IPFOS

INDEPENDENT PENSION FUND OVERSIGHT SERVICES

"Blockchain, Artificial Intelligence & Big Data"

Christiaan Tromp, IPFOS

Wassenaar, 23 november 2018

Agenda

Welkom & Introductie	Christiaan Tromp, IPFOS
AI binnen APG & De bevindingen van een specifiek experiment	Eran Raviv, APG
Machinelearning within AQR and how is this used with the FI-portfolios	Scott Richardson, AQR
The adoption and impact of robo-advice	Ken van Eesbeek, Gambit (een Partner van BNP Paribas AM)
Pauze	
Tech assisted en data gedreven beleggen in vastgoed	Matthijs Storm, Kempen Capital Management
CACEIS digital transformation journey	Arnaud Misset, CACEIS
Blockchain binnen APG & Hoe Blockchain toe te passen binnen de pensioenadministratie	Rick Meerwaldt, APG
Sluiting & Netwerkborrel	

“AI binnen APG &
De bevindingen van een specifiek experiment”

Eran Raviv, APG

Wassenaar, 23 november 2018

SMART ANALYTICS

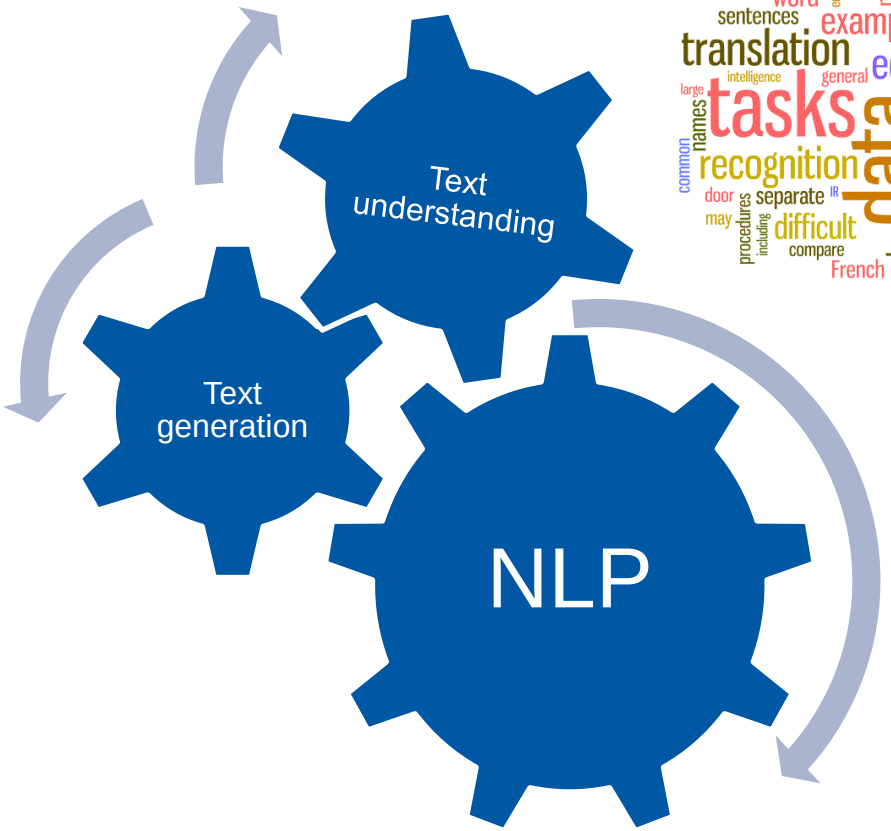
Eran Raviv, PhD

APG Asset Management

23 Nov 2018

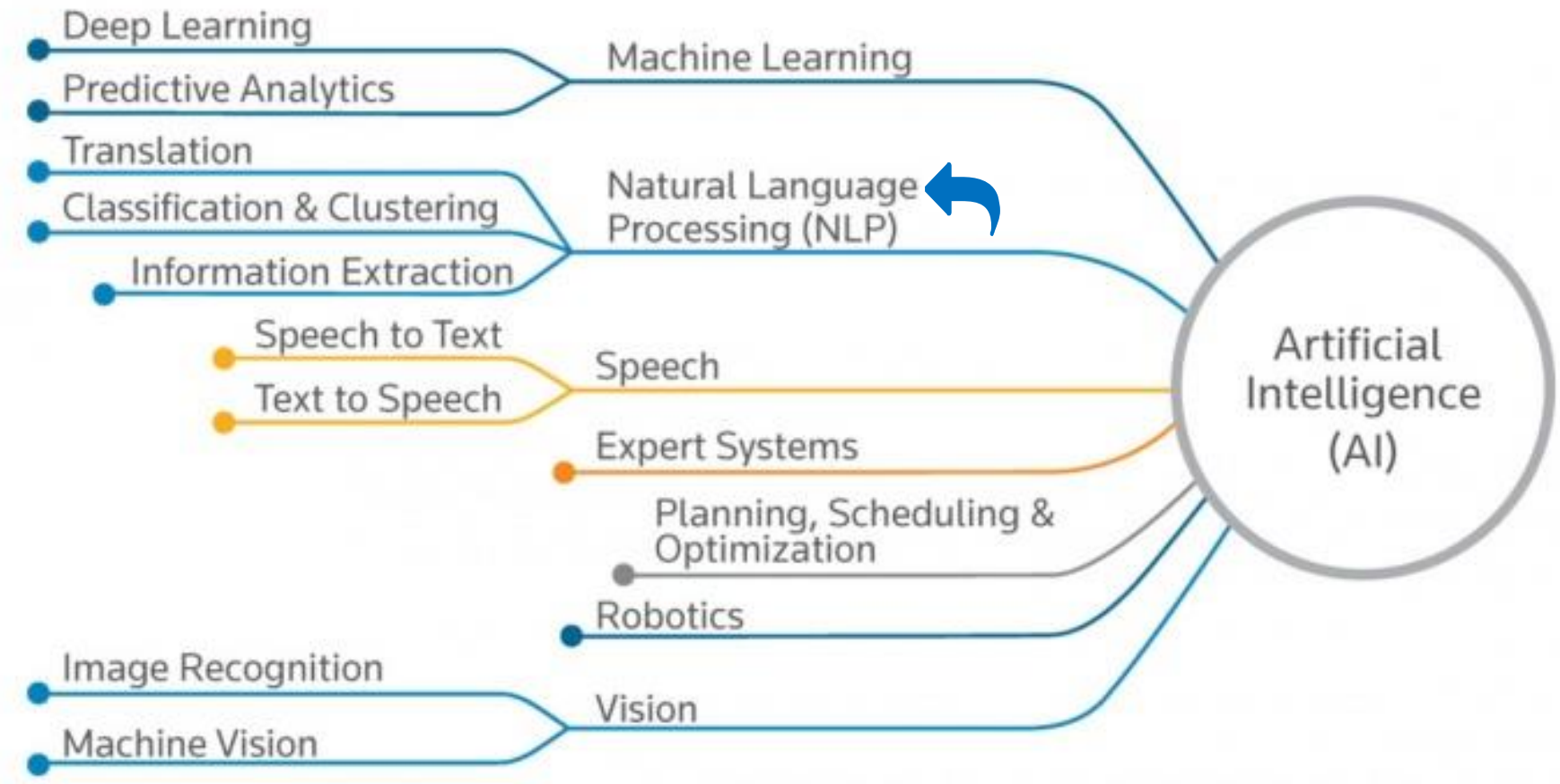
TODAY WE DISCUSS A BIT ABOUT NLP

- The field in AI concerned with the interactions between computers and human natural languages

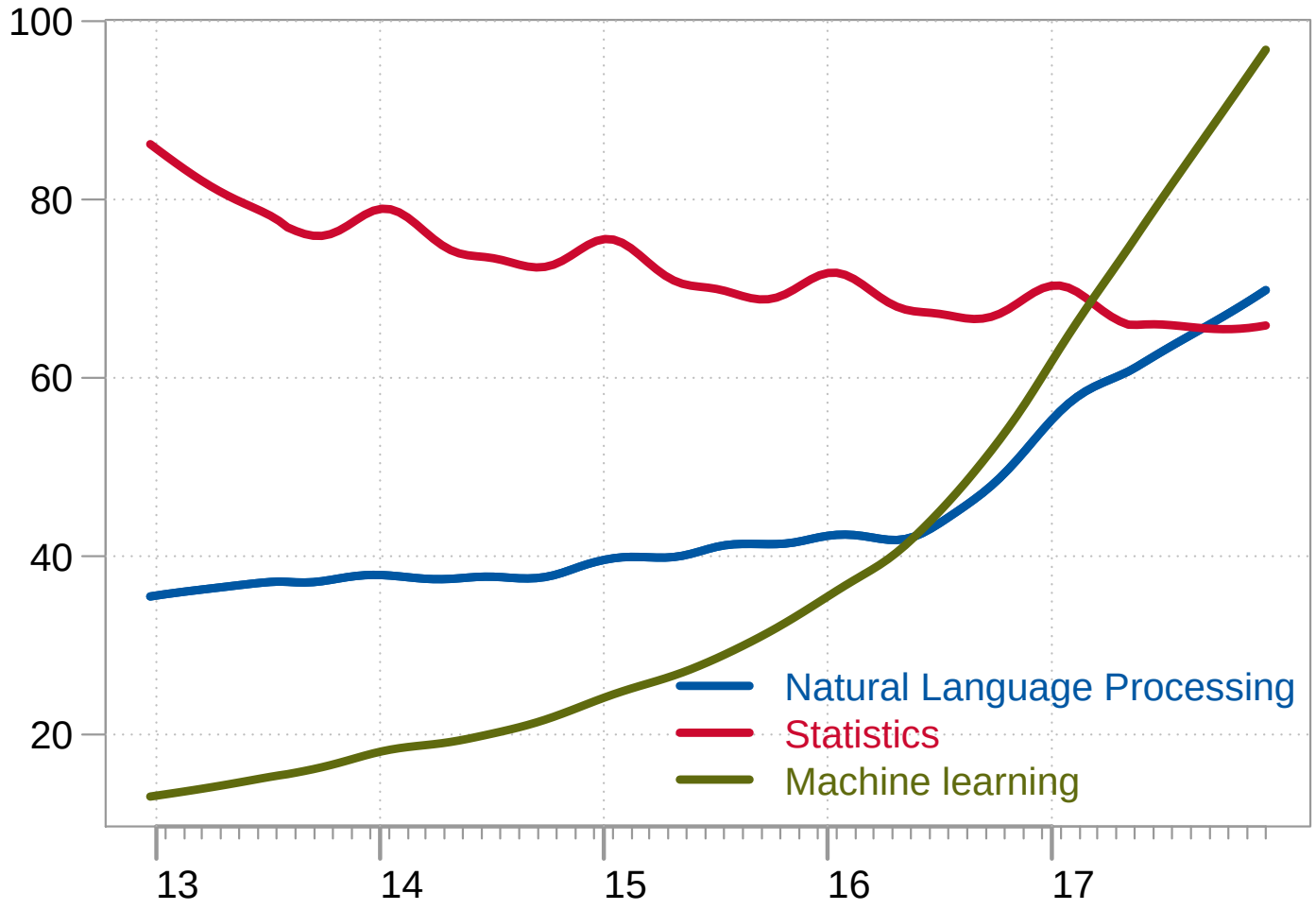


apg

NLP IS A SUBSET OF AI



GROWING IN RELEVANCE



SOME POSSIBLE APPLICATIONS

- Text summarization
- Text classification
- Text generation
- Auto complete
- Sentiment analysis
- Question answering

TYPICAL PROCESSING STEPS IN NLP

- **Removing** punctuation
- Transforming to lower case
- **Removing** numbers
- **Removing** stopwords (e.g. and, but, the, however…)
- **Removing** whitespace
- Stemming (words with a common root are shortened to this root)

WHAT IS IT ALL ABOUT?

Case Study

WHY IN AM

- Better coverage
- Efficiency gains
- Possible edge

EXAMPLE

What this project is about:

- *Allowing our Credit Analysts to save time during Earnings Calls season by being able to pinpoint only the important segments of calls*
- *For the MVP, we employ Natural Language Processing in two ways:*

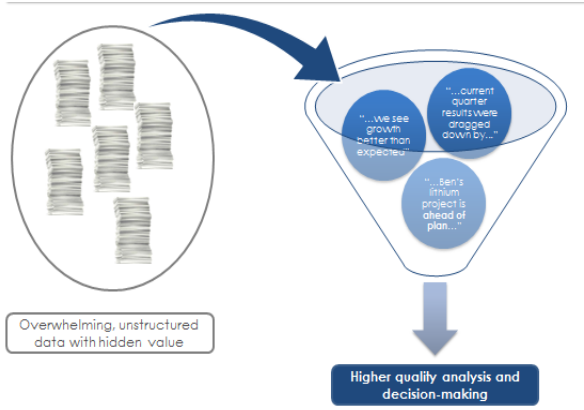
- we summarize the text calls and pick out only important sentences
- we annotate those sentences with a positive or negative sentiment and then calculate overall sentiment of the call

Business Value & Results:

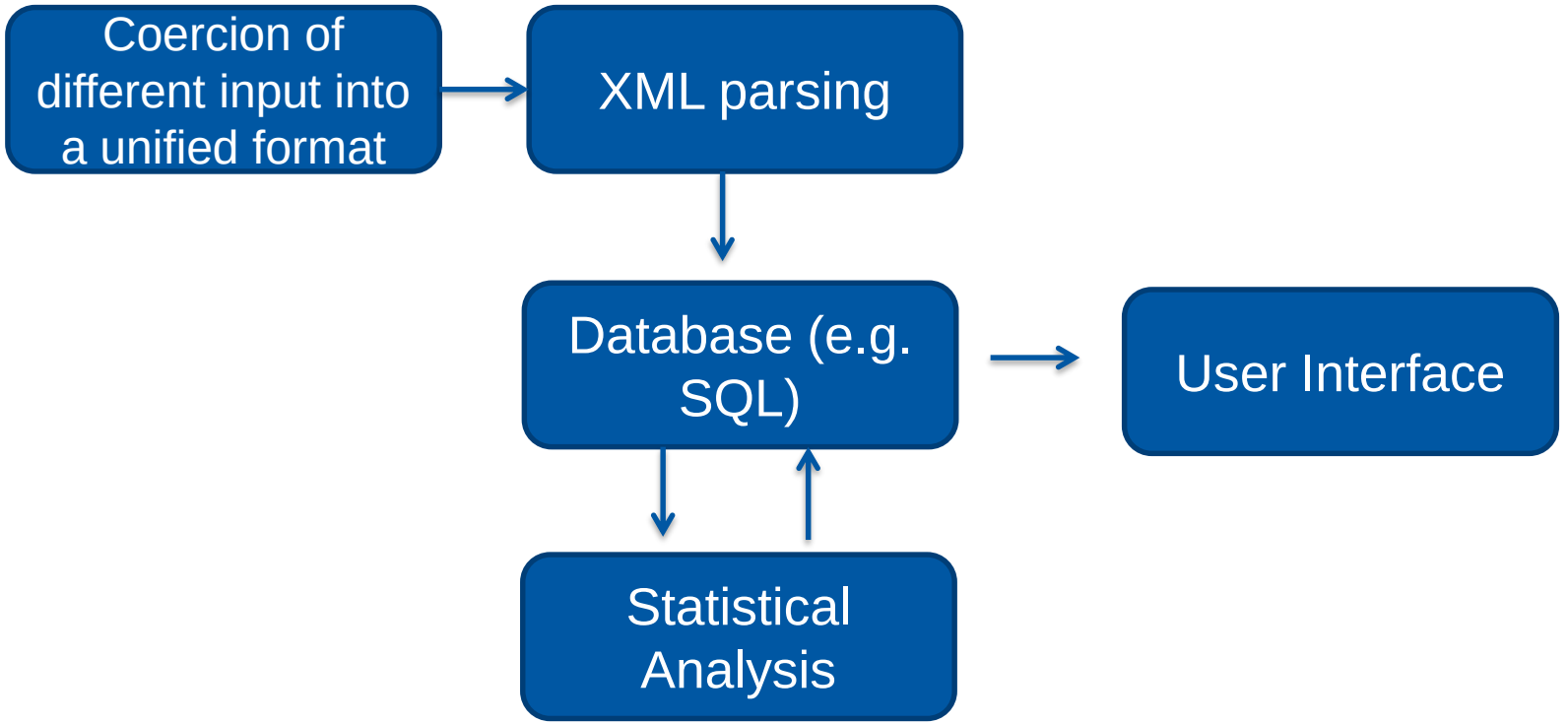
MARCY represents a smarter way of working that saves time for analysts every season.

Learning Value

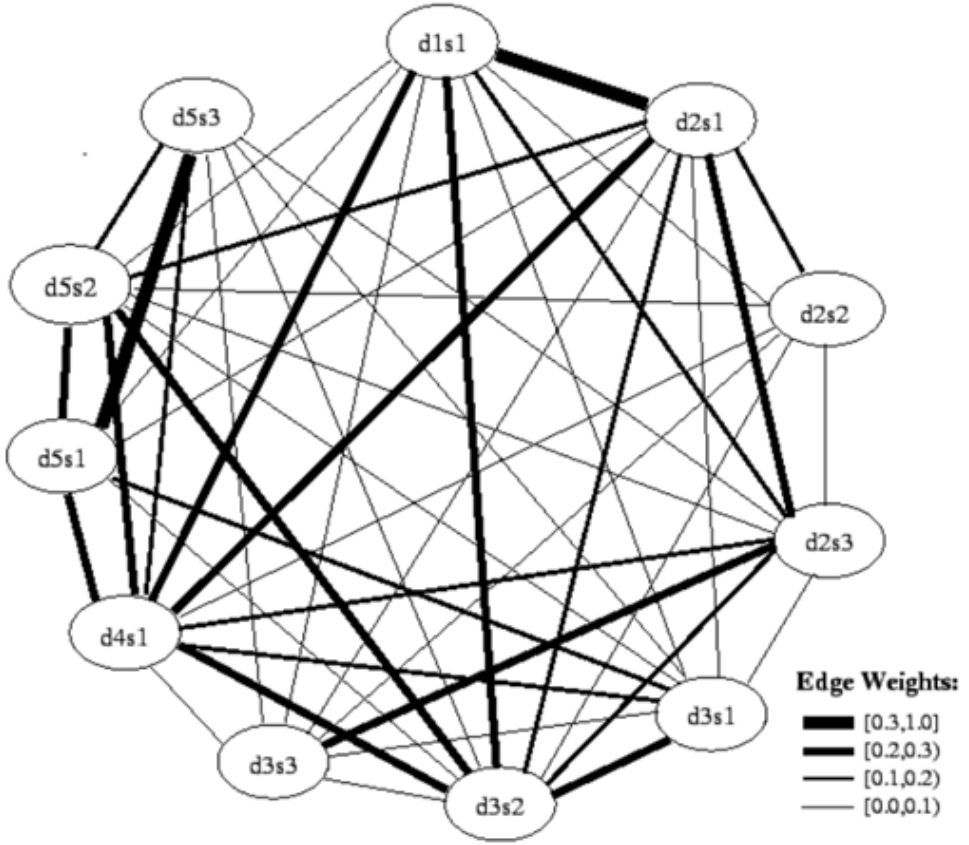
Project MARCY is the first step toward developing NLP and AI capabilities in the New York office. An opportunity to explore available open source solutions and learn from them, as well as build our own.



ARCHITECTURE



SENTENCE CENTRALITY (TEXTRANK)



Source: “LexRank: Graph-based Lexical Centrality as Salience in Text Summarization.” Journal of Artificial Intelligence Research 22 (2004) 457-479.

HOW DOES IT LOOK?

If you move into the middle, we had good material cost reduction again for the year, and it's a combination of commodity-related prices versus 2015 and then, as always, even without commodities, we do a lot of work every year on sourcing and design to lower costs, and that was a positive.

First question, the sales cadence for 2017 in the context of the down 3% or so midpoint, do you see a quarter in 2017 where sales turn positive and if you maybe kind of give us some idea if you think it's midyear or late in the year?

Those two items - and the 30% decremental is a little bit higher than we've had over the last couple of years, and that's mostly because we have a lot more incentive comp.

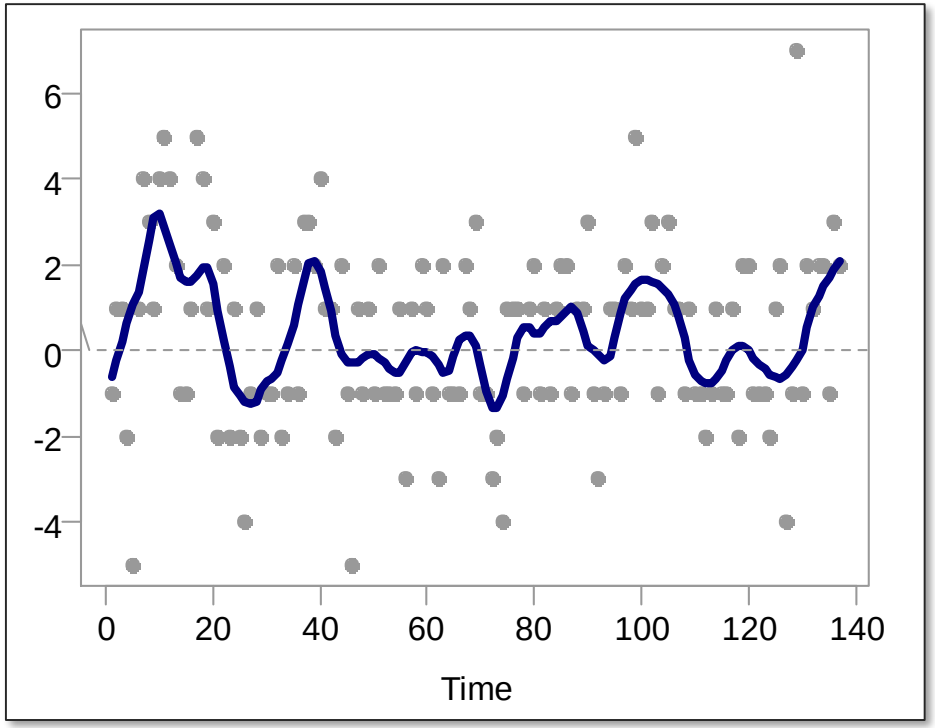
And that's a little bit better than our final outlook of the year that we gave at the end of the third quarter.

So that means by the time we get to the end of 2017, we'll be looking for our period cost structure to be down a couple billion dollars, which is a bit more than we said in the third quarter of 2015, and that's because we're doing more than we anticipated then.

We've had good operational performance, and we've talked about this quite a bit already, in particular, on cost reduction.

- Cost reduction is a “connecting line”.
- Outlook\year\quarter is a “connecting line”.

SENTIMENT ANALYSIS

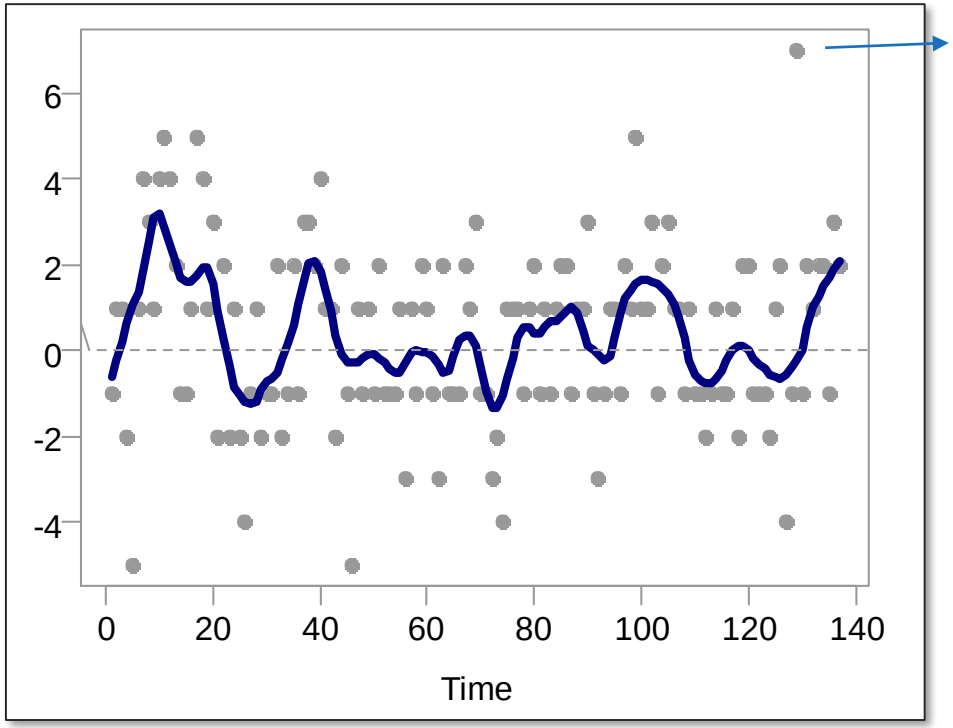


- We can plot over time (one call).
- We can compute average per call.

- Challenges remain

innovation
@apg am

SENTIMENT ANALYSIS



Flagged as extremely positive

"Mike has been a great value to this company. He knows our business extremely well. He's a very smart guy. He's been a good friend. He'll continue to be a good friend, and we wish him all the best. But Mike, we thank you for everything you've done, and this is your last call. And those of you who can't see Mike, he's smiling right now."

- We can plot over time (one call).
- We can compute average per call.

- Challenges remain:

innovation @apg am

CHALLENGES

"You shall know a word by the company it keeps."

CHALLENGES

Dimension

expansion

THANK YOU

QUESTIONS?

“Dank voor uw aandacht”

Eran Raviv, APG

Wassenaar, 23 november 2018

IPFOS

INDEPENDENT PENSION FUND OVERSIGHT SERVICES

"Machinelearning within AQR and How is this used with the FI-portfolios"

Scott Richardson, AQR

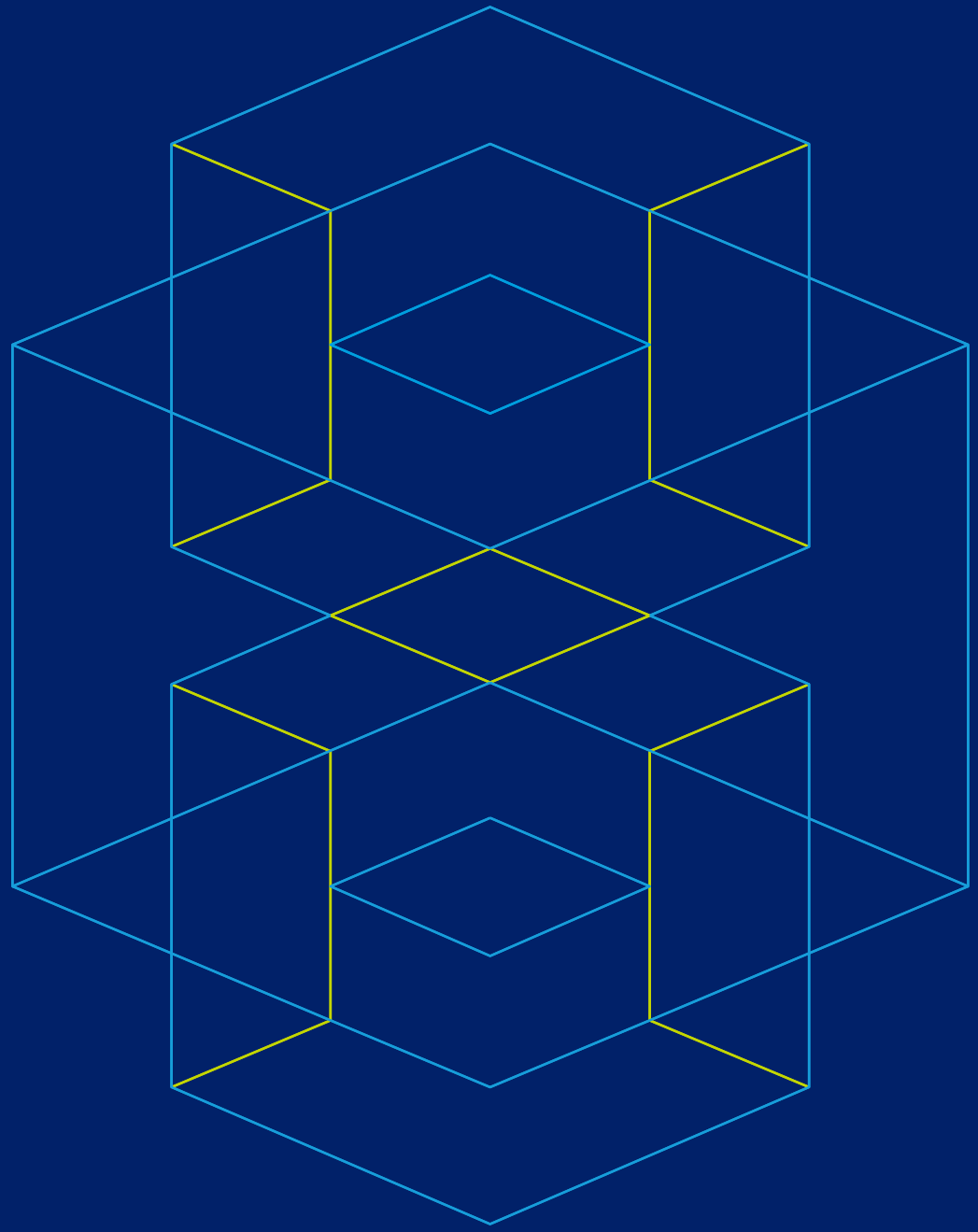
Wassenaar, 23 november 2018

Big Data in Fixed Income Markets?

Scott Richardson, Ph.D.

November 23, 2018

Private and Confidential



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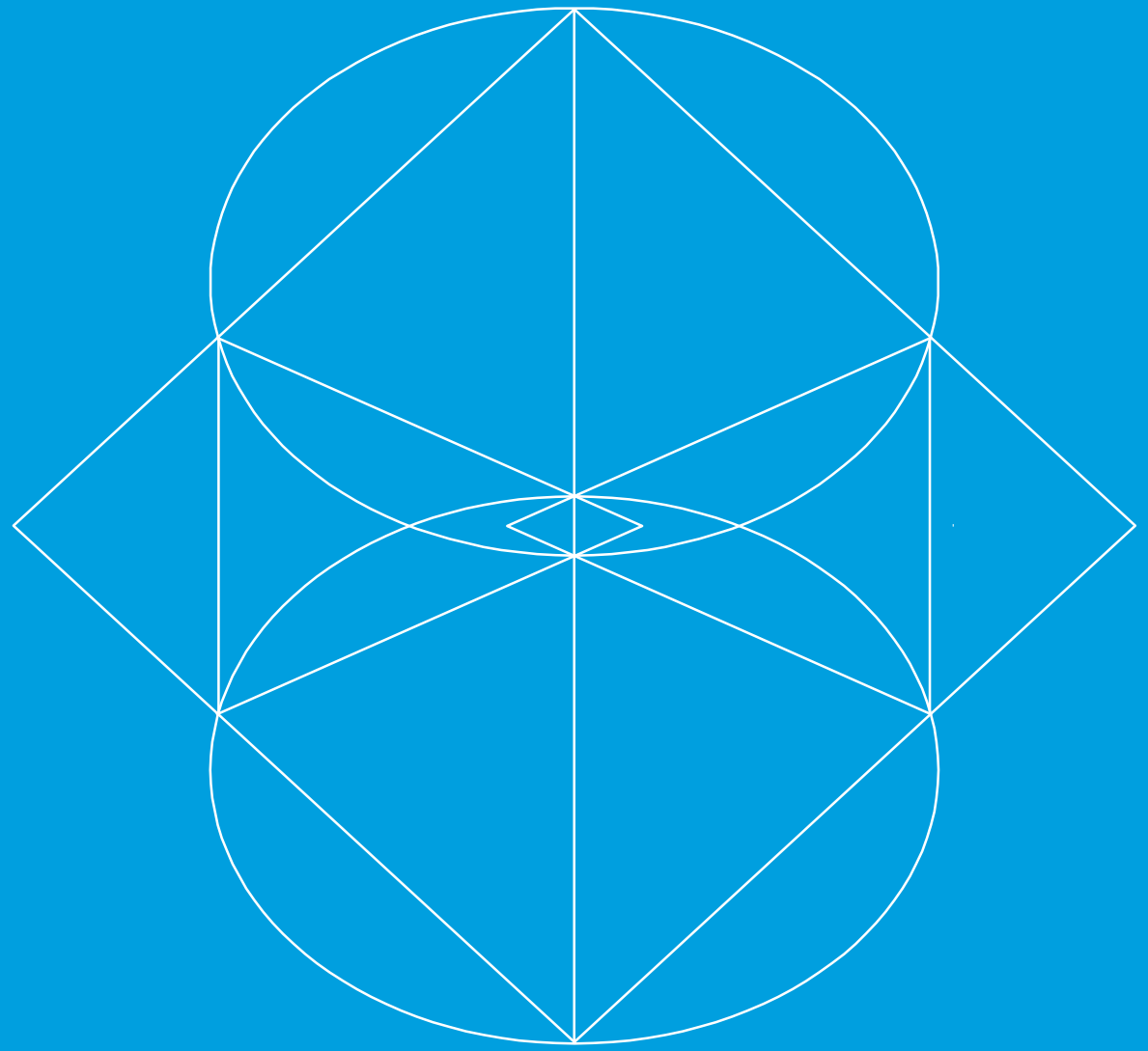
Big Data in Fixed Income Markets?

AQR Fixed Income Investment Philosophy

Digging Deeper: Value Investing in Fixed Income

Machine Learning Use Case: Does Fundamental Volatility Help Explain Credit Risk?

AQR Fixed Income Investment Philosophy



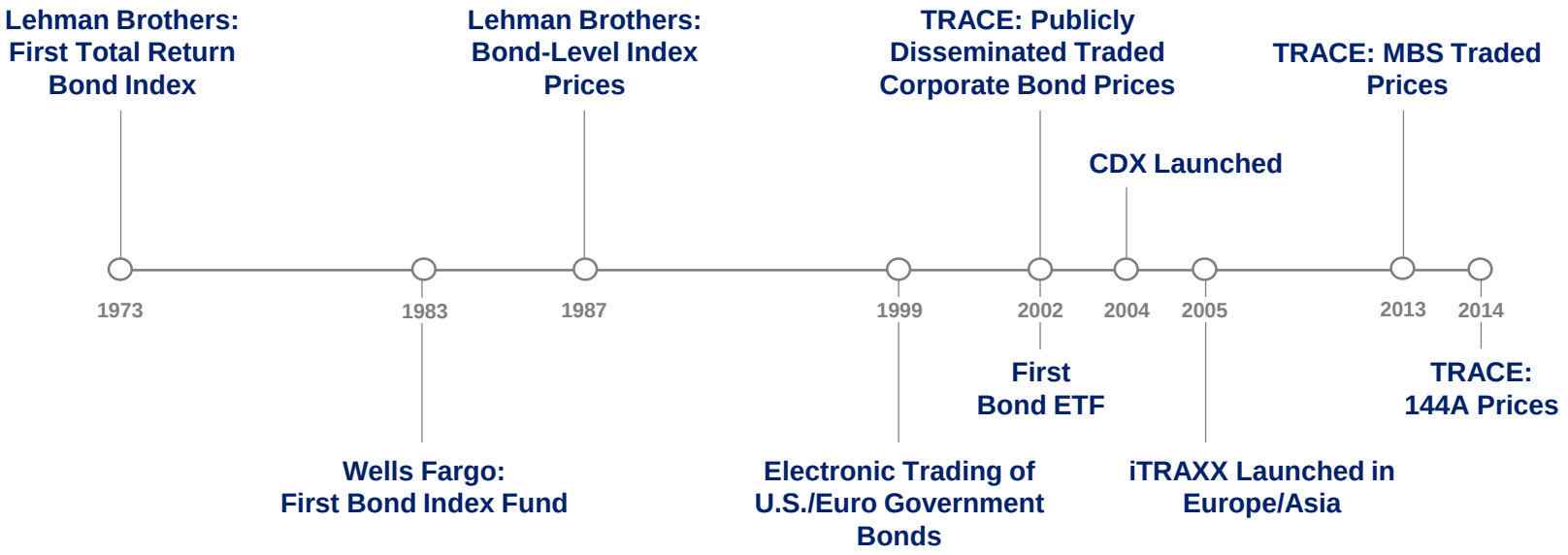
Systematic Investing in Fixed Income

No data, no Fama French factors

Systematic approaches are relatively new to fixed income:

- Limited corporate bond data on traded prices/t-costs until TRACE (2002)
- Less tractable than equities (term-structure, seniority, multiple issues, other structural differences)

Timeline of US Bond Price Dissemination



Source: AQR.

AQR's Latest Research on Fixed Income

Yield Curve Premia

JORDAN BROOKS AND TOBIAS J. MOSKOWITZ*

Preliminary draft: January 2017
Current draft: July 2017

Abstract

We examine return premia associated with the level, slope, and curvature of the yield curv
and across countries from a novel perspective by borrowing pricing factors from other a
Measures of value, momentum, and carry, when applied to bonds, provide a rich descript
return premia: subsuming pricing information from the yield curve's first three principal c
as well as priced factors unspanned by yield information, such as macroeconomic growt
and the Cochrane and Piazzesi (2005) factor. These characteristics provide new econon
for what drives bond return premia, where value, measured by a bond's yield re
fundamental anchor of expected inflation, subsumes a "level" factor. Momentum, wh
recent yield trends, and carry, which captures expected future yields if the yield curv
change, subsume information about expected returns from the slope and curvature of the
These characteristics describe both the cross-section and time-series of yield curve
connect to return predictability in other asset classes, suggesting a unifying asset pricing f

*Brooks is at AQR Capital, email: Jordan.brooks@aqr.com and Moskowitz is at Yale SOM, Yal
NBER, and AQR Capital, email: tobias.moskowitz@yale.edu. We thank Cliff Asness, Attakrit As
Bertolotti, Andrea Eisfeldt, Antti Ilmanen, Ronen Israel, Michael Katz, John Liew, Lasse Pe
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outstanding research assistance. Moskowitz thanks the International Finance Center at Yale University
support. The views expressed here are those of the authors and not necessarily those of AQR or its emp

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COMMON FACTORS IN CORPORATE BOND RETURNS

Ronen Israel[a,c], Diogo Palhares[a,d] and Scott Richardson[b,c]

We find that four well-known characteristics (carry, defensive, momentum, and value) explain a significant portion of the cross-sectional variation in corporate bond excess returns. These characteristics have positive risk-adjusted expected returns and are not subsumed by traditional market premia or respective equity anomalies. The returns are economically significant, not explained by macroeconomic exposures, and there is some evidence that mispricing plays a role, especially for momentum.

1 Introduction

Corporate bonds are an enormous—and growing—source of financing for companies around the world. As of the first quarter of 2016, there was $8.36 trillion of U.S. corporate debt outstanding, and from 1996 to 2015 corporate bond issuance grew from $343 billion to $1.49 trillion (Securities Industry and Financial Markets Association). Surprisingly little research, however, has investigated the cross-sectional determinants of corporate bond returns.

We study the drivers of the cross-section of corporate bond expected returns. To do so, we focus on a set of characteristics that has been shown to predict returns in other markets, yet researchers have not studied the viability of all these characteristics to predict returns in credit markets. The characteristics are carry, quality, momentum, and value (Koijen *et al.*, 2014 for carry; Frazzini and Pedersen, 2014 for quality; Asness *et al.*, 2013 for momentum and value). Our contribution includes (i) applying these concepts to credit markets; (ii) studying them together in a way that shines light on their joint relevance or lack thereof; (iii) evaluating their economic significance by examining both long-and-short, transaction-costs-oblivious portfolios, and also long-only, transaction-costs aware portfolios; and (iv) exploring the source of the return premia by testing both risk- and mispricing explanations.

Using traditional long-and-short portfolio analysis and cross-sectional regressions we find positive risk premiums that are highly significant (t-statistics of 3 or more) for all characteristics

[a]AQR Capital Management, Greenwich, CT.
[b]AQR Capital Management, London Business School, London, United Kingdom.
[c]E-mail: ronen.israel@aqr.com
[d]E-mail: diogo.palhares@aqr.com
[e]E-mail: scott.richardson@aqr.com

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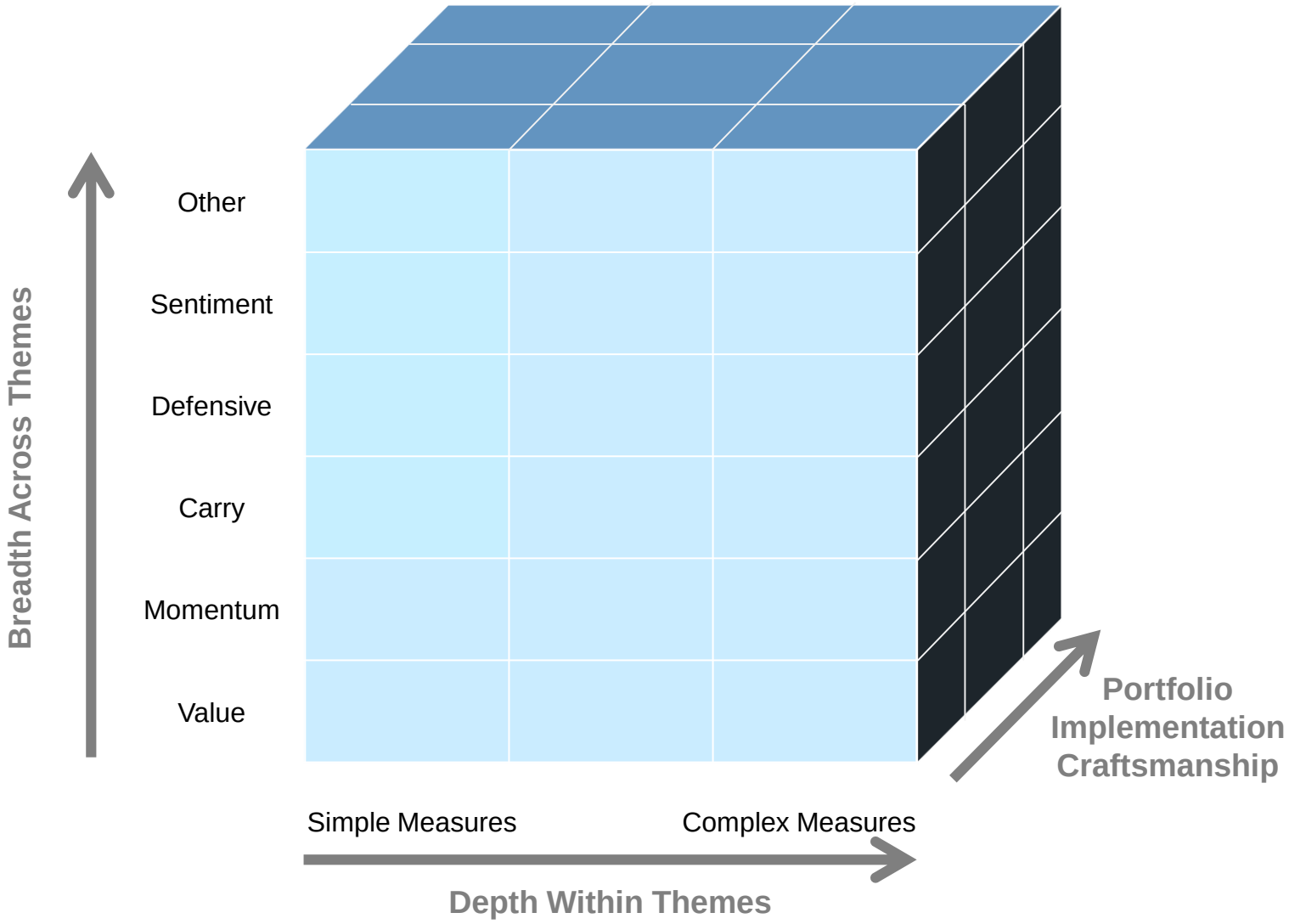
FACTOR INVESTING
Style Investing in Fixed Income
Jordan Brooks, Diogo Palhares, and Scott Richardson

Source: AQR.

AQR's Approach to Fixed Income



Source: AQR. For illustrative purposes only.

AQR's Approach to Fixed Income

Intuitive themes, systematically applied to credit and rates

Theme	Definition	Return Drivers
Value	Cheap assets outperform expensive ones	• Over-extrapolation • Potential compensation for systematic risk
Momentum	Recent outperformers beat recent underperformers	• Under-reaction to news • Investor herding
Carry	Higher yielding assets outperform lower yielding ones	• Excess demand for (or supply of) capital • Compensation due to non-profit seeking agents or for taking systematic risk
Defensive	Low-risk/high-quality outperforms high-risk/low quality	• Leverage aversion • Lottery preferences

Source: AQR. Past performance is not a guarantee of future performance. Please read important disclosures in the Appendix.

AQR's Approach to Fixed Income

Intuitive themes, systematically applied

Theme	Credit Example	Rates Example	EMD Example
Value	Spread relative to default probability	Yield relative to inflation expectations	Spread relative to default probability
Momentum	Change in spread	Change in yield	Change in hazard rate
Carry	Option-Adjusted Spread	Roll-down yield	Option-Adjusted Spread
Defensive	High credit/balance sheet quality, low duration	High credit quality, low duration	High asset to debt ratio, low inflation

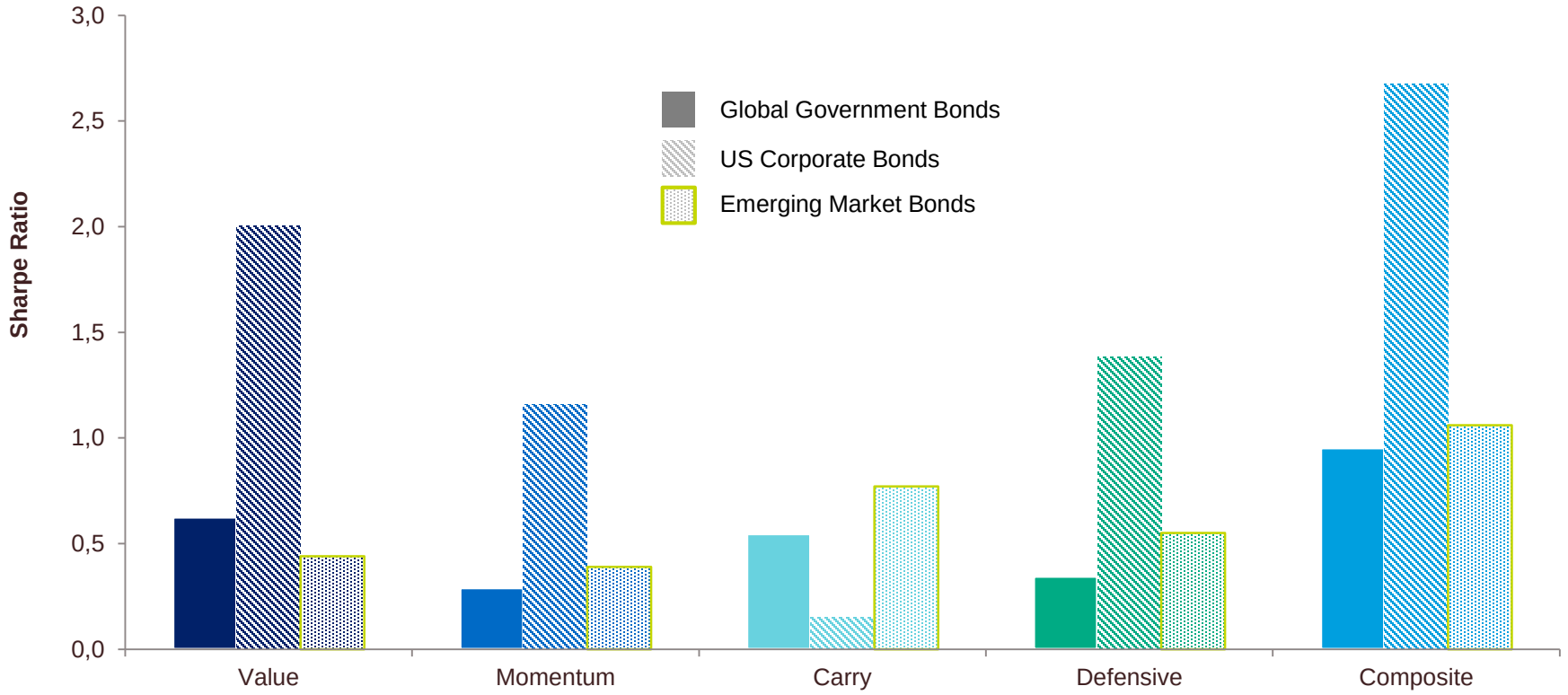
Source: AQR. Past performance is not a guarantee of future performance. Please read important disclosures in the Appendix.

A Systematic Approach to Fixed Income Investing

Themes performed well individually, and combined they were even better

Hypothetical Gross Sharpe Ratios of Simple Long/Short Portfolios

Emerging Market Bonds (2004 – 2018), Government Bonds (1995 – 2017), Corporate Bonds (1997– 2017)



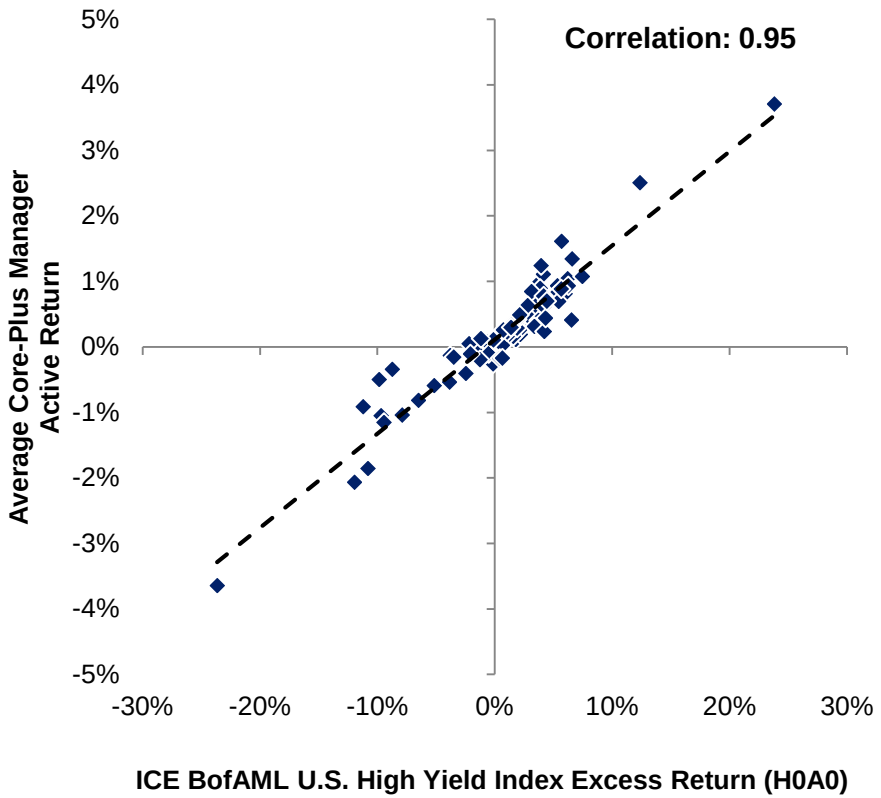
Source: AQR, Above analysis reflects a backtest of underlying theoretical long/short themes generated by AQR definitions and is for illustrative purposes only and not based on an actual portfolio AQR manages. The composite portfolio combined the value, momentum, carry and defensive portfolios at equal weights. The results shown do not include advisory fees or transaction costs; if such fees and expenses were deducted the Sharpe ratios would be lower. The risk-free rate is the ICE BofAML US 3-Month T-Bill Index. Please read important disclosures in the Appendix for more details on construction of these portfolios. Diversification does not eliminate the risk of experiencing investment loss. Hypothetical performance results have certain inherent limitations, some of which are disclosed in the Appendix. There is no guarantee that this strategy will be successful. There is a potential for loss. Data for Emerging Market Bonds, Government Bonds, and Corporate Bonds are from January 2004 – February 2018, April 1995 – December 2017, and January 1997 – December 2017, respectively. AQR has reviewed the above research and believes that the findings are still valid even without the inclusion of more current data.

Where is Active Fixed Income Now?

Fixed Income managers rely on credit for excess returns

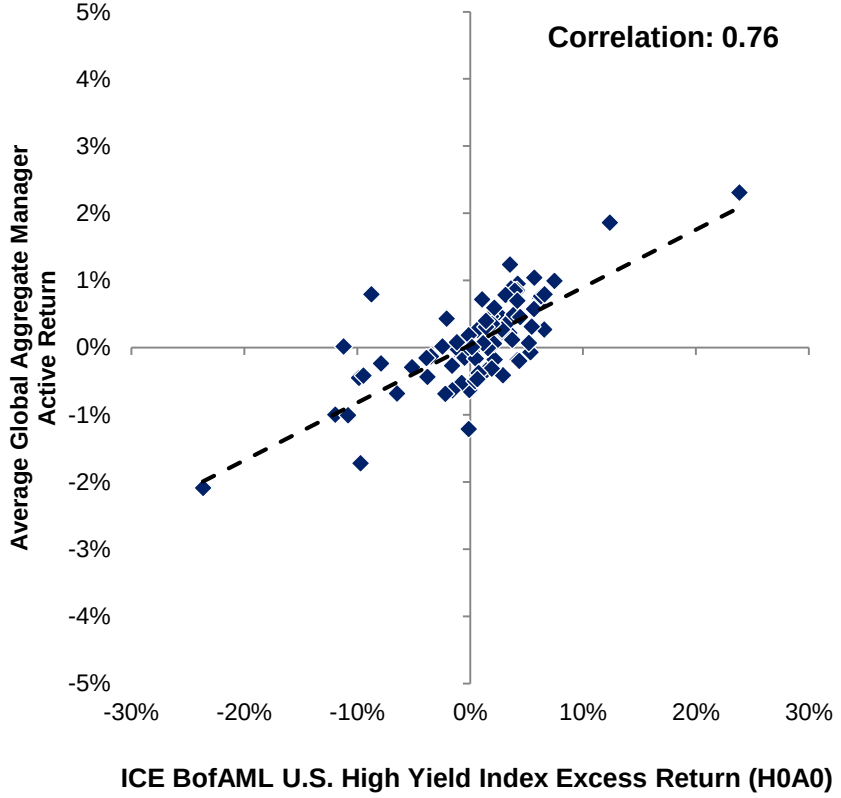
Core-Plus Average Outperformance vs. HY Bond Returns

Quarterly Returns 1997-2017



Global Aggregate Average Outperformance vs. HY Bond Returns

Quarterly Returns 1997– 2017

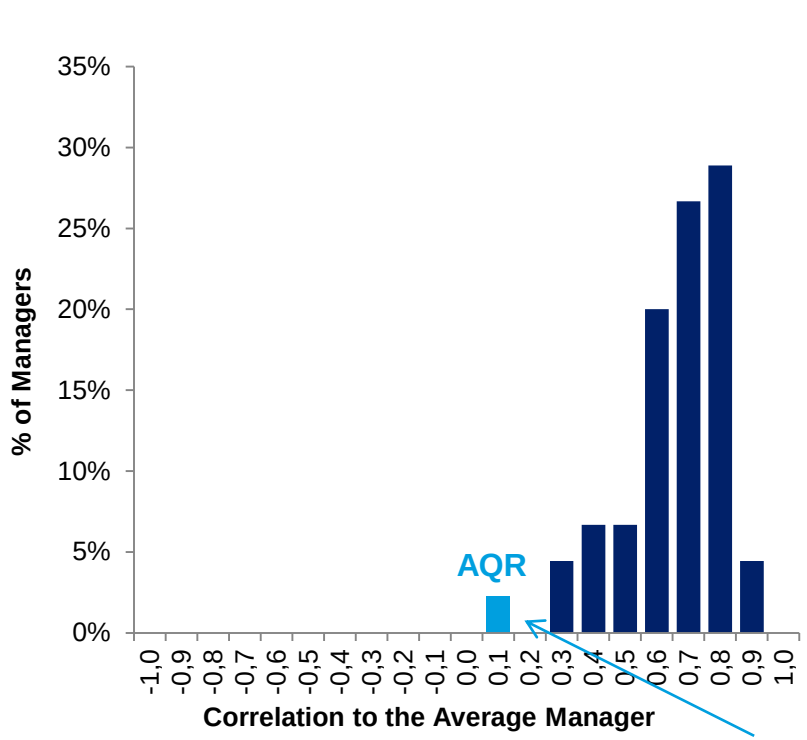


Source: AQR, eVestment. Data shown is from 1/1/1997 to 6/30/2017. The Core Plus and Global Aggregate categories above are defined by eVestment. Returns used are monthly gross of fee returns of managers benchmarked to the Bloomberg Barclays US Aggregate Index (for Core Plus) and the Bloomberg Barclays Global Aggregate Index (for Global Aggregate), with USD returns, and with at least 1 year of returns for the period January 1997 through June 2017. The inception date of each manager varies. All returns are gross of fees. The chart graphs the quarterly active returns of the composites against HY excess credit returns (H0A0). Past performance is not a guarantee of future performance. Please see the appendix for important disclosures. AQR has reviewed the above research and believes that the findings are still valid even without the inclusion of more current data.

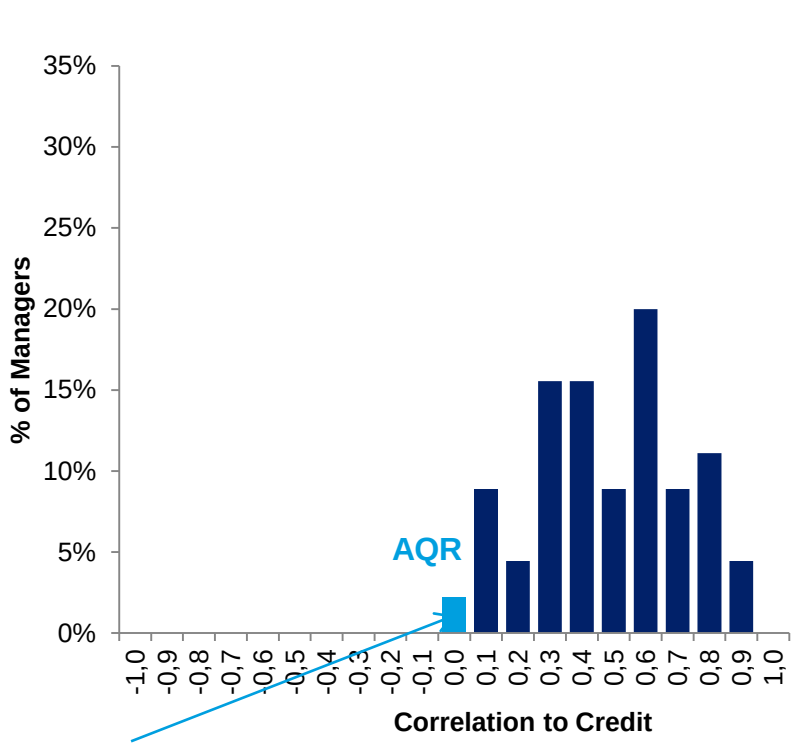
AQR Systematic Fixed Income is Diversifying

Unlike traditional approaches

Global Aggregate managers' excess returns are correlated to each other…



…and to credit…



The AQR Hypothetical Global Aggregate Strategy is not

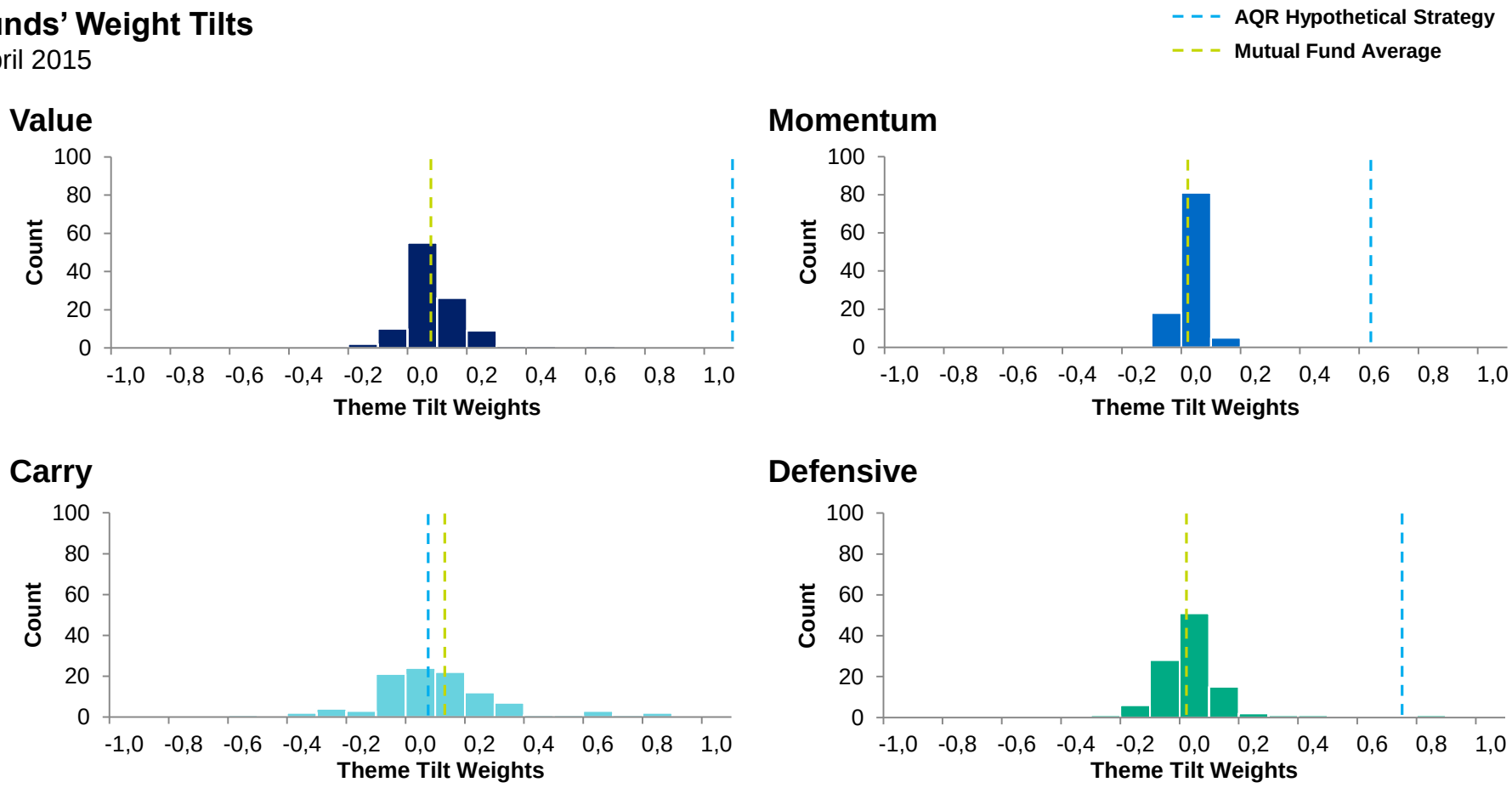
Source: AQR, eVestment. The graph show the distributions of correlations of active (excess of benchmark) returns of each manager compared to the average correlation amongst each other for the left chart, and the returns of the Bloomberg Barclays US High Yield Credit Excess Returns Index for the right chart. Past performance is not a guarantee of future performance. AQR Backtest returns reflects a heavily discounted backtest of the hypothetical AQR Global Aggregate Strategy, net of transaction and financing costs, gross of fees, shown in USD. These are not the returns of an actual portfolio AQR managed and are for illustrative purposes only. Please see Appendix for further detail on the AQR Global Aggregate backtest. Hypothetical performance results have certain inherent limitations, some of which are disclosed in the Appendix. The data presented herein is supplemental to the GIPS® compliant presentation for the AQR Global Aggregate Bond Hedged Composite, included in the Appendix. Please read important disclosures in the Appendix.

Analysis of Bond Manager Holdings

On average, managers provide limited exposure to our themes

Distribution of Funds' Weight Tilts

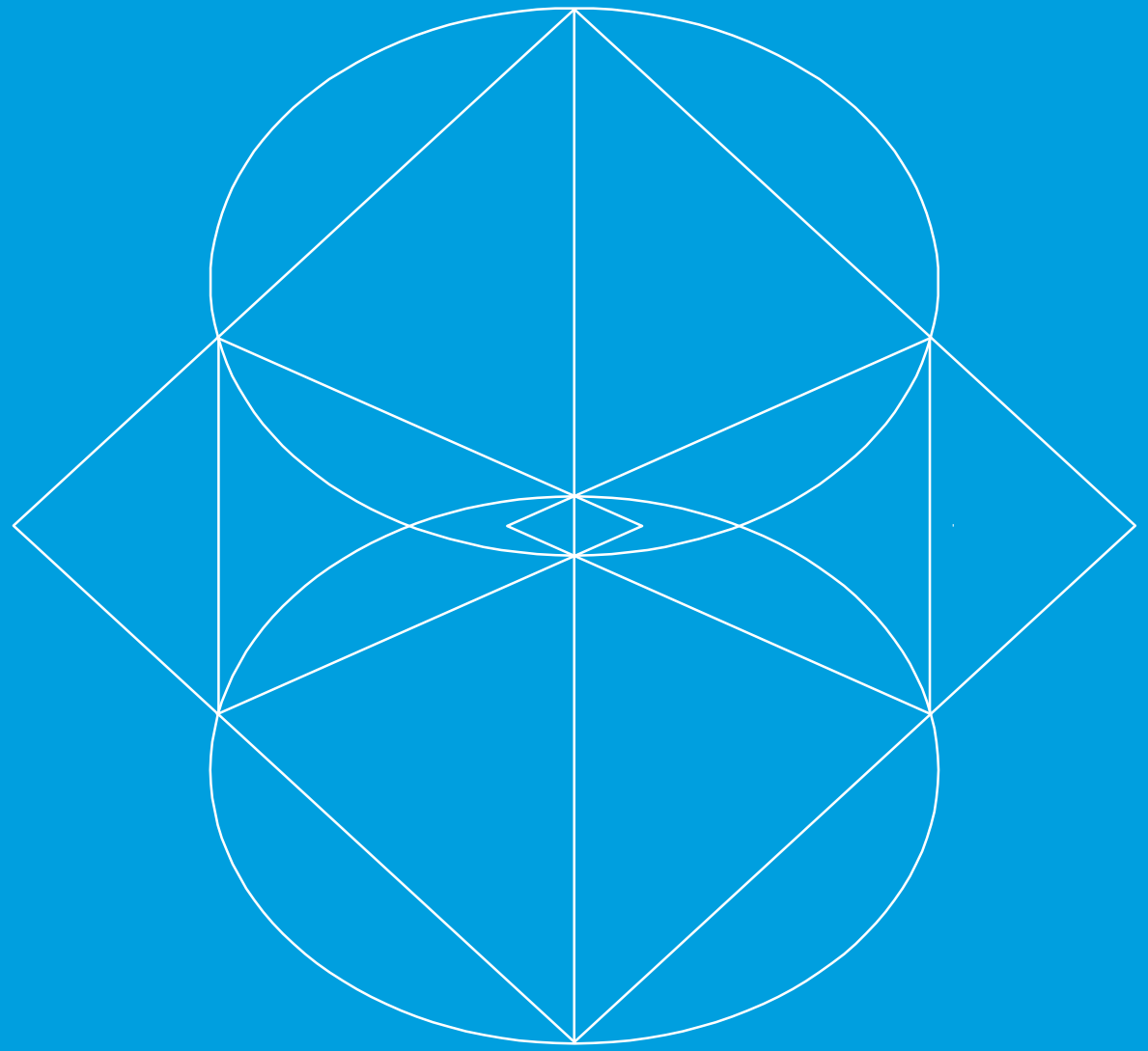
September 1997 – April 2015



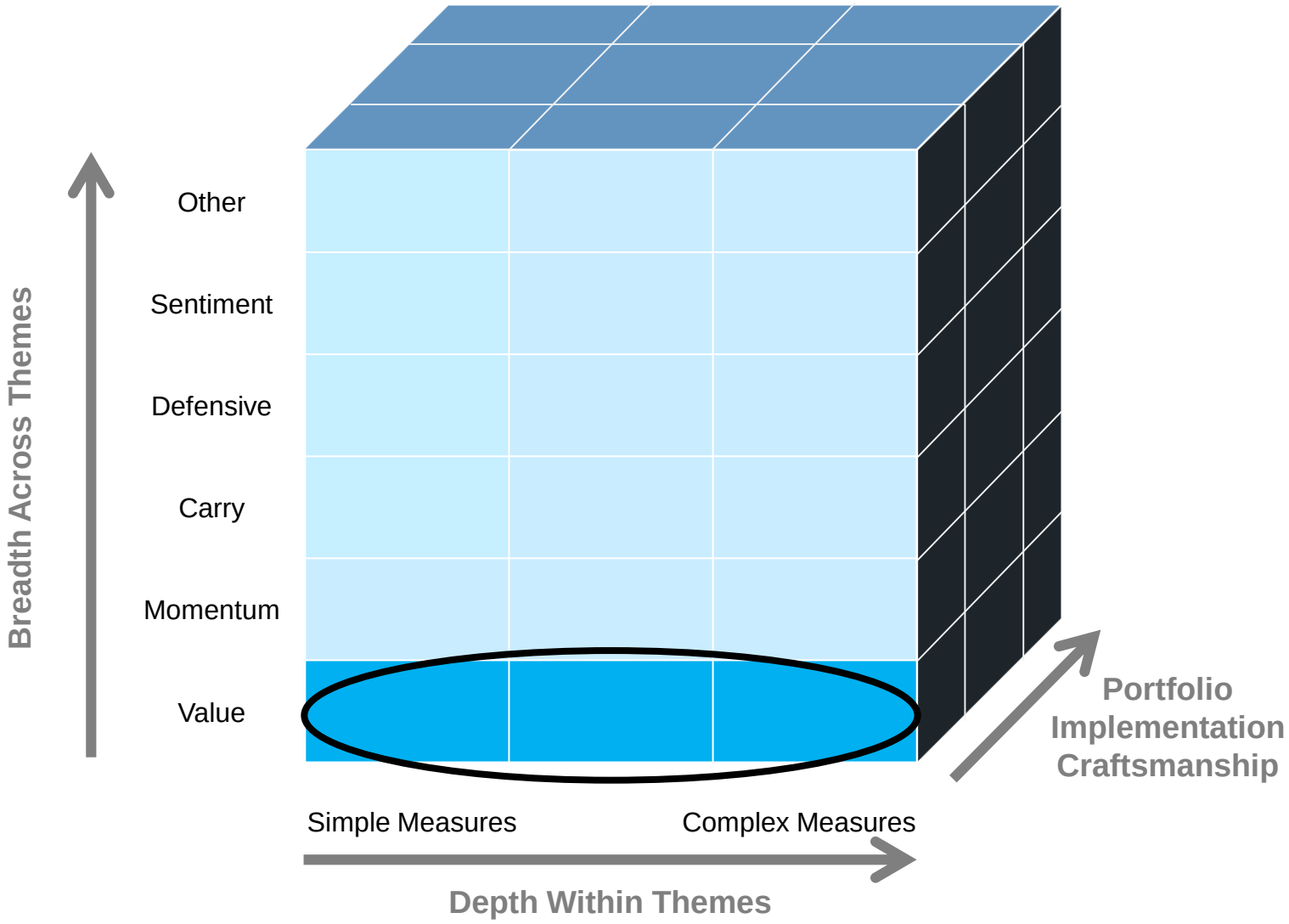
Source: AQR, Morningstar. The table above displays the distribution of theme tilts in a population of 102 high-yield funds based on 3,890 mutual fund reports between September 1997 and April 2015. Theme tilts are the average of the product of active weights of a fund and theme scores. We identify the 102 funds by selecting all mutual funds in the Morningstar database with an explicit high-yield benchmark belonging to the two most popular benchmark providers: BofA Merrill Lynch and Barclays. We then source bond holding information from Lipper Emaxx for these 102 funds. The tables display the distribution of fund's thematic tilts, the product of active weights and thematic scores averaged across time. Active weights are weights in excess of the benchmark where the benchmark is specific to each fund. The AQR Hypothetical Strategy is the AQR High Yield Credit Strategy Backtest. Please refer to the Appendix for an explanation of the hypothetical strategy backtest. Hypothetical performance results have certain inherent limitations, some of which are disclosed in the Appendix. Hypothetical holdings are not the holdings of an actual strategy AQR manages. AQR has reviewed the above research and believes that the findings are still valid even without the inclusion of more current data. The data presented herein is supplemental to the GIPS® compliant presentation for the AQR US High Yield Composite, included in the Appendix.

Digging Deeper

Value Investing in Fixed Income



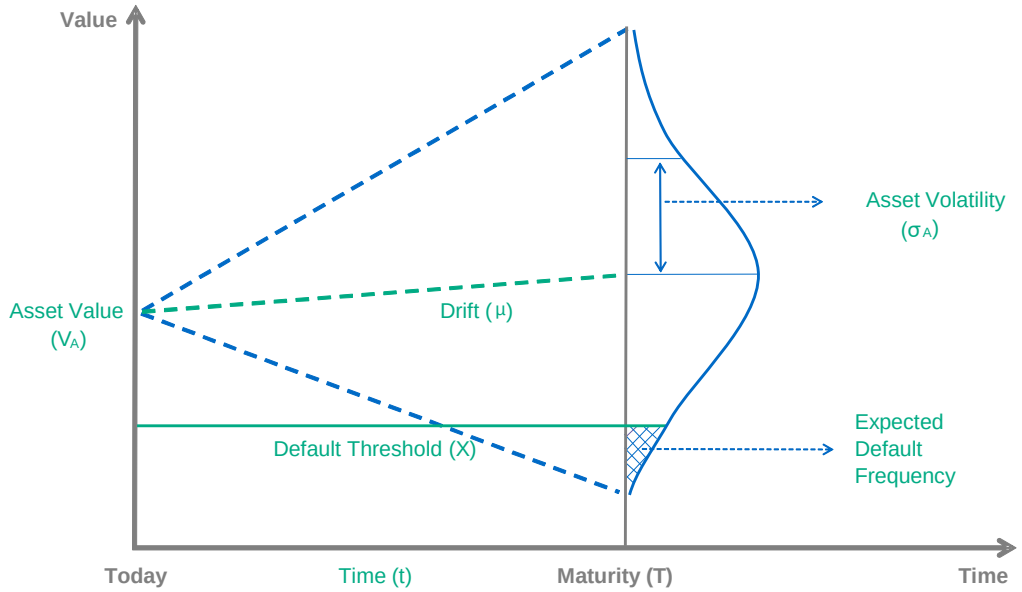
AQR's Approach to Fixed Income



Source: AQR. For illustrative purposes only.

Valuation

An example of the fundamental drivers of credit spreads



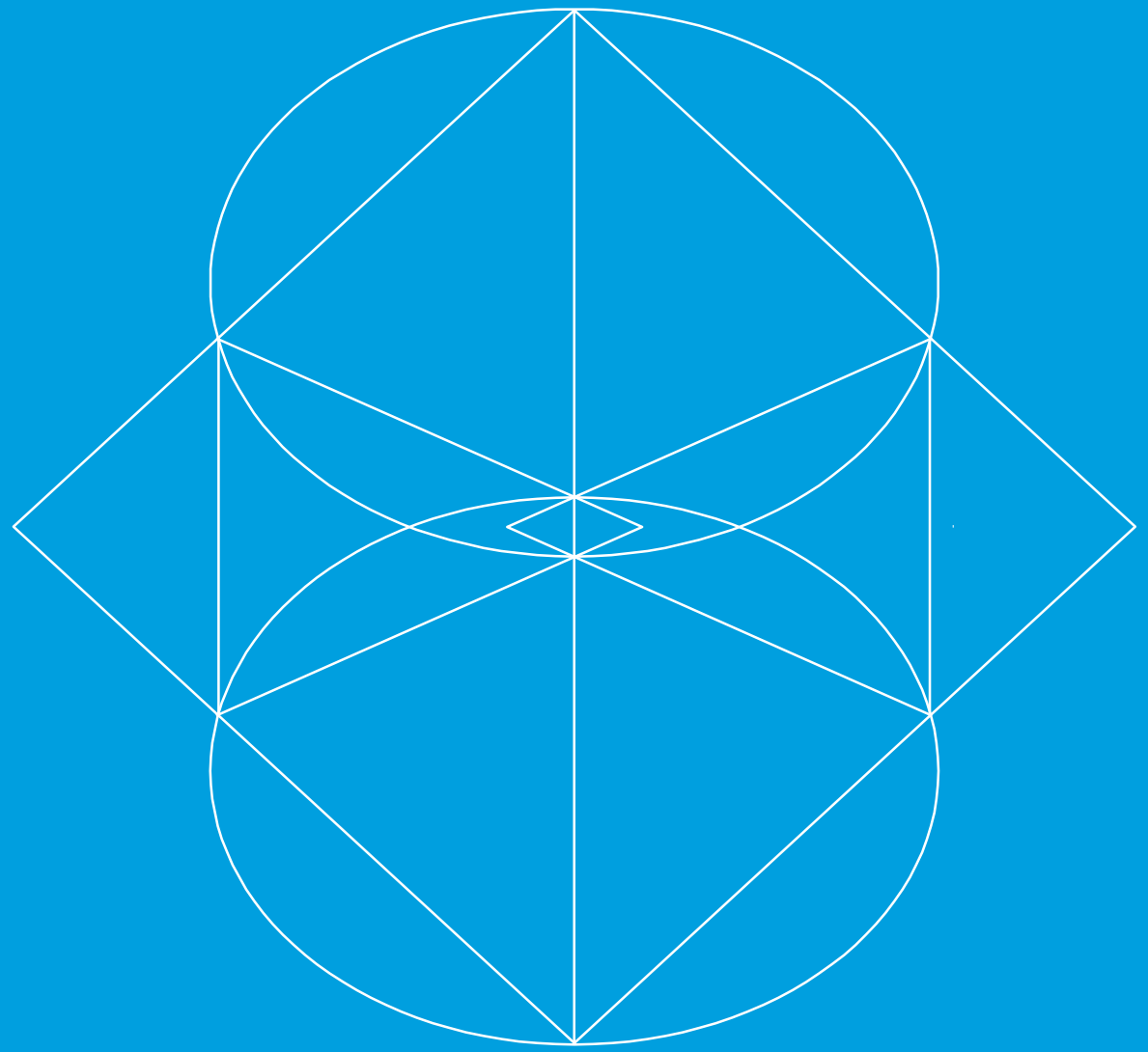
$$\text{Distance to Default (D2D)} = \frac{\log\left(\frac{V_A}{X}\right) + \left(\mu - \frac{\sigma_A^2}{2}\right)t}{\sigma_A\sqrt{t}}$$

- Distance to Default is an important fundamental measure, affecting both Credit and Equity prices
- Calculating distance to default requires measures of leverage as well as asset volatility
- Accurately measuring leverage and asset volatility are therefore important for correctly capturing the fundamental value of both Credit and Equity

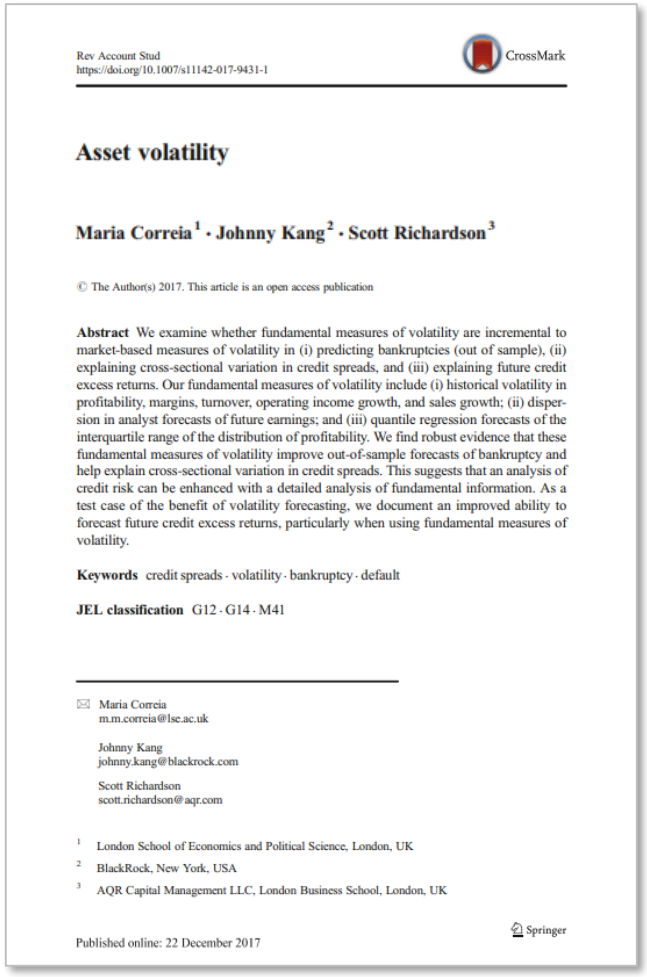
Source: Richardson, Scott A., and Lok, Stephen, "Credit Markets and Financial Information" (January 20, 2011). For illustrative purposes only. Please read important disclosures in the Appendix.

Machine Learning Use Case:

Does Fundamental Volatility Help Explain Credit Risk?



The Research
Asset volatility



Rev Account Stud
https://doi.org/10.1007/s11142-017-9431-1

CrossMark

Asset volatility

Maria Correia[1] · Johnny Kang[2] · Scott Richardson[3]

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Abstract We examine whether fundamental measures of volatility are incremental to market-based measures of volatility in (i) predicting bankruptcies (out of sample), (ii) explaining cross-sectional variation in credit spreads, and (iii) explaining future credit excess returns. Our fundamental measures of volatility include (i) historical volatility in profitability, margins, turnover, operating income growth, and sales growth; (ii) dispersion in analyst forecasts of future earnings; and (iii) quantile regression forecasts of the interquartile range of the distribution of profitability. We find robust evidence that these fundamental measures of volatility improve out-of-sample forecasts of bankruptcy and help explain cross-sectional variation in credit spreads. This suggests that an analysis of credit risk can be enhanced with a detailed analysis of fundamental information. As a test case of the benefit of volatility forecasting, we document an improved ability to forecast future credit excess returns, particularly when using fundamental measures of volatility.

Keywords credit spreads · volatility · bankruptcy · default

JEL classification G12 · G14 · M41

✉ Maria Correia
m.m.correia@lse.ac.uk

Johnny Kang
johnny.kang@blackrock.com

Scott Richardson
scott.richardson@aqr.com

[1] London School of Economics and Political Science, London, UK
[2] BlackRock, New York, USA
[3] AQR Capital Management LLC, London Business School, London, UK

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Main Findings

Fundamental information is important for measuring asset volatility.

Volatility forecasts that optimally combine market and accounting data may be:

- Better able to forecast bankruptcy.
- Better able to explain cross-sectional variation in credit spreads.

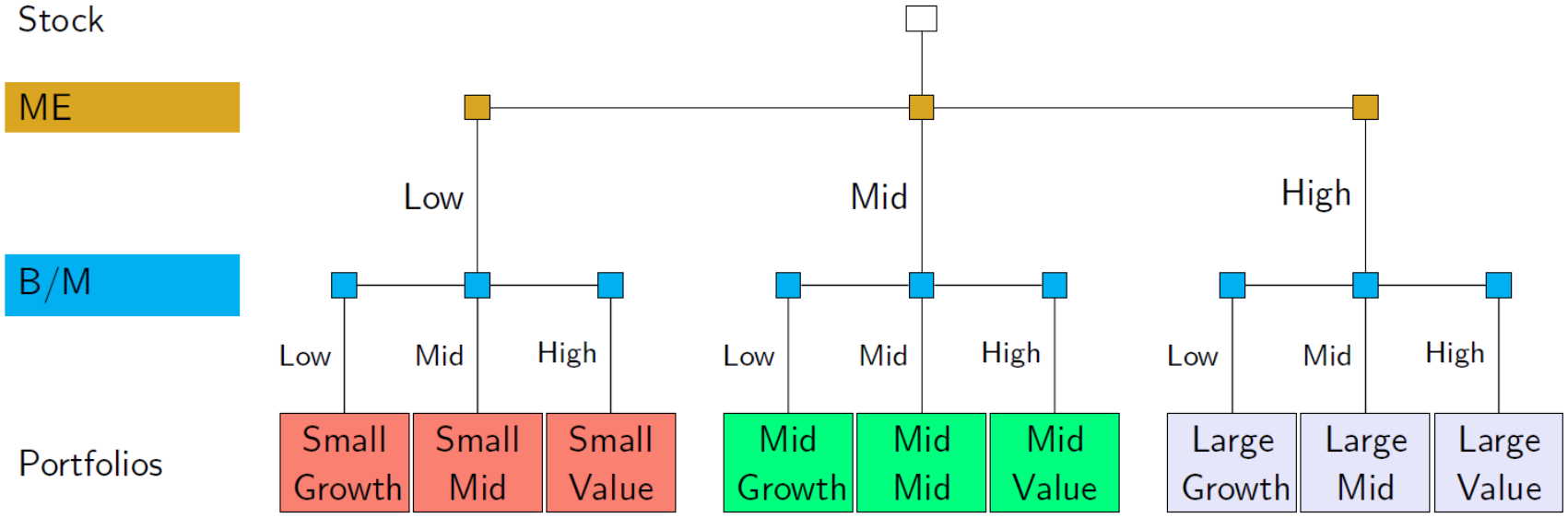
Market-based measures reflect systematic sources of volatility and accounting-based measures reflect idiosyncratic sources of volatility.

The paper also talks about alternative techniques and machine learning that allows for complicated non-linear interactions across variables.

Source: Asset Volatility, Correia, Kang, Richardson. Past performance is not a guarantee of future performance. Please read important disclosures in the Appendix.

You May Already Know Machine Learning

Trees and Forests



aka: "Fama-French Portfolios"

Source: AQR. For illustrative purposes only.

Using Machine Learning in Fixed Income

Example of a pruned tree

PD=0.6%
N=68,040

- 4 variables
- 68,040 observations
- PD = Probability of Default

- $ln\left(\frac{V}{X}\right)$ = Inverse of Leverage
- σ_F = Fundamental Volatility
- σ_M = Market Volatility
- $\ln(E)$ = Size

Source: Asset Volatility, Correia, Kang, Richardson. Please note that the above example is for illustrative purposes only. Please refer to the Appendix for further information on the methodology and variable definitions. Hypothetical performance has certain inherent limitations, some of which are discussed in the Appendix. Please read important disclosures in the Appendix.

AQR's Approach to Fixed Income

Intuitive themes, systematically applied

Theme	Rates Example	Credit Example	EMD Example
Value	Yield relative to inflation expectations	**Spread relative to default probability**	Spread relative to default probability
Momentum	Price: Change in yield Fundamental: Change in growth expectations	Price: Change in spread **Fundamental: Change in default probability**	Change in hazard rate
Carry	Roll-down yield	Option-Adjusted Spread	Option-Adjusted Spread
Defensive	High credit quality, low duration	**High credit/balance sheet quality**, low duration	High asset to debt ratio, low inflation

Source: AQR. Past performance is not a guarantee of future performance. Please read important disclosures in the Appendix.

Conclusion

Systematic investing in fixed income

We believe that a systematic approach can capture the fundamental drivers of relative performance in fixed income.

Experienced Team

- AQR has a 20-year track record managing and implementing systematic fixed income strategies

Fundamental Investing – Systematically Applied

- Fundamental drivers of returns applied within fixed income sectors

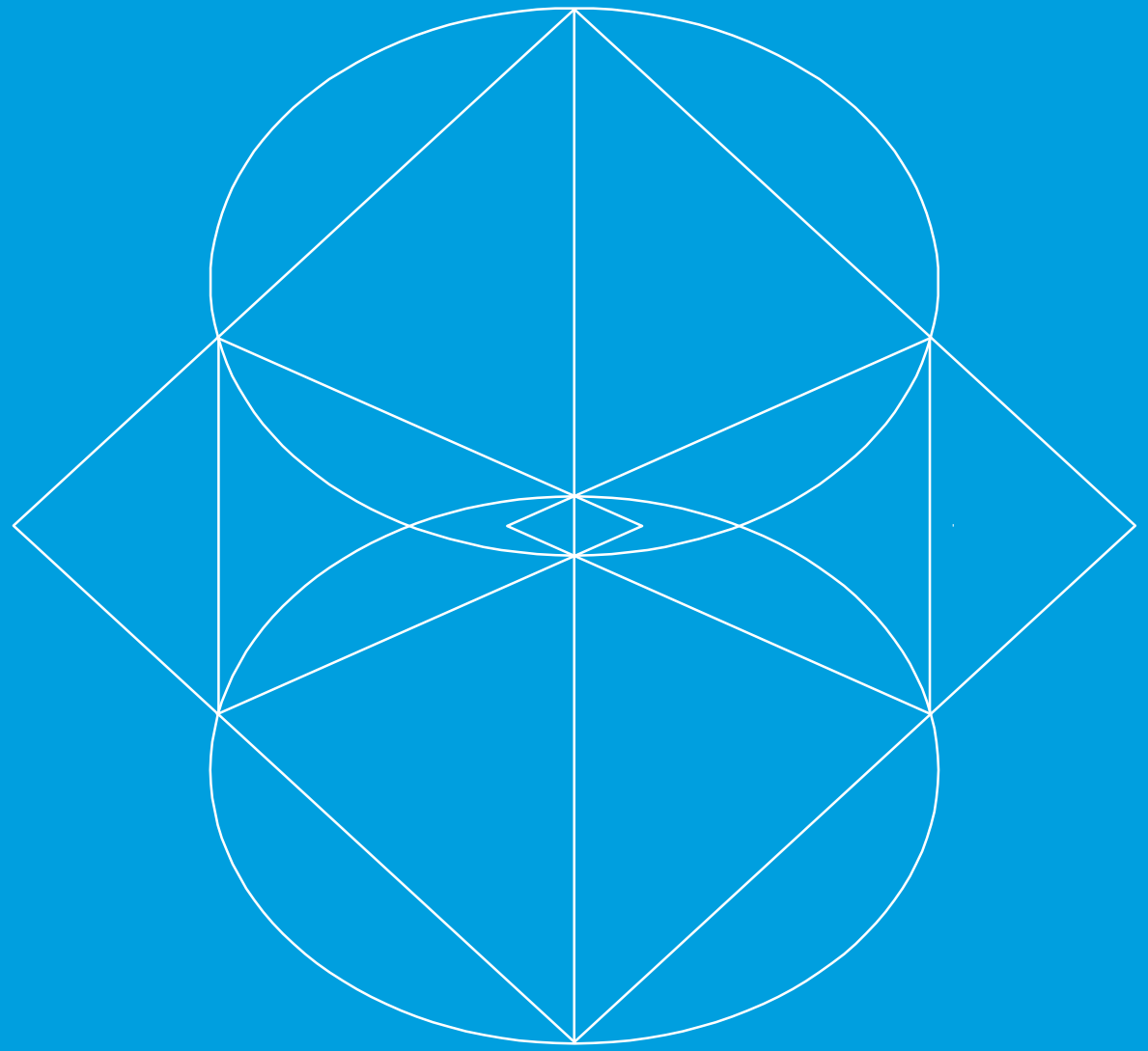
Targets Consistent and Diversifying Outperformance

- Targets excess returns uncorrelated to other asset classes as well as traditional fixed income managers

Machine learning: fundamental volatility may help explain credit risk

Source: AQR. As of 9/30/2018. Targets may be subject to change and there is no guarantee that they will be met. Diversification does not eliminate the risk of experiencing investment losses.

Appendix



Definitions

Variable	Description
V	Sum of the market capitalization of equity plus and the book value of short term debt (STD) and long term debt (LTD). Source: Compustat.
X	Book value of short term debt (STD)+0.5* book value of long term debt (LTD). Source: Compustat.
E	Market capitalization, calculated as |'PRC'|*'SHROUT'/1,000. For firms with multiple classes of shares, we add the market value of each class of shares. Source: CRSP monthly file.
RNOA	Return on net operating assets, defined as operating income after depreciation ('OIADP') scaled by average of the opening and closing balance of net operating assets (NOA).
NOA	Net operating assets, defined as the sum of common equity, preferred stock, long-term debt, debt in current liabilities and minority interests minus cash and short term investments, 'CEQ'+'PSTK'+'DLTT'+'DLC'+'MIB'-'CHE'.
σ_M	Weighted implied volatility, $\sqrt{\omega^2\sigma_{\mathrm{I}}^2 + (1-\omega)^2\sigma_{\mathrm{D}}^2 + 2\omega(1-\omega)\rho_{\mathrm{D,E}}\sigma_{\mathrm{I}}\sigma_{\mathrm{D}}}$, where ω is $\frac{\mathrm{E}}{\mathrm{E+STD+LTD}}$, market capitalization scaled by the sum of market capitalization and the book value of debt (where book value of debt is defined as the sum of short-term debt, STD, and long-term debt, LTD, and $\rho_{\mathrm{D,E}}$ is Average correlation of monthly equity and bond returns, calculated over the prior 12 months for all bonds in the same decile of OAS (computed based on the equity returns from the CRSP monthly file and total bond returns from Barcap). We shrink our estimate of correlation to the average correlation for a given level of credit risk to mitigate noise in our estimate of historical correlations (see e.g., Lok and Richardson, 2011).
σ_{F}	Average standard deviation of quarterly RNOA. The standard deviations of RNOA for fiscal quarters 1, 2, 3 and 4 are computed over the previous 20 years (requiring a minimum of 10 quarters of data). The resulting quarter-specific volatilities are then averaged across the four fiscal quarters.

Source: Asset Volatility, Correia, Kang, Richardson.

Methodology
Example of a pruned tree

We estimate the probability of bankruptcy based on a large sample of Chapter 7 and Chapter 11 bankruptcies filed between 1980 and the end of 2012. We combine bankruptcy data from four main sources: Beaver, Correia, and McNichols (2012); the New Generation Research bankruptcy database (bankruptcydata.com); Mergent FISD; and the UCLA-Lo Pucki bankruptcy database. Our dependent variable is equal to 1 if a firm files for bankruptcy within 1 year of the end of the month, and 0 otherwise. We keep the first bankruptcy filing and remove from the sample all months after this filing.

For the binary recursive partitioning analysis we use the Classification and Regression Trees methodology (CART) (Breiman, Friedman, Olshen and Stone, 1984) to create a decision tree that classifies firm-years into bankrupt or non-bankrupt. Variable importance scores capture the role played by a variable in a specific tree, and CART trees may be sensitive to the training data. To circumvent this potential issue and assess the stability of our variable importance scores, we build 100 bootstrap samples and compute variable importance scores for each of these samples. The analysis is based on a sample of 61,301 firm-months for the period January 1996 through to December 2012.

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Corporate Bonds Backtest
AQR backtests of Value, Momentum, Carry and Defensive theoretical long/short theme components are based on monthly returns, undiscounted, gross of fees and transaction costs, and scaled to 5% annualized volatility. Each strategy is designed to take long positions in the assets with the strongest theme attributes and short positions in the assets with the weakest theme attributes, while seeking to ensure the portfolio is market-neutral. The universe is based on the constituents of the Bank of America High Yield and Investment Grade Indices.

Emerging Bonds Backtest
For Emerging bonds, portfolios are formed by ranking the bonds along the four themes (Value, Momentum, Carry, Defensive) and then overweighting the securities that look most attractive and underweighting the securities that look least attractive. Time period used is January 2004 – February 2018. The universe is based on the constituents of the JPMorgan EMBI Global Diversified Index. Each theme is scaled to 10% and all returns are excess of cash.

Government Bonds Backtest
AQR backtests of Value, Momentum, Carry, and Defensive theoretical long/short theme components are built as follows. We first rank the universe of securities (i.e., the 39 country-maturity buckets) by the raw measure of a given theme. We then standardize the ranks by subtracting the mean rank from each rank and dividing by the standard deviation of ranks to convert them into a set of standardized weights. Next we scale each side of these portfolios (long and short) to sum to one. Lastly, we apply these weights to our asset returns, which are always expressed in a constant duration of four.

Value: Value strategies favor investments that appear cheap over those that appear expensive based on fundamental measures related to credit spreads, seeking to capture the tendency for relatively cheap assets to outperform relatively expensive assets.

Momentum: Momentum strategies favor investments that either have performed well recently or have related securities that have performed well recently. It seeks to capture the tendency that an asset's and related securities recent relative performance predict the performance of the asset in the near future.

Carry: Carry strategies favor high-yielding assets, seeking to capture the tendency of high-yielding assets to outperform lower-yielding assets.

Defensive: Defensive strategies favor investments with strong drivers of credit valuation. It seeks to capture the tendency for assets with strong fundamentals to generate higher risk-adjusted returns than assets with weak fundamentals.

Performance Disclosures

AQR backtests of Value, Momentum, Carry and Defensive theoretical long/short style components are based on monthly returns, undiscounted, gross of fees and transaction costs, excess of a cash rate proxied by the Merrill Lynch 3-Month T-Bill Index, and scaled to 12% annualized volatility. Each strategy is designed to take long positions in the assets with the strongest style attributes and short positions in the assets with the weakest style attributes, while seeking to ensure the portfolio is market-neutral. The Style Premia Strategy portfolio is based on the target asset group allocations included herein, roughly equally risk weighting styles within the asset group, resulting in a style allocation of approximately 34% to Value, 34% to Momentum, 18% to Defensive and 14% to Carry. The Style and Asset Group Composites, are based on an allocation to the style components and asset group components based on their liquidity and breadth. The components are then allocated with roughly equal weighting to each of the styles within an asset group (as not all four styles are present in each asset group). Please see below for a description of the Universe selection.

Stock and Industry Selection: approximately 2,000 stocks across Europe, Japan, and U.S. **Country Equity Indices:** Developed Markets: Australia, Canada, Eurozone, Hong Kong, Japan, Sweden, Switzerland, U.K., U.S. Within Europe: Italy, France, Germany, Netherlands, Spain. Emerging Markets: Brazil, China, India, Israel, Malaysia, Mexico, Poland, Singapore, South Africa, South Korea, Taiwan, Thailand, Turkey. **Bond Futures:** Australia, Canada, Germany, Japan, U.K., U.S. Yield Curve: Australia Germany, United States. **Interest Rate Futures:** Australia, Canada, Europe (Euribor), U.K. and U.S. (Eurodollar). **Currencies:** Developed Markets: Australia, Canada, Euro, Japan, New Zealand, Norway, Sweden, Switzerland, U.K., U.S. Emerging Markets: Brazil, Hungary, India, Israel, Mexico, Poland, Singapore, South Africa, South Korea, Taiwan, Turkey. **Commodity Selection:** Silver, copper, gold, crude, Brent oil, natural gas, corn, soybeans.

Government Bonds: Government bonds include all bonds covered by the J.P. Morgan Government Bond Index (GBI). The GBI is a market-cap-weighted index of all liquid government bonds across 13 markets (Australia, Belgium, Canada, Denmark, France, Germany, Italy, Japan, Netherlands, Spain, Sweden, U.K., U.S.). It excludes securities with time-to-maturity (TTM) of less than 12 months, illiquid securities, and securities with embedded optionality (e.g., convertible bonds). The GBI is sub-divided into two country-maturity partitions. We use the first, more coarse partition in this analysis, which divides bonds into 1yr-5yr TTM, 5yr-10yr TTM, and 10yr-30yr TTM. We sort the bonds into terciles based on the theme metrics described on page 2. The portfolios go long the top tercile and short the bottom tercile. Bonds are equal-weighted in each tercile.

Corporate Bond: Corporate bonds include 1,300 bonds that roughly comprise the Bank of America Merrill Lynch investment grade (U.S. Corporate Master) and high yield (U.S. High Yield Master) corporate bond indices. Of the 1,300, 600 are investment grade, and 700 are high yield bonds. We sort the bonds into quintiles based on the four theme metrics described on page 3. The portfolios go long the top quintile and short the bottom quintile. Bonds are value-weighted, not equal-weighted, within each quintile.

Spread returns are excess returns over duration-matched treasury returns; spread risk is the volatility (standard deviation) of the previously defined spread returns.

Rate returns are the difference between total returns and spread returns; rate risk is the volatility (standard deviation) of the previously defined rate returns.

Emerging Bond: Universe is based on the constituents of the JP Morgan EMBI Global Diversified Index. The JPMorgan EMBI Global Diversified Index is a broad emerging market debt benchmark including US dollar denominated Brady bonds, Eurobonds, and traded loans issued by quasi-sovereign entities.

Fama French portfolios: SMB is a zero-investment portfolio that is long on small capitalization (cap) stocks and short on big cap stocks. Similarly, HML is a zero-investment portfolio that is long on high book-to-market (B/M) stocks and short on low B/M stocks, and UMD is a zero-cost portfolio that is long previous 12-month return winners and short previous 12-month loser stocks. The universe for the Fama French portfolios is the CRSP universe.

QMJ is a portfolio that is long high-quality stocks and shorts low-quality stocks using the CRSP universe.

The AQR High Yield Credit Strategy Backtest
The strategy provides exposure to value, momentum, carry, and defensive styles in an integrated fashion. Backtest returns are heavily discounted, net of t-costs but gross of fees, in excess of a cash rate proxied by the Merrill Lynch 3-Month T-Bill Index. Each strategy is designed to take positions in the high yield corporate bonds with the strongest combined styles or single style attributes, respectively. The tradable universe of selected credits consists of a liquid subset of the ICE BofAML US High Yield Index (H0A0).
Value: Value strategies favor investments that appear cheap over those that appear expensive based on fundamental measures related to credit spreads, seeking to capture the tendency for relatively cheap assets to outperform relatively expensive assets.
Momentum: Momentum strategies favor investments that either have performed well recently or have related securities that have performed well recently. It seeks to capture the tendency that an asset's and related securities recent relative performance predict the performance of the asset in the near future.
Carry: Carry strategies favor high-yielding assets, seeking to capture the tendency of high-yielding assets to outperform lower-yielding assets.
Defensive: Defensive strategies favor investments with strong drivers of credit valuation. It seeks to capture the tendency for assets with strong fundamentals to generate higher risk-adjusted returns than assets with weak fundamentals.

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Composite Characteristics: New accounts that fit a composite definition are added at the start of the first full calendar month after the assets come under management, or after it is deemed that the investment decisions made by the investment advisor fully reflect the intended investment strategy of the portfolio. A composite will exclude terminated accounts after the last full calendar month performance measurement period that the assets were under management. The composite will continue to include the performance results for all periods prior to termination. For periods beginning
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The dispersion measure is the equal-weighted standard deviation of accounts in a composite for the entire year. Dispersion is not considered meaningful for periods shorter than one year or for periods during which a composite contains five or fewer accounts for the full period. The three-year annualized ex-post standard deviation measure is inapplicable when 36 monthly returns are not available.

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Past performance is not an indication of future performance.

Performance Disclosures

AQR Capital Management, LLC
Global Aggregate Bond Hedged Composite
2/1/2018 – Present

Bloomberg Barclays Global Aggregate Total Return Index Value Hedged

Composite Description: The Global Aggregate Bond Hedged Composite (the "Composite") was created in February 2018. The investment objective of the composite strategy is to maximize total return through capital growth and income by outperforming the Bloomberg Barclays Global Aggregate Hedged Bond benchmark. The strategy pursues its investment objective by providing exposure to systematic factors such as value, momentum, carry and defensive. It achieves these exposures by investing primarily in investment grade global debt securities, using derivative strategies where appropriate, and currency allocation. The Composite is denominated in USD.

Benchmark: The Composite benchmark is the Bloomberg Barclays Global Aggregate Total Return Index Value Hedged (the "Benchmark"). The index is a measure of global investment grade debt from twenty-four local currency markets, including treasury, government-related, corporate and securitized fixed-rate bonds from both developed and emerging markets issuers.

Fees: Composite net of fees returns are calculated by deducting the maximum model management or advisory fee AQR could charge from the composite monthly gross returns. AQR's asset-based fees for portfolios within the Composite may range up to 0.30% of assets under management and are generally billed monthly or quarterly at the commencement of the calendar month or quarter during which AQR will perform the services to which the fees relate. Composite assets may have been exposed to the impact of performance fees.

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Performance Disclosures

AQR Capital Management, LLC
US High Yield Composite
7/1/2016 – 12/31/2017

Year	Gross Return %	Net Return %	Benchmark * Return %	Number of Portfolios	Composite 3-Yr StDev %	Benchmark * 3-Yr StDev %	Composite Assets ($M)	Total Firm Assets ($M)
2016	10.33	10.03	7.47	1	N/A	N/A	116.58	175,089.36
2017	10.07	9.47	7.47	1	N/A	N/A	340.26	223,432.52

*BofA Merrill Lynch US High Yield Index

Composite Description: The US High Yield Composite (the "Composite") was created in July 2016. The Composite strategy pursues its objective by providing exposure to systematic factors such as value, momentum, carry and defensive, using positions in corporate credit or credit-related securities. The accounts included invest primarily in U.S. dollar-denominated corporate bonds with a credit rating below BBB. The Composite is denominated in USD.

Benchmark: The Composite benchmark is the BofA Merrill Lynch US High Yield Index (the "Benchmark"). The index tracks the performance of below investment grade, but not in default, U.S. dollar-denominated corporate bonds publicly issued in the U.S. domestic market, and includes issues with a credit rating of BBB or below, as rated by Moody's and S&P.

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The Composite was formerly known as High Yield Credit Composite.

Past performance is not an indication of future performance.

AQR

“Dank voor uw aandacht”

Scott Richardson, AQR

Wassenaar, 23 november 2018

“The adoption and impact of Robo-advice”

Ken van Eesbeek, Gambit (een Partner van BNP Paribas AM)

Wassenaar, 23 november 2018

#Fintech

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#DigitalInvestment

#MiFID

#Innovation

#WealthManagement

#WealthTech

#Academic

#Digitalization

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From Save to Invest

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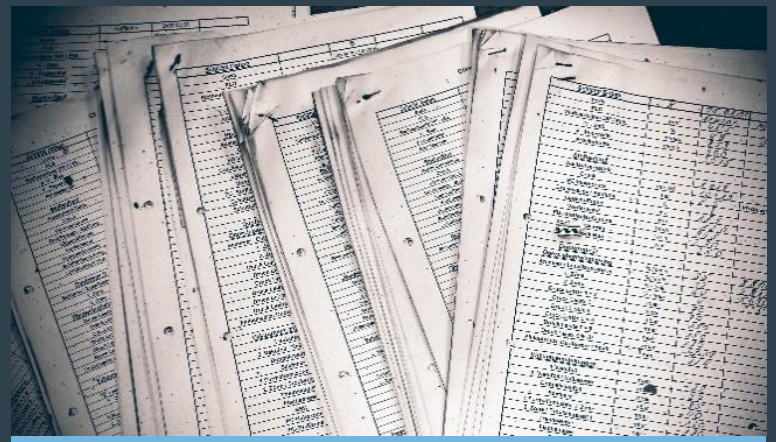
Investing is for the Rich only

- *Allow small amounts*
- *Recurring investments*



Too Complicated

- *Digital and gamed onboarding*
- *Simple Language*

People are afraid of Financial Markets

- *Make Investment automatic*
- *Allow testing (show the up and down)*
- *Quick money back*

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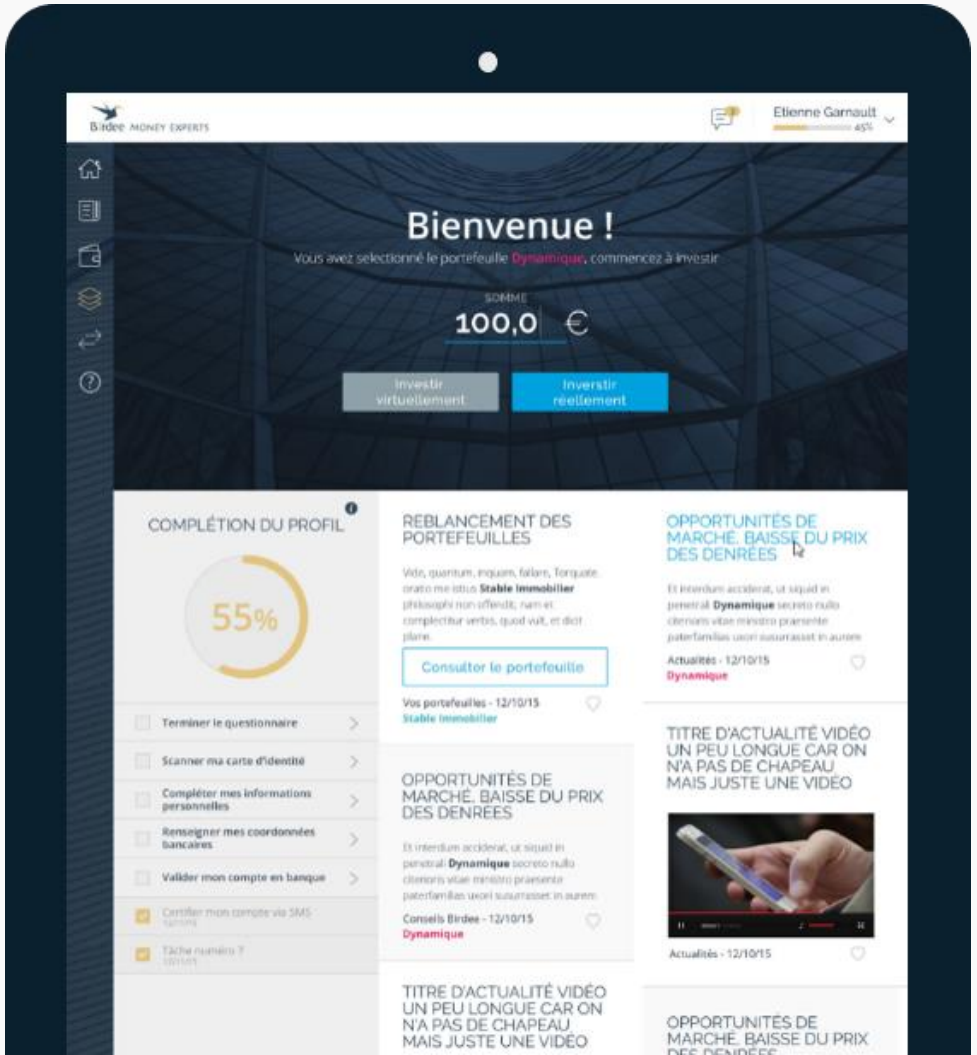
Example of a Robo-advisor

Discretionary management for online investors

Onboarding Process
Including MiFID profiling and KYC
100% online

My Portfolios
Client portfolio analysis
Investment goal monitoring

Communication
Customer communication platform
Track and filter live customer data



Dashboard
360° overview of client portfolios, tasks and advices

Advice validation
Can validate a proposal prepared by an advisor

Alerts & Newsfeed
Push notifications: Personalized advices and/or general news

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PRIVATE AND CONFIDENTIAL

Wait a minute…

B2B and B2C?
Isn't that competing with your customers?

01 Practice what you preach

We believe in the strength of our tools.

POCs are no longer necessary. There is proof it works.

02 Use the experience

To create better tools.

To better understand the business of our customers.

03 Being Regulated

Makes us more relevant in the industry.

04 Marketing

Let's not deny it, the press attention is welcome.

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PRIVATE AND CONFIDENTIAL

Started in **2010**

>100 Enthusiastic Co-workers

5 Countries ***Expanding***

GAMBIT

Specialized in **Digital Investment Solutions**

Robo-advice & Portfolio Mgmt
Investment Advisory
Risk Management

8 Financial institutions have chosen our **advisory algorithms**

1 000 000 End-users

€ 50 billion AuM Manged

Trusted by:

Hello bank!
AXA
BNP PARIBAS BANQUE PRIVÉE
Neuflize OBC ABN AMRO
NAGELMACKERS *Formerly: Delta Lloyd Bank*
GROUPE BPCE
PICTET 1805
KEYTRADE BANK *CM Arkea*
BCEE Asset Management
beCobank *CMNE*

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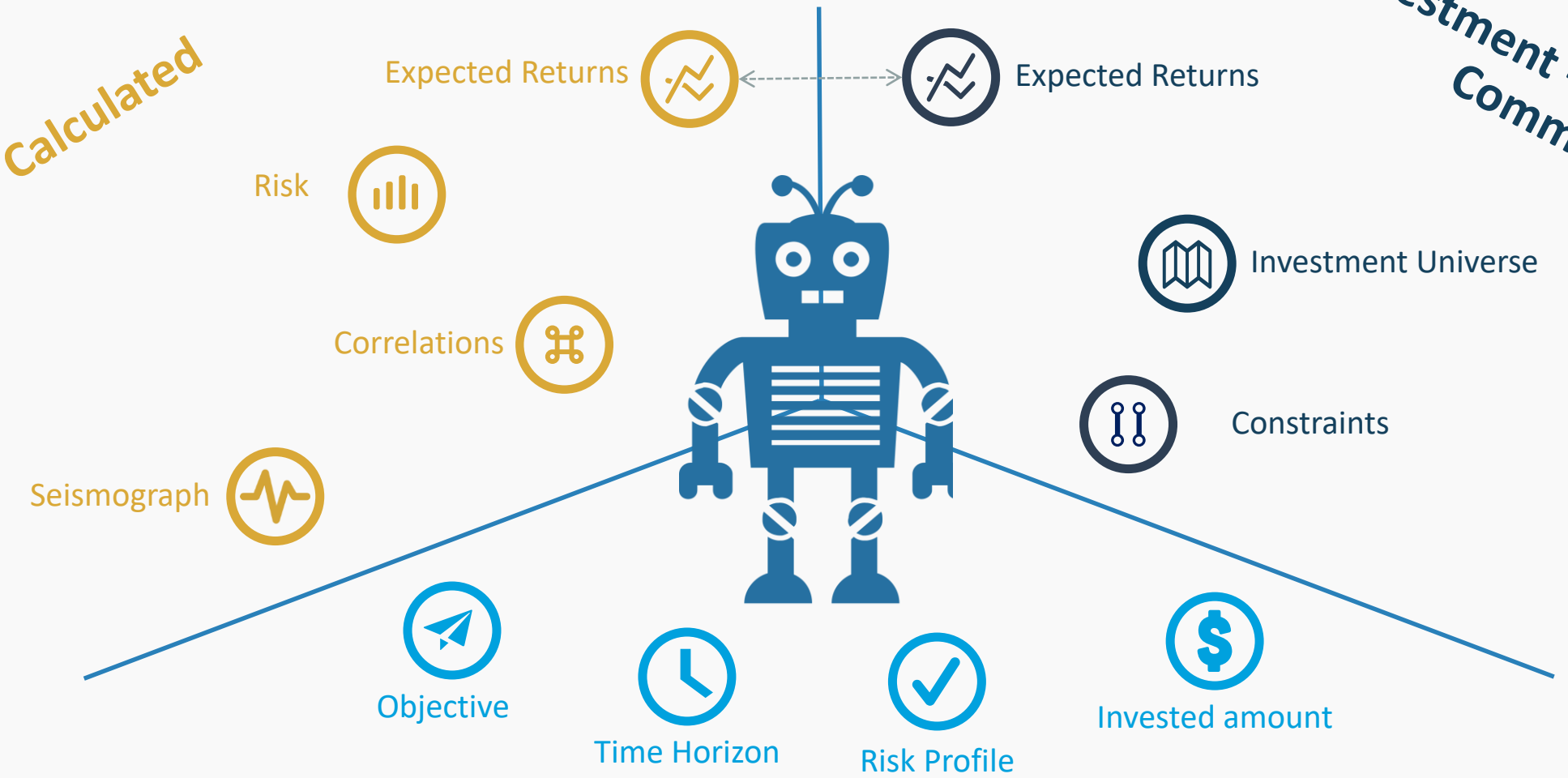
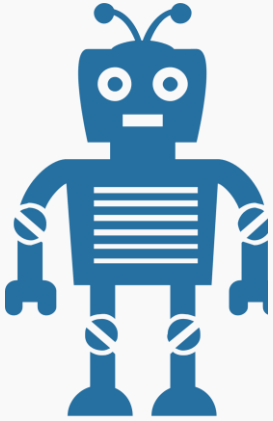
What happens in the back

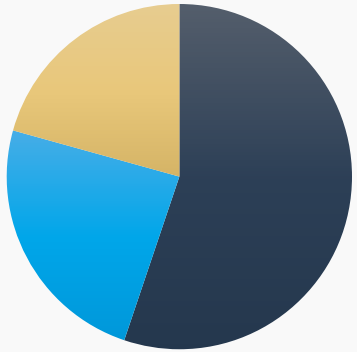
ROBO-ADVICE

Not just a robot…

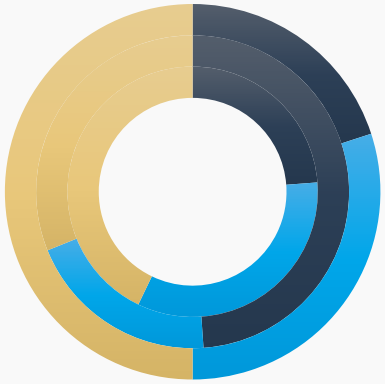




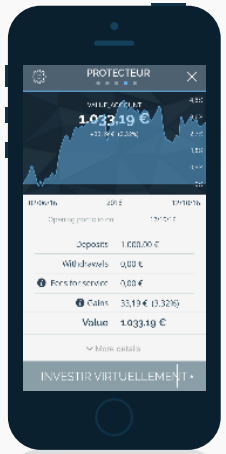
Optimization



Optimal Allocation



Rebalancing



Result

Birdee
Money Experts

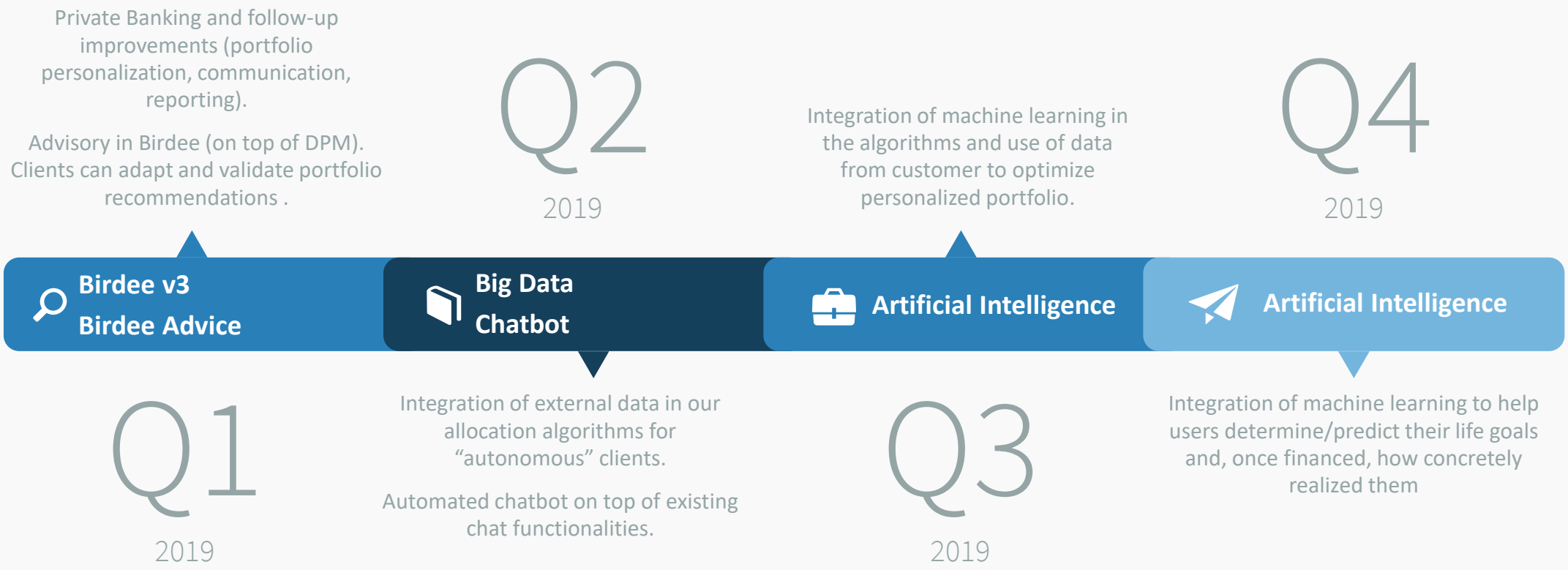
- Gambit Utility Function
- Callibration period 12 months
- Individual constraints
- Risk constraint per profile (Volatility)
- Asset class constraints
- “Advanced Backtest” (incl. tax and fees)

- Min turnover threshold
- Max turnover rule (with priority rankings based on marginal Sharpe ratio per ETF)
- Seismograph signal

Innovate or Die

Innovation is a continuous process

Let's look into the near future



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Let’s look into the future

Gambit Product Strategy

1
SITUATION

TODAY

Gambit | 09:41
Answer a few questions to determine your profile

Gambit | 10:59
How much do you have aside ? What are your other financial or non-financial assets ?

Gambit | 12:13
What are your investment objectives ?

Gambit | 13:21
How much can you save per month ?

1
SITUATION

TOMORROW

Gambit | 09:41
Having analyzed your behavior, we think your risk profile is...

Gambit | 10:59
Let's synchronize all your assets in 1 min

Gambit | 12:13
In our opinion, your personal investment goals are
[Personalized Goals]

Gambit | 13:21
Based on your historical transactions, we think you can currently save **x.xx€ / month**

Gambit | 19:14
You are expected to get **x.xx€ / month** as legal pension.
Is that enough for you ?

Gambit | 20:20
x% of people of your age have a complimentary retirement plan.
What about you ?

TODAY

Gambit | 09:41
Based on your situation, we recommend you to invest in the following portfolio…

Gambit | 10:59
Ask for a new recommendation

Gambit | 12:13
You don’t want to invest in this particular asset ? Change it

2
Proposal

TOMORROW

Gambit | 09:41
Based on your situation, we recommend you to take the following actions… **[actions list]**

Gambit | 10:59
Here is a piece of advice for you : **[advice]**
Do we go for it?

Gambit | 12:13
Are there particular sectors or values you would like to invest in or not to invest in ?
Personalize your investments

Gambit | 13:21
Here is why we recommend you to follow this **[advice]**

TODAY

Gambit | 09:41
Transfer money to your portfolio

Gambit | 10:59
Follow the evolution of your portfolios

Gambit | 12:13
Track the completion of your investment objectives

Gambit | 13:21
Does the recommendation still match your risk profile ?

TOMORROW

Gambit | 09:41
Transfer your money in just a click

Gambit | 10:59
What is the current state of my entire financial wealth ?

Gambit | 12:13
Track the completion of your investment objectives on the basis of our recommendations

Gambit | 13:21
Your portfolio is no longer in line with your profile. Now is time to rebalance

Gambit | 19:14
Are your assets properly organized ?
Let's make a quick diagnostic

Gambit | 20:20
What would happen to you if a financial crisis occur ?

THE DAY AFTER TOMORROW

Gambit | 09:41
Transfer your money in just a click

Gambit | 10:59
What is the current state of my entire financial wealth ?

Gambit | 12:13
Track the completion of your investment objectives on the basis of our recommendations

Gambit | 13:21
Your portfolio is no longer in line with your profile. Now is time to rebalance

Gambit | 19:14
Are your assets properly organized ?
Let's make a quick diagnostic

Gambit | 20:20
What would happen to you if a financial crisis occur ?

They Trust Us

Why not join them?

Rue Mulhouse 36
B-4020 Liège

Avenue Louise-Louizalaan 54
B-1050 Brussels

59 Boulevard Royal
L-2449 Luxembourg

124 Rue Réaumur
F-75002 Paris

GAMBIT Financial Solutions
@GambitFinance
GambitFinance
info@gambit-finance.com
+32 4 279 88 00

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“Dank voor uw aandacht”

Ken van Eesbeek, Gambit (een Partner van BNP Paribas AM)

Wassenaar, 23 november 2018

IPFOS

INDEPENDENT PENSION FUND OVERSIGHT SERVICES

“Pauze”

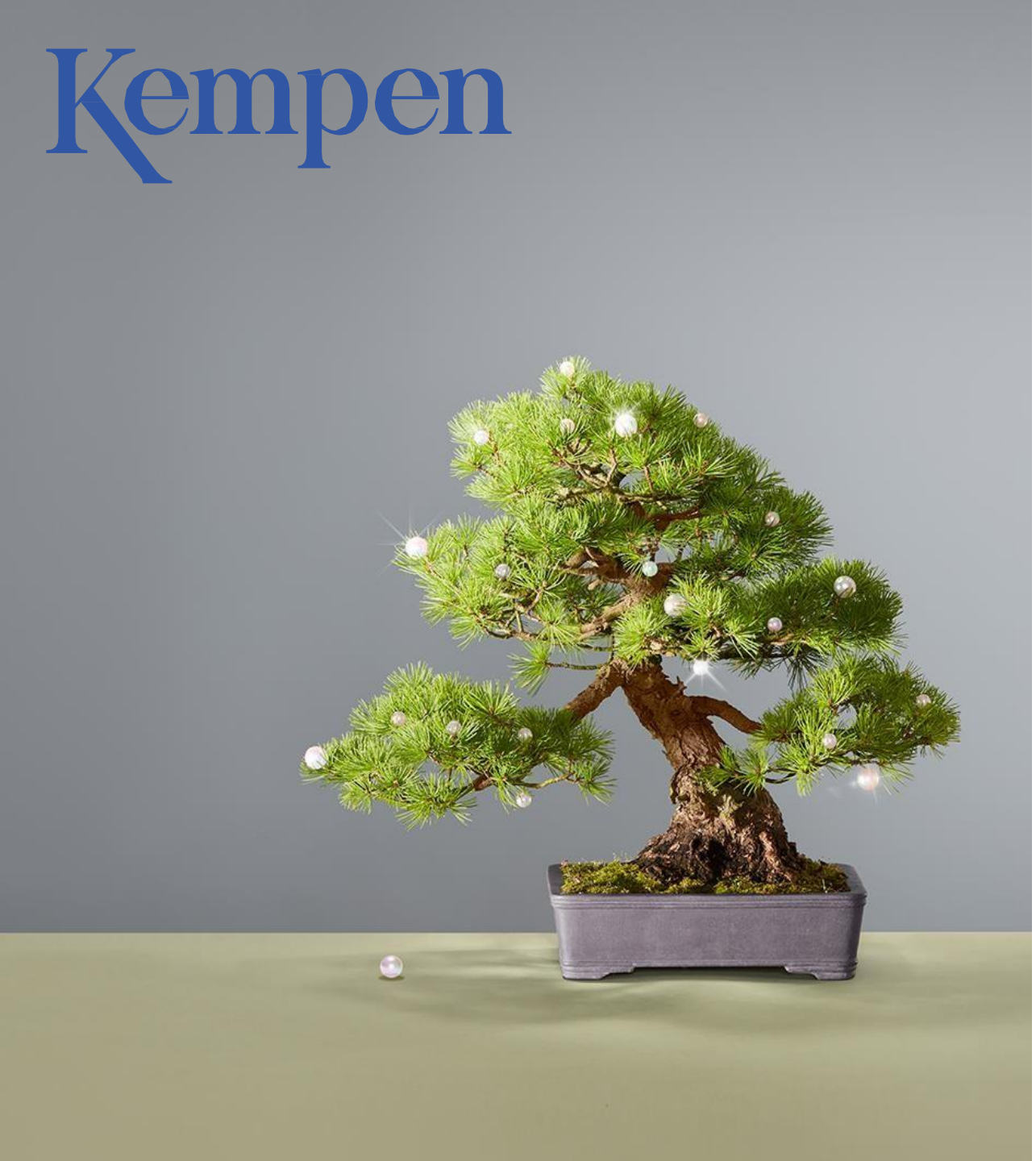
Wassenaar, 23 november 2018

“Tech assisted en data gedreven beleggen in vastgoed”

Matthijs Storm, Kempen Capital Management

Wassenaar, 23 november 2018

Kempen



Informatietafel Bestuurders

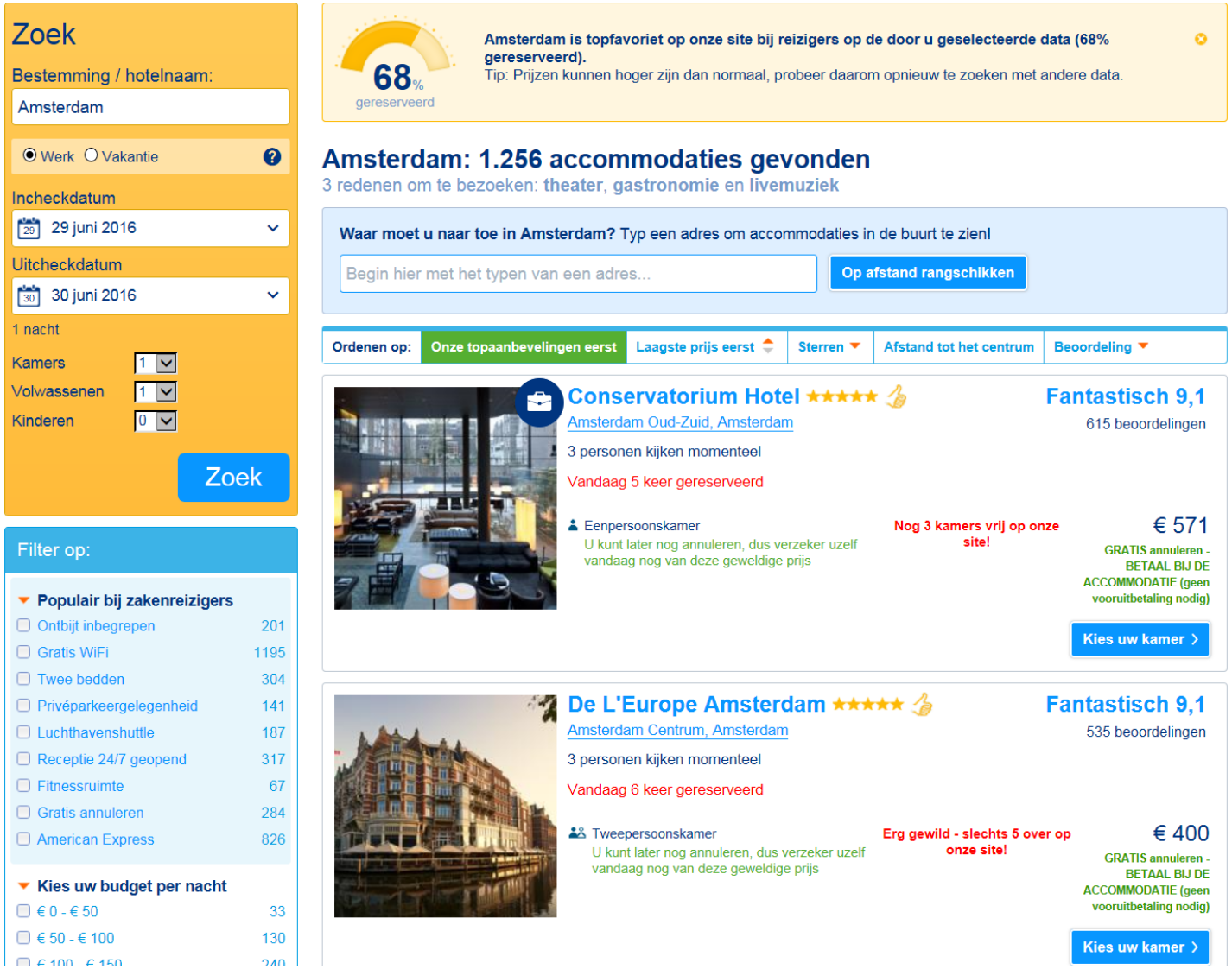
23 November 2018

Matthijs Storm

ASSET MANAGEMENT

Een vakantiereis boeken in 1990

Een vakantiereis boeken in 2018



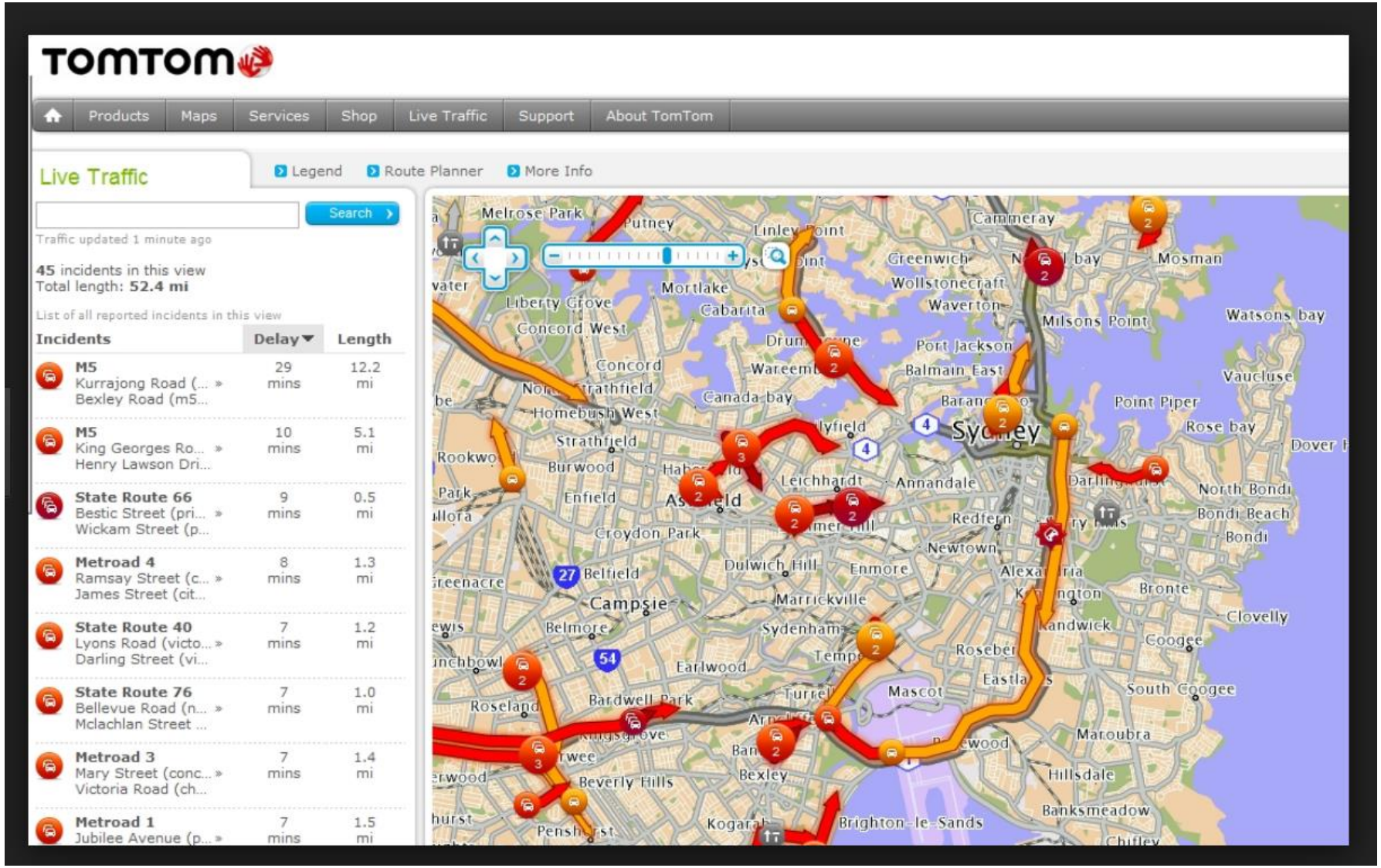
Een huis kopen in 1990

Een huis kopen in 2018

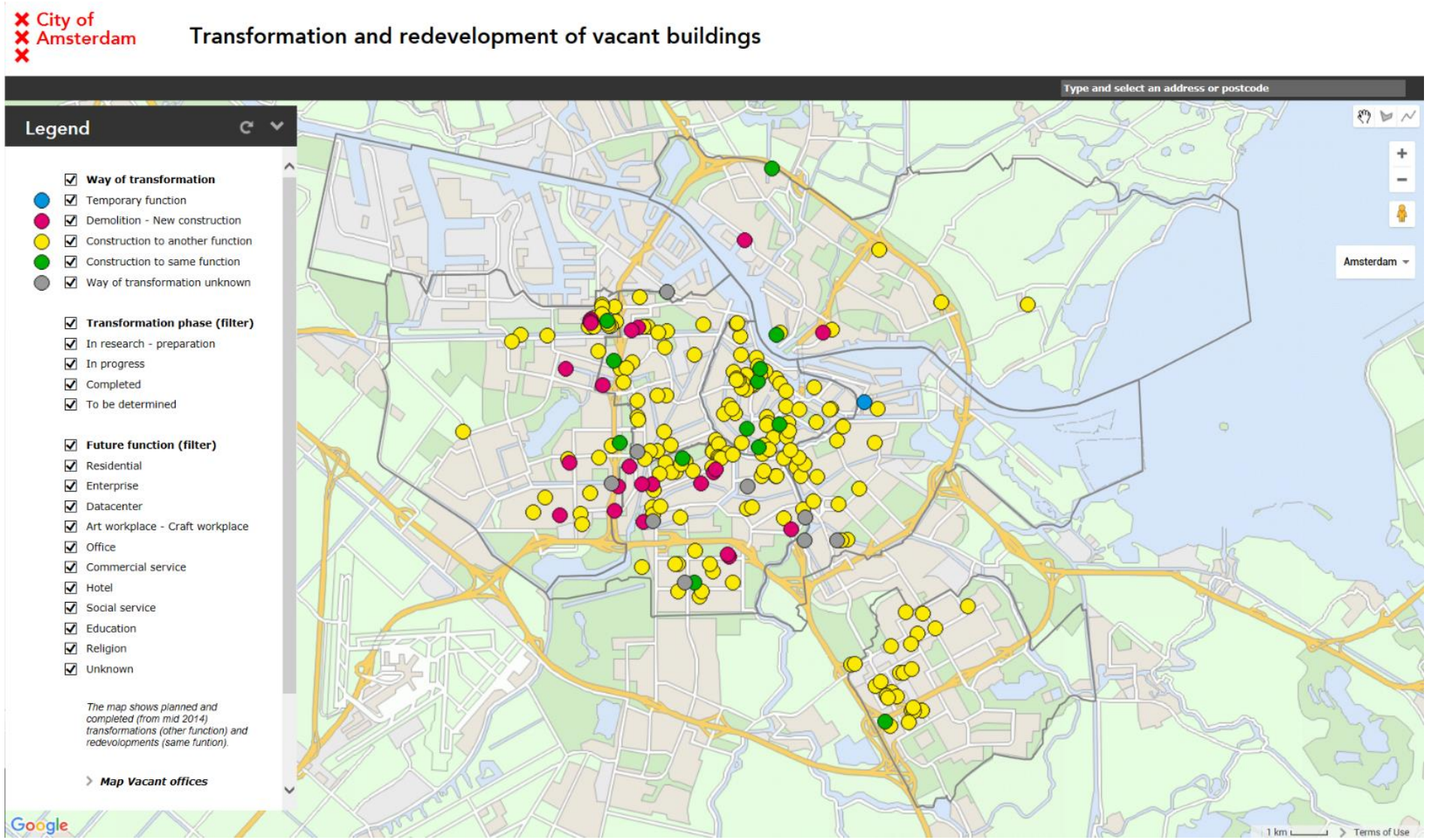
Wat heb je aan een makelaar?

“Meten is Weten”

1 – Er is meer meetbaar

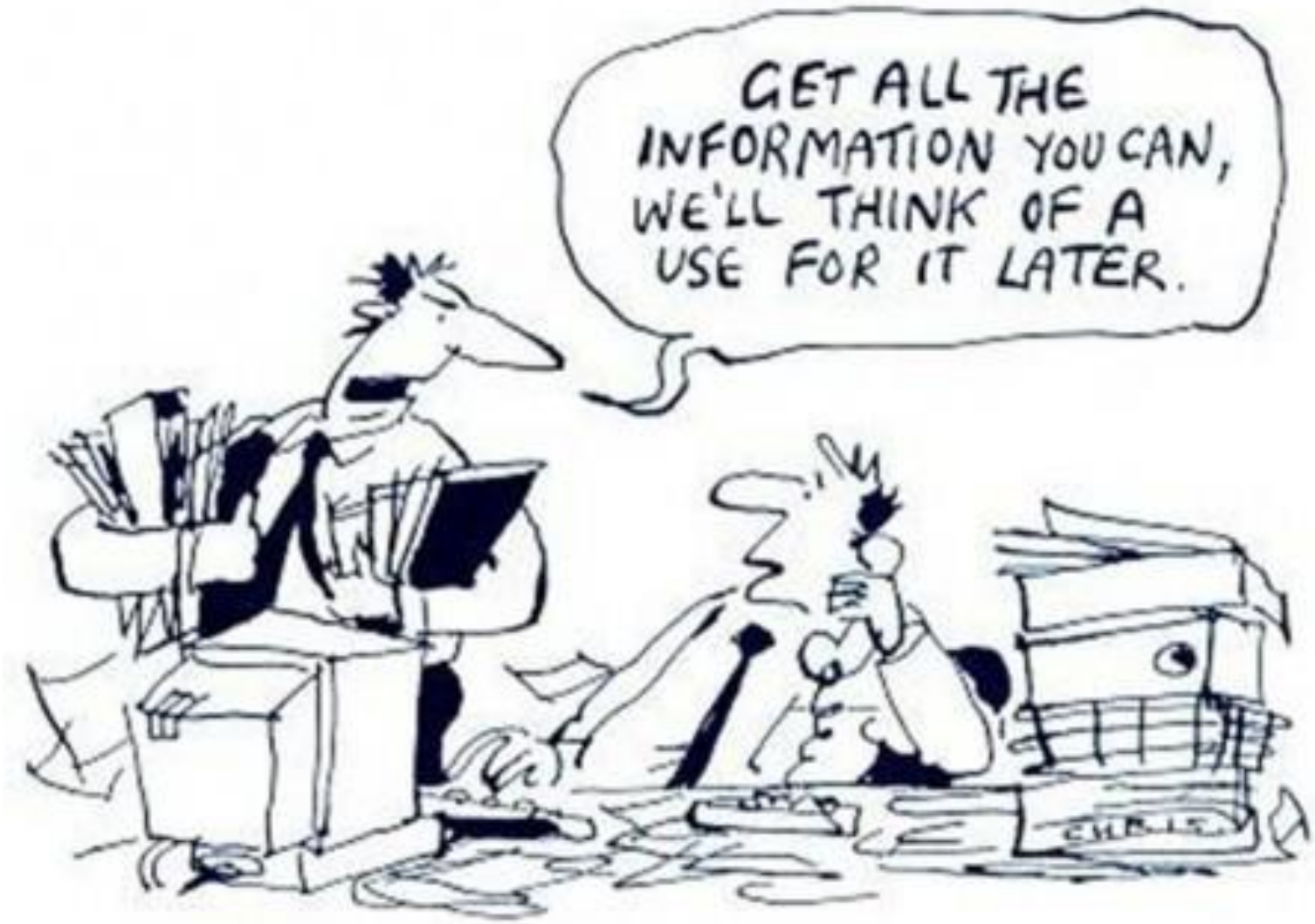


2 – Meer publieke data

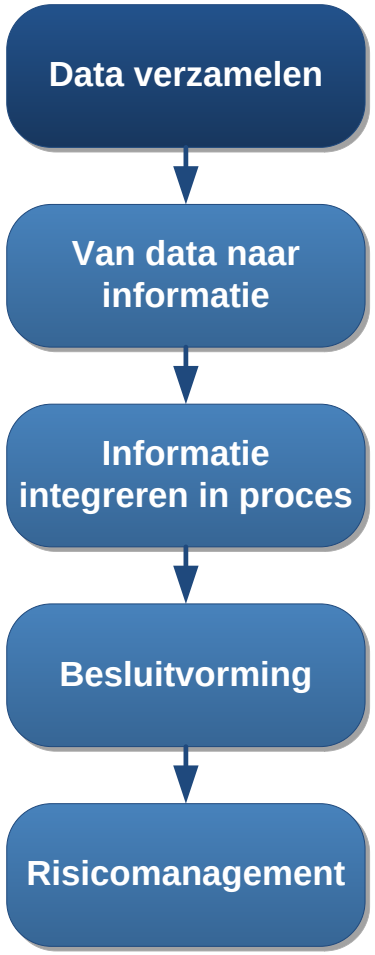


3 – Betere technologie

Het werk verandert: van verzamelen naar integreren

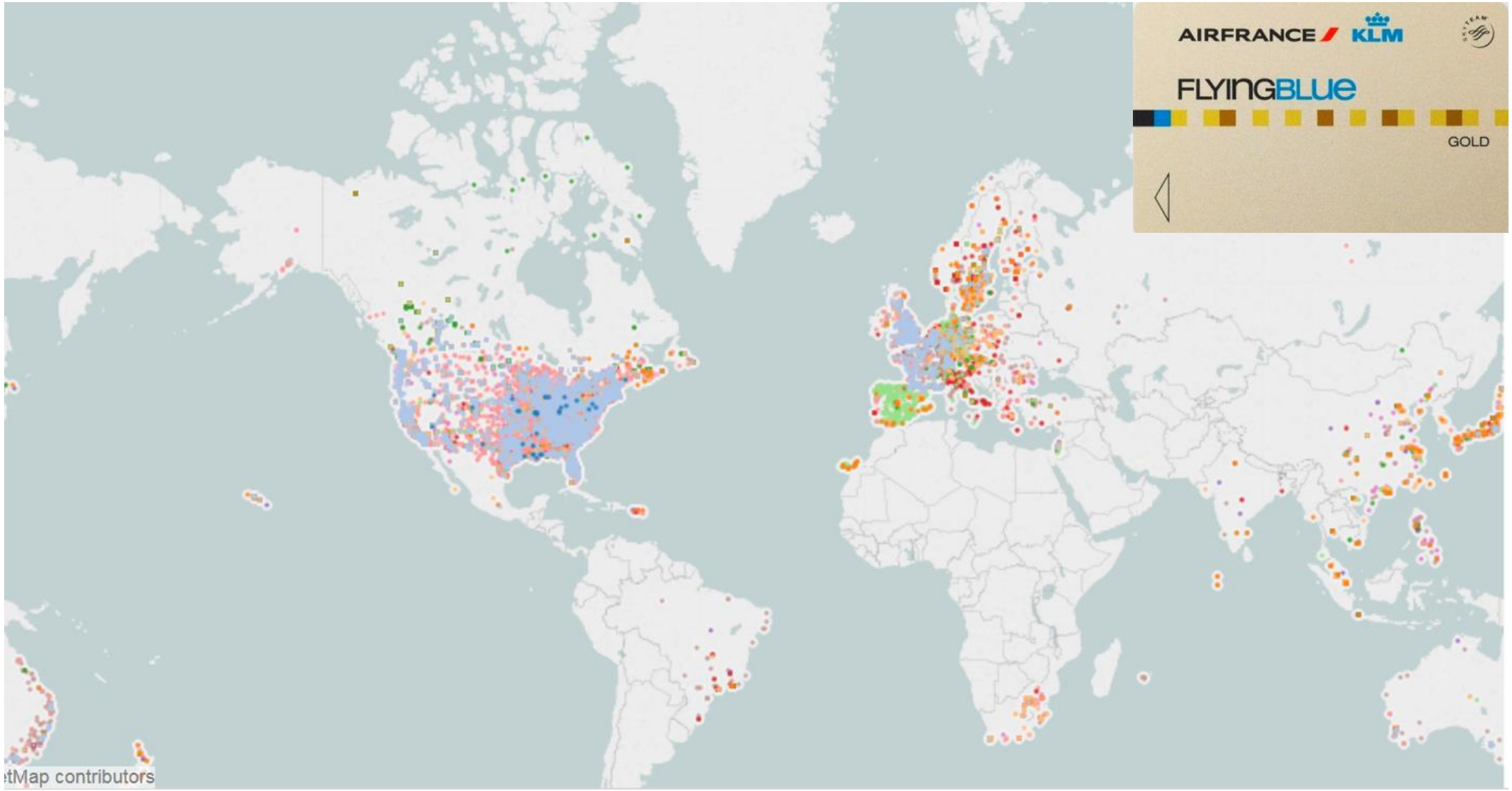


Terug naar de basis: “wat doet een belegger?”



Data verzamelen in 2005

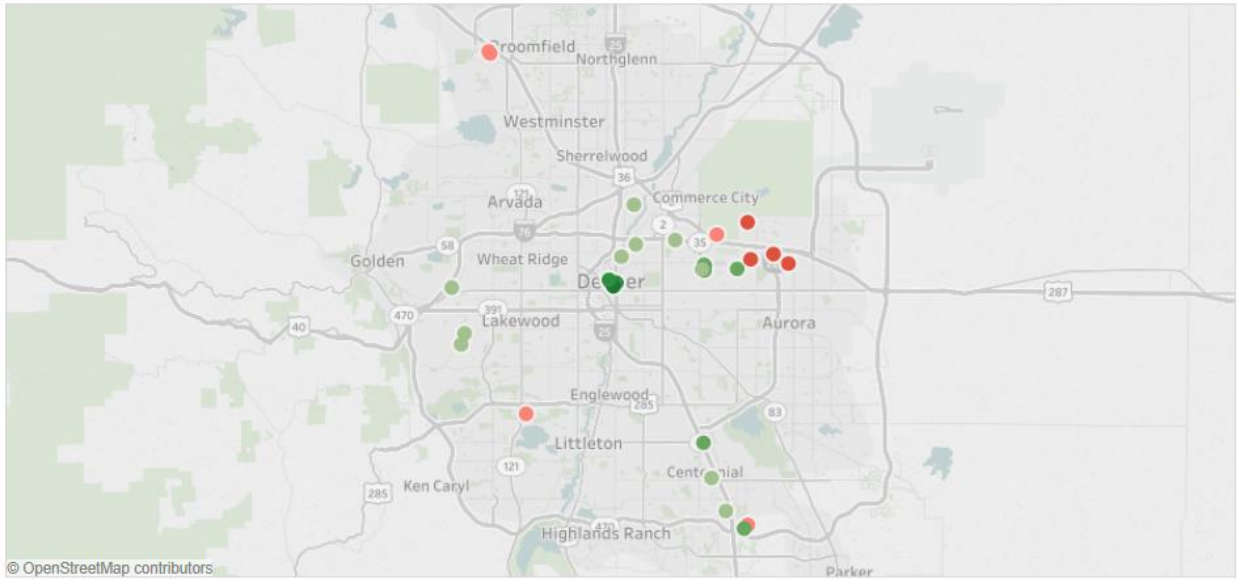
Veel werk! >200.000 objecten wereldwijd!



Data verzamelen in 2018

KCM Property Quality assessment

Kempen



Sector
Office

Market
Denver

Sub Market
(All)

Date Updated
2018-02-09

Market Scores

Distance to CBD	75.00
Home Value	25.00
Population Density (pop / sq. mi.)	25.00
Commute Time	50.00
Office Concentration	100.0
% College Degree	75.00
Median HHI	75.00
Employment growth '18-'22	75.00

SubMarket Scores

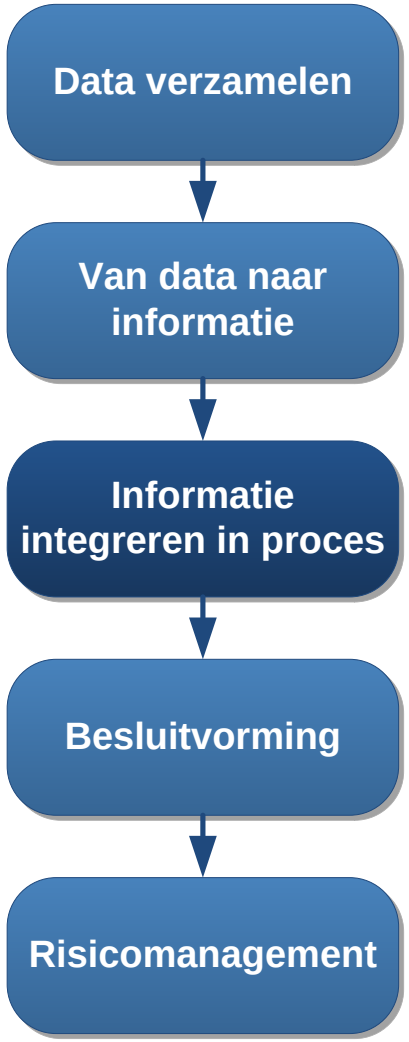
Distance to CBD	53.45
Home Value	37.07
Population Density (pop / sq. mi.)	35.34
Commute Time	55.17
Office Concentration	50.00
% College Degree	57.76
Median HHI	67.24
Regulatory Constraint	0

MicroLocation Scores

WalkScore	62.12
TransitScore	51.06
BikeScore	47.19
CultureScore	58.65
DiningScore	75.65
ErrandsScore	77.81

Dataleveranciers nemen de rol van informatie verzamelen over

Terug naar de basis: “wat doet een belegger?”



Data integreren in 2005:

CÓRIO

SAMENVATTING JAARVERSLAG 2010

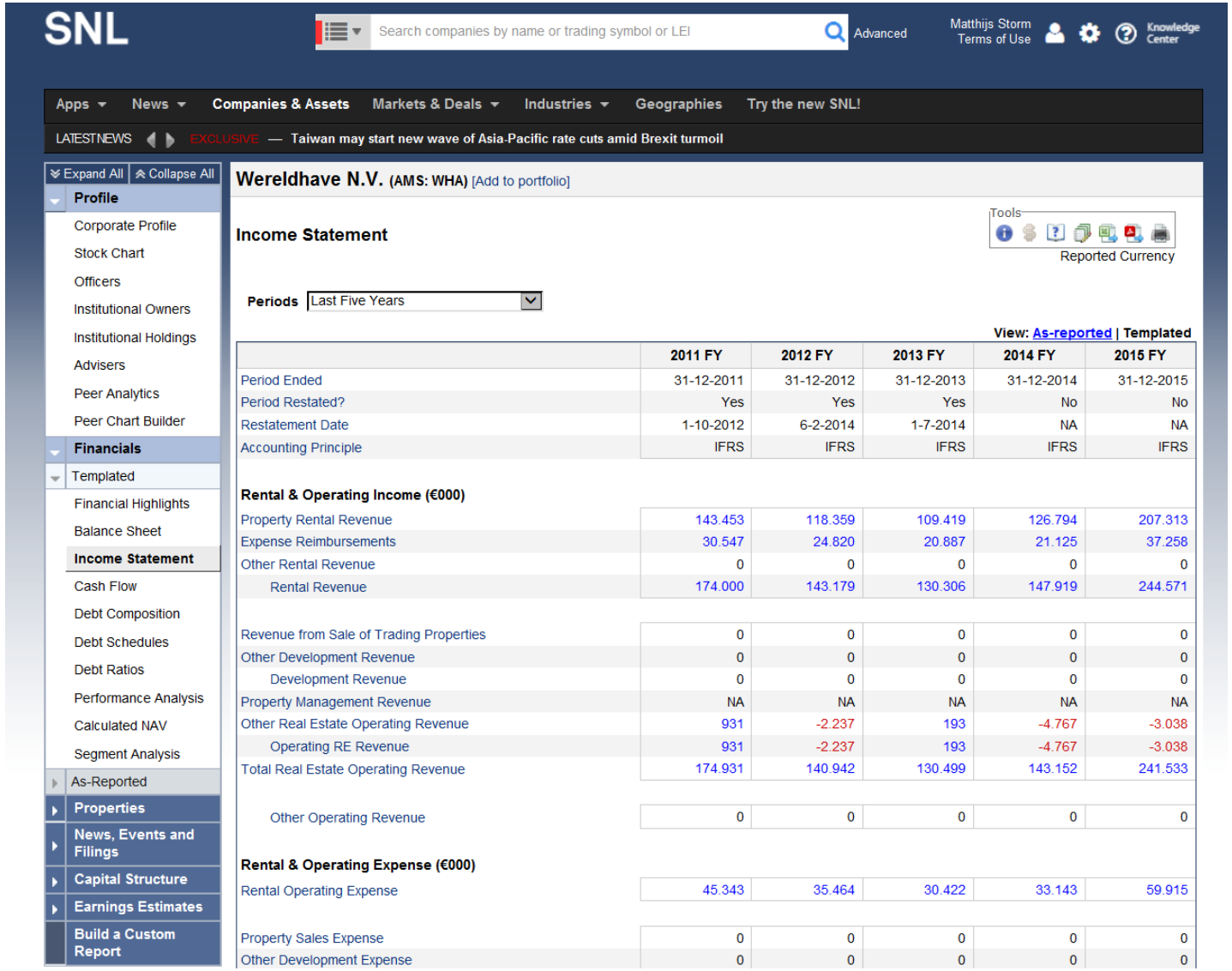
€

IFRS

International
Financial Reporting Standards

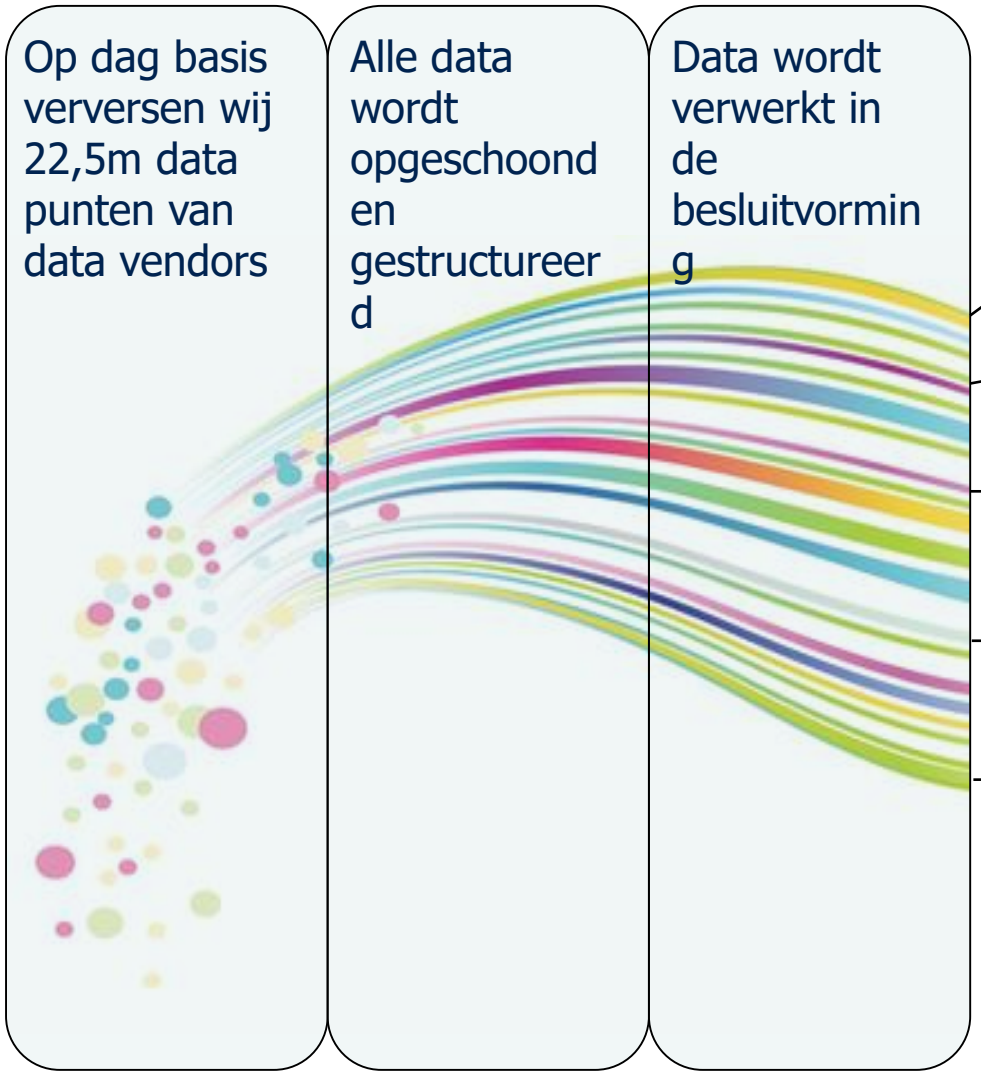
IAS 40 FV	2003	2004	2005	2006E	2007E	2008E	2009E
Gross rental income	304.5	308.3	315.0	320.3	348.4	387.0	422.5
Property expenses	-51.1	-45.8	-46.3	-48.0	-52.3	-58.1	-63.4
Net rental income	253.4	262.5	268.7	272.3	296.2	329.0	359.2
Efficiency rate	*83%*	*85%*	*85%*	*85%*	*85%*	*85%*	*85%*
Overhead costs	-24.2	-23.5	-21.0	-23.6	-26.5	-29.2	-31.1
Wages	-13.7	-14.9	-16.4	-18.2	-20.5	-23.1	-24.8
as a % of AuM	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%
Third party fees	-8.7	-6.8	-3.4	-3.7	-2.0	-2.0	-2.0
as a % of acquisitions-disposals	9.0%	2.8%	2.0%	2.0%	2.0%	2.0%	2.0%
Other costs	-19.9	-20.5	-22.2	-24.5	-28.0	-33.3	-37.0
Charged on costs	18.1	18.7	21.0	21.0	21.0	21.0	21.0
Total as a % of AuM	0.6%	0.6%	0.5%	0.5%	0.5%	0.5%	0.5%
Other income	0.0	0.0	10.5	0.0	0.0	0.0	0.0
Other expenses	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EBITDA	229.2	239.0	258.2	248.7	269.7	299.8	328.0
EBITDA margin recurring	*75%*	*78%*	*81%*	*78%*	*77%*	*77%*	*78%*
Net financial	-57.9	-47.6	-55.1	-62.6	-73.8	-86.9	-96.9
Interest expenses	-65.5	-55.8	-60.1	-67.6	-78.8	-91.9	-101.9
as a % of net debt	4.4%	3.9%	4.0%	3.8%	3.7%	3.7%	3.7%
Income from financial assets	3.0	1.7	1.2	1.2	1.2	1.2	1.2
as a % of financial assets							
Capitalized interest	4.6	6.5	3.8	3.8	3.8	3.8	3.8
Taxes	-0.7	-0.8	-1.6	-1.5	-1.6	-1.7	-1.8
Income taxes	-0.7	-0.8	-1.6	-1.5	-1.6	-1.7	-1.8
as a % of taxable profit	0.4%	0.4%	0.8%	0.8%	0.8%	0.8%	0.8%
Extraordinaries	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Participations	0.0	0.0	10.4	11.0	12.0	13.0	14.0
Minorities	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Direct investment result	170.6	190.6	211.9	195.6	206.3	224.2	243.3

Data integreren in 2018:



	2011 FY	2012 FY	2013 FY	2014 FY	2015 FY
Period Ended	31-12-2011	31-12-2012	31-12-2013	31-12-2014	31-12-2015
Period Restated?	Yes	Yes	Yes	No	No
Restatement Date	1-10-2012	6-2-2014	1-7-2014	NA	NA
Accounting Principle	IFRS	IFRS	IFRS	IFRS	IFRS
Rental & Operating Income (€000)					
Property Rental Revenue	143.453	118.359	109.419	126.794	207.313
Expense Reimbursements	30.547	24.820	20.887	21.125	37.258
Other Rental Revenue	0	0	0	0	0
Rental Revenue	174.000	143.179	130.306	147.919	244.571
Revenue from Sale of Trading Properties	0	0	0	0	0
Other Development Revenue	0	0	0	0	0
Development Revenue	0	0	0	0	0
Property Management Revenue	NA	NA	NA	NA	NA
Other Real Estate Operating Revenue	931	-2.237	193	-4.767	-3.038
Operating RE Revenue	931	-2.237	193	-4.767	-3.038
Total Real Estate Operating Revenue	174.931	140.942	130.499	143.152	241.533
Other Operating Revenue	0	0	0	0	0
Rental & Operating Expense (€000)					
Rental Operating Expense	45.343	35.464	30.422	33.143	59.915
Property Sales Expense	0	0	0	0	0
Other Development Expense	0	0	0	0	0

Data integreren in 2018:



Geo locaties 200.000 objecten

Omzetgegevens van winkelcentra

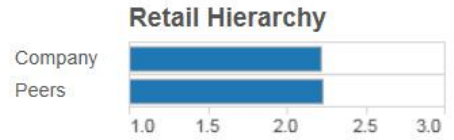
CO2 emissie gebouwen

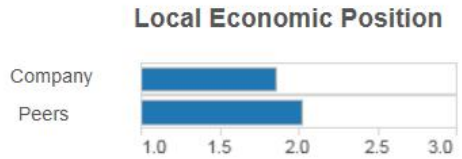
Corporate Governance scores

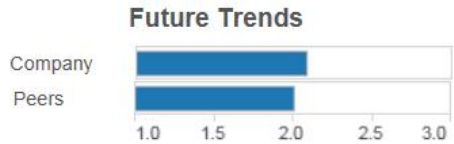
Financiële resultaten

Voorbeeld: kwaliteit winkels

United Kingdom | Hammerson Plc





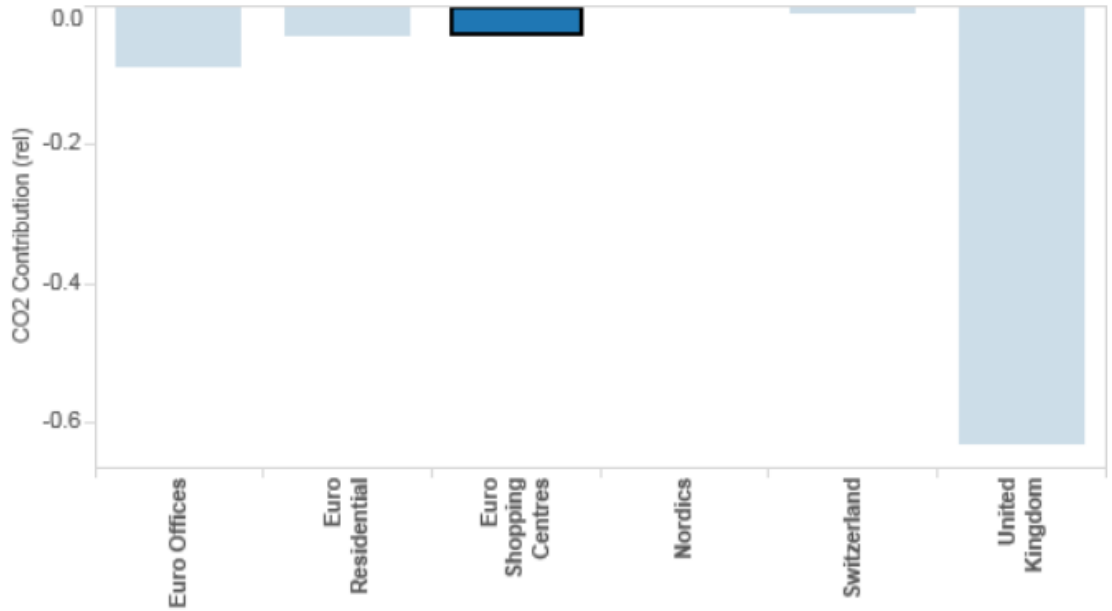


Avg. Change In RF Score	2.00	2.11
Avg. Premium Offer	2.20	2.33
Avg. Value Offer	1.88	2.26
Avg. Premium Value Ch..	1.78	1.68
Avg. Headroom	1.81	1.86
Avg. Score In Managed ..	2.57	2.02
Avg. Retailer Health	2.50	2.37

Voorbeeld: CO2 footprint

How do our funds compare to their benchmark?

pf: KEPF | Exposure: Relative Exposure | Company Names: (All)



Portfolio CO2 Intensity: 4.5 CO2 Emissions / Rental Revenue

Benchmark CO2 Intensity: 5.3 CO2 Emissions / Rental Revenue

Company Names	PortfolioWght	BenchmarkWght	Carbon Emissions Intensity	CO2 Contribution
Citycon OYJ	0.00%	0.4%	23.4	-0.09
Deutsche EuroShop	0.00%	0.9%	4.3	-0.04
Eurocommercial Propert..	5.20%	0.9%	4.9	0.21
Klepierre	4.69%	4.0%	7.5	0.05
Lar Espana Real Estate ..	0.00%	0.2%	6.9	-0.01
Mercialys	0.00%	0.4%	12.7	-0.05
Unibail-Rodamco	10.02%	11.4%	5.5	-0.08
VastNed Retail	0.00%	0.3%	0.1	0.00
Wereldhave Belgium	0.00%	0.1%	0.0	0.00
Wereldhave NV	0.00%	0.8%	4.3	-0.04

Vereisten team

MATTHIJS STORM

Experience since 2003

– Head of team

– Europe, Hong Kong

EGBERT NIJMEIJER

Experience since 2002

– Senior Portfolio Manager

– US, Canada, UK

JORRIT ARISSEN

Experience since 2003

– Senior Portfolio Manager

– Europe, Japan

ANNA NIEGOWSKA

Experience since 2005

– Senior Portfolio Manager

– Europe, US

LUCAS VUURMANS

Experience since 2014

– Quantitative Portfolio Manager

– Europe, Australia, Singapore

DAN PETRISOR

Experience since 2016

– Quantitative Portfolio Manager

– Europe

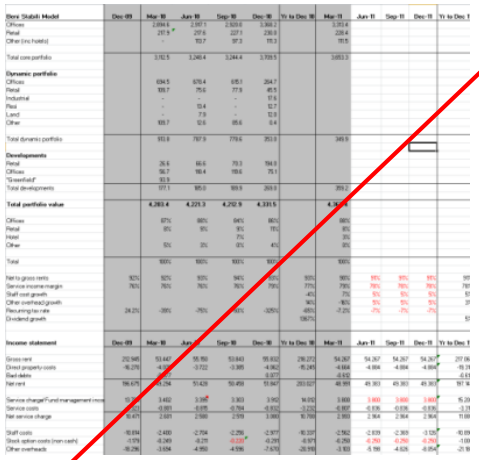
Vereisten technologie en IT support

alteryx

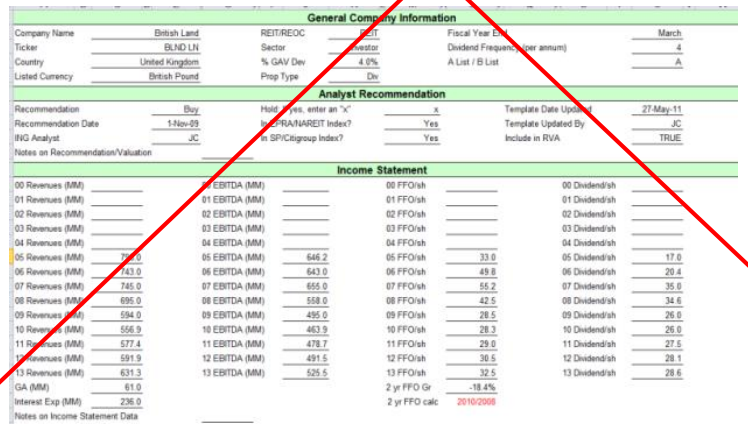
tableau

Vereisten model

IAS 40 FV	2003	2004	2005	2006E	2007E	2008E	2009E
Gross rental income	304.5	306.3	315.0	320.3	348.4	367.0	422.5
Property expenses	-51.1	-45.8	-46.3	-48.0	-52.3	-58.1	-63.4
Net rental income	253.4	262.5	268.7	272.3	296.2	329.0	359.2
Efficiency rate	*83%*	*85%*	*85%*	*85%*	*85%*	*85%*	*85%*
Overhead costs	-24.2	-23.5	-21.0	-23.6	-26.5	-29.2	-31.1
Wages	-0.7	-4.9	-9.4	-10.2	-20.5	-23.1	-24.8
as a % of AuM	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%
Third party fees	-0.7	-0.8	-3.4	-3.7	-2.0	-2.8	-2.8
as a % of acquisitions/disposals	2.8%	2.8%	2.0%	2.0%	2.0%	2.0%	2.0%
Other costs	-16.8	-20.5	-22.2	-24.5	-28.0	-33.3	-37.0
Charged on costs	19.1	18.7	21.0	21.0	21.0	21.0	21.0
Total as a % of AuM	0.6%	0.7%	0.5%	0.5%	0.5%	0.5%	0.5%
Other income	0.0	0.0	10.4	0.0	0.0	0.0	0.0
Other expenses	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EBITDA	229.2	239.0	256.2	248.7	269.7	299.8	328.0
EBITDA margin recurring	*75%*	*78%*	*81%*	*78%*	*77%*	*77%*	*78%*
Net financial	-57.9	-47.6	-50.1	-52.6	-73.8	-86.9	-96.9
Interest expenses	-45.5	-55.8	-46.1	-51.8	-79.8	-91.9	-101.9
as a % of net debt	4.4%	3.8%	4.0%	3.8%	3.7%	3.7%	3.7%
Income from financial assets	3.8	17	12	12	12	12	12
as a % of financial assets							
Capitalized interest	4.6	6.5	3.8	3.8	3.8	3.8	3.8
Taxes	-0.7	-0.8	-1.6	-1.5	-1.6	-1.7	-1.8
Income taxes	-0.7	-0.8	-1.6	-1.5	-1.6	-1.7	-1.8
as a % of taxable profit	0.4%	0.4%	0.6%	0.6%	0.6%	0.6%	0.6%
Extraordinaries	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Participations	0.0	0.0	10.4	11.0	12.0	13.0	14.0
Minorities	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Direct investment result	170.6	190.6	211.9	195.6	206.3	224.2	243.3



Ilmi Stabili Model	Dec-09	Mar-10	Jun-10	Sep-10	Dec-10	Yr to Dec 10	Mar-11	Jun-11	Sep-11	Dec-11	Yr to Dec 11
Offices		2,094.5	2,107.1	2,329.0	2,368.2		2,351.4				
Retail		291.9	297.6	227.1	230.0		228.4				
Other (inc hotels)		-	70.7	97.3	115.3		113.5				
Total core portfolio		3,152.5	3,240.4	3,244.4	3,709.5		3,693.3				
Dynamic portfolio											
Offices		634.5	670.4	670.1	264.7						
Retail		109.7	75.6	77.9	65.5						
Industrial		-	-	-	51.6						
Pest		-	13.4	-	52.7						
Land		-	7.9	-	12.9						
Other		109.7	12.6	85.6	0.4						
Total dynamic portfolio		853.8	787.9	778.6	353.9		346.9				
Developments											
Retail		26.4	66.6	79.3	194.0						
Offices		56.7	160.4	169.6	75.1						
"Greenfield"		93.9	-	-	-						
Total developments		177.1	185.0	169.9	269.0		269.2				
Total portfolio value		**4,283.4**	**4,225.3**	**4,232.9**	**4,331.5**		**4,309.4**				
Offices		67%	66%	64%	86%		86%				
Retail		8%	9%	9%	11%		8%				
Hotel		-	-	7%	-		3%				
Other		5%	3%	6%	4%		3%				
Total		100%	100%	100%	100%		100%				
Net to gross rents	92%	92%	93%	94%	93%	93%	98%	95%	95%	95%	95
Service income margin	76%	76%	76%	76%	79%	77%	79%	78%	78%	78%	78
Staff cost growth						-4%	7%	5%	5%	5%	5
Other overhead growth						16%	5%	5%	5%	5%	5
Recurring tax rate	24.2%	-39%	-75%	-39%	-105%	-65%	-7.2%	-7%	-7%	-7%	-7
Dividend growth						136%					5
Income statement	**Dec-09**	**Mar-10**	**Jun-10**	**Sep-10**	**Dec-10**	**Yr to Dec 10**	**Mar-11**	**Jun-11**	**Sep-11**	**Dec-11**	**Yr to Dec 11**
Gross rent	232,945	53,643	56,150	53,643	55,932	219,372	54,267	54,267	54,267	54,267	217,06
Direct property costs	-16,276	-4,054	-3,722	-3,385	-4,962	-16,124	-4,804	-4,804	-4,804	-4,804	-19,21
Bad debts					-9,977	-9,977	-4,932				-4,93
Net rent	196,670	49,294	52,429	50,458	50,947	203,127	48,991	49,363	49,363	49,363	197,18
Service charge/Fund management income	12,181	3,492	3,396	3,903	3,992	14,783	3,888	3,888	3,888	3,888	15,55
Service costs	-2,251	-3,001	-3,695	-3,794	-3,832	-14,322	-3,832	-3,832	-3,832	-3,832	-15,32
Net service charge	9,930	2,491	2,700	2,109	3,160	10,461	2,056	2,056	2,056	2,056	11,02
Staff costs	-8,004	-2,400	-2,704	-2,256	-2,977	-10,337	-2,562	-2,939	-2,300	-3,135	-10,93
Stock option costs (non cash)	-1,579	-3,249	-3,275	-3,229	-3,295	-12,997	-3,250	-3,250	-3,250	-3,250	-13,00
Other overheads	-16,236	-3,004	-4,950	-4,596	-7,670	-20,220	-3,193	-5,196	-4,626	-6,054	-21,06



General Company Information

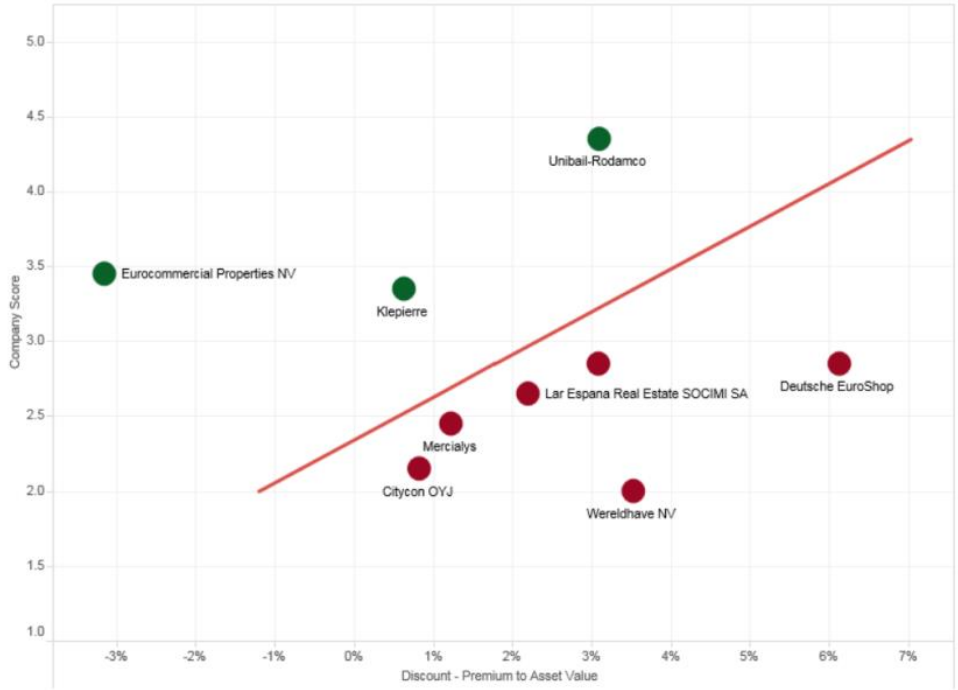
Company Name	British Land	REIT/REOC	REIT	Fiscal Year End	March
Ticker	BLND LN	Sector	Investor	Dividend Frequency (per annum)	4
Country	United Kingdom	% GAV Dev	4.0%	A List / B List	A
Listed Currency	British Pound	Prop Type	Div		

Analyst Recommendation

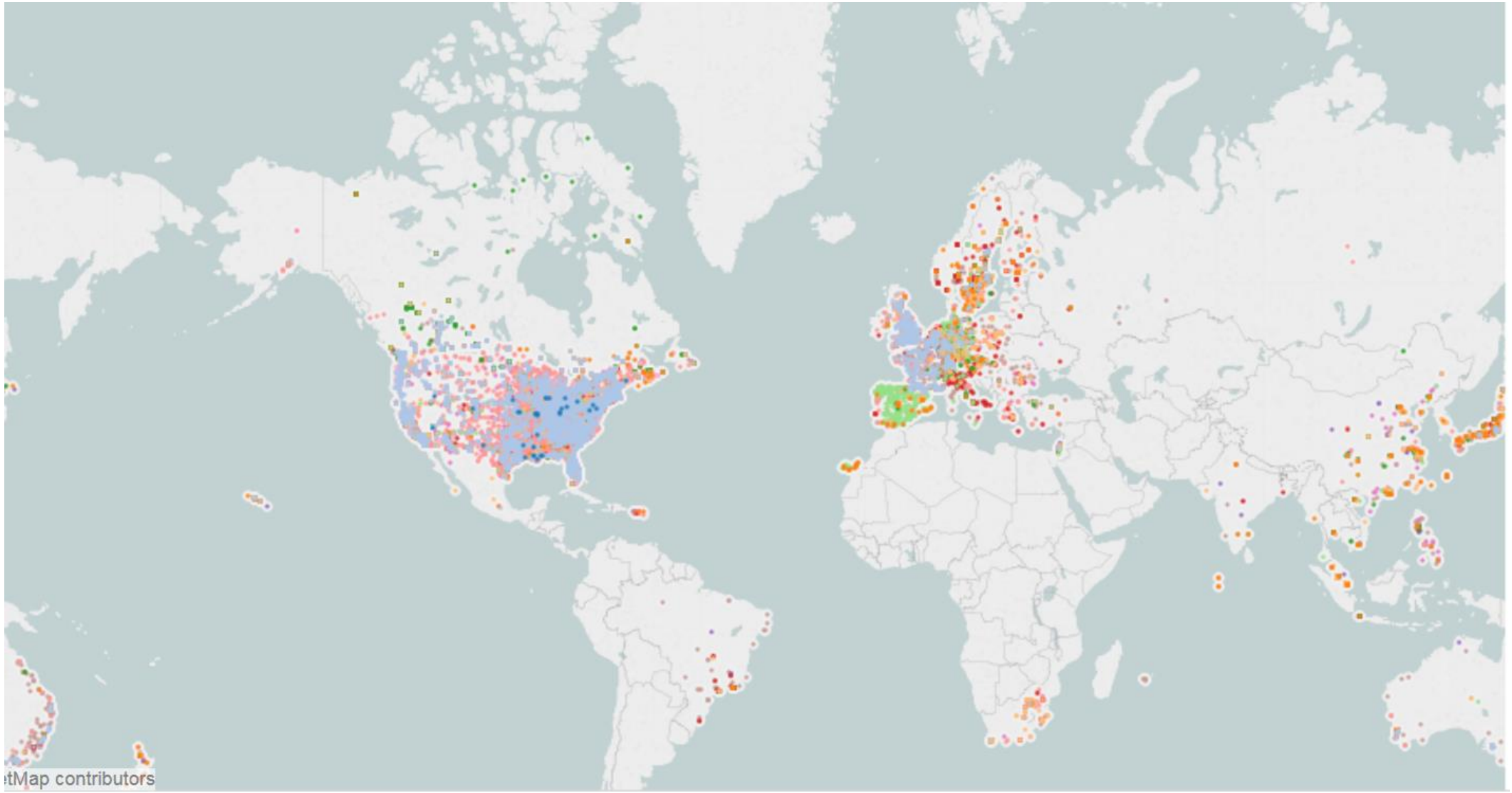
Recommendation	Buy	Hold (Yes, enter an "x"	x	Template Date Updated	27-May-11
Recommendation Date	1-Nov-09	In EPRA/NAREIT Index?	Yes	Template Updated By	JC
ING Analyst	JC	In SPI/Citigroup Index?	Yes	Include in RVA	TRUE
Notes on Recommendation/Valuation					

Income Statement

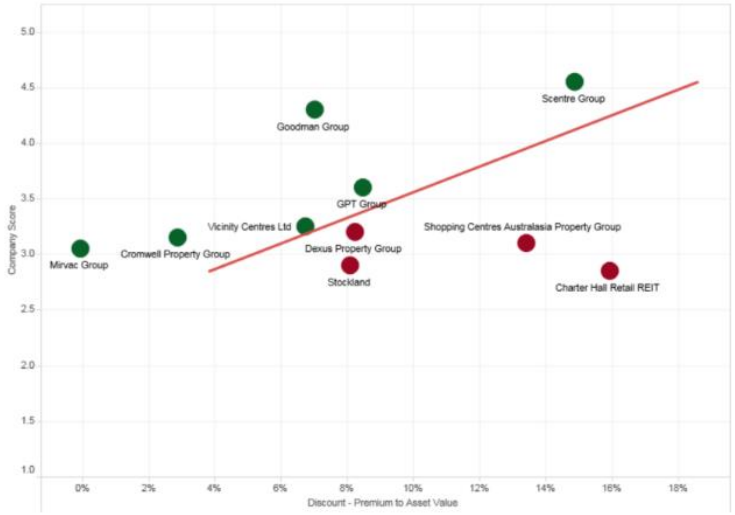
00 Revenues (MM)		00 EBITDA (MM)		00 FFO/sh		00 Dividend/sh		
01 Revenues (MM)		01 EBITDA (MM)		01 FFO/sh		01 Dividend/sh		
02 Revenues (MM)		02 EBITDA (MM)		02 FFO/sh		02 Dividend/sh		
03 Revenues (MM)		03 EBITDA (MM)		03 FFO/sh		03 Dividend/sh		
04 Revenues (MM)		04 EBITDA (MM)		04 FFO/sh		04 Dividend/sh		
05 Revenues (MM)	790.0	05 EBITDA (MM)	646.2	05 FFO/sh	33.0	05 Dividend/sh	17.0	
06 Revenues (MM)	743.0	06 EBITDA (MM)	643.0	06 FFO/sh	49.8	06 Dividend/sh	20.4	
07 Revenues (MM)	745.0	07 EBITDA (MM)	655.0	07 FFO/sh	55.2	07 Dividend/sh	35.0	
08 Revenues (MM)	695.0	08 EBITDA (MM)	558.0	08 FFO/sh	42.5	08 Dividend/sh	34.6	
09 Revenues (MM)	594.0	09 EBITDA (MM)	495.0	09 FFO/sh	28.5	09 Dividend/sh	26.0	
10 Revenues (MM)	556.9	10 EBITDA (MM)	463.9	10 FFO/sh	28.3	10 Dividend/sh	26.0	
11 Revenues (MM)	577.4	11 EBITDA (MM)	478.7	11 FFO/sh	29.0	11 Dividend/sh	27.5	
12 Revenues (MM)	591.9	12 EBITDA (MM)	491.5	12 FFO/sh	30.5	12 Dividend/sh	28.1	
13 Revenues (MM)	631.3	13 EBITDA (MM)	525.5	13 FFO/sh	32.5	13 Dividend/sh	28.6	
GA (MM)	61.0			2 yr FFO Gr	-18.4%			
Interest Exp (MM)	236.0			2 yr FFO calc	2010/2006			
Notes on Income Statement Data								

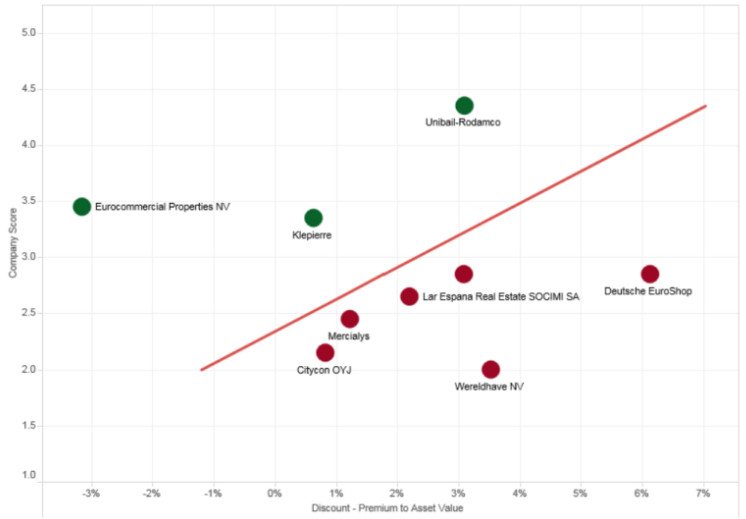


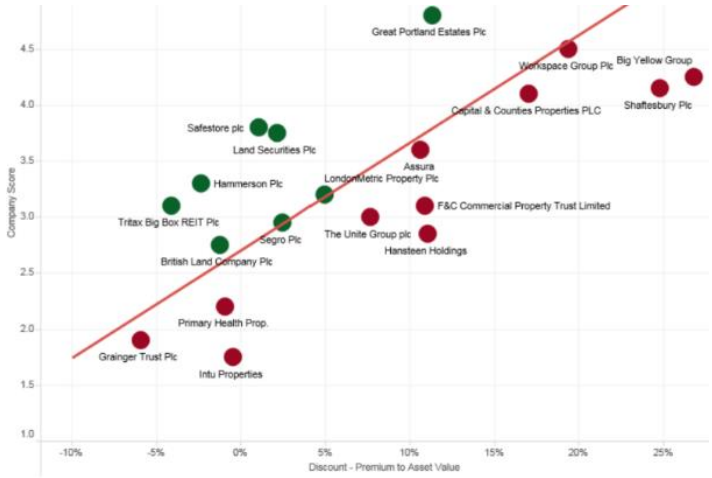
Echte bottom-up analyse

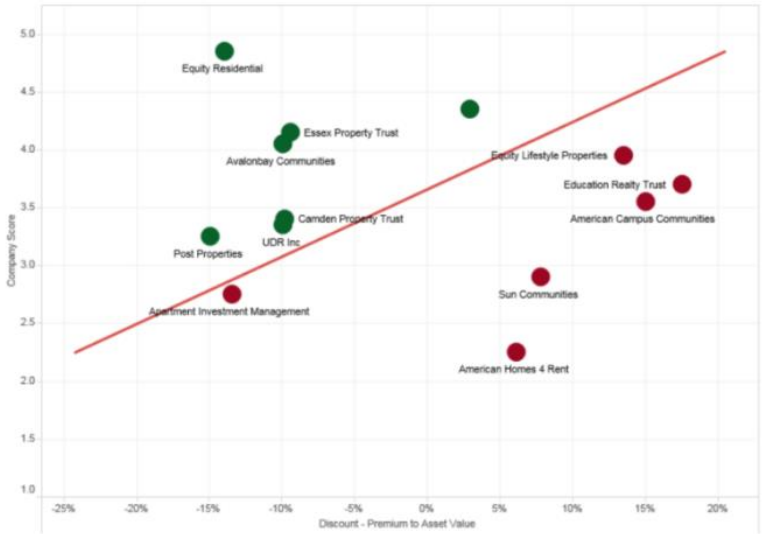


Meer inefficiënties opsporen en benutten





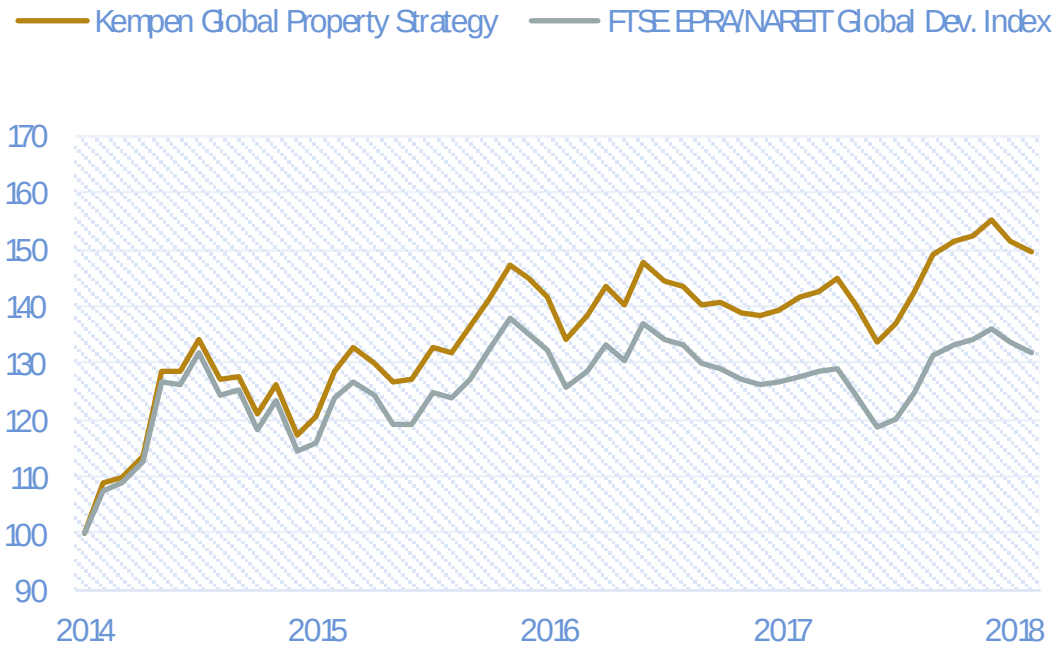




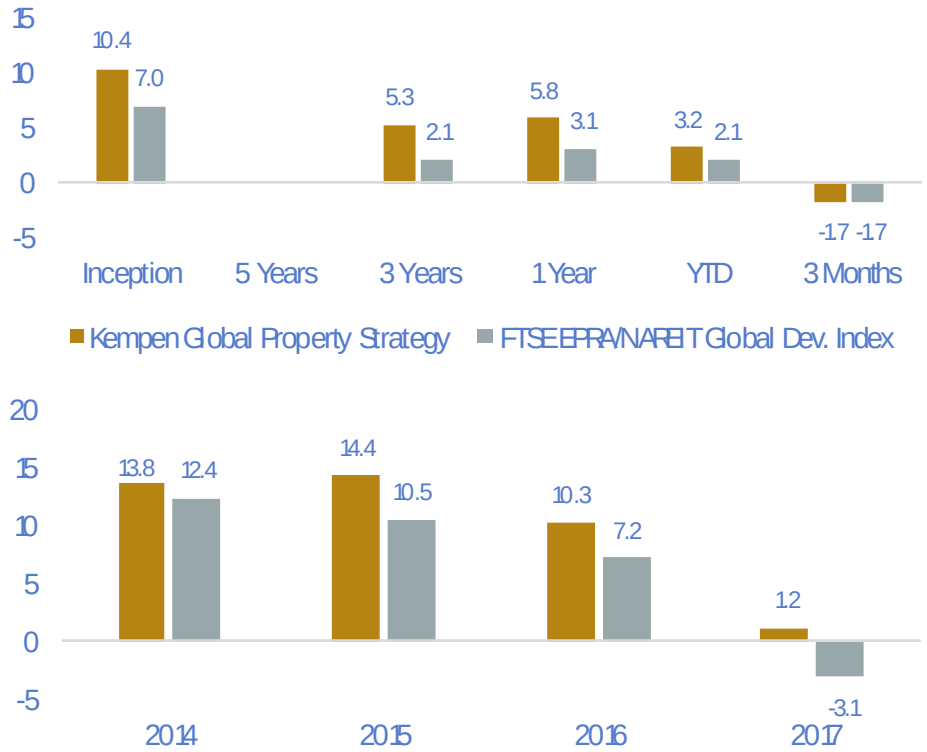
Hogere kwaliteit beslissingen

Getoond worden de bruto rendementscijfers, hier zijn nog geen eventuele kosten op in mindering gebracht. Afhankelijke van de gekozen productstructuur kunnen de kosten variëren, dit zal effect hebben op het netto rendement.

Rendement (september 2014 = 100)[1]

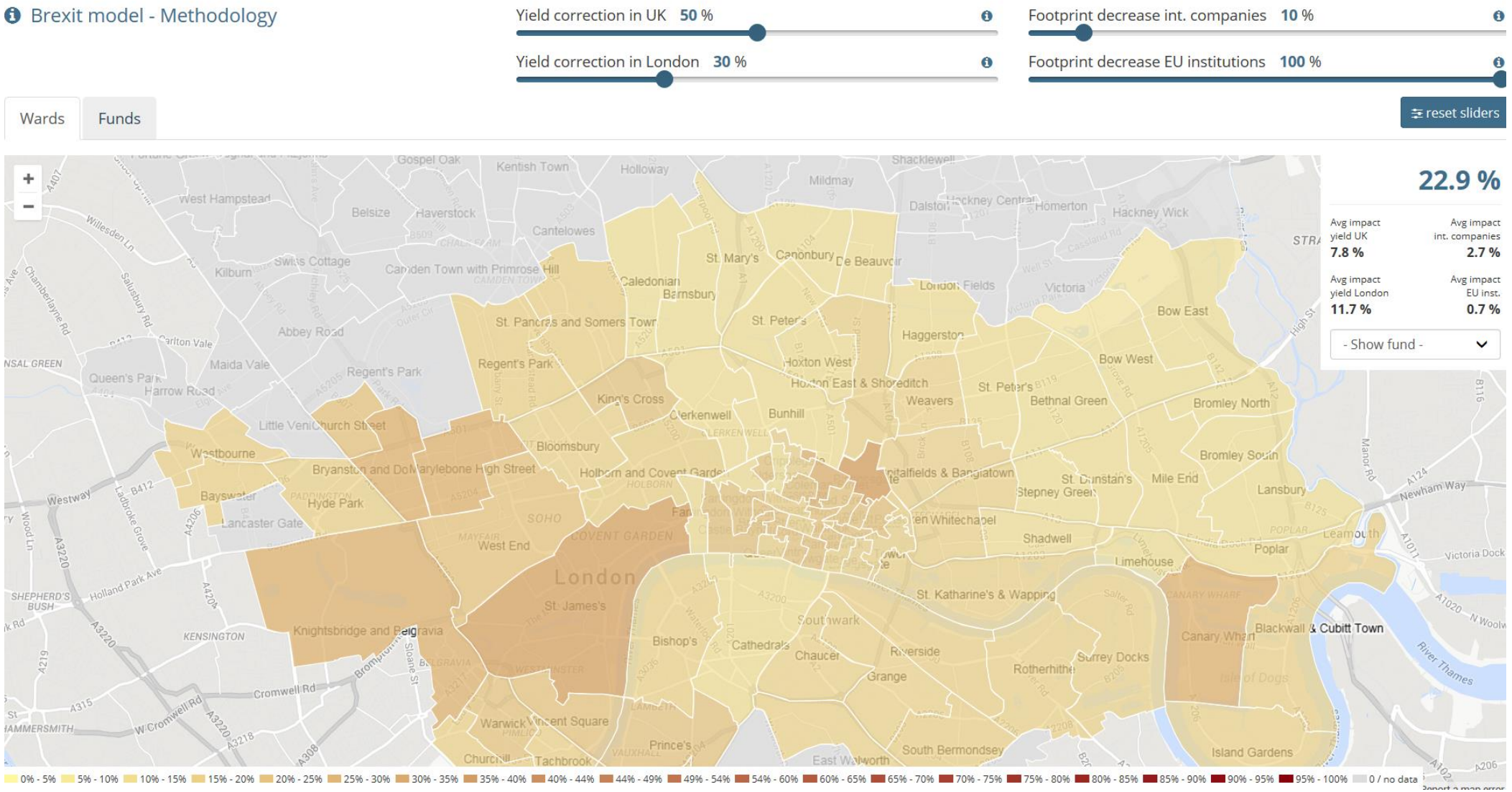


Rendement in %



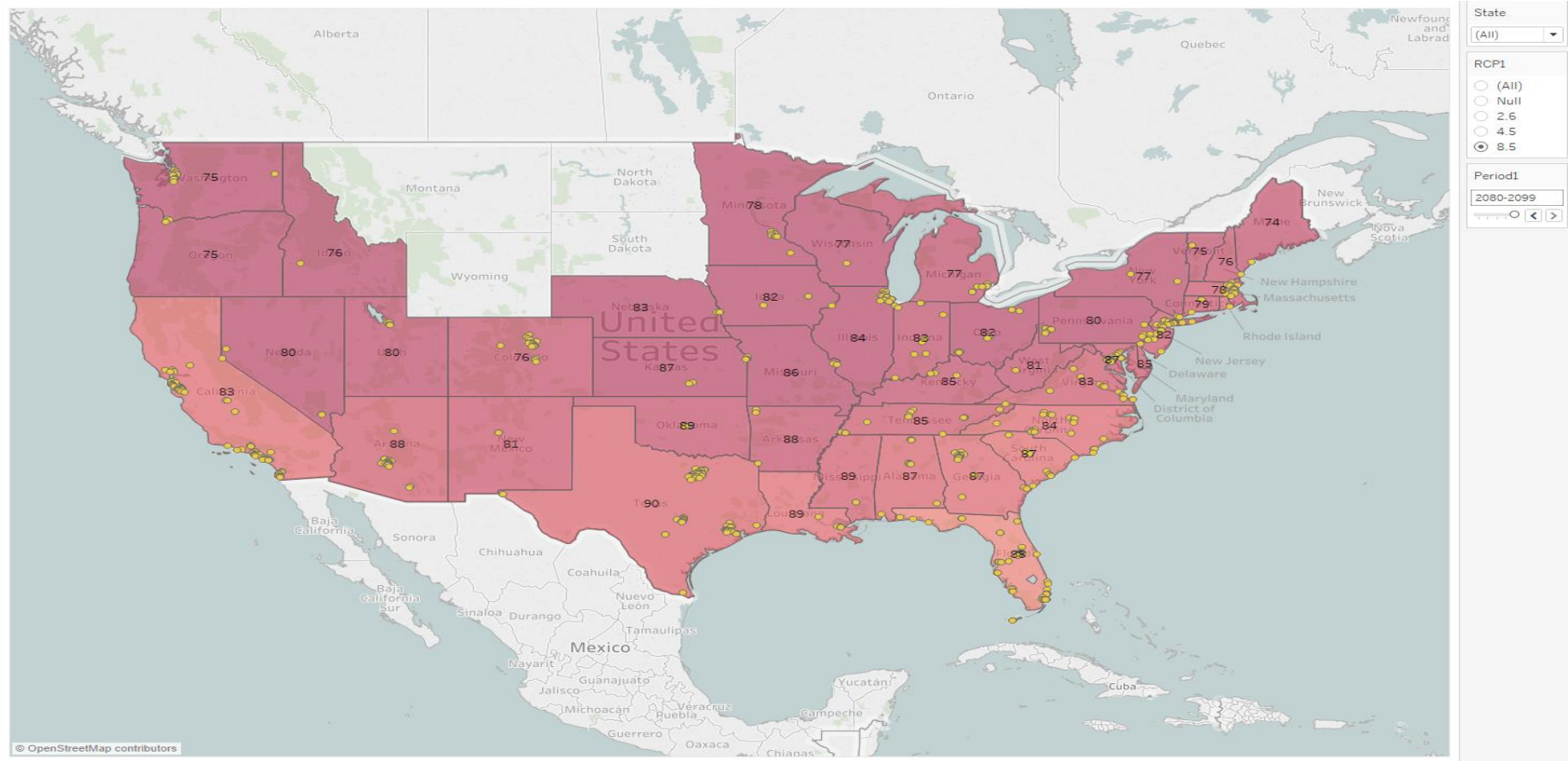
Bron: Kempen. [1]Geannualiseerde performancecijfers op basis van een representatieve portefeuille, voor aftrek van kosten, per 31 oktober 2018.
De waarde van uw belegging kan fluctueren. In het verleden behaalde resultaten bieden geen garantie voor de toekomst.

Beter de risico’s in kaart brengen en managen



Identificeren van klimaat risico’s voor vastgoed

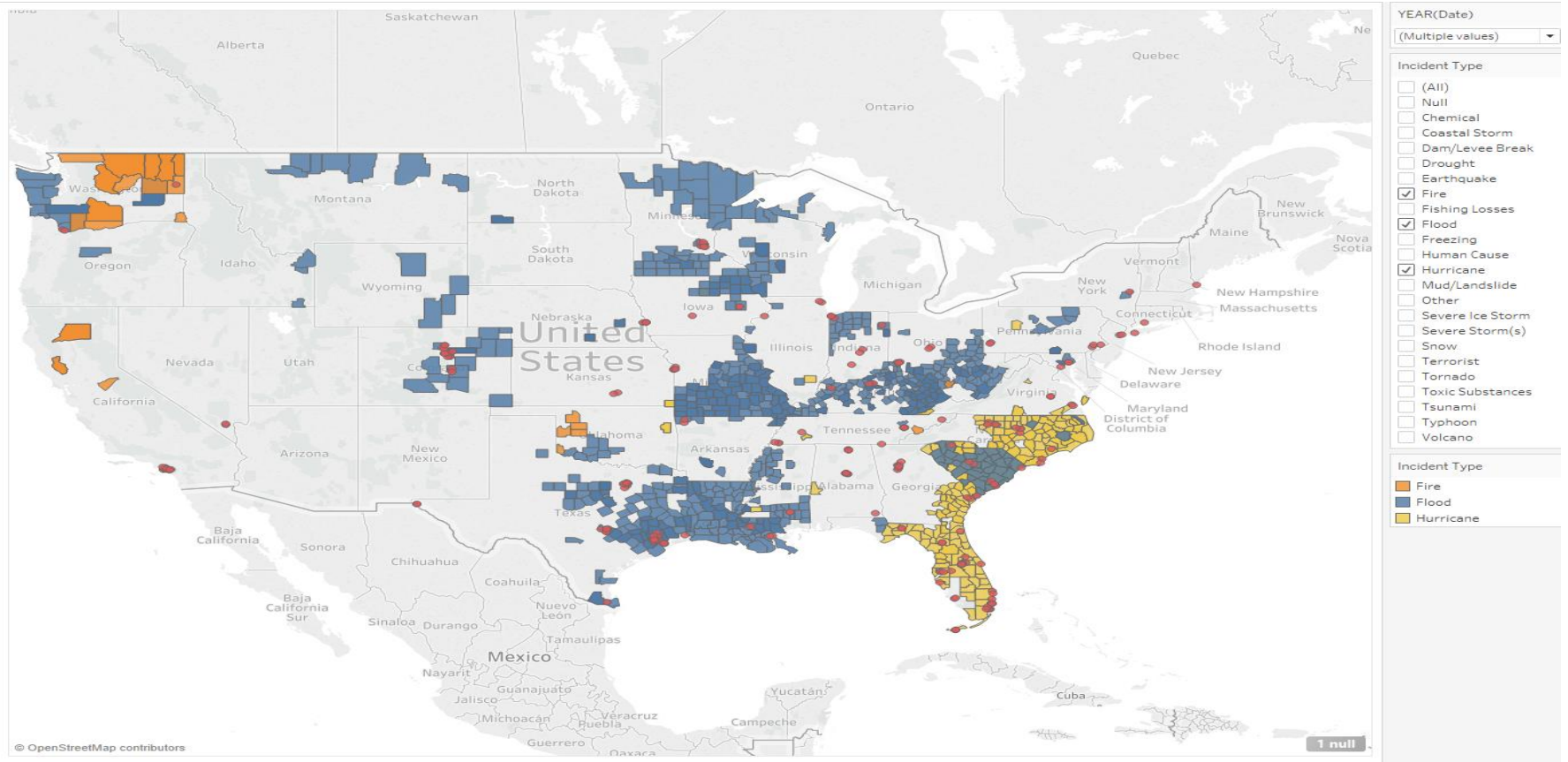
Hotel exposure naar stijgende temperature per staat



* Data per 18/10/2018
Bron: Kempen, Climate Impact Lab, University of California

Identificeren van klimaat risico’s voor vastgoed

Hotel exposure naar klimaat risico’s: bosbranden, overstromingen en tornado’s



* Data per 18/10/2018
Bron: Kempen, FEMA

Disclaimer

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“Dank voor uw aandacht”

Matthijs Storm, Kempen Capital Management

Wassenaar, 23 november 2018

IPFOS

INDEPENDENT PENSION FUND OVERSIGHT SERVICES

"CACEIS digital transformation journey"

Arnaud Misset, CACEIS

Wassenaar, 23 november 2018

CACEIS digital transformation journey

2018

caceis
INVESTOR SERVICES

Digital and Data are key units of what CACEIS offers

TEEPI

Webinvestor

OLIS

Data Analytics

Web

Blockchain

Liquid shares

RPA

Funds

Shares

AGRO AGRO

Product area

These channels are the main points of contact between CACEIS and its customers

Why is transformation necessary?

+ Digital will move us closer to our corporate objectives

By considering the client experience

Making our understanding of the client the driving force behind our process for designing innovative and relevant products

By improving operational security and efficiency

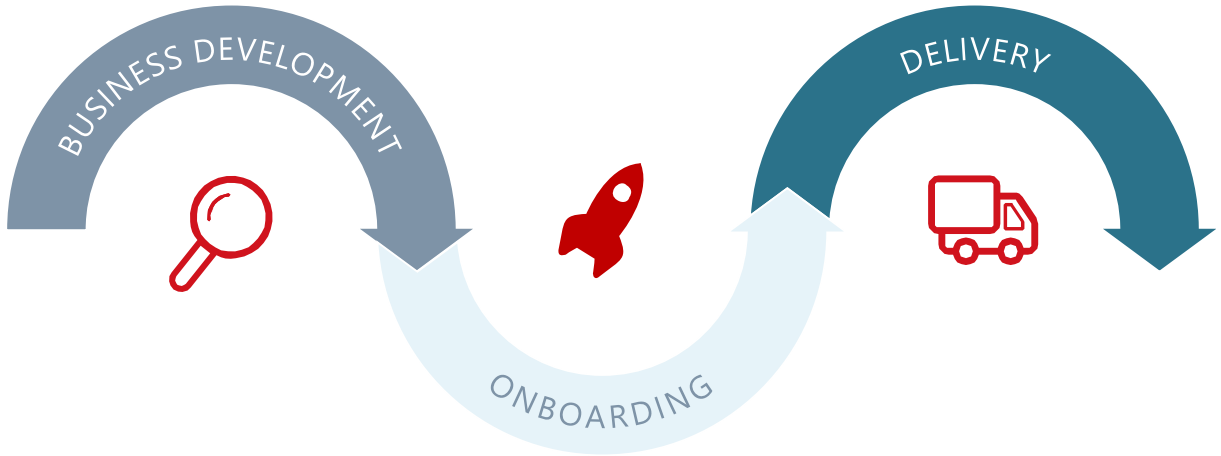
Seizing the opportunities offered by digital to enhance our efficiency and reduce operational risks

By listening to clients' voice

Improving our client relations by agreeing to their expectations and offering innovative solutions

+ With the support of DATA

+ Digital will strengthen our value chain



The driving force behind the transformation of CACEIS

Our corporate objectives

To focus on the client experience | Operational efficiency and security | To boost sales

Digital will strengthen our value chain

Business Development > Onboarding > Service delivery

Digital transformation program 2018-2022

UNLEASHING THE POTENTIAL OF DIGITAL

BUSINESS DEVELOPMENT
Strengthening the CACEIS presence on the Web and increasing the volume of caceis.com leads
-> SEO/SEA/LinkedIn (identification of visitors)

SUBSCRIPTION
Introducing online subscription to our multi-channel paradigm shift and standardisation
-> pilot: ESG reporting online 1 August

ONBOARDING & COLLABORATION
Digitising the customer onboarding workflows (KYC & business onboarding) Facilitating int/ext dialogue
-> No email: live cat (Symphony) + BPM

CLIENT REQUESTS
Improving the management of client requests
Email bot: categorising, prioritising and replying to customer emails
-> Using CACD2 and open source tools

IDENTIFY AND MAXIMISES ITS IMPACT

CACEIS INNOVATION LAB
Facilitating co-creation and stimulating innovation
Internal challenge and/or with clients
-> fanvoice tool (innovationlab.caceis.com)

FINTECHS
Identifying where there is scope for innovation and adopting a FinTech culture
-> Village by CA (Paris) Ambassador

BUSINESS INTELLIGENCE
Using AI to improve the potential of all CACEIS services
-> special focus for 2019

TRANSFORMING THE CLIENT EXPERIENCE
Shiftingfrom a "process" approach to a "client-centric" approach
-> To be launched in 2019

Data & dissemination

STRENGTHEN EXISTING INITIATIVES

A NEW OVERVIEW OF YOUR DATA
A major overhaul to digitise the user experience on the customer portal is currently in progress

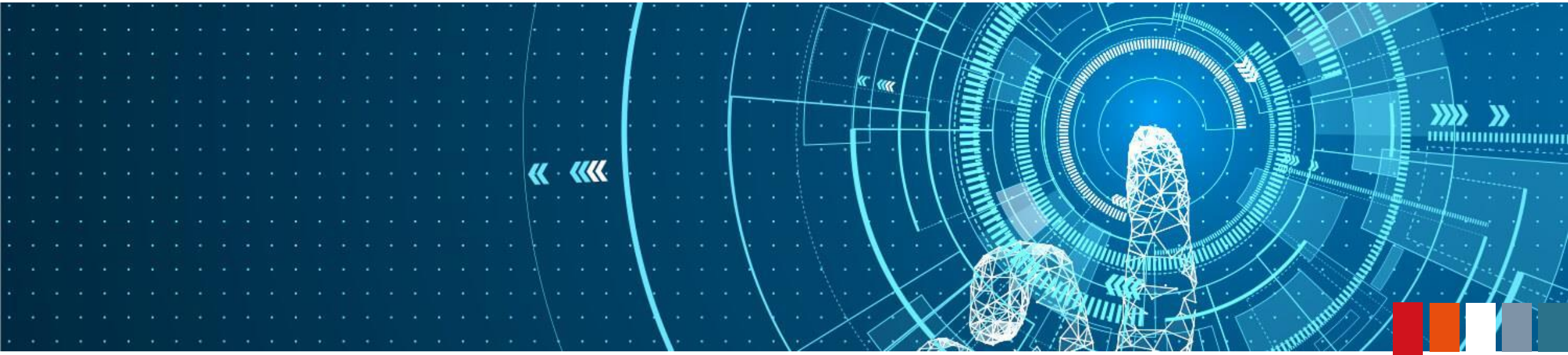
A SUITE OF MOBILE APPLICATIONS
To adapt to new user behaviours
Ensuring access to essential information from anywhere
Funds (NAV/collect), share (CT), Agro (commodities)

A DISTRIBUTION PLATFORM FOR FUNDS
TEEPI: exchange of regulatory documents between management companies and institutional clients
Marketplace: creation of a market place to facilitate online subscription (using blockchain)

WEB INVESTOR
"Investor" portal for our MC clients designed as a B2B2C service -> Currently being rolled out

DATA ANALYTICS SERVICES
Tapping into the potential of data for us and for our clients -> Under development

Digital & Data client services
A team interacting with supporting our clients as they use our digital solutions
Responsible for transferring client information for transformation projects
A stakeholder in all projects from the outset



UNLEASHING THE POTENTIAL OF DIGITAL

Strengthening CACEIS presence on the web, increasing the volume of caceis.com leads is a major challenge event for B2B businesses. Decision-makers are now googling companies and services in order to get a quick overview of their strengths and weaknesses.

Strengthening CACEIS's presence

On its digital territories at a European scale for all its products

-> Improvement of natural referencing (SEO)

-> Pay-per-click campaigns

Increase leads volume

Caceis.com

-> Leads generated via 'contact us'

-> Detection of visitors via "LinkedIn API"

Client Benefits

- Better knowledge & understanding of CACEIS's offering
- Ability to subscribe immediately to certain tenders and/or to collect accurate information

CACEIS benefits

- Reinforcement of brand awareness and CACEIS offers at European level.
- Deepen client/product segmentation
- Boost sales

BUSINESS DEVELOPMENT

~ 25,000 visitors/month in 2018 (+ 10% vs 2017)

+ 200 'Contact us' in 2017 -> 124 prospects

Subscription

Introducing full online subscription to our services is groundbreaking in our industry compared to the B2C sector where it is a widely used approach.

Online subscriptions

- For existing clients
- For prospects
- With the support of business teams
- 100% human, 100% digital

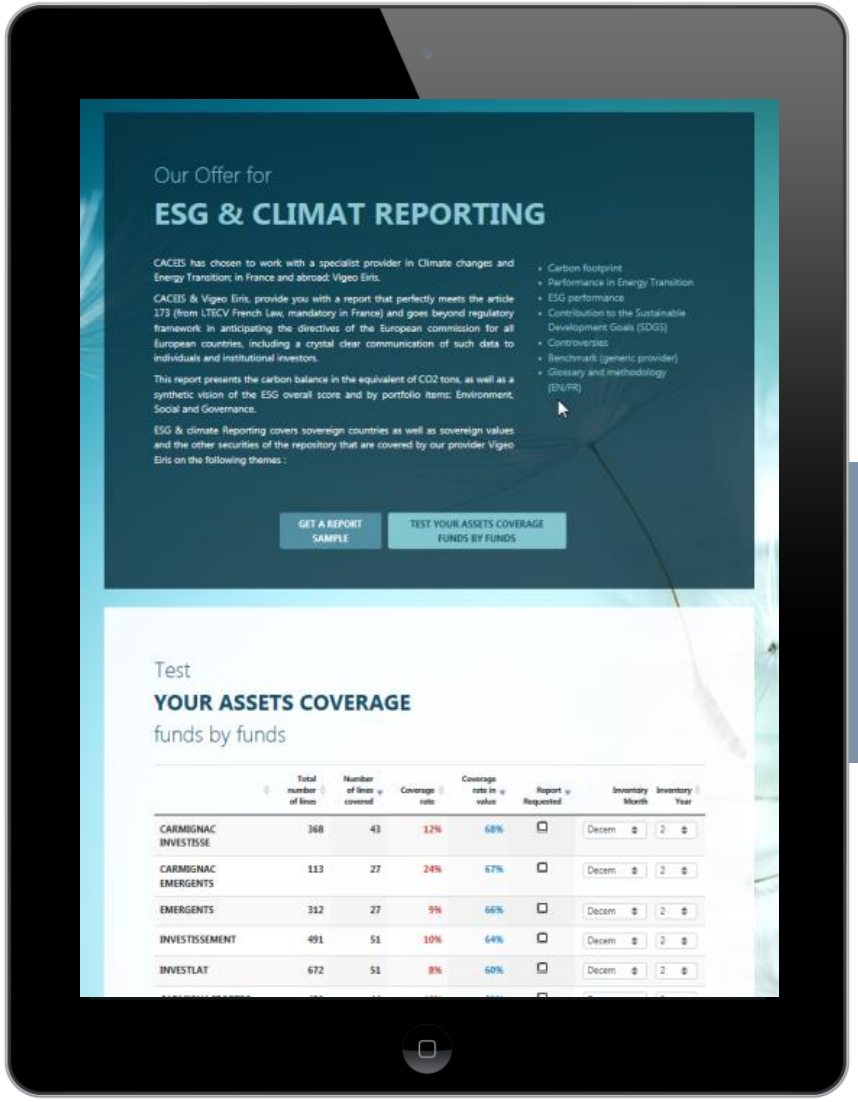
Client Benefits

- Better knowledge & understanding of the contribution of CACEIS's offering.
- Possibility to subscribe immediately to certain tenders and/or to collect preparatory items for sale

CACEIS Benefits

- Commercial lead generator
- Boost/automate sales

Subscription



Subscription to ESG & Climat reporting

www.olis.com

SUBSCRIPTION TO ESG & CLIMAT REPORTING

Online from 1st August
-350 consultations in August
-280 consultations in September
+ 150 different clients

Onboarding & collaboration

Digitising the client onboarding workflows (KYC & business onboarding) and facilitating internal investigative dialogue will underpin the overall day-to-day OPERATIONAL experience and accelerate information transmission to all stakeholders.

Onboarding digital

The transition from "prospect" to "client using the service" must be done via an onboarding process: simplified, streamlined, digitised and automated..

Client collaboration

Reuse of onboarding mechanics in the operational lifecycle of the customer relationship management.

KYC management

Digitalisation of B2C and B2B KYC processes to simplify and secure implementation

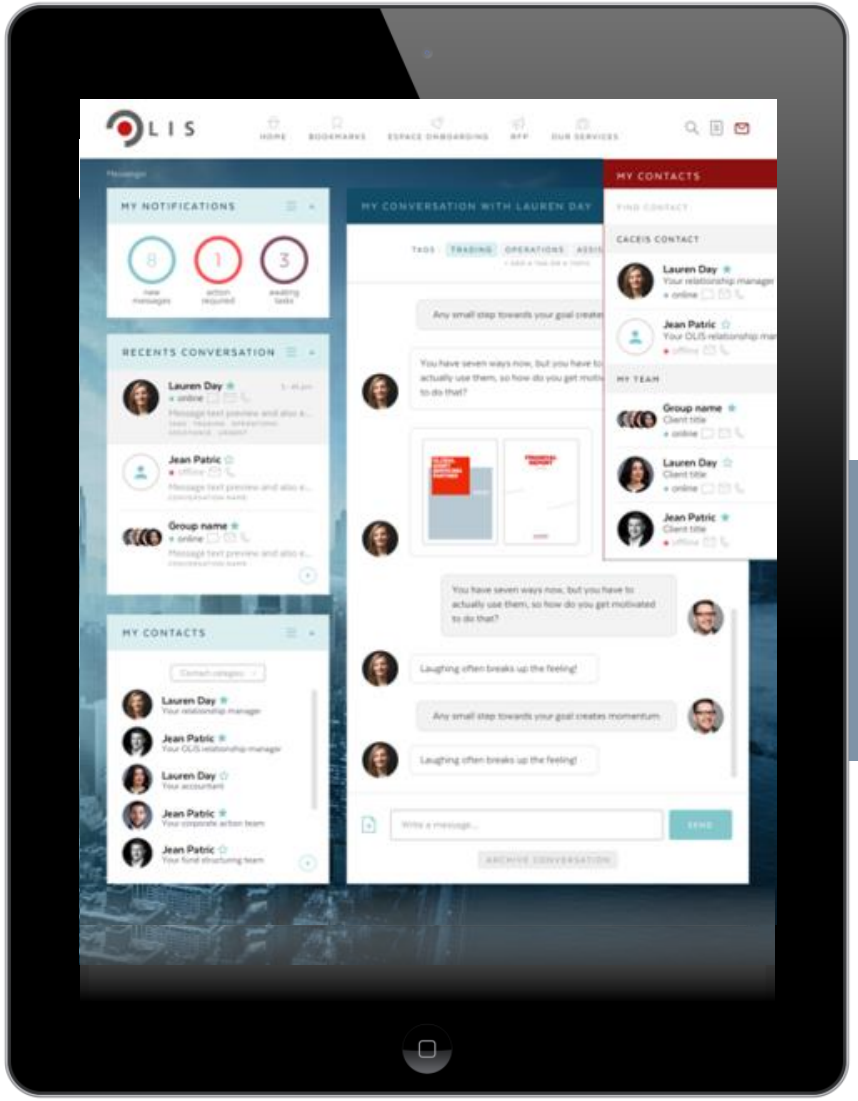
Client Benefits

- Easy monitoring and implementation for subscribed services at CACEIS
- A monitoring for the follow-up of their clients investors allowing an effective commercial management

CACEIS benefits

- Improvement of the collaborating experience
- Simplify KYC case management

Onboarding & collaboration



Onboarding & collaboration
www.olis.com

Onboarding & collaboration

- B2C KYC: ~ 50,000 cases/year
- B2B KYC: ~ 500/year

Client requests

Improving the management of client requests is a critical objective in order to both improve client satisfaction and secure financial transactions in any case.

Client Dashboard

to follow all requests, regardless of the acquisition channel (Phone / email / chat / video)

Bots (Email/Chat/Voice)

Exploit "bot" technology to:
- Categorise and prioritise client requests received by email, by all employees of the group.
- (Semi)-automated answers for simple requests..

Automation of processing

processing "simple" requests via Bots / RPA (Robotics)

Client Benefits

- Real time monitoring of all requests
- Immediate processing of "simple" requests
- Contributes to relational excellence

CACEIS benefits

- Easier analysis of the types of requests
- Improve client knowledge - CRM interfacing
- Can also be used for requests between internal teams

Client requests

340 mails/days
60 different types of request

With mailbot:
+ 85% mail categorised
+ 70% transmitted to the right department

Implementation of Mailbot solution
Automated categorisation of incoming email

~ 32% of settlement status requests can be managed via a bot

Implementation of Mailbot solution
Automation of data extractions

ILLUIN TECHNOLOGY

Identify and maximises its impact

CACEIS innovation lab

Innovation is a key element to the success of the Company and comes from everyone. CACEIS Innovation Lab is facilitating ideation, co-creation and testing through challenge open to collaborator, clients and partner

Collaborate

Allow all employees of the group to contribute to the digital transformation

Co-create

Enable clients to participate in the co-creation of new products or services

Client Benefits

- Contribute to the definition of new services and products
- Improve the user experience
- Improve existing processes

CACEIS benefits

- Contribution to the diffusion of the digital culture of the company
- Capitalise on the knowledge and ideas of internal teams
- Stimulate intra-entrepreneurship

CACEIS innovation lab

A new co-creation platform for our staff, clients and partners

https://innovationlab.caceis.com/en

CACEIS innovation lab

First client campaign: + 50 participants
First internal campaign: +300 ideas and comments
-> in progress

Business intelligence

AI is a major transformation for our industry. The potential of all CACEIS services is increased through AI.

Continuation of the email initiative Bot

Provide the culient with a relevant answer as soon as possible

Setting up “selfcare” and chatbot

Smart unmatch-mismatch Management (transactions)

Automate the communication process between CACEIS and the counterparties (clients / brokers)

Smart stock reconciliations

Improve the rate of automatic reconciliation with a logic of continuous improvement

Smart Funds prospectus analysis

Automation of the reading of the prospectus, supply of the basis of the investment restrictions, supply of the different reference systems, standardisation of data and quality controls.

Smart VNI control

Appropriation of accounting rules and realisation of accounting operations, securing the monitoring of rules and identification of errors

Smart securities lending market analysis

Normalise and optimise the current process.

To bring out new correlations

Client Benefits

- Improved client satisfaction / proactivity CACEIS
- Acceleration of processes
- Improving quality / reducing the risk of error
- Improved client performance

CACEIS benefits

- Absorption of larger volumes
- Improved speed of processing
- Lower financial risk (NAV error)

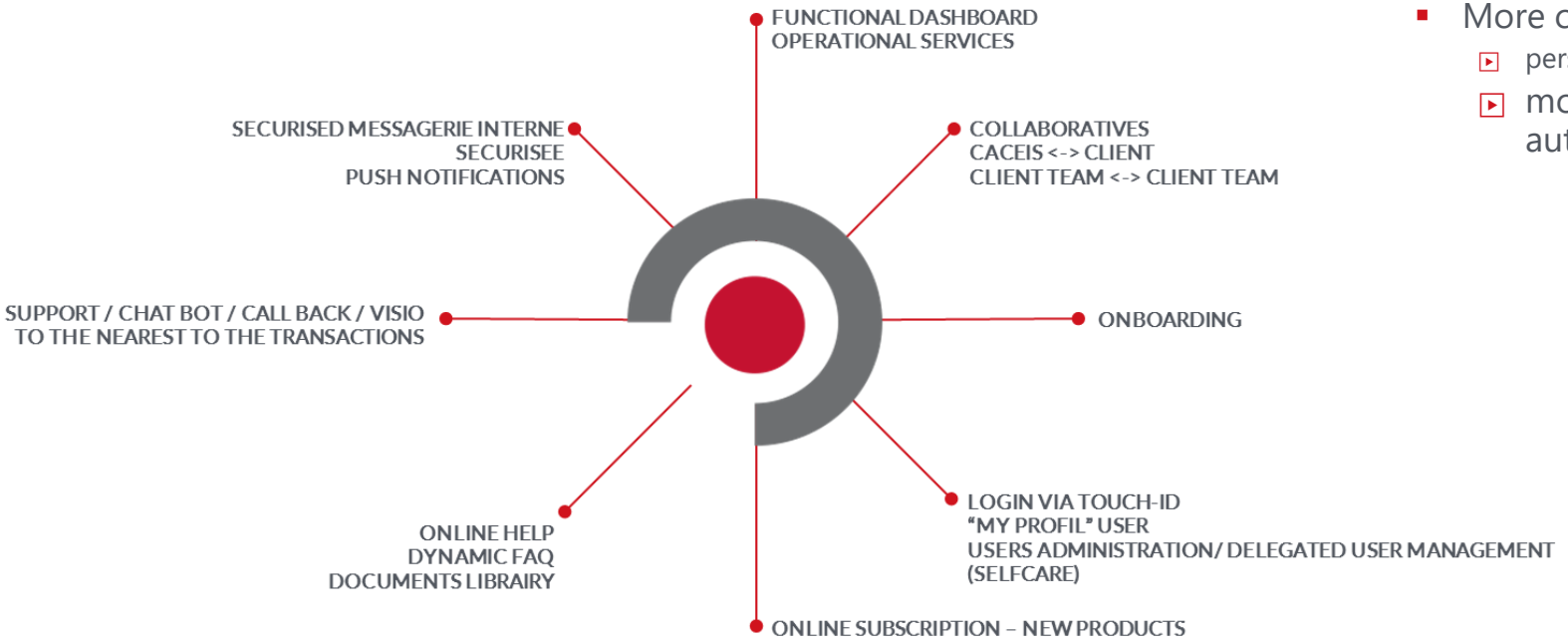
Strengthen existing initiatives

CACEIS digital transformation journey

LIS : A new overview of your data. A major overhaul to digitise the user experience on the client portal is currently in progress

Convergence of client experience with Mobile experience

- Dashboarding
- Notifications
- Proactivity
- Collaborative functions
- FAQ



Client benefit

- More clarity through:
  - implementation of a business dashboard
  - immediate access to operational data
- More fluidity through:
  - collaborative functionality facilitating interactions between your operational teams and CACEIS
  - a team dedicated to CACEIS's digital solutions
- More control over your data
  - personalisation features to get to the essential (available in 2019)
  - more autonomy on the management of your users' authorisations

LIS : a new overview of your data

10,000

Users worldwide

3000

Connections/day

30 secs

Average connection time

CACEIS's mobile app Suite targeted on new user devices allowing access to essential information anywhere at any time: Funds (NAV/collect) & Agro (commodities)

FUNDS: designed for Fund Managers

- NAV follow up and validation
- Access to fund reporting (Hisinv, Fluval, etc.)
- Direct contact and messenging with fund valuation team
- Face and touch ID for login and validation
- Workflow follow up with notifications
- New features
  - Corporate actions follow-up
  - Secure Login to OLIS portal

AGRO: Cutting edge conversational interface for Commodities Investors

- Chat for execution orders on commodities markets
- Never miss a message with message notifications
- Real time access to all available operators
- Market information and commodities price follow up

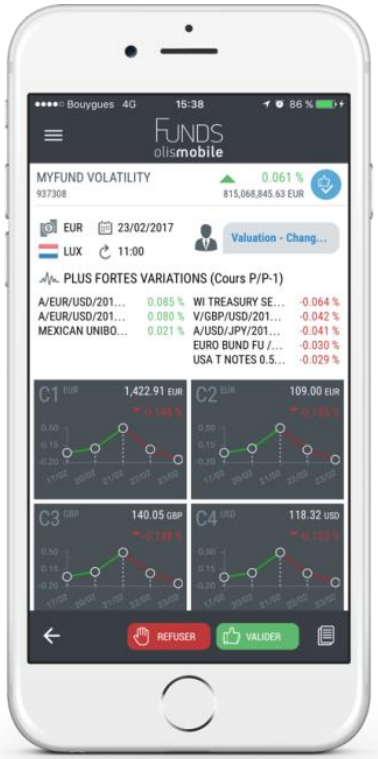
Client Benefits

- Slick and user friendly interfaces
- Real time information
- Customisable notifications
- Available on Apple Store and Playstore

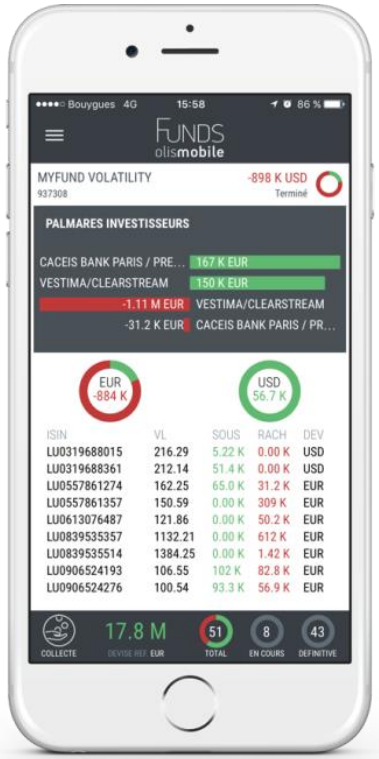
Follow your browser live anywhere at any time

Visual Cross business dashboard

NAV follow-up as it happens



Comprehensive fund page for validation



Real-time returns

Funds: 3,200 installations since launch (Jan 18)

Cutting-edge conversational commodities trading

Visual landing page

User friendly chat

Commodities follow-up

Easy access to all features

Agro: available from 18th October

The funds network

TEEPI (Tailored Electronic Exchange Platform for Investors) was designed to facilitate and enhance the relationship between financial institutions and their asset managers.

Designed around investors' needs for efficient and multi-dimensional data collection

- Funds follow-up with user-friendly functions and filters
- Find new funds, thanks to powerful search tools
- Mass upload/download Solvency, PRIIPS of MIFID data.
- Data aggregation and powered with automatic cameras

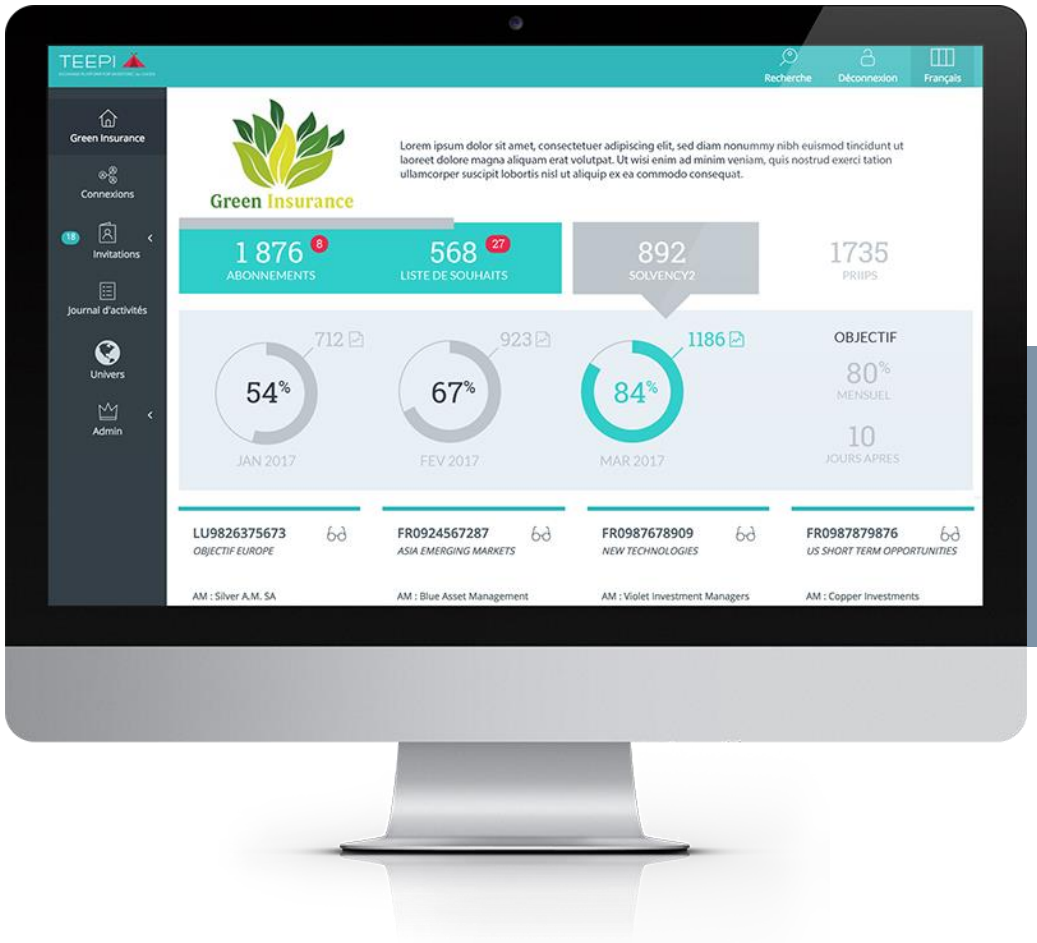
Client Benefits

- Covers all regulatory data
- User friendly, easy-to use Social Network-based features
- Direct company-to-company relationship
- Support from a dedicated Client Service Team

Fast network build-up capabilities

- 2-way invitation system for quick and secure connection
- Simple and lightning-fast company registration, companies can be active in a matter of minutes
- Standard general conditions to further accelerate connections by avoiding signing bilateral NDAs
- Easy interactive or automated bulk upload by Asset Managers ensuring quick and frequent file delivery

Sharing Data in a simple and easy way



TEEPI solves the challenge of collecting regulatory data from multi-counterparts.

www.teepi.com

A DISTRIBUTION PLATFORM FOR FUNDS

Launched in December 2016
- 270 management companies & 30 institutional clients registered
- 30,000 ISIN listed

~ 200,000 files exchanged

Web Investor

"Portal for final investors designed as a B2B2C service -> Currently being rolled out

Overview of the services

- View Profile
- View Holdings
- View Transactions
- View & Download Reports
- View KYC Status & Documents
- User access

Client benefits

- Improvement of the end-investor experience: service available 24hrs a day and autonomy in the search for information,
- Mid-term & long-term objectives:
  - Enable investors to subscribe into the funds from the website of the management company

CACEIS benefits:

- Enable investors to access on-line information: therefore avoid contact with operational teams → increase productivity
- Mid-term & long-term objectives:
  - Enable digital onboarding of new investors → increase productivity and service quality
  - Allow investors to update their KYC documentation digitally → avoid blocking of payment for redemption and remediation process →increase productivity

Fast and analytical investment follow-up for end-investors

A visual and user-friendly interface, available to all CACEIS clients' investors to monitor their portfolios.

DATA ANALYTICS SERVICES

Tapping into the potential of data for us and for our clients -> Under development

Improve the platform

Implement new service based on custody and FA data.

Broaden the 'investor behaviour analysis' by integrating 'positions on the liabilities side.'

Be able to analyse external data (environmental data, social networks...)

Developing a 360° client view

Client Benefits

- Facilitate data access
- Facilitate data analytics
- Allows clients to better understand their business

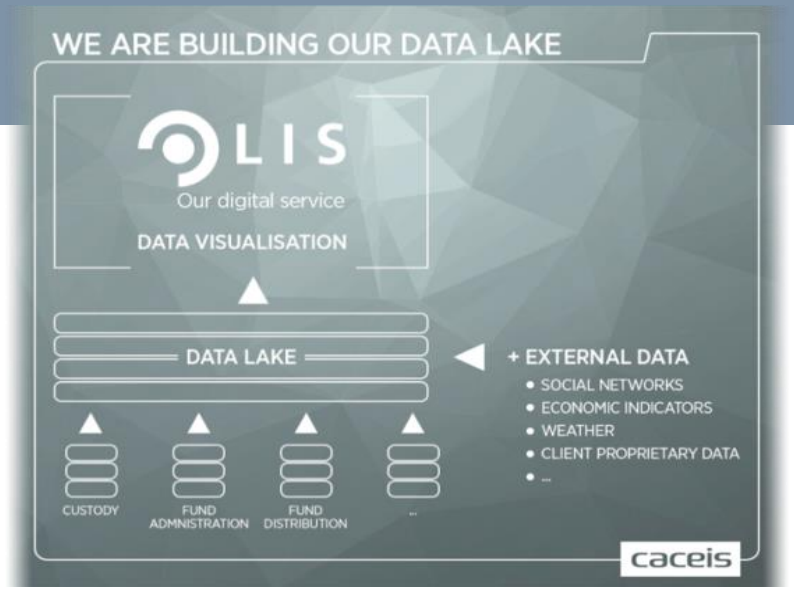
CACEIS benefits

- Allows the development of new services
- Improve mutual understanding with the client

Visualise and discover

'Dive into the heart of your data, switch from a macro to a micro point of view, in the blink of an eye'

Big Data Technology allows us to rethink our services for our clients, taking them to new strategic levels.



caceis
INVESTOR SERVICES
Solid & innovative

IPFOS

INDEPENDENT PENSION FUND OVERSIGHT SERVICES

“Dank voor uw aandacht”

Arnaud Misset, CACEIS

Wassenaar, 23 november 2018

“Blockchain binnen APG & Hoe blockchain toe te passen binnen de pensioenadministratie”

Rick Meerwaldt, APG

Wassenaar, 23 november 2018

GroeiFabriek
Innovation Lab
Powered by
apg

Introductie

- De grootste **pensioenuitvoeringsorganisatie** van Nederland en een van de grootste in de wereld.
- APG beheert het pensioenvermogen van ongeveer **4,5 miljoen Nederlanders** voor haar klanten. We voeren een verantwoordelijke taak uit voor één op de vijf gezinnen.
- APG investeert **450 miljard euro** voor pensioenfondsen met de grootst mogelijke zorgvuldigheid.
- **3200 mensen** werken in kantoren in New York, Amsterdam, Heerlen, Brussel en Hongkong.
- **Oprichter en belangrijke partner** van de Brightlands Smart Services Campus en Techruption Community.

Rick Meerwaldt
Blockhain Engineer

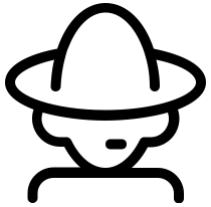
Achtergrond
Bsc. Informatie, Multimedia & management
Msc. Information Sciences

Contact

Mail: rick.meerwaldt@apg.nl

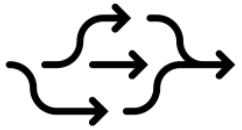
Tel: +31 (0)6 12 05 99 43

Innovatie doelen van APG

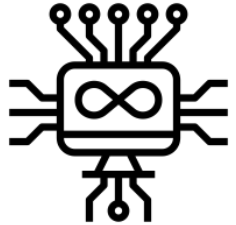


Het aanbieden van nieuwe, relevante en persoonlijke diensten.

Het verlagen van de kosten voor de deelnemer.



Het creëren van een agile en flexibele bedrijfscultuur om externe druk te weerstaan.



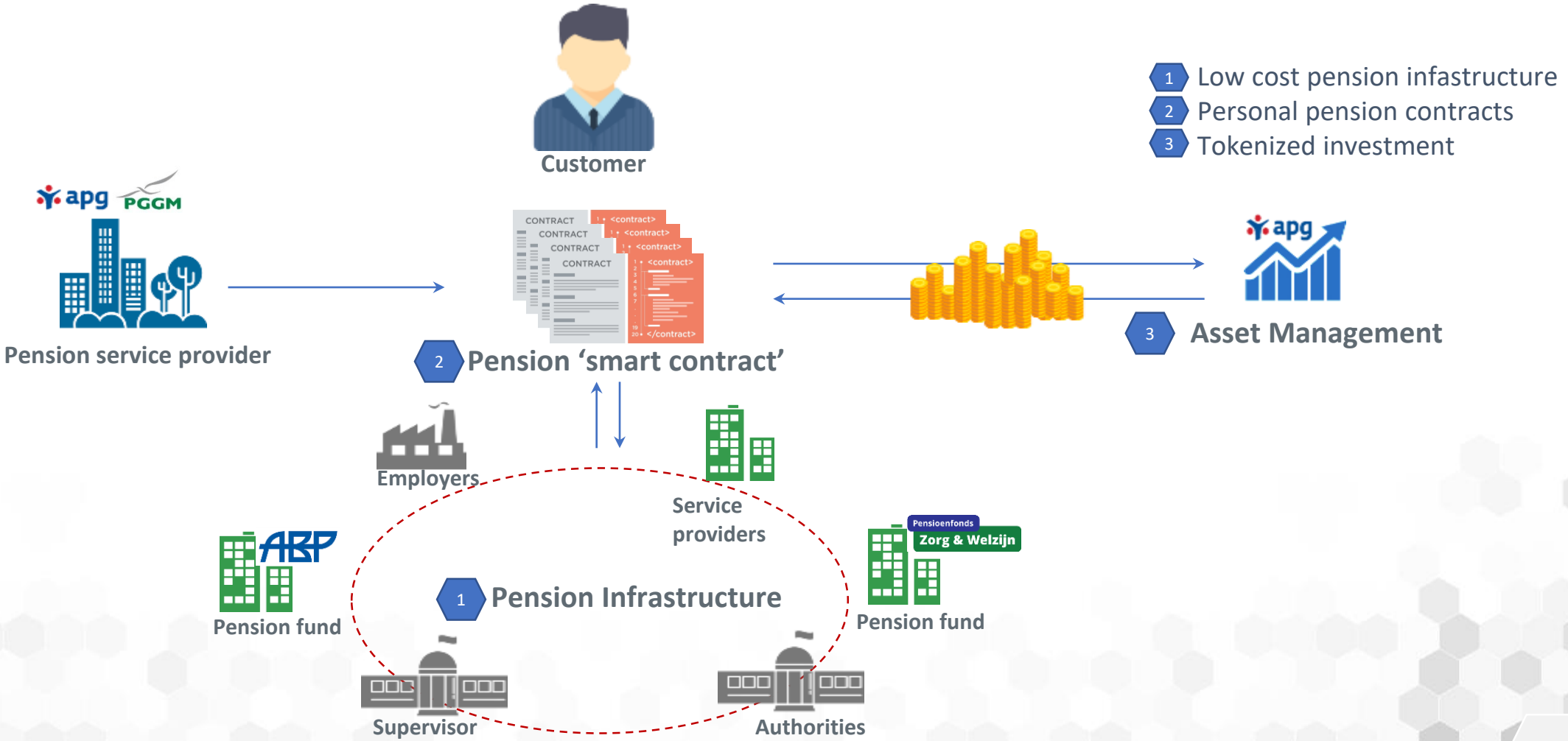
Gebruik maken van nieuwe technologieën, zoals blockchain.

Wat is blockchain?

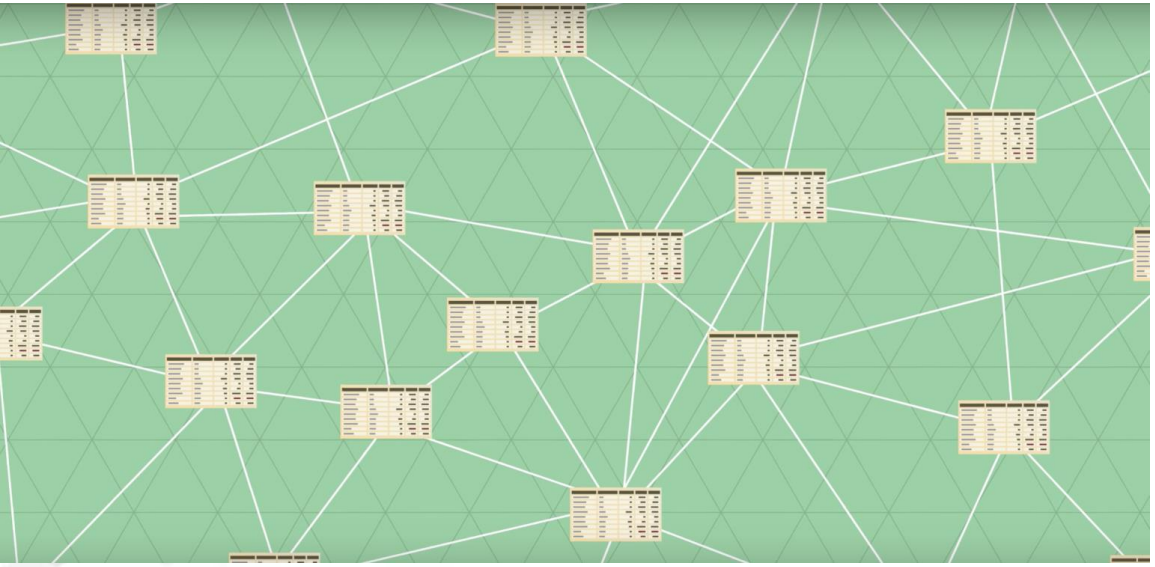
Een blockchain is een combinatie van een **database** en een **netwerk** waarin alle machines *dezelfde gegevens delen*, waardoor de realiteit voor alle machines hetzelfde is. Een enkele wijziging op één plek zal invloed hebben op de rest van het netwerk.

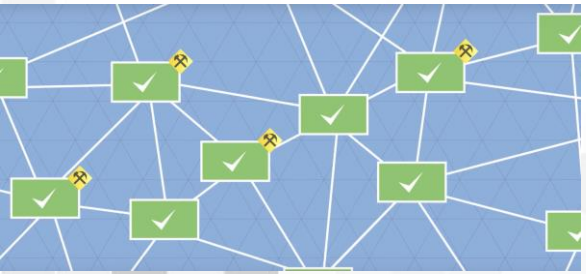
Blockchain maakt samenwerking mogelijk zonder verlies van autonomie

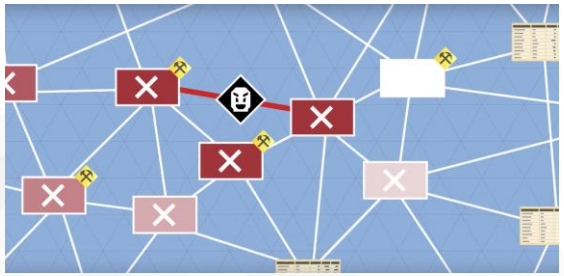
The future of pensions



Hoe werkt een blockchain?







Iedereen met een internetverbinding kan de volledige geschiedenis van transacties downloaden en een node in het netwerk zijn.

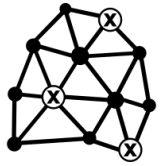
Nodes zorgen samen voor een real-time, transparante controle van het netwerk en dwingen de regels af.

Fraude, zoals proberen dezelfde bitcoin twee keer te sturen, wordt automatisch als ongeldig beschouwd en afgewezen.

Fundamentele concepten blockchain

Peer-to-peer	A blockchain platform is generally built on a peer-to-peer network of distributed node, nodes communicate with each other without the control of a central party.
Cryptography	Cryptography is used to ensure that copies are identical, no transaction is duplicated and to enforce specific permissions for reading the data is stored.
Transactions	Transactions represent a transfer of information between two or more addresses within the network.
Consensus Mechanism	A method of authenticating and validating a value or transaction on a Blockchain without the need to trust or rely on a central authority. It is a set of rules and procedures that maintains a coherent set of facts among the participating nodes.
Distributed Storage	Based on a distributed ledger, transaction records are repeated in an identical copy in multiple nodes.

Blockchain kansen for pensioenen



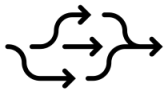
Gedecentraliseerd, omdat niemand de volledige eigenaar is. Autonomie gaat niet verloren door samen te werken.

Integriteit, omdat we kunnen laten zien wie wat bezit en de integriteit van transacties aan kunnen tonen om fraude te voorkomen

Lage kosten, omdat we dezelfde infrastructuur gebruiken

Veilig, omdat er gebruik wordt gemaakt van een gedecentraliseerd en controleerbaar grootboek

Contract automatisering, alle typen pensioencontracten kunnen worden uitgevoerd op de gedeelde pensioen infrastructuur



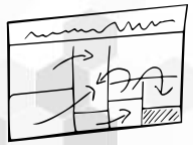
Flexibel, omdat alle type contracten kunnen worden uitgevoerd

Uitdagingen van blockchain

Technologische volwassenheid

Governance & Legal

Ecosysteem



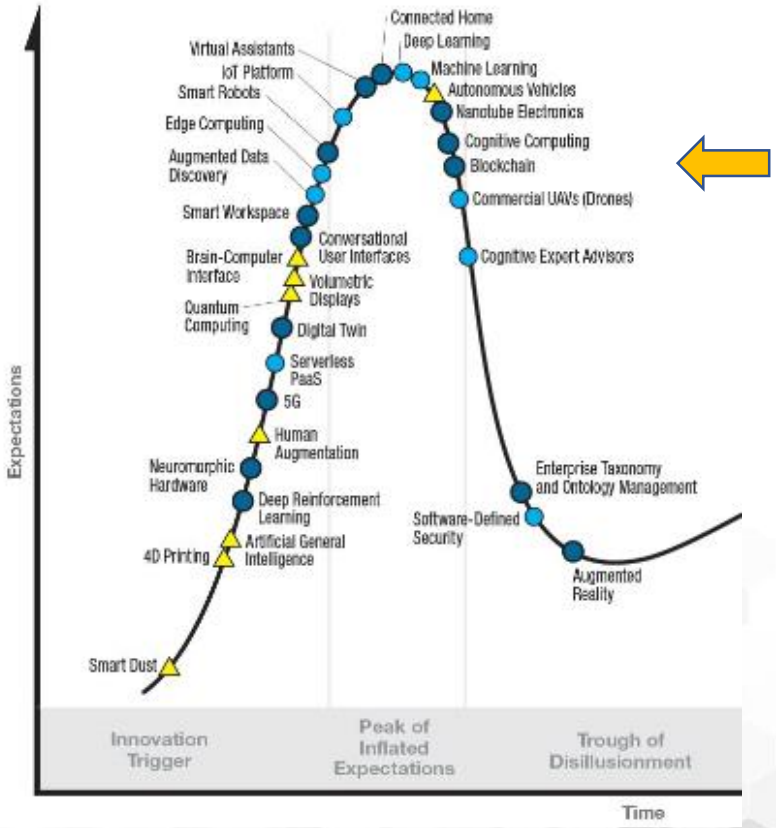
Business model

Blockchain is nieuw en onvolwassen. Schaalbaarheid, interoperabiliteit en standaardisatie zijn grote uitdagingen

De huidige governance en wettelijke kaders komen niet overeen met de kenmerken van blockchain.

Ecosysteem benadering om wederzijdse waarde te creëren is een ander paradigma.

Het gebruik van blockchain heeft invloed op bedrijfsmodellen, operations en value streams.

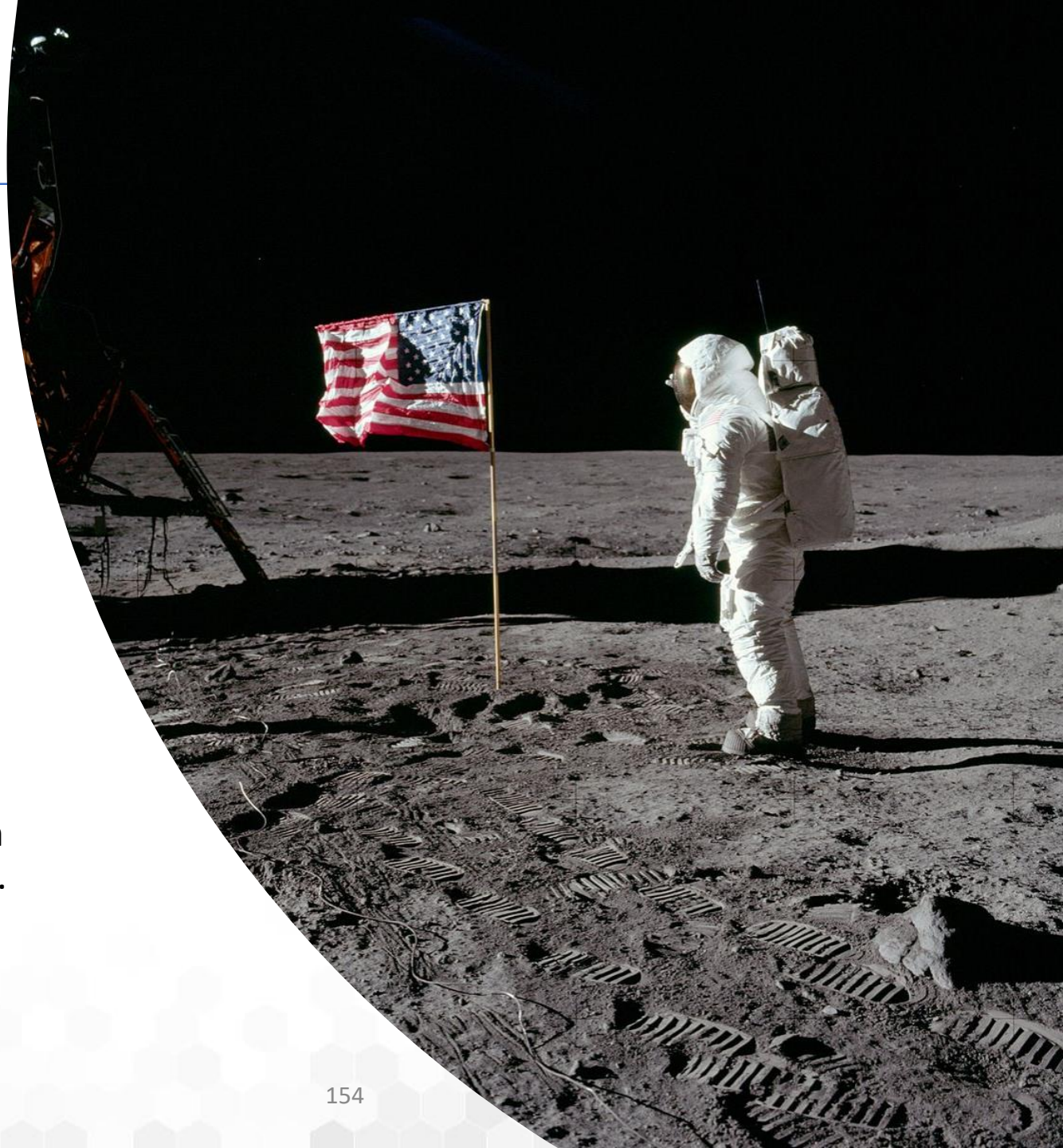


Moonshot

Waarom: wij geloven dat iedereen goede pensioendiensten moet kunnen krijgen, ongeacht de baan die zij hebben.

Hoe: met een innovatief en creatief team kunnen we het potentieel van blockchain gebruiken en een ecosysteem creëren dat iedereen ten goede komt.

Wat: wij creëren en ondersteunen een goedkope, flexibele en betrouwbare pensioen infrastructuur zodat pensioenuitvoerders maximale waarde kunnen bieden voor de pensioenfondsen en hun deelnemers.

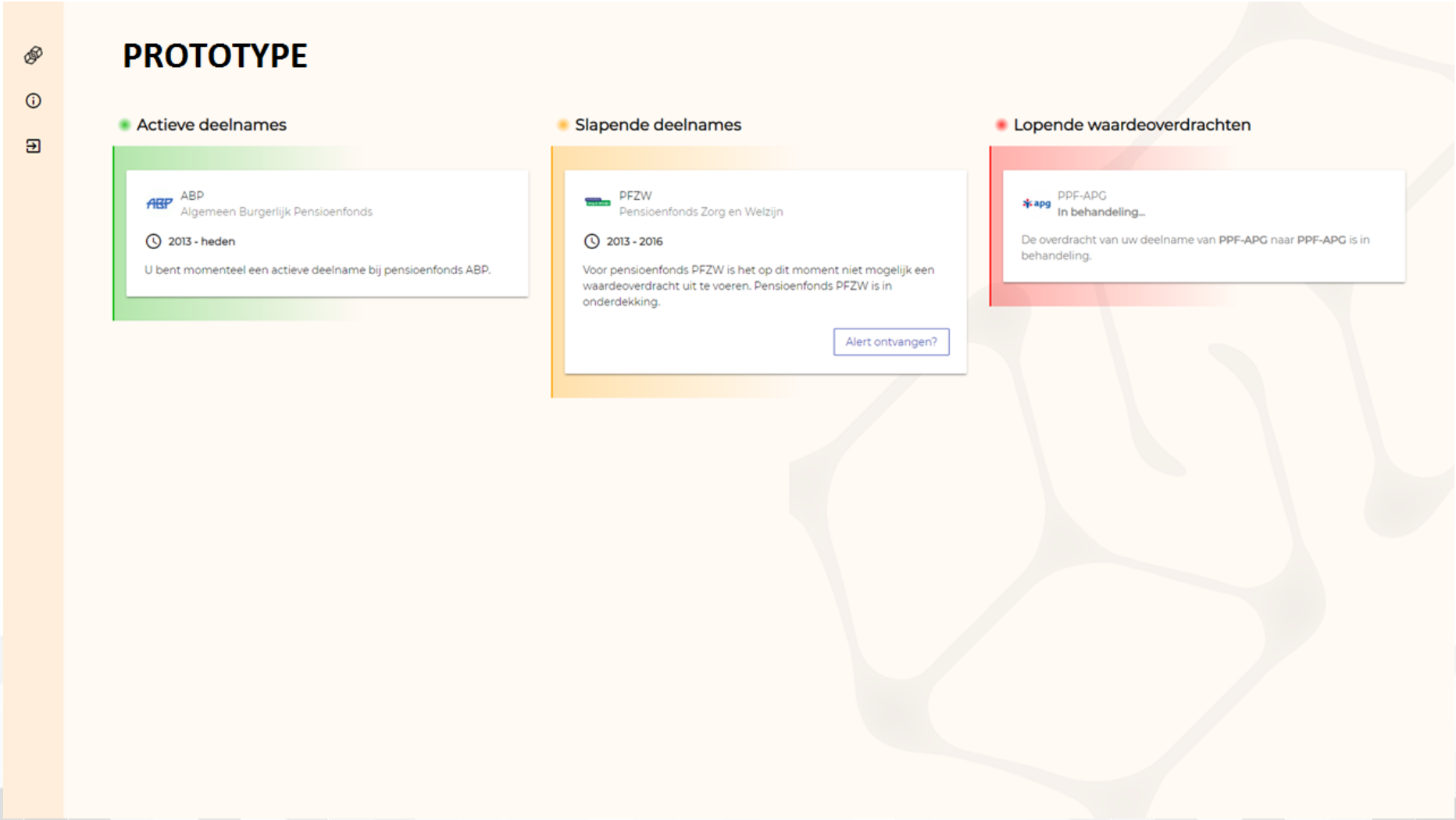


Pension Infrastructure Value Transfer (PIVT)

Kunnen we het huidige waardeoverdracht proces verbeteren door middel van blockchain?

- Focus op reguliere waardeoverdrachten
- Automatisch zoeken van actieve en inactieve deelnames
- Automatisch berekenen van alle mogelijke offertes
- Offerte accepteren en berichtgeving naar pensioenfondsen voor definitieve overdracht

Pension Infrastructure Value Transfer (PIVT)



Meer weten?

[Bitcoin white paper]

[How does a blockchain work - Simply Explained]

[The real value of bitcoin and crypto currency technology - The Blockchain explained]

[Pensioen blockchain wiki]

Contact

Mail: rick.meerwaldt@apg.nl

Tel: +31 (0)6 12 05 99 43

Anders denken, omdenken ... Wat biedt het ons?

Laat je inspireren tijdens de GroeiFabriek summit!

Datum: 11 december 2018
Locatie: 4e etage Campus, Heerlen
Aanmelden: www.groeifabriek.com

Vragen?

“Dank voor uw aandacht”

Rick Meerwaldt, APG

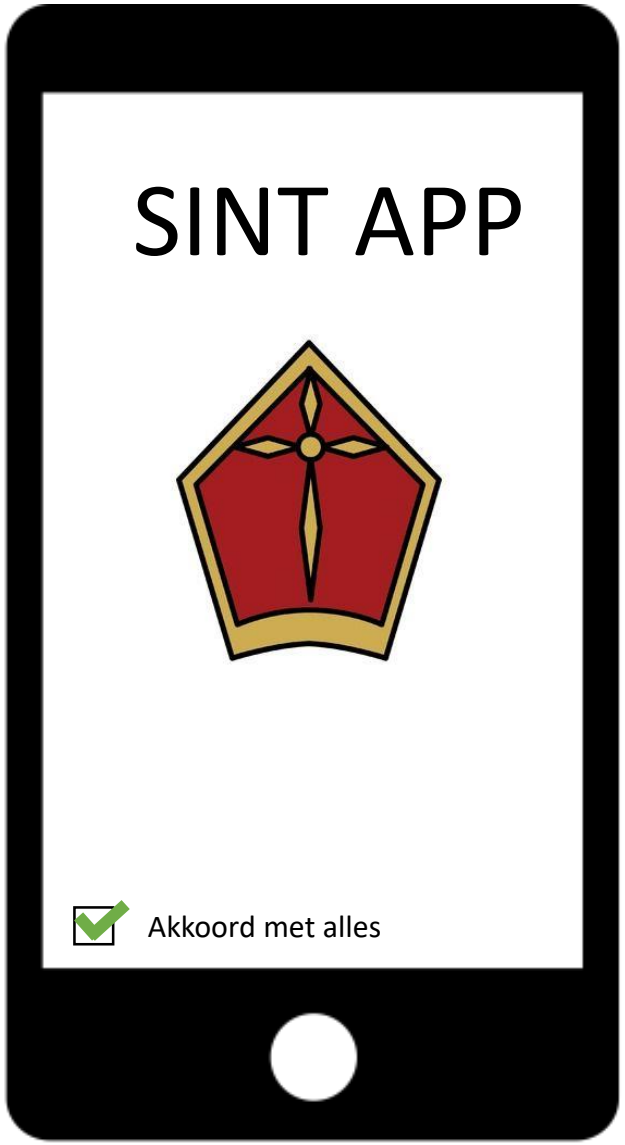
Wassenaar, 23 november 2018

IPE OS

INDEPENDENT PENSION FUND OVERSIGHT SERVICES

“Wrap-up”

Wassenaar, 23 november 2018


SINT APP
Akkoord met alles

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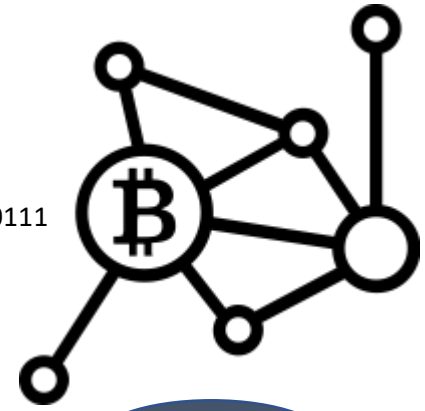
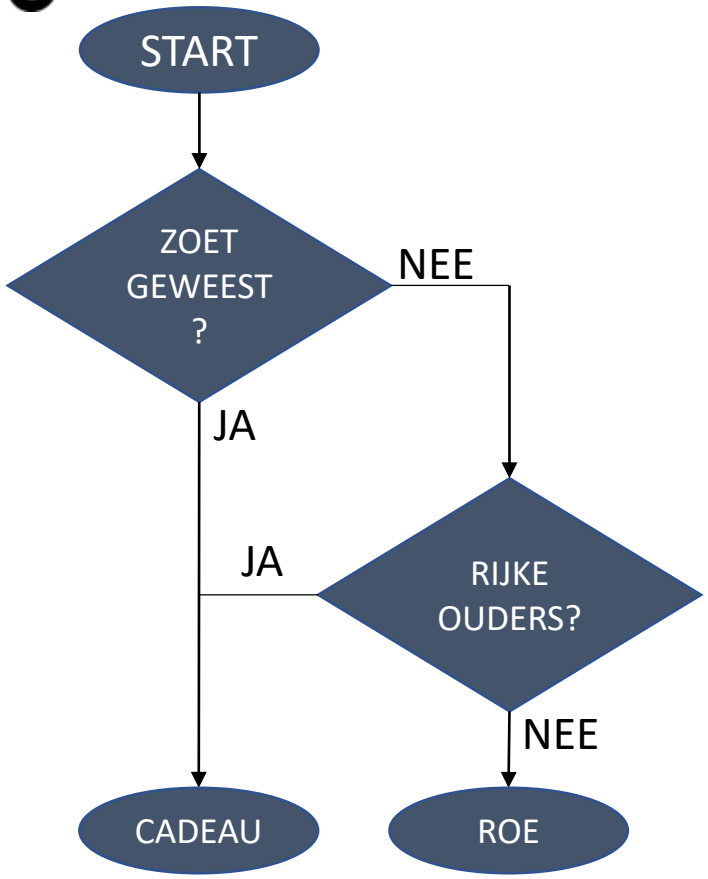
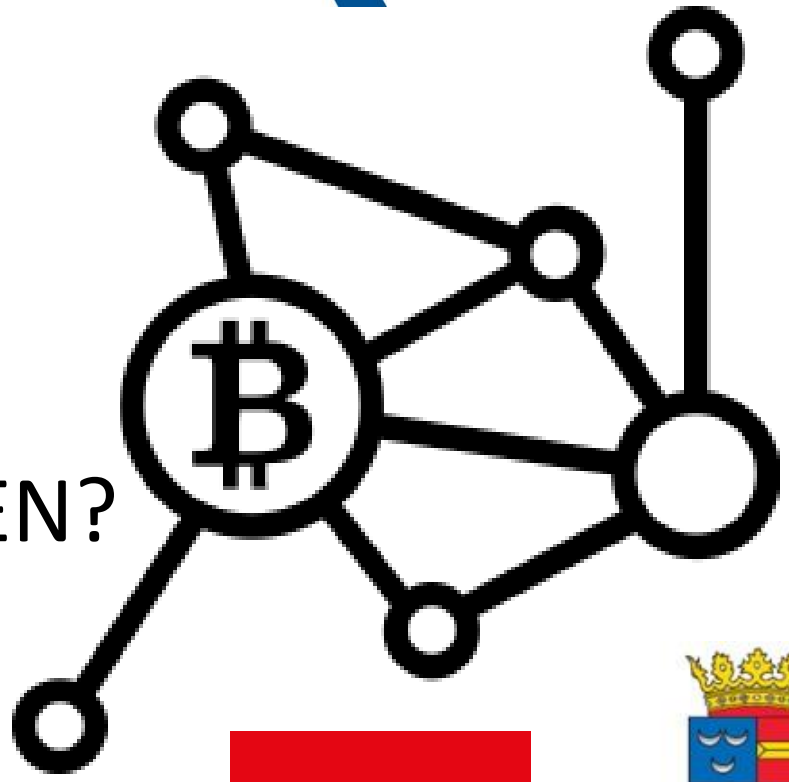




kadaster

Belastingdienst

kamer van koophandel



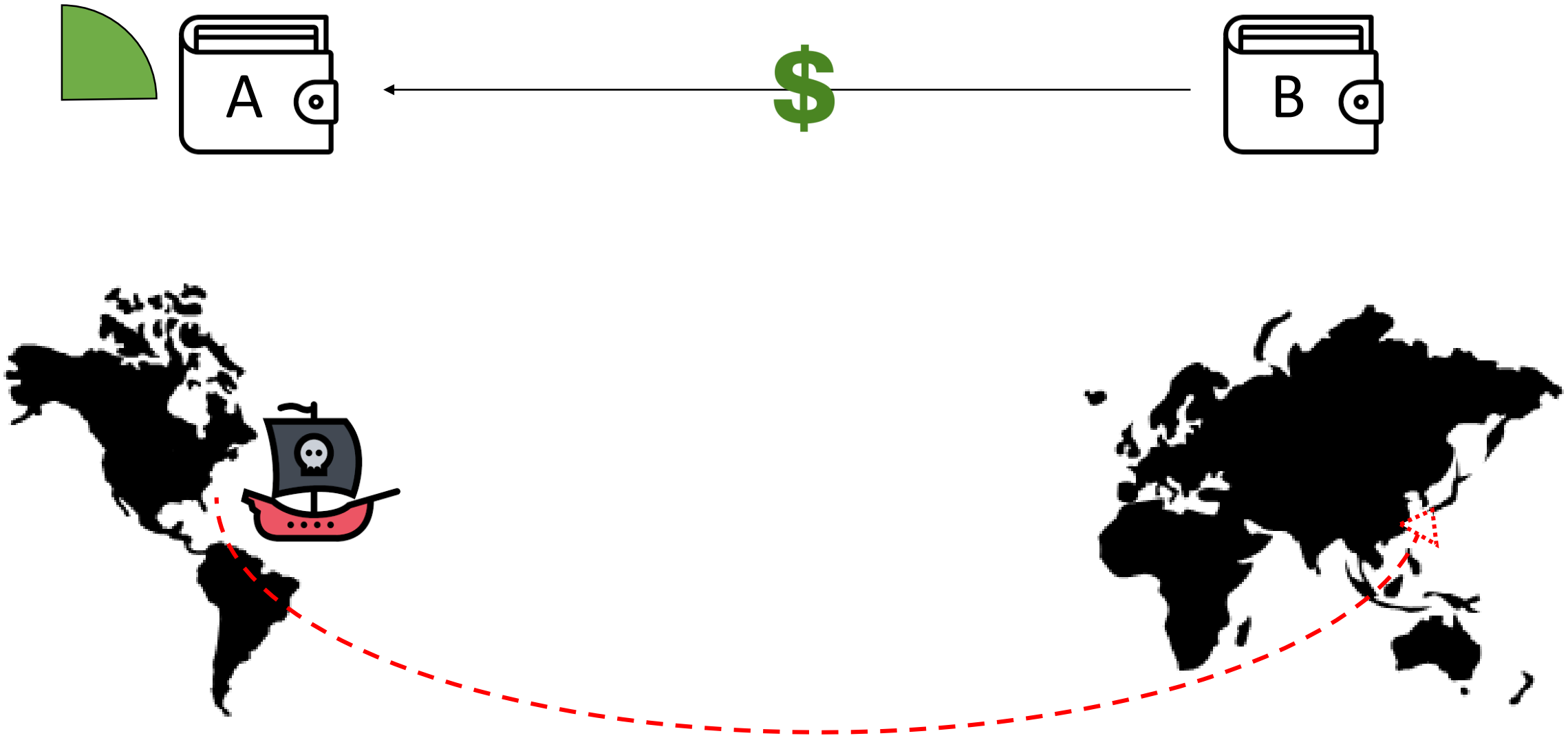
VREDE EN RECHT
Den Haag

PENSIOENFONDSEN?

- ✗ Gemeente
- ✗ Amsterdam
- ✗

IPFOS
INDEPENDENT PENSION FUND OVERSIGHT SERVICES

Gemeente
Wassenaar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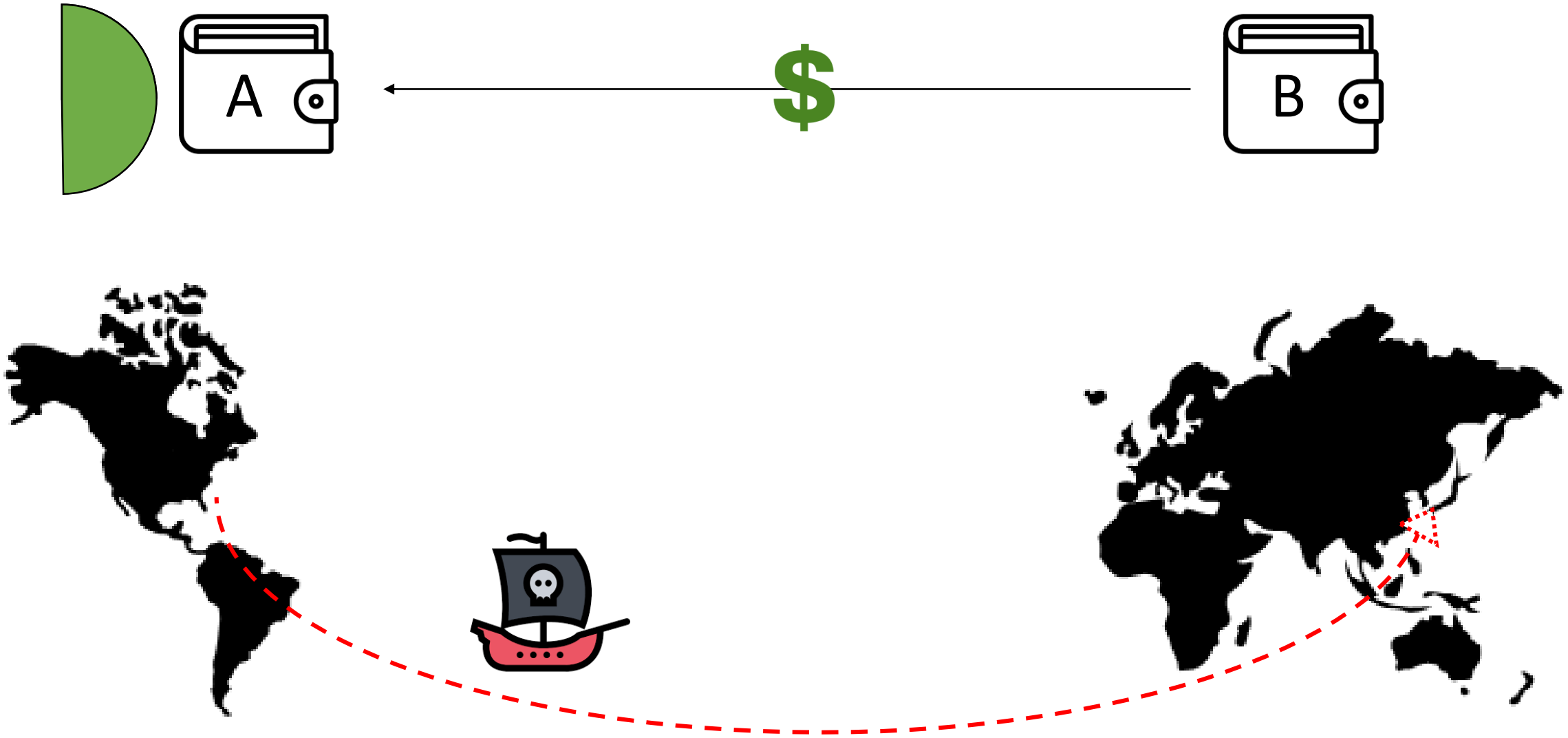
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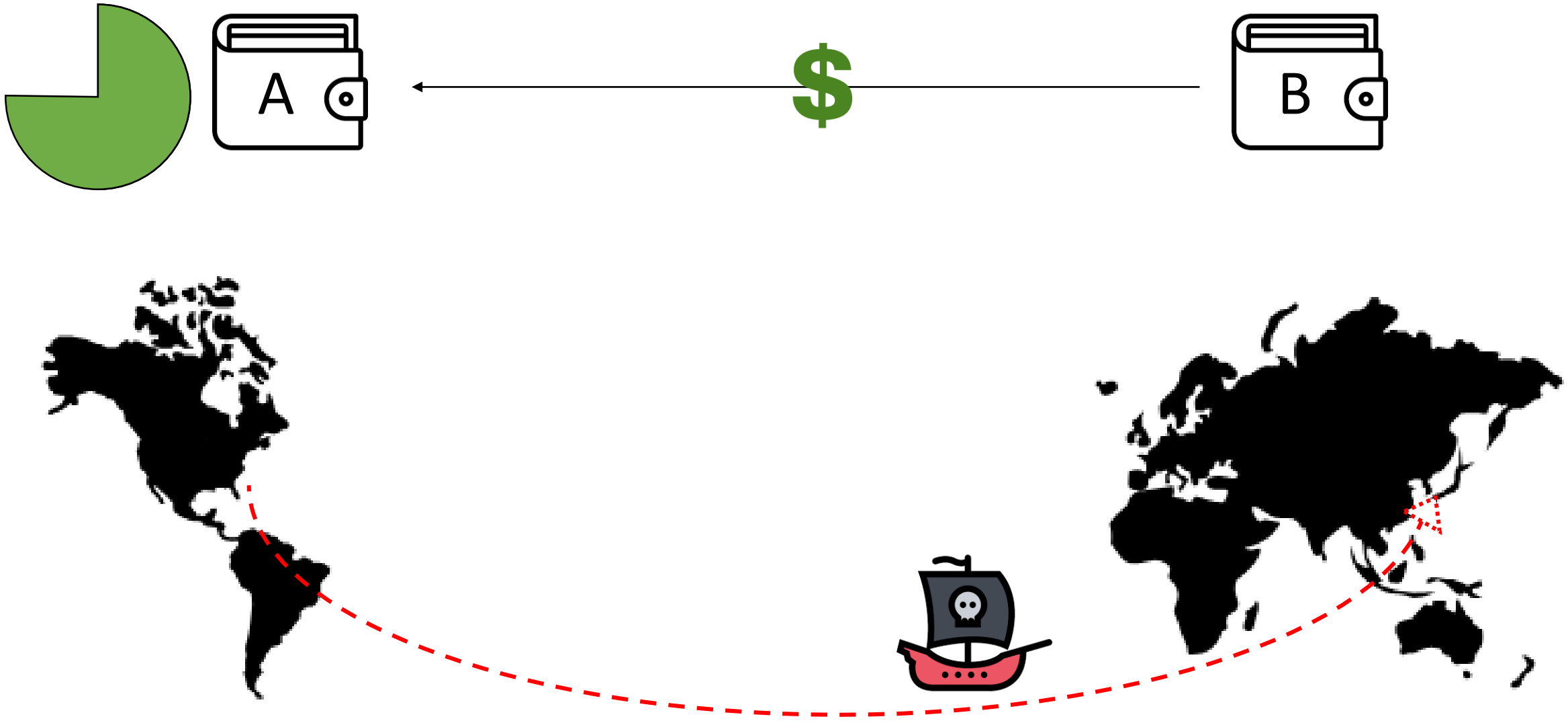
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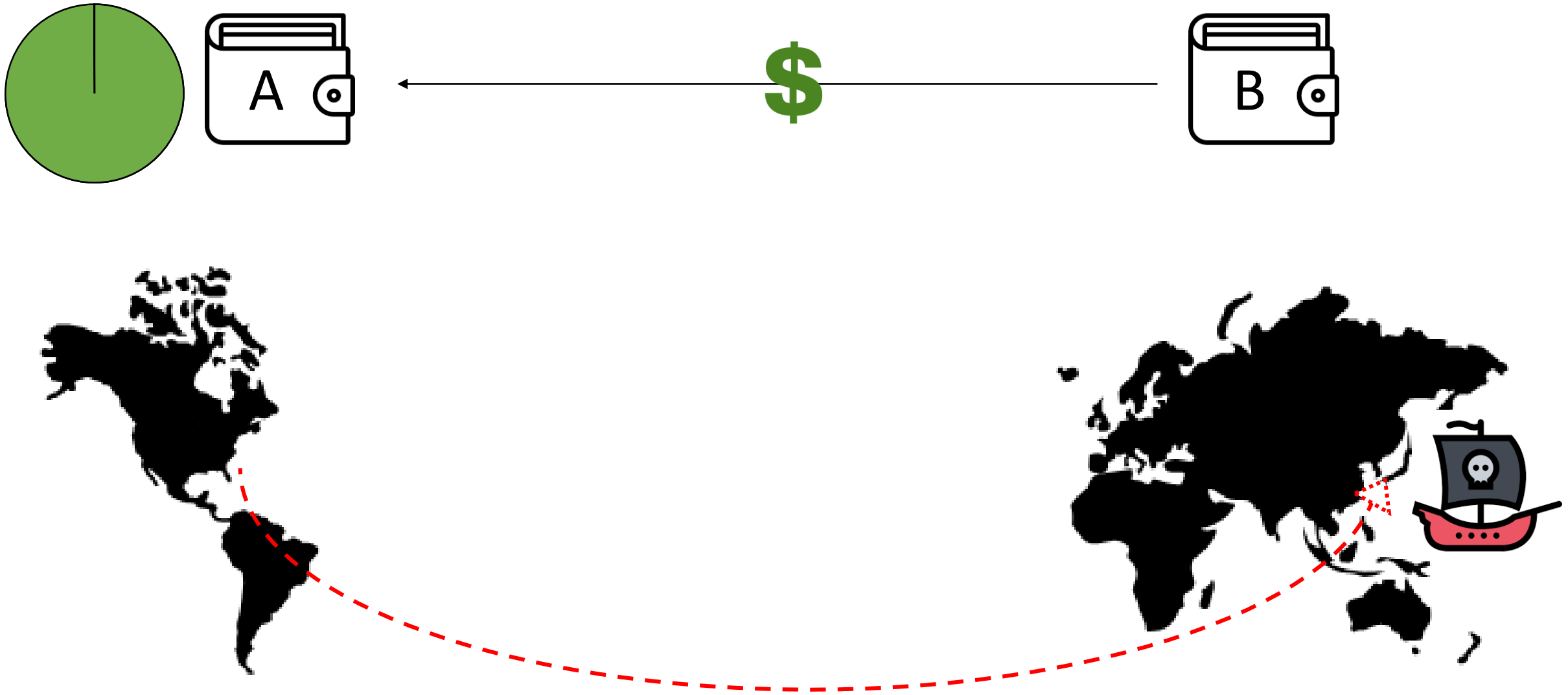
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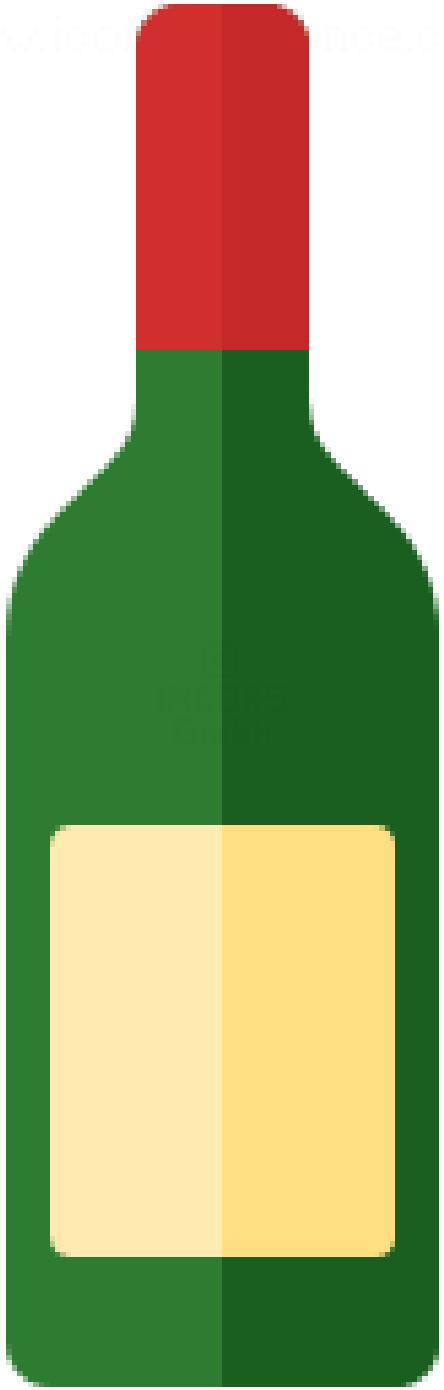

Onze hartelijke dank aan:

Eran Raviv

Matthijs Storm

Scott Richardson

Arnaud Misset

Ken van Eesbeek

Rick Meerwaldt

Digitale Goodiebag

U ontvangt komende week een Digitale Goodiebag met:

- De presentaties van deze conferentie
- De nodige achtergrond informatie met betrekking tot:
  - Blockchain
  - Artificial Intelligence
  - Big Data Matching en Return Portefeuilles
- Enige White Papers

Netwerkdrankje en hapje aan de bar.

Disclamer

Dit document dient enkel ter informatie en is 1) geen voorstel of aanbod tot het aankopen of verhandelen van de financiële instrumenten hierin beschreven zouden zijn en 2) geen beleggingsadvies. Vooraleer een beslissing tot belegging in de financiële instrumenten hierin beschreven te nemen, dienen toekomstige beleggers de meest recente versie van het prospectus te raadplegen. Bovendien dienen toekomstige beleggers zelf de nodige onderzoeken te verrichten en het nodige juridisch, boekhoudkundig en fiscaal advies in te winnen om de geschiktheid van deze belegging te bepalen. De hierin vervatte opinies kunnen worden gewijzigd zonder voorafgaand bericht.

De beleggers dienen er zich van te vergewissen dat ze de laatst beschikbare versie van dit document lezen.

In het verleden behaalde resultaten of prestaties geven geen indicatie voor de huidige of toekomstige resultaten De resultaten houden geen rekening met de provisies en kosten verbonden aan de uitgifte of terugkoop van aandelen.

Gelieve voor bijkomende informatie contact op te nemen met info@ipfos.eu

IPFOS is een handelsnaam van TFS B.V. Dit document werd uitgegeven door IPFOS (adres: Melmansdam 4, 2361 BX, Warmond)

Niets van deze presentatie mag op welke wijze dan ook worden gekopieerd zonder voorafgaande toestemming van IPFOS / TFS B.V.. Deze presentatie bevat informatie, die met de meeste zorgvuldigheid is samengesteld. IPFOS en TFS B.V. aanvaarden geen aansprakelijkheid voor mogelijke gevolgen, die zouden kunnen voortvloeien uit het gebruik van de in deze presentatie opgenomen informatie.