# Handling Derivative Instruments in Performance & Attribution

Claude Giguère


Investment Performance Solutions

**Richer ● Better ● Easier**

# About Robust Technologies

**Founded**

in 2006

**Software**

Performance Measurement

Performance Attribution

GIPS ® Composites

Risk Analytics

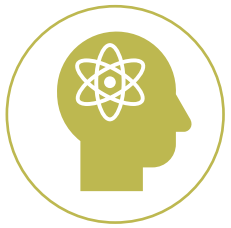
**High end**

Investment Management Firms

**Sophisticated**

Investment Management

Decision Process.



**Sophisticated**

Investment

Management

Decision Process

## Derivative Instruments

- Futures
- Options
- Options on Futures
- Currency Forwards
- Repos
- Swaps
- Long / Short Strategies

# Index Futures Contracts

e.g.

S&P 500 FUTURE  (USD)

FTSE 100 Index Future (GBP)

# What is an Index Futures Contract?

1. Obligation to purchase or sell a given basket of securities at a specified date and price (contract).
2. Exchange traded.
3. Require margin account
4. Daily P&L are marked-to-market (settle into margin account)
5. **Long** Position is *synthetically* equivalent to : **Borrowing Cash** (**short**) and **Buy Asset** (**Long**)
6. **Short** Position is *synthetically* equivalent to : **Lending Cash** (**Long**) and **Sell Asset** (**Short**)
7. Cost effective **surrogate** to buying or selling shares (great liquidity, minimal transaction fees)

# E-mini S&P 500 Futures

| | |
|---|---|
| **CONTRACT SIZE** | $50 x S&P 500 Index |
| **MINIMUM TICK** | 0.25 index points |
| **DOLLAR VALUE OF ONE TICK** | $12.50 U.S. Dollars |
| **PRODUCT SYMBOL** | ES |
| **TRADING HOURS** | Sunday - Friday 5:00p.m. - 4:00p.m. CT with a trading halt from 3:15p.m. - 3:30p.m. CT; Daily Maintenance period Monday - Thursday 4:00p.m. - 5:00p.m. |
| **CONTRACT MONTHS** | Nearest five months in the quarterly cycle (Mar, Jun, Sep, Dec) |
| **OPTIONS AVAILABLE** | Quarterly, Monthly, Weekly (Monday, Wednesday, Friday) |

Source :www.cmegroup.com/trading/why-futures/welcome-to-e-mini-s-and-p-500-futures.html

**S&P 500 E-Mini Jun '21 (ESM21)**
**4,227.00 +1.50 (+0.04%)** 13:17 CT [CME]
4,226.75 x 137 4,227.25 x 138
**CONTRACT SPECIFICATIONS** for Tue, Jun 8th, 2021

**Notional Value**

| **Size** | x | **Price 0** | = | **Notional Value** |
|---|---|---|---|---|
| 50 | | 4 000 | | 200 000 USD |

| **Price 1** | = | **Notional Value** |
|---|---|---|
| 4 280 | = | 214 000 USD |

$(P_1 - P_0) \times 50 =$ **Gain** = 14 000 USD

| Buy Securities | | Engage Future Contract | |
|---|---|---|---|
| ✓ | Must exchange cash to get exposure. | ✗ | Just initial margin |
| ✓ | Has a real market value. | ✗ | Just notional P&L |
| ✗ | P&L Marked-to-market daily. | ✓ | |
| ✓ | Offers equity exposure | ✓ | |
| ✓ | Offers currency exposure | ✗ | Except on P&L |

# Simple Example

50% US Equities - Stocks only

| | Portf | | Bench | | | | |
|---|---|---|---|---|---|---|---|
| | **Wgt** | **ROR** | **Wgt** | **ROR** | **Allocation** | **Selection** | **Total** |
| **Cash** | 50% | 3.00% | 20% | 3.00% | -1.68% | 0.00% | -1.68% |
| **US Equities** | 50% | 10.00% | 80% | 10.00% | -0.42% | 0.00% | -0.42% |
| **Total** | **100%** | **6.50%** | **100%** | **8.60%** | **-2.10%** | **0.00%** | **-2.10%** |

Outcome:

Underperformed by **-2.10%**

Because Under Weighted US Equities **50% vs 80%**

$$Allocation = \left(W_P^k - W_B^k\right) \times \left(R_B^k - R_B^T\right)$$

*Brinson-Fachler*

**Manager's decision:**

**Intent:** Increase Equity exposures to 90%

**Action:** Buy additional equities worth $5.6M

*How does attribution results look like?*

## Strategy

**Increase US Equity Exposures to 90%**

| | Portf | | Bench | |
|---|---|---|---|---|
| | Wgt | ROR | Wgt | ROR |
| Cash | 10% | 3.00% | 20% | 3% |
| US Equities | 90% | 10.00% | 80% | 10% |
| Total | **100%** | **9.30%** | **100%** | **8.60%** |

**By buying more equities**

| | Allocation | Selection | Total |
|---|---|---|---|
| Cash | 0.56% | 0.00% | 0.56% |
| US Equities | 0.14% | 0.00% | 0.14% |
| Total | **0.70%** | **0.00%** | **0.70%** |

## Story

**Good Asset Allocation Decision**

**No Selection Effect**

*The story makes sense.*

*Reflects the intent of the manager's investment decision*

**Manager's decision:**

**Inten:** Increase Equity exposures to 90%

**Action:** Engage in a future contract. Notionally equivalent to $5.6M

*How does attribution results look like?*
*Should the Story be the same?*

## Strategy

**Increase US Equity Exposures to 90%** by engaging into Future Contract

# The Attribution Story ?

### 1. Recognize P&L on Future

| | Allocation | Selection | Total |
|---|---|---|---|
| Cash | -1.68% | 0.00% | -1.68% |
| US Equities | -0.42% | 2.80% | 2.38% |
| Total | -2.10% | 2.80% | 0.70% |

### + 2. Adjust Notional Exposure

| | Allocation | Selection | Total |
|---|---|---|---|
| Cash | 0.56% | 1.20% | 1.76% |
| US Equities | 0.14% | -1.20% | -1.06% |
| Total | 0.70% | 0.00% | 0.70% |

### + 3. Account for Cost-of-Carry

| | Allocation | Selection | Total |
|---|---|---|---|
| Cash | 0.56% | 0.00% | 0.56% |
| US Equities | 0.14% | 0.00% | 0.14% |
| Total | 0.70% | 0.00% | 0.70% |

### Story # 1

**Bad Asset Allocation Decision**
**US Equity Stock Picker is a star**

### Story # 2

**Good Asset Allocation Decision**
**Cash Security Picker is a star**
**US Equity Stock Picker is really bad**

### Story # 3

**Good Asset Allocation Decision**
**No Selection Effect**

# To tell a meaningful story …

1. **Recognize P&L on Future**
2. **Adjust Notional Exposures (Cash & Equities)**
3. **Account for Cost-of-Carry (Risk Free Rate)**
4. **Organize the data the way the portfolio is managed**

Group futures positions
according to

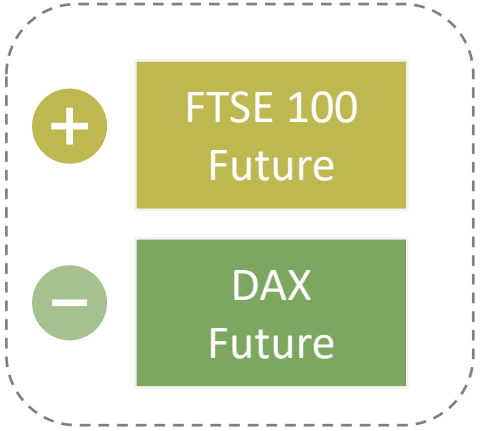
# Purpose

Intentions of manager

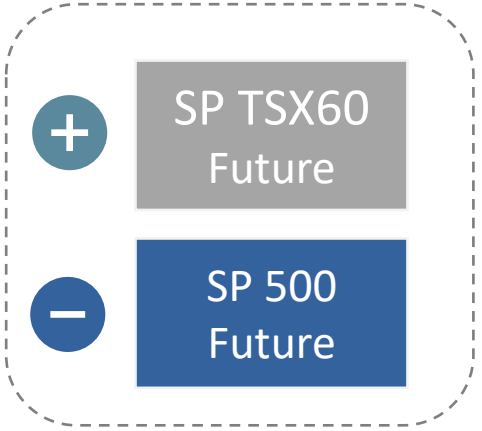
## Increase exposure to UK Equity


## Alpha Long/Short Strategies

+ U.K. - Germany




+ Canada - USA



## The Purpose of Attribution

- Tell a ***Story***
- Explains the excess return
- In a way that REFLECTS INVESTMENT DECISIONS MADE BY THE MANAGER(S)

## The Art of Attribution

- Art of crafting the right attribution model
- Reflects investment decision process
- No matter how complex it may be

## Artist: Performance Analyst

- Understand the investment process
- Configure attribution model accordingly
- Tells the ***Story***

# Review some Concepts

1. Concept of **Notional Value**
2. Differentiation between **Market** and **Currency** Exposures
3. **Relationship** between **index** price and its **futures price** (Arbitrage Free Theory)
4. Concept of **cost-of-carry.** Referred as the *basis, i.e.* difference between cash price and futures' price
5. **Cash Offset**. Multi-leg instrument (Long and Short legs)
6. **Best** practices
7. In the **context** of **Performance Measurement** and **Attribution**

# E-mini S&P 500 Futures Specifications

| | |
|---|---|
| **CONTRACT SIZE** | $50 x S&P 500 Index |
| **MINIMUM TICK** | 0.25 index points |
| **DOLLAR VALUE OF ONE TICK** | $12.50 U.S. Dollars |
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Source :www.cmegroup.com/trading/why-futures/welcome-to-e-mini-s-and-p-500-futures.html

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**4,227.00 +1.50 (+0.04%)** 13:17 CT [CME]

4,226.75 x 137 4,227.25 x 138

**CONTRACT SPECIFICATIONS** for Tue, Jun 8th, 2021

**Size :** 50

**Price 0 :** 4 000

**Price 1 :** 4 280

**Nb. Contracts :** 28

**Notional Value : 5 600 000 USD**

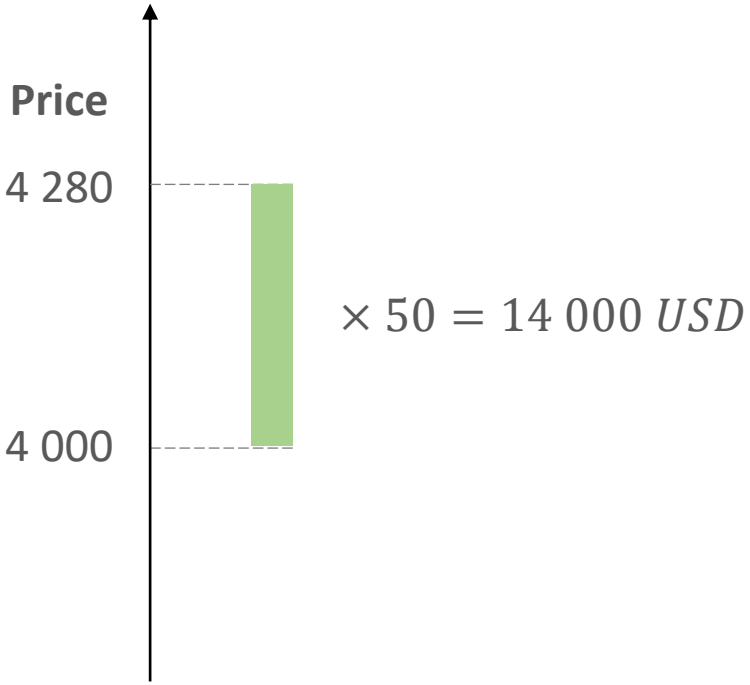
$$P_0 \times Size \times Nb.Contracts$$

**Gain : 392 000 USD**

$$(P_1 - P_0) \times Size \times Nb.Contracts$$

# Mini S&P 500

Notional Value



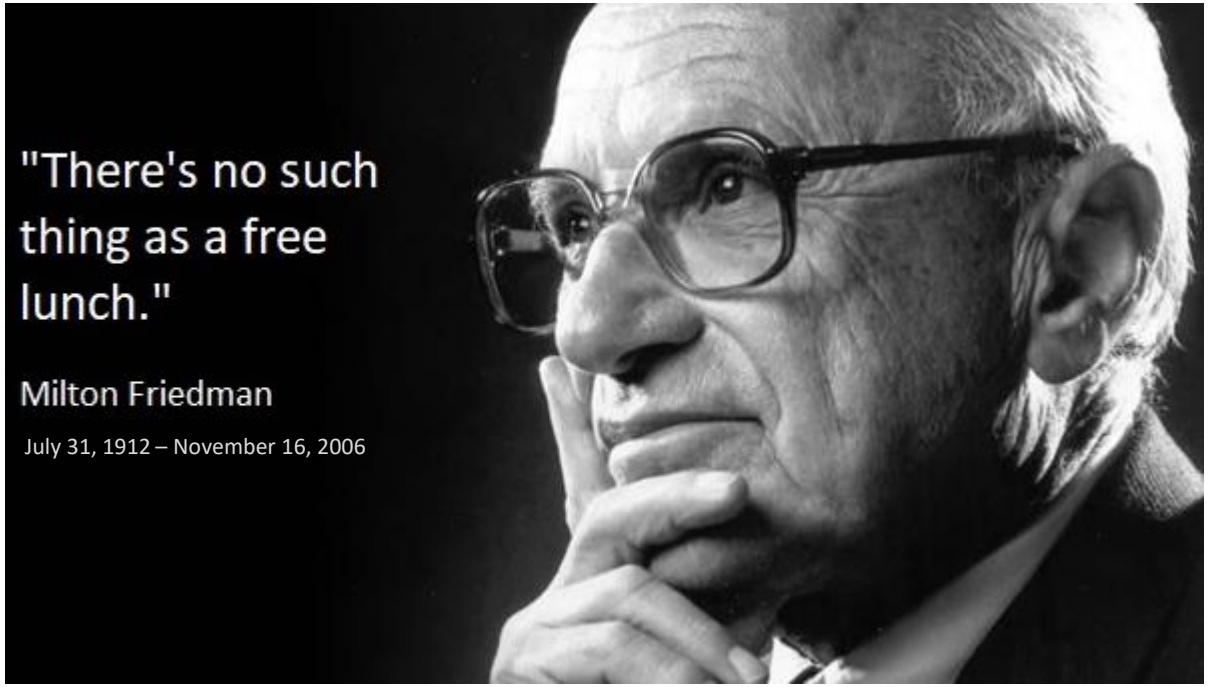

**Denominator** (Notional Value) $4\,000 \times 50 \times 28 = 5\,600\,000\ USD$

**Profit** $(4\,280 - 4\,000) \times 50 \times 28 = 392\,000\ USD$

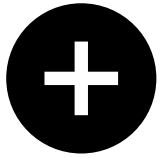
$$\frac{392\,000}{5\,600\,000} = 7\%$$

But you do not spend the money to buy the assets!

The money you keep can be invested at the risk free rate


Benefit from the price appreciation of some assets



Without buying the assets

Cost

**Arbitrage Free Theory**

## 2.3 The price relationship between index and its futures price

The best-known model for pricing stock index futures is undoubtedly the cost of carry model, developed by Cornell and French (1983a). The derivation of this model is based on a simple no-arbitrage argument that two different assets, or combinations of assets, that yield the same return should sell for the same price. Otherwise, arbitrage profit is

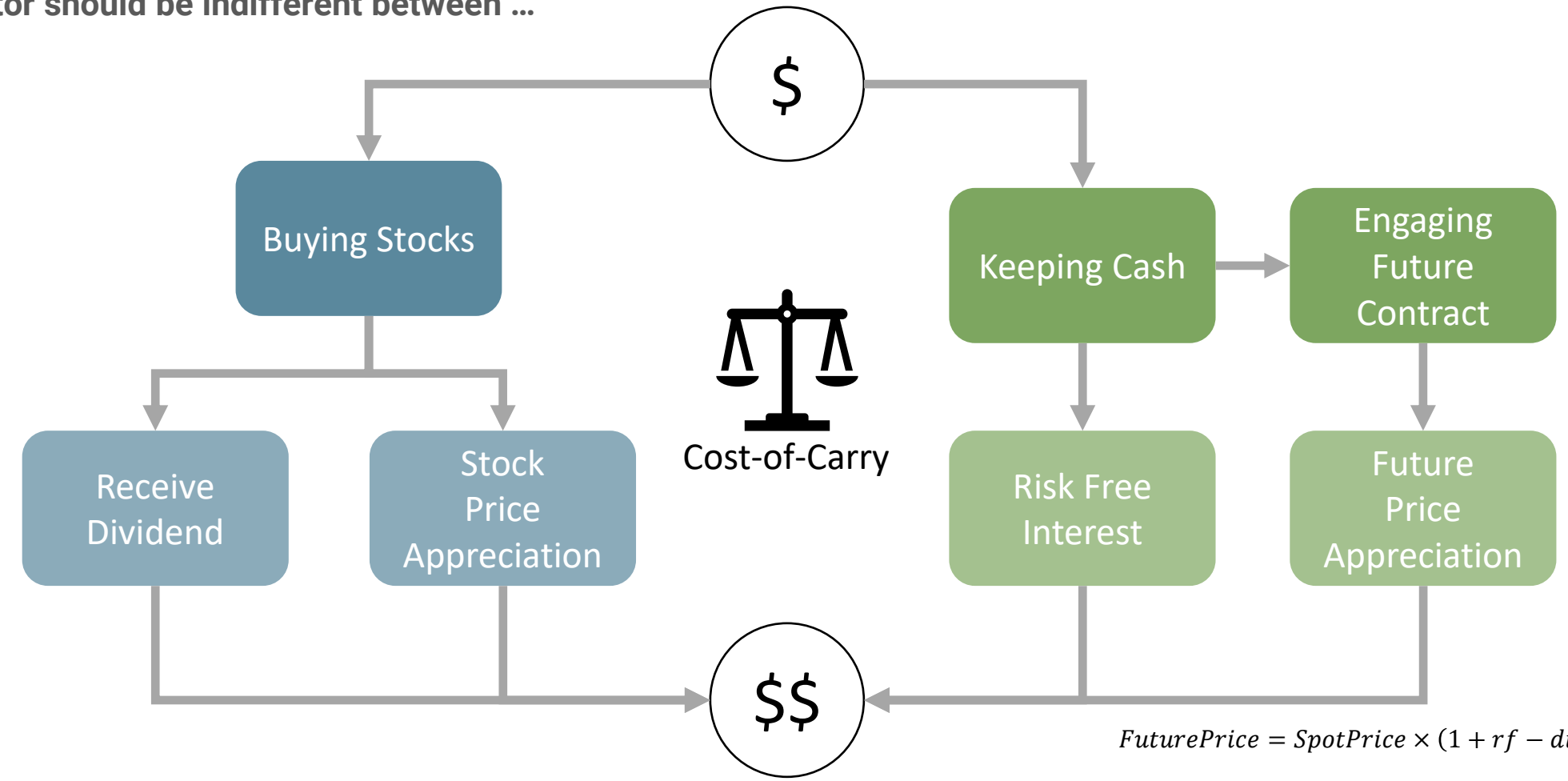
Source:
A re-examination of the relationship between FTSE100 index and futures prices
Juan Tao, 2008 https://dspace.lboro.ac.uk/2134/8071

Reference

Cornell, Bradford and French, Kenneth R., (1983), The pricing of stock index futures, Journal of Futures Markets, 3, issue 1, p. 1-14.

# Arbitrage Free Theory

**Investor should be indifferent between …**




$$FuturePrice = SpotPrice \times (1 + rf - div)$$

$$rf > div \rightarrow Cost$$

$$rf < div \rightarrow Yield$$

# Keep in mind that …

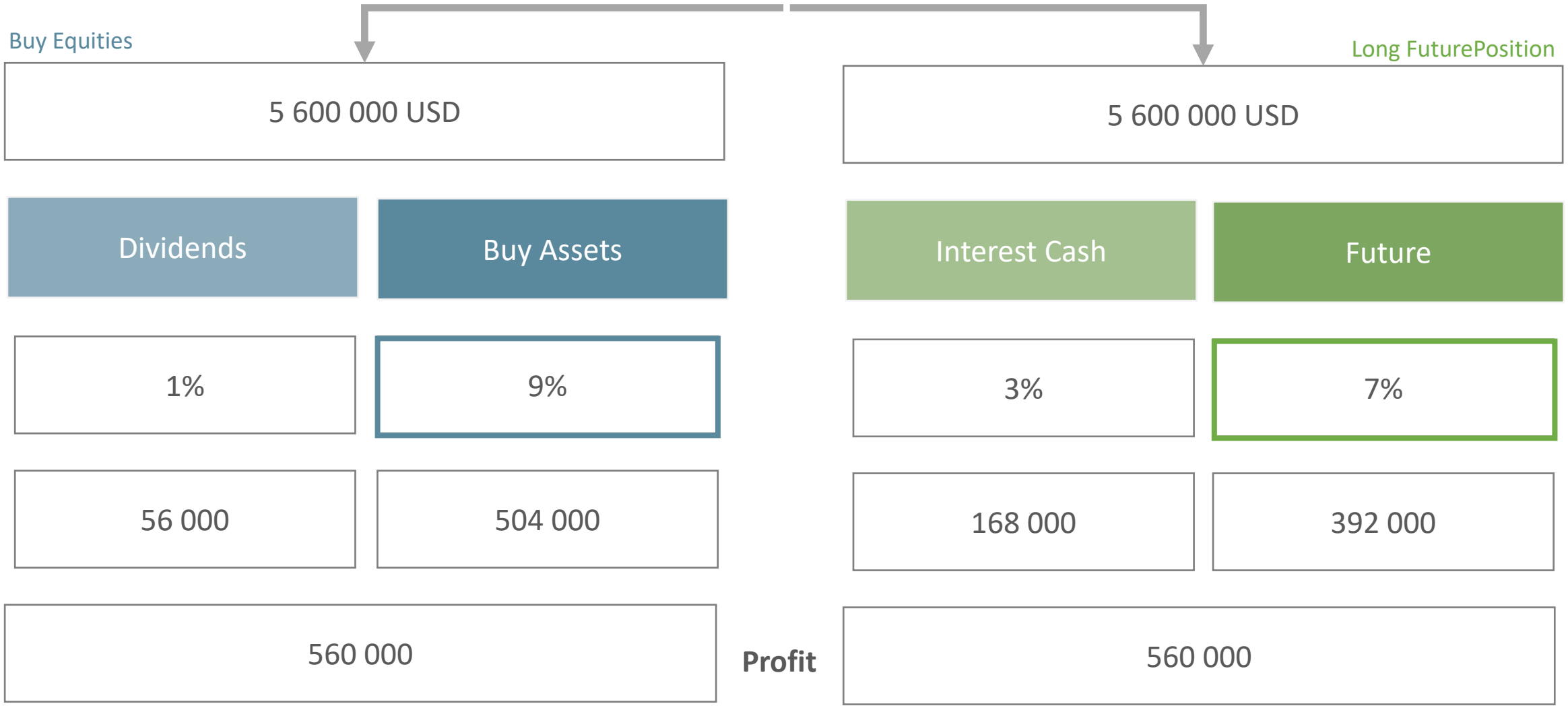
Stocks Return ≠ Future Return

**Generates Selection Effect**

Unless you adjusted for the Cost-of-Carry

# Arbitrage Free Theory

**Investor should be indifferent between …**



# What if we only …

1. **Recognize P&L on Future**
2. ~~Adjust Notional Exposures (Cash & Equities)~~
3. ~~Account for Cost-of-Carry (Risk Free Rate)~~

How attribution results looks like?

What story are you telling?

# 1. Recognize P&L on Future

~~2. Adjust Notional Exposures (Cash & Equities)~~

~~3. Account for Cost-of-Carry (Risk Free Rate)~~

| | Weight | Mkt Val | Cap | Inc | Total Gain | ROR |
|---|---|---|---|---|---|---|
| **Portfolio** | 100% | **14,000,000** | **1,022,000** | **280,000** | **1,302,000** | **9.30%** |
| **Cash** | 50% | **7,000,000** | **-** | **210,000** | **210,000** | 3.00% |
| Cash USD | 48% | 6,720,000 | - | 201,600 | 201,600 | 3.00% |
| Margin USD | 2% | 280,000 | - | 8,400 | 8,400 | 3.00% |
| **US Equities** | 50% | **7,000,000** | **1,022,000** | **70,000** | **1,092,000** | 15.60% |
| SP500 Stocks | 50% | 7,000,000 | 630,000 | 70,000 | 700,000 | 10.00% |
| Future | 0% | | 392,000 | | 392,000 | #DIV/0! |

Return OK

Return not notionally meaningful

Not Security Level Return

Allocation not notionally meaningful

Recognize Future P&L

# 1. Recognize P&L on Future

~~2. Adjust Notional Exposures (Cash & Equities)~~

~~3. Account for Cost-of-Carry (Risk Free Rate)~~

| | Portf | | Bench | | | | |
|---|---|---|---|---|---|---|---|
| | Wgt | ROR | Wgt | ROR | Allocation | Selection | Total |
| Cash | 50% | 3.00% | 20% | 3% | -1.68% | 0.00% | -1.68% |
| US Equities | 50% | 15.60% | 80% | 10% | -0.42% | 2.80% | 2.38% |
| Total | 100% | 9.30% | 100% | 8.60% | -2.10% | 2.80% | 0.70% |

**Outcome:**

| | |
|---|---|
| Outperformed by | 0.70% |
| Allocation | -2.10% |
| Selection | 2.80% |

Added Value OK

Selection not meaningful

Allocation not meaningful

## Is the Story Meaningful?

Does it reflect the decision of the manager?

# How do we fix that?

*2. Recognize Notional Value of Future Contract*

Let’s do that …

1. **Recognize P&L on Future**
2. **Adjust Notional Exposures (Cash & Equities)**
3. ~~Account for Cost-of-Carry (Risk Free Rate)~~

| | Weight | Mkt Val | Cap | Inc | Total Gain | ROR |
|---|---|---|---|---|---|---|
| **Portfolio** | **100%** | **14,000,000** | **1,022,000** | **280,000** | **1,302,000** | 9.30% |
| **Cash** | 10% | **1,400,000** | - | **210,000** | **210,000** | 15.00% |
| Cash USD | 48% | 6,720,000 | - | 201,600 | 201,600 | 3.00% |
| Margin USD | 2% | 280,000 | - | 8,400 | 8,400 | 3.00% |
| Contra | -40% | (5,600,000) | | | - | - |
| **US Equities** | 90% | **12,600,000** | **1,022,000** | **70,000** | **1,092,000** | 8.67% |
| Stocks | 50% | 7,000,000 | 630,000 | 70,000 | 700,000 | 10.00% |
| Future | 40% | 5,600,000 | 392,000 | | 392,000 | 7.00% |

Return OK

Cash Return not notionally meaningful

Return *"OK"* but not adjusted for cost-of-carry.

Allocation notionally meaningful

How attribution results looks like?

What story are you telling?

1. **Recognize P&L on Future**
2. **Adjust Notional Exposures (Cash & Equities)**
3. ~~Account for Cost-of-Carry (Risk Free Rate)~~

| | Portf | | Bench | | | | |
|---|---|---|---|---|---|---|---|
| | Wgt | ROR | Wgt | ROR | Allocation | Selection | Total |
| Cash | 10% | 15.00% | 20% | 3% | 0.56% | 1.20% | 1.76% |
| US Equities | 90% | 8.67% | 80% | 10% | 0.14% | -1.20% | -1.06% |
| Total | 100% | 9.30% | 100% | 8.60% | 0.70% | 0.00% | 0.70% |

**Outcome:**

| | |
|---|---|
| Outperformed by | 0.70% |
| Allocation | 0.70% |
| Selection | 0.00% |

Added Value OK

Selection with Cash & Equity

Is the Story Meaningful?

The story conveys misleading Selection Effects?

# How do we fix that?

*2. Recognize Notional Value of Future Contract*

*3. Account for Cost-of-Carry*

Let’s do that …

1. **Recognize P&L on Future**
2. **Adjust Notional Exposures (Cash & Equities)**
3. **Account for Cost-of-Carry (Risk Free Rate)**

| | Weight | Mkt Val | Cap | Inc | Total Gain | ROR |
|---|---|---|---|---|---|---|
| **Portfolio** | **100%** | **14,000,000** | **1,022,000** | **280,000** | **1,302,000** | 9.30% |
| **Cash** | 10% | **1,400,000** | **-** | **42,000** | **42,000** | 3.00% |
| Cash USD | 48% | 6,720,000 | - | 201,600 | 201,600 | 3.00% |
| Margin USD | 2% | 280,000 | - | 8,400 | 8,400 | 3.00% |
| Contra | -40% | (5,600,000) | | (168,000) | (168,000) | 3.00% |
| **US Equities** | 90% | **12,600,000** | **1,022,000** | **238,000** | **1,260,000** | 10.00% |
| Stocks | 50% | 7,000,000 | 630,000 | 70,000 | 700,000 | 10.00% |
| Future | 40% | 5,600,000 | 392,000 | 168,000 | 560,000 | 10.00% |

Return OK

Cash Return notionally meaningful

Return adjusted for cost-of-carry.

Transfer notional income (risk free)

How attribution results looks like?

What story are you telling?

1. **Recognize P&L on Future**
2. **Adjust Notional Exposures (Cash & Equities)**
3. **Account for Cost-of-Carry (Risk Free Rate)**

| | Portf | | Bench | | | | |
|---|---|---|---|---|---|---|---|
| | Wgt | ROR | Wgt | ROR | Allocation | Selection | Total |
| Cash | 10% | 3.00% | 20% | 3% | 0.56% | 0.00% | 0.56% |
| US Equities | 90% | 10.00% | 80% | 10% | 0.14% | 0.00% | 0.14% |
| Total | 100% | 9.30% | 100% | 8.60% | 0.70% | 0.00% | 0.70% |

Added Value OK

Selection with Cash & Equity OK

**Outcome:**

| | |
|---|---|
| Outperformed by | 0.70% |
| Allocation | 0.70% |
| Selection | 0.00% |

The Story is Meaningful?

REFLECTS THE INVESTMENT DECISION PROCESS

# Recap

| | Portf | | Bench | | | | |
|---|---|---|---|---|---|---|---|
| | Wgt | ROR | Wgt | ROR | Allocation | Selection | Total |
| Cash | 50% | 3.00% | 20% | 3% | -1.68% | 0.00% | -1.68% |
| US Equities | 50% | 15.60% | 80% | 10% | -0.42% | 2.80% | 2.38% |
| **Total** | **100%** | **9.30%** | **100%** | **8.60%** | **-2.10%** | **2.80%** | **0.70%** |

**Story #1**

**1. Recognize P&L on Future**

- US Stock Picker is a star
- Asset Allocator made bad decision

| | Portf | | Bench | | | | |
|---|---|---|---|---|---|---|---|
| | Wgt | ROR | Wgt | ROR | Allocation | Selection | Total |
| Cash | 10% | 15.00% | 20% | 3% | 0.56% | 1.20% | 1.76% |
| US Equities | 90% | 8.67% | 80% | 10% | 0.14% | -1.20% | -1.06% |
| **Total** | **100%** | **9.30%** | **100%** | **8.60%** | **0.70%** | **0.00%** | **0.70%** |

**Story #2**

**2. Adjust Notional Exposures**

- Cash Stock Picker is a star
- US Stock Picker made bad decision
- Asset Allocator made good decision

| | Portf | | Bench | | | | |
|---|---|---|---|---|---|---|---|
| | Wgt | ROR | Wgt | ROR | Allocation | Selection | Total |
| Cash | 10% | 3.00% | 20% | 3% | 0.56% | 0.00% | 0.56% |
| US Equities | 90% | 10.00% | 80% | 10% | 0.14% | 0.00% | 0.14% |
| **Total** | **100%** | **9.30%** | **100%** | **8.60%** | **0.70%** | **0.00%** | **0.70%** |

**Story #3**

**3. Account for Cost-of-Carry**

- No Security Selection
- Asset Allocator made good decision

# What about Futures in Foreign Markets?

*What is the Currency Exposure of a Future Contract?*

# FTSE 100 Index Future – London Stock Exchange

## Market Specifications

**Trading Screen Product Name**
FTSE 100 - Stnd Index Future

**Trading Screen Hub Name**
ICEU

**Commodity Code**
Z

**Unit of Trading**
Contract Valued at £10 per index point (e.g. value £65,000 at 6,500.0)

**Delivery Months**
Four quarterly months from in the March, June, September, December quarterly cycle

**Settlement Date**
First business day after the Last Trading Day

**Quotation**
Index points (eg 6500.0)

**Minimum price movement (tick size and value)**
0.5 (£5.00)

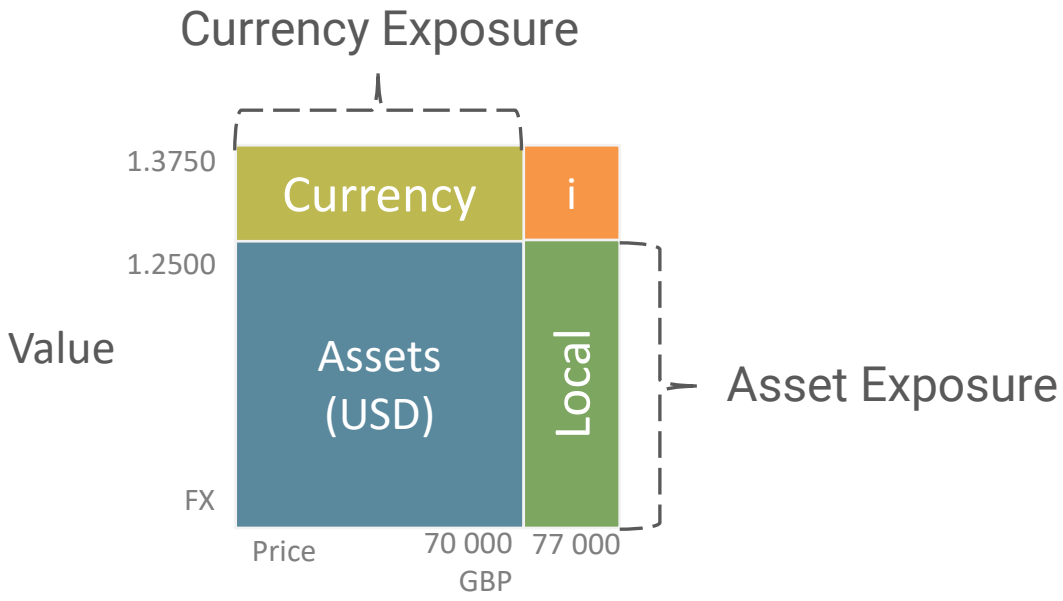
FTSE Futures

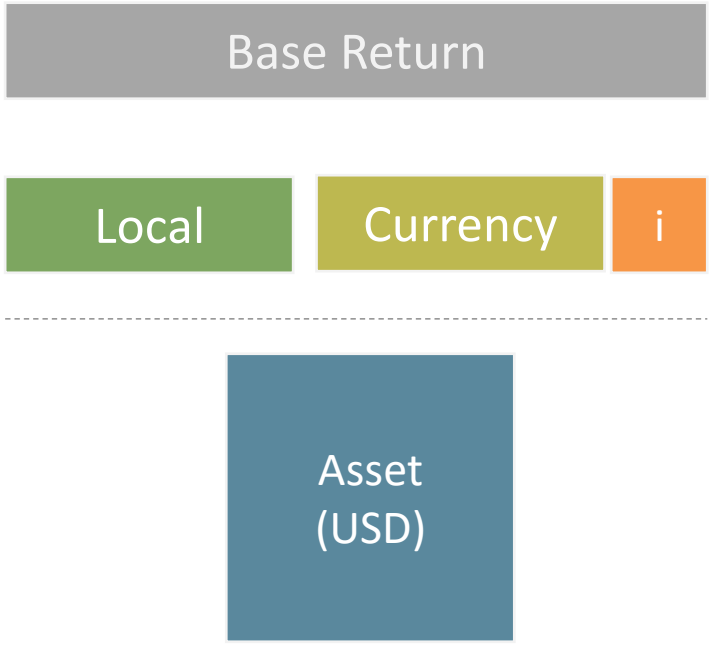
| Symbol | Last | Chg |
|---|---|---|
| **FTSE 100 FUTURES** | 7,106.80 | +25.30 |
| | Open Last Trade : 13:39 | UK Time : Tue Jun 08 2021 13:39 |

| Multiplier | x | Price | = | Notional Value |
|---|---|---|---|---|
| 10 | | 7 000 | | 70 000 GBP |

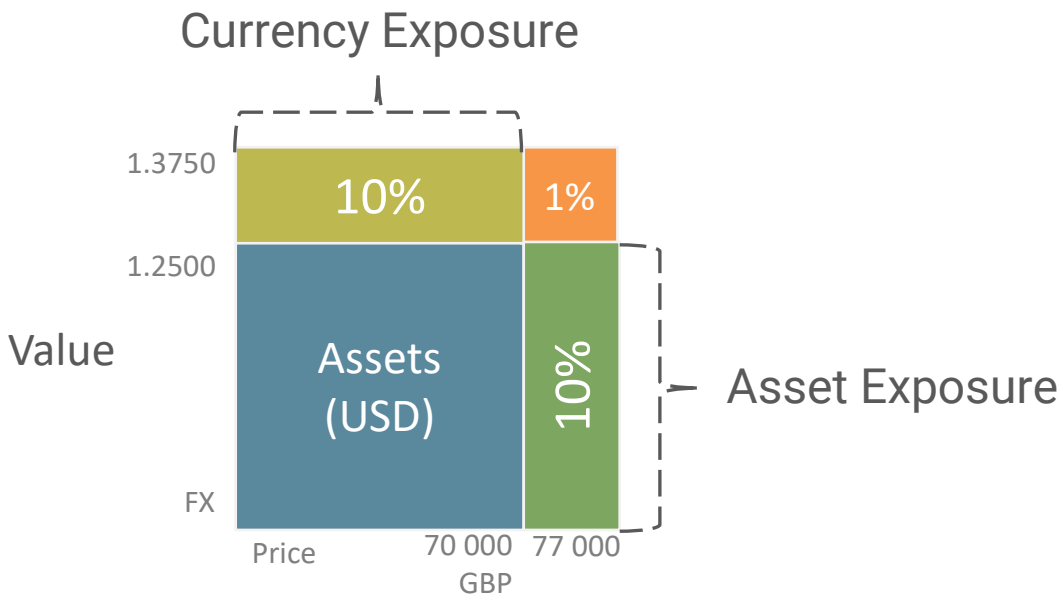
Source: www.theice.com

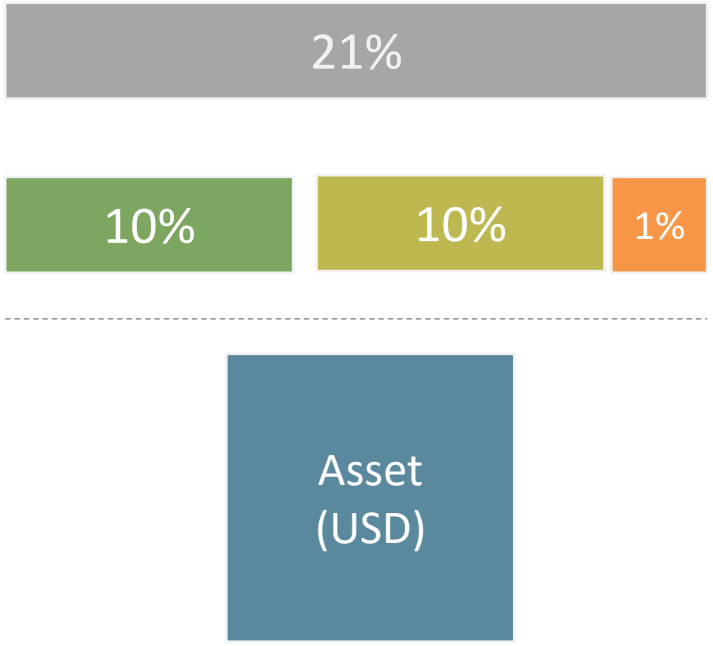
# Exposures – Stocks



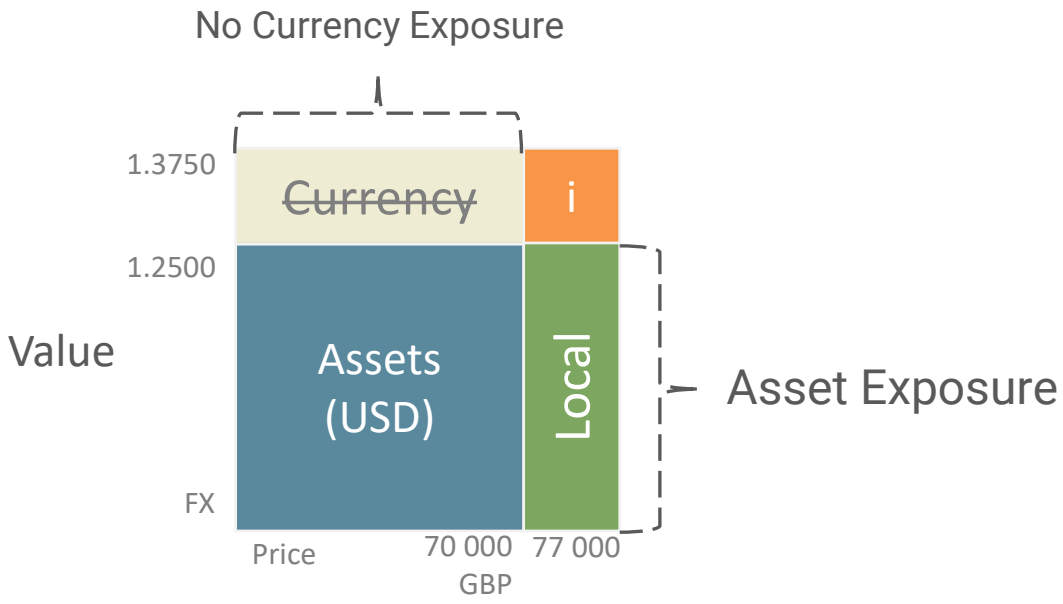



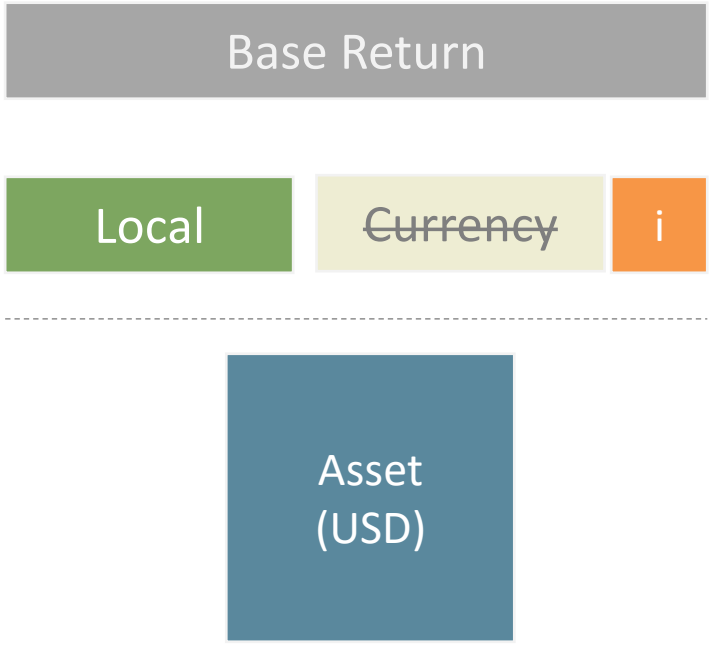
# Returns – Stocks



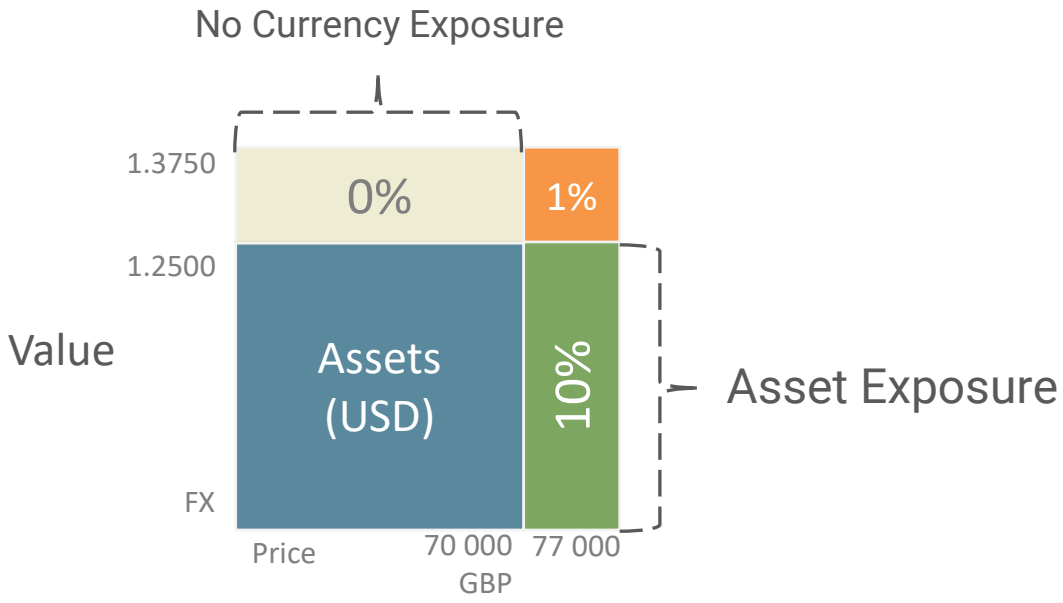



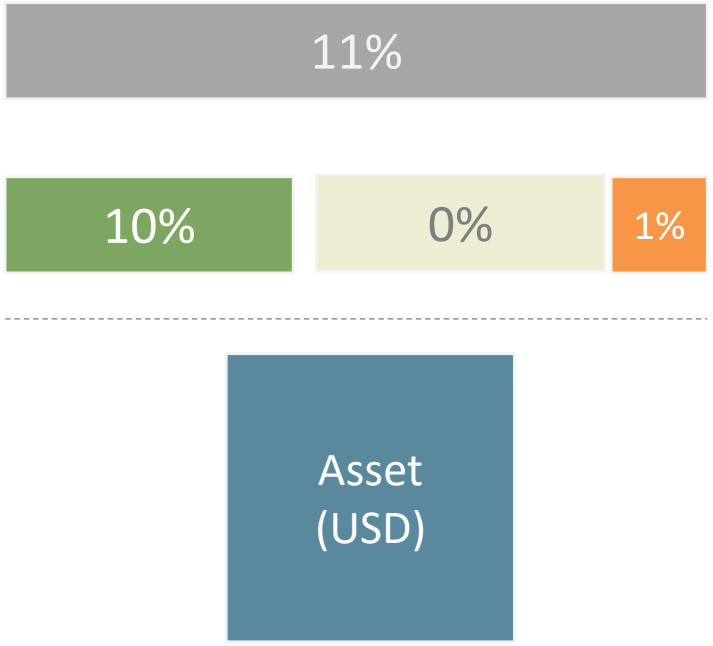
# Exposures – Futures



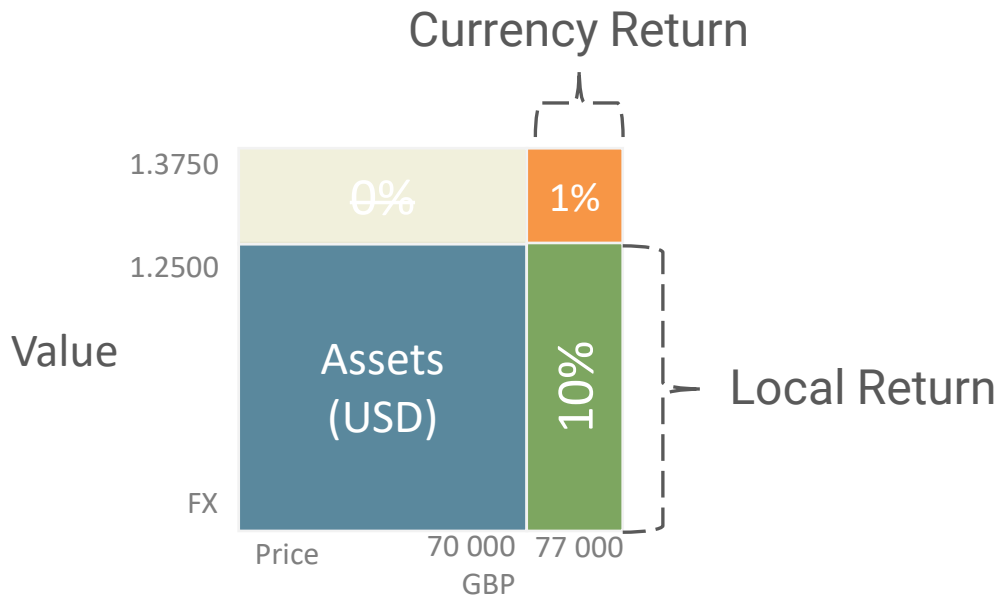



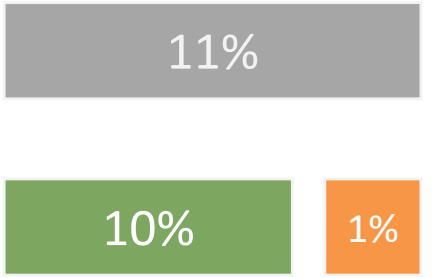
# Returns – Futures



# Base, Local and Currency Returns –Futures




**Local Return**

$$= \frac{7\,000}{70\,000} = 10\%\ GBP$$

**Currency Return**

$$\frac{7\,000 \times (1.375 - 1.250)}{70\,000 \times 1.25}$$

$$= \frac{875}{87\,500} = 1\%\ USD$$

**Base Return**

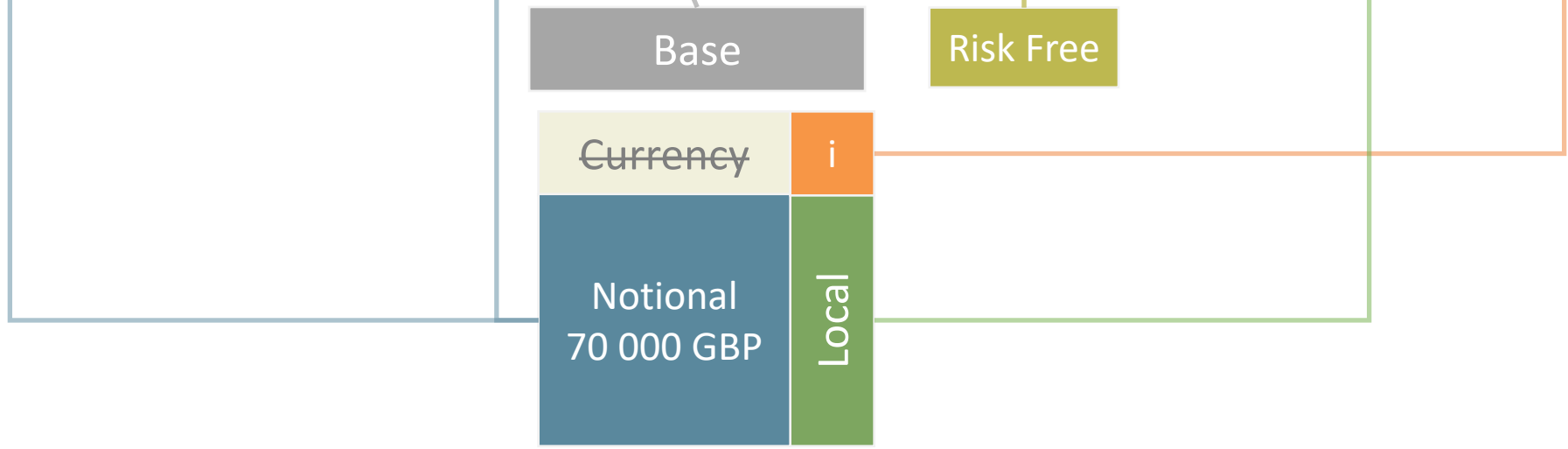
$$\frac{(7\,000 \times 1.250) + 875}{70\,000 \times 1.25}$$

$$\frac{9\,625}{87\,500} = 11\%\ USD$$

Powered by Robust Technologies

P0631 - GBP Future
TotalReturn Annualized
01-Jan-19 to 31-Dec-19

| Issuer | Price Begin | Price End | Base (USD) Begin Market Value | Base (USD) End Market Value | Base (USD) Cash Flows | Base (USD) Cost of Carry | Base (USD) $ Earned | Base (USD) Weight | Base (USD) TW Contri-bution | Base (USD) Time Weighted Return | Local Begin Market Value | Local End Market Value | Local Cash Flows | Local Cost of Carry | Local $ Earned | Local $ Earned (Base) | Local TW Contri-bution | Local Time Weighted Return | Currency $ Earned (Base) | Currency TW Contrib | Currency TW Return |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total Structure** | **-** | **-** | **212,500** | **254,238** | **-** | **-** | **41,738** | **100.00%** | **19.64%** | **19.64%** | **170,000** | **184,900** | **-** | **-** | **14,900** | **18,625** | **8.76%** | **8.76%** | **23,113** | **10.88%** | **10.88%** |
| **Cash** | **-** | **-** | **125,000** | **149,325** | **7,700** | **-** | **16,625** | **58.82%** | **7.82%** | **13.30%** | **100,000** | **108,600** | **5,600** | **-** | **3,000** | **3,750** | **1.76%** | **3.00%** | **12,875** | **6.06%** | **10.30%** |
| CASH - GBP | 1.00 | 1.00 | 62,500 | 71,775 | 963 | - | 8,313 | 29.41% | 3.91% | 13.30% | 50,000 | 52,200 | 700 | - | 1,500 | 1,875 | 0.88% | 3.00% | 6,438 | 3.03% | 10.30% |
| MARGINUS | 1.00 | 1.00 | 62,500 | 77,550 | 6,738 | - | 8,313 | 29.41% | 3.91% | 13.30% | 50,000 | 56,400 | 4,900 | - | 1,500 | 1,875 | 0.88% | 3.00% | 6,438 | 3.03% | 10.30% |
| **Contra Futures** | **-** | **-** | **-87,500** | **-102,988** | **-6,738** | **-2,625** | **-** | **-41.18%** | **-1.24%** | **3.00%** | **-70,000** | **-74,900** | **-4,900** | **-2,100** | **-** | **-** | **-1.24%** | **3.00%** | **-** | **-** | **-** |
| FTSE 100 FUTURE | - | - | -87,500 | -102,988 | -6,738 | -2,625 | - | -41.18% | -1.24% | 3.00% | -70,000 | -74,900 | -4,900 | -2,100 | - | - | -1.24% | 3.00% | - | - | - |
| **Equities** | **-** | **-** | **175,000** | **207,900** | **-963** | **2,625** | **25,113** | **82.35%** | **13.05%** | **15.85%** | **140,000** | **151,200** | **-700** | **2,100** | **11,900** | **14,875** | **8.24%** | **10.00%** | **10,238** | **4.82%** | **5.85%** |
| FTSE 100 FUTURE | 7,000.00 | 7,490.00 | 87,500 | 102,988 | - | 2,625 | 6,737.50 | 41.18% | 4.41% | 10.70% | 70,000 | 74,900 | - | 2,100 | 4,900 | 6,125 | 4.12% | 10.00% | 612.50 | 0.29% | 0.70% |
| Stocks | 100.00 | 109.00 | 87,500 | 104,913 | -963 | - | 18,375.00 | 41.18% | 8.65% | 21.00% | 70,000 | 76,300 | -700 | - | 7,000 | 8,750 | 4.12% | 10.00% | 9,625.00 | 4.53% | 11.00% |

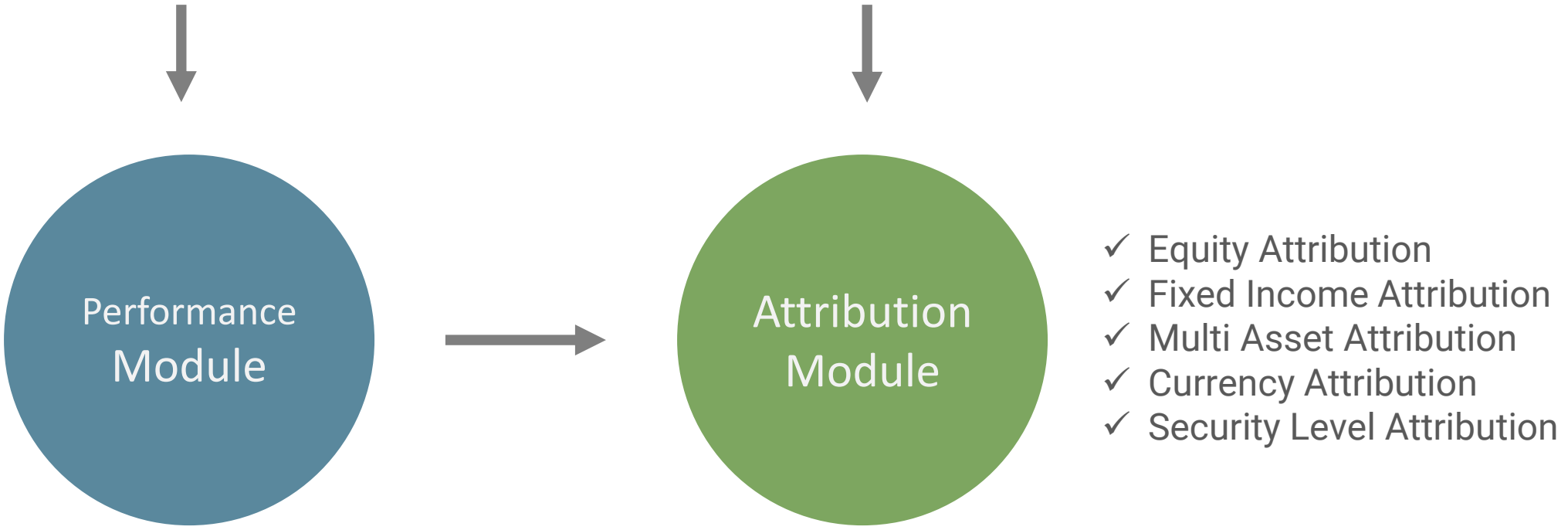


## Adjusting for

Notional Exposure
Cost-of-Carry
Currency Exposure

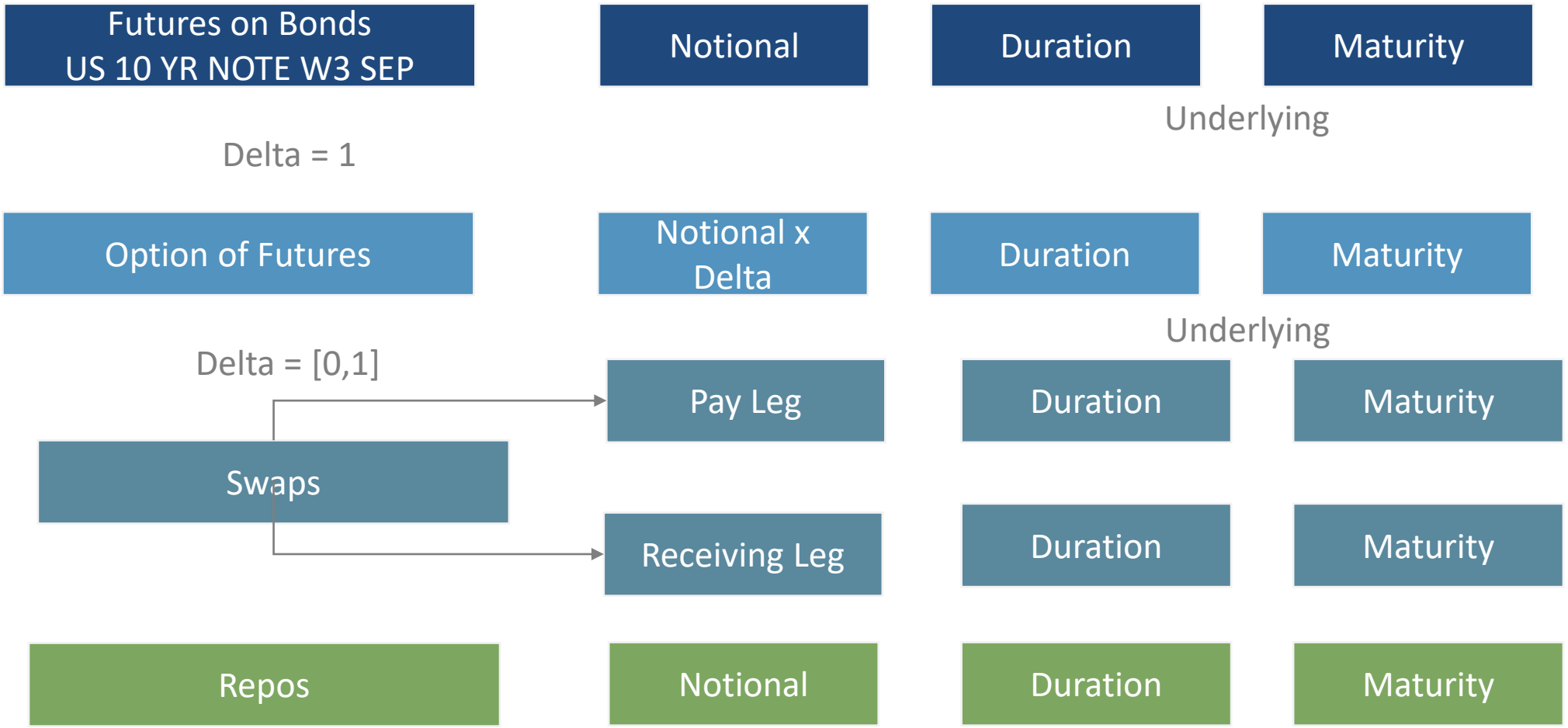
## Requires

No change




- ✓ Equity Attribution
- ✓ Fixed Income Attribution
- ✓ Multi Asset Attribution
- ✓ Currency Attribution
- ✓ Security Level Attribution

# Other derivatives…



# In summary

- Must reflect notional exposure (using Current Price)
- Offset exposure to Cash (Cash Offset)
    - Long position : Borrow cash (short) – Buy assets (long)
    - Short position : Lend cash (long) – Sell assets (short)
- Group Future Cash Offset and Variation Margin together (in Cash Equivalents)
- Marked-to-Market P&L still considered as asset exposure (not cash) until the future position is liquidated.

# In summary

- Must properly recognize the type of exposures.
  - Asset vs Currency
    - Future on FTSE 100 does not offer currency exposure (GBP)
    - Only asset exposure
  - The only impact on currency return is FX Rates variation on Future P&L settled in GBP

# In summary

- Must adjust for Cost-of-Carry (risk free rate)
  - Represent opportunity cost of purchasing the assets rather than engaging in a future contract.
  - To reflect the cost of carry. Referred as the basis, i.e. difference between cash price and futures' price (generally risk free rate minus expected dividends)
  - Makes return comparable to underlying assets in the benchmark
  - Other wise Selection effect is generated

# References

THE SPAULDING GROUP

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VOLUME 1 – NUMBER 1

Measuring Investment Returns of Portfolios Containing Futures and Options
John C. Stannard, Russell Data Services

SPRING 1997
VOLUME 1 – NUMBER 3

Measuring Investment Returns of Portfolios Containing Derivatives: Part II – Performance
Attribution
John C. Stannard, Russell Data Services

Source: www.spauldinggrp.com/the-journal

# Thank you !

## Questions or Comments ?

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