

MEET THE PRATICITIONERS



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CIB – Global Market
9 Novembre 2020



BNL
GRUPPO BNP PARIBAS

SUMMARY



MEET THE PLACE AND THE PLAYERS

RISK MATTERS

CURRENT MARKET VIEW

HOW TO LOOK AT RISK

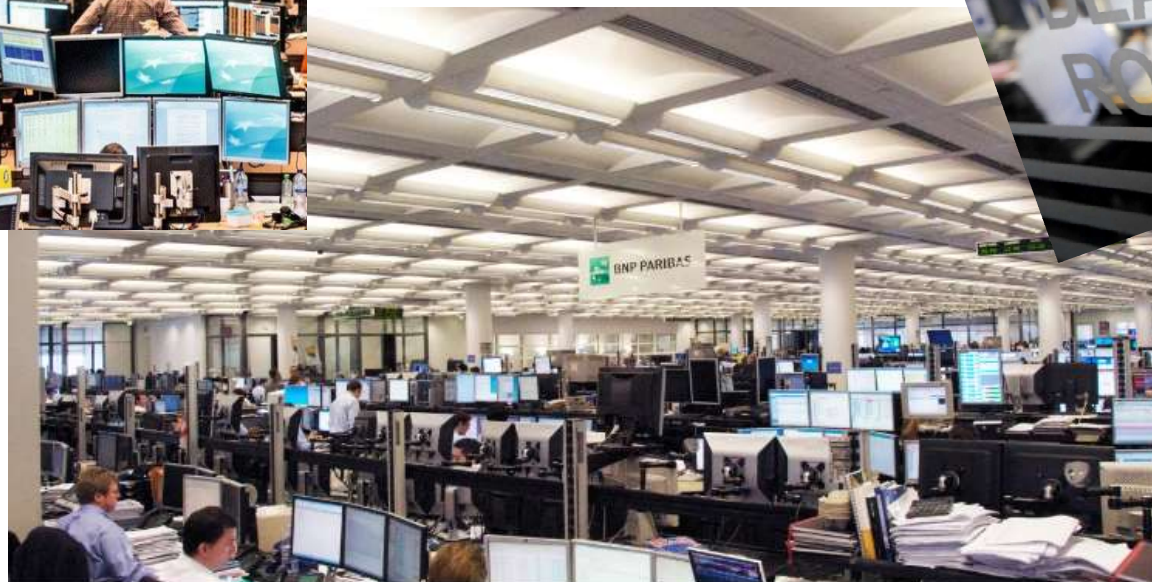
OTC INSTRUMENTS TO MANAGE RISK

CONNECTING DOTS AND SHARING THE FUTURE

APPENDIX 1

MEET THE PLACE AND THE PLAYERS

TRADING FLOOR



Quants
IT developers
Support Teams
Technical Analysts
Risk Manager
Product Managers
Business Managers
Economists and Researchers

Bear / Bull
Bid / Offer
OTC / Listed
Support / Resistance



Trader



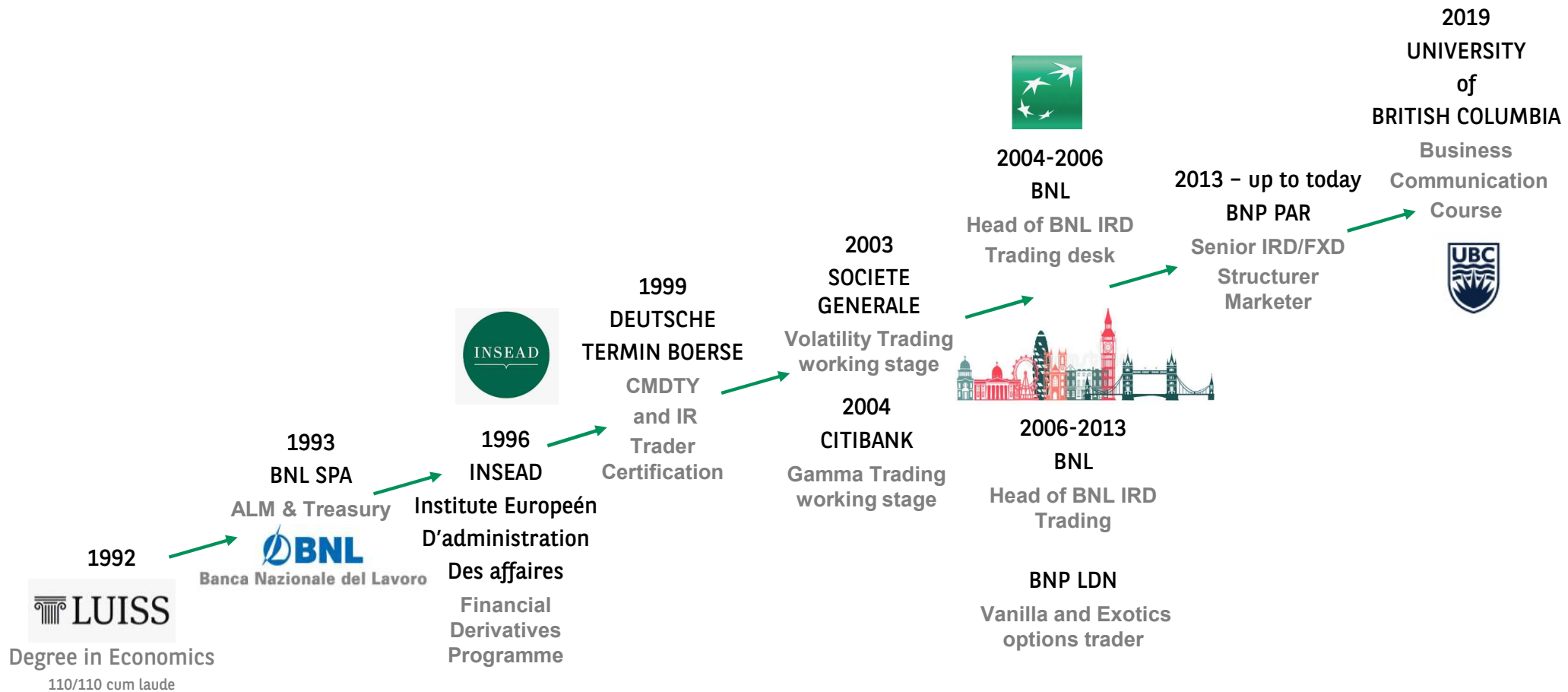
Structurer



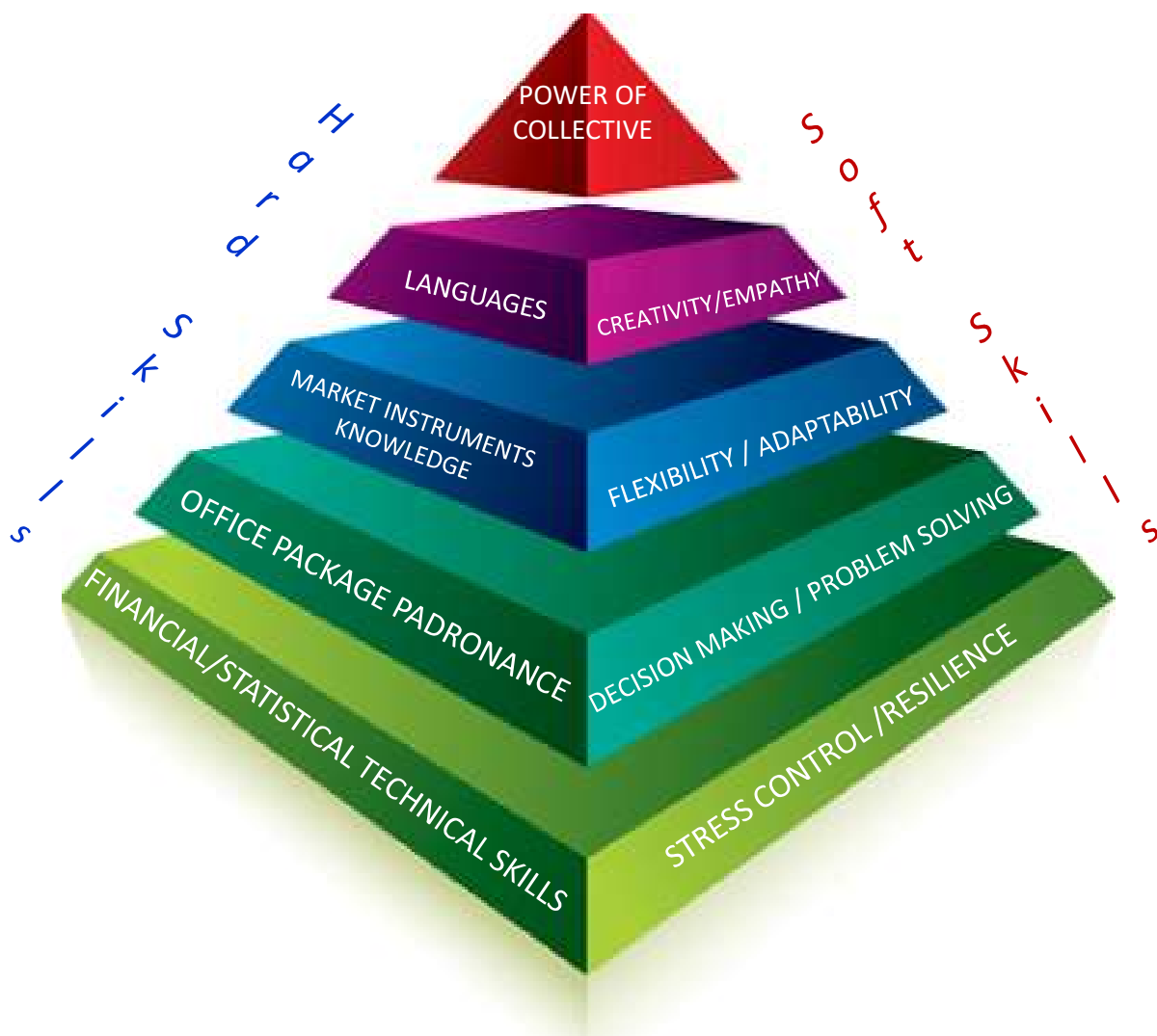
Marketer

CAREER PATH

SIMONA DEL GRECO



KEY COMPETENCIES FOR A JOB INTERVIEW



«Keep moving to be stable»

P. Gabriel

RISK MATTERS

MARKET RISK

Systematic risk affecting the performance of the financial markets in which a Client is involved, that cannot be eliminated through diversification, though it can be **timely hedged or assumed**.



IR risk covers the volatility of the economic performance due to interest rates move and it's relevant to **asset and liability** underlyings

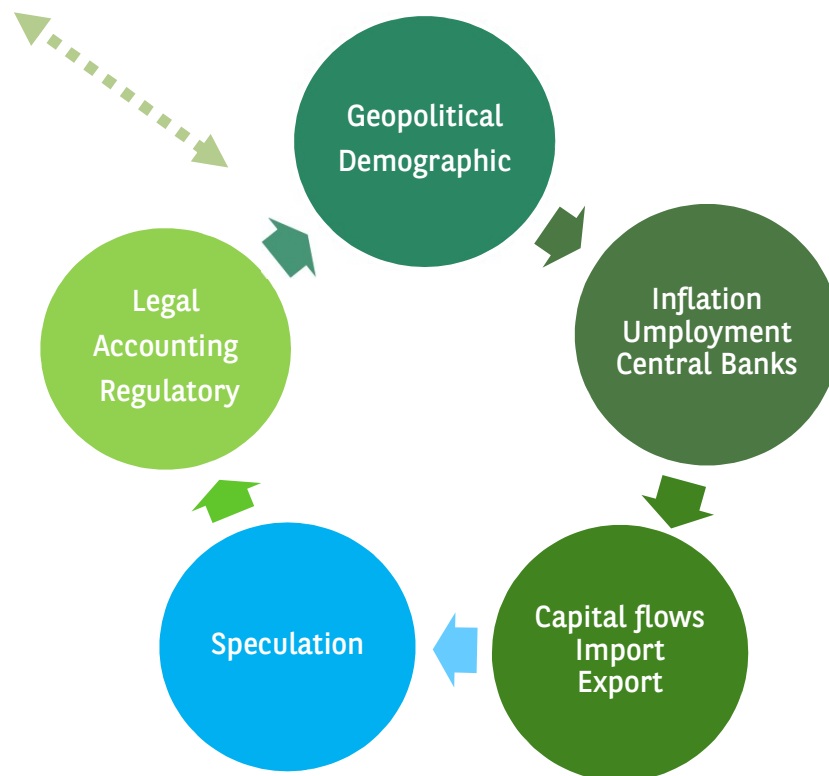
FX risk or exchange-rate risk arises from the change in the price of one currency in relation to another, affecting **importers or exporters**



Customers perceive the probability of loosing or gaining money in their sensitive underlyings (**PNL**)

Traders consider the mark to market (**MTM**) value of the instruments that they price and manage through greeks

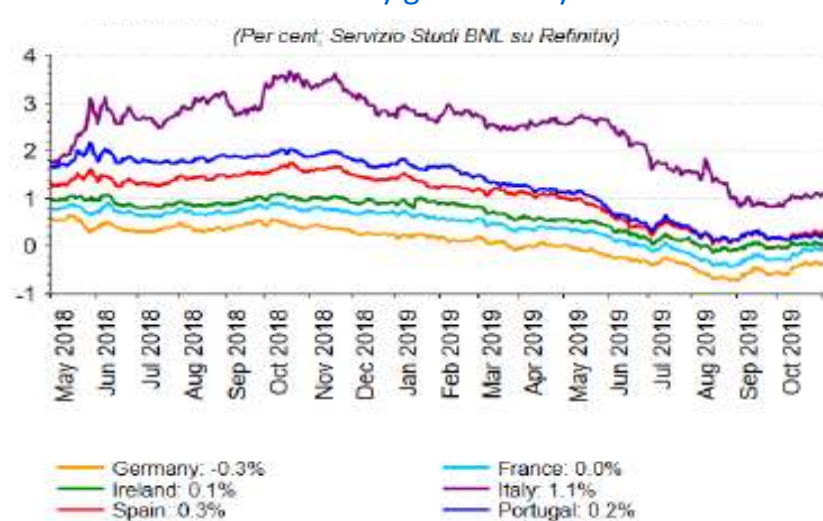
Risk managers / Regulators pay attention to value-at-risk (**VaR**) that quantifies a portfolio's potential loss and its probability to occur



CURRENT MARKET VIEW

- ✓ **Rates** - at the lowest level ever seen. Market players suggest buying dips in bonds (the trend will last)
- ✓ **Ratings** - credit agencies will stay put on Italy as EU and ECB overcompensate fiscal dynamics (IT overwhelming debt)
- ✓ **ECB** - economists expect 500bn PEPP (Pandemic Emergency Purchase programme) expansion in Dec and until December 2021. Even with an aggressive easing among activities and jurisdictions, they would not be able to knock EUR back more than short-term (strong euro)

EU area 10y govt bond yields



€ Govt Benchmark	€ Ann Swap
2Y	-0.742 -0.516
3Y	-0.807 -0.508
4Y	-0.796 -0.482
5Y	-0.773 -0.449
7Y	-0.704 -0.371
10Y	-0.567 -0.230
30Y	-0.148 0.011

ITL vs DEM 10y govt bond spread



10Y EU and US swap rates

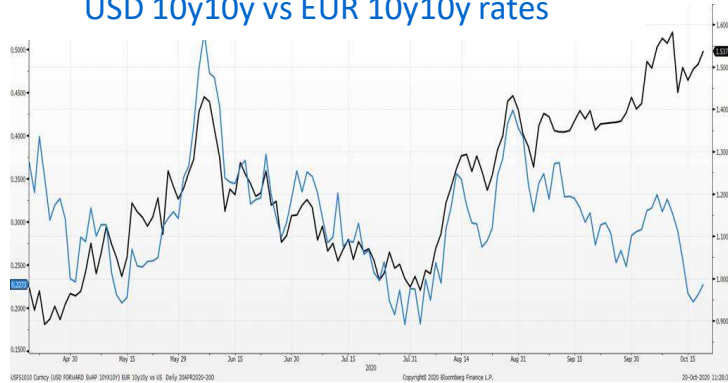


GV	Ask/Chg	Swap Mid
2Y	0.143	0.232
3Y	0.178	0.266
4Y	0.248	0.326
5Y	0.335	0.406
7Y	0.550	0.581
10Y	0.778	0.807
20Y	1.329	1.155
30Y	1.564	1.224

CURRENT MARKET VIEW

- ✓ **Strategy** - the \$-escape route remains attractive as the yield differential has increased (with a breakdown in correlation between US and EU rates) and FX-forward hedging costs remain near multi-year lows (US bonds are attractive)
- ✓ **Fed** - will no longer "head off higher inflation" by pre-emptively raising rates before full employment is achieved. Rates won't rise before inflation hits 2% with prospect to exceed this level "for some time".

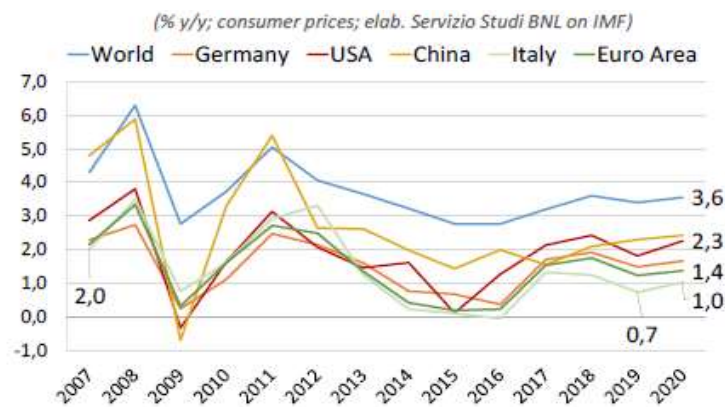
USD 10y10y vs EUR 10y10y rates



EURUSD spot and 6m implied vol



Inflation 2007 - 2020

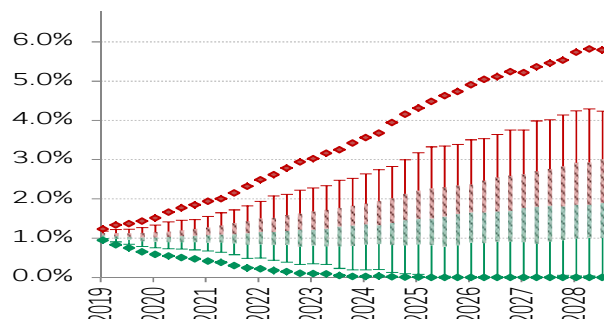


HOW TO LOOK AT RISK

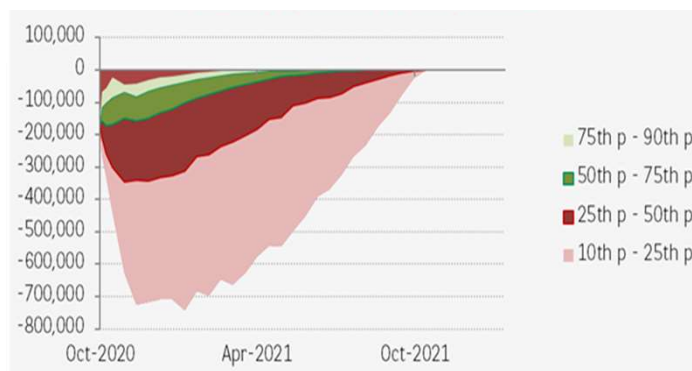
THE CLIENT VIEW: visualizing possible scenarios

- ✓ Different way to manage the risk generate different **risk profiles**
- ✓ Extreme scenarios are by their nature less likely but not impossible. They are statistically significant representing the 20% of all the results
- ✓ In the extreme scenarios, the financial hardship could increase on average by more than 100% above the base scenario

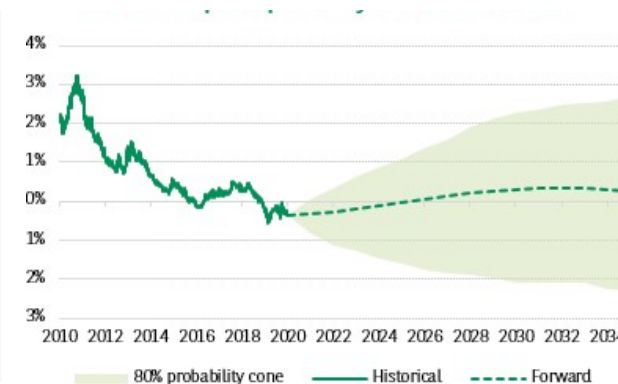
Financing rate simulation with no hedge



MTM evolution in percentiles



5y swap: probability cone on the next 15yrs



**EXTREMELY BEARISH
SCENARIO**
15% Probability

- Disbursement < 65,700€

BEARISH SCENARIO
15% Probability

- 65,700€ - 120,000€

CENTRAL SCENARIO
50% Probability

- 120,000€ - 217,000€

BULLISH SCENARIO
15% Probability

- 217,000€ - 286,000€

**EXTREMELY BULLISH
SCENARIO**
15% Probability

- Disbursement > 286,000€

HOW TO LOOK AT RISK

THE TRADING VIEW: the book management

A trader never approaches risk deal by deal but as a **global ptf risk**, using greeks to price and manage financial products

DELTA - The speed

$$\Delta = \frac{\partial V}{\partial S}$$

- ✓ expresses the price change of a portfolio based on the underlyings change
- ✓ is the hedge ratio and is between 0 and 1 for a call option and -1 to 0 for a put option
- ✓ its value depends on whether the option is "in-the-money", "at-the-money" or "out-of-the-money"

GAMMA – The acceleration

$$\Gamma = \frac{\partial \Delta}{\partial S} = \frac{\partial^2 V}{\partial S^2}$$

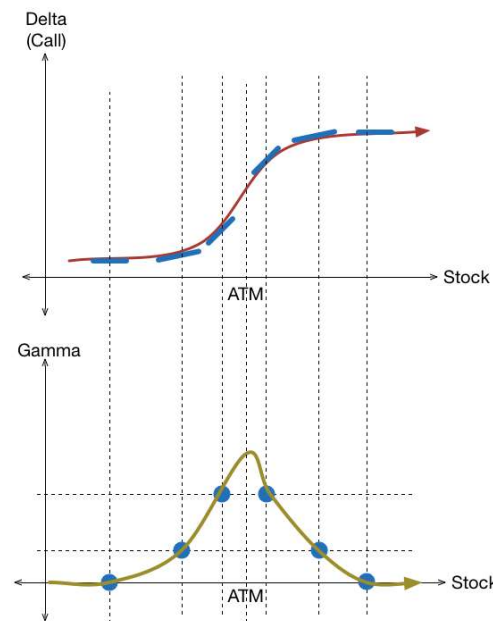
- ✓ the rate of change in an ptf's delta per 1% move in the underlying asset's price
- ✓ the convexity
- ✓ long option position have a positive gamma, short ones have a negative gamma
- ✓ gamma decreases approaching zero as an option gets deeper ITM and OTM. It's at its highest when the price is ATM

THETA – The deceleration

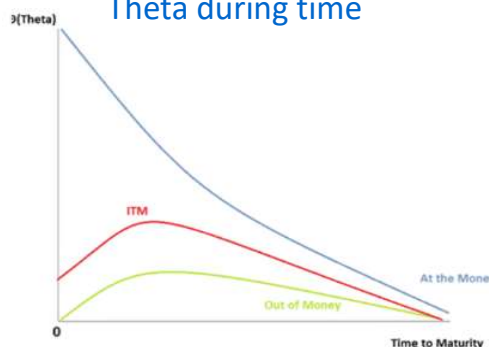
$$\Theta = -\frac{\partial V}{\partial \tau}$$

- ✓ time decay
- ✓ time works against long option holders
- ✓ not linear because it's a function of the time²

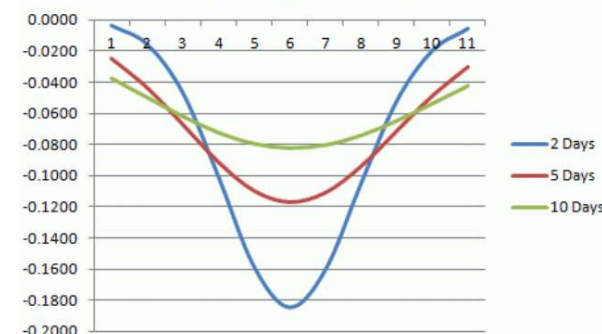
Delta and Gamma of a long call



Theta during time



ATM Option Theta



HOW TO LOOK AT RISK

THE MOST TECHNICAL COMPONENT

VEGA $\nu_f = \frac{\partial f}{\partial \sigma}$

- ✓ theoretic impact on the portfolio price of changes in the implied volatility of the underlying
- ✓ it diminishes approaching the maturity
- ✓ ATM and OTM options are most sensitive to changes in volatility and therefore have the highest Vega values

EUR 3m10y Implied Volatility



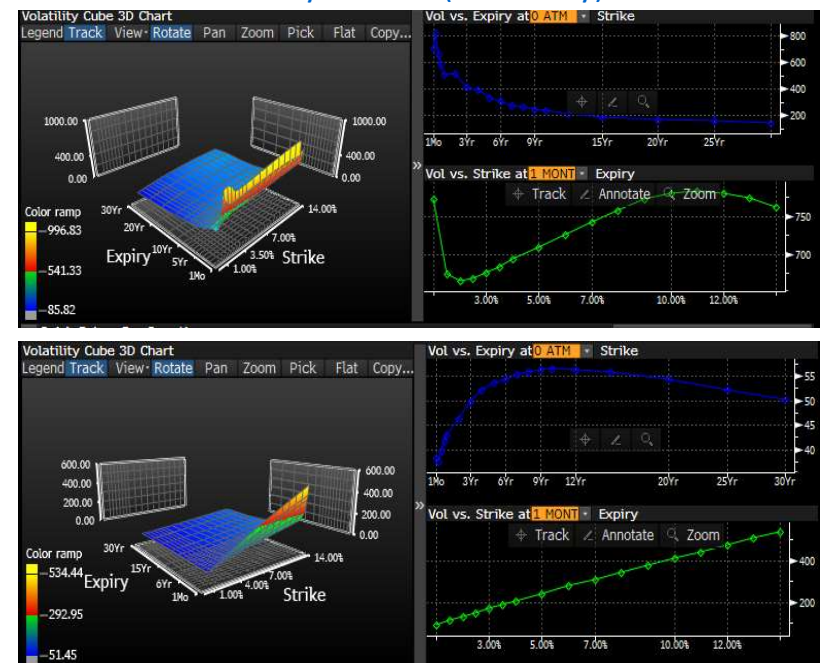
VANNA $\frac{\partial \Delta}{\partial \sigma} = \frac{\partial \nu}{\partial S} = \frac{\partial^2 V}{\partial S \partial \sigma}$

- ✓ the rate at which the Delta and Vega of an options will change as the volatility and price of the underlying market change respectively

VOLGA $\frac{\partial \nu}{\partial \sigma} = \frac{\partial^2 V}{\partial \sigma^2}$

- ✓ vega convexity that determines the rate of change in vega on account of a unit change in volatility

Volatility Surface (the hanky)



HOW TO LOOK AT RISK

THE CUBE

- ✓ Volatility will stay compressed for a long time because although the market is stretched (10y gov future struggles to break the highest level and short-term rates are at the very negative -0.50% level), with the backdrop of lockdowns across Europe the market does not expect a big rise in yields
- ✓ After US election, the EUR Implied volatility is trading at the lows of the year (even lower than pre-COVID levels)

As of 02/11/2008

EUR ▾ EUR BVOL Cube (Default) ▾ Mid ▾ Date 11/02/08 ▾ ↺																	
95) Analyze Cube 90) Market Data																	
Swap Curve (201) Euro (vs 3)										Index Tenor		3M ▾		<input checked="" type="checkbox"/> Show Vol Black			
View Tenor (Absolute) ▾ 10YR										Discounting		IBOR ▾		<input type="checkbox"/> Show Strikes			
<input checked="" type="radio"/> Table <input type="radio"/> Charts																	
Expiry	ATM	1.00%	1.50%	2.00%	2.50%	3.00%	3.50%	4.00%	5.00%	6.00%	7.00%	8.00%	9.00%	10.00%	11.00%	12.00%	13.00%
1Mo	152.32	340.01	255.03	212.17	192.66	178.22	167.25	158.86	145.31	135.25	127.39	120.96	115.55	110.57	105.63	100.70	95.77
3Mo	182.76	440.59	383.59	326.85	270.11	220.89	202.42	191.01	174.56	163.82	155.25	148.38	142.69	137.94	133.71	129.95	126.40
6Mo	146.60	324.54	282.57	240.43	198.28	175.34	163.50	154.48	140.42	130.30	122.85	116.49	111.02	106.71	102.85	99.37	96.41
9Mo	129.26	295.41	257.58	219.58	181.51	156.87	145.52	137.18	124.34	115.05	108.31	102.52	97.80	94.04	90.63	87.62	85.03
1Yr	112.06	266.60	232.45	198.18	163.84	138.45	127.77	119.99	108.35	99.98	93.84	88.59	84.63	81.37	78.43	75.87	73.64
2Yr	116.56	122.56	122.31	122.01	132.64	128.35	124.61	121.47	115.60	109.62	112.63	106.29	95.16	91.51	88.44	85.68	83.03
3Yr	91.27	156.31	141.42	126.47	116.39	109.03	103.23	98.43	90.90	84.87	74.85	74.43	73.45	70.65	68.21	66.06	63.94
4Yr	91.45	157.93	142.35	126.73	117.10	109.80	103.80	98.96	91.51	85.57	80.86	77.09	73.85	71.06	68.62	66.38	64.17
5Yr	75.55	132.03	118.29	105.16	97.15	91.20	86.24	82.15	75.99	71.09	67.19	63.97	61.23	58.95	56.94	54.98	53.03
6Yr	68.87	121.19	107.95	95.97	88.65	83.15	78.64	74.93	69.26	64.82	61.28	58.36	55.89	53.79	51.88	49.99	48.10
7Yr	62.64	110.61	97.75	87.00	80.37	75.31	71.25	67.90	62.70	58.71	55.52	52.87	50.66	48.75	46.91	45.08	43.25
8Yr	60.72	107.00	93.82	83.79	77.43	72.52	68.57	65.39	60.32	56.43	53.38	50.82	48.67	46.77	44.89	43.02	41.14
9Yr	58.67	103.14	89.79	80.41	74.31	69.54	65.72	62.74	57.83	54.08	51.16	48.70	46.61	44.69	42.77	40.86	38.95
10Yr	56.69	99.24	85.74	76.99	71.15	66.51	62.84	60.06	55.29	51.71	48.92	46.55	44.52	42.57	40.62	38.67	36.72
12Yr	57.58	97.59	84.61	75.89	70.07	65.57	62.07	59.17	54.42	51.03	48.23	45.90	43.83	41.88	39.96	38.05	36.14
15Yr	58.97	95.41	82.45	74.11	68.53	64.09	60.59	57.85	53.29	49.83	47.07	44.80	42.86	41.01	39.17	37.32	35.48
20Yr	70.83	109.42	93.57	84.62	78.03	73.06	69.19	65.92	60.66	56.73	53.60	51.01	48.65	46.32	43.98	41.65	39.32
25Yr	87.91	135.94	116.26	105.15	96.98	90.79	85.97	81.93	75.39	70.48	66.61	63.38	60.47	57.58	54.70	51.82	48.93
30Yr	91.27	141.36	120.80	109.25	100.78	94.33	89.33	85.15	78.38	73.29	69.28	65.94	62.92	59.92	56.91	53.91	50.90

As of 02/11/2020

EUR		EUR BVOL Cube (Default)								Mid		Date		11/02/20							
95) Analyze Cube		90) Market Data																			
Swap Curve		(201) Euro (vs 3														Index Tenor		3M		<input checked="" type="checkbox"/> Show Vol Black	
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Expiry	ATM	1.00%	1.50%	2.00%	2.50%	3.00%	3.50%	4.00%	5.00%	6.00%	7.00%	8.00%	9.00%	10.00%	11.00%	12.00%	13.00%				
1Mo		122.85	97.44	73.80	146.31	182.73	212.46	236.69	273.65	302.49	325.41	344.30	360.28	374.07	386.78	399.33	411.89				
3Mo		150.69	121.94	95.24	182.21	230.65	269.90	301.87	350.46	388.43	418.57	443.38	464.34	482.41	499.00	515.36	531.74				
6Mo		124.15	102.15	81.65	150.46	193.13	227.43	255.33	297.59	330.67	356.88	378.42	396.60	412.27	426.58	440.68	454.79				
9Mo		109.74	90.13	71.71	100.45	119.91	135.58	148.41	157.36	165.85	179.10	189.97	199.15	207.06	214.26	221.35	228.45				
1Yr		95.19	77.91	61.55	52.37	47.71	44.23	41.57	17.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
2Yr		105.90	93.82	82.26	51.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
3Yr		82.19	73.11	64.23	57.58	53.28	49.94	47.25	43.29	40.22	37.82	35.86	34.27	32.80	31.55	30.32	29.10				
4Yr	91.39	81.38	72.63	63.91	57.35	53.11	49.79	47.14	43.20	40.15	37.77	35.81	34.19	32.80	31.55	30.32	29.10				
5Yr	72.81	66.59	59.56	52.46	47.18	43.73	41.03	38.86	35.63	33.14	31.18	29.57	28.23	27.10	26.06	25.05	24.00				
6Yr	65.82	60.17	54.03	48.82	44.57	40.92	38.41	36.44	33.32	30.99	29.20	27.73	26.44	25.26	24.19	23.18	22.22				
7Yr	59.32	53.27	47.64	41.85	38.19	35.59	33.49	31.78	29.21	27.22	25.65	24.36	23.28	22.35	21.50	20.66	19.88				
8Yr	56.96	52.09	47.29	42.29	38.42	35.85	33.82	32.14	29.58	27.58	26.00	24.74	23.66	22.73	21.92	21.18	20.40				
9Yr	54.64	50.69	46.57	42.22	38.38	35.92	33.98	32.32	29.76	27.88	26.32	25.02	23.93	23.01	22.21	21.49	20.80				
10Yr	52.72	49.23	45.64	41.82	38.13	35.80	33.91	32.37	29.86	28.03	26.45	25.21	24.15	23.22	22.41	21.70	21.00				
12Yr	52.29	48.04	43.58	39.23	36.13	33.91	32.33	30.61	28.29	26.49	25.03	23.82	22.81	21.94	21.15	20.40	19.65				
15Yr	48.01	41.97	36.16	32.79	30.32	28.49	26.91	25.66	23.66	22.13	20.87	19.66	18.44	17.22	15.99	14.77	13.55				
20Yr		51.99	46.74	43.38	40.74	38.54	36.73	35.26	32.75	30.79	29.19	27.86	26.73	25.71	24.71	23.71	22.70				
25Yr		61.40	56.22	52.57	49.55	47.02	44.93	43.24	40.25	37.89	35.97	34.36	32.98	31.73	30.49	29.25	28.00				
30Yr		61.84	57.47	54.04	51.09	48.59	46.50	44.82	41.78	39.38	37.40	35.75	34.32	33.02	31.74	30.45	29.15				

- ✓ A big factor behind this has been the extremely range bound nature of the market on the back of a dovish ECB
- ✓ Implied volatility would been even lower (approaching 2018-2019 all-time lows) were it not for the US elections last week

XVAs COMPONENTS

XVA Charges reflect the actual cost of resources paid by the trader at inception and consequently removed from the trade value. They are a number of different “valuation adjustments” that banks must make when assessing the value of derivative contracts that they have entered into.

- ✓ **CVA**: Credit Valuation Adjustment = Price for Counterparty Risk, difference between the risk free value and the true risk-adjusted value
- ✓ **LVA**: Liquidity Valuation Adjustment = Price for Liquidity Cost, reflects the estimated cost to fund the derivatives position. Embeds an accounting items (FVA) and an analytical item (residual liquidity cost above the FVA).
- ✓ **KVA** charge: Kapital Valuation Adjustment = Adjustment for regulatory capital that must be held by the Institution against the exposure throughout the life of the contract
- ✓ **OisBor**: bor to OIS adjustment = Price of dual discounting for imperfect CSAs (1-way CSAs, high threshold CSAs...)
- ✓ **IM cost**: Initial Margin cost = Funding cost associated to 1 way CSAs for which we need to post or more generally funding costs of the initial margin specific to centrally cleared transactions.

$$CVA + LVA + KVA_{charge} + OisBor + \underbrace{IM\ cost}_{1-way\ CSA\ only}$$

OTC INSTRUMENTS TO MANAGE RISK

THE BASIC BRICKS

INTEREST RATE SWAP & SWAPTION

- ✓ contract in which one stream of future interest payments is exchanged for another based on a specified principal amount (usually a fixed interest rate for a floating rate, or viceversa)
- ✓ in swaption you can buy/sell the possibility but not the obligation to enter the swap

COLLAR or CILINDER

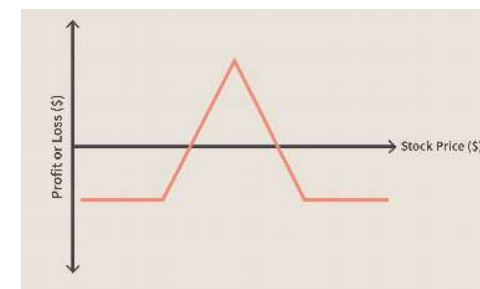
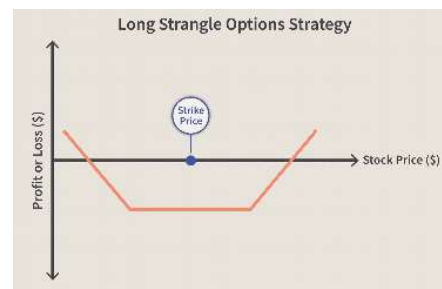
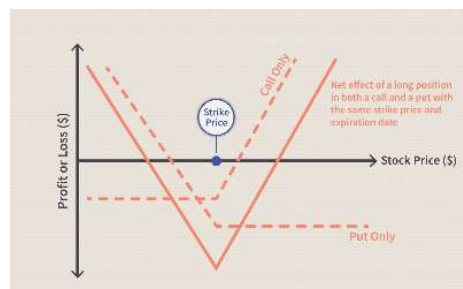
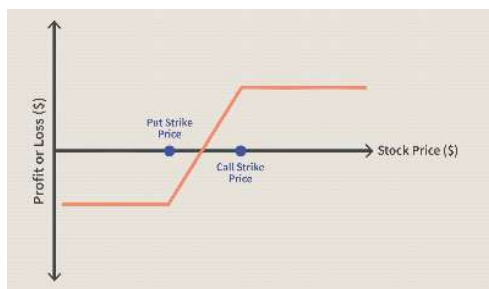
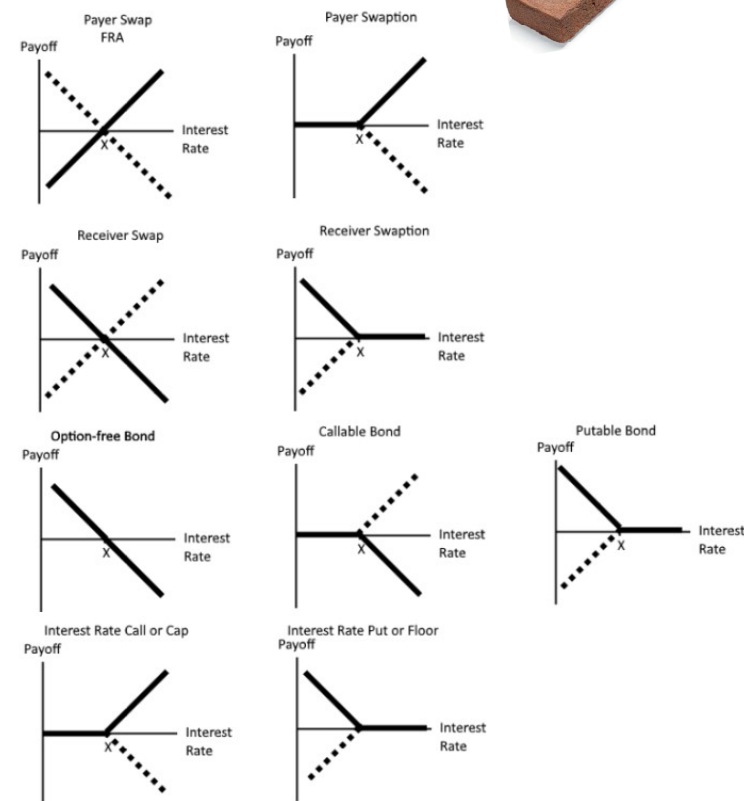
- ✓ an option strategy that limits the range of possible positive or negative returns on an underlying (+/-call and -/+put)

STRADDLE / STRANGLE

- ✓ a neutral options strategy that involves simultaneously buying a put and a call option for the underlying security with the same (straddle) or different (strangle) strike and the same maturity date

BUTTERFLY

- ✓ use 4 options (calls or puts) with the same expiration but three different strike prices (+/-ITM call -/+2ATM calls +/-OTM call)



TAILORED SOLUTIONS

THE COMBINED BRICKS

IR risk

IRS IN & OUT

- ✓ contract in which one stream of future floating interest payments is exchanged for a fixed one but if at fixing dates a ref rate is above a certain level, for that period, payments are not exchanged

CALLABLE/PUTTABLE IRS

- ✓ contract in which one stream of future interest payments is exchanged for another but the option buyer has the faculty to exit at certain date/dates without paying any fee

RANGE ACCRUAL

- ✓ if the index value falls within a specified range, the customer is credited/debited the coupon rate, else nothing

REVERSE FLOATER

- ✓ derivative that has a coupon rate that varies inversely with a benchmark interest rate

FX risk

KNOCK-IN FWD

- ✓ the client buys calls vs puts (or v.v.) with the same strike price. The options sold is live only if at maturity the fixing is above (below) a KI barrier

TARGET FWD

- ✓ the client buys (sells) a foreign currency at certain periodic dates at a strike usually better than forward level but only till an accumulated value (number of figures) is reached.

RESET FWD

- ✓ the client buys a synthetic forward at Strike1 but if the fixing is above or below a barrier, the client is exercised on a worse Strike 2

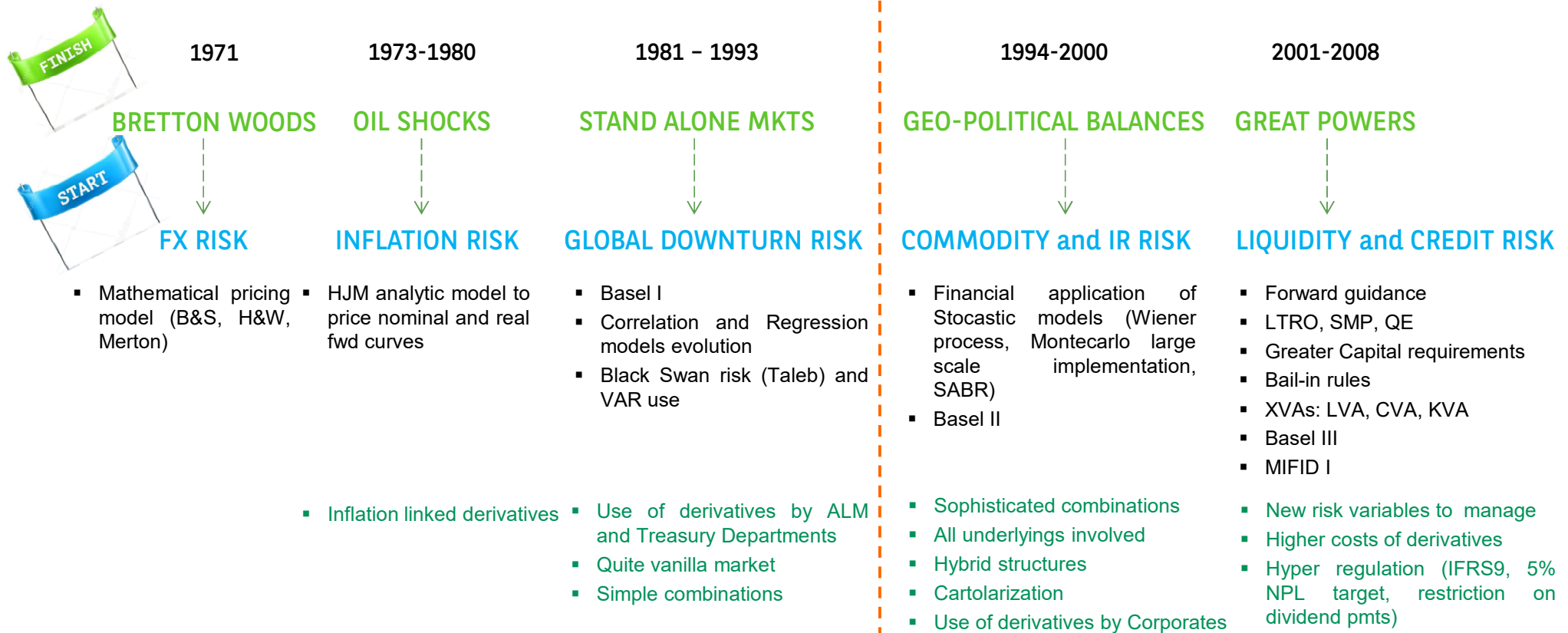
HYBRID risk

DIGITAL NOTE

- ✓ the client buys a note at a fixed or floating rate that increases if a market parameter (rate, inflation, fx spot,...) is above or below an agreed level



CONNECTING DOTS



SHARING THE FUTURE



- 2009 Barak Obama
- 2009-2018 Greek Crisis
- 2011 Arab Spring
- 2011 Syrian war
- 2015-2017 Several ISIS attack
- 2015 Migration crisis
- 2016 British referendum (Brexit)
- 2016 Chinese equity mkt crisis
- 2017 OPEC cuts output
- 2019 USA-China commercial war
- 2019 COVID pandemy

2009-2014

2015 - 2020

GLOBAL GROWTH

INTERNATIONAL COOPERATION

GREEN MARKET

LIQUIDITY BUBBLE

- Sustainable Bonds
- Green Bonds
- Back to vanillas
- MIFID II, MIFIR
- Antifraud and money laundering legislations
- Strengthening of investor protection and improvement of functioning of financial markets, making them more efficient, resilient and transparent
- Hunting for yield
- Very low volatility
- Negative yields
- Quite stable and flattish credit spreads
- Positive loans
- Sustainable bonds
- Bonds with not guaranteed capital

M&A ACCELERATION

Resolution framework and bail-in favour opportunistic acquisition (i.e. Bankia -Caixabank and UBI-Intesa), helping second tier banks.

No large cross border expected until the EU Banking Union is completed

DIGITALIZATION

Banks rely less on their expensive branch network and more on automated processes to increase penetration and stay supportive to Clients

NO DOUBLE DEEP RECESSION

Second wave is unlike first wave, its geographically not generalized. New lockdowns are unlike earlier ones. Rotation story means risk off is not broad based also because investors will rotate out of virus hit areas to regions better managed

ESG - Environmental Social and Governance

it's more and more requested to put money to work on issues ranging from adapting to and mitigating climate change, improving working conditions and diversity, to tackling inequality

BANKING SYSTEM

Diversified and integrated models to satisfy both funding and investment needs, across regions and business lines



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La banca per un mondo che cambia

Meet the practitioners

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APPENDIX 1

NOTE: The below descriptions are applicable to those buying CCY1 and selling CCY2 with respect to a currency pair quoted as CCY1CCY2 (CCY2 per 1 unit of CCY1).

Product	Payoff Diagram	Description
Par Forward*		At each Expiry: <ul style="list-style-type: none"> The client buys CCY1 / sells CCY2 at the Strike Rate
Vanilla Option*		At each Expiry: <ul style="list-style-type: none"> The client has the right, but not the obligation, to buy CCY1 / sell CCY2 at the Strike Rate <p>Client pays a Premium amount upfront.</p>
Capped Option*		At each Expiry: <ul style="list-style-type: none"> The client has the right, but not the obligation, to buy CCY1 / sell CCY2 at the Strike Rate If spot is above the Cap Rate, the client buys CCY1 / sells CCY2 at the spot rate minus the difference between the Cap Rate and the Strike Rate <p>Client pays a Premium amount upfront.</p>
Knock-Out Option		At each Expiry: <ul style="list-style-type: none"> The client has the right, but not the obligation, to buy CCY1 / sell CCY2 at the Strike Rate If spot is above the Knock-out Barrier the client loses the right to buy CCY1 / sell CCY2 at the Strike Rate <p>Client pays a Premium amount upfront.</p>
Collar*		At each Expiry: <ul style="list-style-type: none"> If spot is above Strike Rate 1, the client buys CCY1 / sells CCY2 at Strike Rate 1 If spot is below Strike Rate 1 and above Strike Rate 2, the client has no obligation and can therefore buy CCY1 / sell CCY2 at the spot rate If spot is below Strike Rate 2, the client buys CCY1 / sells CCY2 at Strike Rate 2
Forward Extra*		At each Expiry: <ul style="list-style-type: none"> If spot is above the Strike Rate, the client buys CCY1 / sells CCY2 at Strike Rate If spot is below the Strike Rate and above the Knock-in Barrier, the client has no obligation and can therefore buy CCY1 / sell CCY2 at the spot rate If spot is below the Knock-In Barrier, the client buys CCY1 / sells CCY2 at Strike Rate
Ratio Forward*		At each Expiry: <ul style="list-style-type: none"> The client buys CCY1 / sells CCY2 at the Strike Rate; however, <ul style="list-style-type: none"> If spot is below the Strike Rate, the client buys CCY1 / sells CCY2 in a leveraged amount
Capped Forward*		At each Expiry: <ul style="list-style-type: none"> If spot is below the Cap Rate, the client buys CCY1 / sells CCY2 at the Strike Rate <ul style="list-style-type: none"> If spot is below the Strike Rate, the client buys CCY1 / sells CCY2 in a leveraged amount If spot is above the Cap Rate, the client buys CCY1 / sells CCY2 at the spot rate minus the difference between the Cap Rate and the Strike Rate
Fade Forward		At each Expiry: <ul style="list-style-type: none"> The client buys CCY1 / sells CCY2 at the Strike Rate; however, <ul style="list-style-type: none"> If spot is below the Strike Rate, the client buys CCY1 / sells CCY2 in a leveraged amount If spot is above the Knock-out Barrier there is no obligation for the client to buy CCY1 / sell CCY2
Target Forward		At each Expiry: <ul style="list-style-type: none"> The client buys CCY1 / sells CCY2 at the Strike Rate and accumulates $\text{Max}(0, \text{Fixing} - \text{Strike Rate})$ towards the Target Amount; however, <ul style="list-style-type: none"> If spot is below the Strike Rate, the client buys CCY1 / sells CCY2 in a leveraged amount If the accumulative profit is greater than the Target Amount then the client buys CCY1 / sells CCY2 at a rate = $\text{Fixing} - (\text{Target} - \text{accumulated profit})$, and there are no further cash flows for future Expiries

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