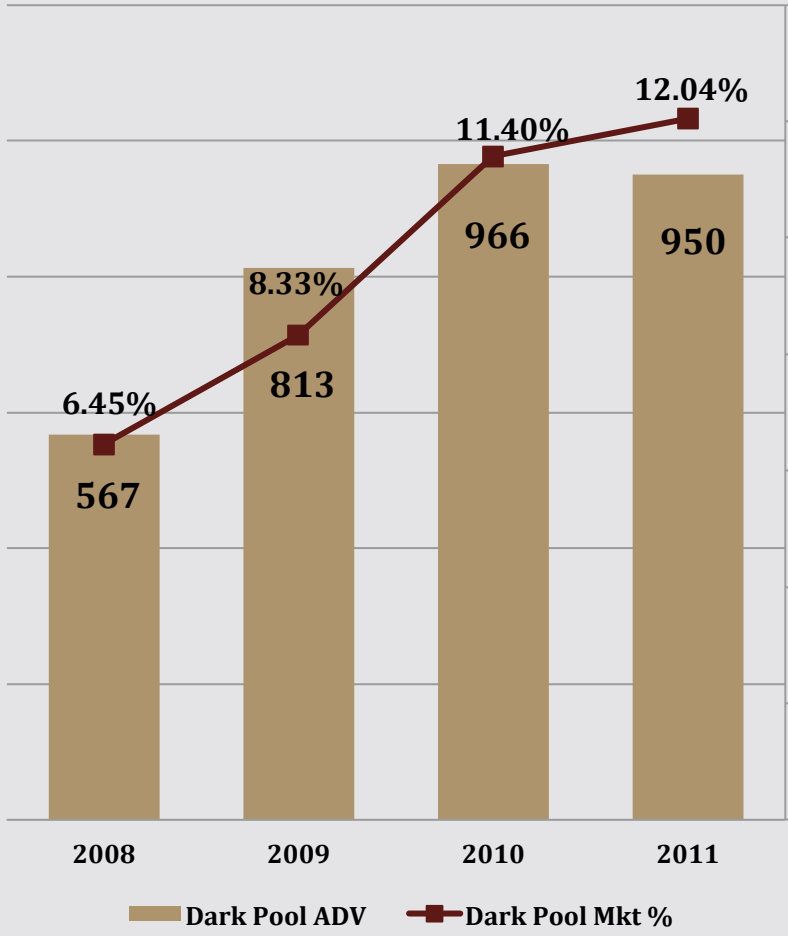
Overview: North America

- US: growth slowing as industry matures
 - Our universe gained 64 bps of market share, but full-year ADV declined y/y in 2011 for first time since we began tracking in 2008
 - Institutional traders getting choosier about venue selection
 - Independent/Agency, Bulge-Bracket pools benefit at expense of Market Makers
 - But blocks not coming back: average execution size for our universe down 48% since March 2009 high of 433 shares
- Canada: dark-pool share has surged since mid-2011
 - Driven mostly by two venues with unique spread-splitting strategies: ITG's MatchNow and Alpha IntraSpread
 - Proposed regulations may force both to restructure
 - Newest launches, Instinet ICX and Goldman's Sigma X, not trading much yet

Overview: Europe

- Entering middle stages of multi-year growth spurt
- No clear relationship between dark-pool market share and volatility
 - Similar to early growth stages for US dark pools
 - May never develop because of US-EU differences, but something to watch for in 2012
- Bank/Broker-sponsored pools cementing dominance
 - Exchange/Lit MTF dark books suffer, but still more relevant than US counterparts
 - Bulge-bracket firms aggregating flows from multiple internal desks
- Regulation still a wild card
 - MiFID II provisions may slow or reverse growth of non-MTF pools

US: Growth Slowing as Industry Matures



Sources: Rosenblatt Securities, Company Reports, CBOE

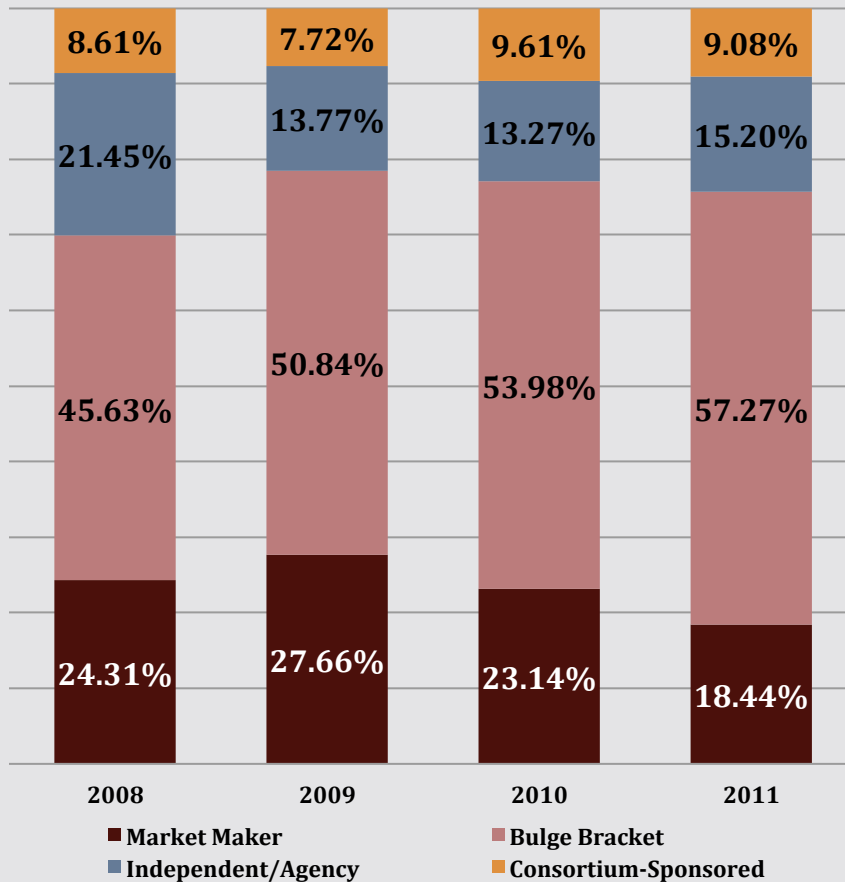
US: Traders Get Choosier About Venues



What Lurks Beneath the Surface of the Black Lagoon?

US: Traders Get Choosier About Venues

Dark Pool Turnover by Category

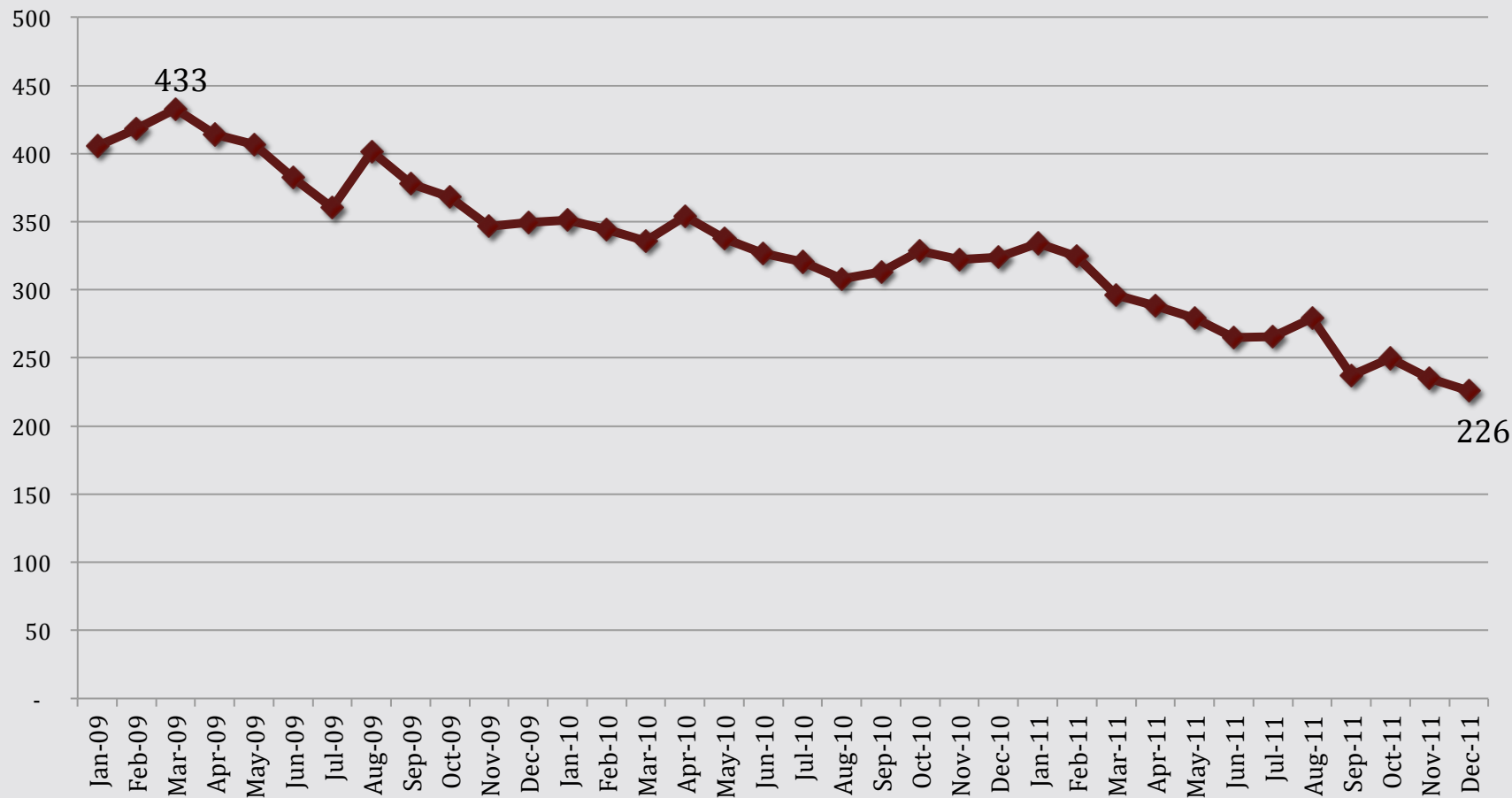


Market Maker Share and VIX



US: Dark-Pool Blocks Are Not Coming Back

Rosenblatt Universe Average Execution Size



US: Full-Year ADV, Market Share by Pool

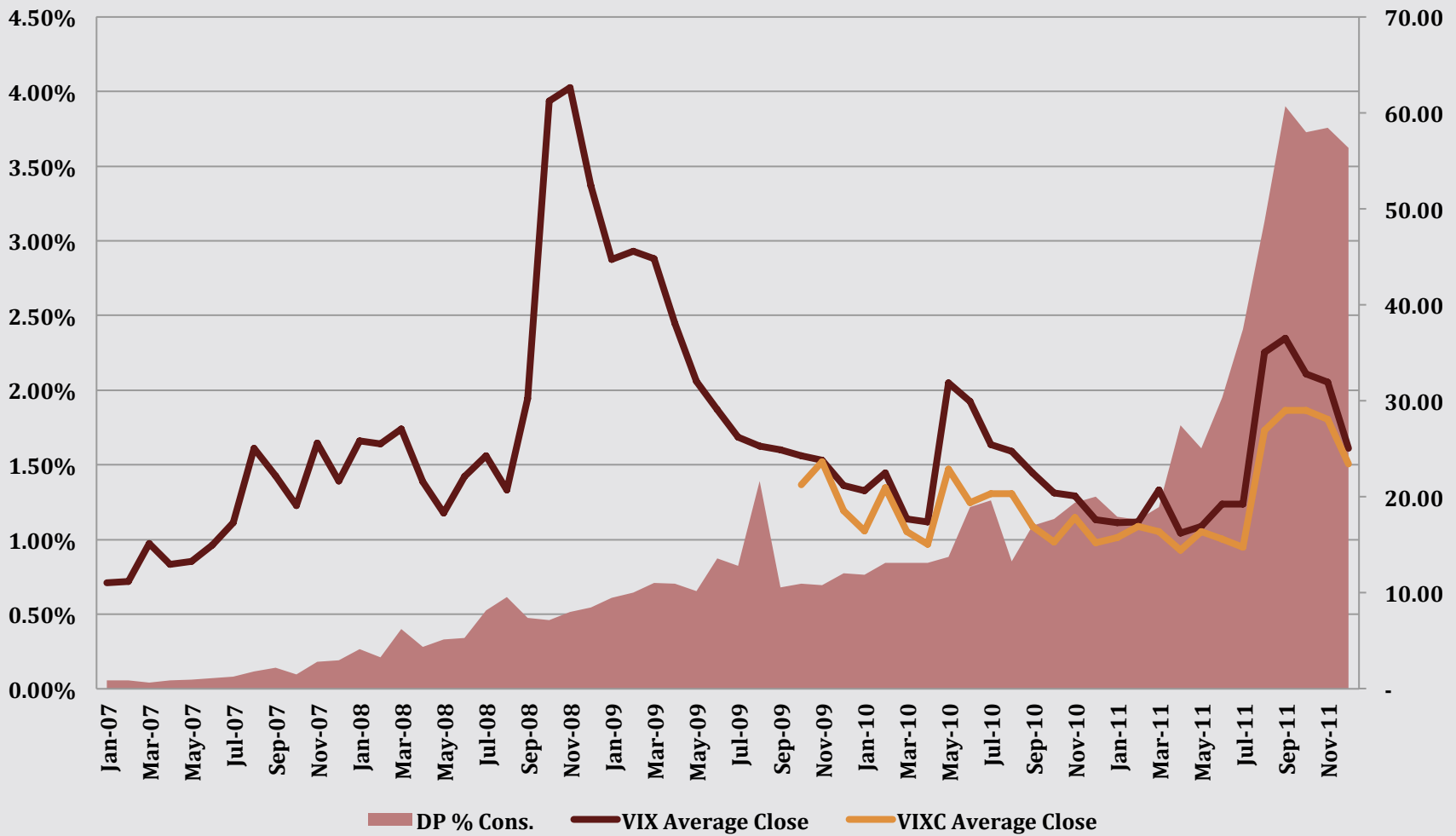
VENUE	2011 ADV	2011 MKT SHR
CS CROSSFINDER	178.1	2.26%
GS SIGMA X	124.7	1.58%
KNIGHT LINK	90.5	1.15%
GETMATCHED	84.8	1.07%
BARCLAYS LX	71.1	0.90%
MS-POOL	53.9	0.68%
LEVEL	51.3	0.65%
ITG POSIT	45.5	0.58%
DB SUPER X	43.7	0.55%
UBS ATS	39.6	0.50%
BIDS	34.9	0.44%
CITI MATCH	33.0	0.42%
INSTINET CBX	29.1	0.37%
BNY CVGX MILLENNIUM	21.7	0.28%
LIQUIDNET NEGOTIATED	16.7	0.21%
BNY CVGX VORTEX	13.5	0.17%
LIQUIDNET H20	8.5	0.11%
PIPELINE TRADING	5.2	0.07%
INSTINET VWAP CROSS	4.3	0.05%

US: Full-Year Chg in ADV, Market Share

VENUE	2010 ADV	2011 ADV	%CHG
DB SUPER X	9.8	43.7	345.23%
BNY CVGX VORTEX	8.3	13.5	62.17%
BIDS	23.0	34.9	51.58%
ITG POSIT	31.1	45.5	46.07%
BARCLAYS LX	52.3	71.1	35.92%
BNY CVGX MILLENNIUM	18.5	21.7	17.31%
UBS ATS	35.5	39.6	11.61%
LIQUIDNET NEGOTIATED	16.2	16.7	3.26%
CITI MATCH	32.4	33.0	1.80%
LIQUIDNET H20	8.6	8.5	-0.50%
MS-POOL	55.3	53.9	-2.57%
GS SIGMA X	135.1	124.7	-7.73%
INSTINET CBX	31.8	29.1	-8.53%
CS CROSSFINDER	200.3	178.1	-11.10%
INSTINET VWAP CROSS	4.9	4.3	-12.06%
GETMATCHED	99.5	84.8	-14.86%
LEVEL	69.7	51.3	-26.29%
KNIGHT LINK	123.7	90.5	-26.88%
PIPELINE TRADING	8.7	5.2	-40.38%

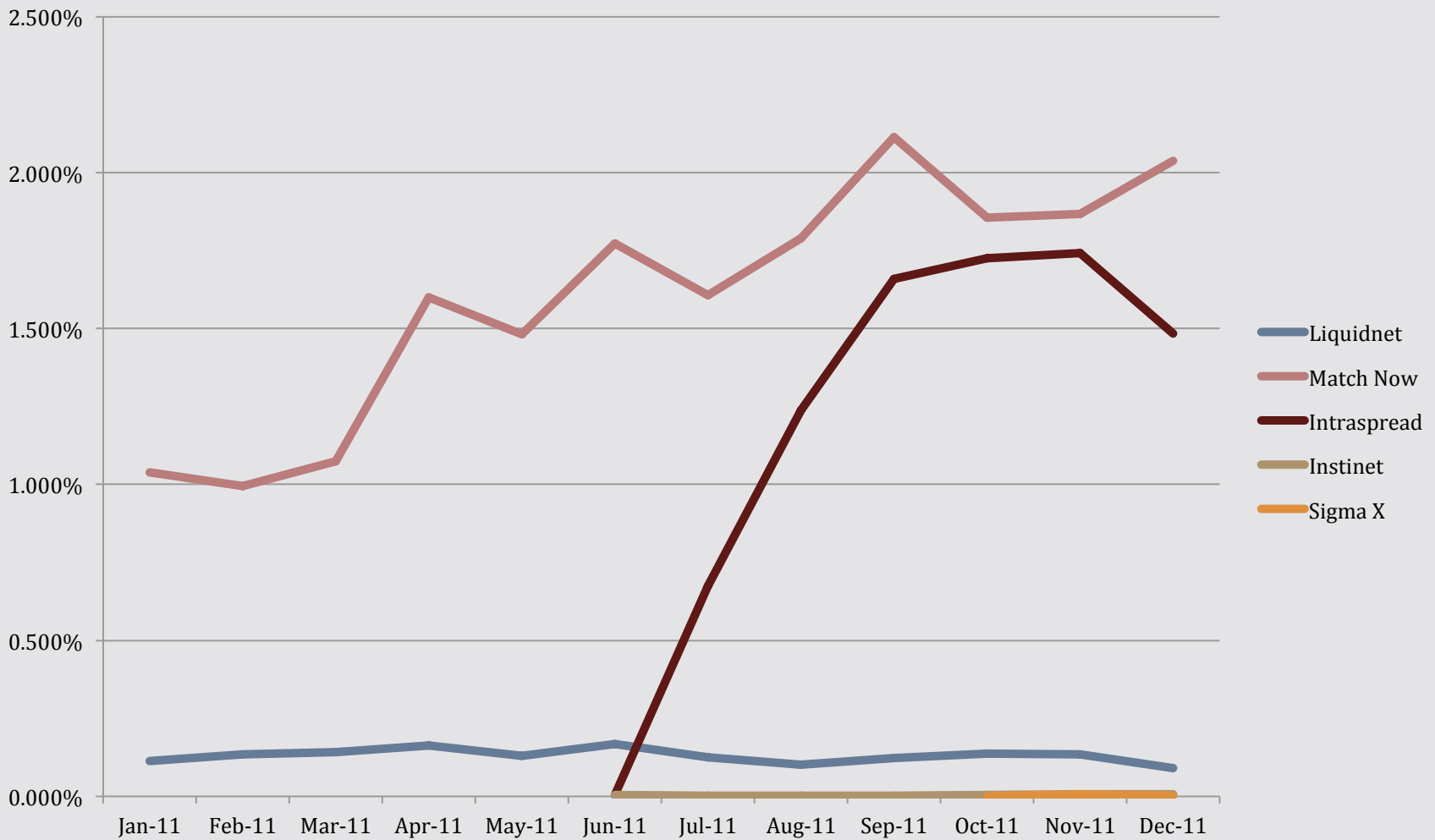
VENUE	2010 MKT SHR	2011 MKT SHR	CHG
DB SUPER X	0.12%	0.55%	0.44%
BARCLAYS LX	0.62%	0.90%	0.28%
ITG POSIT	0.37%	0.58%	0.21%
BIDS	0.27%	0.44%	0.17%
UBS ATS	0.42%	0.50%	0.08%
BNY CVGX VORTEX	0.10%	0.17%	0.07%
BNY CVGX MILLENNIUM	0.22%	0.28%	0.06%
CITI MATCH	0.38%	0.42%	0.04%
MS-POOL	0.65%	0.68%	0.03%
LIQUIDNET NEGOTIATED	0.19%	0.21%	0.02%
LIQUIDNET H20	0.10%	0.11%	0.01%
INSTINET VWAP CROSS	0.06%	0.05%	0.00%
INSTINET CBX	0.38%	0.37%	-0.01%
GS SIGMA X	1.60%	1.58%	-0.02%
PIPELINE TRADING	0.10%	0.07%	-0.04%
GETMATCHED	1.18%	1.07%	-0.10%
CS CROSSFINDER	2.37%	2.26%	-0.11%
LEVEL	0.82%	0.65%	-0.17%
KNIGHT LINK	1.46%	1.15%	-0.31%

Canada: Dark Share Surged in 2011



Sources: Investment Industry Regulatory Organization of Canada, Alpha Group, CBOE, TMX Group

Canada: Two Dominant Pools

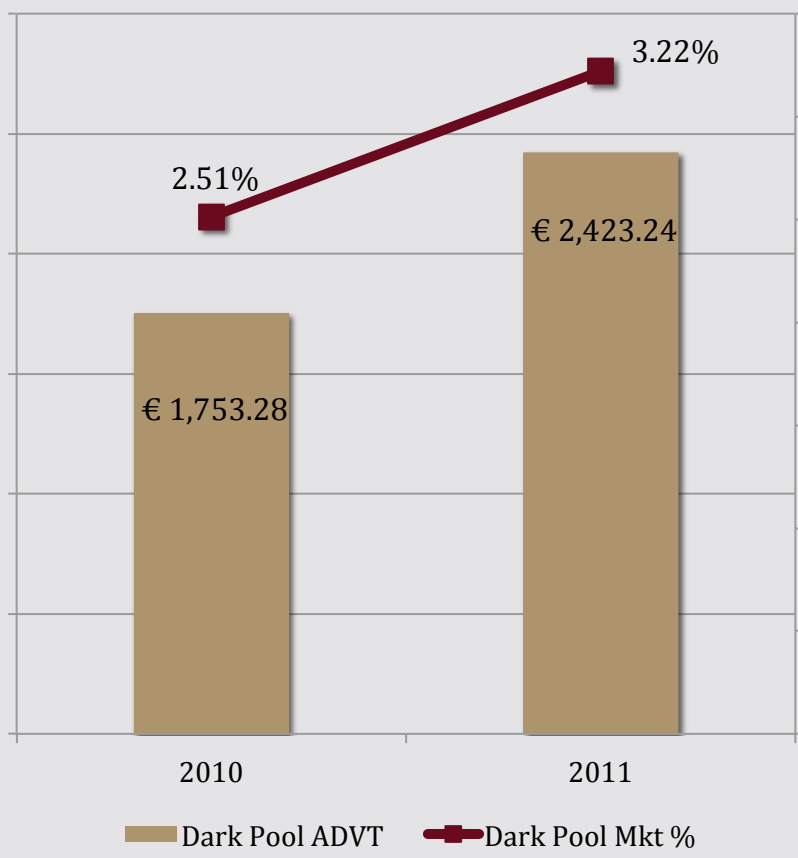


Canada: Regulation is Big Wild Card

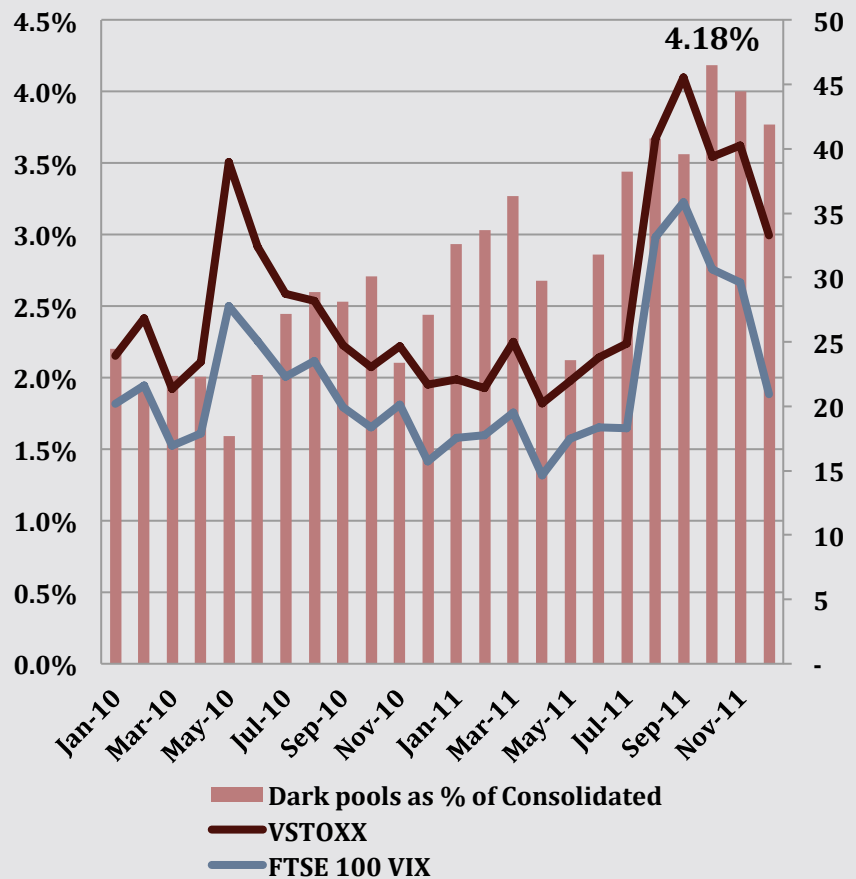
- CSA/IIROC proposal: minimum size for dark orders, “significant” price improvement below threshold
 - “Significant” = one tick, or ½ cent if spread one penny
 - Could force changes to structure of Canada’s two dominant dark pools
 - IntraSpread: as little as 10% price improvement
 - MatchNow: 20% price improvement
 - Also would deter new launches
 - Credit Suisse interested in bringing Crossfinder to Canada, but would not be able to get big enough % of market that is smaller than US, EU to make this economically viable
 - Volume in US inter-listed names could move south
- Dealers, others pushing back

EU: Middle Stages of Brisk Growth Spurt

Full-Year ADVT/Mkt Share



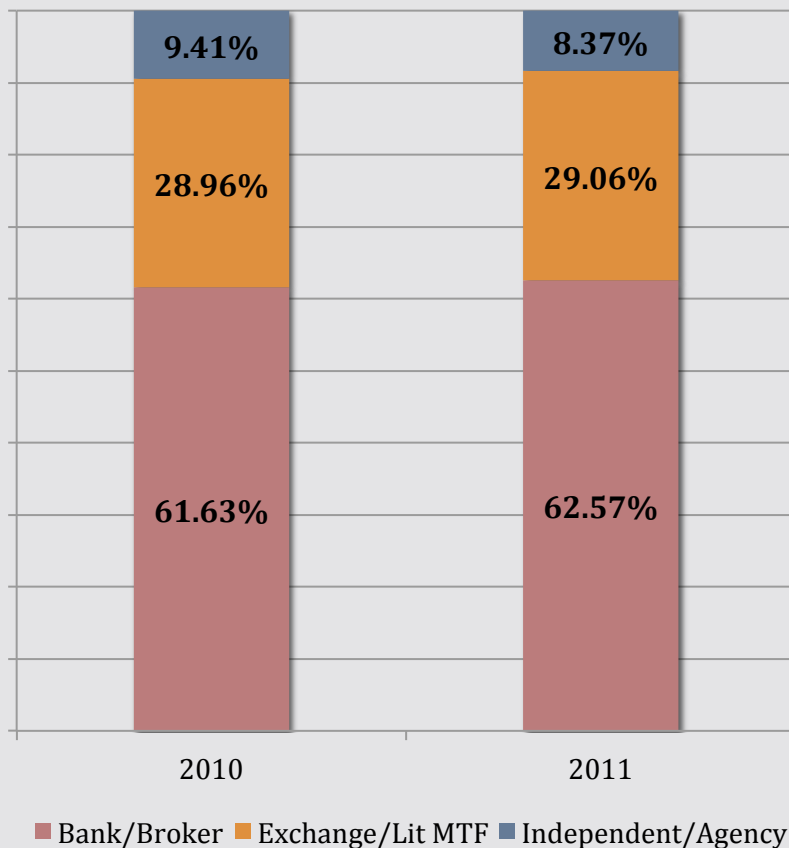
Monthly Mkt Share/Volatility



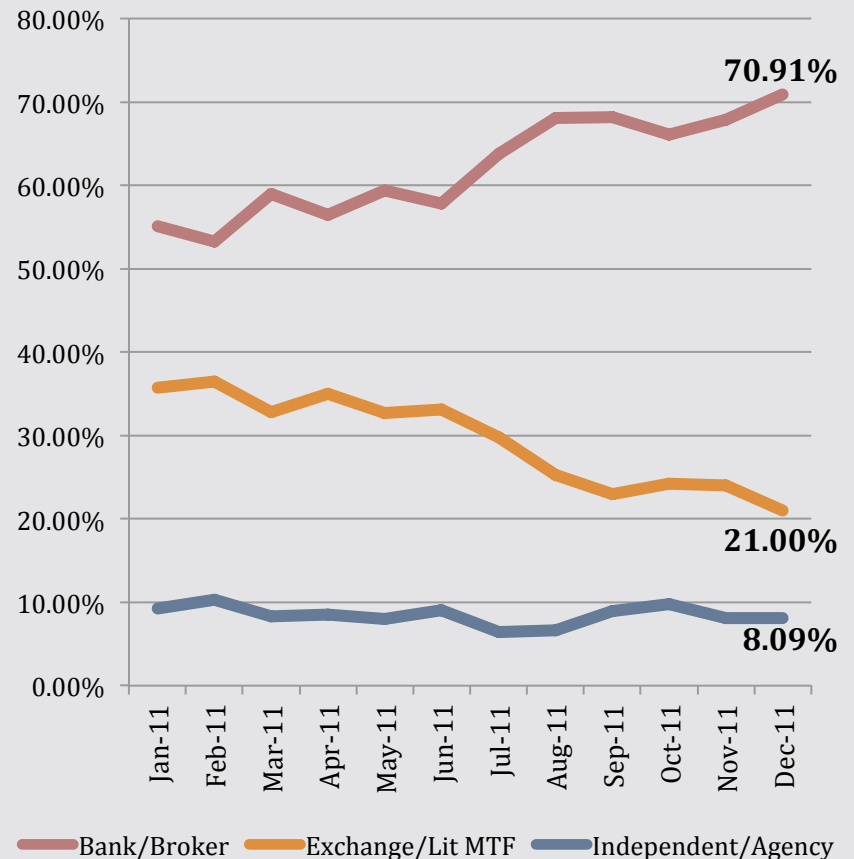
Sources: Rosenblatt Securities, Company Reports, Thomson Reuters, STOXX, Euronext

EU: Broker Pools Extend Dominance

ADVT by Category, Full-Year



ADVT by Category, 2011 Monthly



EU: Full-Year ADVT, Market Share by Pool

VENUE	2011 ADVT	2011 MKT SHARE
CS Crossfinder	€ 390.35	0.52%
Goldman Sachs	€ 384.82	0.51%
Citi Match	€ 295.34	0.39%
Chi-X Chi-Delta	€ 284.16	0.38%
Turquoise Dark	€ 201.60	0.27%
DB Super X	€ 161.11	0.21%
BATS Europe Dark	€ 147.78	0.20%
Nomura	€ 96.45	0.13%
Liquidnet	€ 89.06	0.12%
UBS MTF	€ 85.77	0.11%
Posit	€ 80.76	0.11%
Smartpool	€ 66.93	0.09%
Instinet BlockMatch	€ 32.01	0.04%
SIX Swiss Dark	€ 2.39	0.00%
ICAP BlockCross	€ 1.07	0.00%
Deutsche Börse Dark	€ 1.04	0.00%
Nasdaq Nordic Dark	€ 0.19	0.00%
Pipeline	€ 0.03	0.00%

EU: Full-Year Change in Market Share

VENUE	2010 MKT SHARE	2011 MKT SHARE	%CHG
DB Super X	0.06%	0.32%	0.26%
CS Crossfinder	0.38%	0.52%	0.14%
BATS Europe Dark	0.08%	0.20%	0.11%
UBS MTF	0.00%	0.11%	0.11%
Chi-X Chi-Delta	0.30%	0.38%	0.07%
Turquoise Dark	0.22%	0.27%	0.05%
Posit	0.06%	0.11%	0.04%
Citi Match	0.35%	0.39%	0.04%
Instinet BlockMatch	0.03%	0.04%	0.01%
SIX Swiss Dark	0.00%	0.00%	0.00%
ICAP BlockCross	0.00%	0.00%	0.00%
Deutsche Börse Dark	0.00%	0.00%	0.00%
Smartpool	0.11%	0.09%	-0.02%
Liquidnet	0.14%	0.12%	-0.03%
Nomura	0.17%	0.13%	-0.04%
Goldman Sachs	0.59%	0.54%	-0.05%
Total RBLT Universe	2.51%	3.22%	0.71%

Grading our 2011 Predictions

What We Said

- US DP share would grow moderately – 15% by year end
- US ADV would struggle to break 8-8.5bn; pools consider strategic options
- US regulators would seriously consider restrictions on off-exchange trading
- SEC flash order/dark-pool plans from 2009 would see no action, instead get rolled into larger internalization debate
- Dark trading in Canada would heat up amid new launches, regulatory debate
- Non-US/EU exchanges would experiment more with dark trading

Outcome

- **Partially right:** didn't foresee late-year volatility spike
- **Correct:** 2011 US ADV 7.83bn vs 8.47bn in 2010; BlockCross sold
- **Partially right:** NYSE RLP plan sparked late-year debate, may force SEC's hand
- **Mostly right:** neither proposal passed, but no formal SEC action yet on internalization
- **Correct:** dark market share surged with growth of MatchNow, IntraSpread
- **Mostly right:** BMV, BVMF put forward dark markets; not much action in Asia

US: What to Watch for in 2012

- Modest dark-pool market-share growth
 - Secular tailwinds gone (new pools, more algos trading, broker aggregation of internal flows)
 - If VIX<30, US universe could hit 12.7% (up from 12.04% in 2011)
- Regulatory debate over internalization takes center stage
 - Comments, SEC decision on NYSE RLP pilot
 - Roundtables, concept release?
- Consolidated volume flat to slightly higher
 - Structural drivers of '00s gone, but late 2010 likely a trough
 - HFT not going away, naturals could come back with bull market
- More experimentation with venue, counterparty selection
 - Filtering based on behavior, not client type
 - Borrowing a page from Facebook (trade only with your “friends”)?

Canada: What to Watch for in 2012

- Regulators dig in their skates on internalization
 - Offer only modest concessions, if any, on proposed restrictions
- Dark pools suffer, exchange dark orders benefit
 - Dealers, others try to replicate current structures under new rules
 - But volume in dark pools inevitably suffers, as dominant players need to recast structures to fit new “significant size/price improvement” scheme
 - Dark midpoint orders on lit markets like TSX, Chi-X should benefit

Europe: What to Watch for in 2012

- Brisk market-share growth continues
 - Algo trading, smart routing still gaining greater acceptance
 - Big banks, brokers still in process of aggregating internal flows
 - Dark-pool turnover could break 5% of pan-European consolidated
 - Would mean overall share probably 7%-8%, accounting for pools outside our universe and multiple counting of OTC volume (inflates denominator)
 - If dark-pool share develops inverse correlation with volatility, rapid growth phase may be starting to wind down
- Regulation a significant wild card
 - OTF designation of MiFID II could wreak havoc on non-MTF broker crossing networks
 - No proprietary/principal, connections to other pools
 - Could prompt array of new MTF, SI venues

Q&A

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