



European Demand for US Listed Equity Options

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Executive Summary

- European investors believe US equity options markets are liquid and transparent, and deliver unparalleled execution quality.
- European investors already account for an estimated 10% of US listed equity options trading activity.
- TABB expects continued demand for US options from European institutional investors because of their broad exposure to US equities.
 - European holdings of US equity-related securities totals \$1.3 trillion, or 46% of total foreign ownership of US equities.
 - High-net worth European individuals hold total assets of \$10.2 trillion.
- However, there are barriers to trading US listed options in Europe.
 - Internal workflows can create barriers to trading.
 - Unfamiliarity with the trading process and the US options market structure.

Executive Summary (cont.)

- Investor education is key to expanding demand for US listed options.
 - Raise awareness of options strategies.
 - Explain the nuances of its market structure.
- European firms using high volume, quantitative trading strategies have moved trading operations to US locations.
 - Strategies require low-latency access and closer proximity to market centers.
 - Global hedge funds have transitioned trading in US options to US-based desks and conduct opportunistic trading out of European offices.

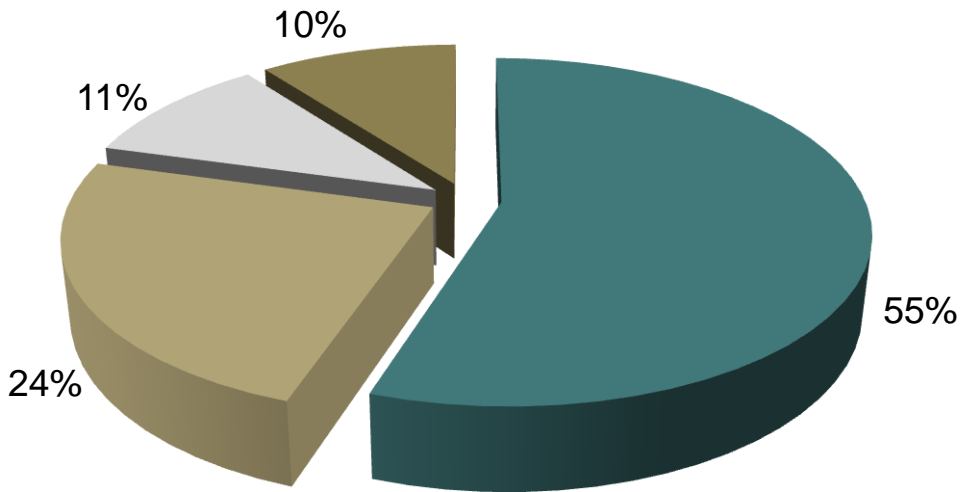
Study Methodology

- TABB Group interviewed 29 US and European individuals active in US listed options.
 - All interviews were conducted on an anonymous basis.
 - The interviews were conducted in June-July 2011 with a focus on the last 12 months.
 - European investor behavior in volatile market environments was not a focus of the study.
- Responses from the interviews are represented graphically within the report.
 - The interviews were conducted in an open-ended manner and often include multiple responses to a single question (hence, totals may be more than 100%).
- 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 the European region.

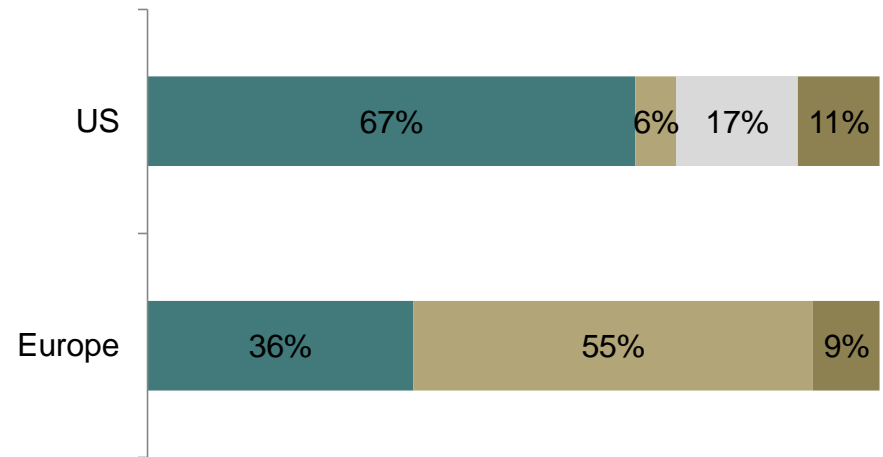
The interview set included 29 participants from a cross section of US and European firms active in the US listed options industry

- The firms in the sample included broker-dealers, market makers, 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 firms domiciled in the US representing 62% of the interviews with firms in the UK and continental Europe accounting for the remaining 38%.

Respondent Profiles



Regional Segmentation



■ Broker-Dealers

■ Institutional Investors

■ Exchanges

■ Vendors

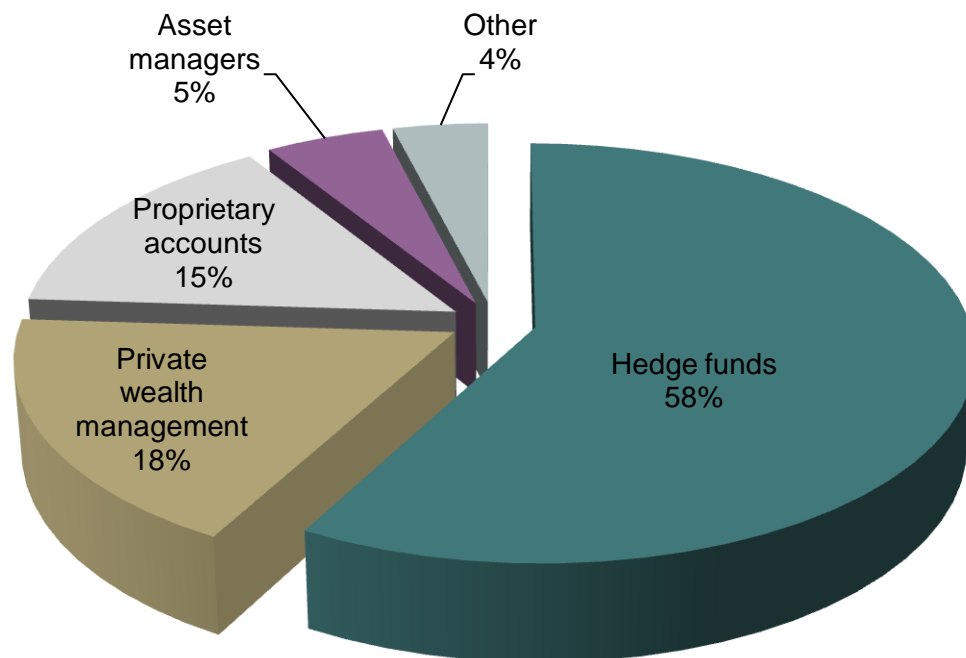
Key Findings



European investors account for an estimated 10% of total US listed options trading in the market environment of 2010

- Hedge funds domiciled in Europe represent the largest source of demand for US listed options.
 - Small- to medium-sized funds without a US presence.
 - Trading around corporate events and volatility.
- Private wealth accounts are a growing source of order flow.
 - High levels of US equity exposure.
 - Focus options strategies on risk management and premium generation.
- Proprietary accounts and sell-side desks remain active users.
 - Large European banks, proprietary firms and firms employing market making strategies.
 - However, these firms are moving operations to US for local expertise.
- Traditional asset managers represent a small portion of activity.
 - Growing adoption as they focus on reducing risk and improving returns.
 - New UCIT rules will increase demand.
- Other investor segments including retail and corporations represent a small amount of activity.
 - Little need to directly access products.
 - Focus on local instruments to achieve goals.

Proportion of US Listed Options Order Flow Originating from Europe

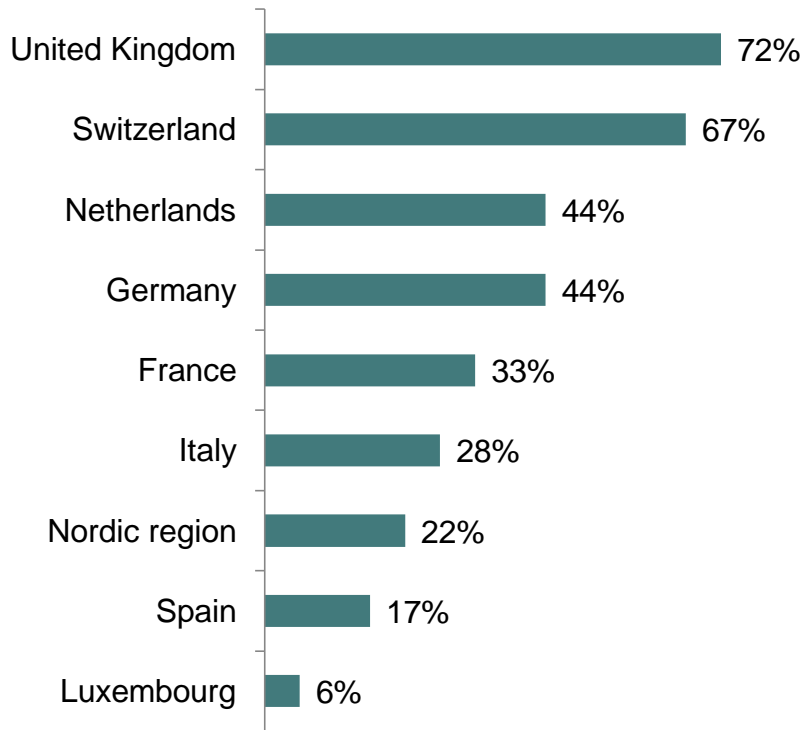


Source: TABB Group estimates

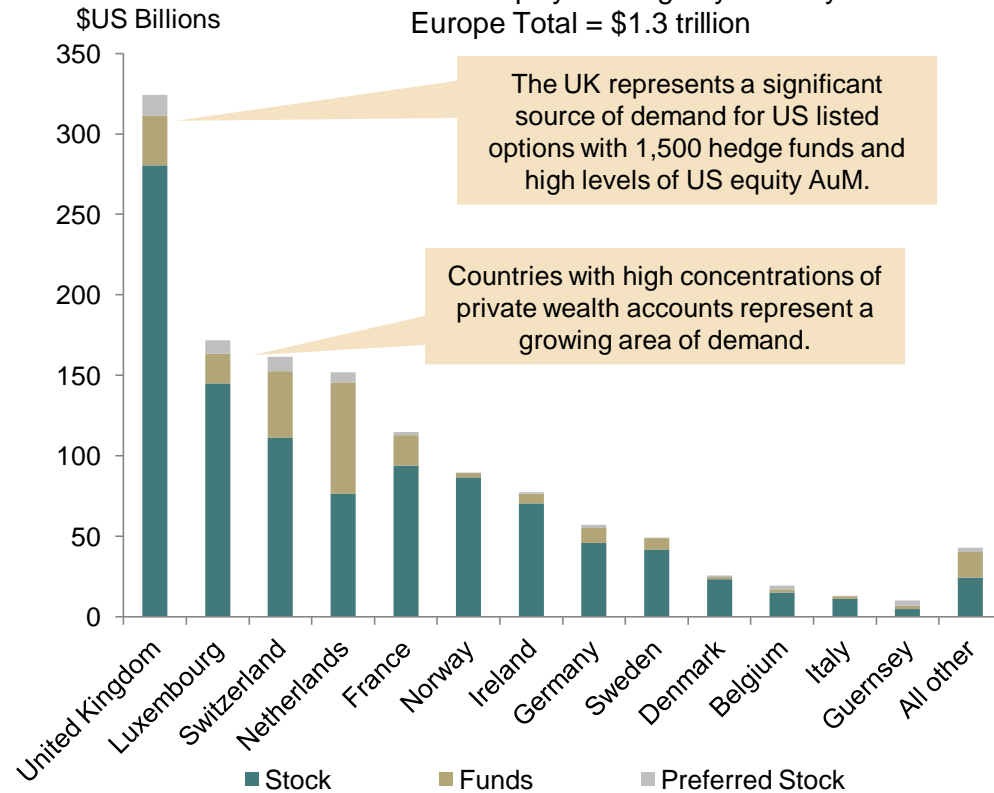
There is significant potential to expand demand for US listed options from countries with high levels of US equity investments

- 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 (the UK, Nordic region, Switzerland, and the Netherlands) account for the majority of activity.
- Private wealth accounts in Switzerland & Luxembourg with large US equity AuM use options for risk management and premium generation strategies.

Where Do You Believe US Equity Option Business Originates?



Value of US Equity Holdings by Country
Europe Total = \$1.3 trillion



Source: TABB Group Interviews

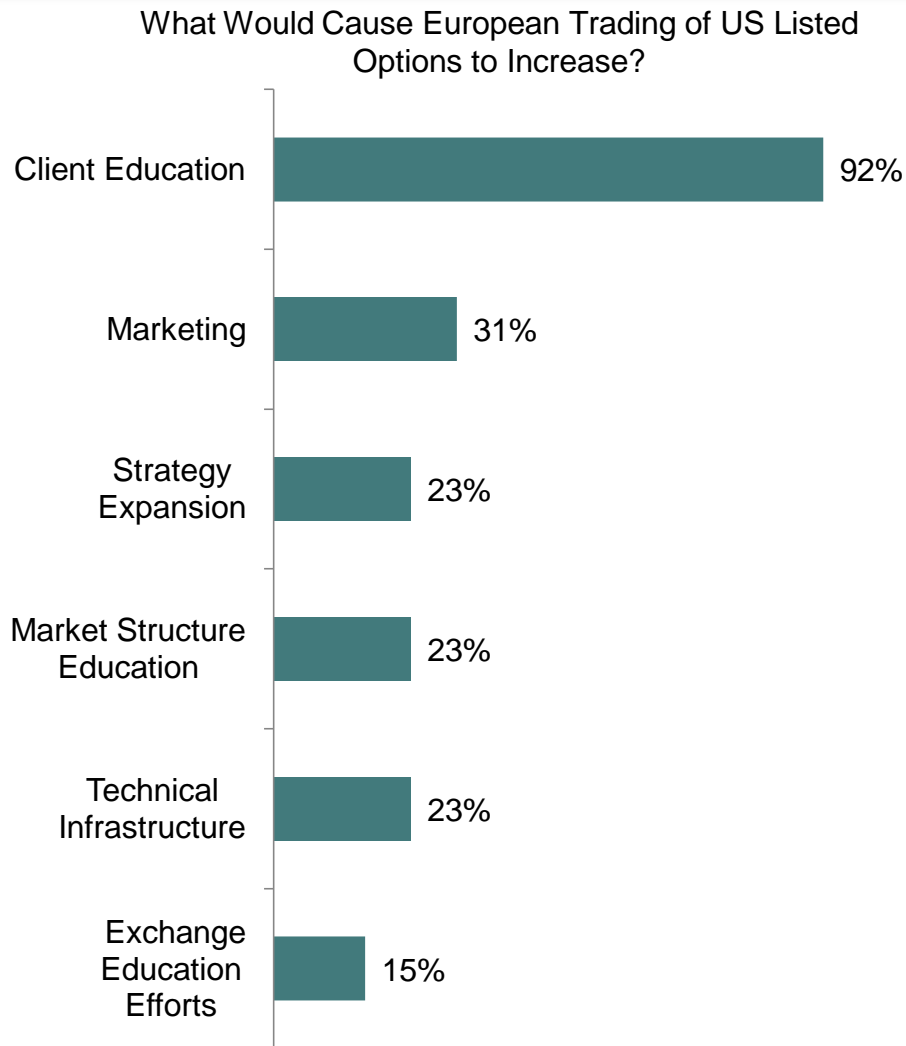
Source: US Treasury Department

Investor education to raise awareness and the role of options in trading strategies will increase European investor demand

- Expanding knowledge around options strategies will drive growth.
 - Educational programs in multiple languages.
 - Many accounts not aware of the ease of trading US options.
- There are relatively few coordinated sales efforts by firms active in Europe.
 - Brokerage firms market using existing sales relationships.
 - Exchanges have reduced foreign marketing activities.
- The complex exchange market structure negatively impacts demand.
 - Frequent exchange rule changes are confusing.
 - Investors would benefit from a consolidated approach of disseminating rule changes.

“Market structure is hard to understand and the differences in pricing make it somewhat confusing for European investors.”

-European Broker



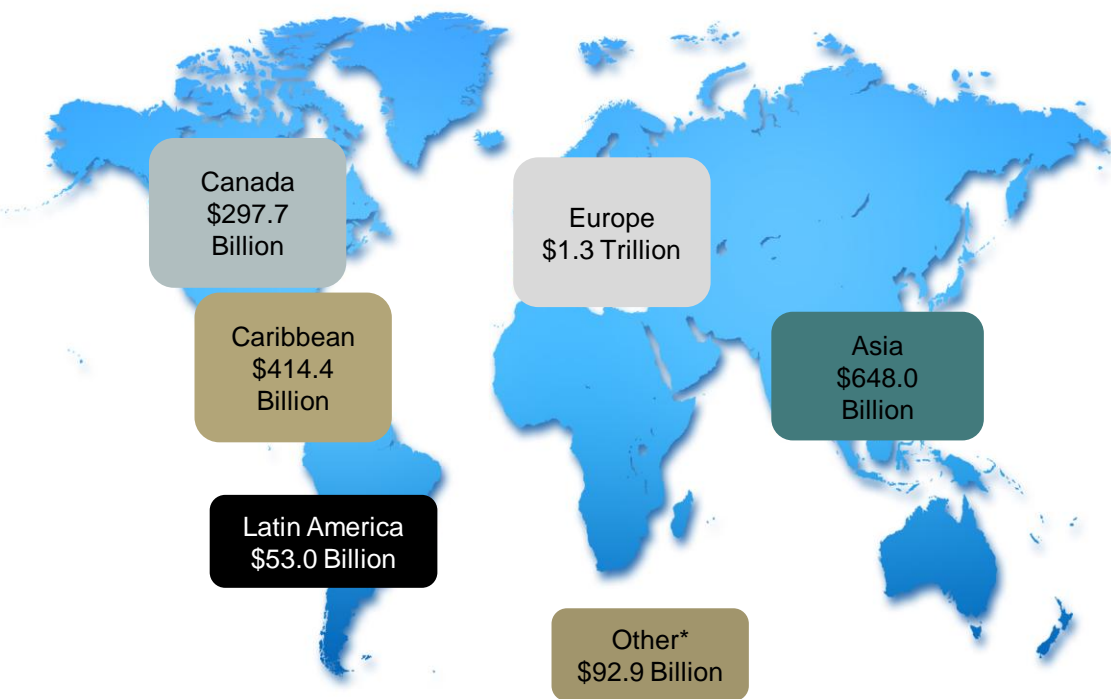
Source: TABB Group Interviews

European Opportunities

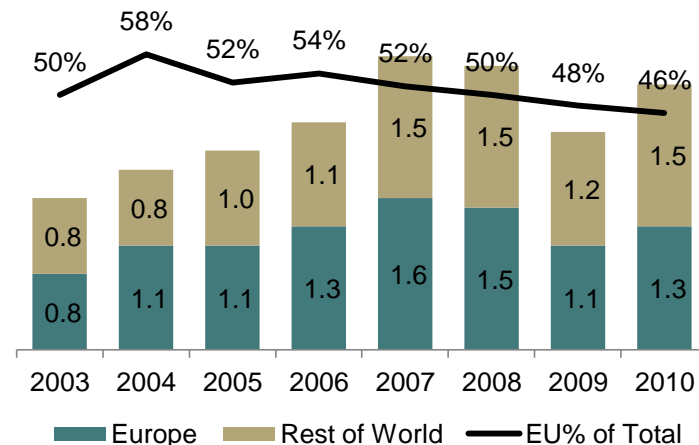


European investors account for 46% of total foreign holdings of US equities, nearly double the amount of the next largest region, Asia

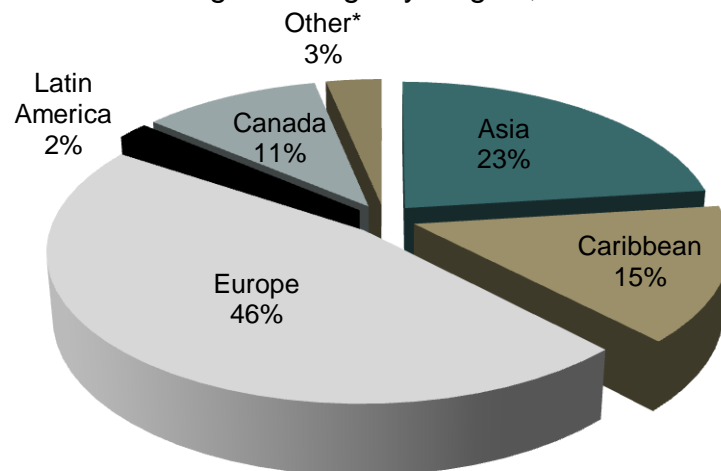
Regional Holdings of US Equity-Related Securities as of June 30, 2010



Foreign Holdings of US Equities, in USD Trillions



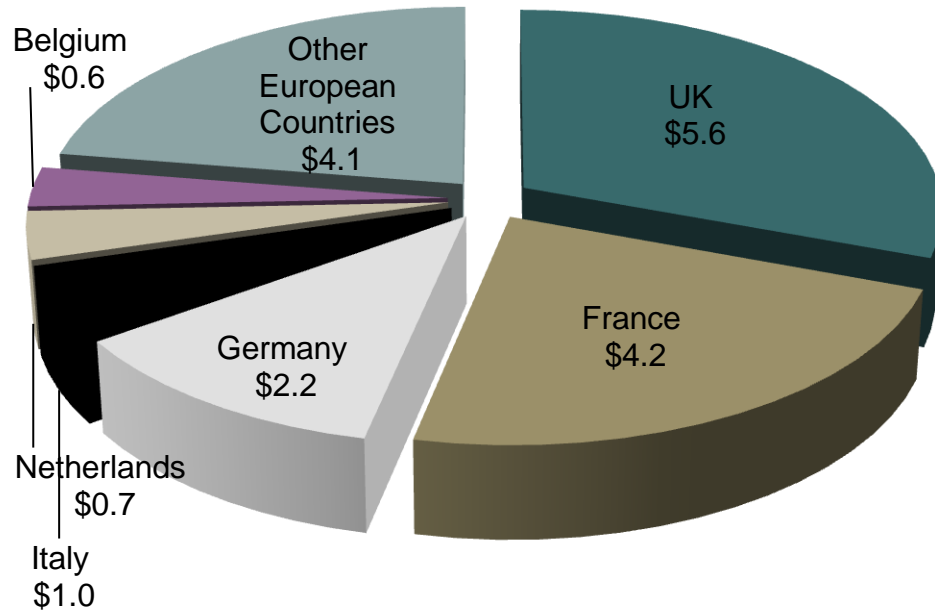
Foreign Holdings by Region, 2010



* Includes all other countries African oil countries, and international and regional organizations

European asset managers represent \$18.4 Trillion in AuM and are increasingly turning to derivatives for risk management and exposure

European Asset Managers
Total Assets Under Management = \$18.4 Trillion



All amounts in \$US Billions

Source: European Fund and Asset Management Association, TABB Group estimates

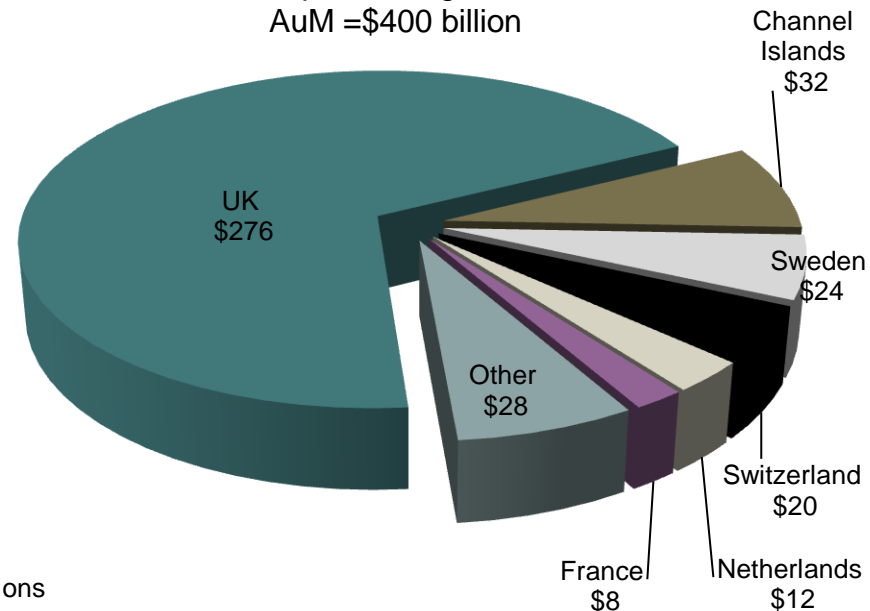
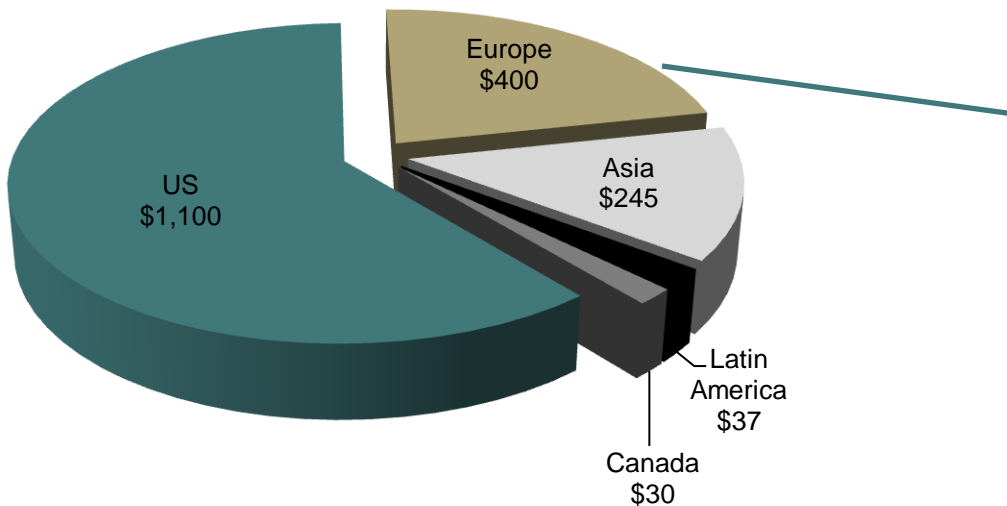
- Investment funds are expected to see continued growth in assets as a result of the Undertakings for Collective Investment in Transferable Securities Directives (UCITs).
 - Broadens the appeal of funds to cross-border investors both within and outside the EU.
 - Expands the products available to investors.
- European asset managers currently represent just a small proportion of US options trading.
 - Although asset managers can use derivatives under UCITs, uncertainty surrounding the regulation's implementation has hampered activity.
 - Efforts to allow the use of derivatives in investment strategies is proceeding, however changing internal mandates can take time.

Hedge funds domiciled in Europe represent a major source of demand especially in the UK due to its high concentration of hedge fund AuM

- Hedge funds in Europe account for the majority of trading, accounting for 58% of total European trading in US listed options.
 - UK sees significant activity originating out of London and the Channel Islands.
 - Channel Islands popular due to accommodative regulatory environment and attractive tax regime.
- Quantitative trading strategies in the Netherlands.
 - Most market making operations have moved to the US but firms still have options expertise.
- Northern European hedge funds focusing on energy and natural resource exposure.
 - Use options for managing exposures and hedging risk.

Global Hedge Fund
AuM = \$1.9 trillion

European Hedge Fund
AuM = \$400 billion

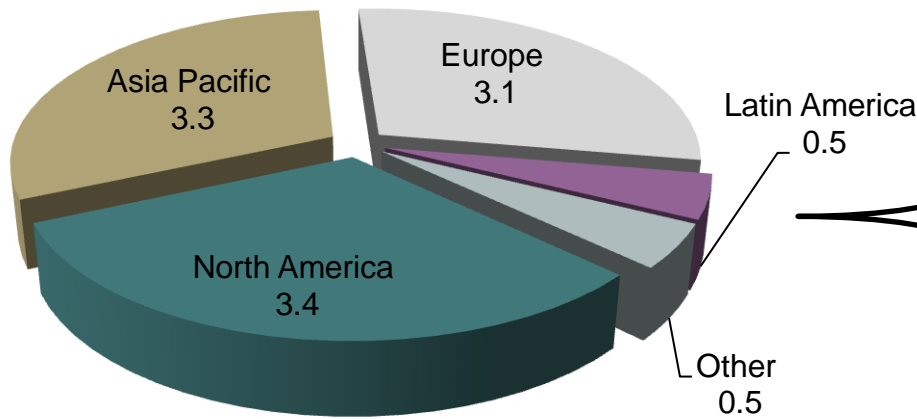


All amounts in \$US Billions

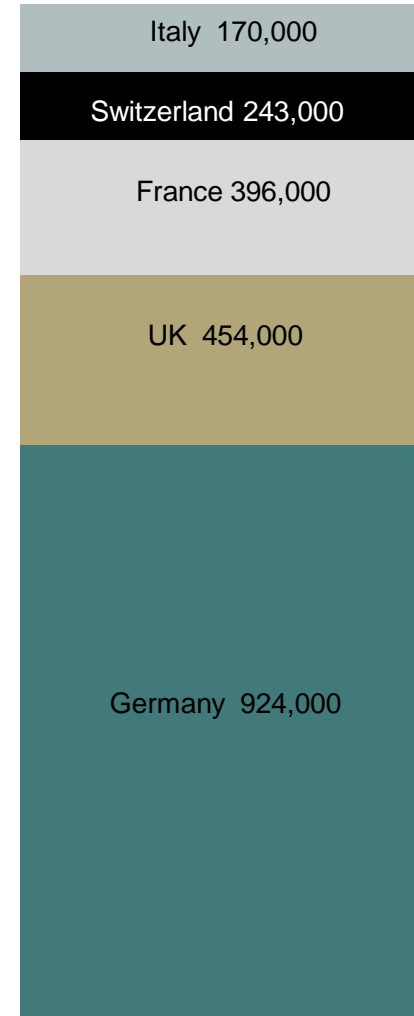
Source: TheCityUK, EurekaHedge, TABB Group estimates

European high-net worth individuals represent a significant source of future demand for US listed options exposure

Number of High-Net Worth Individuals (HNWI) by Region
Total Number=10.9 Million individuals*

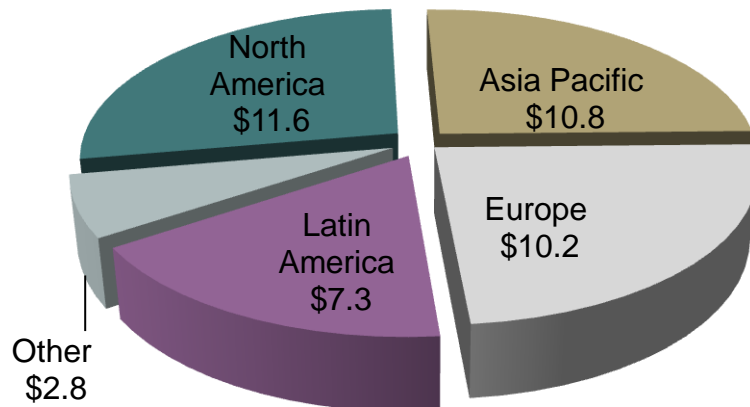


Number of High-Net Worth Investors by European Country



Total HNWI Assets in Europe
\$10.2 trillion

Assets by Region
Total Global High Net Worth Assets = \$42.7 trillion



Note: All other European countries have a combined total of 1.3 million high net worth accounts

Source: Capgemini, Merrill Lynch Wealth Management

* HNWIs are defined as those having investable assets of US\$1 million or more, excluding primary residence, collectibles, consumables, and consumer durables.

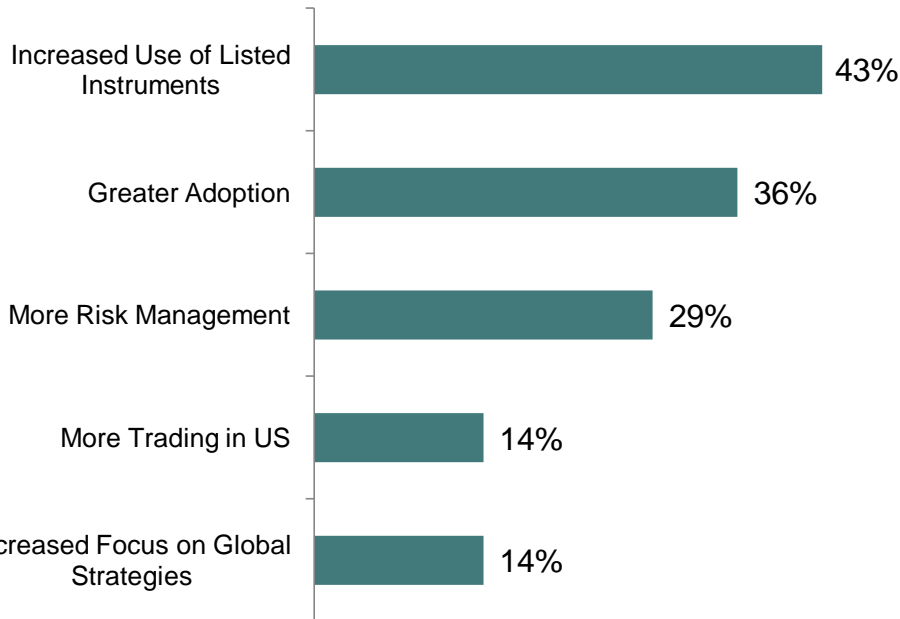
Study Findings



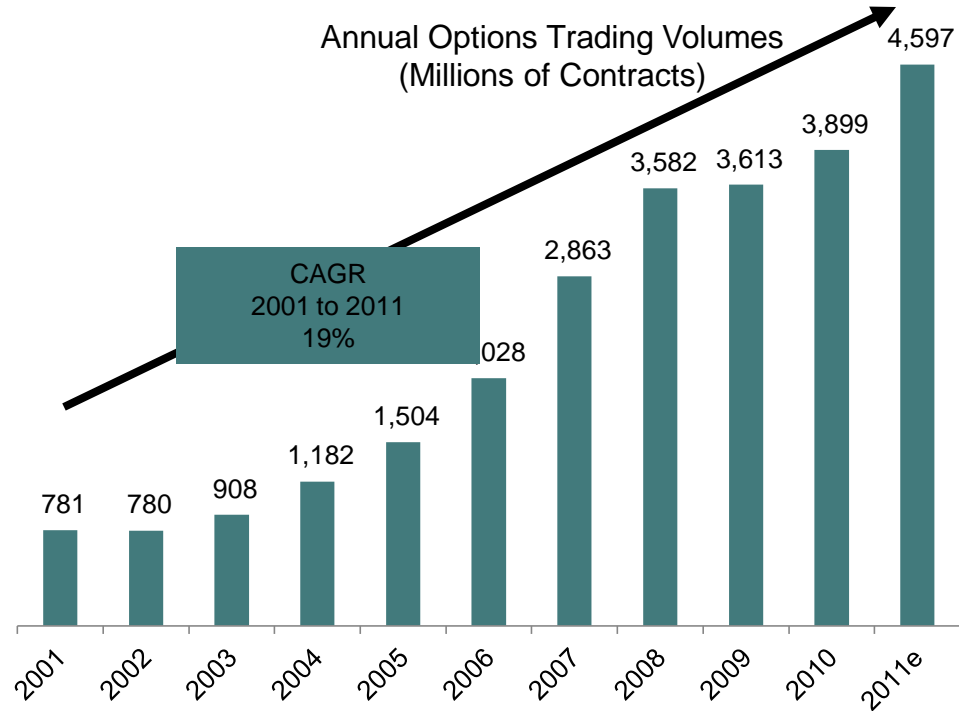
Industry focus on reducing counterparty risk has reinforced the trend towards the increased use of centrally cleared, exchange-traded instruments

- Buy-side investors are increasingly using listed derivatives for risk management across global investment portfolios.
 - Driven by need to manage risk and counterparty exposure.
- Investors are using US listed options markets due to deep liquidity, broad investor participation, and strong market structure.
 - Trading volume is expected to total a record 4.6 billion contracts in 2011, the ninth consecutive annual increase.

What Are the Biggest Drivers of US Options Trading Activity Originating from Europe?



Annual Options Trading Volumes (Millions of Contracts)

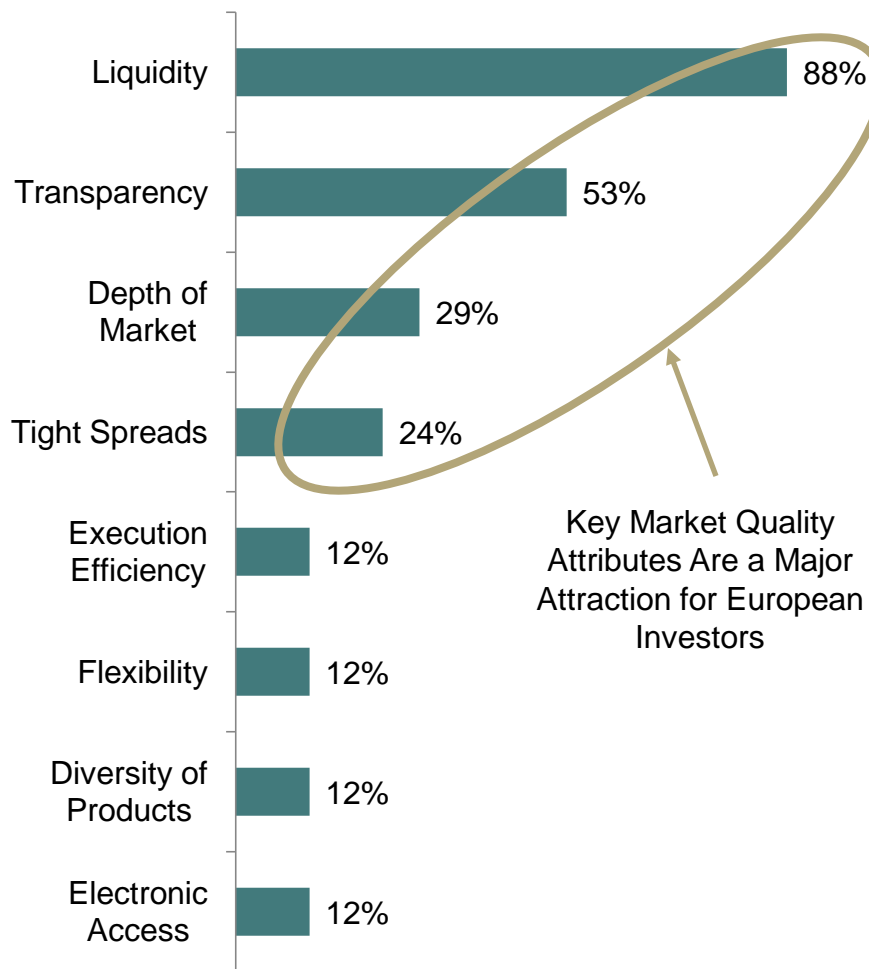


Source: TABB Group Interviews

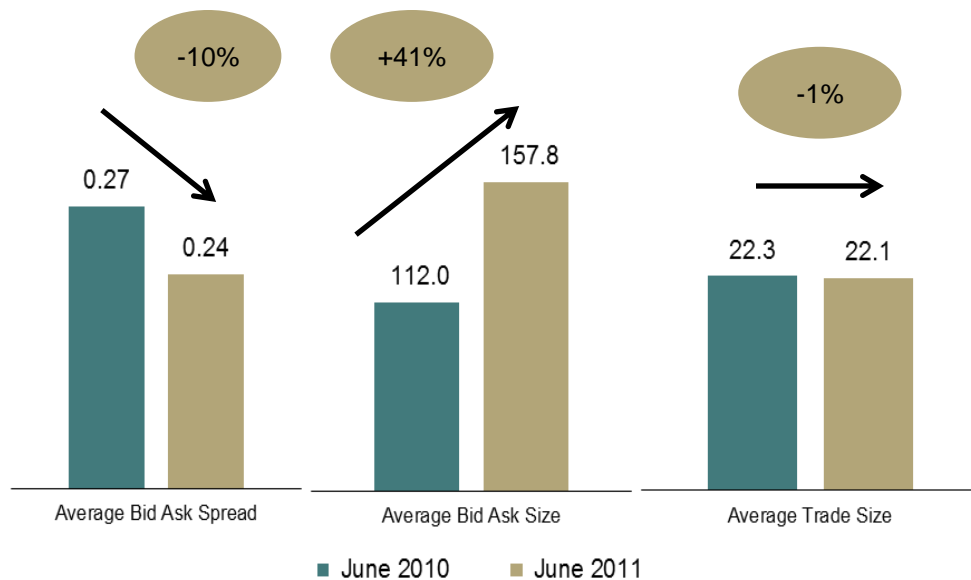
Source: OCC, TABB Group estimates

The US listed options market is admired for its deep level of liquidity, transparency and ease of access

What Do Investors Like About US Options Markets?



- Liquidity in US listed options markets is regarded as a key attraction by European market participants.
 - Other indicators of liquidity such as depth of market and tight spreads were also highly regarded.
- Market quality has improved since 2010.
 - Bid/ask spreads have narrowed by 10%.
 - Bid/offer size has increased by 41%.
 - Average trade size off marginally.
- Price transparency and access to comprehensive pricing and market data are important attributes of the US options market.

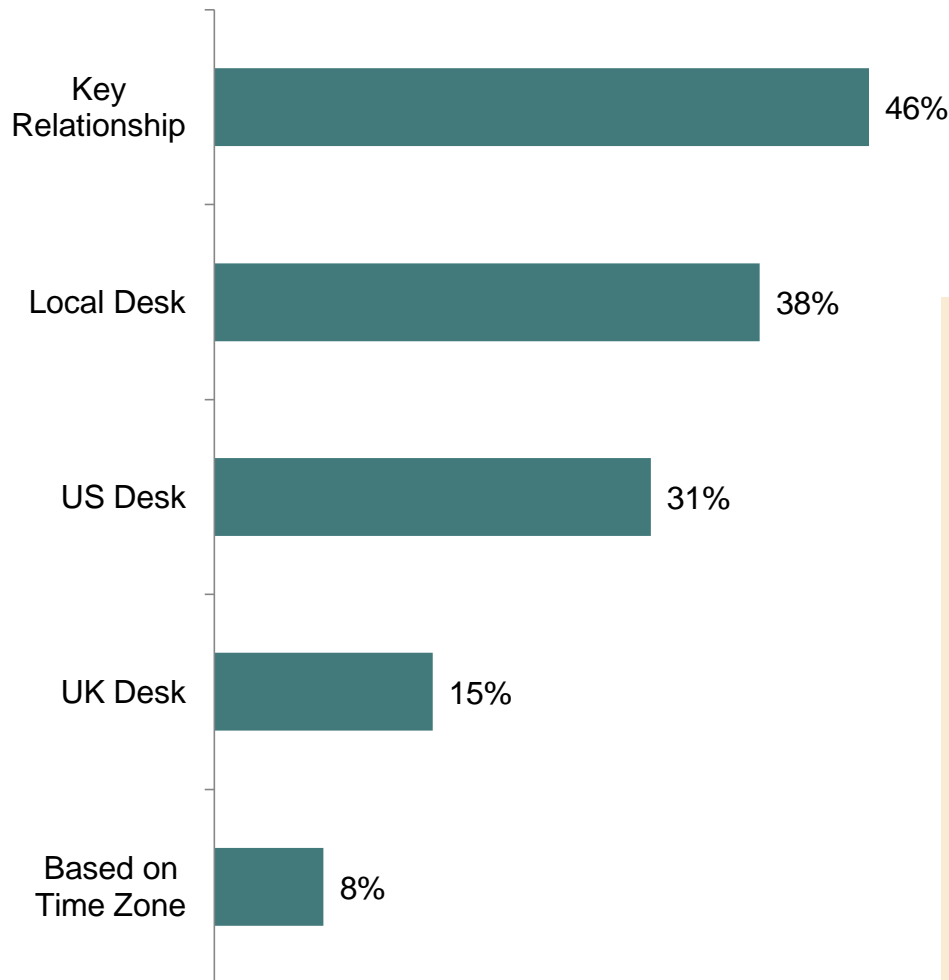


Source: TAG, TABB Group

Source: TABB Group Interviews

US brokers handle most options order flow from Europe using staff based both in the US and Europe

How Do You Cover European Accounts Trading US Options?



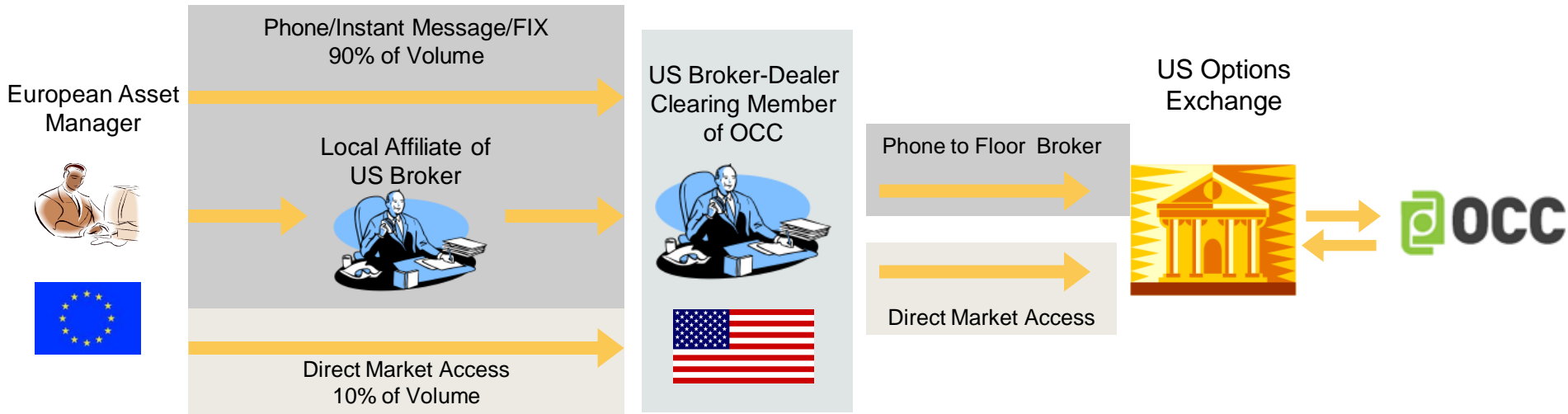
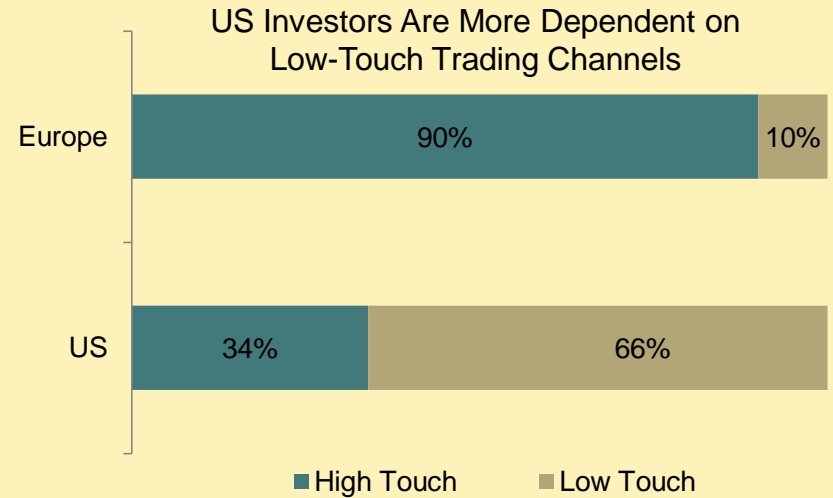
“The biggest factor constraining our growth is not having the staff resource to cover accounts. The resource would sit in the US and look at flow and names of particular interest for foreign accounts.”
- US Broker

- Larger accounts are covered from the US.
 - Expertise.
 - Access to capital.
 - Provide research and better access to information.
- Firms trading across multiple asset classes generally prefer to have fewer relationships.
 - Coverage dictated by established relationships.
 - Investors prefer to trade with a trusted partner.
 - Brokers provide execution support to accommodate trading requests during European trading hours.

Source: TABB Group Interviews

Options brokers need to support both high- and low-touch execution channels to support the needs of a diverse set of clients

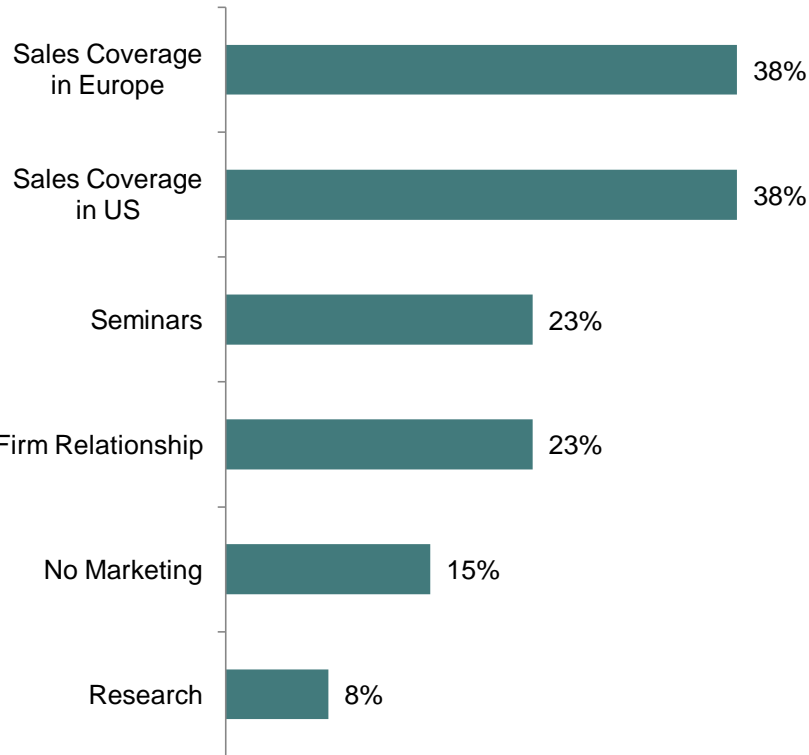
- Voice and instant messaging (IM) are the primary means of order communication.
 - Buy-side traders want color, support, and capital.
 - Relationships are critical to the trading process.
 - Language barriers can inhibit trading.
- DMA trading is growing but is limited to smaller orders.
 - DMA support for options has not been aggressively marketed to European accounts.
 - Vendors have not pursued opportunity due to lack of trading constituency.



Source: TABB Group

The industry requires more formal marketing materials, options-specific research, and industry conferences to support its marketing efforts

How Do You Market Your Options Brokerage Services?



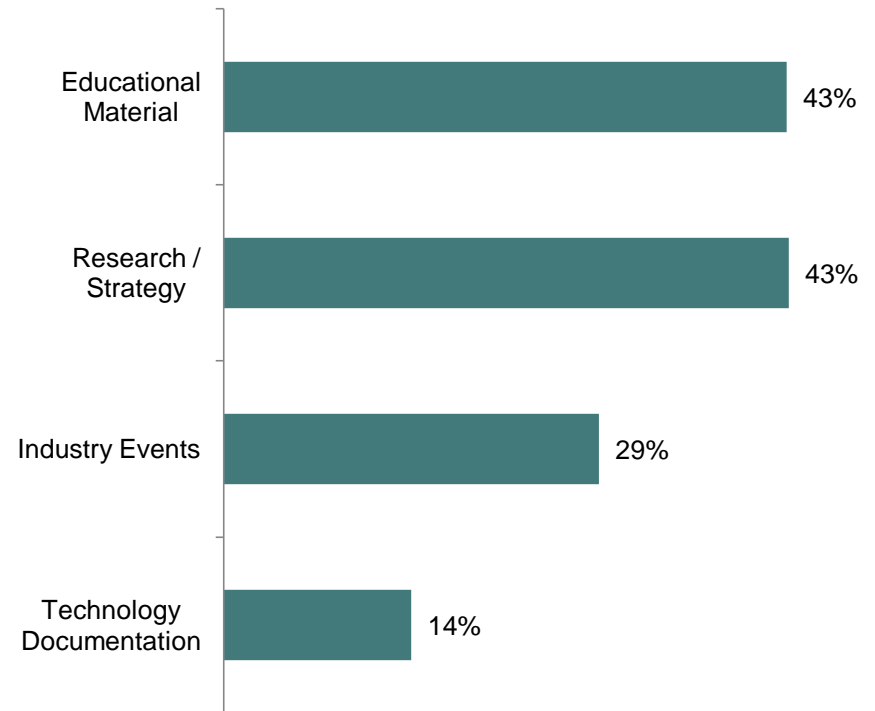
I am putting more salespeople out there so the local sales force gets the exposure, becomes more comfortable and becomes an extension of what we're trying to do in the US.

-US Broker

We need to expand programs to educate the client base. OIC should work closer with dealers and exchanges to grow the client base.

-European Broker

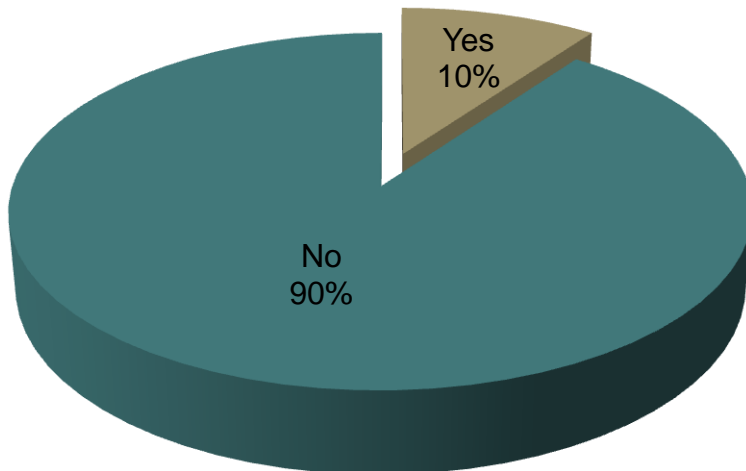
What Materials Would Benefit Your Marketing Efforts?



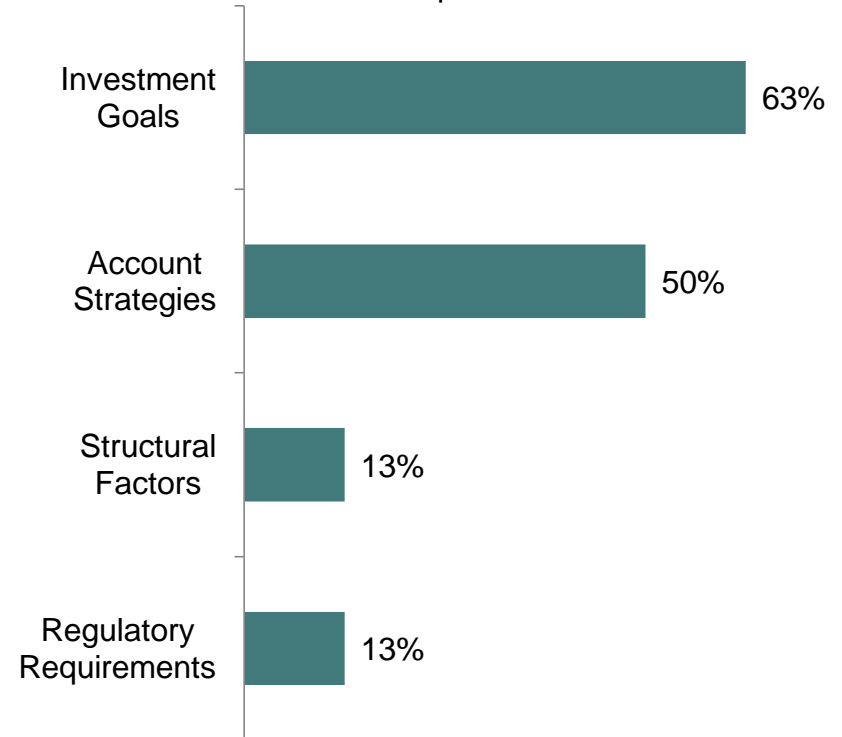
Demand for US options is related to fund strategies and specific investment mandates of the account

- Trading is typically related to a specific US equity security strategy.
 - Overwriting strategies on underlying portfolio.
 - Directional exposure around corporate events.
- Demand from specific countries are related to investment profiles.
 - Investment strategies influence specific choice of instruments.

Will the Development of European Options Markets and Alternative Instruments Impact US Options Flow?



What Factors Impact Demand from Different Countries in Europe?



Source: TABB Group Interviews

“Each firm seems to have its own type of trading strategies, each dependent on the mandates of the underlying accounts.”
-European hedge fund

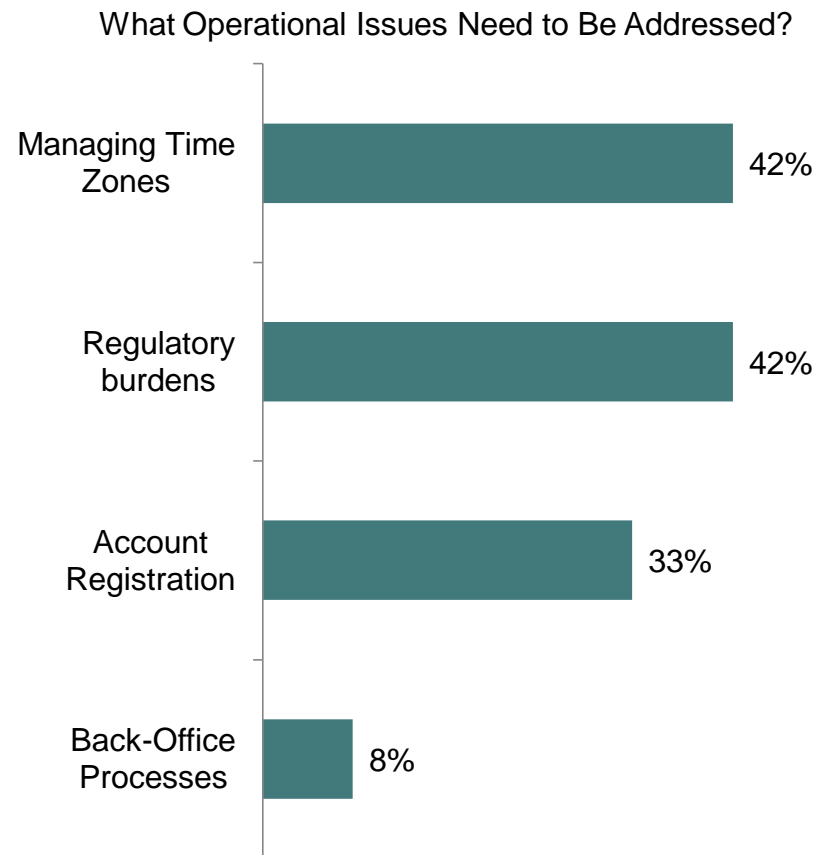
Source: TABB Group Interviews

Broker-dealers face operational burdens around managing multiple time-zones and the use of legacy back office systems

- Managing multiple time zones and market hours requires additional resources.
 - Legacy back-office processes impede expansion.
 - Accounting processes need to support global activities.
- Regulatory challenges are regional.
 - Local tax regulations impact certain accounts.
 - Trading rebates under European regulatory focus.
 - Know your customer rules create minimal challenges.
- Pending FATCA regulations will significantly increase compliance burdens.
 - Legislation will require US brokers to collect detailed client information.
 - Demand for all types of US investments will be impacted as clients will look to divest US assets.
 - Brokers will need to invest in systems to support new requirements.

"It gets complicated with time zones, assignments and other back office processes. Those are the things that are always going to be difficult."
-US broker

The biggest operational burden is around managing time zone differences, nothing else."
-US broker



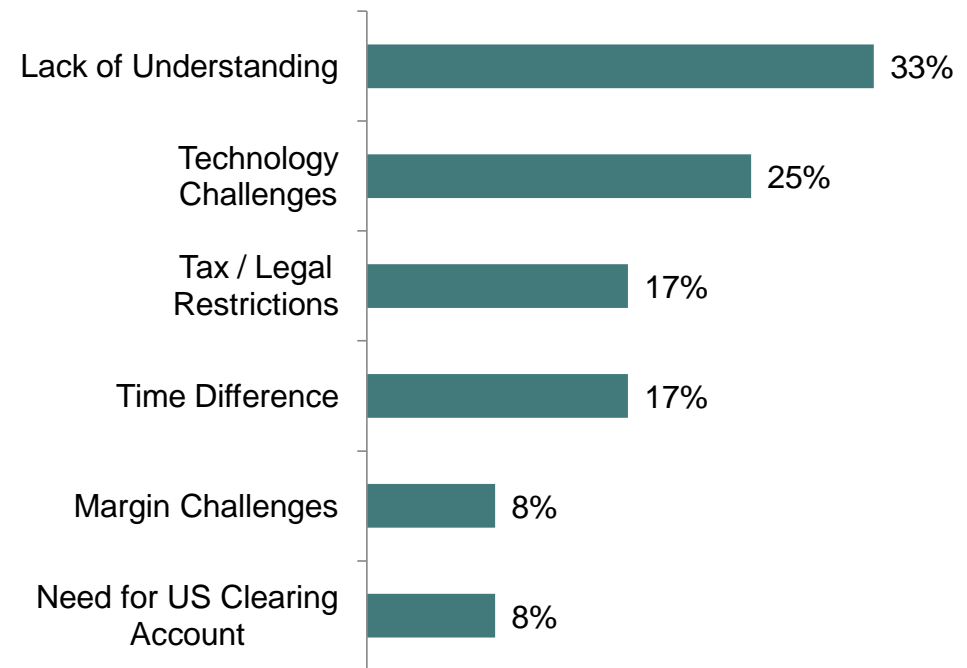
Source: TABB Group Interviews

Lack of understanding is the biggest challenge facing buy-side users of options, with technology challenges and local regulation also restricting use

- Access and operational procedures are relatively frictionless when trading through OCC members.
- Investors without US brokerage relationship have operational challenges around workflow and accessing markets.
- European investors do not have a good understanding of the mechanics of US options markets.
- US trading protocols are substantially different than European markets.
- Constantly shifting market structure creates uncertainty.
- Operational challenges of managing exposure in different time zones.
 - European clients cannot trade during all of local trading day.
 - US market close after close of European market hours can impact end-of-day processes.

“Getting European accounts interested in US listed options is a fairly big education process and we spend a lot of internal resources and time working on the problem.”
-US broker

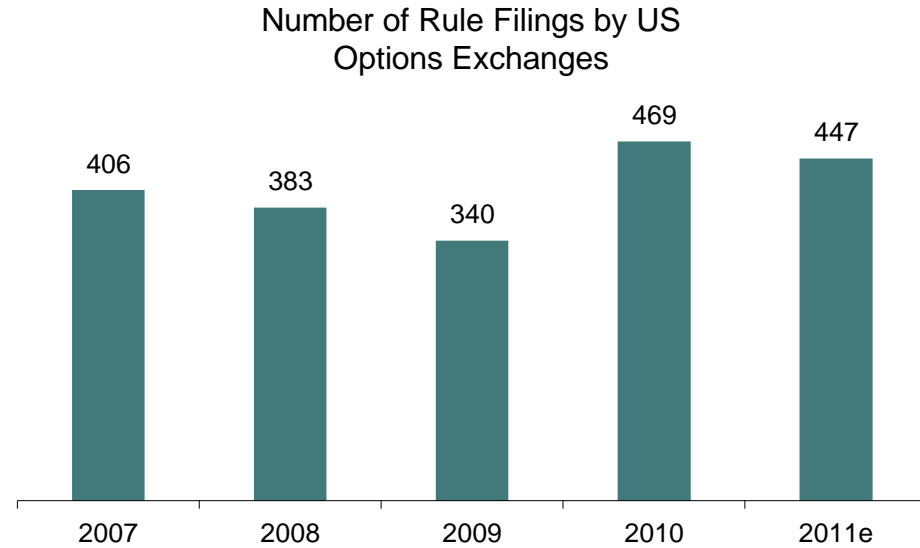
What Is the Biggest Challenge Facing Buy-Side Accounts Trading US Options?



Source: TABB Group Interviews

European investors find the US options market structure overly complex and hard to understand

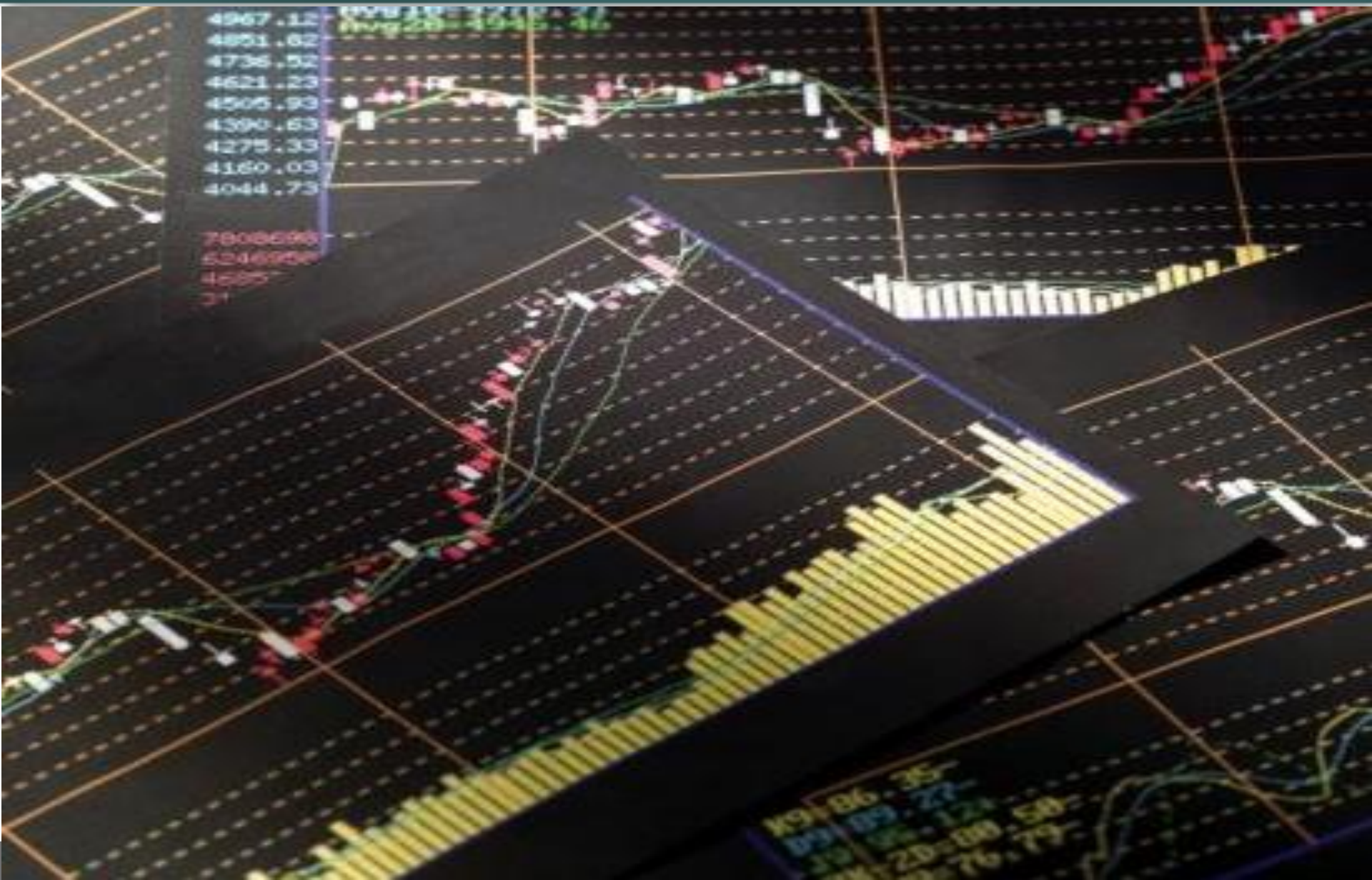
- Buy-side accounts depend on brokers and vendors to navigate market structure.
- Firms lack resources to monitor rule filings.
- Complex market structure reinforces high-touch trading channels.
- Exchanges alter market structure through rule filings to the SEC.
- Filings cover pricing structures, market models, and order types.
- The nine exchanges have filed a combined 298 rule change requests with the SEC through August 2011.



Source: Securities and Exchange Commission, TABB Group estimates

Exchange	Market Model	Trading Model	Pricing Model
BATS	Price/time	Electronic	Maker/taker
BOX	Price/time	Electronic	Taker/maker & traditional
C2 (CBOE)	Price/time	Electronic	Maker/taker
CBOE	Pro-rata	Hybrid	Traditional
ISE	Pro-rata	Electronic	Maker/taker & Traditional
Nasdaq Options Market	Price/time	Electronic	Maker/taker & Traditional
NYSE Amex	Pro-rata	Hybrid	Traditional
NYSE Arca	Price/time	Hybrid	Maker/taker & Traditional
PHLX	Pro-rata	Hybrid	Maker/taker & Traditional

Characteristics of Trading Demand

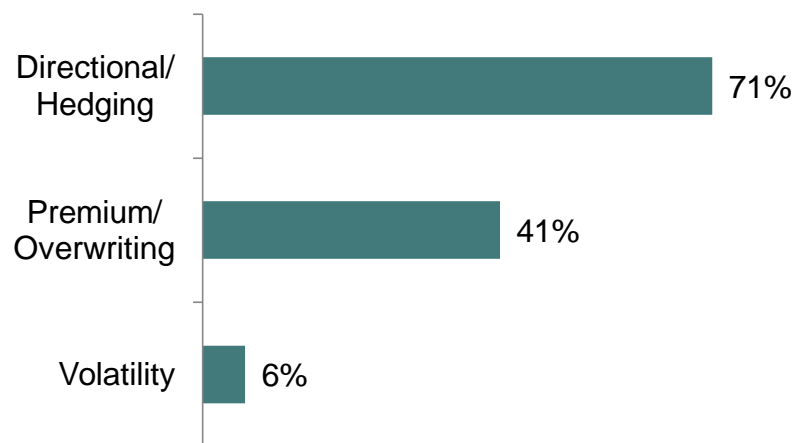


European investors' options strategies are driven by underlying portfolio strategy and investment mandate for the account

- Asset managers use conservative strategies due to more restrictive mandates governing trading activities.
 - Frequent users of index options for hedging.
 - Overwriting programs to earn premium.
- Hedge funds use more aggressive strategies.
 - Use options for taking directional views and managing positions around corporate events.
 - Greater focus on volatility products.
- Sector exposure strategies through ETF options.
 - Access underlying asset types to achieve high correlation.
 - Popular instruments for hedging purposes.
 - Usage levels rise during times of elevated volatility.

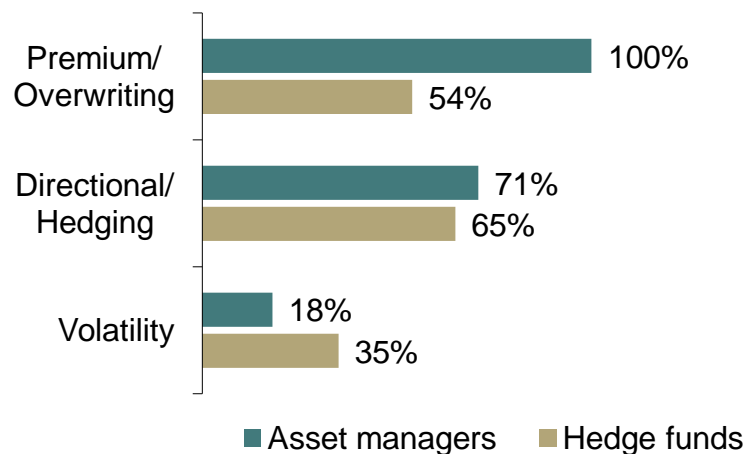
“The private wealth community will actually trade single stock options more than the institutions when they want to seek broad-based US exposure.”
-US broker

What Types of Strategies Are European Investors Using?



Source: TABB Group Interviews

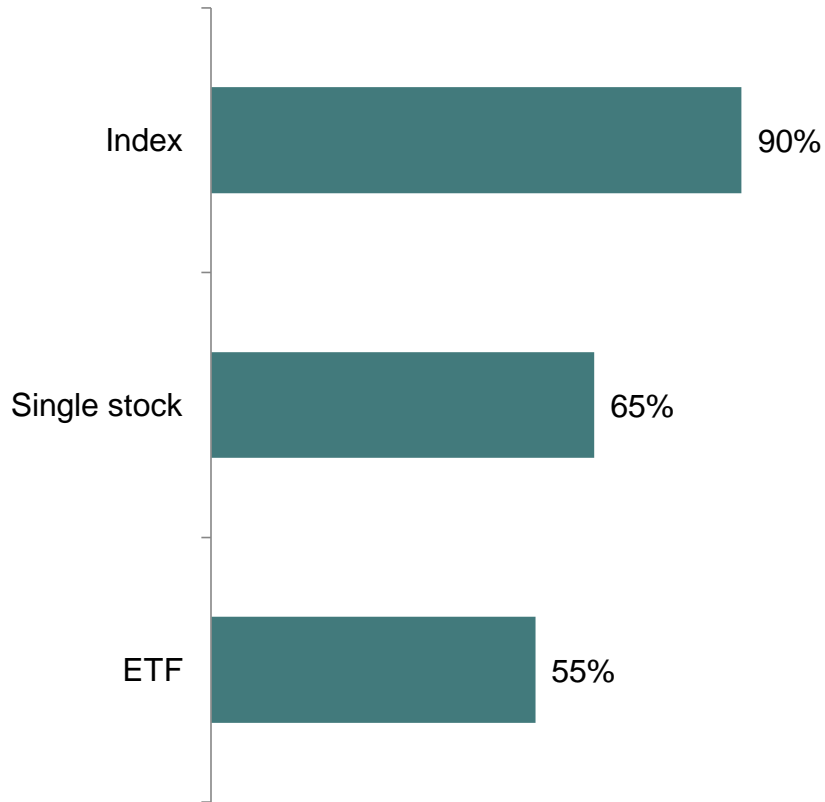
US Hedge Funds and Asset Managers Are More Aggressive Users of Options Strategies



Source: TABB Group, US Options Trading 2011: Finding the Other Side of the Trade

European investors are active users of index products and are shifting focus to ETF, weekly and volatility products

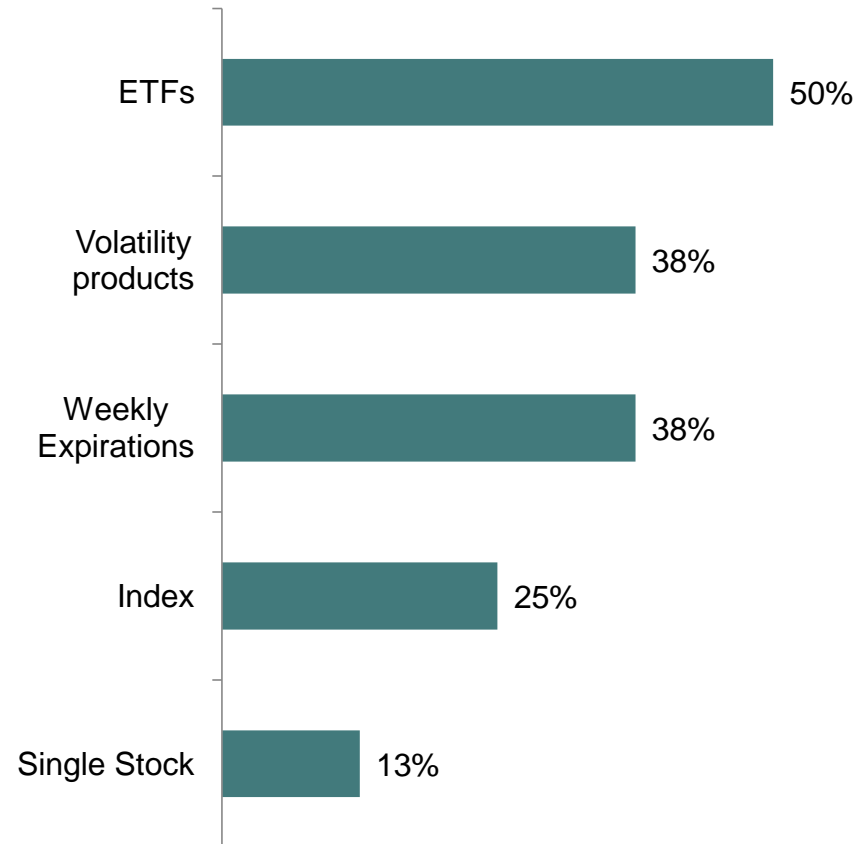
What Types of Options Are Currently Being Traded?



“European accounts are trading more, in larger size, and in lower premium options.”
- EMS Vendor

“We are getting a lot of inquiries on shorter-dated options as well as the volatility products.”
-US Broker

Where Do You See the Greatest Growth Potential?



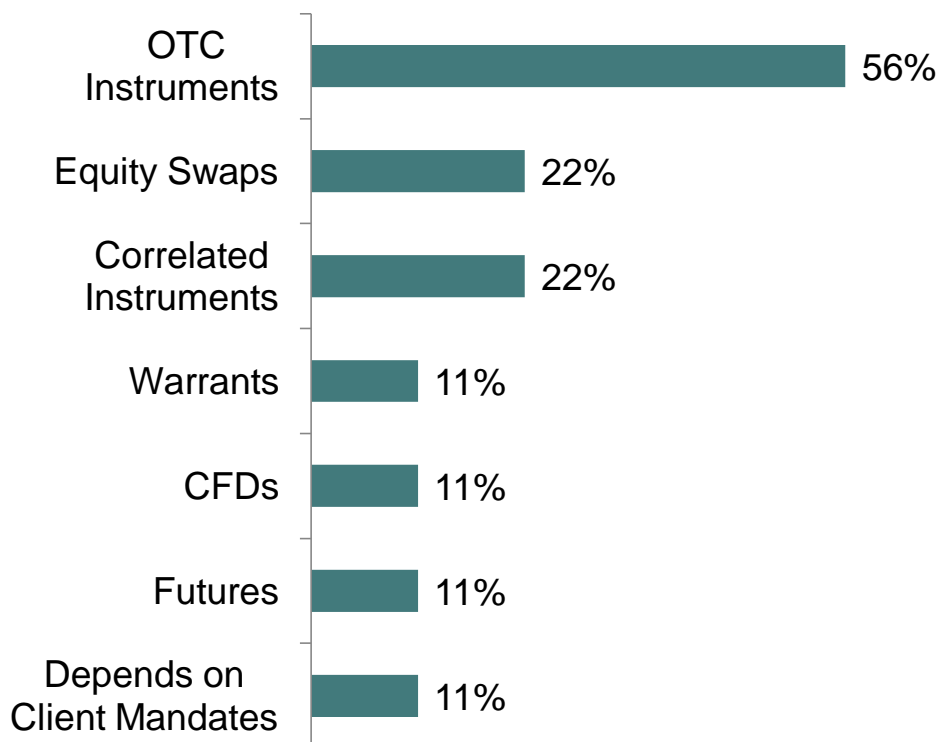
Source: TABB Group Interviews

OTC derivatives provide alternative exposure for European investors but regulatory pressures will shift preferences to listed products

- Global regulatory pressures to reduce systemic risk are focusing on central clearing, regulated trading venues, and increased market transparency.
- The European Commission is addressing OTC derivatives market reform through the European Market Infrastructure Regulation (EMIR) and the Market in Financial Instruments Directive (MiFID).
 - The initiatives will push derivatives onto trading platforms with central clearing and greater transparency.
- US regulators are addressing reform efforts the Dodd Frank Act.
 - Trading requirements for standardized OTC derivatives to trade on exchanges or trading facilities.
 - Clearing requirements for standardized instruments and products.

“Investors are using similar OTC products or other asset classes for correlated market hedges.”
-European broker

What Other Instruments Do Clients Use to Implement These Strategies?



Source: TABB Group Interviews

Conclusions



Conclusions

- TABB Group estimates 10% of US listed options trading volume originates from investors domiciled in the UK and continental Europe.
- European-based hedge funds represent the largest component of European demand and account for an estimated 58% of total European order flow.
 - Private wealth management and proprietary trading activity account for 18% and 15% of the total, respectively.
 - Asset managers and retail trading each account for less than 5% of the total.
- European demand for US-listed equity options will increase due to global regulatory efforts to reduce risk.
 - Institutional investors are increasingly using listed derivatives to reduce portfolio risk exposures and minimize counterparty risk.
 - European investors are attracted to the liquidity, transparency and ease of trading in US listed equity option markets.
- The high level of European AuM represents an important source of both existing and future demand for US listed equity options products.