

Trading simulator

Purposes

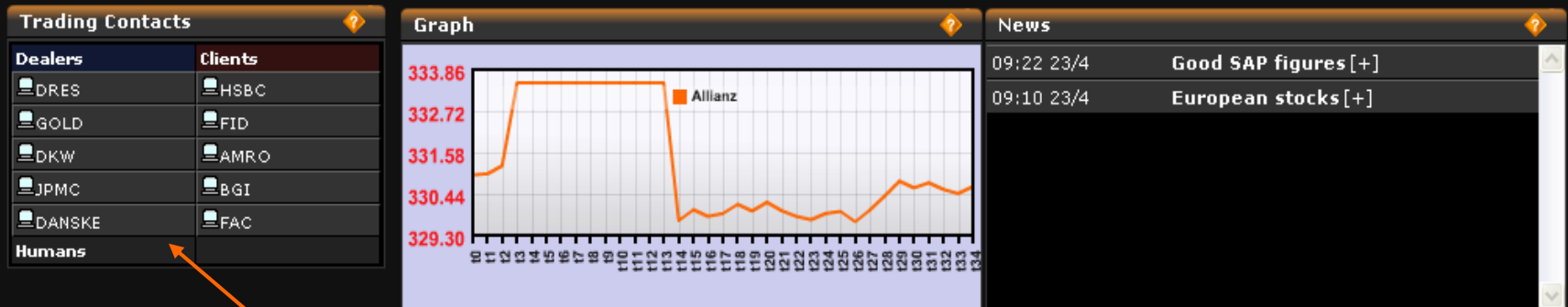
- A practical insight into the options market
- Observe and manage Greeks exposure in a moving market
- Try out trading strategies
- Balance need to deal with incoming client requests, Dealer quote requests and running your book the way you want it – liquidity issues

The trading platform - overview

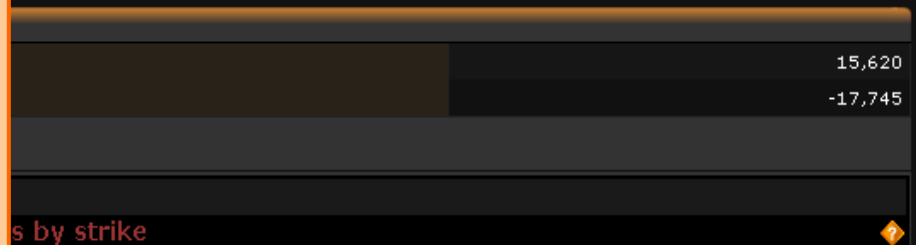
Features

- BSM pricing engine
- European Equity Options
- Greeks: Delta, Gamma, Vega, Theta
- Trade with electronic buy-side and sell-side traders in OTC market...
- ... and peer-to-peer with others

Layout of trading client



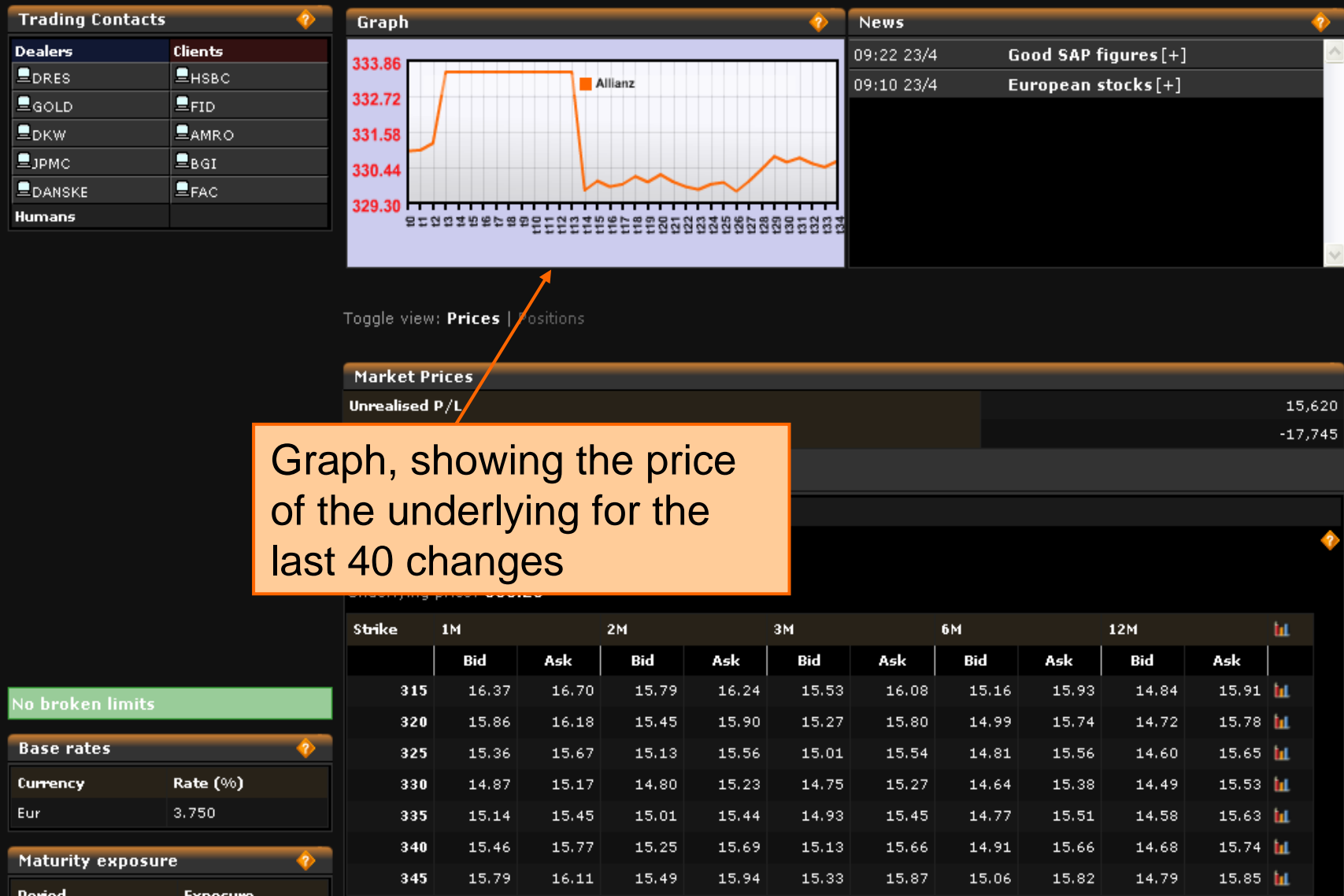
Trading Contacts. The Client side will call you – but you can request quotes from Dealers in both the options and the underlying stock



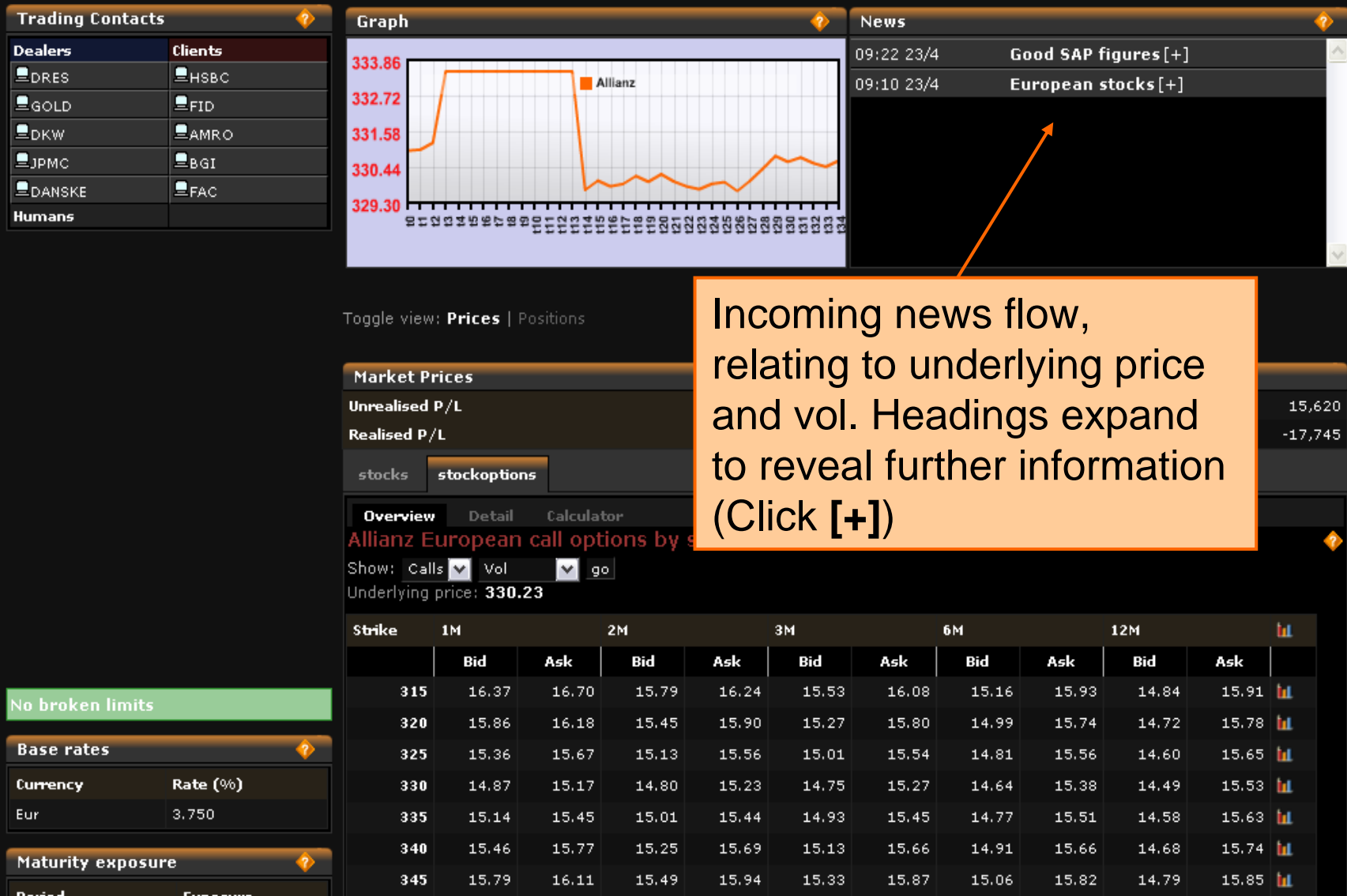
No broken limits	
Base rates	
Currency	Rate (%)
Eur	3.750
Maturity exposure	
Period	Exposure

Strike	1M		2M		3M		6M		12M		
	Bid	Ask	Bid	Ask	Bid	Ask	Bid	Ask	Bid	Ask	
315	16.37	16.70	15.79	16.24	15.53	16.08	15.16	15.93	14.84	15.91	
320	15.86	16.18	15.45	15.90	15.27	15.80	14.99	15.74	14.72	15.78	
325	15.36	15.67	15.13	15.56	15.01	15.54	14.81	15.56	14.60	15.65	
330	14.87	15.17	14.80	15.23	14.75	15.27	14.64	15.38	14.49	15.53	
335	15.14	15.45	15.01	15.44	14.93	15.45	14.77	15.51	14.58	15.63	
340	15.46	15.77	15.25	15.69	15.13	15.66	14.91	15.66	14.68	15.74	
345	15.79	16.11	15.49	15.94	15.33	15.87	15.06	15.82	14.79	15.85	

Layout of trading client



Layout of trading client



Layout of trading client

Option prices for 7 strikes around the money, at 5 expiries from 1m to 1y.

By default these are expressed in vol, but you can use the filter to convert to premiums.

Volatility smile or flat vol, as preferred. More later on how to set this.

The screenshot displays a trading client interface with several panels. On the left, there's a 'Trading Contacts' panel with a list of dealers and clients. Below it, a 'Base rates' panel shows the currency as 'Eur' and the rate as '3.750'. At the bottom left, a 'Maturity exposure' panel is partially visible. The main area is divided into a 'Graph' panel (top) and a 'News' panel (top right). Below these, there's a 'Realised P/L' panel showing 'stocks' and 'stockoptions' with values 15,620 and -17,745 respectively. The central panel is titled 'Allianz European call options by strike' and shows a table of option prices for 7 strikes (315 to 345) across 5 expiries (1M to 12M). The table columns are 'Strike', '1M', '2M', '3M', '6M', and '12M', each with 'Bid' and 'Ask' sub-columns. The 'Show' dropdown is set to 'Vol' and 'go' is visible. An orange arrow points from the text box to the 'Vol' dropdown.

Strike	1M		2M		3M		6M		12M	
	Bid	Ask	Bid	Ask	Bid	Ask	Bid	Ask	Bid	Ask
315	16.37	16.70	15.79	16.24	15.53	16.08	15.16	15.93	14.84	15.91
320	15.86	16.18	15.45	15.90	15.27	15.80	14.99	15.74	14.72	15.78
325	15.36	15.67	15.13	15.56	15.01	15.54	14.81	15.56	14.60	15.65
330	14.87	15.17	14.80	15.23	14.75	15.27	14.64	15.38	14.49	15.53
335	15.14	15.45	15.01	15.44	14.93	15.45	14.77	15.51	14.58	15.63
340	15.46	15.77	15.25	15.69	15.13	15.66	14.91	15.66	14.68	15.74
345	15.79	16.11	15.49	15.94	15.33	15.87	15.06	15.82	14.79	15.85

Layout of trading client

Detail (Greeks) for 7 strikes around the money, at one selected expiry.

Both the spot price and the appropriate forward price of the underlying are shown. The latter is calculated by applying a finance rate which is given in the **Base rates** pane to the lower left.

The screenshot shows the following interface elements:

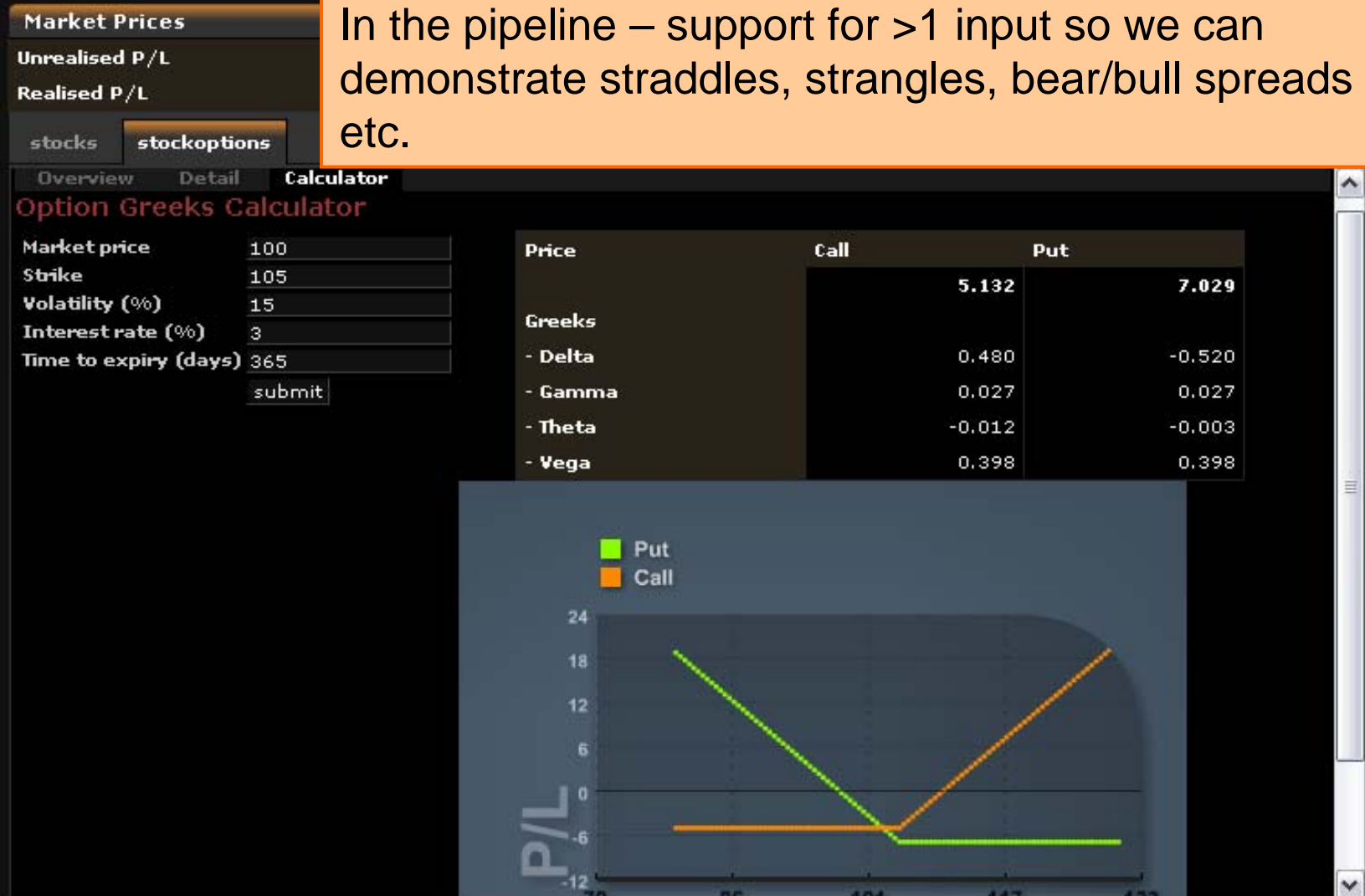
- Trading Contacts**: Dealers (DRES, GOLD, DKW, JPMC, DANSKE) and Clients.
- Graph**: Displays a price of 333.86.
- News**: Shows a timestamp of 09:22 23/4 and a headline "Good SAP figures [+]".
- Realised P/L**: Shows values of 15,620 and -17,745.
- stockoptions** tab: Includes sub-tabs for Overview, Detail, and Calculator.
- Details** section:
 - Underlying**: Allianz
 - Expiry**: 1 months
 - Call/put**: Calls
 - GO** button
- Results** section:
 - Underlying spot price: 330.23
 - Forward price: 331.26
- Table of Greeks**:

Strike	Bid Vol	Ask Vol	Bid Prem	Ask Prem	Delta Mid	Gamma Mid	Theta Mid	Vega Mid
315	16.372	16.703	17.334	17.404	0.860	0.014	-0.085	0.213
320	15.859	16.179	13.161	13.252	0.780	0.019	-0.099	0.282
325	15.359	15.669	9.437	9.543	0.673	0.024	-0.110	0.344
330	14.872	15.173	6.296	6.410	0.544	0.028	-0.111	0.378
335	15.142	15.447	4.118	4.230	0.408	0.027	-0.107	0.370
340	15.460	15.772	2.589	2.690	0.290	0.023	-0.093	0.326
345	15.792	16.111	1.570	1.654	0.195	0.018	-0.075	0.263
- Base rates** pane (lower left):
 - No broken limits** (green bar)
 - Currency**: Eur
 - Rate (%)**: 3.750
- Maturity exposure** pane (lower left):
 - Period**: ...
 - Exposure**: ...

Calculator for user-defined values.

The four main Greeks are shown for call and put with a payoff diagram comparing the two.

In the pipeline – support for >1 input so we can demonstrate straddles, strangles, bear/bull spreads etc.



Positions

We've toggled the view to reveal **Positions**.

The positions in both the underlying and its options are gathered in the one view (easier to compare option vs underlying delta and so the delta exposure of your entire portfolio)

Trading
Dealers
DRES
GOLD
DKW
JPMC
DANSK
Humans

figures [+]
stocks [+]

Toggle view: Prices | **Positions**

Positions

Unrealised P/L 15,620
Realised P/L -17,745

Positions Portfolio Deal History My Accounts

stockoptions

Select stock option: Allianz

Underlying summary

Name	Bid	Ask	Chg	Held Qty	Avg price	MTM price	Chg	MTM P/L	Exp	Exp Limit
ALZ	329.82	330.64	+0.23	-	-	-	-	0	-	1,000,000

Option positions

Qty	Exp	C/P	Strike	Fwd	Delta	Posn Delta	Gamma	Vega	Theta	Prem	Reval	P/L
+8,000	21/6/07	call	330.00	332.27	0.557	4456	158	6301	-677	9.15	9.14	-80

Exercise

No broken limits

Base rates

Currency Rate (%)

Portfolio

Portfolio tab collates the overall Greeks for each underlying.

This digest is particularly handy for your overall delta & gamma exposure – at a glance you can see how well your hedges are working

Trading

Dealers

DRES

GOLD

DKW

JPMC

DANSKE

Humans

figures [+]

stocks [+]

Toggle view: Prices | **Positions**

Positions

Unrealised P/L15,620

Realised P/L-17,745

PositionsPortfolioDeal HistoryMy Accounts

Greeks summary for Allianz [assets per contract: 1]

Indicator	Convention	Underlying instruments	Currency value
Option Gamma:		-40	-13,225.76
Option Vega:	per 10% chg in vol		-1,654.00
Option Theta:	1-day theta		166.00
Option Delta:		-914	-302,208.62
Underlying Delta:		0	0.00
Net position Delta:		-914	-302,208.62

No broken limits

Base rates

Summary

**The trading platform –
asking for & trading on quotes**

Outgoing quote request in the stock

Trading Contacts ?	
Dealers	Clients
DRES	HSBC
GOLD	FID
DKW	AMRO
JPMC	BGI
DANSKE	FAC
Humans	

Trading Contacts ?	
Dealers	Clients
DRES	HSBC
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JPMC	BGI
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Humans	

Trading Contacts ?	
Dealers	Clients
DRES	HSBC
GOLD	FID
DKW	AMRO
JPMC	BGI
DANSKE	FAC
Humans	

DANSKE ✕

Choose the asset type

2way stockoption price ▼

2way stock price

2way stockoption price

Choose

DANSKE ✕

Ok, give me the details...

Stock:

Allianz ▼

Trade by value?: ? ☐

Quantity: ?

10k

Get Quote

DANSKE ✕

Please wait: processing your request. (Quote enquiry 10K Allianz shares)

Cancel

Outgoing quote request in the option

Trading Contacts ?	
Dealers	Clients
DRES	HSBC
GOLD	FID
DKW	AMRO
JPMC	BGI
DANSKE	FAC
Humans	

Trading Contacts ?	
Dealers	Clients
DRES	HSBC
GOLD	FID
DKW	AMRO
JPMC	BGI
DANSKE	FAC
Humans	

Trading Contacts ?	
Dealers	Clients
DRES	HSBC
GOLD	FID
DKW	AMRO
JPMC	BGI
DANSKE	FAC
Humans	

DANSKE ✕

Choose the asset type

2way stockoption price ▼

2way stock price

2way stockoption price

Choose

DANSKE ✕

Ok, give me the details...

Underlying: Allianz ▼

Quantity: ? 10k

Call/put: Put ▼

Strike: 325 ▼

Expiry: 12 Months ▼

or: ?

With delta: ? Yes ▼

No

Yes

Get Quote

DANSKE ✕

Please wait: processing your request. (Quote enquiry 10K Allianz put, strike: 325, expiry:12M)

Cancel

Trading Session 1

The trading platform – incoming requests

Incoming client requests

Trading Contacts	
Dealers	Clients
DRES	HSBC
GOLD	FID
DKW	AMRO
JPMC	BGI
DANSKE	FAC
Humans	

HSBC

I have an order to sell 5K Allianz put, Strike:330, expiry:6M at market

Qty you will fill:

Do Trade

- Client-side requests are for a **variable quantity at the market price**
- You choose whether to
 - Fill the whole order (default)
 - Fill it partially (change the quantity)
- **As a rule, honour these orders** (business is business). The system measures how effectively you've done this
- **The consequence may be a position you don't want.** Get out of it by going into the dealer market and unwinding!

Incoming quote requests

Trading Contacts	
Dealers	Clients
DRES	HSBC
GOLD	FID
DKW	AMRO
JPMC	BGI
DANSKE	FAC
Humans	

DKW

What is your 2-way price in 5K
Allianz put, strike: 330, expiry:3M?

2-way price:

14.5 14.9

- Incoming quote requests are for a **variable quantity at a price to be negotiated (2-way price)**
- **2-way price format is:**
`{bid} <space> {ask}`
- **You can trade in a smaller quantity by appending**
' in 4k'
- **Again, your market-making activity is monitored.**
- **Be quick and be close to the market**
– All traders know where the market is and their patience is limited

Trading session 2

Trading metrics

Post-trading feedback – the dealer's report



Often, the best lessons are learned in the debrief.

The simulation will:

- track your performance over the duration of the trading relative to the group average;
- itemise your successful trades (when you banked your gains/losses, and how large they were);
- show how active you were in the market

Self-service: managing your own simulations

Your instances

The list of your current instances. If you have edit rights to the scenario on which it is based, you can link to it.

cqfsim advanced trading simulator

Home > Admin >

« Back

- Instances
- Scenarios
- Users
- Reports
- Server

Instances

Show: All instances

Instance name	Scenario	Status	Open access?	Delete instance?
ddd	European Equity Options: Vol Trading	paused	No	
gitr	fx_main	finished	Yes	
yyy	fx_main	paused	Yes	
usertest	Intra-uni Eliminator	not yet started	No	
arrgh	fx_main	not yet started	No	

Records 1 - 5 of 5

Instance parameters

Edit details

Name	ddd
Seconds per tick	10
Logins allowed	<input checked="" type="checkbox"/>
Signups allowed	<input type="checkbox"/>
Buy-side order %	5
Market quote %	5
Max incoming trades	3
Trade timeout	20
Price tolerance	3
Current account limit	10000000
Counterparty limit	1000000
Maturity limit	1000000
Delta limit	1000000
Gamma limit	1000000
Vega limit	1000000
Random trades allowed?	yes
Allow trades with other human traders?	yes
Look and feel template	7c cqf
Option prices as premiums?	<input type="checkbox"/>
Single option?	Allianz
Implied vol?	<input checked="" type="checkbox"/>
Implied vol curve's intensity	1
Outcry?	<input type="checkbox"/>
Broken limits penalty	1
P/L weighting	34
Flow weighting	33
Dealer weighting	33
Maximum value of trade	0

Update

- The main control panel for each instance
- Parameters include:
 - tick speed
 - risk limits
 - type & frequency of quote requests

Starting positions

Initial positions			
Instrument	Quantity	Price	Tick
Trader	CITI		
instrument type	stock		
Stock to trade	Caterpillar		
Option to trade			
Buy or sell?	Buy		
Quantity	1000		
Price	50		
Tick	0		
Expiry	1 month		
With delta?	Yes		
Call or put?	Call		
Strike			
Submit			

- Add stock or option positions at the start of the simulation so you have something to work off
- These can also be added later at set points in the simulation (eg during a crash or jump)

Support & Community

Technical queries/issues

- Bug reports or technical questions to:
 - simulations@7city.com
- Discussion boards at wilmott.com (under 'CQF Alumni' section)
- Responses and solutions will be distilled into FAQ thread

Suggestions/new features

- Thread on discussion boards for user suggestions
- New scenarios will be added periodically
- In the pipeline:
 - FX Options
 - Scenario editor (so you can design your own market conditions)

How to get the best out of it

- Thread on discussion board to share insights, approaches, discussions of the quant side of things