# SECURITIES FINANCING ARBITRAGE

ESLSCA

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Security Financing & Arbitrage

# Securities Financing Arbitrage

**ALL THE MATH YOU NEED IN TRADING YOU GET IN THE FOURTH GRADE**

# Summary

1

# ARBITRAGE PRINCIPLES

① Definition
② Working Principles
③ Fundamental Techniques
④ Security Financing Arbitrage

# 1.1. Definition & basic concepts

1

## Definition

*« Arbitrage is the simultaneous purchase and sale of an asset in order to make profity from a difference in the price ».*

"Arbitrage" arises whenever it is possible for an investor (the "arbitrageur") to enter into simultaneous trades which - once combined - result in locking up a Profit, therefore both exploiting the arbitrage opportunity, and contributing to the Market efficiency through the induced convergence of the once diverging prices.

(*Source : Vernimmen*)

# 1.2. Working principles of Arbitrage

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## Basic

- **Arbitrage** is a quantitative investment technique designed to take advantage of **price discrepancies** between financial instruments (such as two comparable financial assets) or markets. Financial markets offer a wealth of opportunity for this.

- For example, companies with large market capitalizations
    - may be listed in a number of countries and on several different markets (example Total, Volkswagen, Nokia,…)
        - Multiple listing under the same ISIN code ;
        - ADRs and GDRs ;
    - often issue large quantities of derivative instruments such as warrants and convertible bonds,

- **Pricing discrepancies** between these various market listings and their hedging instruments generate **arbitrage opportunities**.

# 1.3. Fundamental Techniques

1

**Arbitrage consists in capturing unjustified prices on financial markets which require multiple skills.**

Prerequisite for the implementation of any arbitrage :

① In depth knowledege of a precise doculmentation (official statement from the issuer)
② Mathematics and IT tools
③ Legal and Regulatory components,
④ Settlement capacities,
⑤ Multiple simultaneous execution capacity on markets,
⑥ Borrowing shares when sold short

It is Mandatory

✓ To be efficient in multiple fields,
✓ To closely work with multidisciplinary teams,
✓ To be strongly innovative and flexible,

Turns the arbitrage job as value added function which delivers stronger performance than other financial traditional jobs.

# 1.3. Fundamental Techniques

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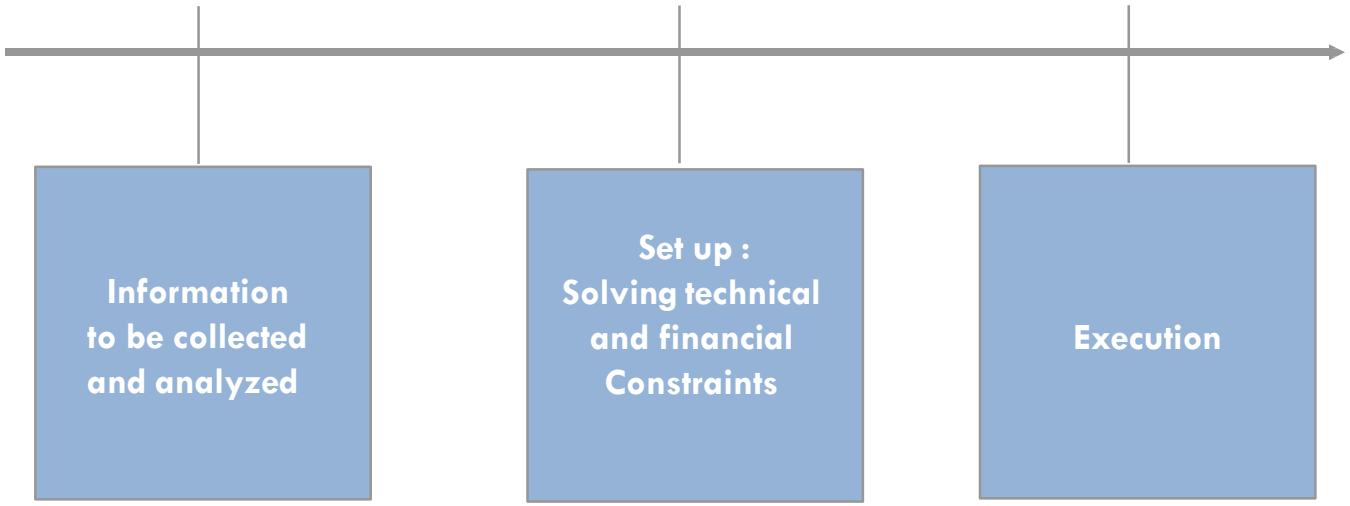
## Implementation Process (Value Added chain)

- Master every single steps of the implementation of an arbitrage internally, ruled by a very precise and strict set of processes.

- The aim at an arbitrage desk is that its intrinsec value added is to be applied under an **industrial** process which apply **systematically** trades preidentified where the return has been validated.



# 1.3. Fundamental Techniques

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## In Brief

- Based on common sense, arbitrage uses **only mathematically measurable data** taken directly from market activity and leaves **no room for speculation**.

- It is simply a matter of exploiting inefficiencies in the financial markets through the application of **scientifically-grounded analytical methods**.

# 1.3. Arbitrage Philosophy

- Arbitrageurs carrie out a wide series of operations designed to draw the benefits of **unjustified price differences** between **convergent financial instruments**.
    - Arbitrageurs consider these differences to be effectively "unjustified" solely on the basis of objectively measurable mathematical or statistical processes. Objectively measurable means that the results are identical over time and are not influenced by the operator involved in the measurement.
- This rational approach leaves **no room for rumors or speculation**.
    - Unlike speculators, who react to all kinds of short-term information, arbitrageurs trade on a rational basis using a very specific model. They never try to predict which way the market will go and always reason in terms of relative value. They buy one product and sell another simultaneously, spreading their risk over a large number of trades.
- Through their action, arbitrageurs in fact **contribute to reducing market volatility**
    - because they do not practice "naked short selling", which means that they do not sell assets in advance and therefore never speculate. Since each sale is backed by the purchase of a correlated product, they **supply essential liquidity to the markets**.

# 1.4. Security Financing Arbitrage

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## What is it ?

Consists in the implementation of market neutral strategies (delta/gamma neutral) which aims at

- Taking advantage of unjustified spreads between two financial assets which shall converge at term ; and
- Capturing spreads linked to implicit repo rate and financing among a large scope of listed derivatives ;

# 1.4. Security Financing Arbitrage

1

## What is it ?

- Security financing arbitrage is fueled by the ***heterogeneity*** of financing curves implied in each derivative transaction.
    - Spot and term transactions being asymmetrical by nature, the term structure existing in cash or fixed income instruments can also be unveiled in equivalent equity-based instruments.
- However, the market profile of equity-based repo / stock loans exhibits a ***specific risk / reward profile***, fundamentally different from the one usually encountered in bonds or money markets:
    - besides a typical interest rate / FX sensitivity, equity borrowing / lending costs are largely affected by the short interest,
    - the occurrence of corporate actions (dividends, capital increase, etc.) as well as the credit and tax situations of counterparties.

# 1.4. Security Financing Arbitrage

**EQUITY MARKET NEUTRAL**
Strategies that match long stocks with short stocks in order to reduce most of the portfolio's systematic or broad market risk.

| Strategies | Position | Example | Delta | Gamma | Hedging |
|---|---|---|---|---|---|
| Pairs trade | Long eqty | Long UG | +1 | 0 | Required |
| | Short eqty | Short RNO | -1 | 0 | |
| Right issues | Long Right/Scrip | Long FP scrip | +1 | ++ | Required |
| | Short eqty | Short FP FP | -1 | 0 | |
| New Shares vs Ordinaries | Long new | Long SANNV FP | +1 | 0 | Required |
| | Short Ord. | Short SAN FP | -1 | 0 | |
| Basis Arbitrage | Long equity | Long FP FP | +1 | 0 | NA |
| | Short SSF | Short TOTG=J8 | -1 | 0 | |

# 1.4. Security Financing Arbitrage

## PRODUCTS / INSTRUMENTS FOR HEDGING PURPOSES

| | Type | Term Structure Maturity | Main Advantages | Elements of Risks |
|---|---|---|---|---|
| **Borrowing** | OTC (bilateral Master Agreement) | Open (recall possible) | • Highly Flexible<br>• adjustments possible | • Recall<br>• Credit Risk |
| **Buy-Sell Back** | Listed | Term | • Differed settlement<br>• Strict / no cancellation possible when matched | • Credit Risk<br>• Div Risk<br>• Interest Rate Risk |
| **Short Exposure** (Buy Underlying Short Swap) | OTC (ISDA mostly) | Term | • Flexible | • Credit Risk<br>• Recall |
| **Single Sotck Futures** (Buy underlying / Sell SSF) | Listed (EUREX/ICE in Europe) | Term (multiple expiries) | • Liquidity on Screen / Market makers | • Credit Risk (Clearer)<br>• Div Risk<br>• Interest Rate Risk |
| **Synthetic** (Buy underlying / Sell Synthetic B Put | Listed / OTC | Term (multiple expriries) | • Liquidity mostly offered by Single Stock Volatility trader | • Credit Risk (Clearer)<br>• Div Risk<br>• Interest Rate Risk |

# 1.4. Security Financing Arbitrage

The point is to be able to extract from any derivative structure a repo rate ;

- Future (Single Stock Future or Index future)
- Synthetic (Option combination)

If SLB on open is the spot rate, the listed derivatives instruments would allow you to create a term structure.

**Example**

- Single Stock Future on Total (FP FP / ISIN **FR0000120271**)
- **TOTG=J8** EUREX Maturity April 2018 / Cash settled
- Basis on screen -0,66 / -0,58

# 1.4. Security Financing Arbitrage

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## Implicit repo rate extraction from an equity derivative

**FUTURES PRICER**

| | | | | |
|---|---|---|---|---|
| **Stock** | FP FP | | **Futures** | |
| **Start** | | | **Theoritical Future price** | **46,009338** |
| Trade date | **12/03/2018** | T+ 2 | Basis | 0,610662 |
| Value Date | 14/03/2018 | | | |
| **End** | | | | |
| Trade date | **20/04/2018** | T+ 1 | Day Convention | 360 |
| Value Date | 23/04/2018 | | | |
| **Length of trade** | 40 days | | | |
| **Implied IR** | -0,36000% | | | |
| **Stock price** | 46,6200 | | | |
| **Stock with Carry** | 46,6014 | | | |
| | | 1) | Insert Dates | |
| | | 2) | Get Implied IR's (from MCUR page on BBG) | |
| **Dividend** | | 3) | Put in Div detail | |
| | | 4) | Put in Stock price | |
| **Amount** | 0,620 | 5) | Check Day Convention | |
| **All-in Level** | 95,50% | | | |
| Div Pay Date | 09/04/2018 | dd / mm / yyyy | | |
| **Div accruing for** | 14 days | | | |
| **Implied IR** | -0,3730% | | | |
| **Div with Carry** | 0,5920 | | | |

# 1.4. Security Financing Arbitrage

1

## Implicit repo rate extraction from an equity derivative

**BACKWARD CALCULATION**

| | | | | |
|---|---|---|---|---|
| **Theo. Future price** | 46,009338 | | **ALL-IN LEVEL** | **95,50%** |
| **Div x IR** | 0,5920 | 1) | Enter Futures Price | |

2

# ARBITRAGE TYPOLOGIES

① Arbitrage & market risks
② Theorical Basis / Basket trading
③ New shares / Old shares
④ Capital Increase (and scrips)

# Arbitrage Typologies

There are essentially two major types of arbitrage strategy, mainly involving equities and equity derivatives:

- arbitrage without market risks (***endogenous**** Risk)
- and arbitrage with market risks (***exogenous**** Risk)

**endogenous* : caused by factors inside the organism or system suffered from endogenous depression - endogenous business cycles

**exogenous* : caused by factors (such as food or a traumatic factor) or an agent (such as a disease-producing organism) from outside the organism or system

(*Source Merriam-Webster dictionary*)

# 2.1. Arbitrage without market risk

2

**Principle**

Arbitrage **without market risks** involves transactions without any directional or event risk:

- fully hedged
- and subject to a strict convergence protocol within a predefined timeframe.
- Exposure is limited to operational risk such as hedging errors, calculation errors or custodian default.

# 2.1. Arbitrage with exogenous risks

2

## Principle

- Arbitrage with **exogenous*** risks attached carry some element of risks in the convergence protocol (Risk-Arbitrage or Statistical Arbitrage/Relative Value/Long-Short).

- Arbitrage **with market risks** involves certain convergence risk and affect the potential success of a corporate action.
    - typical example is "risk arbitrage", which involves buying the stock of a company subject to a takeover bid or swap offer and selling the stock of the acquiring company.
    - However, a number of suspensive conditions could cause the deal to fail, for example the requirement for the acquiring company to obtain a minimum percentage of the target for the offer to go ahead. For these strategies, risks are systematically identified and hedged (if and when possible).

* **Statistical arbitrage** includes a wide variety of systematic strategies and asset classes from intraday pair-trading (e.g. auto manufacturer A vs auto manufacturer B) to mid-term cross asset lead-lag effects (e.g. interaction between commodity prices and inflation). Usually quants build innovative models to predict short to mid-term variations and relative pricing effects of many liquid assets.

(*Source ABC arbitrage*)

# 2.2. Basis Arbitrage (Basket trading-Index Arbitrage) 2

## Principle

Basis arbitrage consists in **buying** (resp. *selling*) a future contract (either single stock or index) and in **selling** (resp. *buying*) the underlying (either index components or single stock) simultaneously.

## Asymmetry sources

- Dividend and repo rates are the most common sources of asymmetry on short term transactions,
- The relative tax treatment of counterparties (withholding / financial transaction tax) may offer a competitive edge on some trades.
- Implementation of such arbitrage strategies (Cash & Carry / Reverse) depends on
    - Liquidity access
    - Financing access

# 2.2.Basis arbitrage (Basket trading-Index Arbitrage)

2

## Index arbitrage implementation

- Relation between the Cash and the Future
  - **Basis** : Price difference between the future contract and the spot value of the underlying ;
  - **Carry**: Difference between overall financing (rate benchmark & repo rate/borrowing fees) and capitalized value at maturity of dividend amount paid ;

- Balanced relation implies that Basis is equal to
  i. Fo – Io = Io * r – D
  ii. Fo th = Io * (1 + r) – D
    - Fo market value of the Future (Fo th theorical value) ;
    - Io market value of the Index spot ;
    - r interest rate on the period ;
    - D overall amount of dividend converted in index points capitalized over the period ;
- Basis
  i. Basis = Future – Cash = Fo - Io

# 2.3. New shares / Old shares

2

## Principle

- Such arbitrage consists in **buying** new shares and in **selling** ordinaries shares (old shares) simultaneously.

- New shares appear when some issuers increase their capital :
    - Either via a capital increase in cash or via free shares allocation ;
    - Either via a dividend payment made in the form of additional shares or via the exercice of subscription rights or via CB exercised,
    - Or via option exercised.

- New shares do not have the same entitlement than old or ordinary shares, new shares do not give right to the dividend.

- Those new shares wil lbe assimilated to old ones at payment date.

# 2.3. New shares / Old shares

2

## Implementation

Prerequisite is to locate/identify supply ;

- Stable cheap supply required
- Borrow shall include a dividend (All-in trade if possible),
- multiple Lenders (dilution of the recall risk),

- Ability to hedge or not the dividend risk
- Funding requirement,

# 2.3. New shares / Old shares



## Risks

- Inaccurate or Unbalanced hedging / Execution (auction on new shares vs coninuous market on ordinary shares),
- **SLB Risk** (*recall* or *rerate*),
- Dividend Risk ),
- Rate Risk (impact on the basis due to a rate hike or drop),
- Operational Risk,
- Counterparty/Credit

## Return

Depends on

- Ability to find out supply in cheap/tax efficient conditions,
- Find liquidity on the New shares

# 2.4. Scrip / Optional dividend

## Definition

The term Optional Dividend is typically used outside the UK where shareholders have the option to take a dividend in cash or in stock. Typically by default the holder will receive cash unless they elect otherwise. Like any other dividend, in order to be eligible you must have purchased your existing shares prior to the ex-entitlement date for the event.

The conventions and classification of payments vary from country to country.

(*Source Interactive Investor Article ID: Auth-2280*)

What is it exactly?

- A Capital increase (dilution and arbitrage opportunities) ;
- An option (a Call option with a Floor being the gross dividend amount)
    - Reinvestment Price being the Strike Price
    - Maturity date being the last day of the option period
    - Payment date being the day you receive either cash or shares (if you have exercised your Call)

# 2.4. Scrip / Optional dividend



## Principle

- The French scrip example is highly interesting due
  - to the mechanism attached for the reinvestment price calculation ;
  - to a potential discout on reinvestment price up to 10% ;

**Article L232-19 du Code de Commerce :**

*« dans les sociétés dont les actions sont admises aux négociations sur un marché réglementé, le prix d'émission ne peut être inférieur à 90 % de la moyenne des cours cotés aux vingt séances de bourse précédant le jour de la décision de mise en distribution diminuée du montant net du dividende ou des acomptes sur dividende. »*

- Such arbitrages carry some impacts

  ✓ On the price of the underlying,
  ✓ On the volumes,

# 2.4. Scrip / Optional dividend

2

## Implementation

- There are multiple ways to implement such transactions :
    - Borrowed shares Cash Guaranted ;
    - Buying shares and short Single Stock future (expiry being post dividend) ;

# 2.4. Scrip / Optional dividend



## Risks

- High SLB risk (*recall* or *rerate*)
- Risks of inaccurate hedging due to the specificities of an Asian option hedging,
- Operational Risks,
- Counterparty/Credit

## Return

- High

# 2.5. Rights issues



## Principle

A **rights issue** is a way by which a listed company can **raise** additional **capital**. However, instead of going to the public, the company gives its existing shareholders the **right** to subscribe to newly issued shares in proportion to their existing holdings.

Mechanically, Rights issues increase the Short Interest and consequently request to borrow additional shares.

The more dilutive a capital increase the more expensive the borrow cost will be.

# 2.5. Rights issues



## Implementation

Prerequisite is to locate/identify supply ;

- put on hold a special,
- multiple Lenders (dilution of the recall risk),

The arbitrage consists in:

- Buying a Right
- Selling the underlying share in the ratio of the rights bought

# 2.5. Rights issues



## Risks

- **High SLB risk** (*recall* ou *rerate*)
- Inaccurate hedging,
- Operational Risk,
- Credit/Counterparty Risk

## Return

Important, depending on

- Dilutive impact
- Low floating of the issuer

3

# SENSITIVITY & EXPOSURE

① Market Sensitivities
② What is arbitrage sensitive to ?
③ Trends, Threats & Challenges

# 3.1.Market Sensitivities?



## Arbitrage sensitivity

- Some types of arbitrage may be sensitive to changes in the stock market environment. This is particularly true for risk arbitrage, which is influenced by the number and size of takeover deals in the market, and applies as well to volatility-driven arbitrage, which depends on the type and volume of instruments issued and the extent of market 'turbulence'.
- Many risks affect the potential success of corporate operations in capital markets. Anyone should develop sophisticated models that predict the probability of each new operation's success. You should utilize technology which includes the platform to apply the models on an industrial, global scale to capture any apparent risk mispricing in the market.

- Do not to restrict arbitrage activity to any product type or specific geographical area.

- Do not try to forecast market trends, but simply develops a range of complementary strategies, applicable to changing conditions.

# 3.1.What is arbitrage sensitive to ?

## Arbitrage sensitivity

| | Arbitrage with market risks | Arbitrage without market risks |
|---|---|---|
| Volatility | ++ | ++ |
| Interest rates ↓ | ++ | - |
| Interest rates ↑ | - | + |
| CAC ↓ | = | = |
| CAC ↑ | + | + |
| CAC ↓↓↓ | + | - |
| Corp. actions ↑ | + | + |
| High volumes | ++ | ++ |
| Low volumes | - | - |
| Euro | = | = |
| Corporate credits spreads | - | + |
| Credit crunch | - | - |
| Rational regulation | + | + |

* ++ very strong / + strong / = iso / - poor

# 3.3. Trends, Threats & Challenges



Security Financing Arbitrages are positively sensitive to:

- strong market volumes,
- volatility,
- number of corporate actions,
- regulation.

It is hard to predict volumetry, future volatility, number of corporate actions ; however regulatory environment evolves and its implementation timeframe allows to anticipate identifying opportunities in advance.

Security Financing Arbitrage and regulatory evolution are closely linked due to market fragmentation (atomicity of actors and large scope of structuration solutions).

4

# EXAMPLES

① New shares vs Ordinaries
② Scrip Option
③ Rights issues

# 4.1. Example New shares / Old shares

## Example Sanofi (SAN FP) vs Sanofi New shares (SANNV FP)

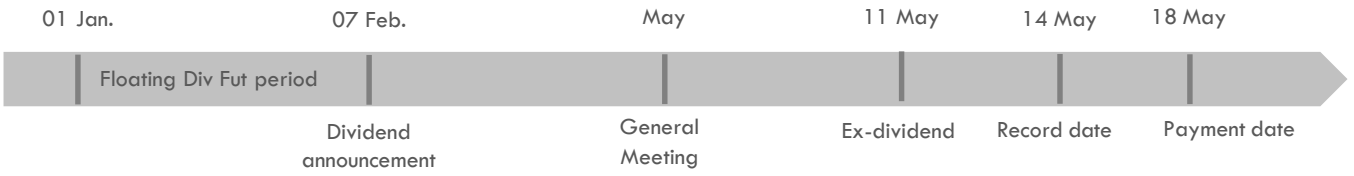
Sanofi New shares (**SANNV FP** - ISIN FR0013299450)

- Listed since January the 4th 2018
- Double auction @ 11,30 AM CET
- Price of 60,4 (price on the 5th of March 2018 @ 11,30AM CET on Euronext)

Sanofi Ordinaries (**SAN FP** - ISIN FR0000120578)

- Price of 63,91 (price on the 5th of March 2018 @ 11,30AM CET on Euronext)

**Arbitrage period** : from Jan the 4th till payment date (the 18th of May 2018)
**Gross Dividend amount** : 3,03 euros announced on February the 7th



# 4.1. Example New shares / Old shares

## Two different periods to implement this arbitrage

1. Before official corporate communication about dividend
    - Full Dividend Risk (*epsilon*)
    - Ability to cover Epsilon buying a *dividend swap* (*would freeze the margin hence the gain)*

2. After official corporate communication about dividend

    - Low Risk, low spread, low return (ability to borrow in cheap All-in conditions SAN FP will be the major part of the gain)
    - Liquidity issue on SANNV FP, only the ability to search for block trades on new shares would allow to build decent positions.

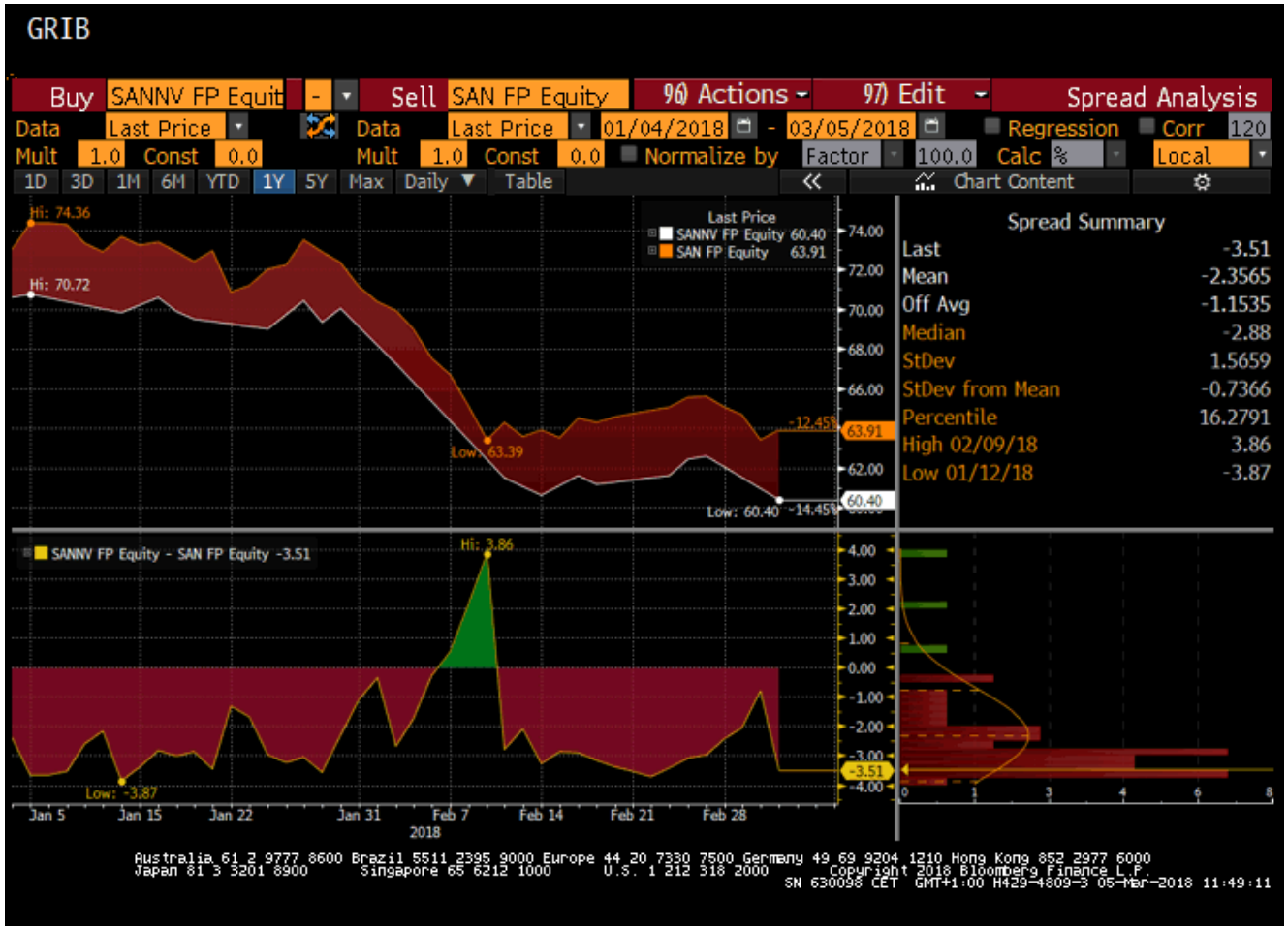
# 4.1 Example New shares / Old shares

| | | | | | | |
|---|---|---|---|---|---|---|
| **Today** | **03/05/18** | | | | | |
| **SANOFI** | **63,82** | **63,9** | | | | |
| **Yield** | **4,75%** | | | | | |
| NAME | | **SANOFI** | | | | |
| EX DATE | | **05/18/18** | | | | |
| Number of days | | 74 | | | | |
| Rate benchmark | Interpolated EUR rate | -0,331% | | | | |
| DIV GROSS | | **3,03** | | | | |
| Ratio | | **1 for 1** | | | | |
| **SANNV FP** | **BUY** | **SELL** | **SAN FP** | **BUY** | **SELL** | |
| | | | **BID** | | **63,91** | |
| **AUCTION** | **60,4** | | ASK | | | |
| **Margin Calculation** | | | **Borrow in % of Gross Div** | | **88%** | |
| **Gross Margin** | **3,5100** | Sell Price - Buy Price | | | | |
| **Carry** | - **0,0024** | Spread | | | | |
| **All-in level** | **2,6664** | Gross Div * AI | | | | |
| **Margin** | **0,8412** | Gross Margin + Carry - AI level | | | | |
| **Return** | 1,32% | | | | | |

# 4.1. Example New shares / Old shares

## Implementation of the Arbitrage

- Buy New shares and Sell Short Ordinaries
- Borrow of SAN FP, including dividend



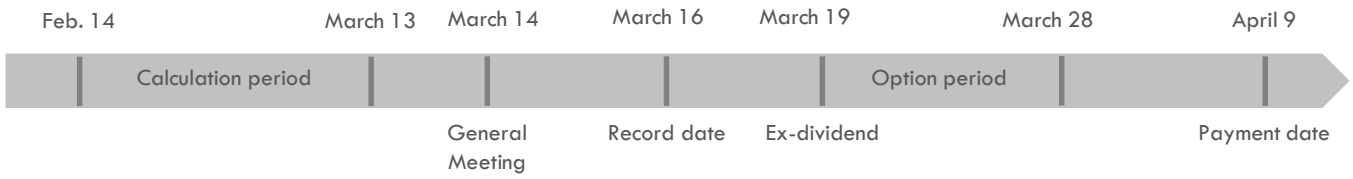
# 4.2. Capital Increase / Scrip Option

## Example Total (FP FP)

Total Ordinaries (**FP FP** - ISIN FR0000120271)

- Price of 45,66 (price on the 5th of March 2018 @ 11,30AM CET on Euronext)

**Arbitrage period** : from Feb the 14th till payment date (the 9th of April 2018)
**Gross Dividend amount** : 3,03 euros announced on October 27 2017
Discount is still undecided (from zero to 10%)




**Assumption : Borrow of 100k shs CG on 03/05/18**

# 4.2. Capital Increase / Scrip Option

| Today | 03/05/2018 | |
|---|---|---|
| **TOTAL SA** | **46,7** | **45,66** |
| Yield | 1,33% | |
| NAME | | TOTAL SA |
| EX DATE | | 03/19/2018 |
| DEADLINE inclusive | | 03/28/2018 |
| DIV GROSS | | 0,62 |
| **REF PERIOD START** | 14-févr | 45,365 |
| | 15-févr | 45,720 |
| | 16-févr | 45,560 |
| | 19-févr | 45,905 |
| | 20-févr | 46,050 |
| | 21-févr | 46,210 |
| | 22-févr | 46,420 |
| | 23-févr | 46,990 |
| | 26-févr | 47,475 |
| | 27-févr | 47,365 |
| | 28-févr | 47,000 |
| | 01-mars | 46,630 |
| | 02-mars | 46,150 |
| | 05-mars | 45,445 |
| | 06-mars | x |
| | 07-mars | x |
| | 08-mars | x |
| | 09-mars | x |
| | 12-mars | x |
| **REF PERIOD END** | 13-mars | x |

| | | |
|---|---|---|
| AVERAGE | | 46,306 |
| AVERAGE EN | **46,048** | 46,0478 |
| LESS DIV | 45,428 | 45,4278 |
| 100% | 45,428 | **Ref Price - Strike** |
| | 44,97 | **Ex Spot Price** |
| | 73,270565 | **Scrip Ratio** |
| | 0,613684367 | **Scrip Value in EUR** |
| | 98,98% | **Scrip Value div%** |

Spot Price - Di v

Reinv. Price / Div

Ex Spot Price / Scrip Ratio

Scrip Value in EUR / Div

# 4.2 Capital Increase / Scrip Option

**Number of shares to sell short for hedging purposes**

Classical mistake (oddball) Sell 1/20 of the shares equivalent to dividend

1,000,000 * 0,62 / 46,3

**Problem: « Recursivity »**

Number of shares to sell short shall take into account the fact that we shall be credited long div (hence scrip option) on the net holding at ex-date

**Solution:**

Equation (Nb – Nc) * Gross dividend / Pr = Nc

Nb is the number of shares acquired
Nc is the number of shares to sell short
D is the gross dividend
Pr is the Reinvestment Price

(1,000,000 – Nc) * 0,62 / 45,43 = Nc
**Nc = 13,463**

① Net position at ex-date : 1,000,000 -13,463 = 986,537
② New shares coming from subscription : 986,537 *0,62 / 45,43 = 13,463
③ Total Number at payment date : 986,537 +13,463 = 1,000,000

# 4.3. Capital Increase / Right issue

## Example Groupe Flo (FLO FP)

Groupe Flo
Price of 0,28 EUR (price on the 15th of June 2018 @ 11,30AM CET on Euronext)

- Announced Rights Ratio 18 per 1 @ EUR0.1
- Rights trade until 23 Jun, deadline 27 June, result 30 June, pay 5 July
- **OVERSUBSCRIPTION ALLOWED - pro-rate based on rights exercised**
- The TERP of the stock is 13c - but could trade well above that level during the deal
- Last deal in 2009 ( 1 for 3) saw 98.64% take up and a pro-rate of 1.8% - obviously this deal is significantly different

# 4.3. Capital Increase / Right issue

Gross Margin Calculation

- Buy 1 Rights (FLODS FP = euros) = 1 * 0.44 + 18 * 0.1 = **2.24 euros**
- Sell 1 share (FLO FP = euros) = 18 * 0.31 = **5.58 euros**

•Gross Return is 3.34 euros pour 18 actions, soit 0.185 pour 1 action

Stock Lending & Borrowing

- Identify end Lenders
- Mutualize/Diversify sources of supply

**From an arbitrage standpoint, SLB rate cannot represent more than 2/3 of the gross margin identified.**

Arbitrage Implementation

Never utilize all your borrow capacity within the first days of the quotation of the rights

- Track the SLB rate waiting for the spread to stabilize ;
- Let other arbitrageurs enter the spread, patience is key ;

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# Workshop

**On March 15, 2018,**

- FP FP quotes 47.19 euros, You have just borrowed 10,000,000 shares of FP FP CG, what shall you do

    a. Time to Get another coffee so you can think think about it
    b. Buy some shares
    c. Sell 95,101 shs immediately
    d. Sell 135,667 shs till payment date

- ELIOR FP quotes 18.03 euros ; What is the Fair Value of ***the scrip option*** as You have 1,000,000 shs to lend CG ?

    a. 99.8%
    b. 102.1%
    c. 104.3%
    d. 108.1%

# Workshop

**On March 16**

- On French Scrips, If you receive coupons (rights) post ex date, will your number of shares to sell is equivalent to the one you would have sold before ex date ?

    a. Of course, will be the very same number,
    b. No I would have sold less shares before ex date due to the recursivity of the parameters,
    c. No I would have sold more shares before ex date due to the recursivity of the parameters,
    d. No idea

- A Dutch market maker whom you have met in a pub, pretends that he traded Total June (TOTG=M8) @ -1.23, you would like to challenge him but what is the All-in equivalent?

    a. Avoid the discussion, you buy him another drink
    b. You are Fully lent long time ago
    c. 95,62%
    d. 102,58%

# Workshop

**On March 19,**

- FP FP quotes 47.175 euros, You have just borrowed 10,000,000 shares of FP FP CG @ 96%, What is your margin in % of the gross dividend ?

    a. -0,45%
    b. Infinite
    c. 3,8% of the div
    d. 4.5% of the div

**On March 28, at 5,30pm CET**

- Total quotes 45.6 euros, You have borrowed 10,000,000 shares of FP FP CG, you are delta/gamma hedged (short 65,500 shs / delta 49%) what shall you do ?

    a. Time to go to the Gym, so you can think think about it and Deal with it tomorrow
    b. Nothing to do, all cool
    c. Exercise your rights position of 10,000,000
    d. In the auction buy back your short position with a price limit of 45.7 eur and elect for cash

# Workshop

**On the 5th of May 2014,**

- UG FP quotes 9.53 and rights UGDS FP 1.51 euros, what is the gross margin in euro per share (regardless stock borrowing negative impact) ?

    a. -0.1012
    b. 0
    c. 0.1714
    d. 0.3

- One morning, the issuer Total (member of the CAC Index) announced a profit warning and cannot open at 9am CET, you want to short the stock at the opening, what shall you do?
    a. Impossible, nothing to do
    b. you buy the 39 components of the CAC 40 index
    c. You **sell** the CAC future (CFJ8) and simultaneously **buy** the remaining 39 components
    d. You **buy** the CAC future (CFJ8) and simultaneously **sell** the remaining 39 components

# ELIOR FP CACS

Cash Dividend Details

| | | | | |
|---|---|---|---|---|
| Company | Elior Group SA | | | |
| Security Type | Common Stock | Ticker | ELIOR FP | EUR 18.05 |
| Country of Issue | FR | ISIN | FR0011950732 | |
| Country of Domicile | FR | SEDOL | BN40H61 | |
| Distribution Type | Regular Cash | Frequency | Annual | |
| Announced Date | 12/06/17 | Currency | EUR | |
| Ex Date | 03/16/18 | Gross Amount | .42 | |
| Record Date | 03/19/18 | | | |
| Pay Date | 04/17/18 | | | |
| Confirm Date | 02/18/18 | | | |
| Election Date | 04/06/18 | | | |
| Scrip/DRP Option | Scrip Opt | | | |
| Reinvest Price | 16.88 | | | |
| DRP Discount | 5% | | | |

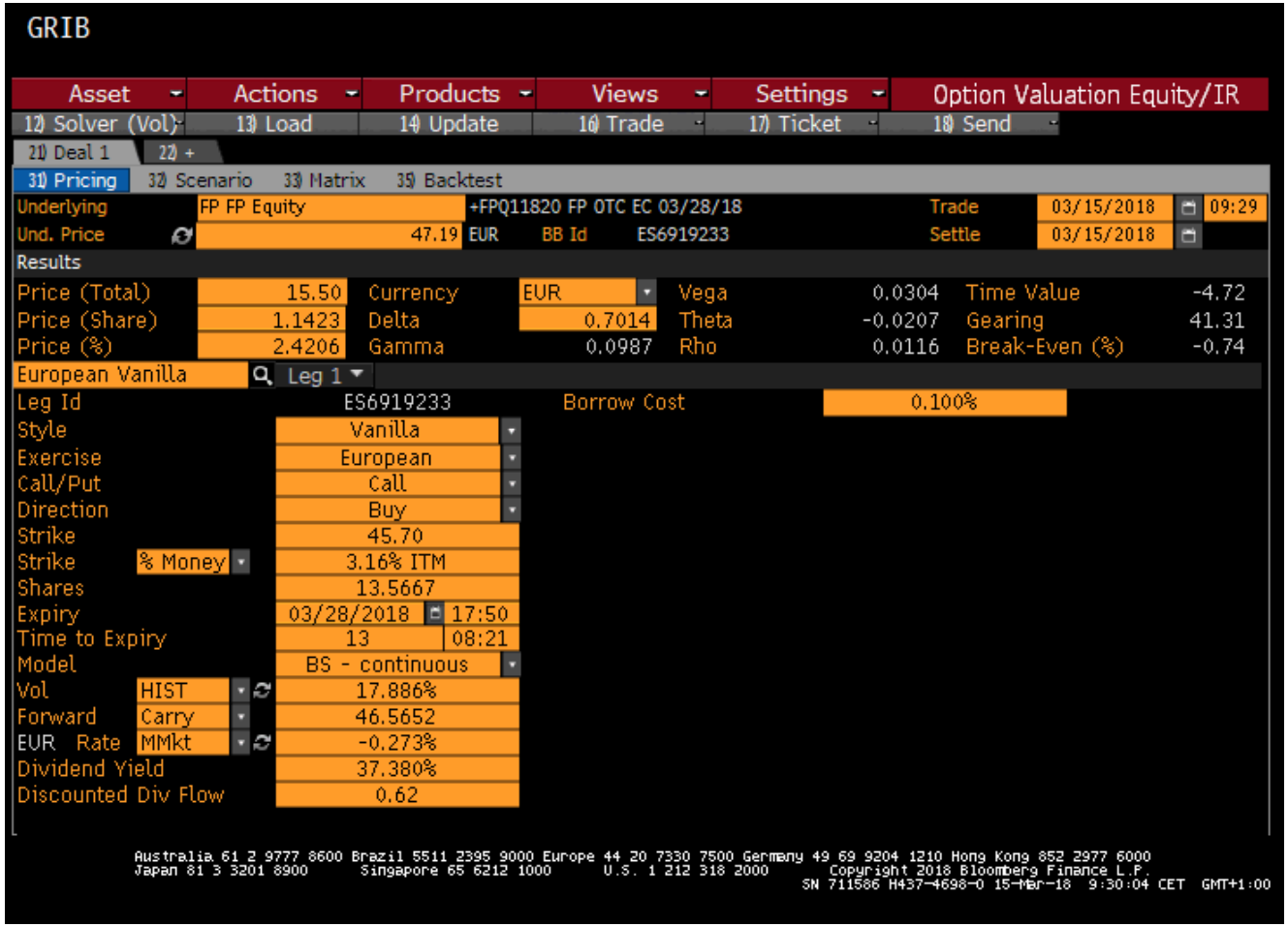
Action ID 156720649

Election period: 03/16/18 - 04/06/18
Coupon ISIN (not listed):FR0013320447

Australia 61 2 9777 8600 Brazil 5511 2395 9000 Europe 44 20 7330 7500 Germany 49 69 9204 1210 Hong Kong 852 2977 6000
Japan 81 3 3201 8900 Singapore 65 6212 1000 U.S. 1 212 318 2000 Copyright 2018 Bloomberg Finance L.P.
SN 630098 CET GMT+1:00 H442-2858-0 15-Mar-2018 09:12:36

# FP FP CACS scrip Q1

# FP FP Scrip option valuation



# UG FP capital Increase

# Delta / Gamma adjustments

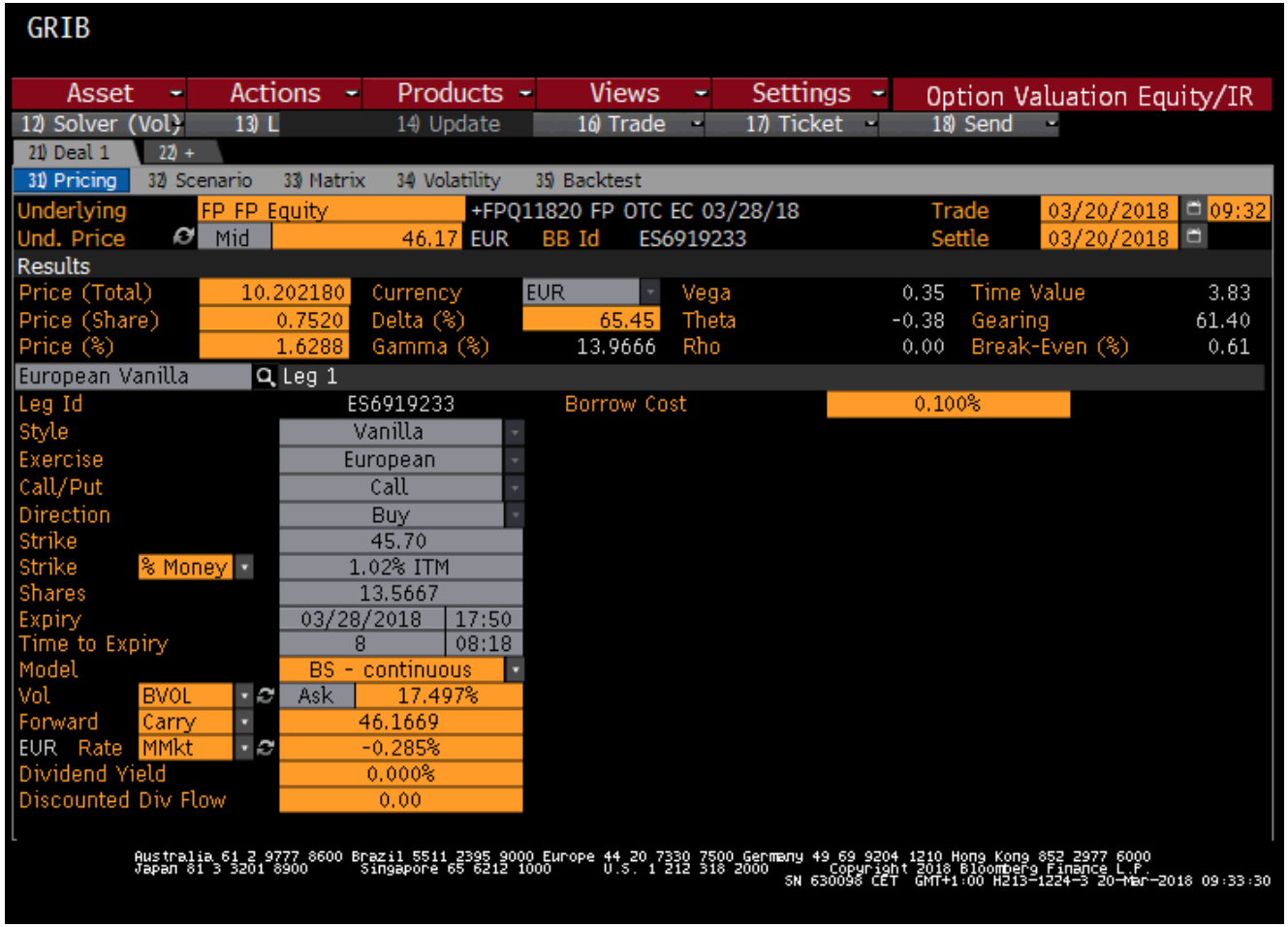
**Delta** is the ratio between the variation in the Option's Value and the variation in the price of the Underlying asset. Delta measures how much the Option's Value varies in currency units when the price of the Underlying asset varies by one currency unit. Delta is used to determine the number of units of the Underlying asset to buy (for a Call option) or to sell (for a Put option) to duplicate the corresponding Option payout profile.

The relationship between an option's price and the price of the underlying stock or futures contract is called its delta.

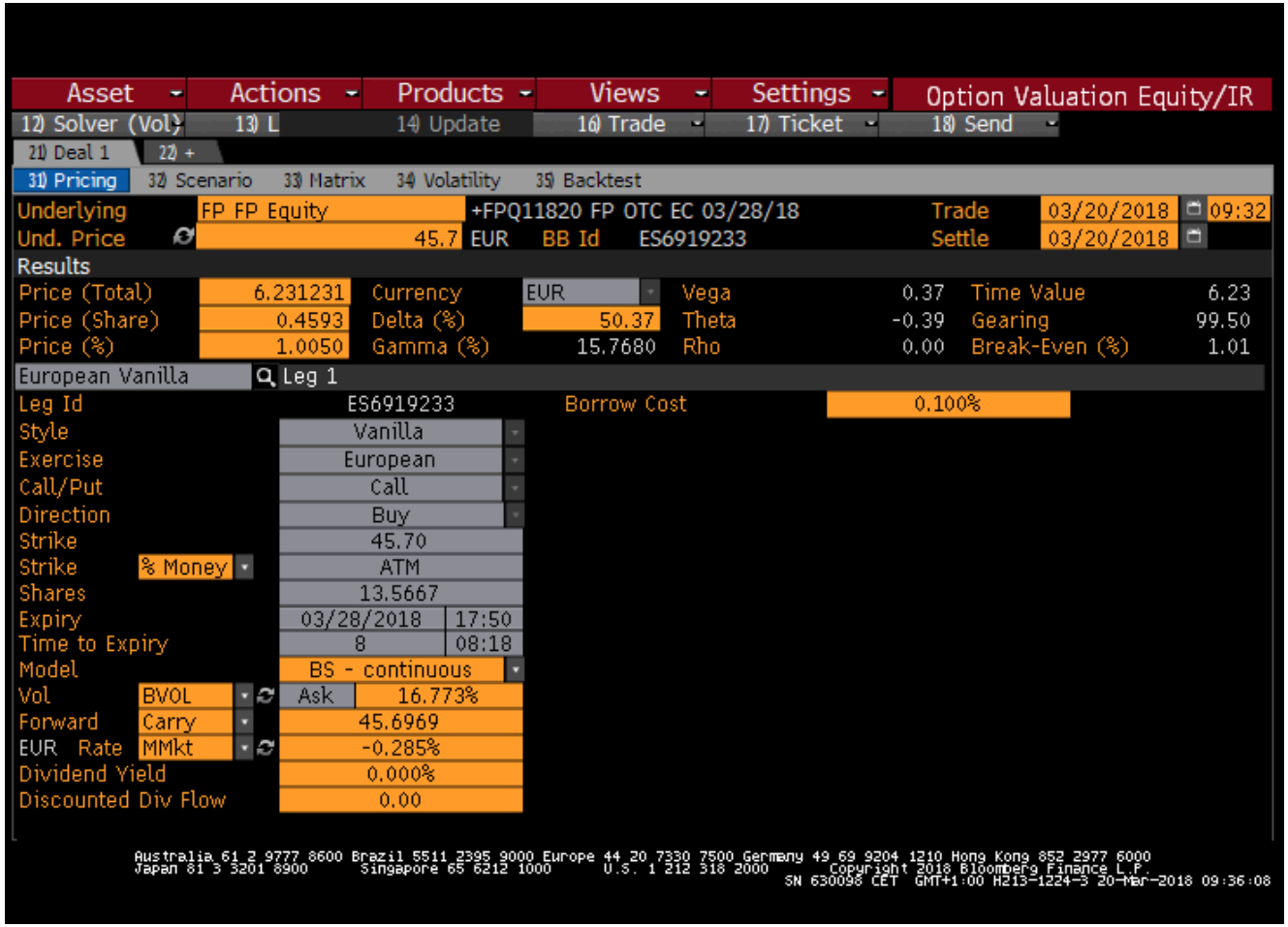
**Gamma** measures the Delta's sensitivity to variations in the Value of the Underlying asset.

Option = Intrinsec Value + Time Value

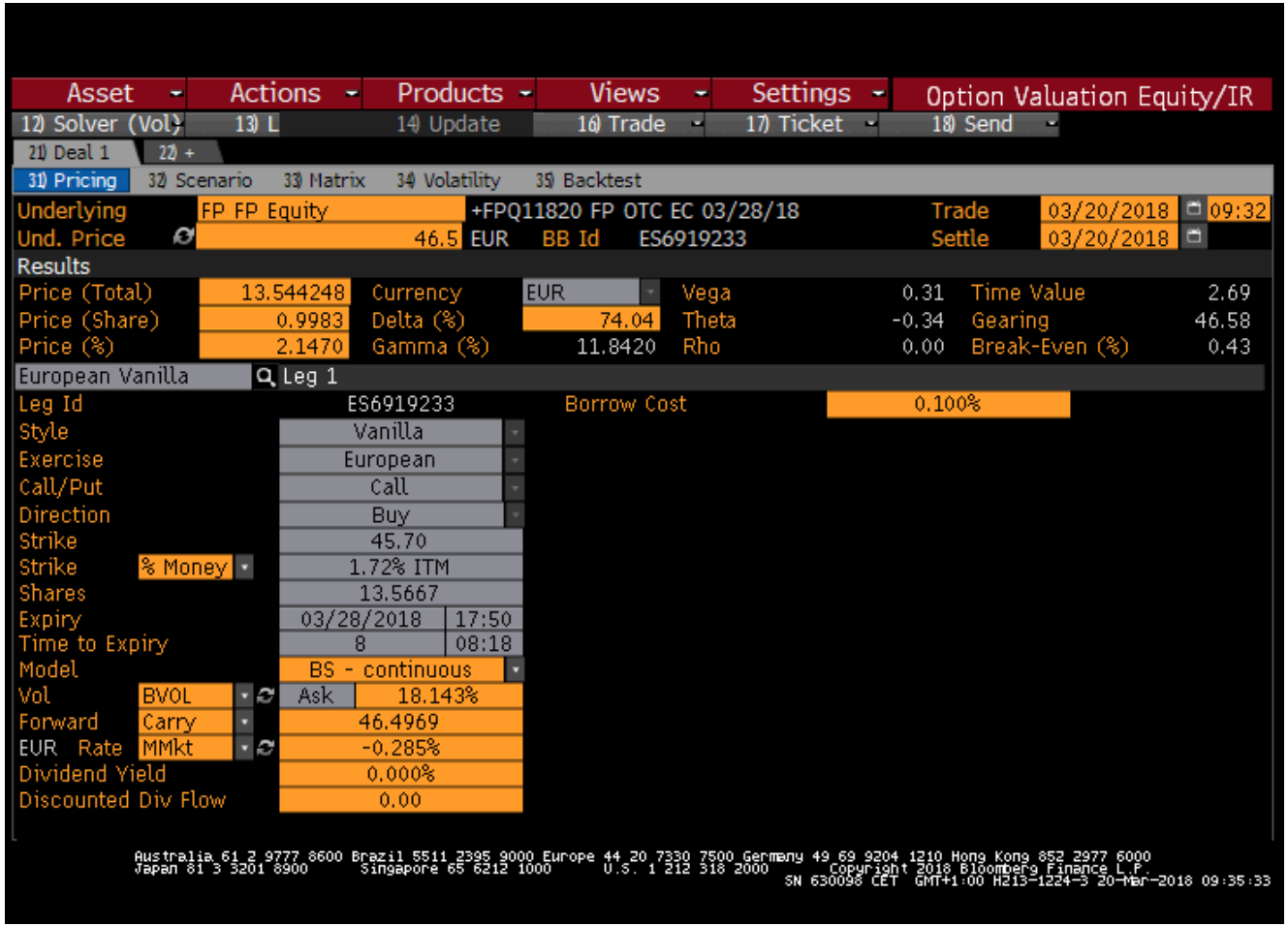
# Delta / Gamma adjustments



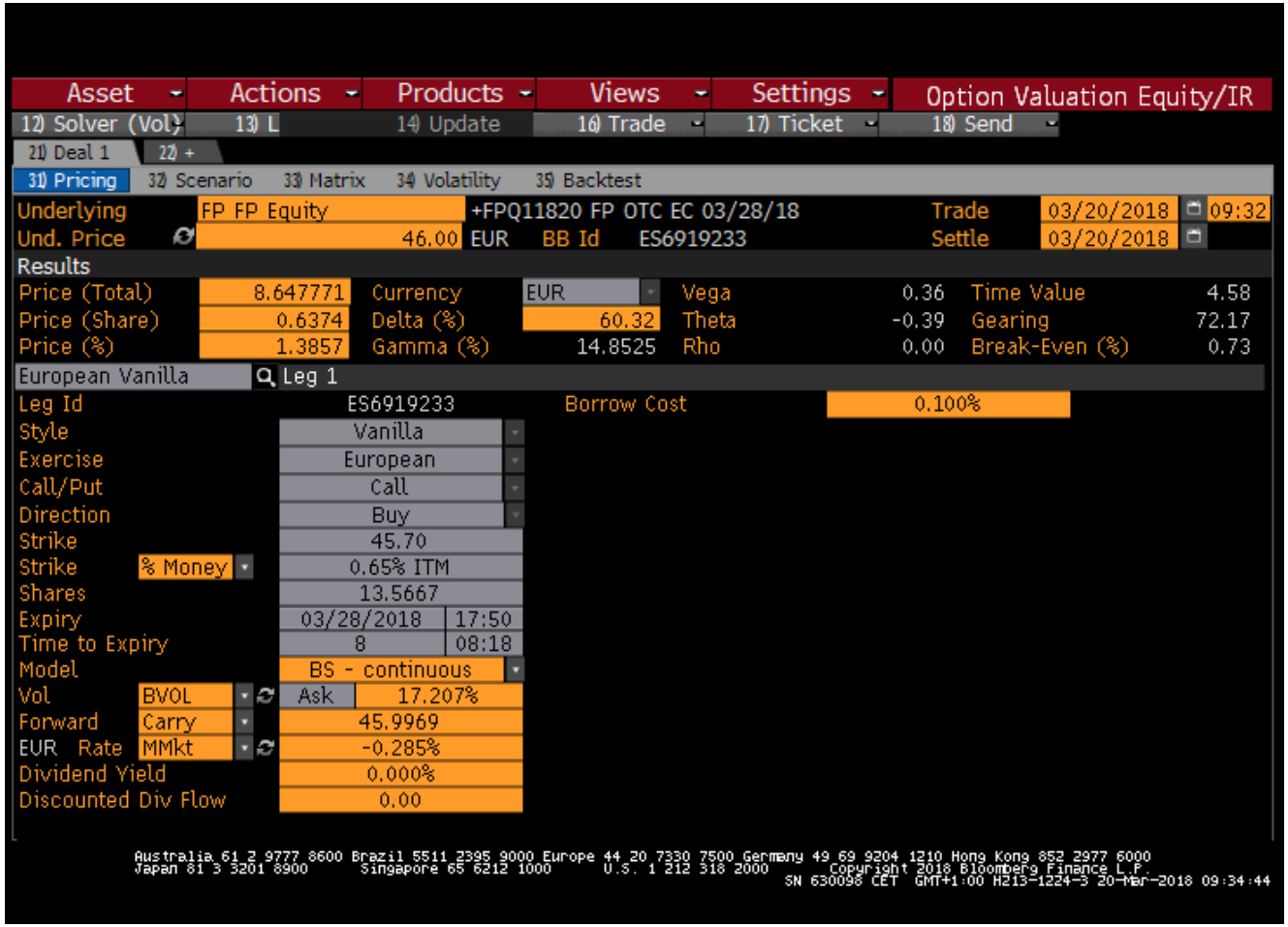
# Delta / Gamma adjustments



# Delta / Gamma adjustments



# Delta / Gamma adjustments



# Are you ready for this ?

****HEADLINES****

- **AST IM** – Rights Issue – EUR300mn raising will be finalised at a BOD meeting at end Apr
- **BARC LN** – Scrip Dividend – Deadline – CASH is the optimal election – Scrip value 98.94%
- **BP/ LN** – Scrip Dividend – Last day of GBP div fx setting – Rate will be announced Monday
- **ELIOR FP** – Scrip Dividend – Ex Date
  ** Rights Isin – FR0013320447 **
- **GKN LN / MRO LN** – Tender – Spread widened yesterday to +7.5% following negative comments from Airbus and some large GKN holders about the unsuitability of MRO as owner
- **HICL LN** – Scrip Dividend – Deadline – CASH is the optimal election – Scrip value 99.33%

# Are you ready for this ?

*****RIGHTS ISSUES *****

**** ANNOUNCEMENTS ****

**None of note**

**** LIVE DEALS / RIGHTS TRADING SPREADS ****

- **DCARB SS** – Spread narrowed at an average of (SEK-1.1) – Live discount widened @ 28.91% yesterday
  1 for 7 @ SEK90
  Rights trade until 21 Mar, deadline 23 Mar, result 28 Mar, pay mid Apr
  Rights Ticker – DCARTRB SS
  OVERSUBSCRIPTION ALLOWED – Pro-rate based on number of rights exercised
  Looks to have a small retail base – so expecting take up >99% and pro-rate <2% (or even lower if 54% holders oversubs)
- **JLG LN** – Spread narrowed at an average of (-0.36p) – Live discount widened @ 30.48% yesterday
  1 for 3 @ 177p
  Rights trade until 21 Mar, deadline 23 Mar, pay 26 Mar
  Rights Ticker – JLGN LN
  ** Lapsed proceeds deal **
- **MOZN SW** – Spread traded at an average of +0.6c (+4c available at times) – Live discount narrowed @ 19.08% yesterday
  4 for 15 @ CHF9.50
  Rights trade until 21 Mar, deadline 23 Mar, pay 27 Mar
  Rights ticker – MOZN1 SW
  No oversub
- **SFPF SW** – Spread traded at an average of (-72c) – Live discount narrowed @ 5.81% yesterday
  1 for 3 @ CHF120
  Rights trade until 27 Mar, deadline 29 Mar, pay 6 Apr
  Rights ticker – SFPF1 SW
  ** The rights on these deals normally trade rich / reverse spread if possible **
- **TINC BB** – Spread widnened at an average of +14c – Live discount narrowed @ 5.00% yesterday
  1 for 3 @ EUR11.40
  Rights trade until 23 Mar, deadline 23 Mar, pay 26 Mar
  Rights ticker – TINC6 BB
  **Lapsed proceeds deal**

# Are you ready for this ?

## *** SCRIP DIVIDENDS ***

** ANNOUNCEMENTS **
None of note

** SCRIP REF PERIODS / PRICE SETTING **
- **ARG FP** – Day 17/20 – Avge of open prices (adjusted for the dividend) 5% discount applied
  Live Scrip Value – 103.75%
- **CRI FP** – Day 2/20 – Avge of open prices (adjusted for the dividend) with a 10% discount applied
  Live Scrip Value – 111.11%
- **LMP LN** – Day 2/5 – Avge of close prices
  Live Scrip Value – 100%

** OTHER LIVE SCRIP VALUES (% VALUE VS. GROSS CASH DIV RATE UNLESS STATED) **
- **BARC LN** – 98.94% (deadline 16 Mar)
- **CRH ID** – 103.09% (deadline 18 Apr)
- **ELIOR FP** – 104.44% (ex 16 Mar, deadline 6 Apr)
- **FP FP** – 101.27% (ex 19 Mar, deadline 28 Mar)
- **HICL LN** – 99.33% (deadline 16 Mar)
- **HSBA LN** – 97.28% (deadline 22 Mar)
- **RMI SJ** – 97.91% (ex 4 Apr, deadline 6 Apr)
- **STAN LN** – 98.95% (deadline 19 Apr)