For professional investors - Marketing communication - September 2020

A PRACTICAL GUIDE TO CASHFLOW DRIVEN INVESTING

BNP PARIBAS
ASSET MANAGEMENT

The asset manager
for a changing
world

CONTENTS

EXECUTIVE SUMMARY

De huidige marktomgeving, met haar lage rentestand, is uitdagend voor Nederlandse *defined benefit* pensioenfondsen. Daarnaast zullen pensioenfondsen zich moeten gaan voorbereiden op de transitie naar een nieuw pensioenstelsel. In dit nieuwe stelsel zal er geen directe opbouw van toezeggingen meer plaatsvinden, waardoor het afdekken van het renterisico van langlopende verplichtingen niet meer nodig is. In het belang van de deelnemers zal het genereren van een aantrekkelijk rendement in combinatie met een stabiele ontwikkeling van het vermogen en daarmee de verwachte uitkering een belangrijke drijfveer worden. In het huidige stelsel zal de optimalisatie van de dekkingsgraad en de kans dat pensioenen geïndexeerd kunnen worden nog steeds van belang blijven.

Een kasstroom gedreven aanpak, waarbij wordt belegd in producten met een wat hogere, relatief stabiele opbrengst, waarvoor liquiditeit wordt ingeleverd, kan in beide stelsels aantrekkelijk zijn. Met deze CDI-aanpak wordt belegd in minder liquide beleggingen die een match hebben met de kasstromen van de verplichtingen en tegelijkertijd een hoger voor risico-gewogen rendement genereren.

Veel Nederlandse pensioenfondsen doen dit al door een deel van hun assets te alloceren aan Nederlandse hypotheken. Er zijn ook andere oplossingen, waarbij liquide *credit* beleggingen worden gecombineerd met minder liquide beleggingen zoals infrastructuurleningen, leningen voor commercieel vastgoed, leningen aan MKB's en gestructureerde leningen met onderpand (asset-backed securities).

De bijkomende voordelen van een CDI-aanpak kunnen als volgt worden samengevat:

- Extra rendement boven dat op staatsobligaties, swaps en investment-grade leningen
- Cashflows gedekt door hoogwaardig onderpand
- Cashflows gekoppeld aan inflatie
- Langetermijncashflows
- Ingekaderde, vaste inkomstenstromen
- Beperkte marktexposure (diversificatievoordelen)
- Lagere kans op defaults[1]

Bij het opzetten van een portefeuille van assets die vaste inkomsten genereren is diversificatie van cruciaal belang. Vanwege het vaak idiosyncratische risico bieden de verschillende asset classes in een CDI-benadering diversificatievoordelen ten opzichte van elkaar en ten opzichte van de meer traditionele liquide componenten van institutionele portefeuilles. In dat opzicht helpen ze staartrisico's te mitigeren.

De CDI oplossing van BNPP AM kan worden samengevat als een driestappenproces:

a) Het samenstellen van een portfolio die aan de eisen van de klant voldoet

b) Het implementeren van de portefeuille op een dynamische manier

c) Het bieden van governance en rapportage aan het bestuur en andere stakeholders.

Duurzaamheid en ESG[2] passen goed binnen het CDI concept, maken onderdeel uit van het gehele beleggingsproces en kunnen op projectniveau goed worden ingevuld.

[1] 'Default and recovery rates for project finance bank loans, 1983-2010', Moody's, 31 januari 2012

[2] Beleggen op basis van aan environmental (milieu), social (maatschappij) en governance (degelijk bestuur) gerelateerde selectiecriteria

1 INTRODUCTION

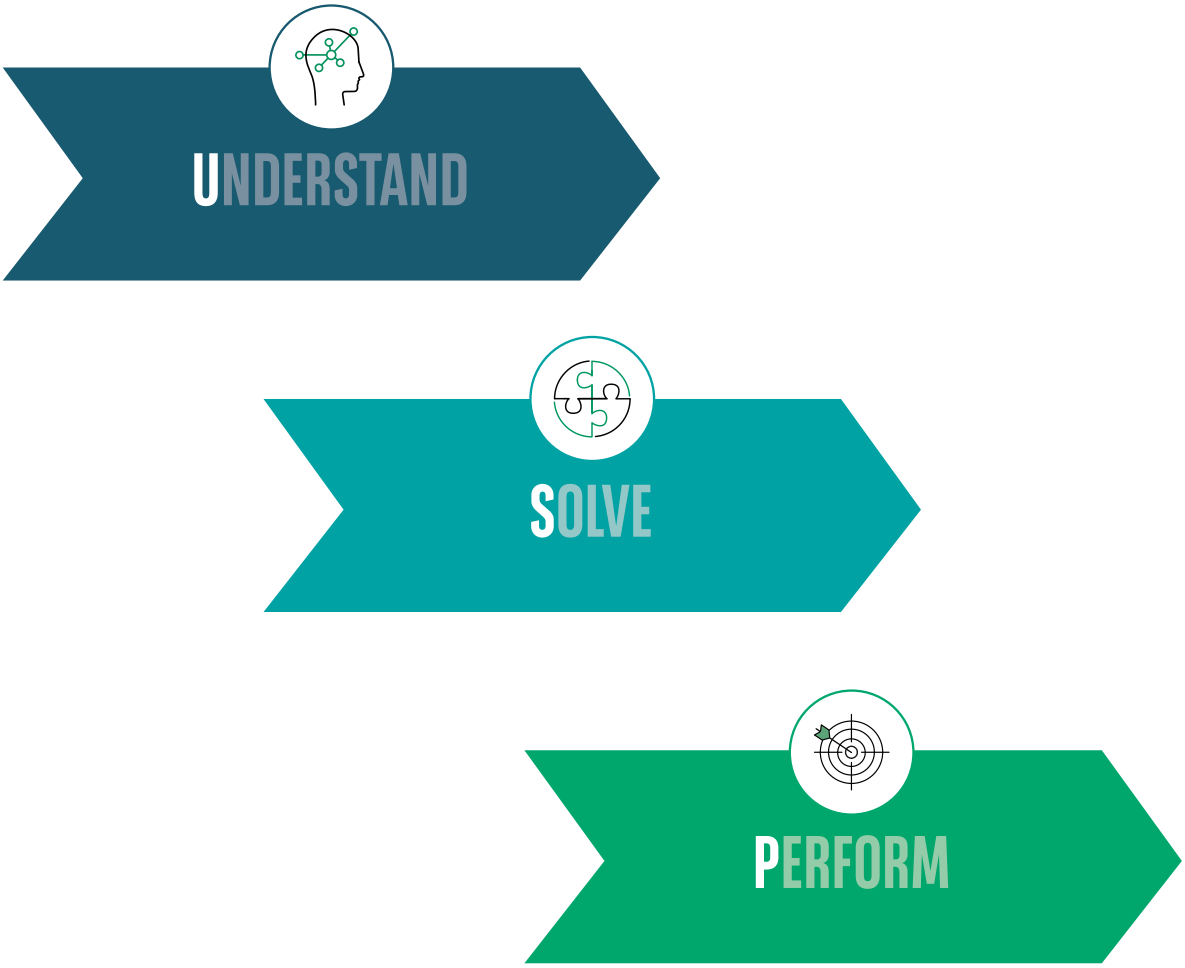
The current market environment is challenging for Dutch defined benefit pension schemes. Funding ratios are under pressure mainly from low discount rates. The yield on liability-driven investment (LDI) portfolios is typical low.

To optimise the funding ratio and to maximise the likelihood that pensions can be inflation-indexed, schemes are turning more to cashflow driven investing (CDI) so that they can better match liability cashflows while generating higher risk-adjusted returns.

Many of the asset classes used in CDI portfolios **are contractual in nature**, have lower default rates than investment grade credit with a similar rating (e.g., mortgages and infrastructure debt[1]), are backed by tangible collateral and **are marked to model**, lowering overall portfolio volatility.

At BNP Paribas Asset Management (BNPP AM) we are able to offer investors a broad blend of underlying private market and real assets exposure, a unique dual proprietary origination model, co-investment with the BNP Paribas Group, holistic cashflow management and bespoke investment solutions to clients' needs.

[1] Moody's 'Default and recovery rates for project finance bank loans, 1983-2010', 31 January 2012.



Contact Us:

Anton Wouters

Head of Solutions & Client Advisory
Multi Asset, Quantitative & Solutions (MAQS) investment group

Anton is responsible for all tailored solutions for pension funds, corporates and insurance companies. He has held this position since 2017. Anton started his career in 1984, after his study mathematics at the Delft University of Technology, as quantitative consultant in the econometrics department of the former AMRO Bank. In 2004 when he became responsible for developing Liability Driven Investments (LDI) and Fiduciary Management for ABN AMRO Asset Management, a predecessor of BNP Paribas Asset Management. In this role he developed and built the firm's full LDI and fiduciary business including risk management. Anton laid the foundation for a comprehensive department for LDI and fiduciary management.

anton.wouters@bnpparibas.com

Joost Höppener

Head of Sales Netherlands

Joost is responsible for all client related activities in the Netherlands. He joined BNP Paribas Asset Management in 2005 as client relationship manager. Before that he worked for Van Lanschot Bankiers as a Private Banker. Joost graduated from Maastricht University, with a major in Fiscal Economics and is a CFA charter holder.

joost.hoppener@bnpparibas.com

2 THE VALUE OF CASHFLOW DRIVEN INVESTING

WHAT IS CASHFLOW DRIVEN INVESTING?

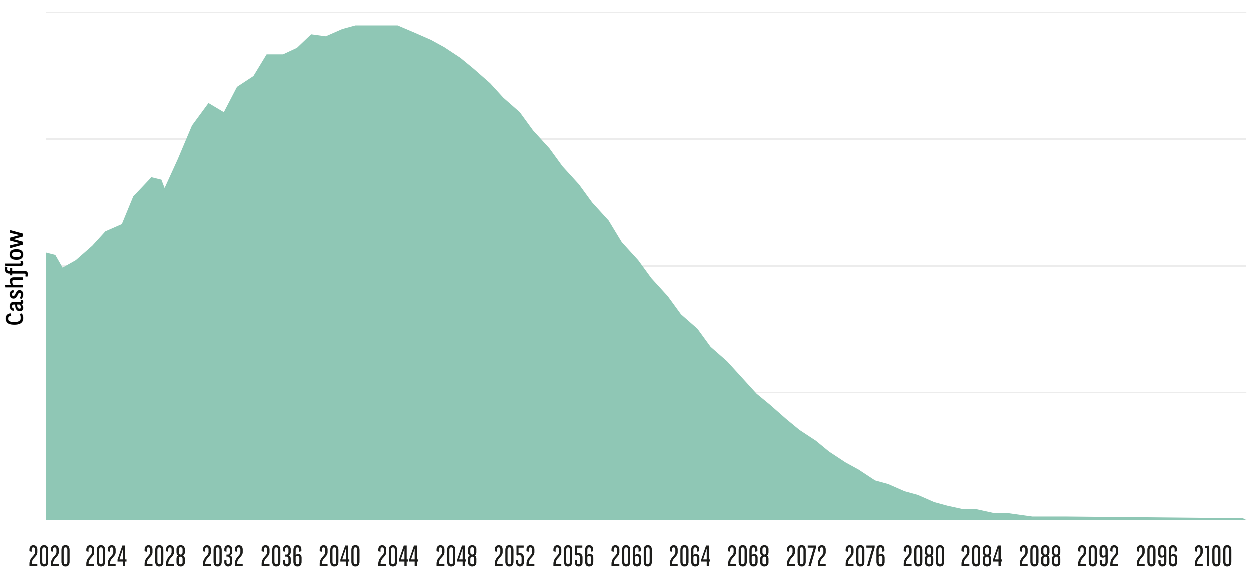
The rise of liability driven investment (LDI) has reflected the need of institutional investors to lower the volatility associated with pension funding levels.

Recognising that funding levels represent the interaction between assets and liabilities, trustees have sought investments, linked to inflation, interest rates and duration that behave in the same way, leading to a rise in partially funded liability hedges (e.g. swaps), backed by cash and sovereign bonds, with the balance invested in growth assets.

CDI involves using additional sources of return mainly in the illiquidity space in order to better match the liabilities. At present, for example, for many pension schemes, the low interest rate environment combined with the lower yields on their LDI-assets puts pressure on the funding ratio.

Typically for most early proponents of CDI approaches this has meant investing in buy-and-hold investment grade credit to supplement cashflows. Dutch Pension Funds have done so already by increasing their allocation to Dutch mortgages. However, more sophisticated solutions are available that involves supplementing liquid credit with illiquid private credit.

Pension Liability Cashflow



BNPP AM, June 2020

THE BENEFITS OF A CDI APPROACH

At BNPP AM, we believe a portfolio of secure private credit and real assets provides investors with a better match of liabilities as well as other tangible benefits that liquid strategies typically do not offer.

The incremental benefits of a CDI approach can be summarised as follows:

- Additional returns above those on sovereign bonds, swaps and investment-grade credit
- Cashflows backed by high-quality collateral
- Cashflows linked to inflation
- Long-term cashflows
- Highly covenanted, secure income streams
- Limited market exposure (diversification benefits)
- Lower default rates

WHAT ARE TYPICAL CDI ASSETS?

The universe of CDI assets available to pension schemes has expanded rapidly over the past decade.

More stringent capital requirements on banks have seen the disintermediation of traditional financing models by asset managers and institutional investors across a broad range of asset classes such as:

- Dutch mortgages
- Senior infrastructure debt
- Commercial real estate debt
- SME loans[2]
- Asset-backed securities

In creating a portfolio of secure income generating assets, diversification is critical. Often idiosyncratic in nature, the asset classes in a CDI approach offer diversification benefits among themselves and relative to the more traditional liquid components of institutional portfolios. In that respect, they help mitigating tail risks.

[2] SME: Small and Medium-sized Enterprises

3 OUR APPROACH TO PRIVATE CREDIT AND REAL ASSETS

EXPERIENCE IS EVERYTHING

BNP Paribas Group has been financing the real economy for **150 years** with market leading positions in real estate and infrastructure financing. For both the Group and BNPP AM, our goal is to provide quality investment solutions for our clients, building strong, lasting relationships based on confidence and trust.

Within private markets and real assets this confidence and trust helps support origination as our specialist investment teams have a reputation for rigour, scale and execution.

Whilst private markets can be illiquid we believe active portfolio management significantly mitigates the associated risks. Across asset classes, a focus on diversification and strict credit risk assessment offers institutional investors access to high quality assets and co-investment opportunities with attractive risk adjusted returns.

A RESPONSIBLE INVESTOR

BNPP AM has been involved in responsible investment since 2002. ESG[3] criteria are systematically incorporated into the investment processes of our private debt solutions. An initial ESG filter is applied, followed by an in-depth analysis. The definition and implementation of a specific taxonomy for each asset class makes it possible to refine the ESG analysis from a qualitative perspective.

50

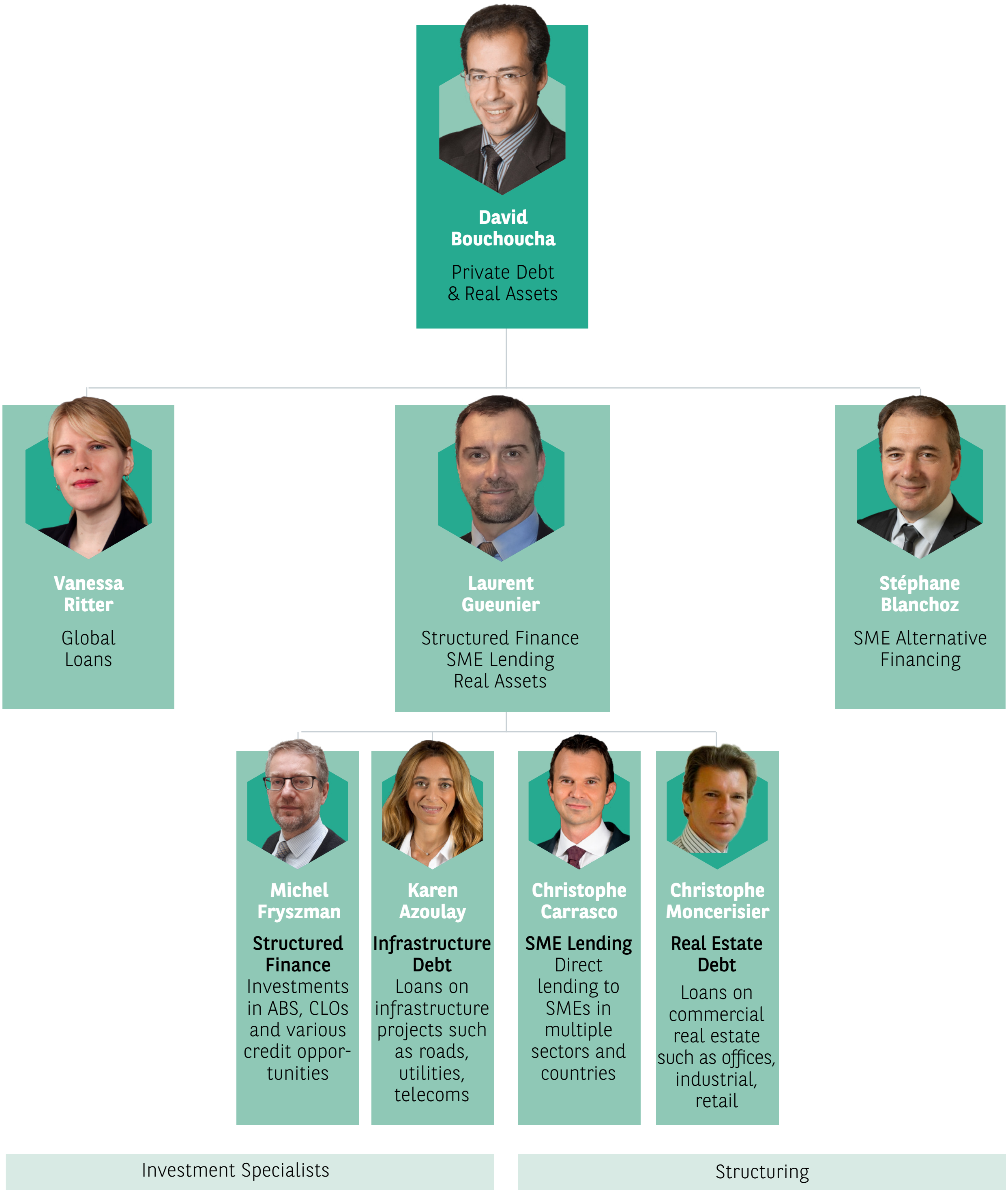
PRIVATE DEBT AND REAL ASSET PROFESSIONALS

BNPP AM's CDI strategy leverages the specialist investment teams that comprise the Private Debt and Real Assets (PDRA) investment group of over **50 investment professionals**.

BNPP AM's approach to CDI relies on specialist investment teams to access the underlying asset classes, namely Dutch Mortgages, SME Lending, US Mid-Market Lending, Structured Finance, Infrastructure Debt and Commercial Real Estate Debt. Each team offers a long-term track record in the technical under-writing of private credit with established networks of project sponsors offering sustainable origination, supplemented by proprietary BNP Paribas Group origination partners.

[3] ESG: Environmental, Social, Governance

THE PRIVATE DEBT AND REAL ASSETS INVESTMENT GROUP ORGANISATION CHART:



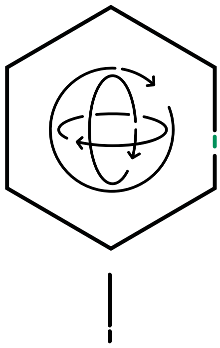
Source: BNPP AM, June 2020

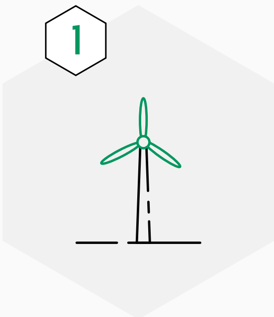
CASHFLOW ASSET EXAMPLE 1: INFRASTRUCTURE DEBT

BNPP AM created its infrastructure debt team to offer investors direct access to private infrastructure transactions which can be used to generate stable and predictable long-term cashflows.

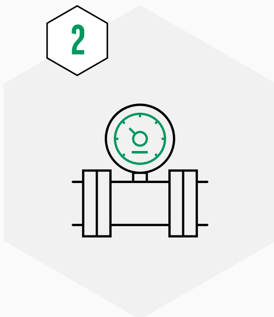
Offering attractive spreads, lower default rates and higher recovery rates relative to equivalently rated corporate bonds, infrastructure debt has an appealing risk/return profile that can be used to enhance fixed income and matching portfolios.

A **DIVERSIFIED UNIVERSE** OF PROJECTS AND COMPANIES





Renewable energy
Solar, on-shore/off-shore wind, biomass, hydro



Conventional energy
Storage facilities, gas power plants, pipelines, LNG[4]

Utilities
Gas, electricity & heating networks, waste & water treatment

[4] LNG: Liquefied Natural Gas

BNPP AM focuses on essential physical assets across a diversified universe of projects and companies that have a stimulative effect on the real economy.

Typically the activities financed benefit from regulated revenues with low technological risk offering resilience through the economic cycle.

Further assurance of potential future revenues is reinforced by the strong contractual frameworks, exhaustive security packages and the transference of risk through concession or availability based contracts.

The strategy targets **Euribor +200-250bps** across sectors with a weighted average life **(WAL) of 8-10 years**.

4

Transport
Roads, bridges, tunnels, airports, ports & railways

5

Social infrastructure
Universities, schools, hospitals, prisons, stadiums

6

Telecoms
High speed networks, telecom towers

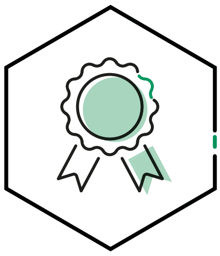
No assurance can be given that any forecast, target or opinion will materialise.

CASHFLOW ASSET EXAMPLE 1: INFRASTRUCTURE DEBT (CONTINUED)

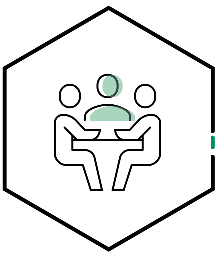
The management team benefits from an innovative dual track asset sourcing capability:

- **Proprietary extensive sourcing capability** established thanks to a working practice with main infrastructure players such as financial and industrial sponsors, financial advisors and banks' origination and syndication teams.
- **Privileged access** to BNP Paribas Group's extensive origination capabilities. It is an innovative opportunity to benefit from a Tier One bank active in the infrastructure market and have access to a **privileged pipeline** from a **team of experienced investment professionals**.

> *BNP Paribas Group participated in transactions totalling over 3 billion EUR across Europe in 2019 placing it second in the league table of loan arrangers. Source: IJ Global, January 2020.*
>
> *Source: BNP Paribas AM, PFI Media, IJ Global, January 2020*



TIER ONE
GLOBAL BANK



ACCESS TO A PRIVILEGED PIPELINE FROM **EXPERIENCED INVESTMENT PROFESSIONALS**

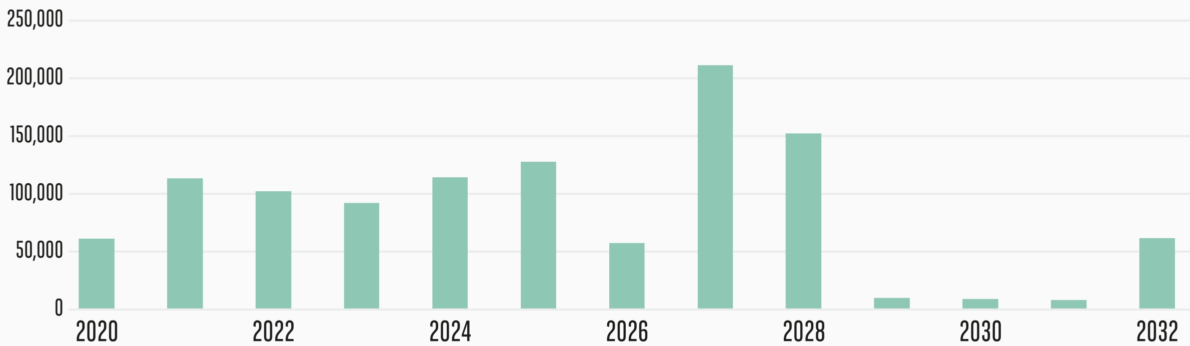
Infrastructure debt is an ideal source for potential CDI assets as the asset class benefits from the following characteristics:

- Highly secure, covenanted, contractual long-term cashflows (WAL of 8-10 years)
- Prepayment protection and modified spens protection
- Lower default rates and higher recovery rates than equivalently rated investment grade credit
- Floating rate, fixed rate and index-linked tranches available, particularly as assets can be structured via the BNP Paribas Group

CASHFLOW ASSET EXAMPLE 1: INFRASTRUCTURE DEBT (CONTINUED)

THE RESULTANT CASHFLOW PROFILE:

Cashflow per EUR 1 Mln



BNPP AM, June 2020

Features

- Unlisted/private market debt to finance specific infrastructure projects (greenfield/ brownfield various sectors)
- Participation in limited number of projects in various Western European countries
- Coupon is defined as spread over Euribor therefore participation in yield rise bonds participate in yield rise
- Low default probability, high recovery rate resulting in stable cashflows (core+)

Methodology

- Spread and weighted average life based on fund manager targets. Cashflows based on the characteristics of actual and potential future projects. Typical ramp-up period of 4-5 years with largest capital calls in the first two years
- Expected return based on our long term views on yield curves and funds outperformance target. Expected risk based on propriety factor model and sharpe ratio assumption (link with return target)
- Assuming that infrastructure debt for pension funds is treated as credit risk and the allocated capital will be defined using a predefined spread shock

Metrics

Spread over Euribor	2.4%
Effective duration (interest rate sensitivity)	0.25
Weighted average life (WAL)	8.0
Expected return (ER)	3.2%
Expected risk (standard deviation)	3.5%
ER/Stdev	0.9
Regulatory capital (assuming an average rating of A/BBB)	13.8%
ER/Regulatory capital	23.5%

No assurance can be given that any forecast, target or opinion will materialise.

BNPP AM, June 2020

CASHFLOW EXAMPLE 2:
REAL ESTATE DEBT

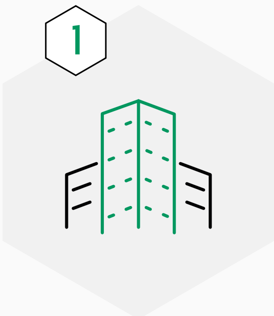
BNPP AM's Commercial Real Estate Debt team was created to enable institutional investors to generate attractive risk adjusted returns via investment in loans secured against underlying commercial real estate. Loans of this nature typically have a defensive credit profile generating stable and secure cashflows while offering an illiquidity premium to equivalently rated corporate debt.

The highly structured and covenanted nature of transactions also affords lower default rates and higher recovery rates offering further downside protection to investors.

The Commercial Real Estate Debt team is currently comprised of four individuals with complementary experience across asset management and banking leveraging a **45-strong proprietary origination channel** offered by the BNP Paribas Group[5].

In addition, our relationship with the Real Estate Financing team also allows us to be flexible in the nature of the loans that are brought to BNPP AM clients.

> *We are able to offer long-dated, fixed rate tranches where the market standard would typically be floating rate, across a number of geographies.*



Office
Office campus, tower,
CBD (Central Business District),
single/multilet

Retail
Shopping centre, high street,
out-of-town retail, outlet centre

Logistics
Light industrial,
logistics platform

[5] BNP Paribas Asset Management does not provide any formal capital guarantee of the funds. No information given or any term used herein shall be interpreted to provide such a guarantee.

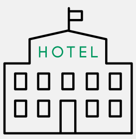
The team's origination capabilities are two-fold:

- **Proprietary extensive sourcing capability** established thanks to a working practice with main commercial real estate players such as financial and industrial sponsors, financial advisors and banks' origination and syndication teams
- **Privileged access** to BNP Paribas Group's origination capabilities. It is a unique opportunity to benefit from a leading bank active in the European real estate market offering access to a privileged pipeline

Commercial real estate debt is similarly an ideal source of potential CDI assets as the asset class benefits from the following characteristics:

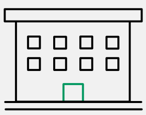
- Highly secure, covenanted, contractual long-term cashflows (WAL of 5 years)
- Prepayment protection
- Lower default rates and higher recovery rates than equivalently rated investment grade credit
- Floating rate and fixed rate tranches available, particularly as assets can be structured via the BNP Paribas Group

4



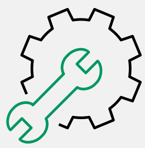
Hotels
High end, mid scale, budget hotels, hostels

5



Operating assets
Student housing, nursing homes

6

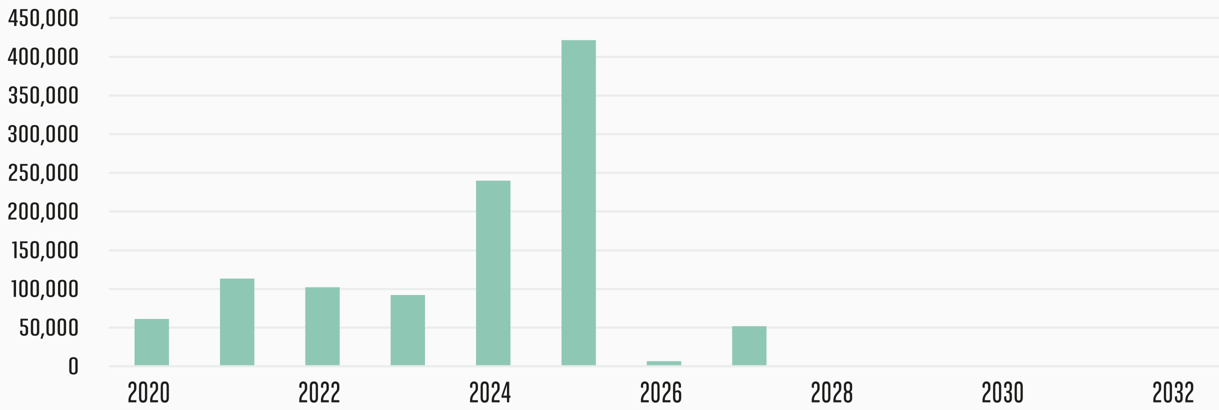


Non standard
Datacentre, parking, leisure

CASHFLOW EXAMPLE 2: REAL ESTATE DEBT (CONTINUED)

THE RESULTANT CASHFLOW PROFILE:

Cashflow per EUR 1 Mln



BNPP AM, June 2020

Features

- Commercial real estate debt to finance several real estate projects diversified across different sectors and geographies
- Participation in limited number of projects in various countries with risk profile of investments core+/value add
- Coupon is defined as spread over Euribor therefore bond participation in yield rise
- Low default probability, high recovery rate resulting in stable cashflows (core+)

Methodology

- Spread and weighted average life based on fund manager targets. Cashflows based on characteristics of actual and potential future projects
- Typical ramp-up period of 2-3 years with largest capital calls in the first two years
- Expected return based on our long term views on yield curves and funds outperformance target. Expected risk based on propriety factor model and sharpe ratio assumption (link with return target)
- Assuming that commercial real estate debt for pension funds is treated as credit risk and the allocated capital is defined using a predefined spread shock

Metrics

Spread over Euribor	2.4%
Effective duration (interest rate sensitivity)	0.25
Weighted average life (WAL)	5
Expected return (ER)	3.2%
Expected risk (standard deviation)	3.0%
ER/Stdev	1.05
Regulatory capital (assuming an average rating of A/BBB)	8.4%
ER/Regulatory capital	37.5%

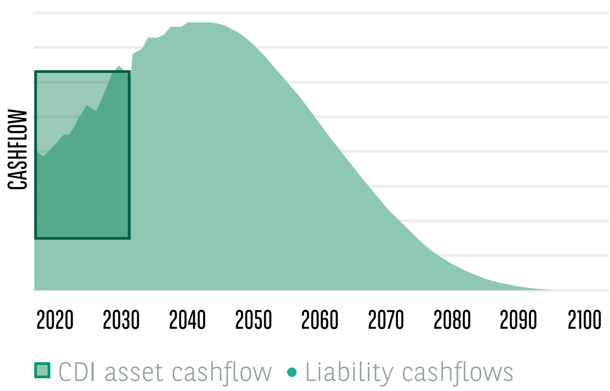
No assurance can be given that any forecast, target or opinion will materialise. *BNPP AM, June 2020*

4 OUR APPROACH TO CASHFLOW DRIVEN INVESTING

The first step in constructing a bespoke CDI portfolio is to understand the long-term objectives of the scheme in question in terms of return expectation and risk tolerance. On that basis BNPP AM undertakes a modelling exercise to optimise a CDI portfolio versus the expected cashflows as a benchmark.

The second step is to optimise the CDI allocation with the non-CDI asset allocation (notably those that are impacted by the CDI allocation).

CDI portfolio versus the expected liability cashflows

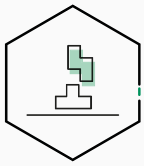


BNPP AM, June 2020

No assurance can be given that any forecast, target or opinion will materialise.

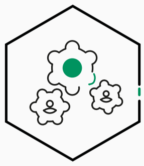
BNPP AM's CDI solution can be summarised as a three step process intended to design a portfolio to meet client requirements, undertake dynamic implementation and provide ongoing governance and reporting to trustees and scheme sponsors.

THE CDI PORTFOLIO SOLUTION PROCESS - OVERVIEW:



1

CDI portfolio design, asset allocation and dynamic risk profile



2

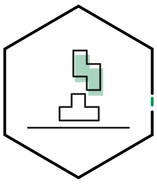
Dynamic implementation

3

Governance and reporting

THE CDI PORTFOLIO SOLUTION PROCESS - IN DETAIL

1

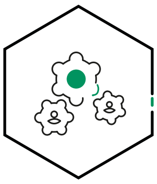


CDI portfolio design, asset allocation and dynamic risk profile

The first step in the process is to establish the client's risk budget and model an optimised CDI allocation with respect to the cashflow requirements. This includes an assessment of the liquid components of the portfolio, the interaction with illiquids and the long-term dynamic risk profile (or design thereof).

This can be done in conjunction with third party investment consultants or on a holistic basis by BNPP AM. In designing a dynamic implementation dynamic risk profile, it is possible to structure a portfolio with long-term objectives in mind.

2

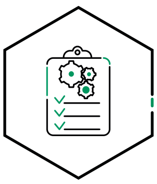


Undertaking dynamic implementation

The second step in the process is to assess the feasibility of supply with respect to the target allocation and design a dynamic implementation approach that oversees the transition to CDI assets over the planned period.

This approach takes into account relative value, liquidity and diversification.

3



Ongoing governance and reporting

Holistic CDI approaches monitor and report on the interaction of CDI assets with more liquid components and monitor relative value triggers with respect to underlying asset classes.

The pensions solutions team conduct active reconciliation of the long-term investment strategy versus dynamic risk profile, objectives and risk budget.

Modelling team and tools:

- Establish the client's risk budget
- Set up a CDI modelling approach
- Tailor current model(s)
- Prepare the modelling team

Structuring the CDI solution:

- Model the optimised asset allocation (taking into account the existing investment risk management policies)
- Model the optimised CDI portfolio

Establishing LT investment strategy:

- Establish the long-term investment objectives
- Include the inflow schedule
- Set up the dynamic evolution of the CDI allocation

Real CDI asset supply:

- Access supply and demand data
- Perform feasibility study
- Highlight origination and absorption bottlenecks
- Assess need for CDI assets

Transition approach:

- Design transition plans for institutional investors

Integration into dynamic risk profile:

- Design dynamic implementation approach

Ongoing CDI asset monitoring:

- Performance and risk monitoring

CDI asset transition triggers:

- Relative value trigger monitoring

Reconciliation:

- Active and regular reconciliation of LT investment strategy, objectives and risk budget

Reporting:

- Ongoing reporting for operations team

CASE STUDY: A TRADITIONAL REAL CDI ASSET SOLUTION

Typically, Dutch pension schemes invest in real CDI asset solutions in a progressive way, focusing first on the earlier liability cashflows (up to 10 or 15 years) and extending the level of matching over time to later ones.

Pension schemes often liquidate credit- and growth assets first (and in particular listed equities) to fund their CDI investments. Allocations to liquid matching (LDI) assets are usually maintained, especially for long maturities, as these are more difficult to find in the universe of real CDI assets. The graph on page 21 attempts to illustrate this concept by showing the end-game for such a strategy. The assets are then split between CDI (covering the first 15 years) and LDI assets as well as cash for collateral and benefit payment purposes (covering the rest of the cashflows).

Alongside the matching of cashflows by a holistic approach, the risk/return profile of a real CDI asset solution is, in most cases, tightly controlled and aims to ensure a stable recovery of the funding level ultimately targeting full indexation.

In that context, our case study relies on **a set of pre-defined objectives/assumptions** that best illustrate a progressive and risk-controlled real CDI asset strategy that mostly focuses on matching the liabilities with shorter maturities.

- Creates an illiquid asset portfolio that "matches" 60% of the liability cashflows for the first ten years (corresponding to about 15% of the total liability cashflow).
- Maintains a strict risk budget with steady incremental upside and low volatility:
    - Target net excess return on EUR cash is 2.1%;
    - With a volatility of 3.0%

For real CDI asset solutions, **portfolio construction guidelines** are in general relatively well established and encompass the following:

- Benchmarking the CDI portfolio against the liabilities of a Dutch pension scheme (in our case study, we have made the additional assumption that the income produced by the CDI asset portfolio represents about 15% of the liability cashflow);
- Identifying the most appropriate CDI asset classes to achieve the required liability cashflow matching (see table on right for the risk/return assumption for each asset class); and
- Maintaining an attractive risk/return trade off at portfolio level

In practice, we tend to only retain **specific real CDI asset classes** that best match the pension scheme's requirements and investment guidelines as described above. For this case study, we have selected four of them (all in Euros):

- (Dutch) mortgages
- Commercial real estate debt
- Infrastructure debt
- Euro SME loans

Illustrative metrics for the selected real CDI asset classes summarised:

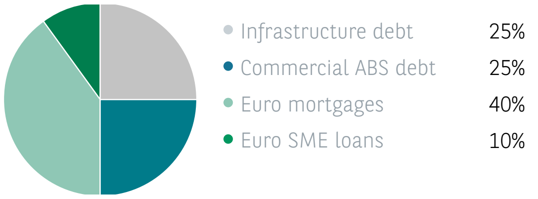
	Euro return	Volatility	Maturities estimated
Infrastructure Debt	3.2%	3.5%	8.0
Commercial Real Estate Debt	3.2%	3.0%	5.0
Dutch mortgages	2.0%	5.3%	8.0
Euro SME Loans	5.5%	7.3%	5.0
Cash	0.8%	1.5%	–

BNPP AM, June 2020

No assurance can be given that any forecast, target or opinion will materialise.

The resultant real CDI asset portfolio is diversified and offers the modelled expected return and cashflow matching features.

Real CDI asset portfolio:



BNPP AM, June 2020

The real CDI asset portfolio metrics are summarised. We would expect to be able to enhance risk adjusted returns in an actual implementation context, which would be dynamic and would include added value from BNPP AM's fundamental views.

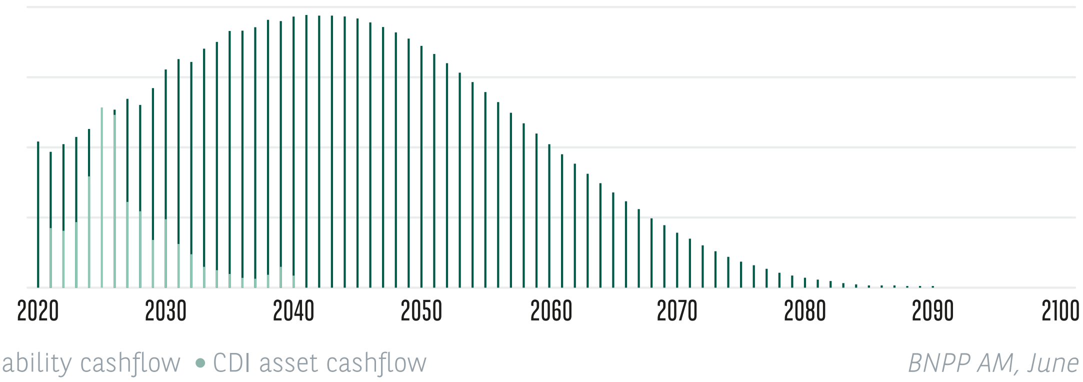
Portfolio metrics:

Return	2.9%
Excess over cash	2.1%
Risk	3.0%
Sharpe ratio	0.7
Weighted average life CDI assets	7.0

The resultant CDI portfolio cashflow matching properties are illustrated here. It is possible to customise to a high degree the shape of the real CDI asset cashflows and in doing so change the risk/return profile of the CDI portfolio.

The resultant CDI modelled portfolio meets the intended outcome of delivering both enhanced risk-adjusted returns relative to a pure LDI approach and better cashflow matching through the use of secure, contractual cashflows.

The resultant CDI portfolio cashflow matching properties:



BNPP AM, June 2020

As funding levels improve and volatility in capital markets increases, pension schemes targeting full indexation are thus able to implement a CDI portfolio strategy that can:

- Significantly lower the funding volatility; and
- Increase the probability of indexation.

No assurance can be given that any forecast, target or opinion will materialise.

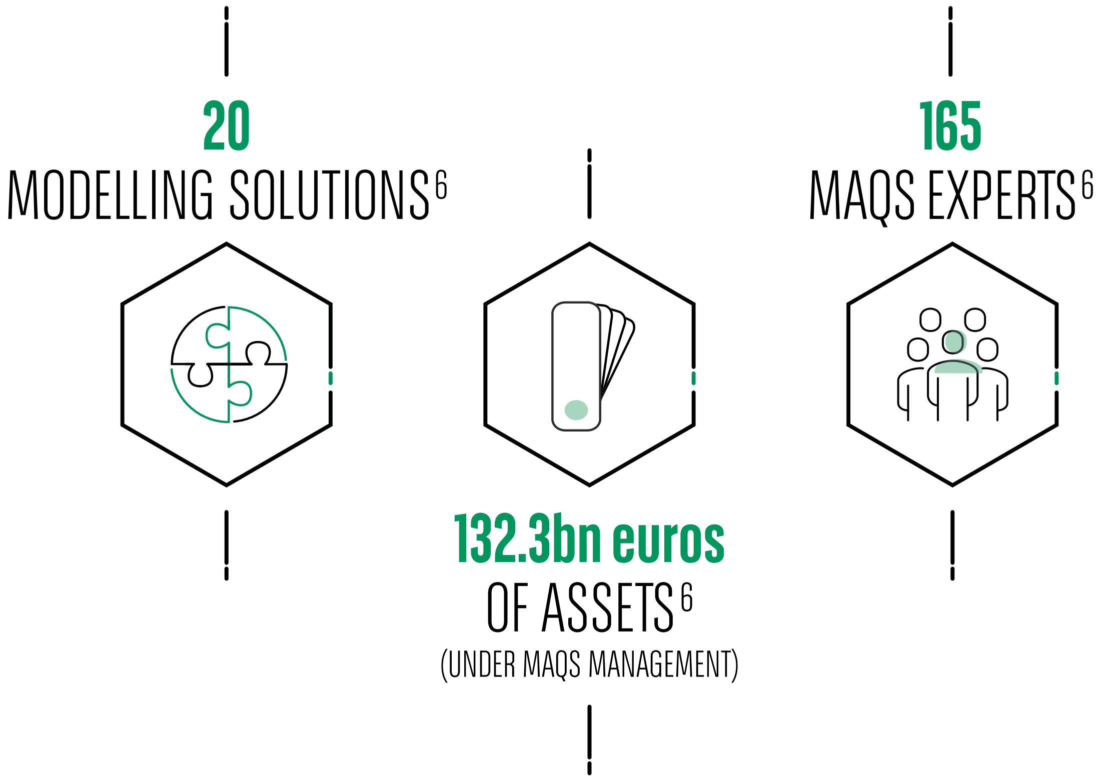
5 OUR SPECIALIST PENSIONS SOLUTIONS CAPABILITY

The day-to-day management of our CDI approach is the responsibility of our **Multi-Asset, Quantitative and Solutions (MAQS)** team, a dedicated multi-asset investment team that combines the best of both BNPP AM's fundamental and quantitative expertise.

Up to 20 Solutions modelling, structuring and portfolio management professionals can help tailor CDI portfolio to the objectives, needs and preferences of institutional investors.

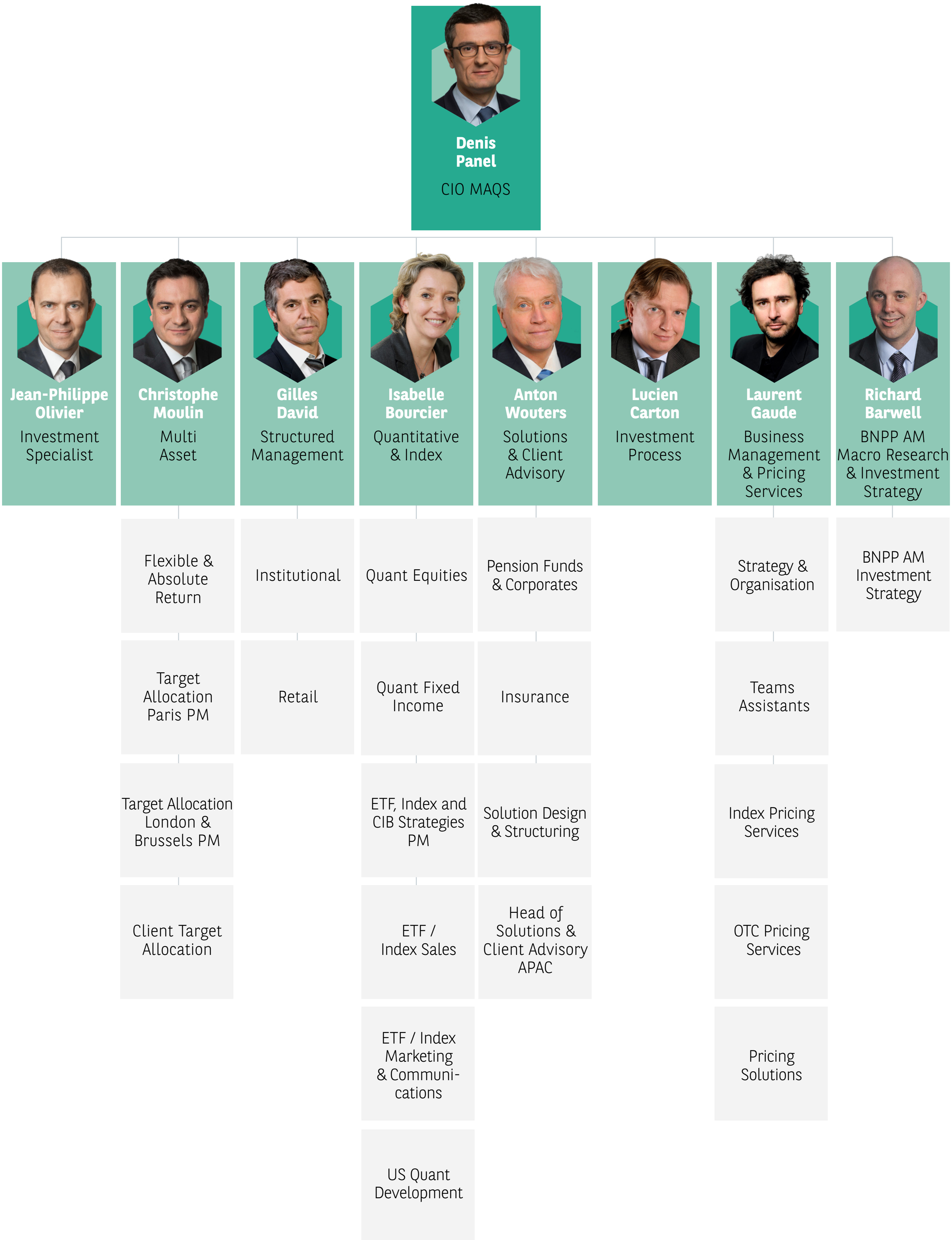
The MAQS team manages approximately **132.3bn euros** of assets[6], comprising **165 experts**[6] and an experienced leadership team split across four pillars: **Multi-Asset, Structured Management, Quantitative & Index, Solutions & Advisory**.

Whilst the underlying investment teams are responsible for the selection of assets the MAQS team are responsible for asset allocation, ensuring compliance with client guidelines and managing/matching cashflows against client liabilities.



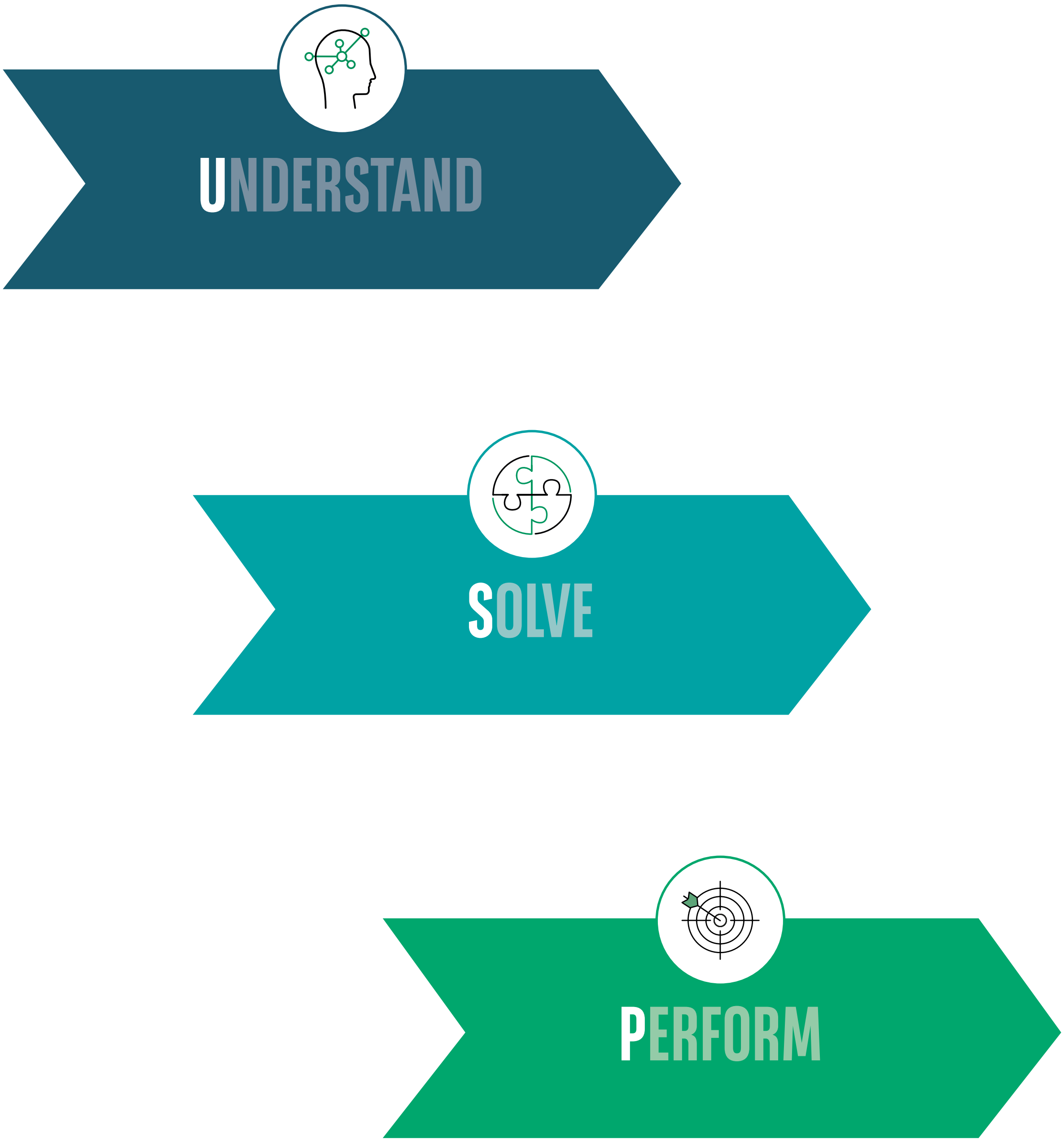
[6] BNPP AM, 31 July 2020

THE MULTI ASSET, QUANTITATIVE AND SOLUTIONS TEAM



BNPP AM, June 2020

6 WHY BNPP ASSET MANAGEMENT FOR CASHFLOW DRIVEN INVESTING



1 Access to specialist private credit and real assets teams

BNPP AM's CDI capability offers institutional investors access to a broad range of private credit and real assets capabilities encompassing infrastructure debt, commercial real estate debt, loans, SME lending and structured securities. Leveraging over **50 investment professionals** located in the UK, Europe and the US.

2 Bespoke dynamic implementation

BNPP AM is able to create bespoke solutions for institutional clients. This can include segregated multi-asset private credit mandates, holistic CDI approaches where BNPP AM match and govern the CDI portfolio or sustainable CDI run-off solutions embedded within a captive insurance company wrapper. The design, dynamic implementation, governance and reporting is overseen by a **dedicated team of 165 multi-asset**, quantitative and solutions investment professionals.

3 Supported by an A-rated bank infrastructure

BNPP AM's CDI approach is supported by the infrastructure and resources afforded to the company by our parent BNP Paribas, including solutions in capital markets, securities services, advisory, finance and treasury.

4 Co-investment creates an alignment of interest

In many instances BNP Paribas Group will retain a proportion of the underlying loans within their balance sheet creating a clear and transparent **alignment of interest** between third-party investors and the Group.

5 Bespoke lending solutions for BNPP AM

BNP Paribas Group and BNPP AM have partnered to offer **customised solutions to institutional investors seeking long-dated private assets**. For example, whilst the Commercial Real Estate Debt sector is characterised by floating rate tranches, BNPP AM can offer CDI clients longer-dated fixed rate tranches in partnership with BNP Paribas Group. For mandates with broad discretion this enables ongoing innovation in accessing underlying assets.

6 Impact investing with ESG embedded within the credit process

BNP Paribas Group has been financing the real economy for **150 years** with market leading positions in real estate and infra structure financing.

From SME lending to infrastructure debt BNPP AM's CDI strategy offers investors a stake in the real economy investing in a range of asset classes that play a vital role in promoting economic growth. In addition to social impact **ESG** is also embedded across the underlying asset classes providing further coherence and consistency with our **Group-wide sustainability policies**.

RISK INFORMATION / GLOSSARY

Sourcing CDI assets: Sourcing of CDI assets may prove difficult, especially since many asset managers are chasing the same type of assets. The available assets may not meet the client's objectives or may not be attractively priced. The ramp up period can be long for large CDI investments and necessitate the use of synthetic CDI portfolios.

Liquidity risk: There is a risk that CDI assets may become illiquid if the economic or market situation deteriorates. Consequently, it may not be possible to sell or buy CDI assets at all or quickly enough before their expiry.

Mark-to-market risk: Given the illiquid nature of CDI assets, their mark-to-market may be adversely affected by changing market conditions.

CDI portfolio risk: Because of the inherent complexity of such a strategy and the lack of liquidity of some CDI assets, a CDI portfolio may not always deliver the expected cashflows.

Basis risk: By nature, there is a difference between pension liability cashflows and CDI assets. It is important to keep this aspect in mind when structuring a CDI portfolio in order to minimise basis risk.

Governance risks: Given the multiple CDI asset classes and the potentially long ramp up period, the required level of governance is quite high and can involve performance, risk, trigger and exposure monitoring as well as the use of synthetic CDI assets. Assessment of relative value between synthetic proxies and real assets may also need some governance. Not providing the appropriate level of control and governance could negatively impact the long-term performance of the CDI strategy.

DISCLAIMER

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All information referred to in the present document is available on www.bnpparibas-am.com. As at June 2020.

September 2020 - P2008030

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