PROTECTED EQUITY PORTFOLIO
A SOLUTION IN A LOW-RATE ENVIRONMENT

CORPORATE & INSTITUTIONAL BANKING
GLOBAL MARKETS – EQUITY DERIVATIVES
March 2017

BNP PARIBAS

The bank for a changing world

WHY?

EQUITIES

LIABILITY-DRIVEN INVESTORS FACING CHALLENGES

ASSET YIELD IS NOT A "NICE TO HAVE" ANYMORE… BUT A "MUST HAVE"

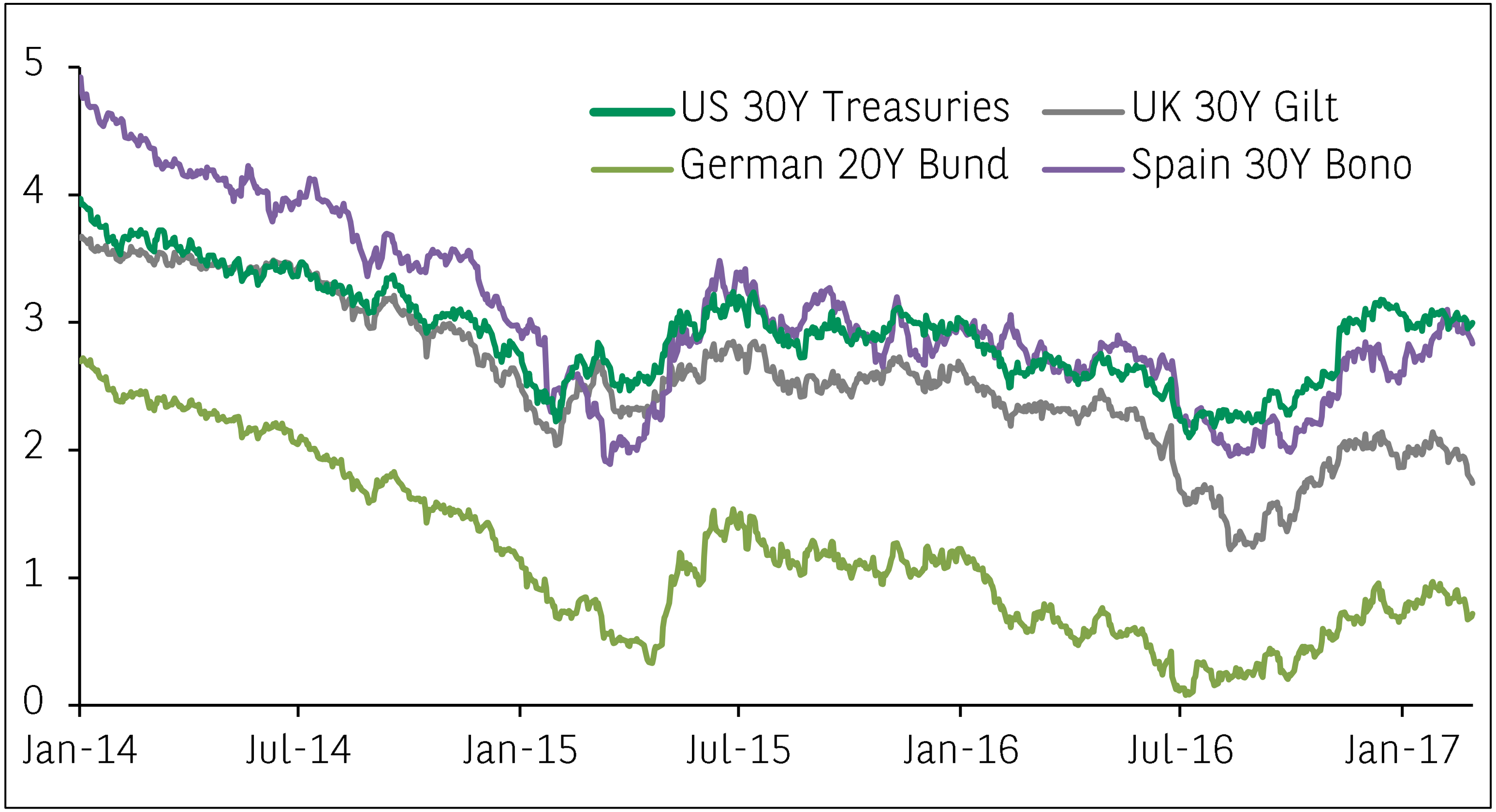
INSURANCE EXAMPLE

Country	Duration gap	Average level of guarantees (in %)	% of guaranteed liabilities in total technical provisions of insurers	Investment spread[1] (in %)
Germany	>10 years	3.1	75	-0.4
Sweden	>10 years	3.3	70	-0.5
Austria	>10 years	3.0	58	0.9
Netherlands	5.5 years	3.6	40	0.2
France	4.75 years	0.5	n.a.	0.6
Denmark	4.75 years	2.6	74	0.1
Spain	<1 year	3.8	n.a.	1.1
Italy	<1year	2.5	n.a.	0.6
Ireland	~0	1.5	n.a.	1.3
United Kingdom	~0	0.5	19	-0.1

Source: EIOPA, Moody's Investors Services, S&P Ratings Service, calculation of Bank of England (Bank of England Financial Services Report, July 2015) in 2015 Global Insurance Market Report, OECD.

LIABILITY-DRIVEN INVESTORS FACING CHALLENGES

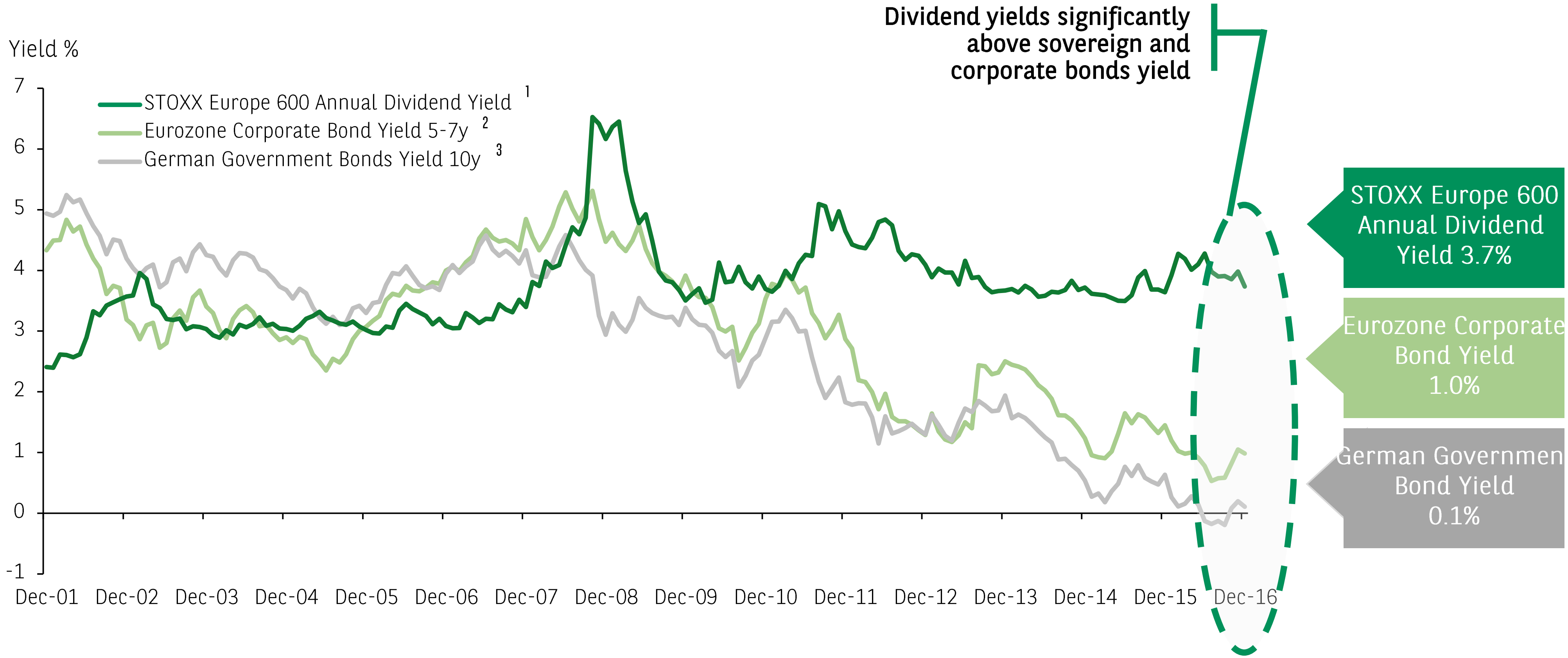
INTEREST RATES AND CREDIT SPREAD STILL AT LOW LEVELS



Source: BNP Paribas, Bloomberg as of 28 February 2017.

EQUITIES MIGHT BE THE ANSWER

DIVIDEND GAP REMAINS HIGH…IN EUROPE AT LEAST



Sources: BNP Paribas, Exane, December 2016. Past performance is not an indicator of future performance. Thomson Reuters Datastream code: 1 SDJSTE (ADVYLD); 2 IBENF3A (RY); 3 BMBD10Y (RY).

WHY?

PROTECTED

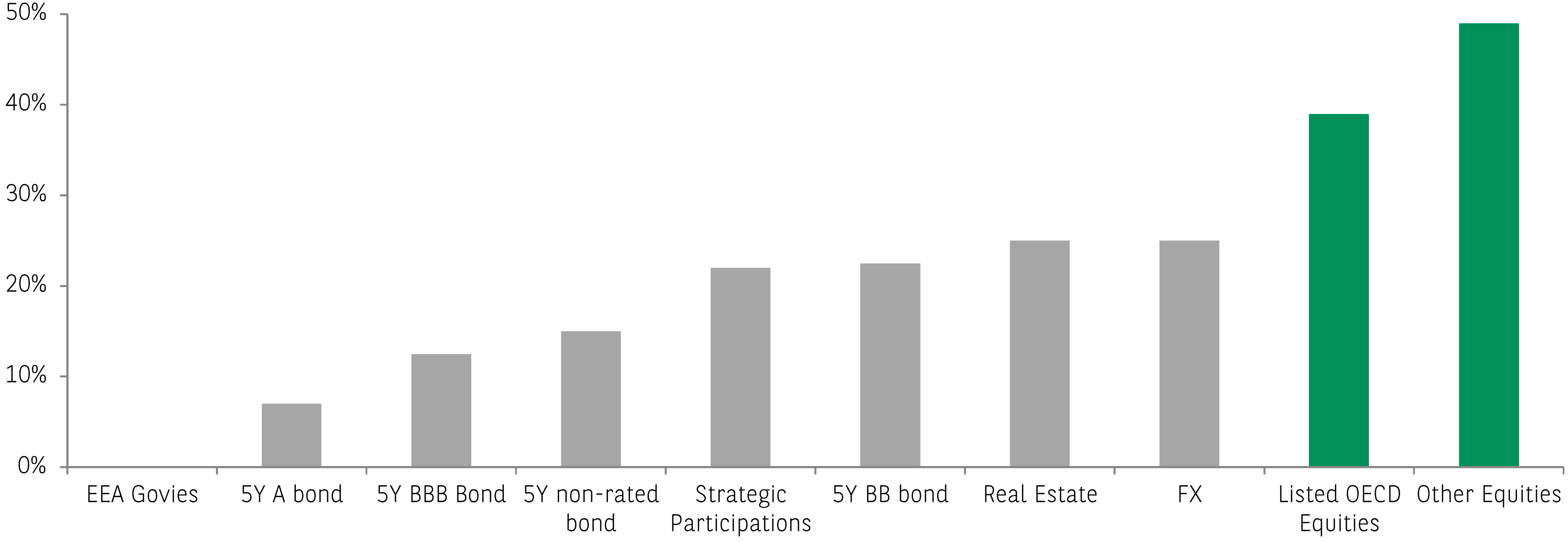
EQUITY ARE HIGHLY VOLATILE…

EQUITY REMAIN A SOLID ASSET CLASS… IF WE CAN AVOID DRAWDOWNS

Source: BNP Paribas, Bloomberg as of 28 February 2017.

BUT EQUITIES ARE NOT SOLVENCY II FRIENDLY

CAPITAL REQUIREMENTS ACROSS ASSET CLASSES



WHAT
WHEN
HOW

THREE KEY QUESTIONS TO ANSWER WHEN HEDGING

PRIOR TO IMPLEMENTING ANY HEDGING STRATEGY THERE ARE THREE MAJOR QUESTIONS

WHAT

What is the risk?
What kind of drawdown do you fear?

WHEN

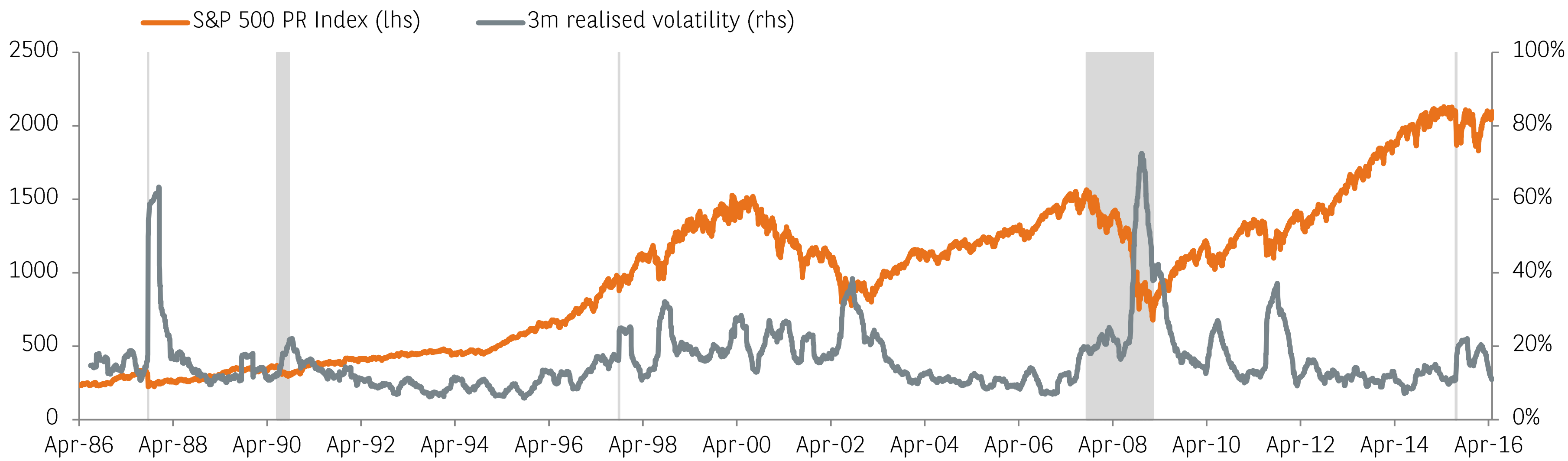
When is the risk likely to materialise?
Is it driven by an event or prior performance?

HOW

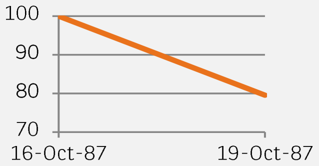
How tactical can you be?
Do you wish to time the entry and exit?

WHAT KIND OF RISK DO YOU WANT TO COVER?

WHAT DOES HISTORY TELL US ABOUT RISKS FOR MONEY MANAGERS?

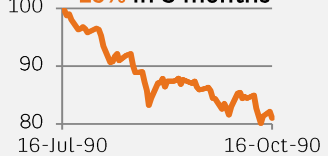


1. Black Monday:
-20% in 1 day



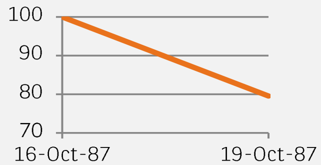
International disputes about FX, rates and inflation.

2. Start of the 90's recession:
-19% in 3 months



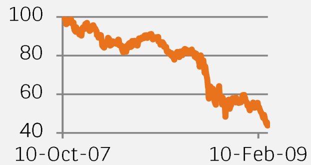
Iraq invaded Kuwait in August 1990, causing oil prices to increase.

3. October 1997 shock:
-7% in 1 day



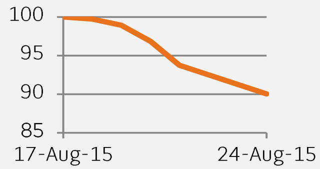
Financial contagion to the 1997 Asian financial crisis.

4. Credit crisis:
-56% in 17 months



United States housing bubble initiated major market crisis.

5. August 2015 correction:
-10% in 1 week



Concerns about China

Source: Bloomberg, BNP Paribas as of 27 May 2016. Past performance is not a guide to future performance.

WHAT KIND OF RISK DO YOU WANT TO COVER?

ACCORDING TO HISTORICAL DATA, WHAT COULD YOU PROBABLY FACE OVER A 10-YEAR INVESTMENT?

3 major drawdowns in excess of -20%

6 major drawdowns in excess of -10%

9 market corrections in excess of -5%

a 50% chance of suffering a crisis leading to a crash in excess of -50% like the one observed in 2007/8

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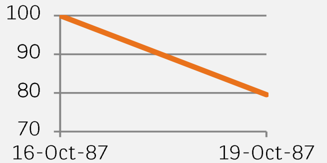

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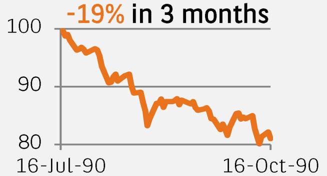

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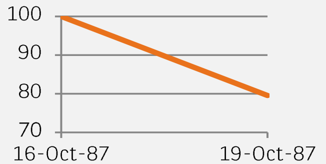

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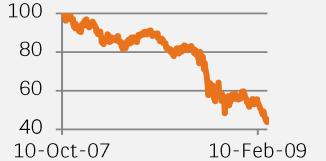

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WHEN IS THE PROTECTION NEEDED?

WE TYPICALLY CATEGORISE HEDGING OBJECTIVES INTO THREE TYPES:

EVENT DRIVEN

Protecting a portfolio against the ramifications of a specific, known and upcoming event.

By definition, such hedges are usually short-term in order to protect a portfolio against a sudden stress around an expected date.

Examples include elections, referendums and economic releases

PERFORMANCE DRIVEN

Locking positive portfolio performance implies a need to either sell assets or hedge them.

A sharp market rally means an Investor meets his return target and therefore wants to de-risk the portfolio.

Examples include an investment manager hedging calendar year performance or a pension fund de-risk upon surplus.

PERMANENT

In a perfect world, all the short and long term negative catalysts would be easily identifiable. In reality, the timing of market corrections and downward trends are very hard to predict.

Examples include major institutions, such as insurers looking to alleviate capital charges and pension funds looking to close funding gaps.

HOW TACTICAL CAN THE INVESTMENT MANAGER BE?

THE FINAL ELEMENTS TO HELP YOU DETERMINE YOUR BEST HEDGING STRATEGY IS TO UNDERSTAND HOW YOU WISH TO MANAGE AND EXECUTE THE HEDGE

FAST MONEY: investors can enter and exit a hedging strategy within a day
e.g. Hedge Funds and Absolute Return investors

REAL MONEY: investors can allocate tactically but typically take weeks to enter/exit a strategy
e.g. Equity and Multi-Asset long-only investors

LONG-TERM MONEY: long-term investors facing a long governance process who cannot act tactically

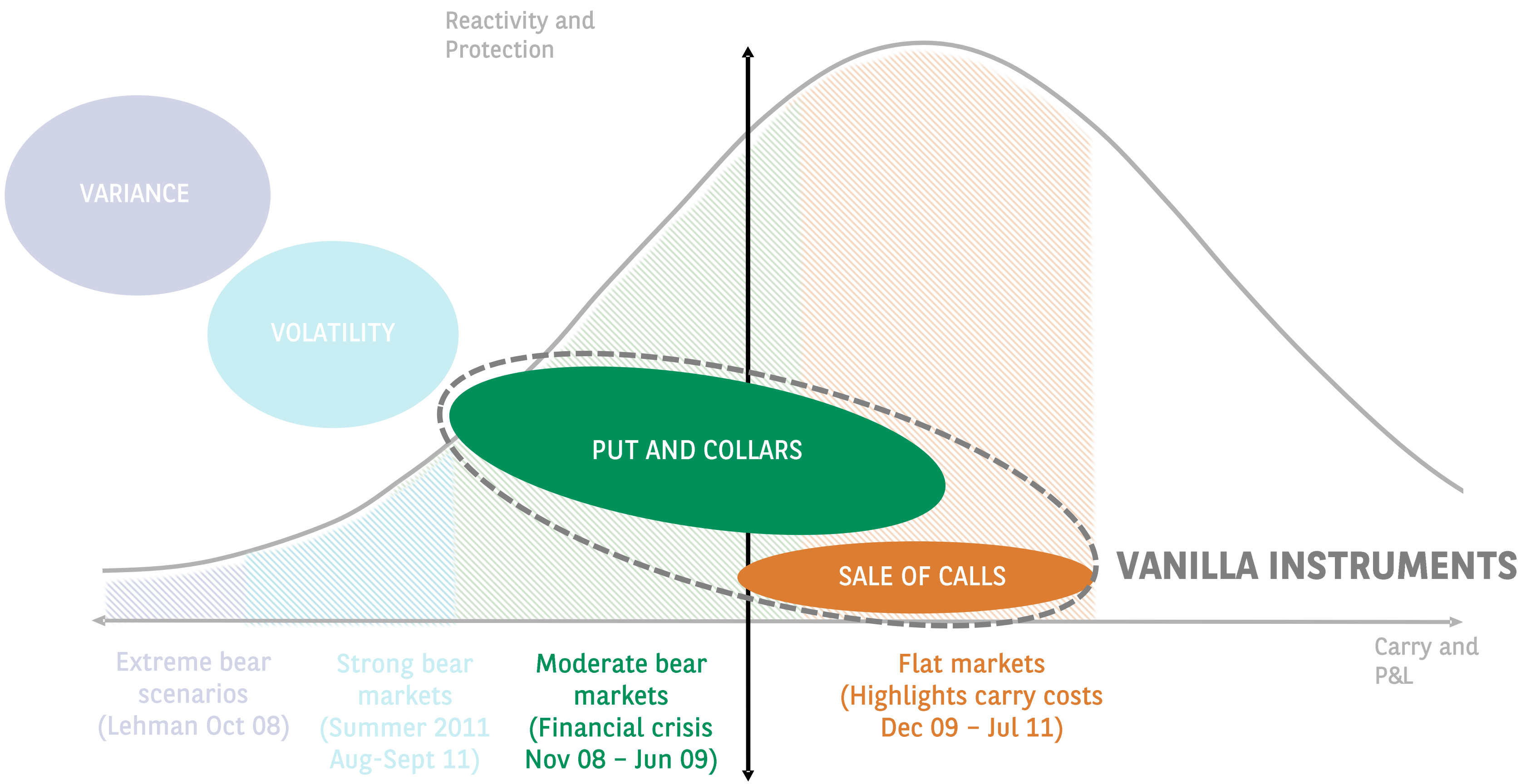
INNOVATING

WITH AGE COMES WISDOM

TODAY'S FOCUS: PROTECTING FROM THE MOST FREQUENT DRAWDOWNS

HEDGING INSTRUMENTS AND MARKET SCENARIOS MAPPING

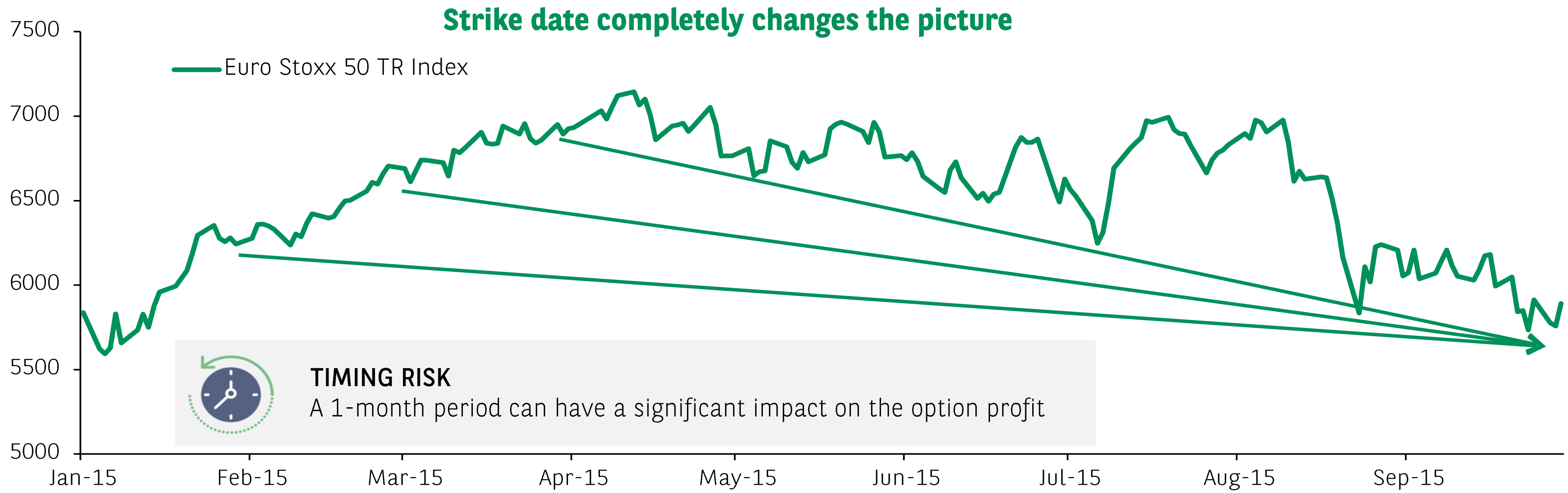
This illustrative mapping can also help understand the specificities of the different hedging solutions in the scope of market scenarios:



For illustrative purposes only

WHAT IS TIMING RISK IN VANILLA INSTRUMENTS?

TIMING RISK IN VANILLA HEDGING EXECUTION



Example on a put option with a 90% strike price expiring at the end of September 2015

Strike date	Put Option premium at inception (90% strike price)	Net profit at the end of September 2015
02 Feb. 2015	4.7%	-4.2%
02 Mar. 2015	4.3%	+2.8%
01 Apr. 2015	4.1%	+6.7%

A FEW WEEKS DIFFERENCE CAN COMPLETELY CHANGE THE PROTECTION EFFECTIVENESS

Sources: Bloomberg, BNP Paribas. For illustrative purposes only.

HOW BIG IS THE TIMING RISK WHEN IMPLEMENTING A VANILLA, HEDGING STRATEGY?

TIMING RISK IN VANILLA HEDGING EXECUTION

The charts below highlight the timing risk for each component within a Collar strategy on the Eurostoxx 50.

Timing risk when writing OTM call options on the Euro Stoxx 50 PR Index

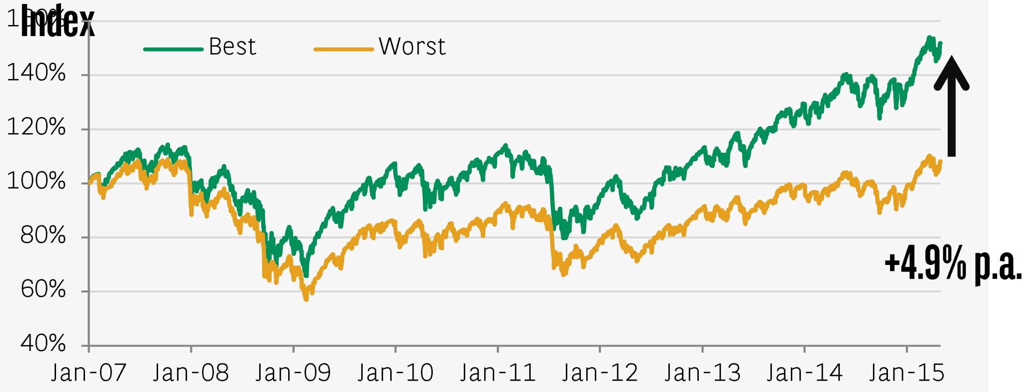


Illustration of the magnitude of the timing risk when selling 3 week call options with a 103% strike price to overwrite a passive exposure to the Euro Stoxx 50 PR Index.

Timing risk when purchasing ATM put options on Euro Stoxx 50 PR Index

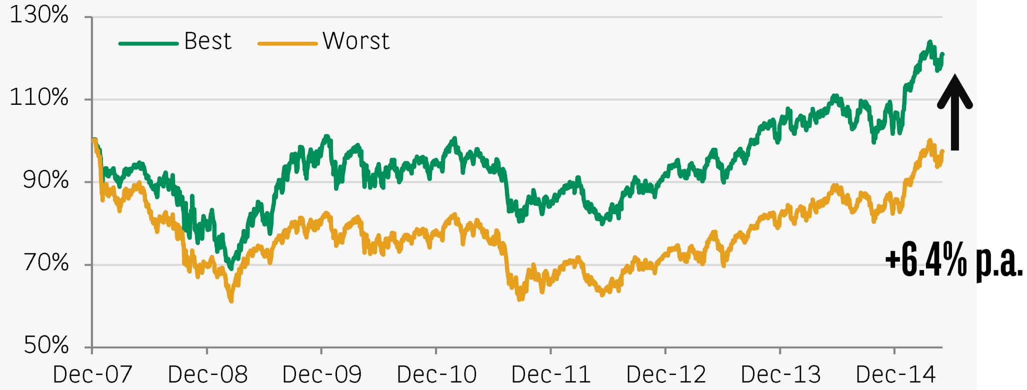


Illustration of the magnitude of the timing risk when buying 12 month ATM put options to protect a passive exposure to the Euro Stoxx 50 PR Index.

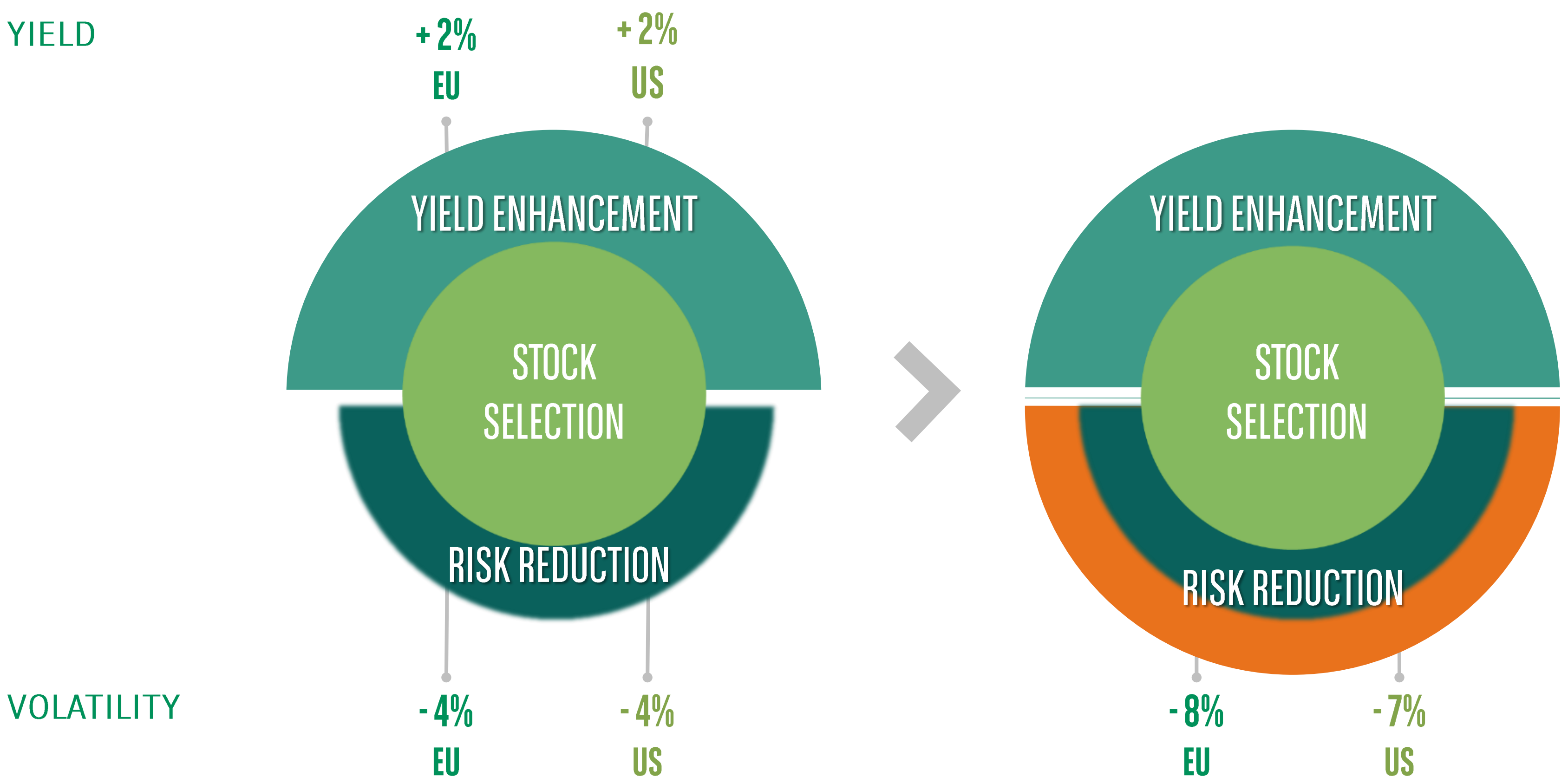
WISDOM
= SYSTEMATIC

ELIMINATING TIMING RISK THROUGH SYSTEMATIC VANILLA INSTRUMENTS

TWO SYSTEMATIC STRATEGIES BASED ON VANILLA INSTRUMENTS

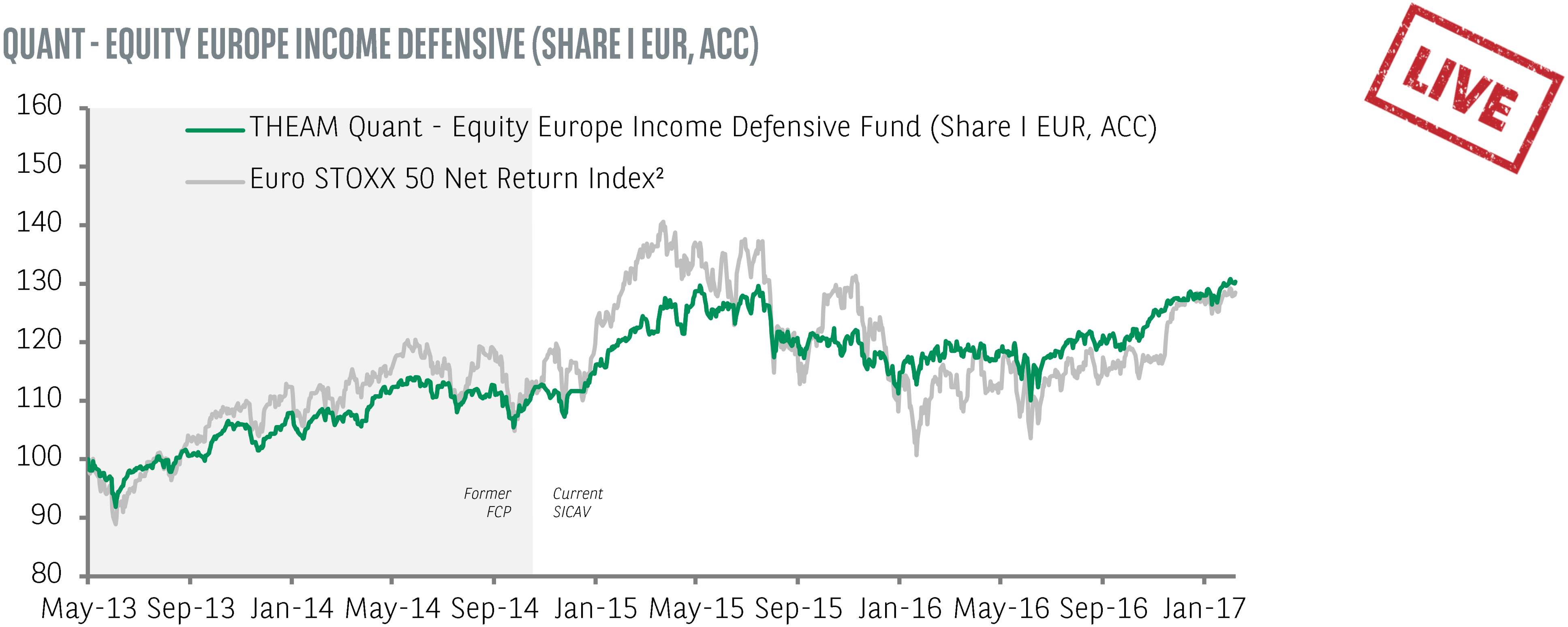
SYSTEMATIC DAILY SHORT CALL

SYSTEMATIC DAILY LONG PUT



DELIVERING EQUITY-LIKE RETURN WHILE REDUCING VOLATILITY AND DRAWDOWNS

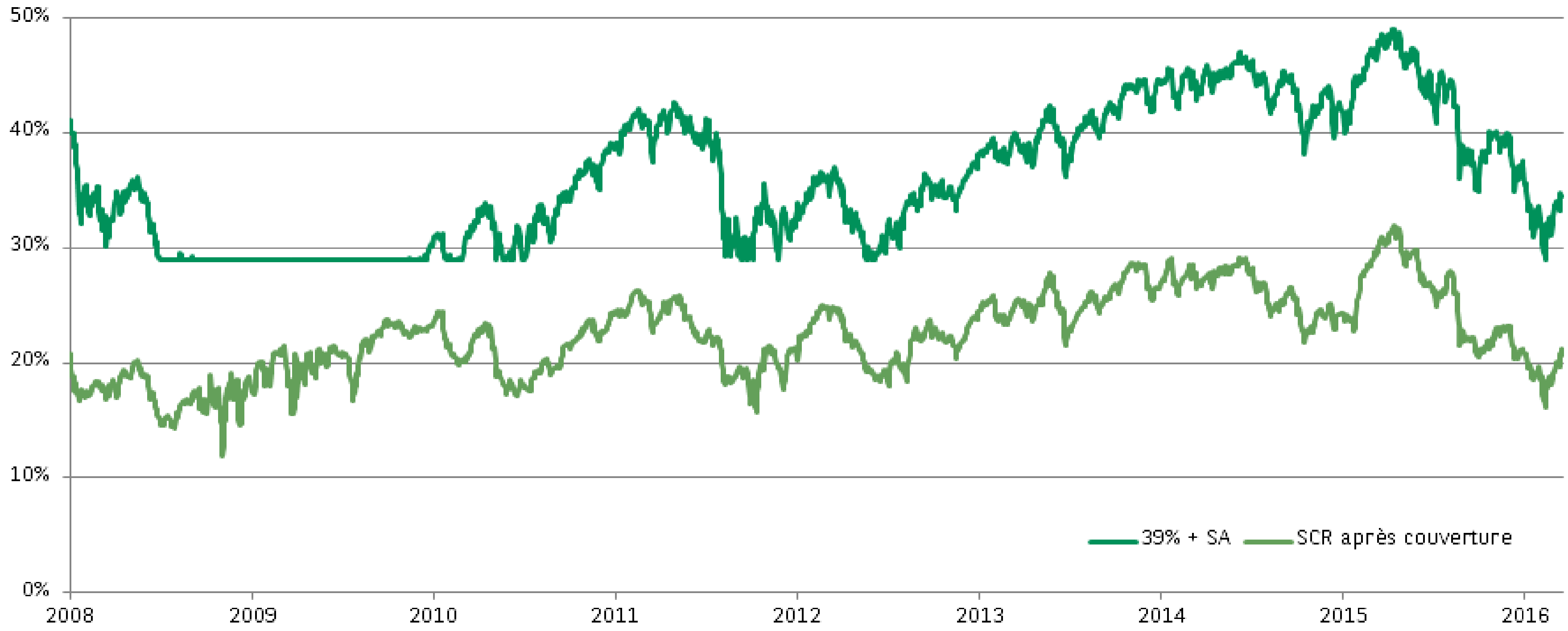
THEAM QUANT - EQUITY EUROPE INCOME DEFENSIVE (SHARE I EUR, ACC)



Since 22 May 2013	THEAM Quant - Equity Europe Income Defensive[1]	Euro STOXX 50 Net Return Index
Cumulative performance	30.31%	28.46%
Annualised return	7.26%	6.86%
Volatility	10.48%	19.82%
Sharpe Ratio	0.69	0.35
Max. Drawdown	-15.11%	-28.37%

INNOVATING THROUGH VANILLA INSTRUMENTS

IMPACT ON THE SCR (SOLVENCY CAPITAL REQUIREMENT)



PROTECTED EQUITY – SUMMARY BENEFITS

EQUITY PORTFOLIO	PROTECTED EQUITY PORTFOLIO
Equities = winning asset class (high dividend, upside)	➔ e.g. 7% p.a. performance (fund Live since 2013)
Punitive SCR for Equities	➔ Equity SCR reduced by 40%
Derivative hedging strategies = complexity and/or timing risk	➔ Timing risk essentially eliminated
Equities = high volatility + drawdowns (potential impairment)	➔ Volatility and Drawdowns reduced by 50%

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