Amal:

**General**

* Preparer un pitch pour se vendre (bien parler du background technique + python/slang)
* Grecques sur les options vanilles a savoir par Coeur
* Produits: Autocall/barriere/worst-off/hybrid…
  + Pas mal operationnel compare à des traders flow

**Ce qui fonctionne bien en ce moment**

* Short dispersion: long single name vol + short index vol
  + Short S&P trade ou short correlation trade
  + Ca fonctionne bien car la single vol a + monté que la S&P vol
  + Le tech sell-off a fait que la vol realisée a aussi été haute
* Q1 bien pour la dispersion
* Q2 un peu moins bien car la correlation a pick up

**Comment savoir si la vol est cheap ?**

* Comparer la vol impli par rapport au S&P (le spread)
* Comparer la realized aussi + le spread imply VS realized de single VS index

Apolline:

**Vocabulaire**:

franchise = contrepartie

EV = Estimaed Value. It cannot go below a certain point, otherwise it would be unfair to the client (some rules about this).

CD = certificate of deposit

Dans le desk exotic il y a **4 pods**:

* Thematique / illiquid (QIS): ils font par exemple des vol control indices, ce sont des basket d’actions avec des poids ajustes pour garder une vol constante a 5% par exemple.
* Single Stock (Amal)
* Index/ETF (Apolline + Pierre Marboeuf): autocall + notes (retails who want passive income) / correlation (instit)
* Exo flow: light-exo (barrier etc…), no notes, client instit

**Produit de correlation qui peut etre traite avec des brokers**:

* Call versus Call: Long call on a basket + short call on each single name.

**calendar trade**: price is done at the beginning of the month but it is executed at the end of the calendar month. (1 month between the time they sell and the time of the execution). This creates a huge risk, important question: **When to hedge** ?

Half of the clients are like that

For retails, there are many layers in the communication, that’s why it’s so long. It can be 5 months in FR.

They don’t know the size in advance, it’s difficult to hedge. There is an expected size assessed by the sales, it depends on the market, if it goes well, they can choose to increase the position.

**General**: they sell notes/autocall but after they talk to brokers to hedge with small pieces (call, call versus call, forward …)

**Autocall**: (position as the seller: GS)

Day 1: long vol due to the fact that we buy a put Down and In.

Example of a 3 years autocall:

A(t) =

P = proba get autocalled

Vega autocall (1-P)\*Vega put

Therefore, when S goes down, P goes down, 1-P goes up (so we artificially have more put) and vega goes up more than for just a put.

We are longer vanna for an autocall than for a vanilla put.

**Day**: morning: Europe is waiting for them / evening: Asia trades

Everything that is exo US is done by them

Credit Spread: GS is issuing bonds. Therefore, they have a credit spread risk. Different entities for GS.

Down-and-In Barrier Option = Long Skew  
Down-and-Out Barrier Option = Short Skew  
Up-and-In Barrier Option = Short Skew  
Up-and-Out Barrier Option = Long Skew

David call:

Vol model used:

* BS
* Dupire
* Heston
* SLV

The issue with vol local is the long-term smile that tends to be flat. Therefore, long term barrier options are priced below what they should be priced.

How to price structured products ?

* Understand the product, the different parts composing it
* Understand the sensitivities
* Hedge costs are important to understand
* Choose a model

You can start by local vol and then move to stochastic vol

In general, a bank is long dividends as it sells derivatives that are long stocks.

Vega sensitivity of an autocall: high vega around the barrier (pick between barrier and strike)

A stock that pays dividends increases the price of a put knock-in. Therefore, banks tend to mark dividends low so that they by the put DI at a lower price.

New kind of autocall: version fix decrement. Redce the dividend exposure. <https://www.structuredretailproducts.com/academy/expertviewarticle/77768>

Worst-off is the most used autocall in the market. Bank are short correl. In order to diversify its risk (risk recycling), a bank must buy (e.g call versus call).

Also, there is a correlation skew.

Geovar -> geometric dispersion (from geometric variance)

Corridor swap are used and var swap too (correl skew in this, don’t know why?)

The covariance is more important than just variance for multiasset.

To hedge the delta, it’s always spot.

Seller of autocall sensitivities:

* Short delta (buy stocks to hedge)
* Long vega (hedge vega by shorting puts)
  + The problem with vega is that it increases when the spot decreases. Usually, all banks are in the same direction. Therefore, they sell vega at the same time (it implies bad price)

Vega buckets are used (with the spot) to see how it behaves.

You need to roll your vega hedge because it’s impossible to vega hedge 10 years.

Dividends are difficult to hedge (div swap or forward), it’s usually hedge in a discretionary way.

Day 2 of an autocall (day after you sell it):

* The part that makes PnL is the carry PnL

Theta: you have theta when you have a right (option). It depends on the implied vol of the put.

Gamma depends on the realized vol.

Carry Pnl -> banks are earning money when realized vol > implied vol

Gamma cash . For theta (not sure):

Long gamma when you sell an autocall (when you buy a barrier option in general).

Cross-gamma -> helps with the correl

You need to add the cross-gamma in the Carry Pnl for multi-assets options.

There is between 1 and 3 bps of theta loss every day in carry PnL.

The gamma is earned when you lock-in your gains (delta hedge).

Banks are often short correl.

There are different kinds of autocalls:

* Equally-weighted
* First n
* …
* Issuer callable: it is the issuer that chooses when to stop.
* Autocall call: at maturity, you have a call option. Not that expensive because high proba of autocall before.

The observations dates can be American or Bermudans.

Reverse convertible: autocall without autocall (only at maturity). Modele slv important, forward smile.

Types of coupons:

* Phoenix: coupon barrier at each date
* Snowball: coupon paid only if it autocalls (all coupons are paid)

Vol of vol: banks are short vol of vol (not sure, no explanation yet).

Sensi speed: move of gamma with regard to spot (third derivative). Useful when you have a lot of barriers (e.g. daily fixing).

Volga: vol of gamma (vocabulary is weird but he said this).

Coral:

In a Black Scholes world, 90 and 110 theta call, which one is higher ? In blacksholes, it’s log normal, therefore, you have more chance to go to 110 than 90 because 110/100 <100/90 so higher theta for 110% call. (because closer to ATM)

The gamma profile of an ASR starts around 0 and ends around 0 with a max at min maturity (hill/mountain form)

Juan: Pegasus: monthly returns of SP500 and remove the best month, call on the sum of the remaining. If call on SP500 worth 20%, Pegasus worth 8-9%, surprising!

Models: SV, SV local beta (forward skew input).

Light innovation: every week, new trade ideas

Successful: principal protected.

Autocall: price under several models and do algebra with it:

LV + (SV – LV) + (correl skew – LV) + (Stochastic rates – LV)

Carlo Didonna: talked about dual binary (SP500<4000 and realized<specific number)

Ibe: talked about option on vol controls and also the difficulty of thematic business, no vol surface, you have to guess it if you want to sell an autocall for instance.

Girl in vol strats: the vega of an ATM option with strike K1 < K2 if inferior to the one with same characteristic but with strike K2 because vega=N’(d1)S\*sqrt(T)

Others: use corridor variance swap to hedge autocall due to the Vega profile that is mostly around the barrier.

Timer: 1-day crash put

Jeremy Marck (square point, trading vol discretionary): **call ratio:** buy one call 120 and sell 2 at 130, this can have a negative price

**Delta skew**: you buy an option with vega 100k and ATM vol 20 and 90% vol 25. If you have a move of spot -10%, you make 500k pnl from vega because you have 25 vol now, this is delta skew, when your delta hedge at the beginning, you should consider this.