Convertible Bonds

Course Objectives

Understand what convertible bonds (CBs) are and their various structures

Identify the buyers of CBs, as well as the benefits and risks of investing in CBs

Comprehend the math of CBs and understand various Greeks

Appreciate some methods used to trade CBs for arbitrage, hedging, and indexing

Convertible Bond Basics

CB Overview

Convertible bonds have been around for almost 150 years.

Simple Bond

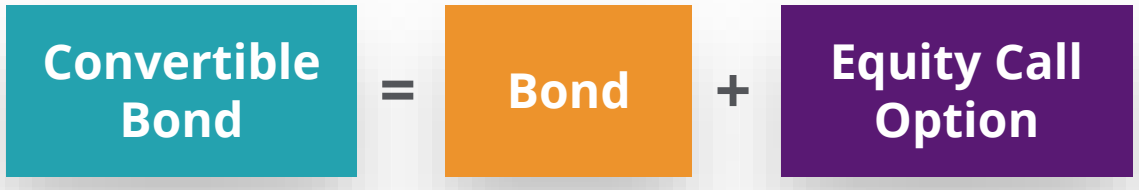
CoCo Convertibles

CB Derivatives

CB Overview

Convertible bonds are a hybrid security with some of the characteristics of **both bonds and stocks**.

Convertible bonds (CBs) are corporate bonds that can be converted into a pre-determined number of shares of common stock.



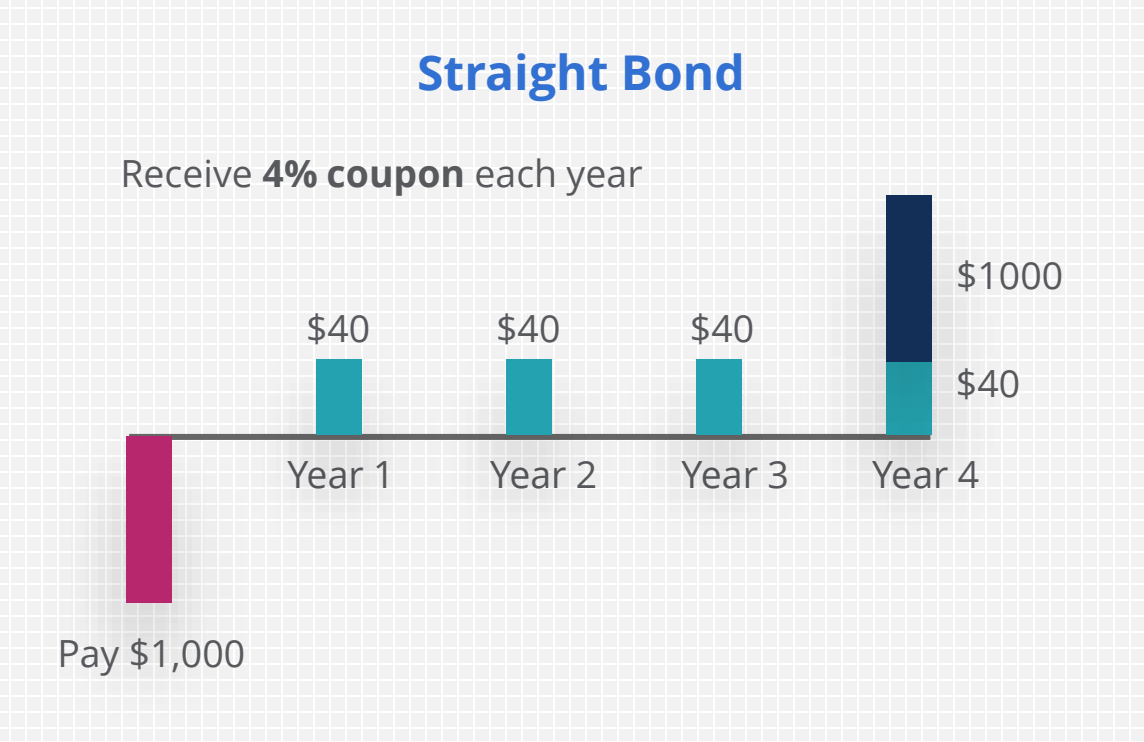
An exchangeable bond is similar in concept, but the investor receives shares of another company.

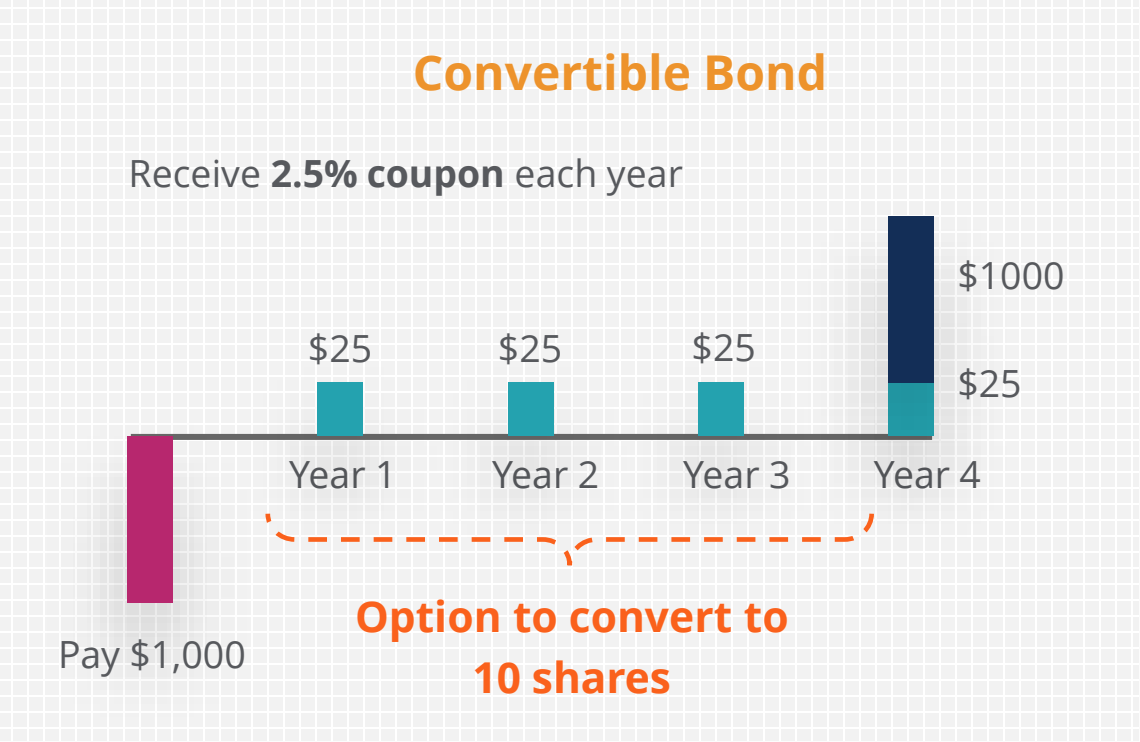
General Information

- Higher in the capital structure than common stock
- Issuers can raise funds, while minimizing share dilution, at a lower interest rate than straight debt
- Traded over-the-counter (OTC)

CB vs. Straight Bond

Convertible bonds may be easy to understand but difficult to analyze due to the embedded call option.





CB coupon < Straight bond coupon

CB coupon > Equity dividend yield

Share price > $100: Convert

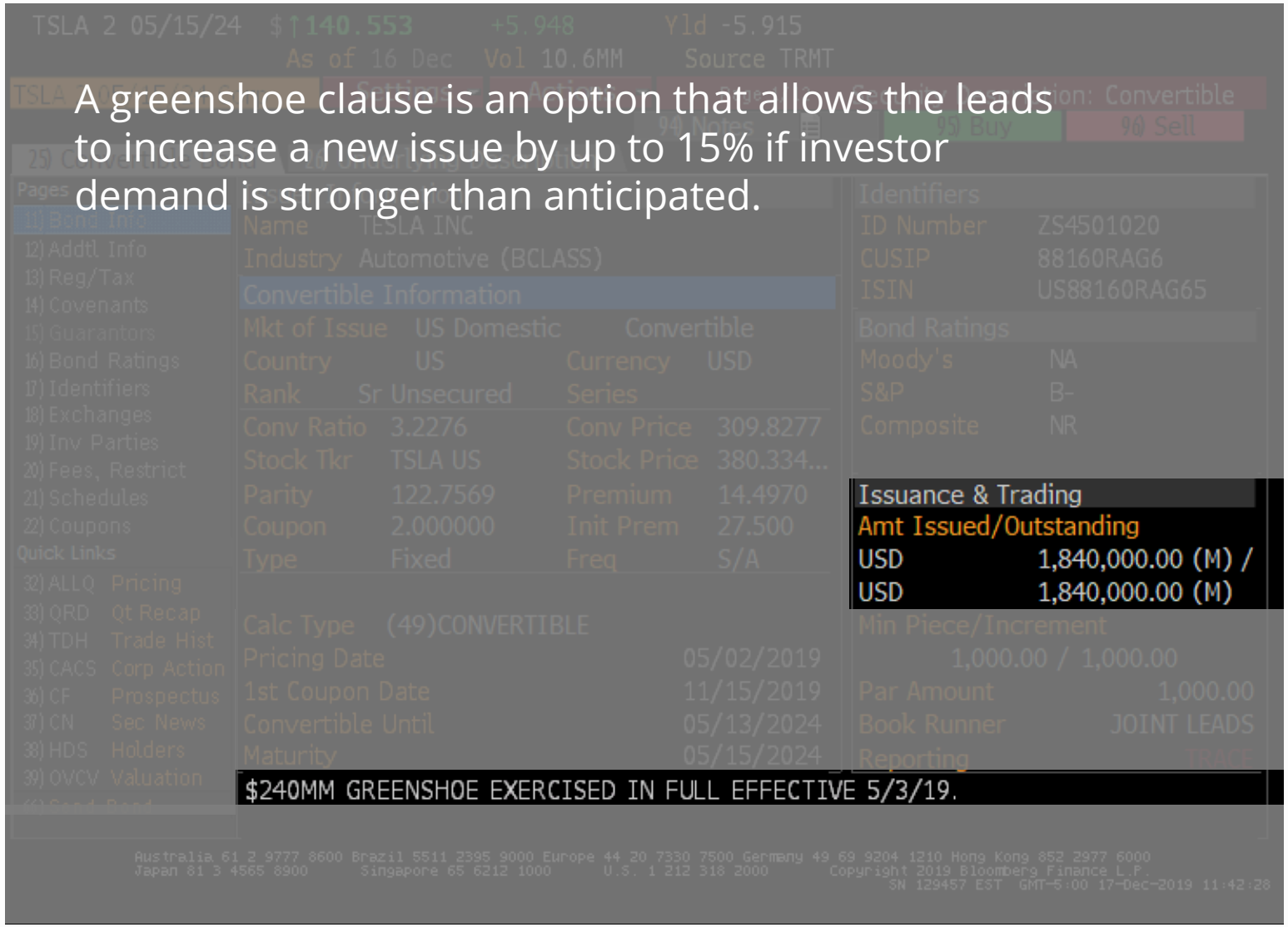
Share price < $100: Don't convert

CB – Bloomberg Example

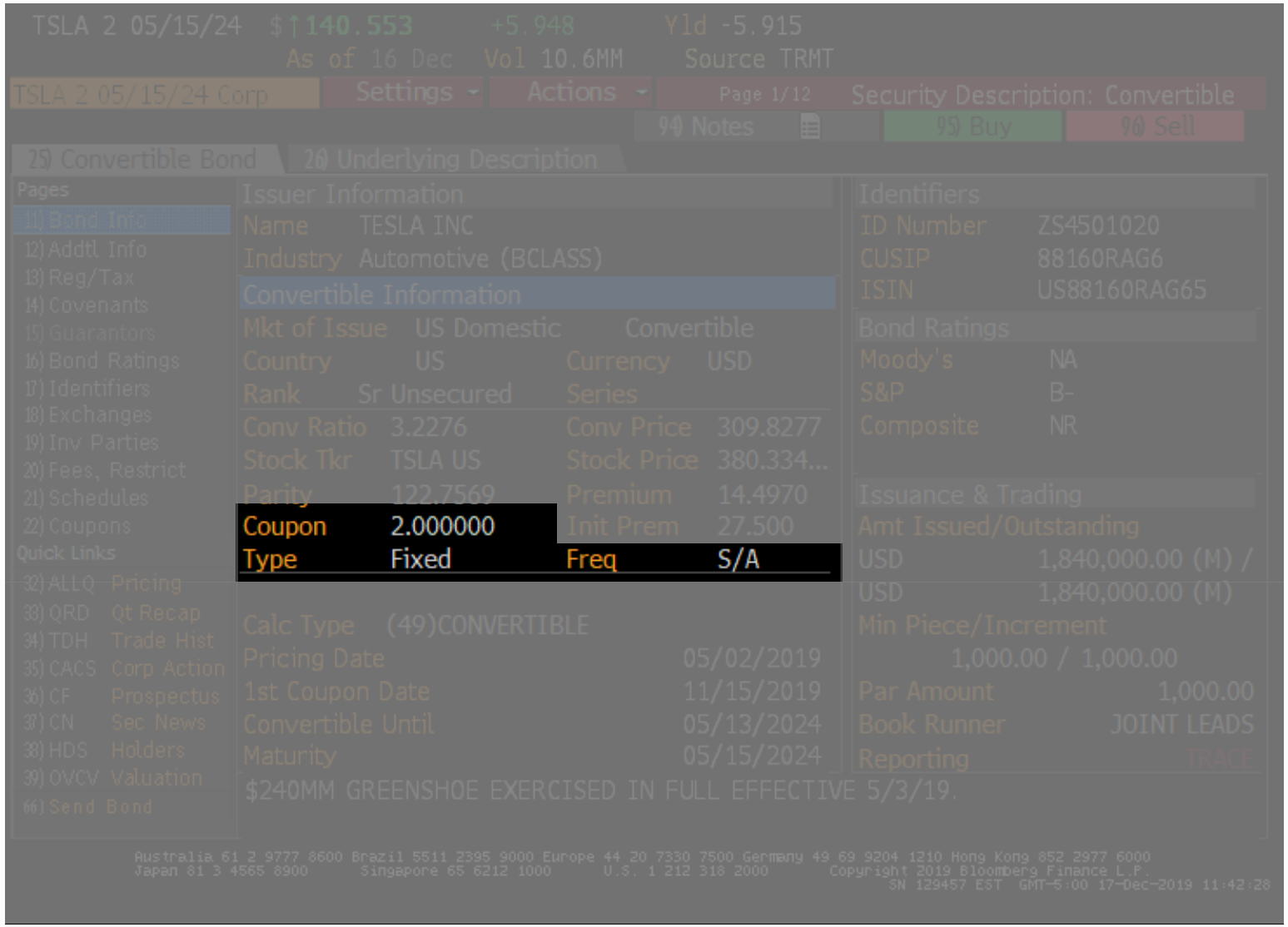
CB – Bloomberg Example

CB – Bloomberg Example

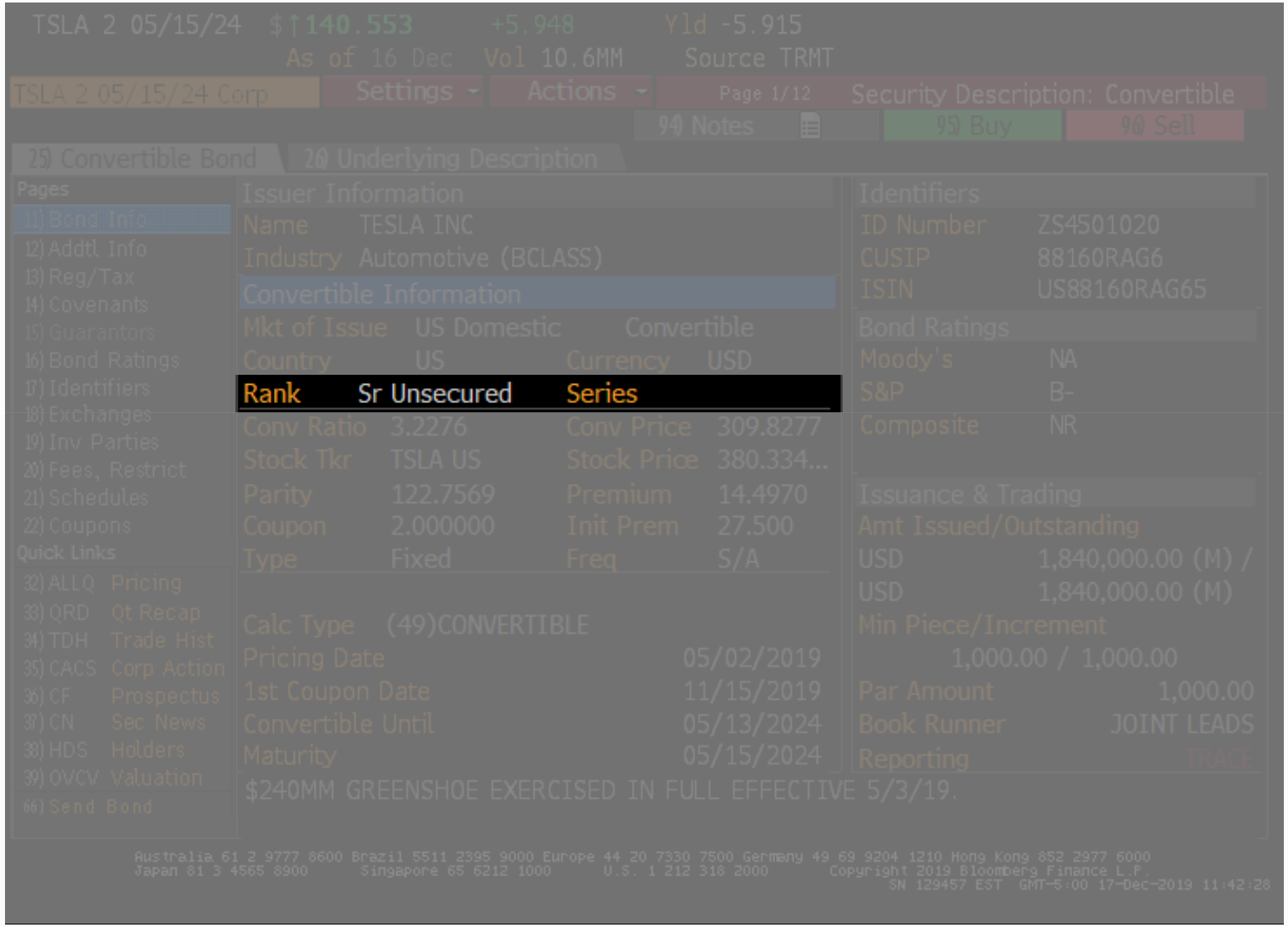
CB – Bloomberg Example



CB – Bloomberg Example



CB – Bloomberg Example



CB – Bloomberg Example

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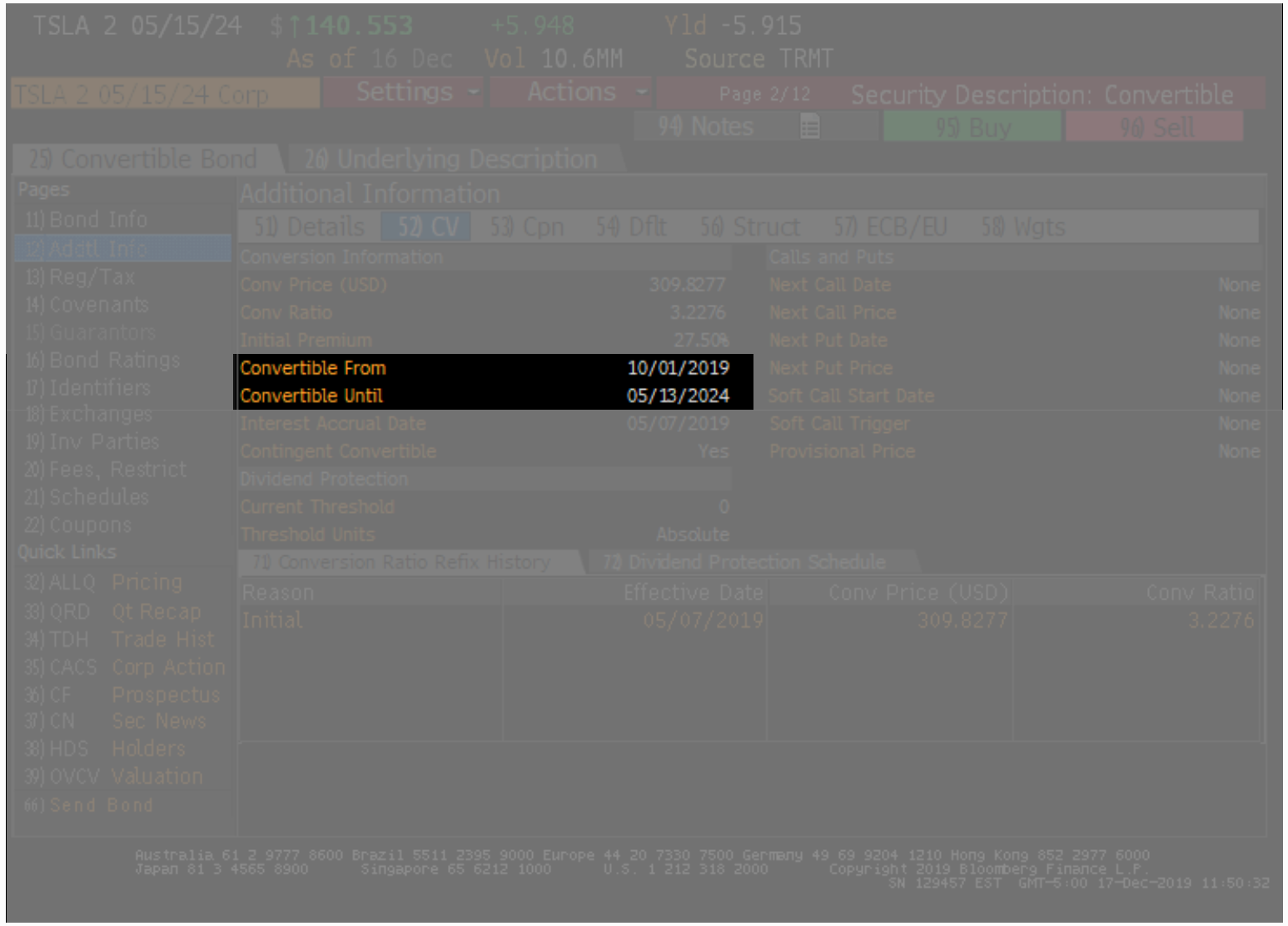


CB – Bloomberg Example

Conversion Price and Conversion Ratio

A convertible bond has the feature of being convertible into a pre-determined number of shares.

Conversion Ratio

- The number of shares the convertible exchanges into (per bond)
- Forms part of the offering terms and will not change during the life of the CB
- Based on the conversion price

Conversion Price

- The price the CB converts at

Tesla CB Example

- **Conversion Price**: $309.8277
- **Bond Denomination**: $1,000 (face value)

$$\text{Conversion Ratio} = \frac{\text{Bond Denomination}}{\text{Conversion Price}}$$

$$= \frac{\$1{,}000}{\$309.8277}$$

$$= 3.2276$$

Parity Value

Parity value (intrinsic value) is one of key financial terms of convertible bonds.

Parity = **Conversion Ratio** x **Current Share Price**

- The value of your investment if you were to convert the CB into shares of stock at the current share price
- Used to determine when to convert a bond into shares

Tesla CB Example

- **Current Price**: $380.344
- **Conversion Ratio**: 3.2276

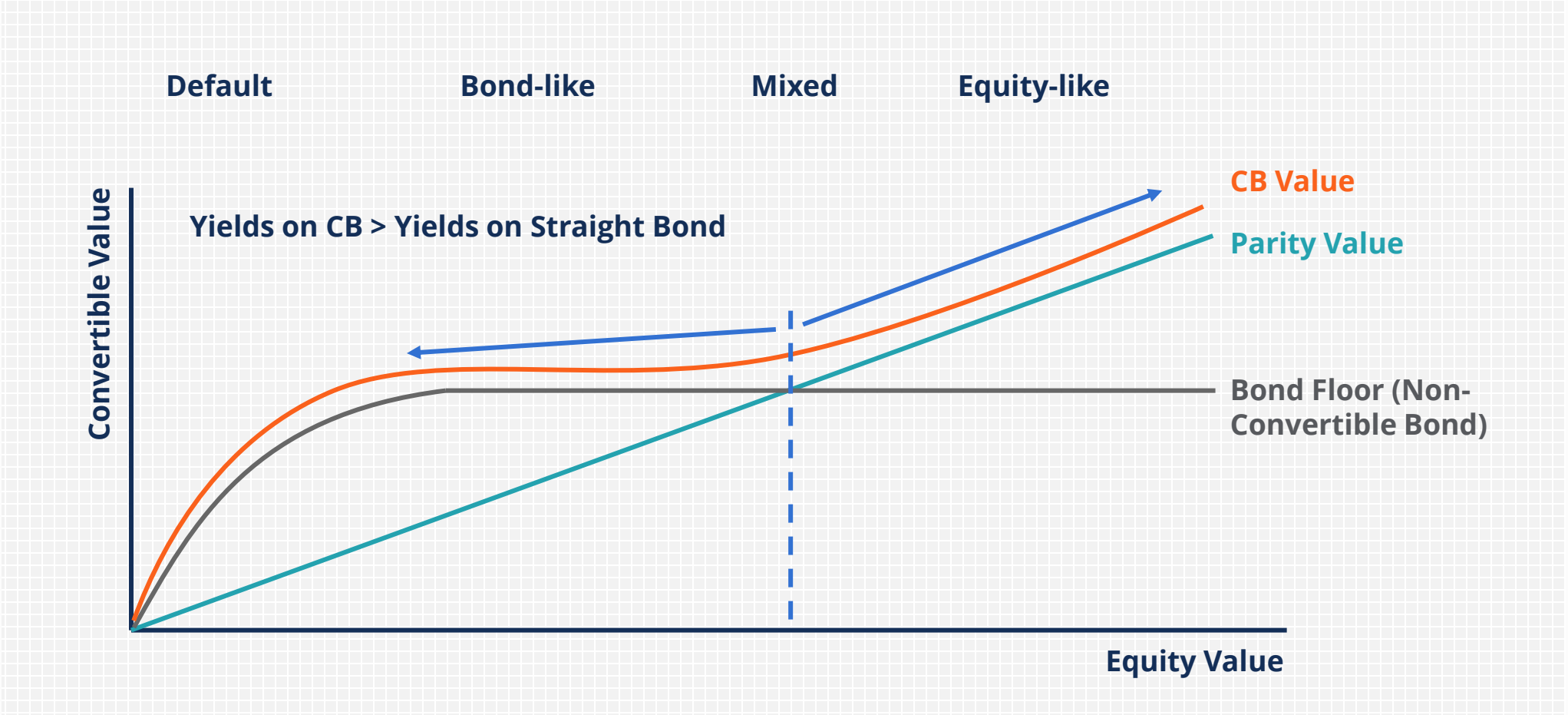
Parity = **3.2276** x **$380.344**

= **$1,227.56**

Conv Ratio	3.2276	Conv Price	309.8277
Stock Tkr	TSLA US	Stock Price	380.334...
Parity	122.7569	Premium	14.4970
Coupon	2.000000	Init Prem	27.500
Type	Fixed	Freq	S/A

CB Value Diagram

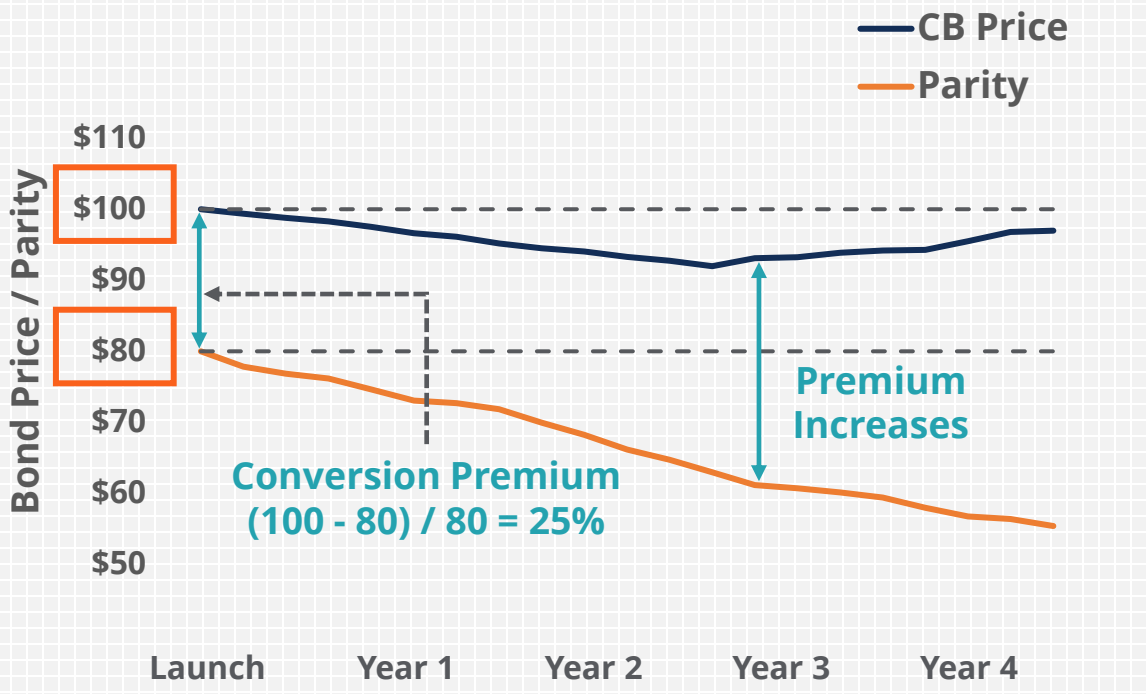
Value Diagram (CB)



CB vs. Share Price

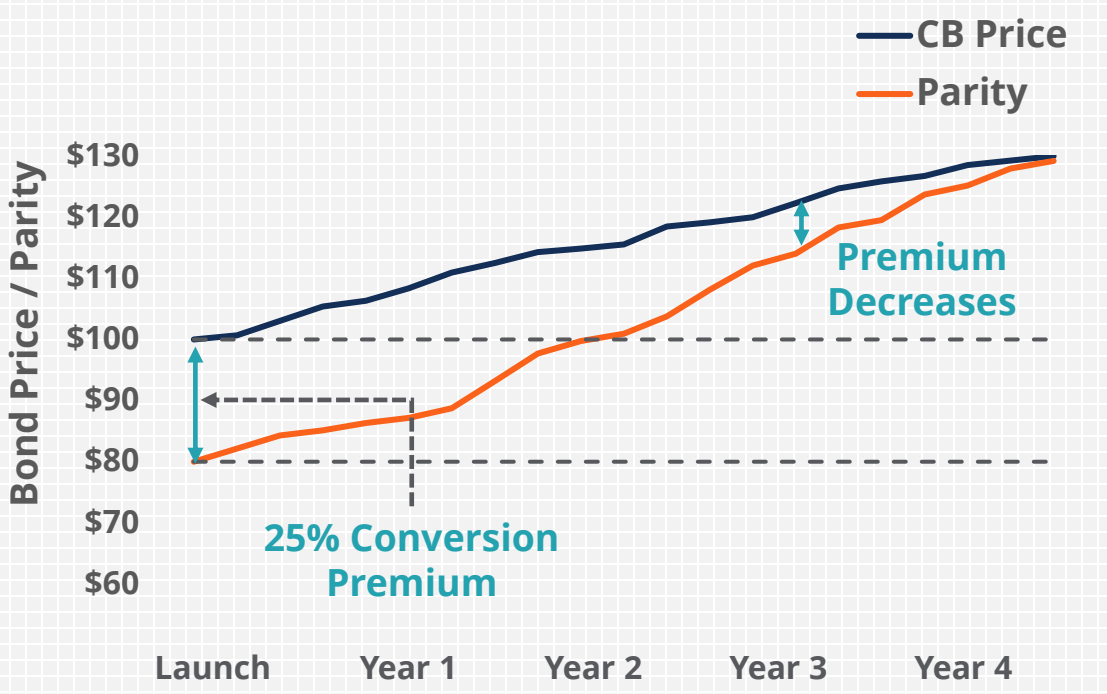
How would **the price of a CB** move with **changes in the underlying equity price** over time?

CB vs. Share Price Decrease



CB behaves more bond-like

CB vs. Share Price Increase

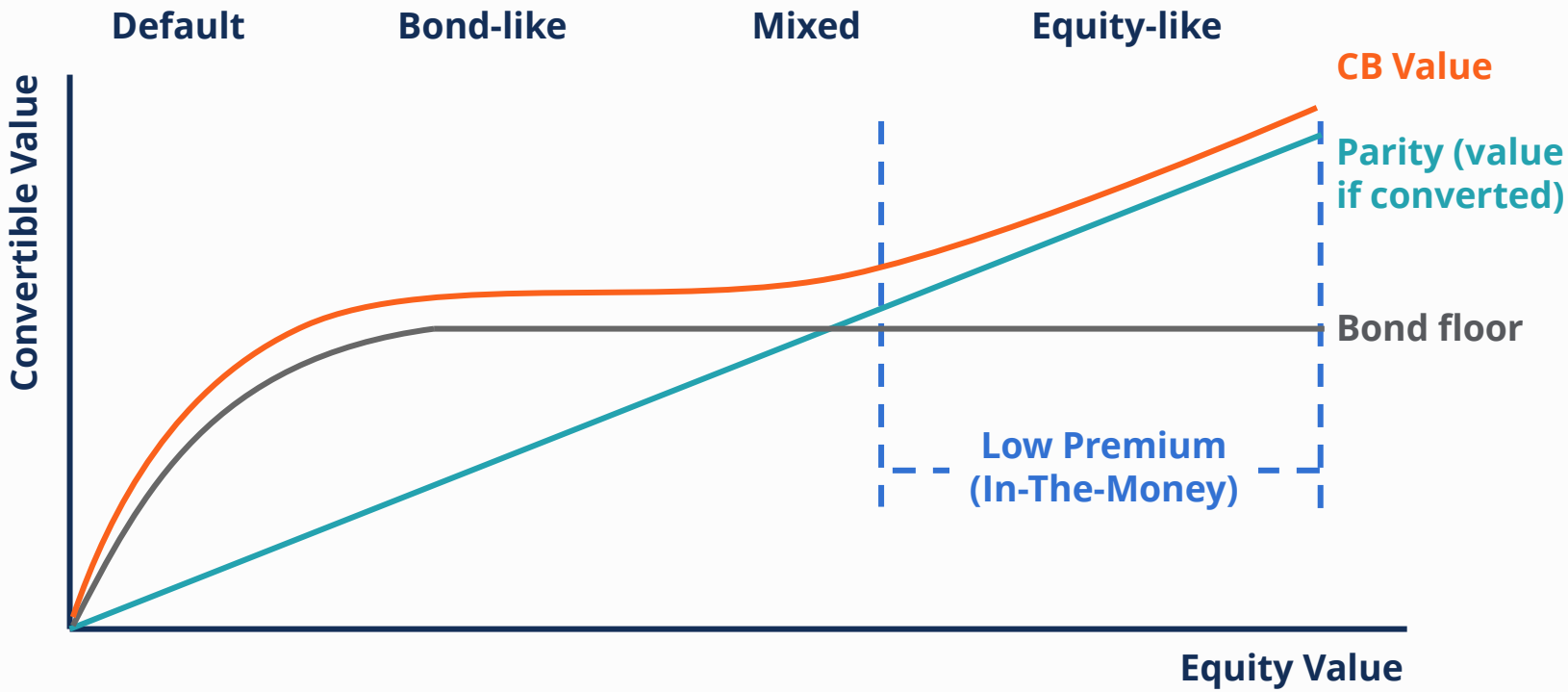


CB behaves more equity-like

Low Premium

CB investors have special terminology to describe each of the different scenarios of a CB given the premium.

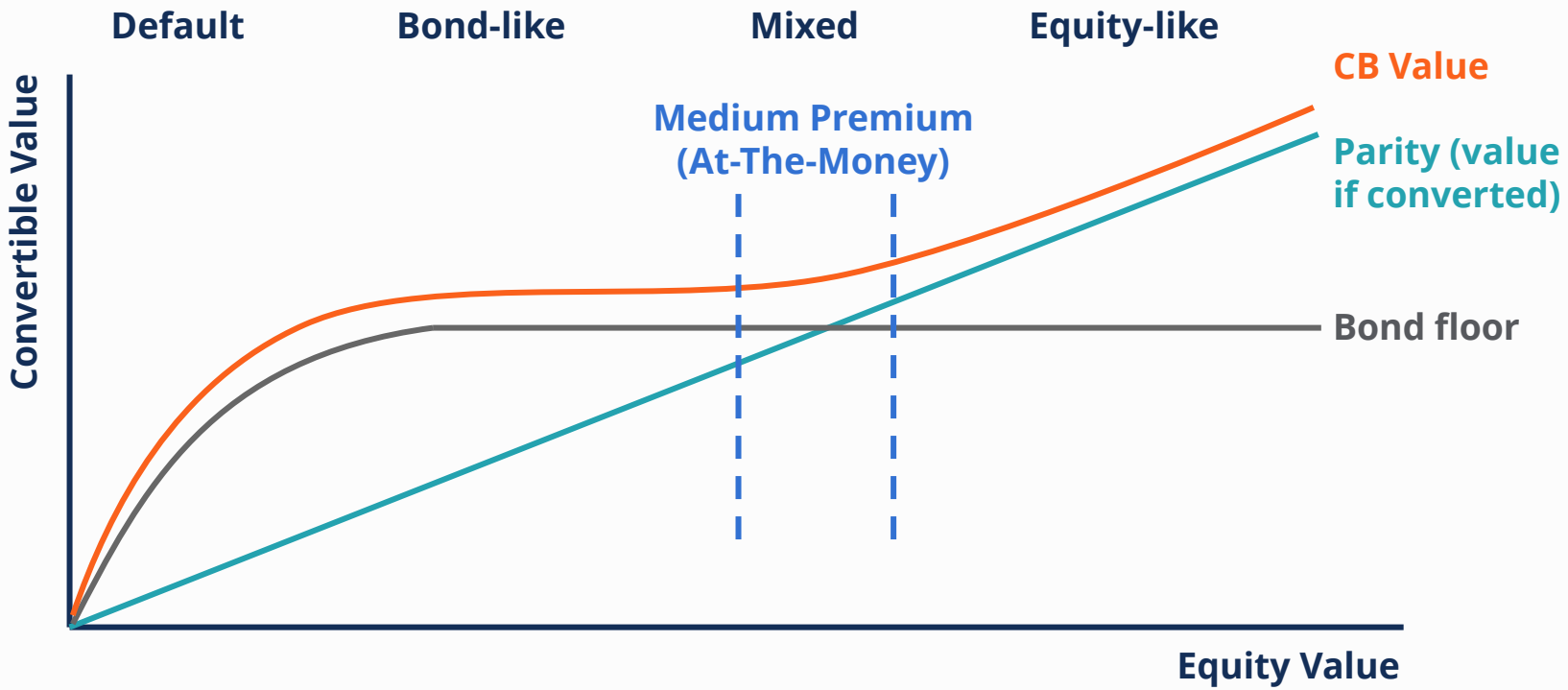
- High underlying stock price
- Value of CB reacts sharply to parity value changes and less to interest rate changes
- Also referred to as “butane”



Medium Premium

CB investors have special terminology to describe each of the different scenarios of a CB given the premium.

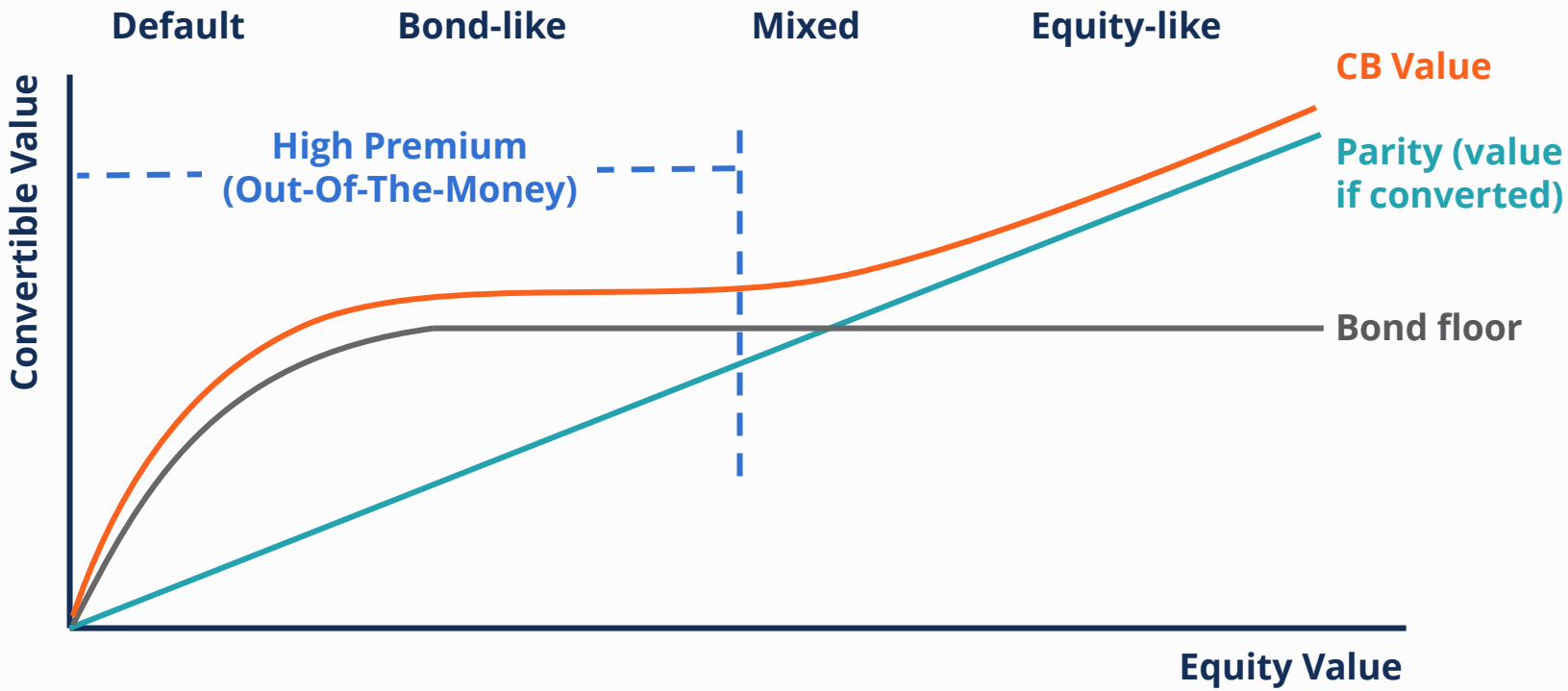
- Parity value is the main factor, but the CB is also sensitive to interest rates
- Usually where new issues come from
- Also referred to as “balanced”



High Premium

CB investors have special terminology to describe each of the different scenarios of a CB given the premium.

- The underlying stock price falls significantly
- CB acts like a straight bond as long as the issuer doesn't default
- CB isn't sensitive to changes in the underlying stock price, but reacts to changes in yield
- Also referred to as "busted"



CB Redemption

We have **redemption** when a convertible bond comes up for maturity and has not been converted.

Mandatory Basis

Issuer Redeems the CB

Voluntary Basis

Investor Redeems the CB

Conversion: CB is converted or exchanged into stocks.

Redemption: An option to receive the invested principle back in cash.

CB Redemption

We have **redemption** when a convertible bond comes up for maturity and has not been converted.

Mandatory Basis

Issuer Redeems the CB

- **Call feature:** the issuer can redeem before maturity at a prespecified price.
- The call price will be high in the earlier years and decline towards par close to maturity.
- A sinking fund establishes a schedule of redemption at preset prices.

Voluntary Basis

Investor Redeems the CB

- **Put feature:** the investor can sell the bonds back to the issuer at a predetermined price.
- It is usually continuous with few restrictions for the investor.
- It is a very uncommon feature outside of its use in a change of control scenario.

Types of CBs

- Adjustable Rate Convertibles
- Convertible Preferred Stock
- Convertible Stock Notes
- Exchangeable Convertibles
- Exchangeable Convertible Preferred
- Mandatory Convertible Securities (MCS)
- Puttable Convertible Bonds
- Zero-Coupon Convertible Bonds

Types of CBs

Adjustable Rate Convertibles

- May have an interest rate or dividend that is adjusted periodically
- Usually have floors and ceilings, which limit their adjustments

Convertible Preferred Stock

- Pays a fixed dividend and is convertible into the underlying common stock
- The dividend can be deferred at request without triggering default
- Ranks above common stock in dividend priority and is treated like equity

Convertible Stock Notes

- Referred to as Pay-In-Kind (PIK)
- Issuer can pay the interest and principal in either cash or stock

Exchangeable Convertibles

- Issued by one company with the shares of another company as the underlying
- Issuer can receive the stock sale proceeds while deferring capital gains

Types of CBs

Exchangeable Convertible Preferred

- Lets the issuer exchange its convertible preferred bonds for a convertible bond
- Gives issuer flexibility by substituting a non-tax-deductible item for one that is

Mandatory Convertible Securities (MCS)

- Converted into a fixed amount of equity at maturity
- Should be considered yield-enhanced common stock
- Limited downside protection other than their higher yield

Puttable Convertible Bonds

- Permits the holder to sell the bond back at par or premium above par prior to maturity
- Includes the put to shorten the maturity and raise the investment value
- Offers downside protection

Zero-Coupon Convertible Bonds

- Pays no coupon and is issued at a deep discount to par
- Positive YTM and accretes towards par over its life
- Usually issued with low conversion premiums

The CB Market

- Over **4,850** individual CBs
- **Minimum** outstanding of ~ $10MM USD equivalent.
- **Total market** ~ $745Bn USD

Data from Bloomberg Terminal as of March 2020

#1: EUR (~46%)

#2: USD (~35%)

#3: RMB (growing rapidly)

Issued in every major market

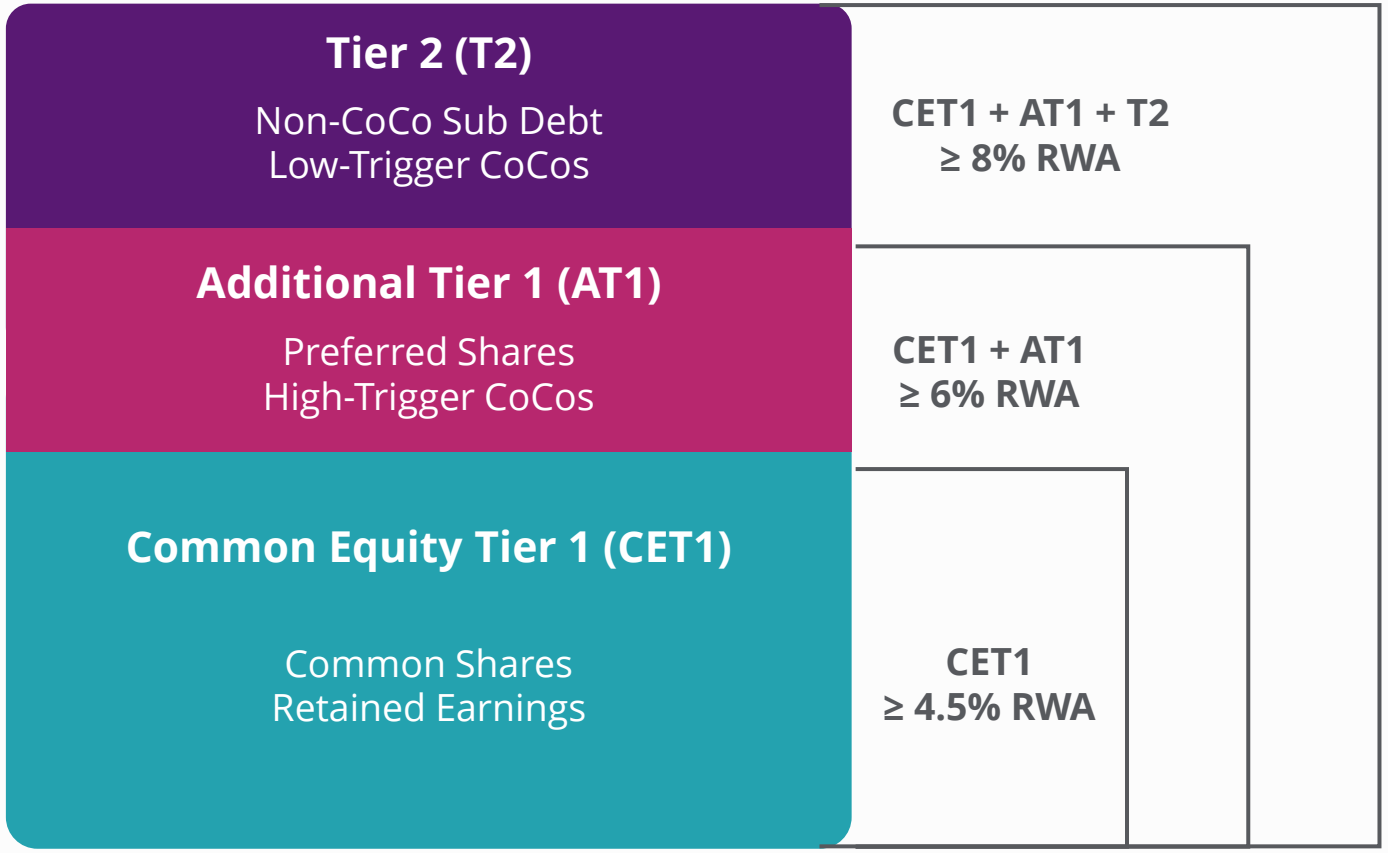
- **Average** issue size worth ~$150MM USD
- **Largest** issues are ~$3Bn USD

Bank Capital

Banks must issue **CoCos (contingent convertibles)** as part of the Basel III requirements by the BIS (Bank for International Settlements).

Based on the sum of the risky assets on a bank's balance sheet, the BIS has enacted guidelines for banks to follow.

CoCos absorb losses so that the losses will not have to be borne by depositors.



CoCos

CoCo

01 CoCo bonds are a hybrid capital security.

02 CoCo bonds absorb losses when the issuing bank's capital falls below a certain level.

03 Converted into common equity (CE-type bonds) or principal written-down (PWD-type bonds).

04 Triggers occur if the issuing bank's capital falls below a pre-determined fraction of its risky assets.

CB Benefits

Why would a company choose to issue convertible bonds?

These are some of the **key advantages of issuing CBs** for a corporate issuer.

Low Cost of Borrowing

- Subordinated to an issuer's senior debt
- The cost of borrowing CB is lower
- Investors accept a lower yield-to-maturity (YTM) for the potential equity upside

Covenants

- Typically less restrictive covenants relative to high yield bonds
- Investors are willing to pay for the privilege of speculating on equity price appreciation

Share Price

- A firm may be able to sell common stock at a better price through a CB
- Less dilutive to earnings-per-share (EPS) in the short term

Who Issues CBs and Why?

Globally, there is significant interest for companies to issue CBs. However, a company needs to have stock outstanding to issue convertible bonds.

Sovereign, agency, or government issuers will not issue convertible bonds.

Growth Companies

- A conversion price higher than common share price
- Less stringent covenants
- Strengthen the company's balance sheet

Mature Companies

- More favorable terms
- Higher premium cheaper to their stock price
- Cheaper financing than straight bonds or loans
- Tax benefit

Declining/ Turnaround Companies

- Issue an exchangeable bond using the shares from the asset buyer
- Generate cash upfront and defer the tax on the sale of the shares

Banks

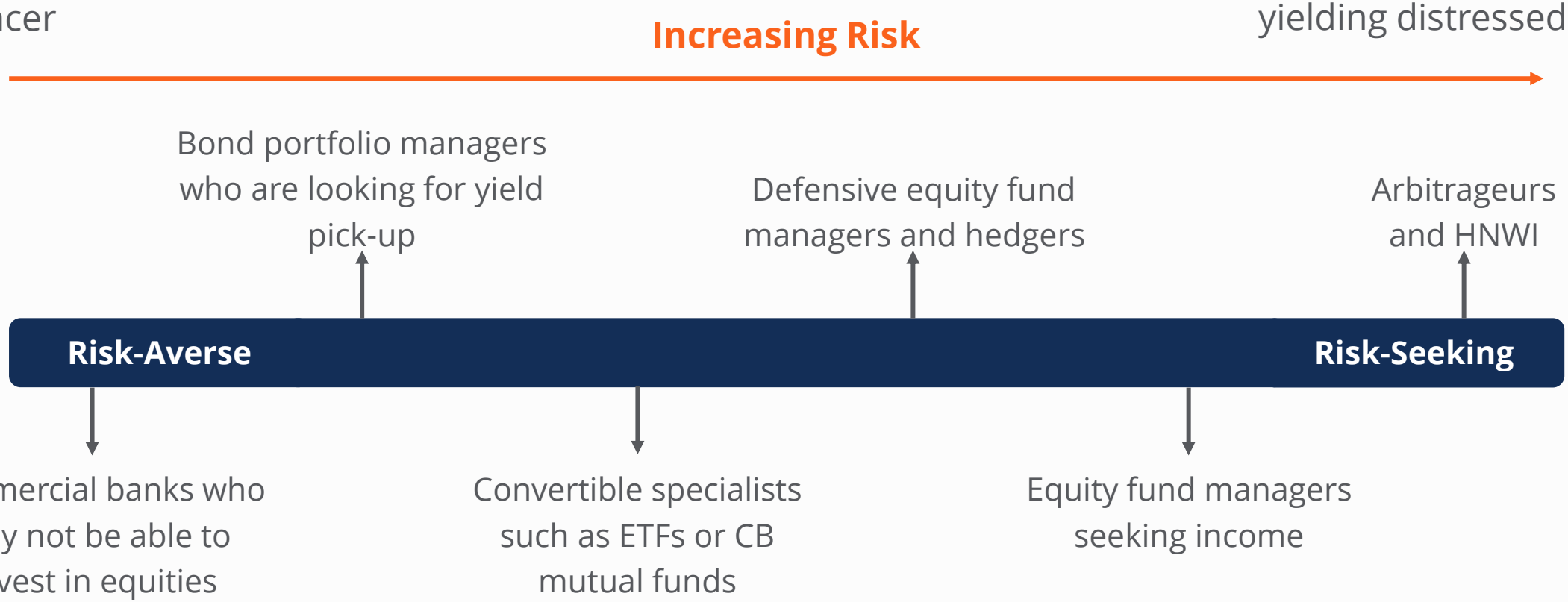
- Issue CoCos to bolster their balance sheets
- Issue exchangeable bonds as part of their structured product business and sell them to the high-net-worth clients

CB Investors

Since CBs can be viewed as hybrid securities, the investors that look at convertible bonds are also diverse.

Risk-averse investors:
look at CBs as a yield enhancer

Risk-loving investors:
look at the highest yielding distressed CBs



Why Buy CBs?

There are multiple reasons to consider convertible bonds as an investment.

Equity Alternative	• Equity upside: provides returns closer to equity • Bond downside: provides protection
Fixed-Income Alternative	• Participate in the upside for equities • Try to outperform the index by purchasing CBs
Diversification	• Have exposure to names that don't issue straight bonds • Return diversification
Arbitrage & Hedging	• CBs have characteristics of both • Sell them separately to take advantage of mispricing
Currency Play	• Buy credits in certain currencies without having to hedge the FX exposure • Buy CBs that convert or exchange into foreign equity markets

CB Key Risks

A CB can be thought of as a bond plus an equity call option. The risks in investing in CBs would be like investing in both fixed-income and equities.

Bond Value

- Creditworthiness (liquidity, leverage, debt service, asset cover, profitability)
- Yield-to-maturity or redemption
- Duration and convexity

Option Value

- Stock price movement
- Time left on the option
- Dividend of the underlying stock
- Risk-free rate
- Market movements

CB Structural Risks

Structural risks make it difficult for investors to compare one CB to another.

Forced Conversion

- The issuer may force conversion if rates fall significantly or the underlying security price exceeds the conversion price

Call Protection

- **Hard call protection**: prevent the issuer from calling the bond for a set period of time
- **Soft call protection**: prevent the issuer from calling the bond until the stock price rises to a certain percentage above the conversion price

Clean Up Calls

- Issuer may redeem the remaining CBs if a large percentage have been converted
- Sweep-up-call

Guaranteed Conversion

- CB holder gets stock at maturity guaranteed
- Low downside protection (more equity-like)

Screw Clause & Other Structures

- Upon conversion the CB holder may not receive accrued interest (e.g. conversion rights may expire before interest is paid)

How Are CBs Issued?

Most bond offerings are sold privately under SEC's rule 144a; thus, they are made via qualified and accredited investors.

01 Investment bankers work with equity capital markets (ECM) to discuss the specifics of the CB issuance.

Bring in help from debt capital markets (DCM) if needed.

02 The leads start conducting the due diligence to prevent misrepresentation or fraud.

03 The leads arrange for a bond prospectus to be put together.

Rating agencies are engaged to start their rating process.

04 Large investors may be provided with price talk and if they want to participate, they may leave indications of interest (IOIs).

How Are CBs Issued?

05 Issuer's management team goes on a road show to pitch the transaction.

They may educate sales staff at the teach-ins.

06 Once the leaders are satisfied with the demand, bond terms are finalized and books are open for investors to leave orders.

Books may stay open for a few hours up to a few days.

07 The books are closed and the deal is priced. Price talk may be refined or tightened with demand.

08 The bonds are free to trade in a day or two.

Market makers may begin to buy and sell the bonds in the secondary market

How Are CBs Issued?

CB leads are well-compensated for their efforts.

- CB deal: 3% to 5%
- High-grade deal: 10 to 50 basis points

Investors like to invest in CBs via primary issuance. It allows for price appreciation in the secondary market once the deal breaks.

New issues also offer good investors a larger allocation for supporting the transaction.

When a new issue is free to trade, there tends to be a pop in prices, as under-allocated investors look to buy more in the secondary market.

The Math of Convertible Bonds

Analyzing CBs Example

$$\text{Parity} = \text{Conversion Ratio} \times \text{Current Share Price}$$

$$\text{Premium} = \text{CB Price} - \text{Parity Value}$$

$$\text{Conversion Ratio} = \frac{\text{Bond Denomination}}{\text{Conversion Price}}$$

Analyzing CBs Example

CFI Education issued a $1Bn USD 5-year convertible bond.

- **Bond Denomination (Face Amount)**: $1,000
- **Annual Coupon**: 4% ($40 per year)
- **Conversion Price**: $250 per share
- **Current Stock Price**: $200 per share
- **Current Market Price of the CB**: $1,060 (106 bond points)
- **Present Yields**: 8%
- **Dividend Yields**: 1% (1% x $200 = $2 per share)

Analyzing CBs – Conversion Price and Conversion Ratio

Conversion Price

- The price that the CB converts at
- Set at the time when the CB is first issued
- Based on investor feedback at that time

Conversion Price = **$250**

Above the current stock price of $200

Conversion Ratio

- The number of shares the convertible exchanges into (per bond)

$$\text{Conversion Ratio} = \frac{\text{Bond Denomination}}{\text{Conversion Price}}$$

$$= \frac{\$1{,}000}{\$250}$$

$$= \textbf{4 shares}$$

Analyzing CBs – Parity and Conversion Premium

Parity

Conversion Ratio x **Current Share Price**

The pre-determined number of shares for which the CB may be converted

Parity = $4 x $200 = **$800**

The holder would be unlikely to convert the bond into shares at this time ($800 < $1000)

Conversion Premium

$$\frac{\text{Market Price of the CB} - \text{Parity}}{\text{Parity}}$$

$$\text{Conversion Premium} = \frac{\$1060 - \$800}{\$800}$$

$$= \mathbf{32.5\%}$$

The investors are willing to pay a 32.5% premium in order to have the bond features available.

- Low premium: in-the-money
- Medium premium: at-the-money
- High premium: out-of-the-money

Analyzing CBs – Investment Value

Investment Value

- The price of the CB as if it were a straight bond
- Used if the underlying stock price falls far below the conversion price

$$PV = FV \times \frac{1}{(1+i)^n}$$

$$PV1 = \$40 \times \frac{1}{(1+8\%)^1}$$

$$PV2 = \$40 \times \frac{1}{(1+8\%)^2}$$

$$PV3 = \$40 \times \frac{1}{(1+8\%)^3}$$

$$PV4 = \$40 \times \frac{1}{(1+8\%)^4}$$

$$PV5 = \$1040 \times \frac{1}{(1+8\%)^5}$$

Total PV = $840.29

Analyzing CBs – Investment Premium

Investment Premium

The percentage that the buyer must pay beyond the value of the straight bond to have the privilege of being able to convert

$$\frac{\text{Market Price of the CB} - \text{Investment Value}}{\text{Investment Value}}$$

$$\text{Investment Premium} = \frac{\$1{,}060 - \$840.29}{\$840.29}$$

$$= 26.1\%$$

Analyzing CBs – Current Yield and Yield Advantage

$$\text{Current Yield} = \frac{\text{Annual Dollar Coupon Amount}}{\text{Market Price of the CB}}$$

Yields are the potential return for holding a bond

- Interest payments
- Coupons
- Capital gains or losses
- Principal repayments or buy backs
- Income from reinvesting the coupons

$$\text{Current Yield} = \frac{\$40}{\$1{,}060} = \mathbf{3.77\%}$$

Yield Advantage

Current Yield – Dividend Yield

Yield Advantage = 3.77% - 1%

= **2.77%**

Analyzing CBs – Break-Even Period

Break-Even Period

- How long it would take for a particular CB to be held in order to recapture the conversion premium

$$\text{Breakeven Period} = \frac{\text{Conversion Premium}}{\text{Yield Advantage}}$$

$$= \frac{32.5\%}{2.77\%}$$

$$= \textbf{11.7 years}$$

The CB is five years in total maturity, so this break-even period indicates that the CB is trading quite rich.

Analyzing CBs – Break-Even Cash Flow

Break-Even Cash Flow

- A more advanced payback analysis method

Dollar Difference = **Coupon Amount** – (**Conversion Ratio** × **Dividend Amount**)

= $40 – (4 × $2) = **$32**

The excess cash we get for holding the CB versus holding the shares for a year.

$$\textbf{Breakeven Cash Flow} = \frac{\textbf{Market Price} - \textbf{Parity Value}}{\textbf{Dollar Difference}}$$

$$= \frac{\$1{,}060 - \$800}{\$32} = \textbf{8.125 years}$$

It would take 8.125 years to recoup the premium paid for the CB based on the cash difference of $32 a year.

Real Market Examples

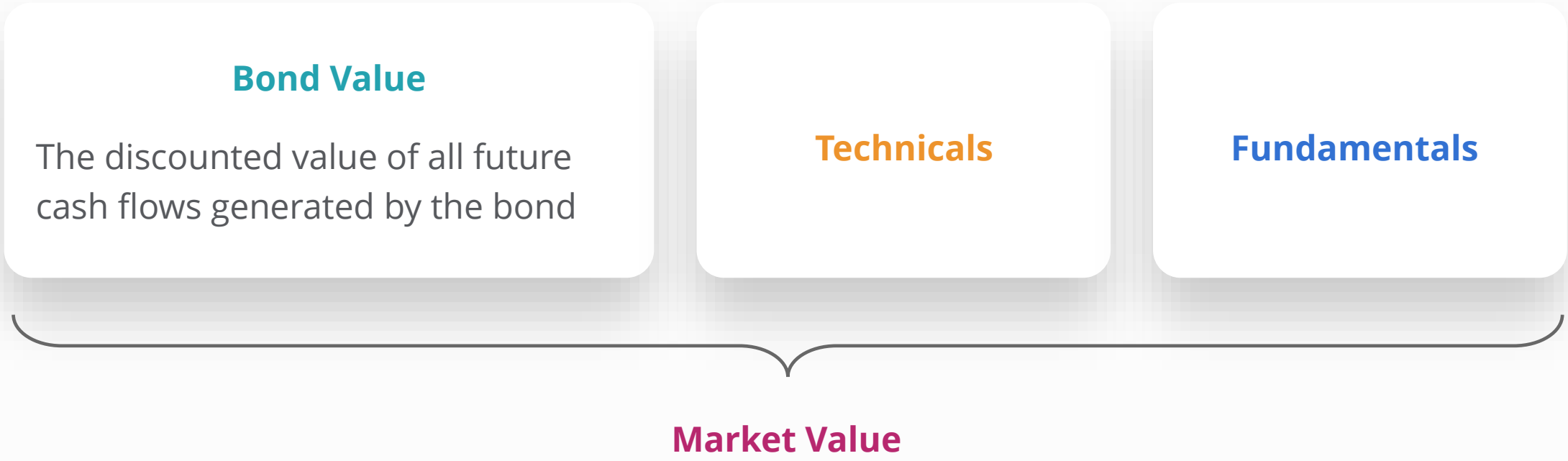
CONVERTIBLE MARKET STATISTICS	10/31/19 ICE BOFAML ALL U.S. CONV. INDEX (VXA0)	9/30/19 ICE BOFAML ALL U.S. CONV. INDEX (VXA0)
Average Current Yield	2.5%	2.5%
Average Conversion Premium	34.0%	35.4%
Average Investment Premium	31.1%	33.0%
Average Quality Rating	BB2	BB2

NEW ISSUES STATISTICS	10/31/19 ICE BOFAML ALL U.S. CONV. INDEX - NEW ISSUES (VNEW)	9/30/19 ICE BOFAML ALL U.S. CONV. INDEX - NEW ISSUES (VNEW)
Average Current Yield	2.0%	2.0%
Average Conversion Premium	33.4%	33.2%
Average Investment Premium	32.3%	35.0%
Average Quality Rating	BB2	BB2

Source: BofA Merrill Lynch Global Research, ICE Data Indices, LLC; VXA0 Index, VNEW Index.

Trading Strategies

Bond Value and Price



The market price may not be the same as what a model predicts. It is up to the investor, trader, or speculator to determine whether a CB is underpriced, overpriced, or fairly priced.

Bond Value Inputs

Important inputs of pricing a straight bond will include:

1. Issue Price

2. Coupon Payment

3. Maturity

4. Discount Rate

5. Redemption Price

Option Value Inputs

Important inputs of pricing a CB stock option will include:

1. Underlying Price

2. Expiration Date

3. Conversion Premium/Price

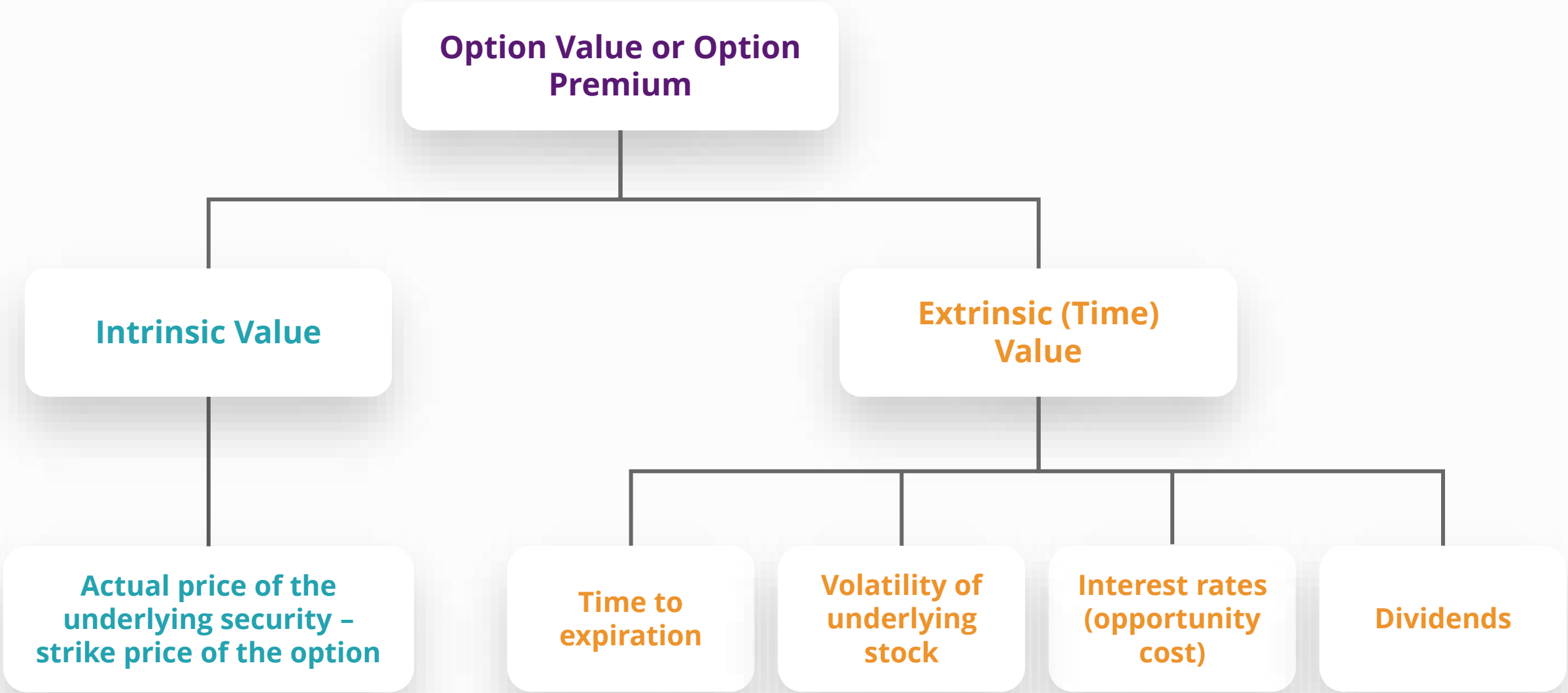
4. Call or Put

5. Exercise Features

6. Dividend Forecasts

7. Assumed Volatility

Option Value



Intrinsic Value vs. Extrinsic (Time) Value

Intrinsic Value

- Remains the same for an option as long as the underlying price doesn't move

VS

Extrinsic (Time) Value

- Doesn’t stay the same due to time decay
- Decreasingly valuable as the option approaches expiration
- The portion of an option's price that exceeds the intrinsic value

Even when the option is out-of-the-money and the intrinsic value is zero, it never gets negative.

Extrinsic value may still have value even when intrinsic value is zero, especially if the volatility of the underlying asset is high, as the option may swing back to being in-the-money.

Implied Volatility

The inputs into valuing a CB option are all straightforward except for volatility. The reason is that volatility cannot be observed until after it happens.

Implied Volatility

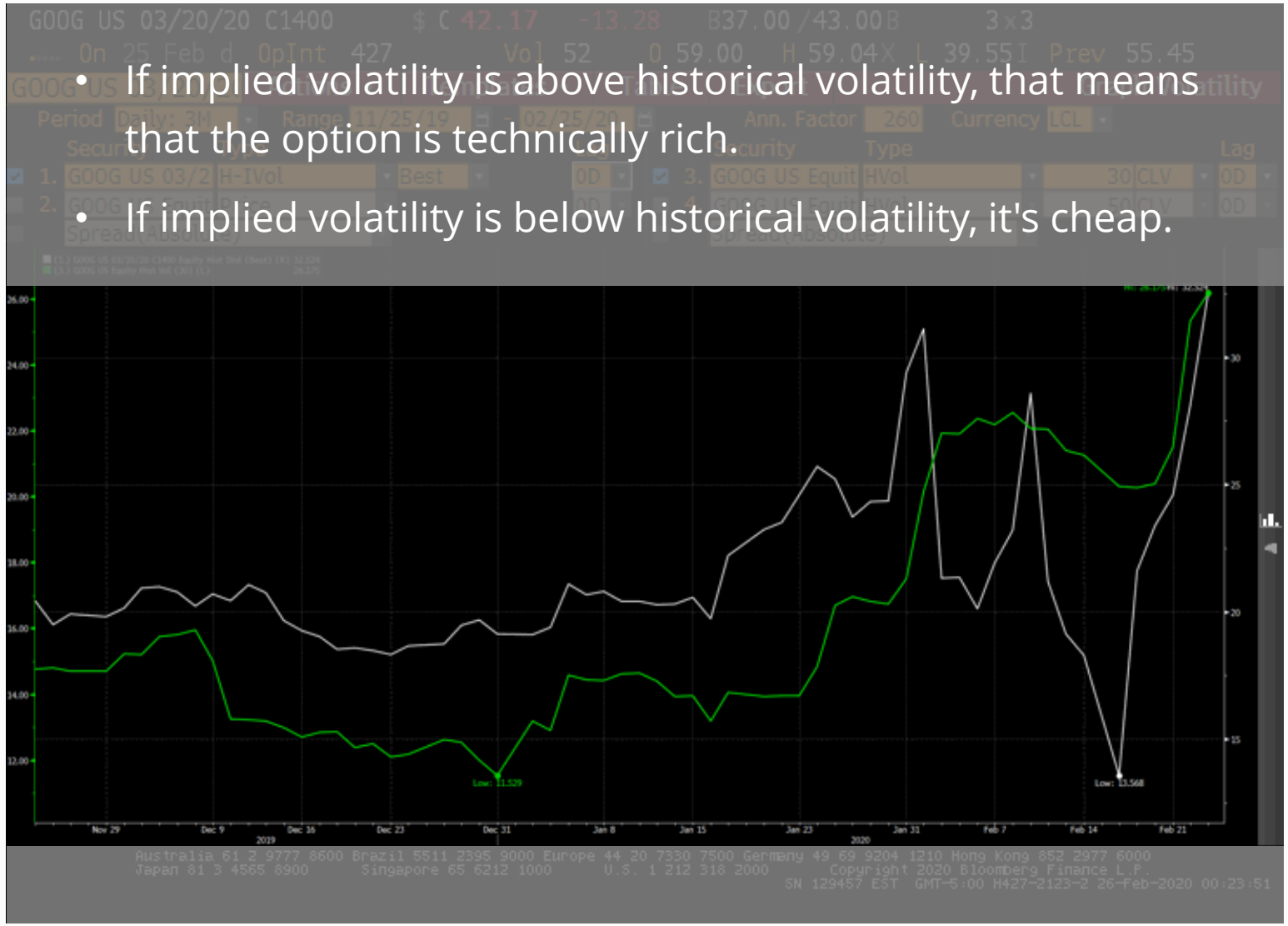
- Refer to prices of longer-dated option instruments in the future
- Use these market prices from those instruments
- Work backwards to derive volatilities that are closer to the present

- Past volatility is not always a good predictor of future volatility
- Normally, market makers use implied volatility to price options

Implied Volatility vs. Historical Volatility

Implied Volatility vs. Historical Volatility

- If implied volatility is above historical volatility, that means that the option is technically rich.
- If implied volatility is below historical volatility, it's cheap.



How Options Are Priced

Three main categories of modeling for valuing derivatives:

- **Black-Scholes**
- **Binomial/ Trinomial**
- **Monte Carlo**

Varies in the way that the probability distribution for future stock prices are generated

Drivers (Increase)	Call	Put	Greek
Strike price	⇧	⇩	-
Underlying price	⇧	⇩	Delta & Gamma
Term	⇧	⇧	Theta
Volatility	⇧	⇧	Vega
Interest rate	⇧	⇩	Pho
Credit spread/ dividend	⇩	⇧	Omicron/Phi

The Greeks of CBs

Drivers	Call	Put	Greek
Increase in underlying price	⇧	⇩	Delta & Gamma

Δ Delta

- Change in CFV per unit change in the underlying stock price

Γ Gamma

- How quickly the Delta changes given a change in the underlying stock price

CFV = Convertible Fair Value (The market price of the CB)

The Greeks of CBs

Drivers	Call	Put	Greek
Increase in term	⇧	⇧	Theta

Θ Theta

- Change in CFV for a 1-day change in the number of days to expiry
- Also referred to as time decay

CFV = Convertible Fair Value (The market price of the CB)

The Greeks of CBs

Drivers	Call	Put	Greek
Increase in volatility	⇧	⇧	Vega

V Vega

- Change in CFV for a 1% change in the underlying stock's implied volatility
- Also referred to as "Tau"

CFV = Convertible Fair Value (The market price of the CB)

The Greeks of CBs

Drivers	Call	Put	Greek
Increase in interest rate	⇧	⇩	Pho
Increase in credit spread	⇩	⇧	Omicron
Increase in dividend	⇩	⇧	Phi

ρ Rho

- Change in CFV for a 10 basis points (bps) change in interest rates

O Omicron

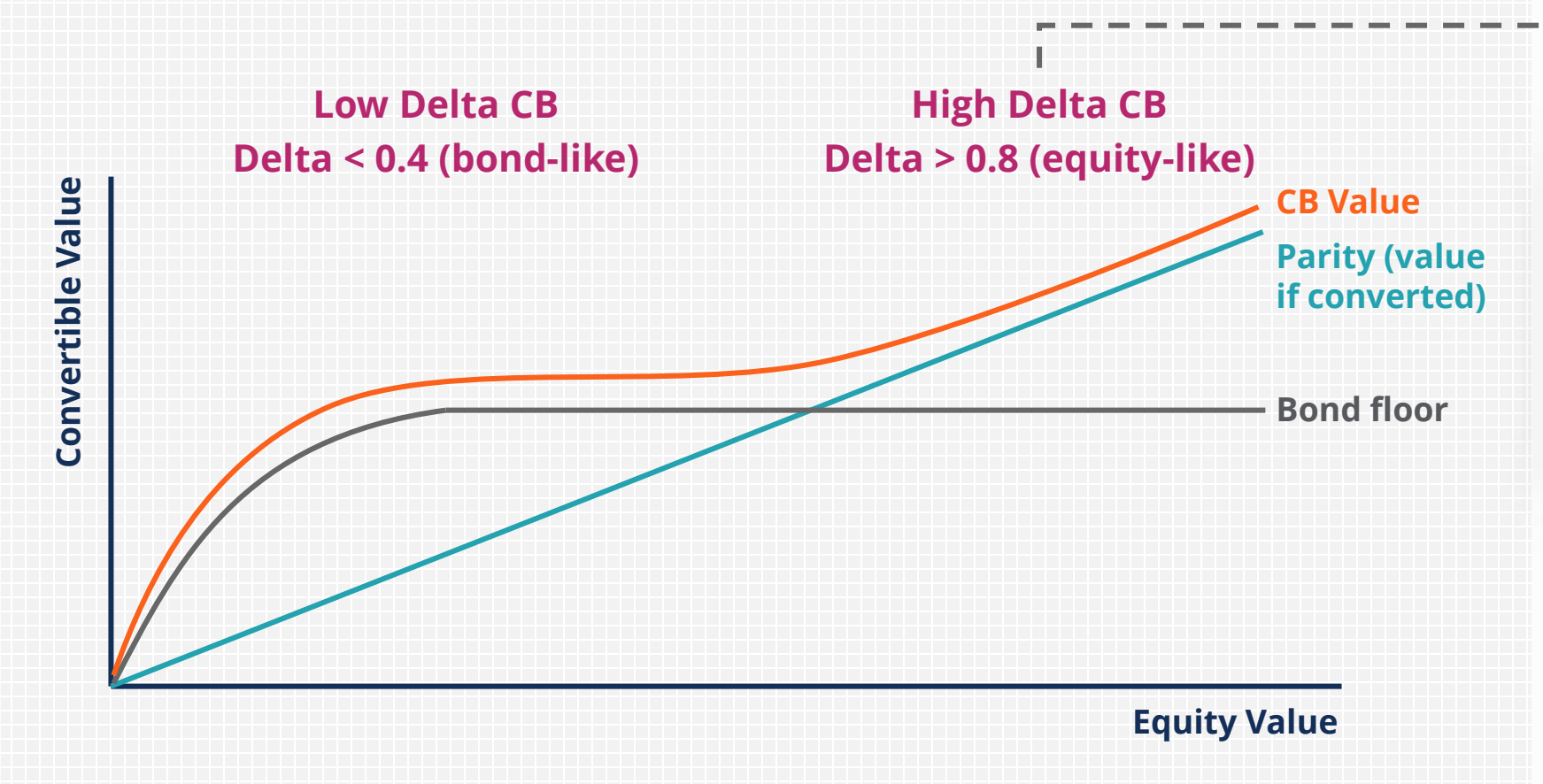
- Change in CFV for a 10 bps change in credit spread of the issuer

Φ Phi

- Change in CFV with respect to the underlying stock dividend yield

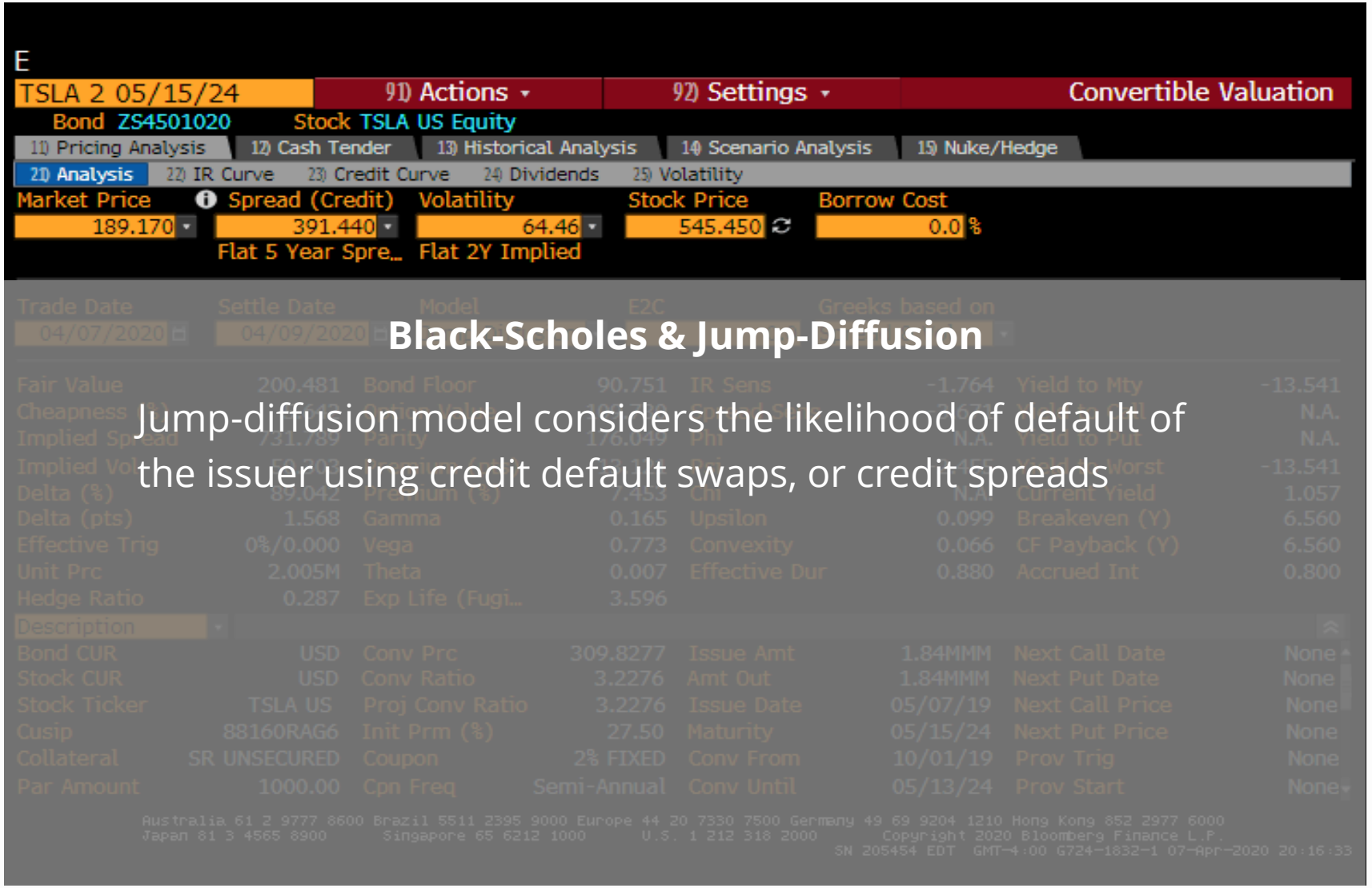
An Example of Using a Greek

The reason for using Greeks is that this allows traders and investors to have a standardized short-hand to describe changes in the price of their option based on the variables.



A $1 increase in the underlying stock price will mean at least an $0.80 increase in the price of the CB.

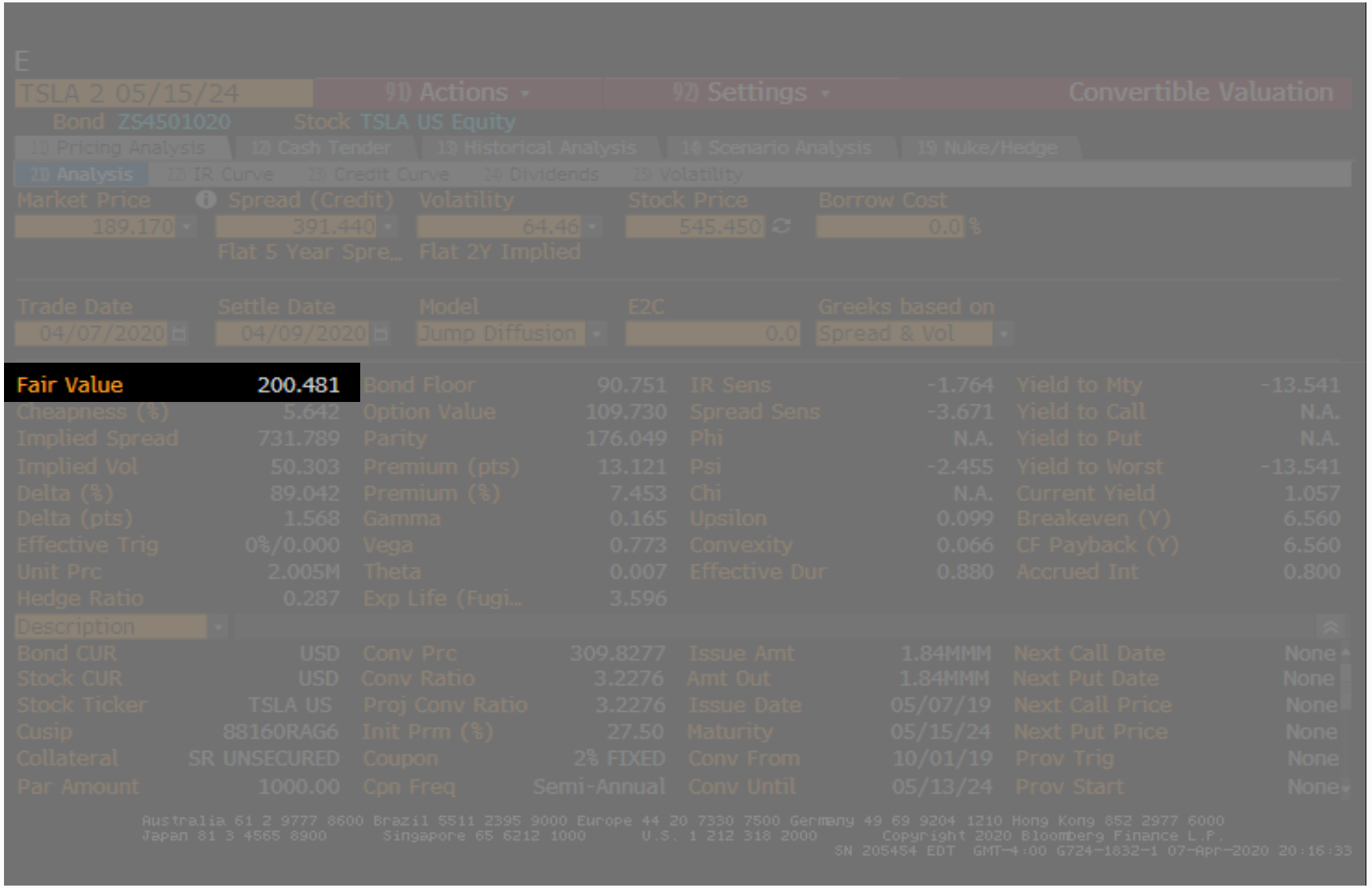
How to Value CBs



Black-Scholes & Jump-Diffusion

Jump-diffusion model considers the likelihood of default of the issuer using credit default swaps, or credit spreads

How to Value CBs



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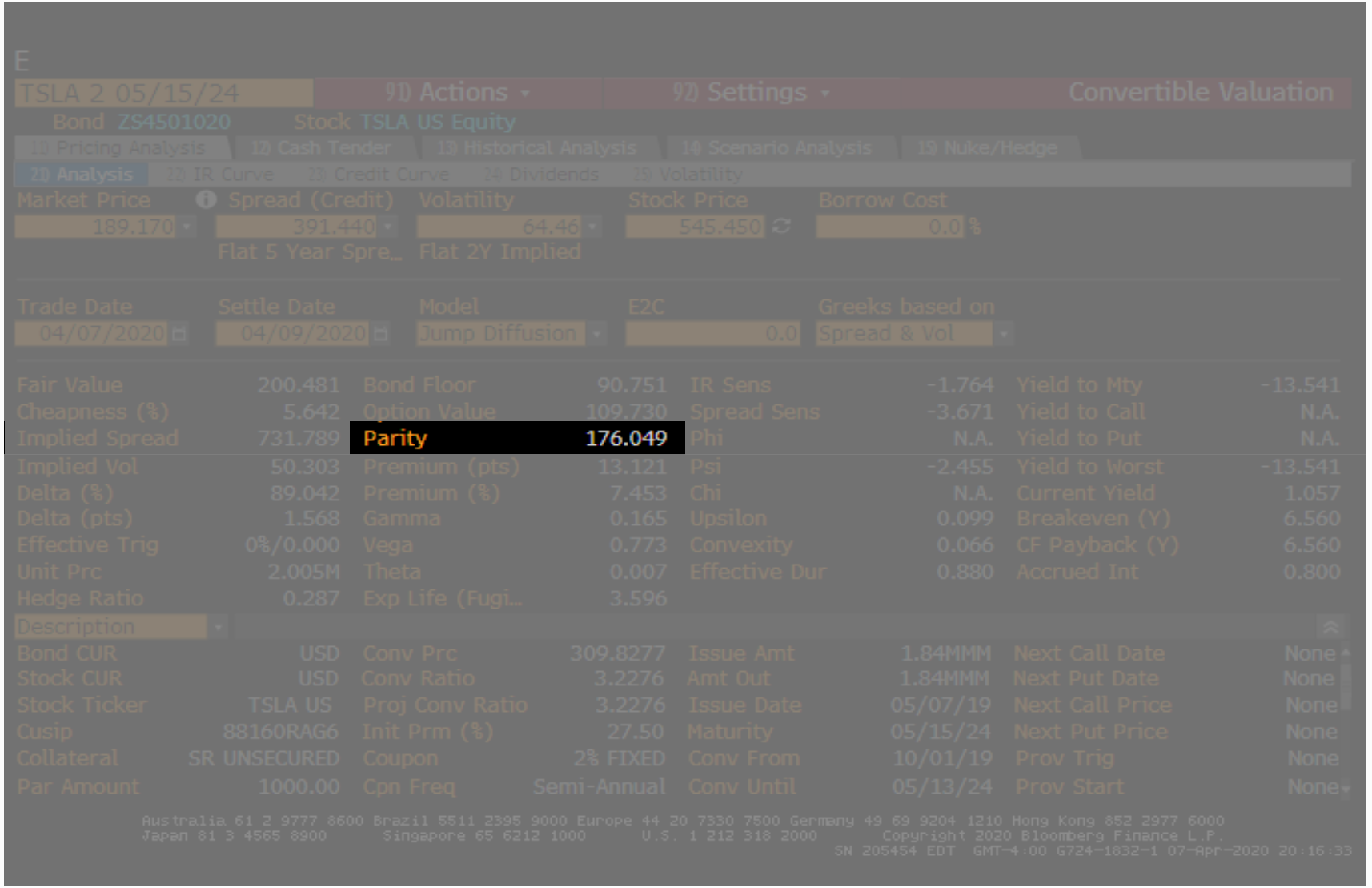

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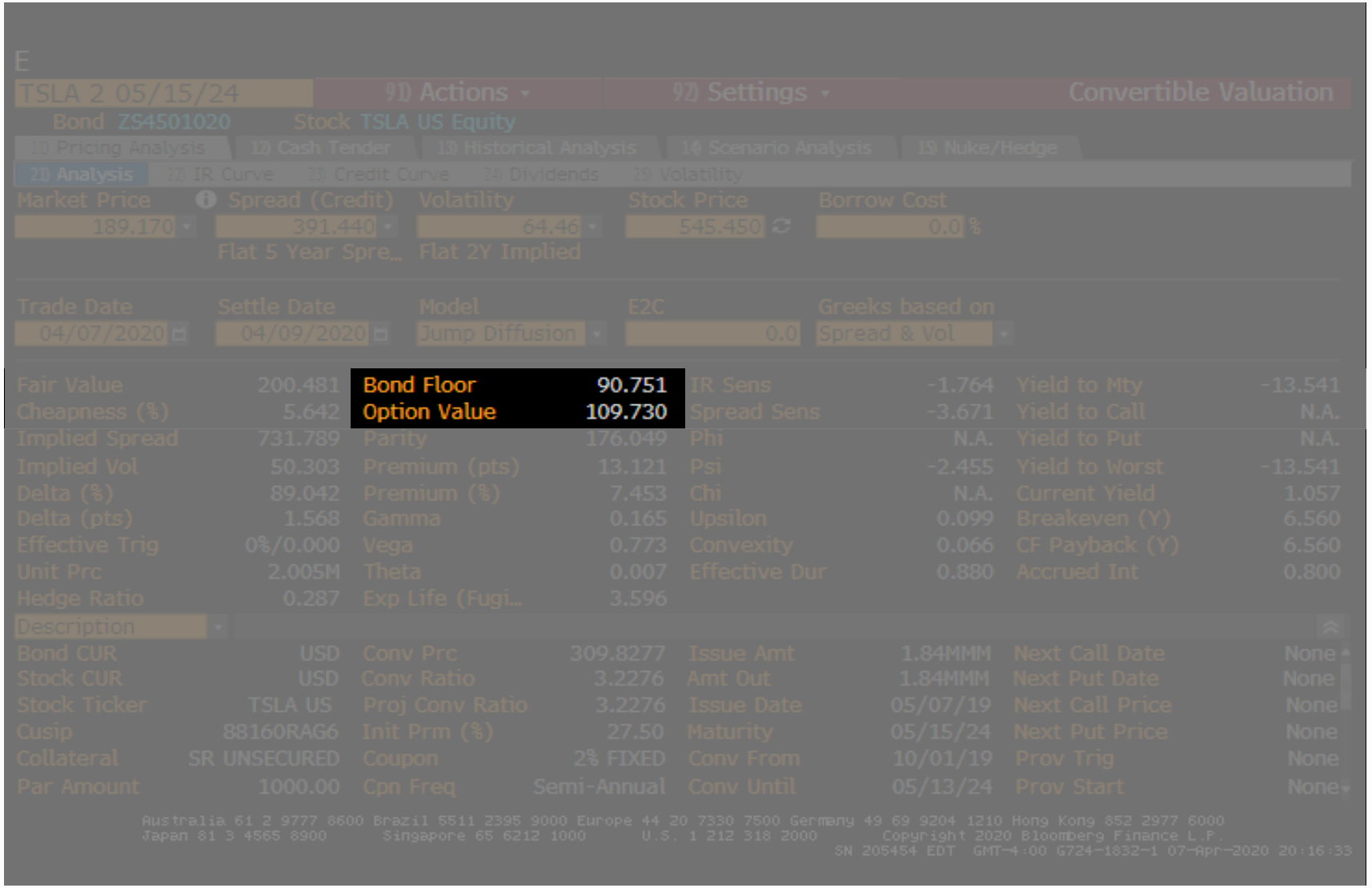

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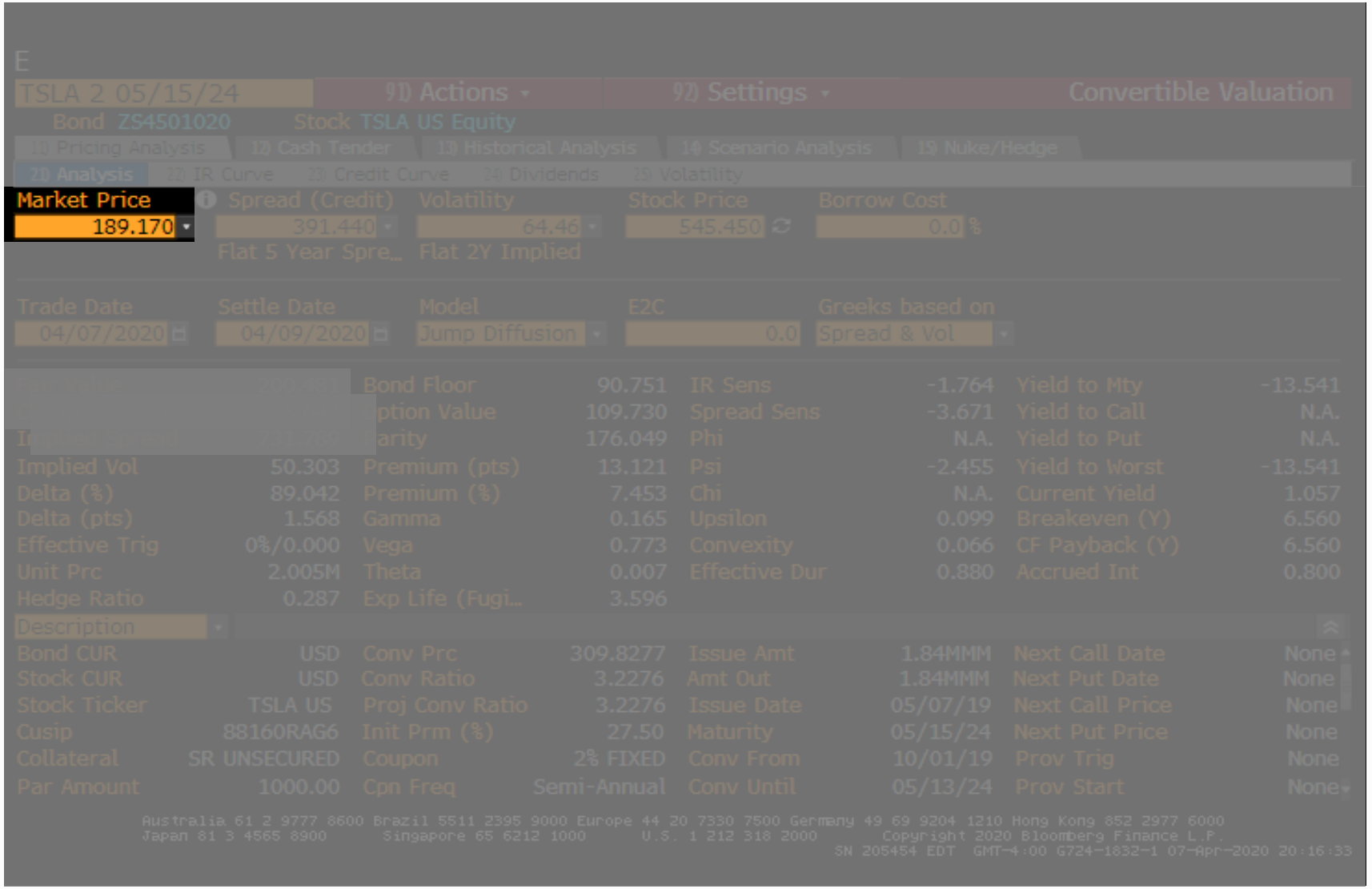

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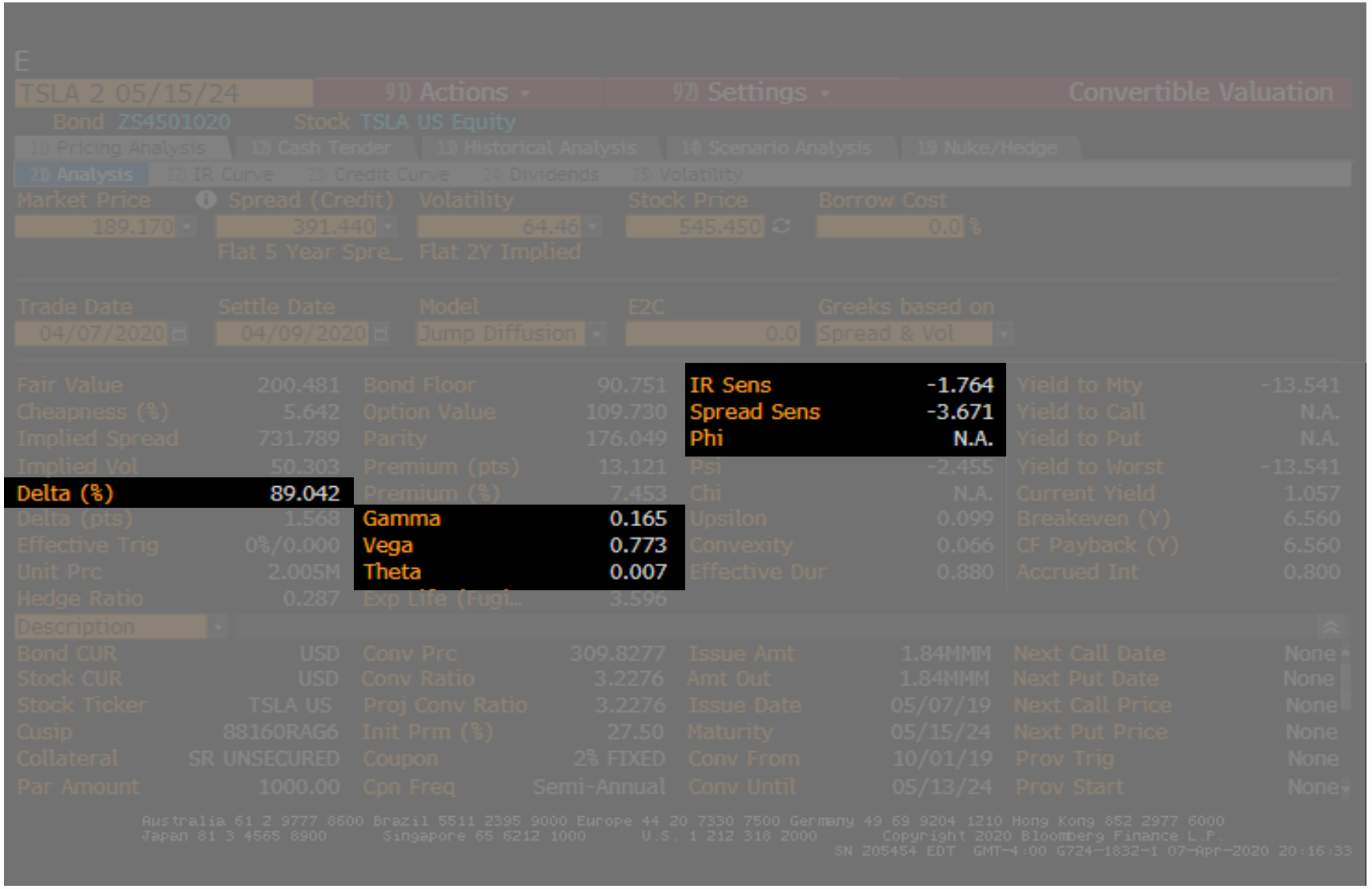

Trading CBs

How do we trade these convertible bonds?

- CBs trade differently to their investment-grade and even high-yield counterparts.
- High-yield bonds trade on swaps or cash price based on their credit. CBs have embedded equity options to consider.

- Many investors prefer investing in new issues. This allows them to gain access to new issuers, new deals, cheaper levels, and larger allocations.
- These bonds also trade in the secondary market after the deal is free to trade.

Trading CBs

CBs trade over-the-counter (OTC) between a market maker and a client.

Market makers may show a two-way price that gives the indication of how much they'd be willing to pay for a CB and how much they'd be willing to sell that same CB.

CB traders would use their salespeople to speak with the clients on buying or selling an issue.

They also use inter-market brokers to help source or offload bonds.

The bid-ask or bid-offer spread in CBs tends to be much wider than investment-grade bonds and varies from issue to issue.

CBs are normally considered an equity product, so most institutional investors would have dedicated salespeople for CBs.

Trading CBs

The Bloomberg runs screen RUNZ in the way that CB traders and salespeople will be able to broadcast what they're looking to do.

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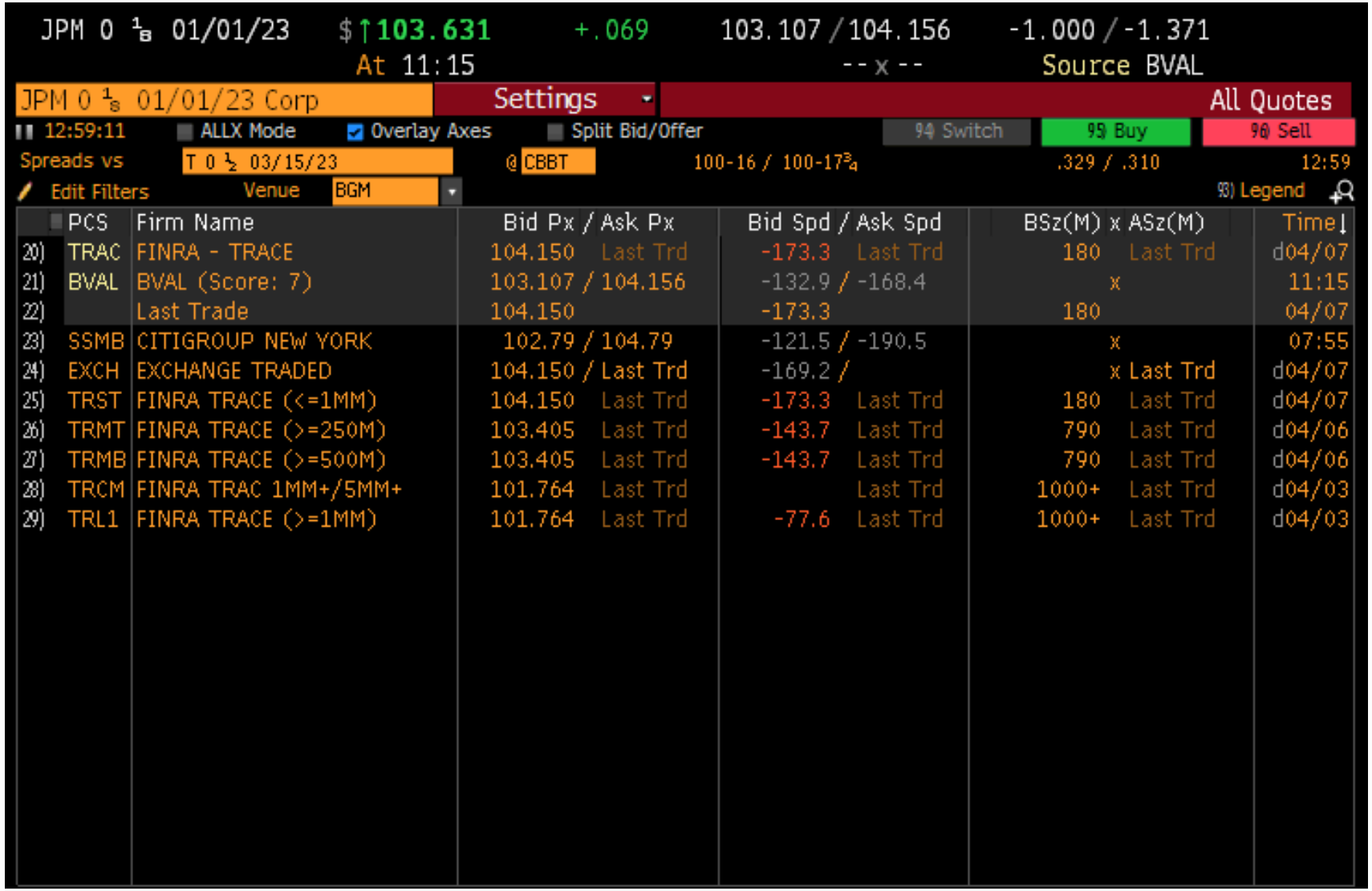

Trading CBs

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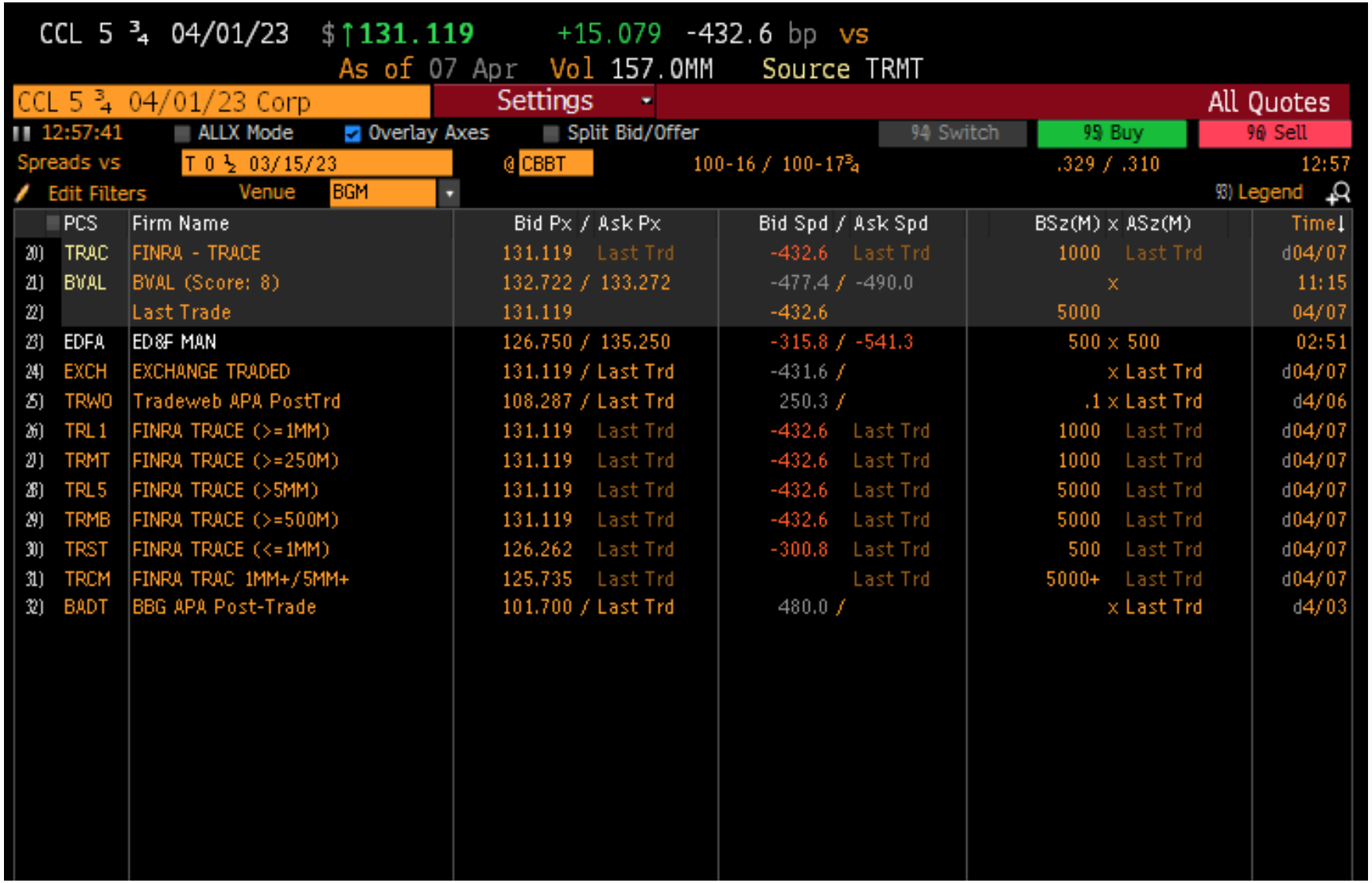


Trading CBs

Liquidity in CBs will not be as good given the market is much smaller.

- CB: $750Bn
- High-yield: $1.2Trn
- Investment-grade: $7Trn

Many CBs are called away before they actually mature, which has the effect of reducing liquidity in any given bond.

Many CBs are bought for hedging and arbitrage purposes, these bonds don't trade as often since they're locked up in structure trades.

CB Indexes

An index is a basket of representative financial instruments. They can be as broad as a global aggregate index with thousands of securities down to very small subsets.

Indexes are looked after primarily either by or in conjunction with a global investment bank.

CB Indexes

The purpose of indexes is generally the following:

Performance Target

- Fund managers can be benchmarked against the index that's similar or consistent with their investment mandate.
- The fund manager's performance will be directly tied to their relative performance to these indexes.

Informational Measures For the Asset Class

- Indexes give investors a quick and easy way of measuring the risk and return of an asset class.
- They can compare returns and use the data in developing, back testing, and evaluating their investment models and strategies.

References for Index-Linked Products

- Exchange-traded funds (ETFs)
- Exchange-traded notes (ETNs)
- Other structured notes

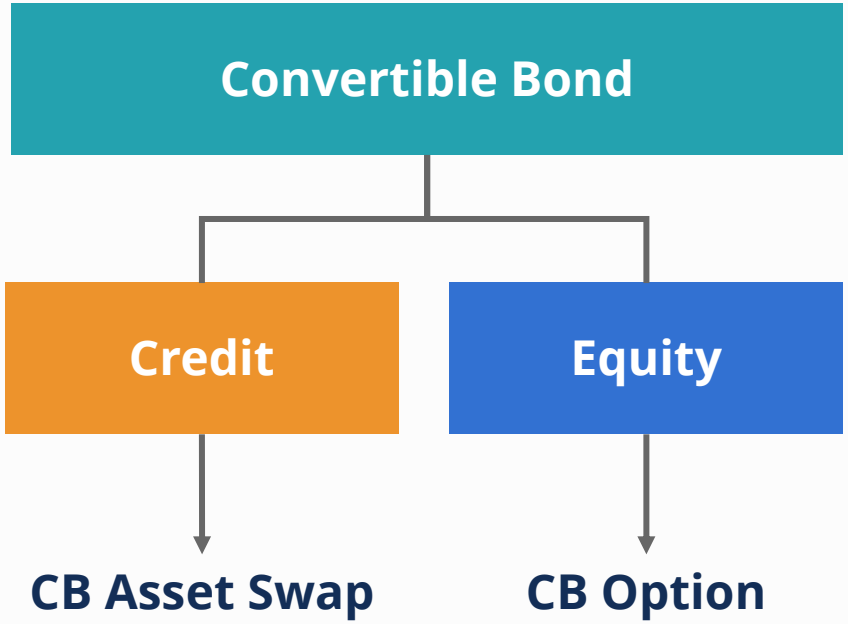
CB Trading Strategy #1 – Asset Swap

Investors can profit by taking advantage of mispricing between convertible bonds and the **underlying cash bond**, **underlying equity,** and the **equity derivative**.

Arbitrage: riskless profit from mispricing in the market

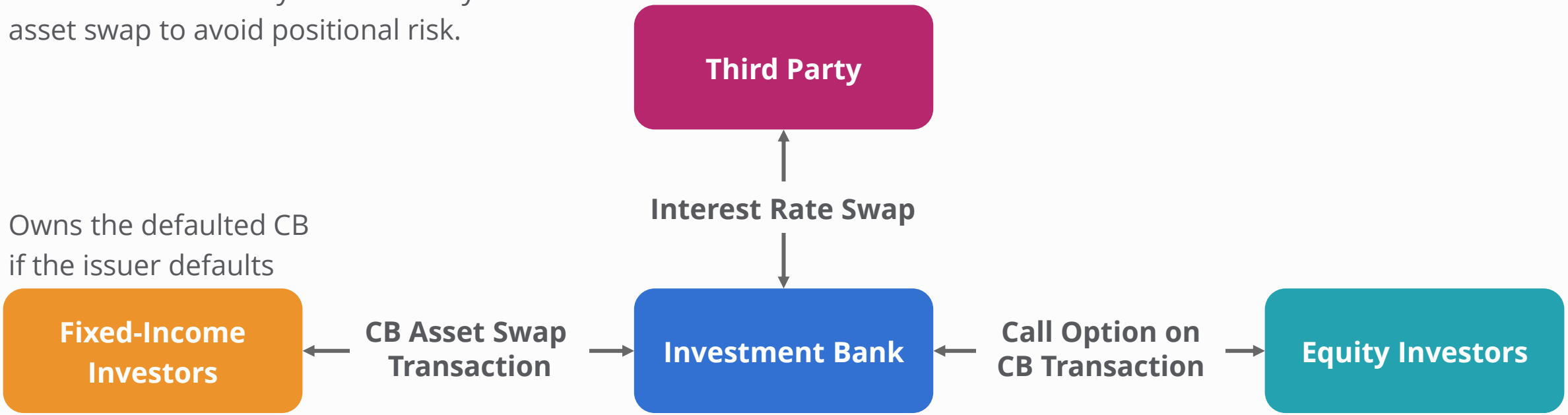
CB Asset Swaps

Arbitrage the preferences between fixed-income and equity investors



CB Asset Swap Diagram

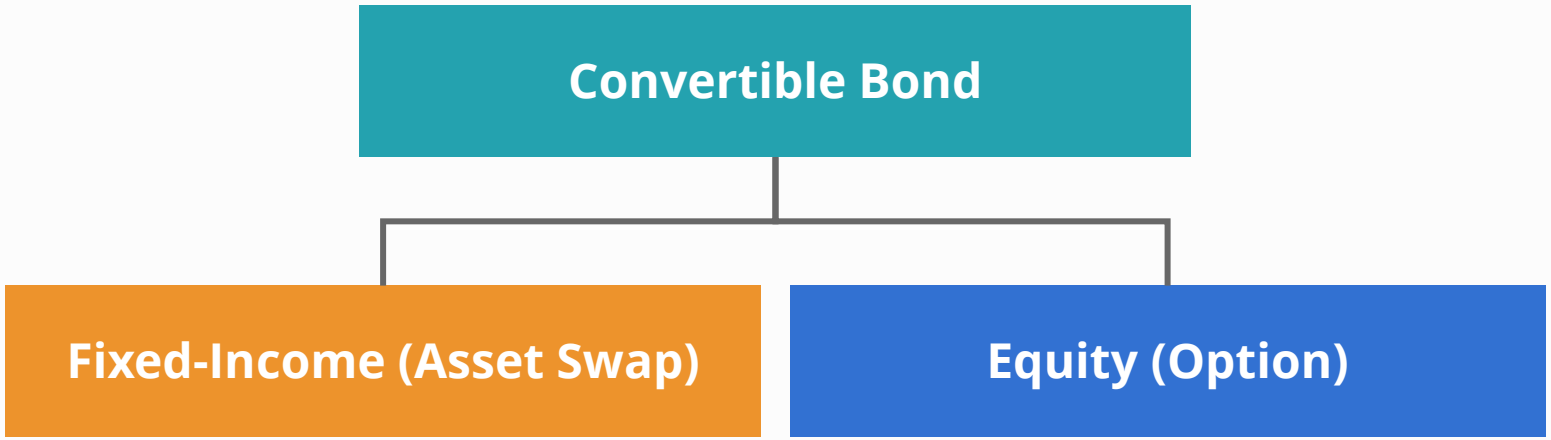
The CB asset swap has call dates so that if and when the CB option is exercised, the investment bank may also call away the CB asset swap to avoid positional risk.



- Sells the CB at par value
- Spreads over floating rate index (LIBOR) in exchange for the fixed-rate coupon

- Sells the CB option as an OTC derivative
- Gives a bit of the premium to the CB asset swap buyer

CB Asset Swap



- Opportunity to buy a fixed-income exposure
- Receive more spread than a straight bond
- Reduce duration

- Opportunity to purchase the same equity call option
- Cheaper than the equity market or equity derivative market

CB Trading Strategy #2 – Arbitrage

Because CBs offer efficient arbitrage mechanisms, there's much demand by hedge funds.

Hedge funds arbitrage the value of CBs in different ways depending on **where the CB is relative to its stock and bond valuations**.

Low Premium (In-The-Money)

Equity-Like – Butane

- Sell the stock and buy the CB with no net exposure to the share price
- Receive the coupon and the interest earned from the short stock position
- Pay the cost of borrowing the stock and the cost of dividends forgone
- Highly risky, such as increased dividends from the shorted stock, the CBs being called, or changes to the market

CB Trading Strategy #3 – Arbitrage

Because CBs offer efficient arbitrage mechanisms, there's much demand by hedge funds.

Hedge funds arbitrage the value of CBs in different ways depending on **where the CB is relative to its stock and bond valuations**.

Medium Premium (At-The-Money)

- Option-like features are at their maximum
- Volatility trade: buy the CB and sell the stock to create a delta neutral position
- The position needs to be actively managed by selling more stock when shares rise, and bought when shares fall (delta hedging)
- Profit from the carry (CB interest – dividends and stock borrow costs)
- Bigger profit comes from the cost in hedging and re-hedging the stock

CB Trading Strategy #4 – Arbitrage

Because CBs offer efficient arbitrage mechanisms, there's much demand by hedge funds.

Hedge funds arbitrage the value of CBs in different ways depending on **where the CB is relative to its stock and bond valuations**.

High Premium (Out-Of-The-Money)
Bond-Like – Busted

- Bonds combined with out-of-the-money options, low delta
- Sell the bonds as the CB falls to the valley region
- The optionality is small but any significant rise in the stock will benefit the BC holders
- Requires intense credit analysis, as the company may default