



# European Trading of US Listed Equity Options 2014: Shifting Demand in a Changing Market Landscape

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# Executive Summary

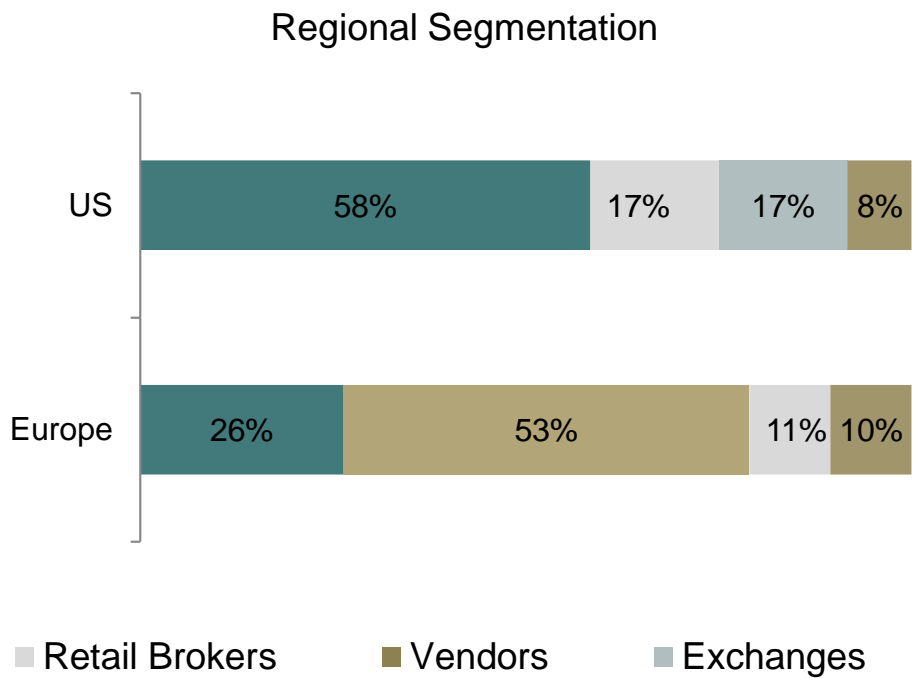
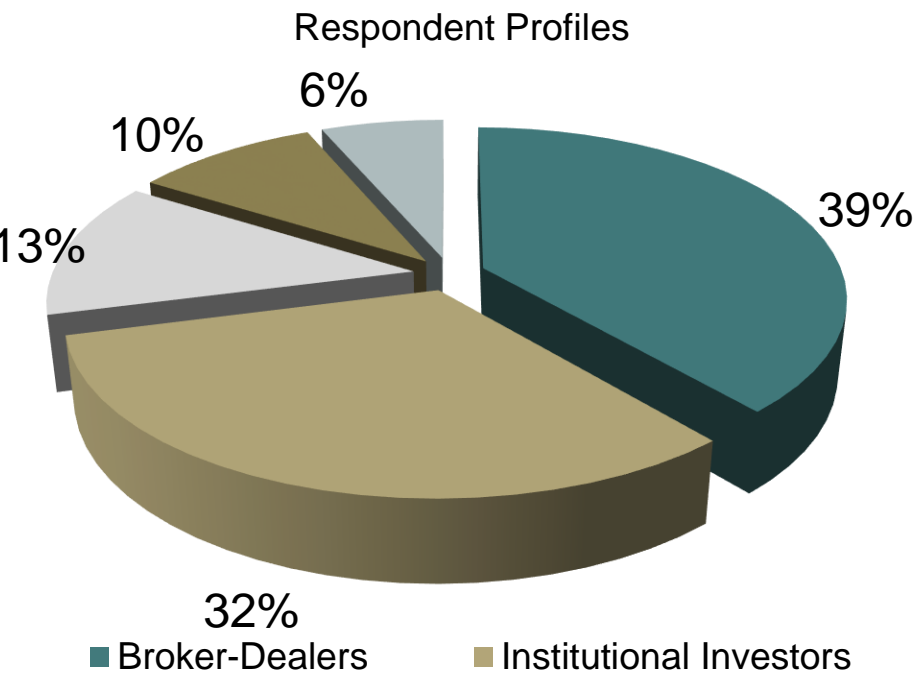
- Growing sophistication of European investors; solid growth in directional, premium-generating and volatility strategies.
- Competitive market structure, deep liquidity and transparency continue to attract European customers.
- European demand for US listed options remains strong, with order flow from Europe accounting for an estimated 9% of total trading in 2013.
- Post-crisis shift in institutional demand as European financial markets begin to recover and global investment allocations are adjusted.
- Proprietary accounts and sell-side desks remain active users but are shifting activity to the US as volumes rise and US expertise becomes more important.
- Strong increase in value of US equity assets held in the UK, Luxembourg and Switzerland.
- Private wealth managers expand use of US listed options, driven by rising client AuM and electronic access.
- Rising interest from European retail clients to trade US options with transparency and ease of access driving demand.

# Study Methodology

- TABB Group interviewed 31 US and European market participants representing 27 different firms supporting US listed options trading activities.
  - All interviews were conducted on an anonymous basis.
  - In certain instances, the interviews included multiple participants from one firm.
  - The interviews were conducted in February 2014 with a focus on changes in European attitudes toward US listed options markets since 2011.
- Responses from the interviews are represented graphically within the report.
  - The interviews were conducted in an open-ended manner and often included multiple responses to a single question (hence, totals may add up to more than 100%).
  - Response percentages are calculated as a percentage of total responses for each question.
- As defined in this report, European trading of US listed options includes trades executed by a firm domiciled in the UK or continental Europe.
  - Trading activity by US-based subsidiaries of European firms were not included in the total.
  - No attempt was made to identify the ultimate beneficiary of fund investors that may be located outside Europe.
- This report represents the third in a series of TABB Group reports examining the use of US listed equity options by European investors. The first report, “European Demand for US Listed Options,” was published in 2011, with the second report “European Interest in US Options: Factors Driving Renewed Demand” published in 2013. Both reports are available for download at [www.optionseducation.org](http://www.optionseducation.org).

# The interview set included 31 participants from a cross section of US and European firms active in the US listed options industry

- The firms in the sample included broker-dealers, market makers, retail brokers, data providers, execution management system providers, US options exchanges, hedge funds and traditional asset managers.
- Respondents were geographically dispersed and included firms based in the US, UK and continental Europe.
- The majority of interviews were conducted with individuals in the UK and continental Europe, representing 61% of the total with individuals in the US accounting for the remaining 39%.



Source: TABB Group Interviews

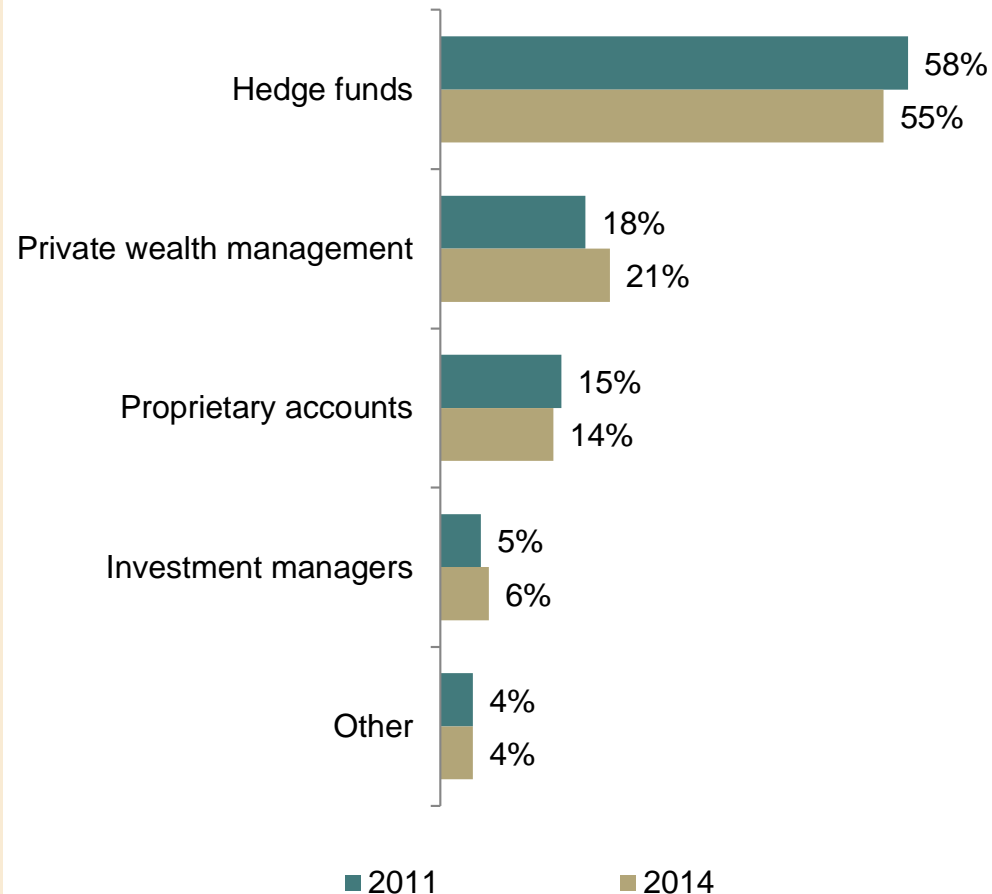
# Key Findings



# European investors accounted for an estimated 9% of total US listed options trading volume in 2013

- Hedge funds domiciled in Europe represent the largest source of demand for US listed options.
  - Demand has declined since 2011 as the focus of strategies has shifted away from the US.
  - Lower correlation has hit flows.
- Private wealth accounts are a growing source of order flow.
  - High levels of US equity exposure have risen in value.
  - Focus on overwriting and risk management has led to rising activity.
- Proprietary accounts and sell-side desks remain active users but are shifting activity to the US.
  - Need to access local expertise and operate during US hours drives decision to establish US presence.
- Traditional asset managers represent a small but growing proportion of activity.
  - Increasing adoption amid greater focus on reducing risk and improving returns.
  - Deep liquidity is a powerful factor driving demand.
- Other investor segments including retail and corporations represent a small amount of activity.
  - Retail brokers have identified and are targeting growing demand from active traders.
  - Challenged to shift demand away from local instruments.

## Proportion of US Listed Options Order Flow Executed in Europe

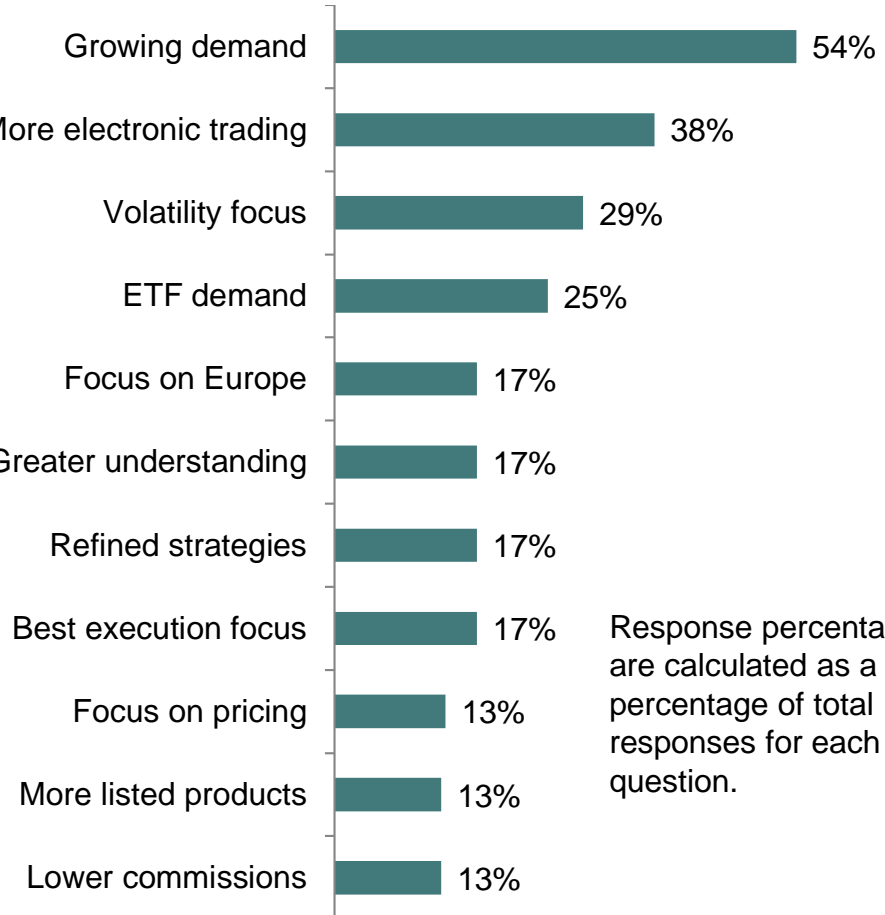


Source: TABB Group estimates



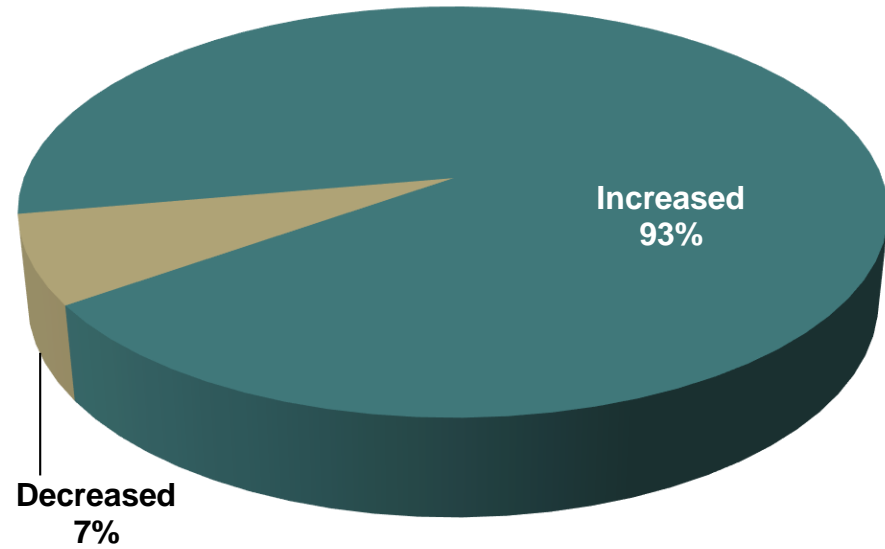
# European investors actively embrace US options across multiple strategies; deep liquidity, transparency and electronic access support growing demand

What are the biggest changes in US options trading activity originating from Europe?



- Brokers report rising demand for US listed options.
- Electronic access growing in importance.
- Strong growth and future demand forecast for hedging with ETF and volatility products.
- Countering demand is the de-emphasis on US exposure from macro strategies as European equity markets recover.

How has demand for US options products changed since 2011?



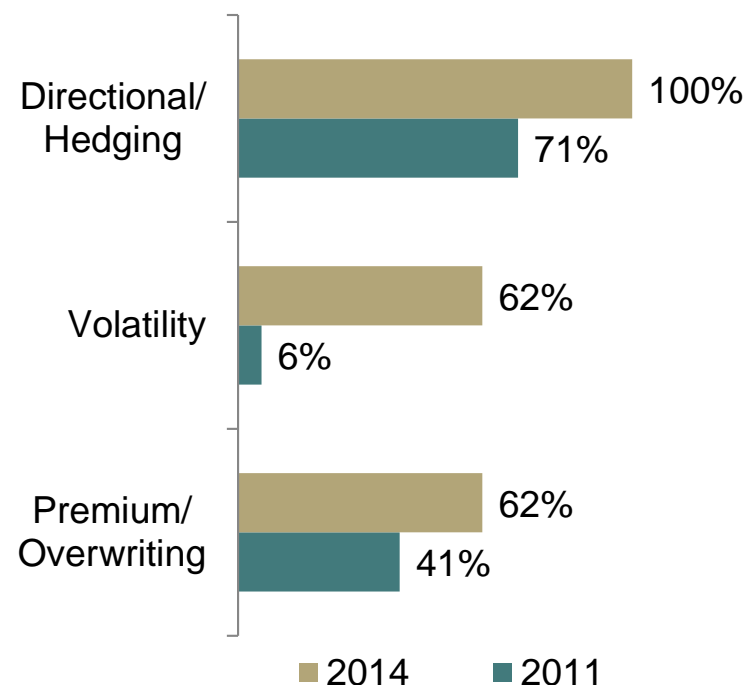
Response percentages are calculated as a percentage of total responses for each question.

Source: TABB Group Interviews

# European investors are becoming more sophisticated in how they use options; directional and volatility strategies are expanding across the user base

- European institutional investors are expanding the diversity of options strategies.
  - Asset managers and pension funds using more options in directional and hedging strategies.
  - Private wealth managers implementing more sophisticated strategies.
- There is rising interest from European retail investors to trade US options.
  - Retail brokers improving electronic access to meet rising client interest.
  - Transparency and ease of access driving demand
- Volatility strategies using US listed options and futures products are becoming more popular.
  - Regulation forcing investors to use listed rather than OTC products.
- Hedging strategies continue to focus on ETF and sector index products.
  - Sector hedging strategies rely on liquid products to ensure ability to exit a position.
- Declining correlation is raising investor focus on single stock options.
  - Directional strategies focusing on corporate actions.
  - Short term expirations a popular tool.

What types of strategies are European investors employing with US equity options?



Source: TABB Group Interviews

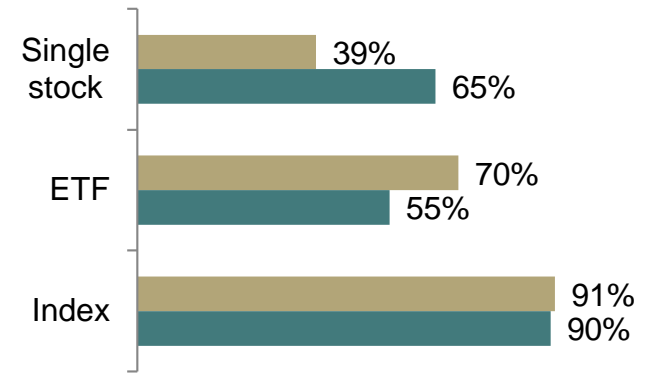
*“Correlations between indices and single names were fairly high and that is changing, with more focus on single stock options especially around earnings.”*  
-US Broker



# The use of ETF options has become more important in hedging strategies while declining correlation is shifting focus to single stock options

- In 2011, European investors were just beginning to see opportunities in ETF products.
  - ETF growth potential remains bright.
  - Sector-specific hedging strategies driving adoption.
- Volatility exposure is becoming a larger focus.
- Clients are leveraging technology to support multi-asset trading strategies.
- Falling correlations will favor use of single stock options.

## What Types of Options Are Currently Being Traded?

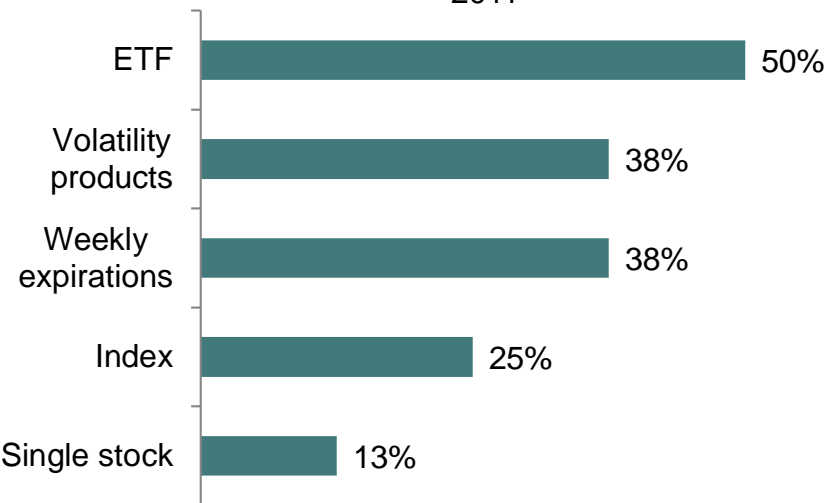


Source: TABB Group Interviews

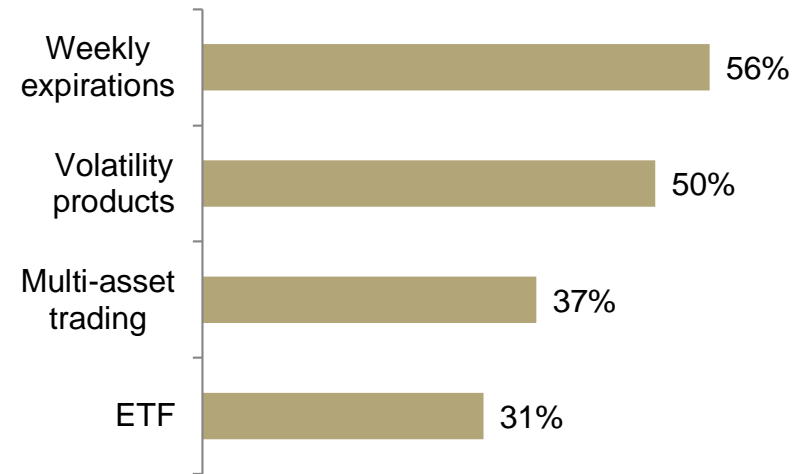
■ 2014 ■ 2011

## Where Do You See the Greatest Growth Potential?

2011



2014



Source: TABB Group Interviews

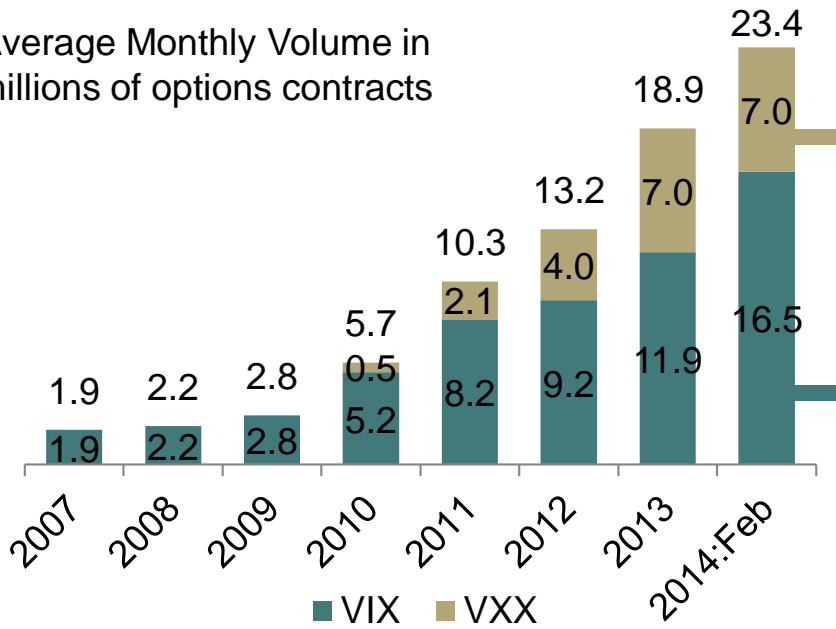
Source: TABB Group Interviews

# Rising demand for listed volatility products has accelerated as regulators push for centrally-cleared products

- The use of US listed options as part of volatility strategies has grown considerably.
  - Increasing liquidity in listed markets is attracting greater interest.
  - OTC volatility products are important but investor preference is shifting toward listed products.
- The two most active volatility options represent \$1.5 billion in daily notional value traded.
  - High volume days exceed \$5 billion notional traded.

*“Accounts that like to trade volatility love the US options markets due to the deep liquidity in the volatility products.”*  
 -European Broker

Average Monthly Volume in millions of options contracts



**Barclays iPath S&P 500 VIX ST Futures ETN (VXX)**

- Open interest: 4.4 million contracts
- Average daily trading volume: 175,000
- Average daily notional value traded: \$265M

**CBOE Volatility Index® (VIX)**

- Open interest : 10.1 million contracts
- Average daily trading volume in 2014: 412,000
- Average daily notional value traded: \$1.2B

Source: CBOE, OCC, TABB Group estimates

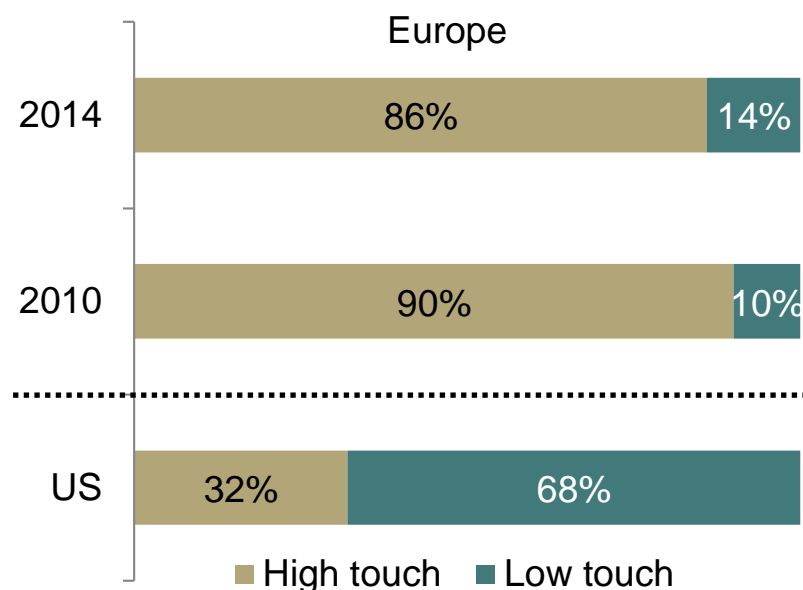
# European investors are still using the phone to trade larger orders; adoption of electronic trading channels for smaller orders is growing

- Large institutional investors generally execute by phone to access capital and get market color.
  - Small transactions are transitioning to low touch.
- Financial Information eXchange (FIX) connections are being adopted broadly to meet compliance burdens.
  - Best execution documentation for high touch trades driving demand.
- Direct market access (DMA ) support for options is not a focus; regional diversity and number of accounts dilutes direct efforts.
  - Cost to promote platforms is prohibitive.
  - Incremental upside for front-end vendors is low due to lack of existing trading constituency.
  - Brokers and data vendor efforts are more successful due to sales presence and client relationships.
- Smaller funds are embracing electronic tools to execute smaller orders.
  - Workflow efficiencies and lower commissions are driving adoption.

*“European clients are using low touch channels to trade. They are becoming more comfortable trading electronically in US markets.”*

*-US Broker*

What order channels do European investors use to access US options markets?



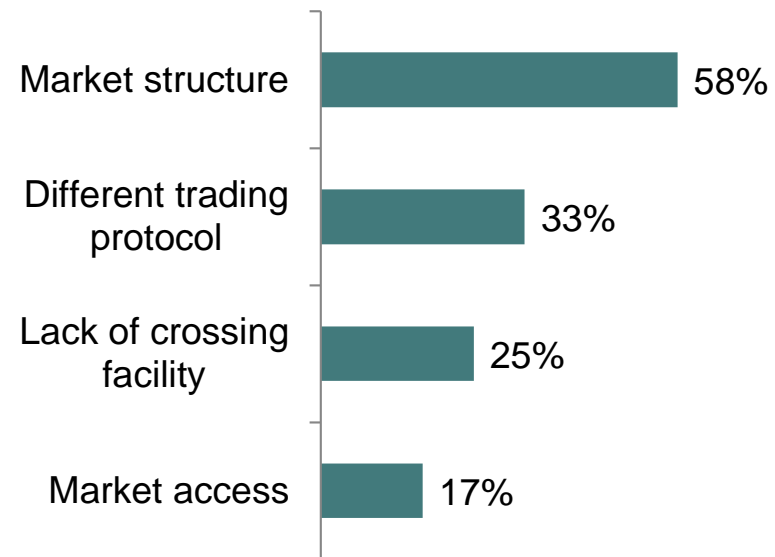
Source: TABB Group estimates

# Lack of understanding of US market structure and trading protocols create the biggest barrier for European institutional investors

- Understanding of US options market structure has improved in recent years but the fragmented exchange landscape is confusing.
  - Investors are using more complex strategies and testing low touch order channels.
  - Complex exchange pricing schema inhibits low touch electronic trading for less sophisticated investors.
- Inexperienced users look to brokers to support operational complexities that differ from European markets.
  - Lack of block crossing capabilities fosters use of broker capital.
  - Inability to delta hedge as part of execution incurs leg risk for clients trading high touch.
- Dedicated technology to support options trading is not broadly available.
  - Large firms with multi-asset capabilities will invest if magnitude of activity supports need.
  - Smaller firms do not have technological resources to support efficient access.

*“One thing we can do significantly better is to educate European accounts on market structure and the amount of liquidity that is available in US markets.”*  
-US Broker

What is the biggest challenge facing buy side accounts trading US options?



Source: TABB Group Interviews

# Although regulatory initiatives do not specifically target US options instruments, many have an ancillary impact on demand

- Direct European regulation has very little negative impact on trading of US options by European investors.
- Adhering to global patchwork by creating compliance programs raises costs for all market participants.
- European regulations and reporting requirements are resulting in exponential rise in compliance costs.
- Regulations designed to increase transparency and reduce risk are shifting demand away from OTC products to listed instruments.
- US regulations intended to address fraud and improve reporting are shifting demand away from US assets.

Initiative	Region	Intent	Impact	Impact on US listed options
Basel III	Global	Improve capital adequacy of banks by reducing risk exposures	Lowers risk capital to facilitate transactions in listed options and OTC derivatives	Will drive greater demand for listed options
Foreign Account Tax Compliance Act (FATCA)	US	Identify US financial assets held in foreign accounts to reduce tax evasion	Brokerage firms required to request detailed identifying information from clients trading in US instruments	Reduces demand from clients not wanting to report financial information to US regulators
Markets in Financial Instruments Directive (MiFID)	Europe	Harmonize regulation across European Economic Area	Increase oversight; allows cross border operation; increases transparency and mandates best execution requirements	Minimal but raises overall compliance spend for brokers and investment firms
European Market Infrastructure Regulation (EMIR)	Europe	Increase the safety of the OTC derivatives market in Europe	Requires standardized OTC derivatives contracts be traded on exchanges, centrally cleared and reported	Minimal but raises overall compliance spend for brokers and investment firms
Camp Proposal	US	Change tax treatment of options transactions	Premium and hedging options strategies become taxable events	Significant negative impact on US options market liquidity
Financial Transaction Tax	Europe	Raise revenues	Raises the cost of trading, especially for high volume trading accounts	Will drive trading interest into non-impacted markets and instruments
UK Bribery Act	UK	Eliminate inappropriate payments intended to solicit business	Requires firms to institute internal procedures to demonstrate compliance with the Act	Minimal but raises overall compliance spend for brokers and investment firms



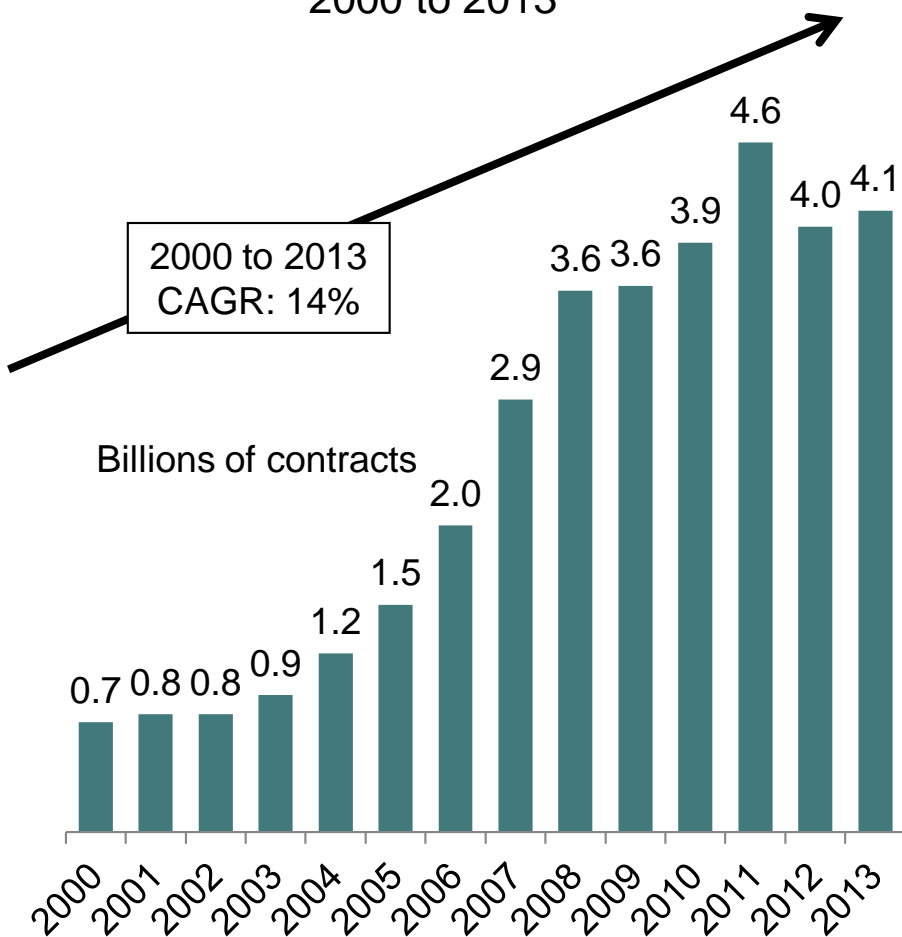
# US Options Market Structure





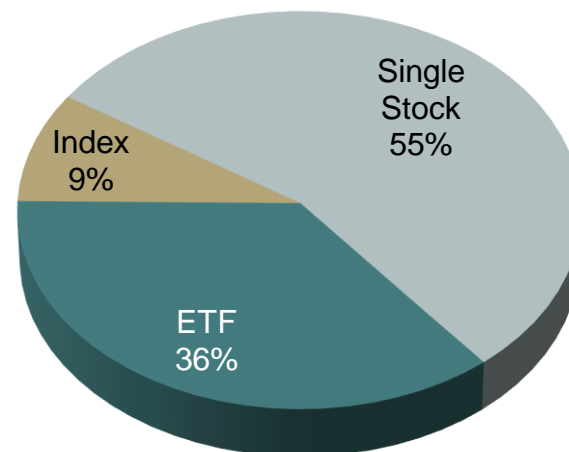
# US options markets volume has seen strong growth since 2000, with trading increasing 2.7% in 2013, the second highest annual level on record

Annual US Options Trading Volume  
2000 to 2013



- US options volume increased 2.7% in 2013, with the 2000 to 2013 compound annual growth rate (CAGR) reaching 14%.
- Strong trading in index and ETF products.
  - Political uncertainty in the second half of the year propelled use of index products.
  - Hedging strategies surfaced in second half of year as investors protected gains.
- Volume in options with short term expirations contributed to the increase.
  - Weeklies accounted for 19% of total in 2013, up from 13% in 2012.

Share of 2013 volume by type of option



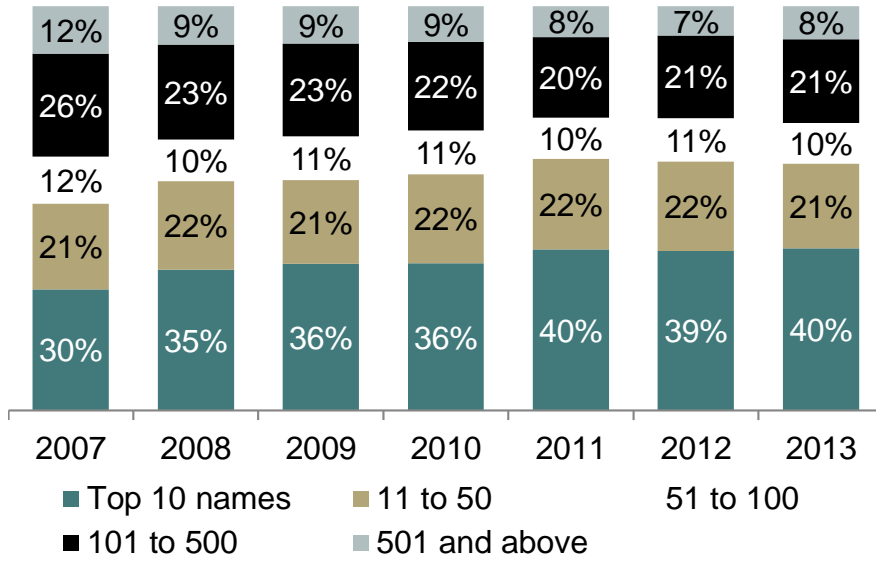
Source: OCC

Source: OCC

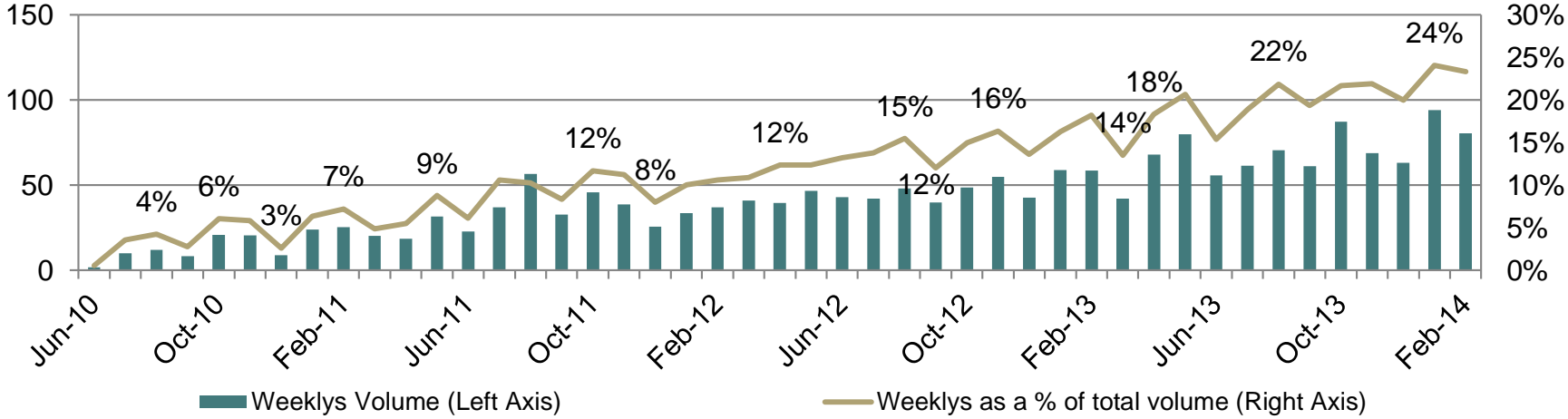
# Liquidity in US options markets is highly concentrated in large capitalization names with the majority of trading occurring in short term expirations

- Liquidity in US option markets is concentrated, with 71% of trading occurring in the top 100 names.
  - Index and ETF options dominate most active symbols.
  - Most active single stock names include large capitalization companies and story stocks.
- Volume in short term expirations account for the majority of trading.
  - Weekly expirations accounted for 24% of volume in January 2014 (July 2010 = 4%).
  - Options with weekly expirations are available for 340 symbols.

Concentration of Liquidity by Volume Tier



Weekly Expiration Volume



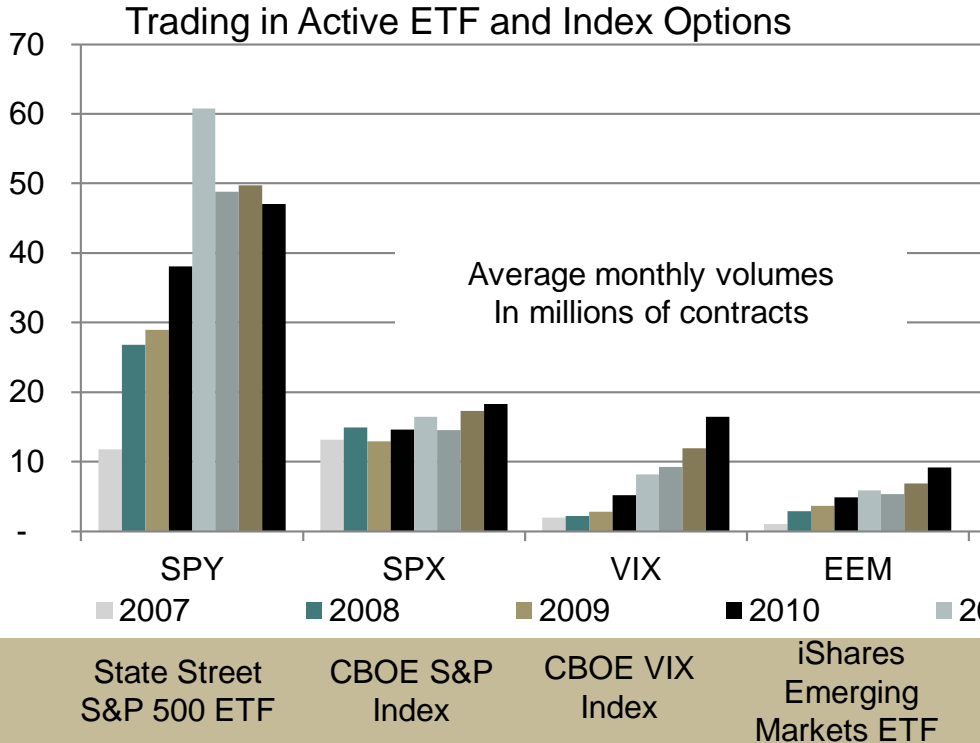
Source: OCC, Hanweck Associates, TABB Group estimates

# Index and ETF options are increasingly favored tools for hedging and directional strategies

- Index and ETF options account for a growing share of total volume.
  - 7 of top 10 most actively traded options are index or ETF products.
  - Represented 81% of total top 10 volume.
  - Favored product for investors seeking to hedge sector exposure.

## Top Ten Options Traded by Total Volume

Rank	Symbol	Volume	
		2013	2012
1	SPY	596,304,426	585,945,819
2	SPX	207,488,939	174,457,138
3	VIX	142,999,960	110,739,796
4	IWM	134,857,623	124,525,874
5	AAPL	133,565,372	191,865,563
6	QQQ	94,302,472	113,719,614
7	FB	87,221,967	33,598,749
8	VXX	83,532,121	47,710,104
9	BAC	83,119,984	105,062,041
10	EEM	82,452,022	64,284,148

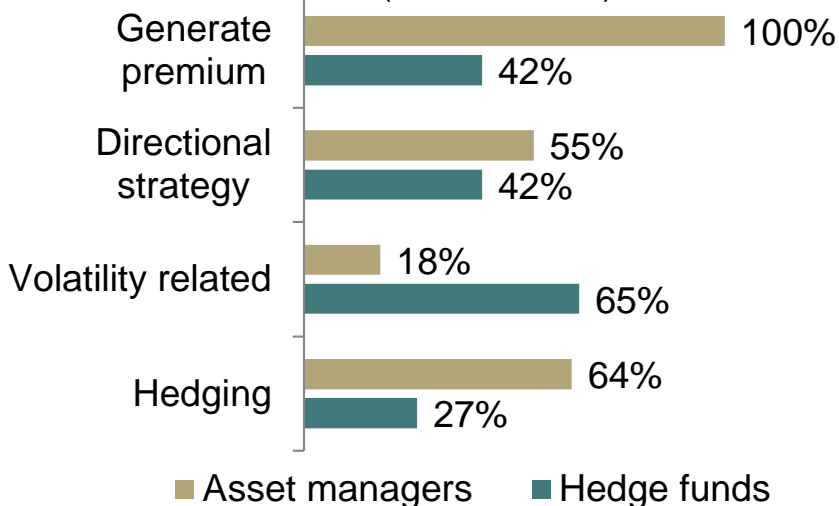


Source: OCC

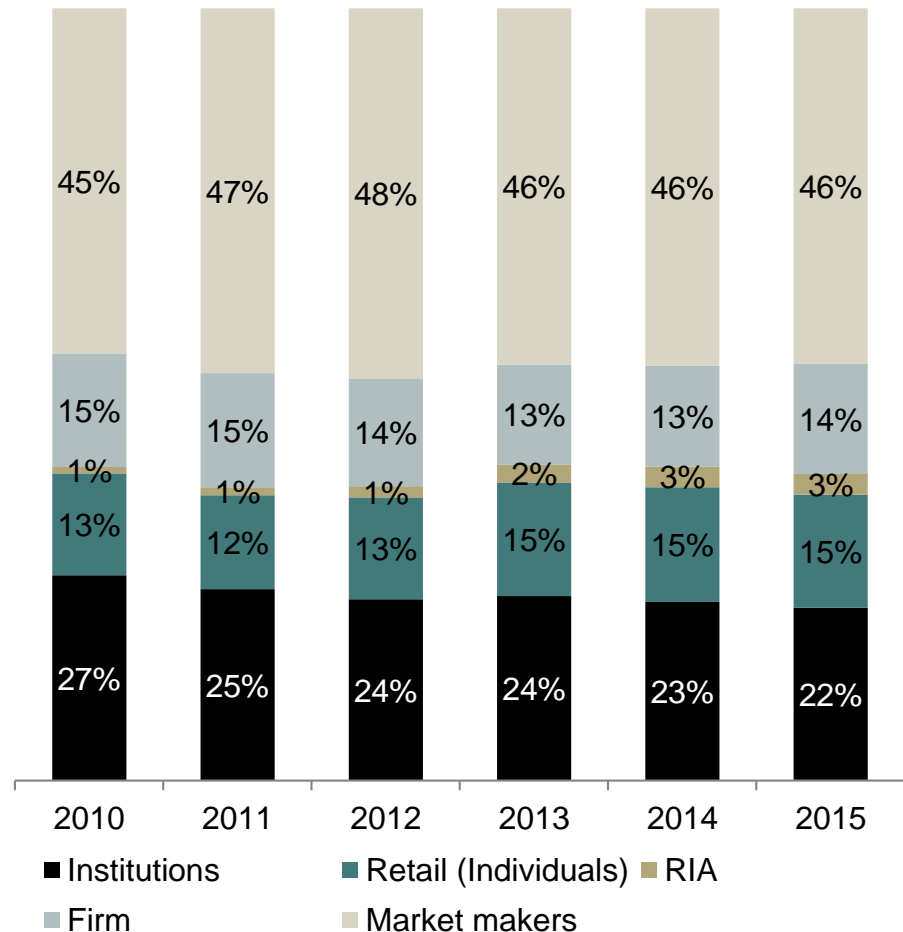
# Customer order flow accounts for 40% of all US listed options trading with market makers quoting two-sided markets across all options series

- Customer order flow accounts for 40% of all trading in US listed options markets<sup>(1)</sup>.
  - Active institutional participants include hedge funds and proprietary trading accounts.
  - Asset managers are expanding their activity.
- Retail investors provide significant order flow in US options markets.
  - Account for 15% of total daily cleared volume.
  - Most trading executed through electronic tools.

Why do you trade options?  
(US investors)



Trading in US Options Markets  
by Type of Account<sup>(1)</sup>



(1) Updated March 2016 to include revised estimates.

Source: TABB Group estimates, OCC



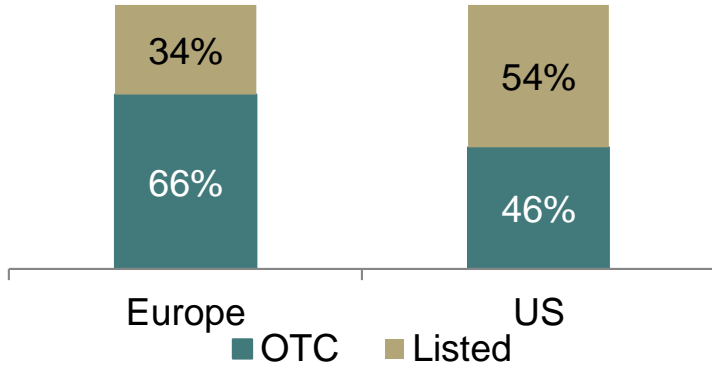
# Market Structure Comparison



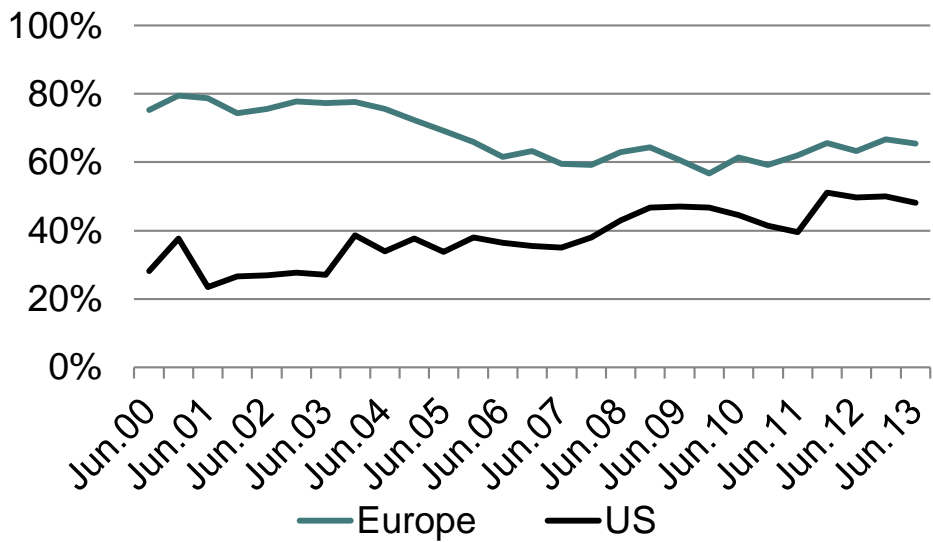
# European market's limited listed liquidity and preferred trading procedures encourage use of European OTC instruments

- Trading preferences of European institutional investors favor trading “in the dark”.
  - European block crossing mechanisms favor upstairs trading.
  - Investors are comfortable trading in OTC markets.
  - Lower cost and easier trading.
- Regulatory pressure to move OTC trading into central clearing mechanisms will drive listed adoption.
  - Financial crisis of 2008 caused investors to reevaluate credit of counterparties.
  - Financial stability has caused credit fears to recede.
- Limited liquidity in listed products forces investors to use brokers to provide liquidity.
  - Vertical clearing models inhibit liquidity.
  - Market structure deters quoting.

Proportion of Notional Trading Value OTC vs. Listed



Proportion of Notional Trading Value in OTC Instruments



*“European investors are used to a very different market fragmentation. In Europe it is geographic whereas in the US it is fragmented at the exchange level.”*  
 -European investment manager

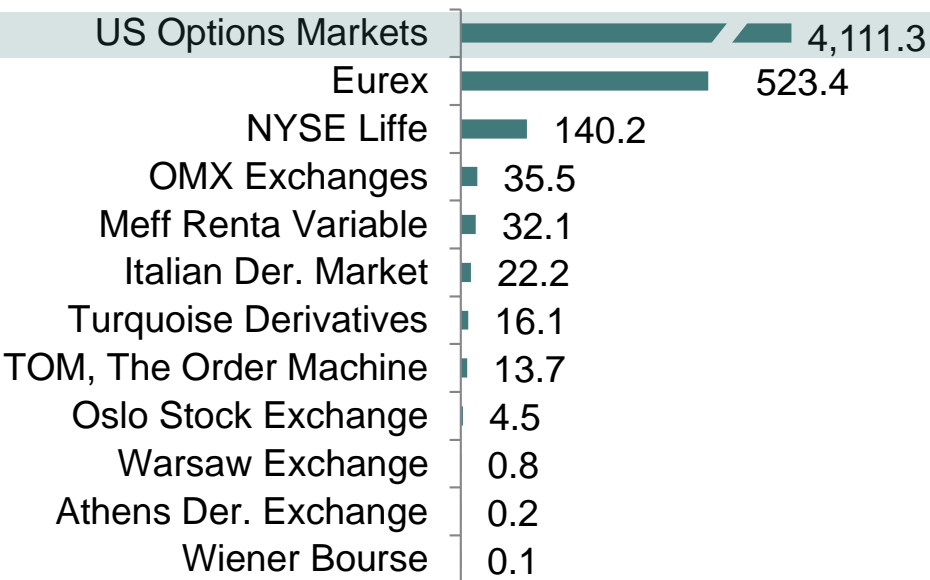
Source: Bank for International Settlements



# Vertical clearing infrastructure at European options exchanges raises the cost of trading and creates isolated pools of liquidity

- European equity options trading is fragmented by country and clearing facility.
- Lack of fungibility among clearing houses inhibits market growth and liquidity creation.
- Fragmented clearing structure impedes capital allocation and reduces margin efficiencies.

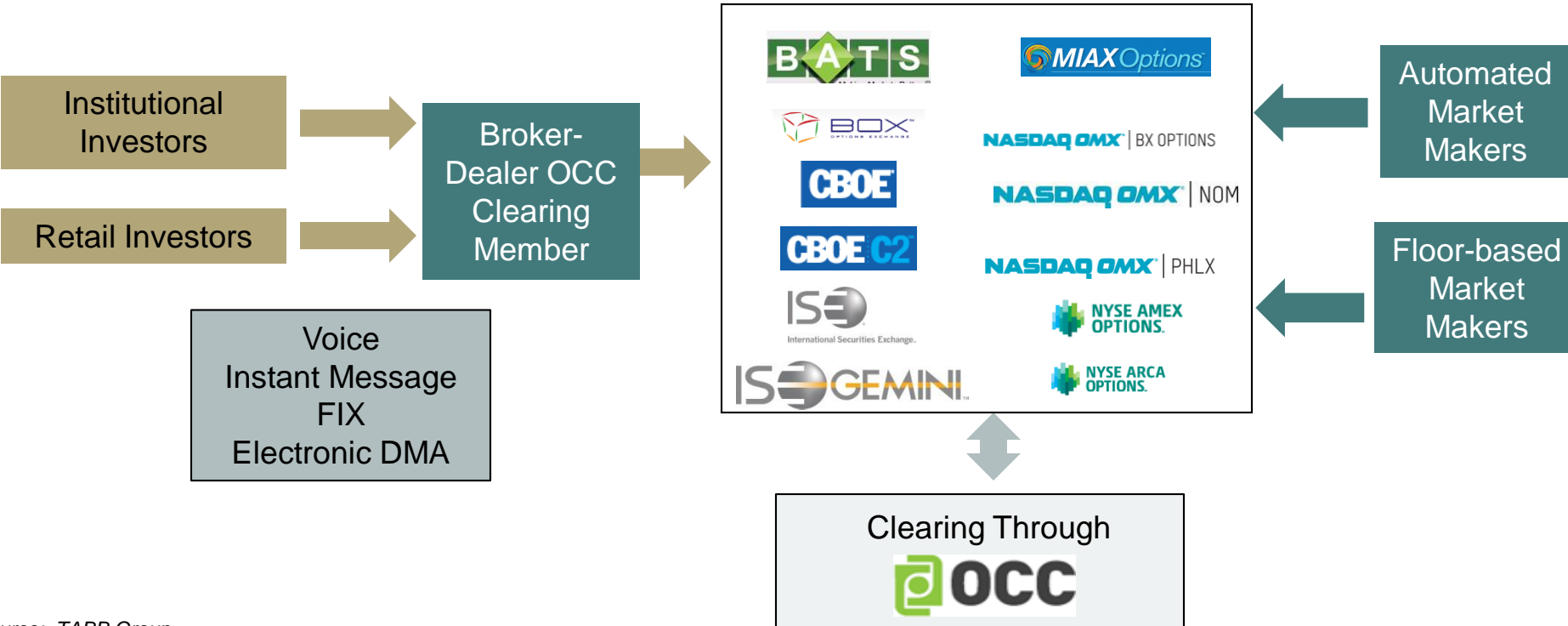
Equity Options Trading Volume by Selected Exchanges in 2013  
(Millions of contracts)



Source: Futures Industry Association, Exchanges

Exchange	Country/Region	Clearinghouse
Eurex	Germany	Eurex Clearing
NYSE Liffe	UK	ICE Clear Europe
OMX Exchanges	Nordic/Baltic	NASDAQ OMX Clearing
Meff Renta Variable	Spain	BME Clearing
Italian Derivatives Market	Italy	Cassa di Compensazione e Garanzia
Turquoise Derivatives	United Kingdom	LCH Clearnet
TOM, The Order Machine	Holland	Holland Clearing House
Oslo Stock Exchange	Norway	Oslo Clearing, LCH Clearnet
Warsaw Stock Exchange	Poland	KDPW_CCP Clearing House
Athens Derivatives Exchange	Greece	Athex Clear
Wiener Bourse	Austria	CCP Austria
Budapest Stock Exchange	Hungary	Hungary Central Clearing House and Depository

# US options trading is fragmented across 12 exchanges but its horizontal clearing structure provides margin efficiencies and concentrated liquidity



Source: TABB Group

- US broker-dealers spend significant resources on technology to support access to all exchanges.
  - Smart order routing allows brokers to achieve best execution for clients.
  - Burden of exchange fee complexity is managed by brokers.
- Horizontal clearing allows investors to direct order flow to exchanges with most advantageous trading model.
  - Order flow is primarily directed at available liquidity.
  - Low latency strategies prefer price/time priority exchanges.
  - More passive retail flow generally routed to pro-rata exchanges.

# Profile of European Investment



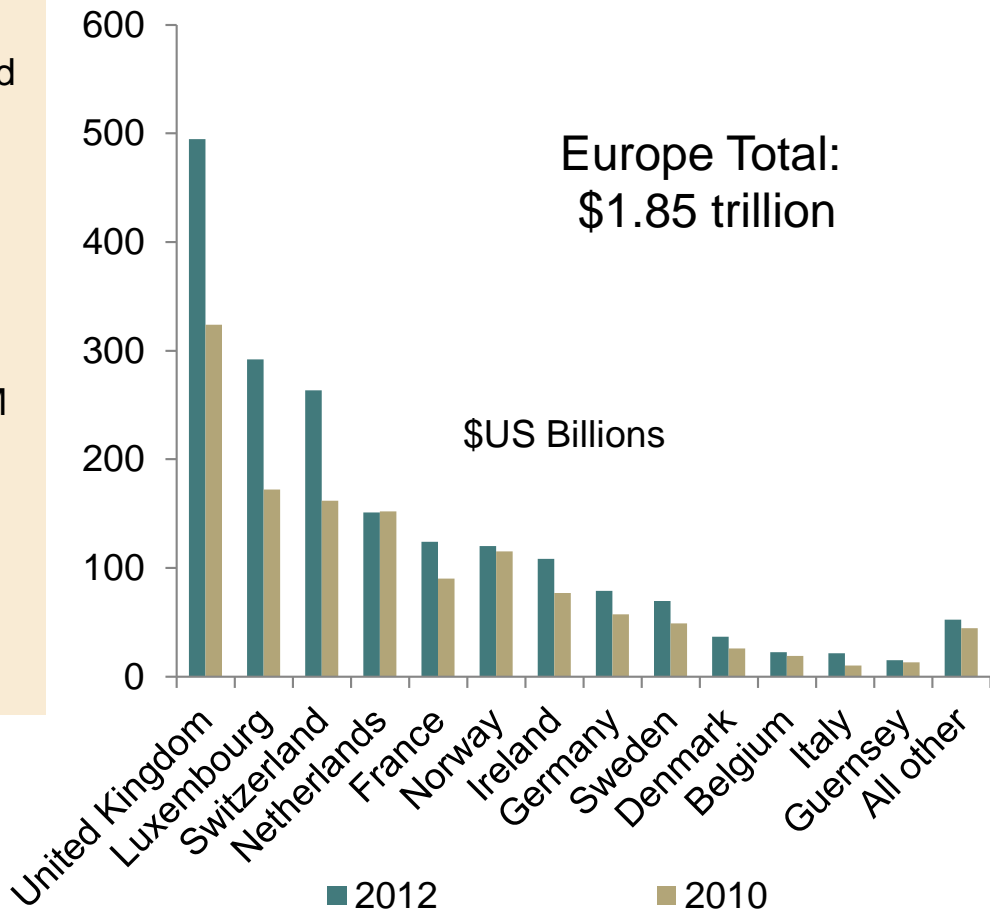


# US equity assets held by European investors surged in 2012 as new flows and equity valuations grew in favored high net worth and hedge fund locations

- The total value of equity holdings increased across most countries in 2012 as strong US equity market performance increased valuations.
- Countries with large concentrations of hedge fund assets enjoyed the largest increases.
- Locations managing high net worth accounts experienced sharp growth.
- Order flow into US listed options generally originates from countries with high levels of US equity AUM.
- Locations with large amounts of hedge fund AUM (UK, Nordic region, Switzerland and the Netherlands) account for the majority of activity.
- Private wealth accounts in Switzerland and Luxembourg with large US equity AUM use options for risk management and premium generation strategies.

*“It will be interesting to see the data on capital flows over the last six months as I expect there has been a significant uptick in inflows into European products.”*  
 -European investment manager

Value of US Equity Holdings by Country (June 2012\*)

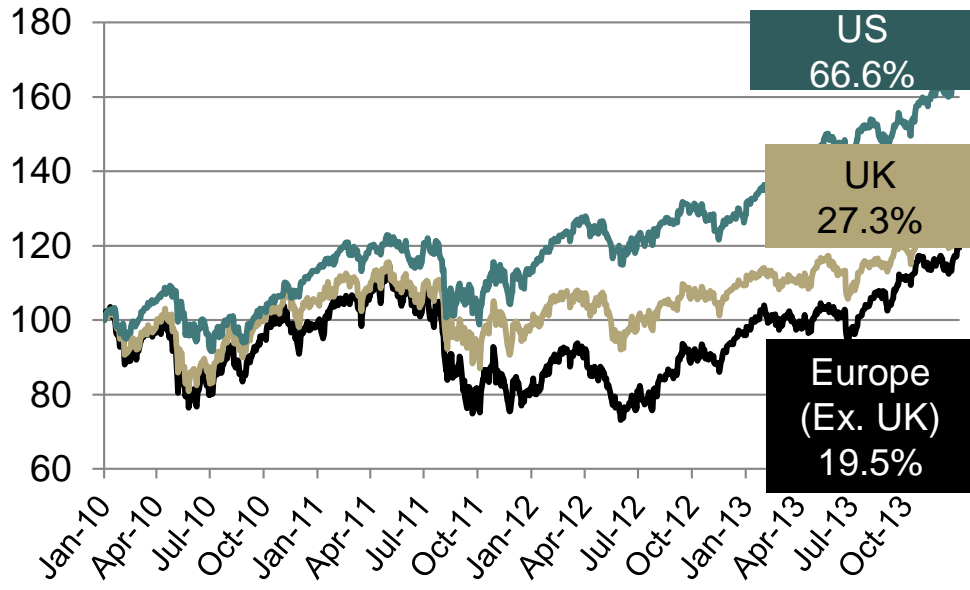


Source: US Treasury Department  
 \* Most recent data available

# The magnitude of European investment in US equity assets fell in 2013 as returns boosted valuations and global allocations shifted to other regions

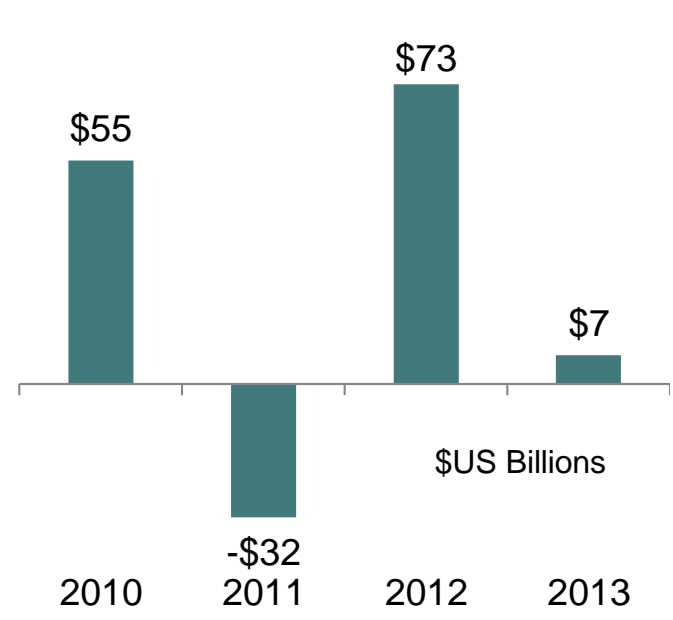
- European investors significantly reduced the value of investment into US equity securities in 2013.
  - Rising US equity valuations increased total valuations, resulting in profit taking and more hedging activities
  - Net 2013 US equity flows totaled \$7 billion, one tenth of 2012 level.
  - Economic recovery in Europe is attracting rising investor interest from international and European investors.
  - However, global economic and political uncertainty will drive flows back to the US
  - Exposure to dollar-denominated assets will climb as investors execute a flight to safety.
  - Volatility product adoption will increase as investors seek uncorrelated hedges.

Equity Index Market Returns  
Jan-10 to Dec-14



Source: MSCI

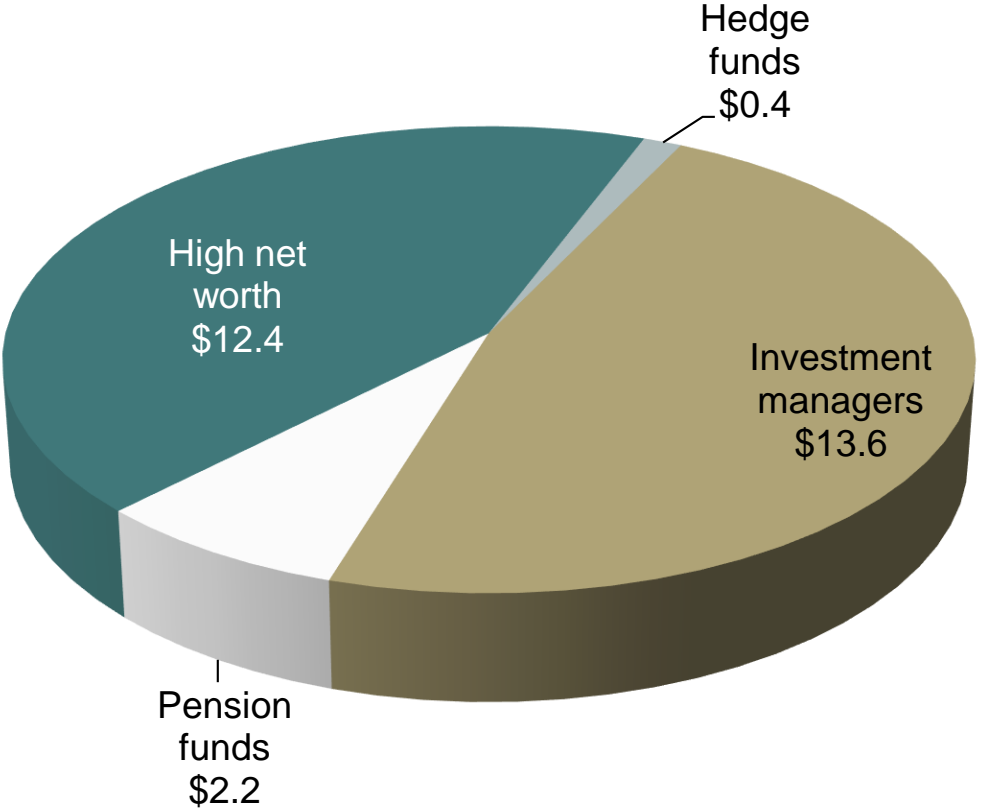
European Purchases of US Equity Securities  
Net Annual Totals



Source: US Treasury Department

# European institutional investors represent a large pool of capital with the potential to expand the use of listed derivatives in equity-related strategies

Selected European Institutional Investor Sectors  
By Assets Under Management (AuM)  
2013



- Investment funds saw a 8.9% increase in assets under management in 2013
- Undertakings for Collective Investment in Transferable Securities Directives (UCITs) funds accounted for \$9.5 trillion in AuM, up 9% from 2012.
- Non-UCITs AuM increased by 8.8% to \$4.0 trillion.
- High net worth AuM reached an estimated \$12.4 trillion in 2013 as rising equity market valuations increased valuations by 13.8% from 2012.
  - Concentration of high net worth accounts in Germany, UK, France and Switzerland.
- Pension fund assets are concentrated in the Nordic region.
  - Investment strategies are driven by asset/liability relationships and focus on managing risk.

All amounts in \$US Trillions  
Source: OECD, EFAMA, Capgemini, TABB Group estimates



# Conclusions



# Conclusions

- TABB Group estimates 9% of US listed options trading volume originates from investors domiciled in the UK and continental Europe.
  - European investors turn to US options markets to hedge exposures, with significant interest in index and ETF products in times of market volatility.
  - Investors will continue to be attracted to the competitive US market structure, deep liquidity and transparency.
- European-based hedge funds account for the largest share of demand, representing 55% of total European order flow.
  - Private wealth managers are using more options in their strategies, accounting for 21% of total order flow, as US equity assets under management have risen in value.
  - Proprietary trading firms accounted for 14% of total order flow, with investment managers accounting for 6% of total.
- European investor strategies are becoming more diverse and sophisticated with an increased focus on volatility strategies.
  - Institutional investors are becoming more sophisticated in how they use US listed options, with multi-legged strategies becoming increasingly common.
  - Low touch trading will continue to gain in importance, especially for smaller-sized orders originating from the retail and private wealth community.