For professional investors – Marketing communication – June 2020

DIVERSIFIED PRIVATE CREDIT FOR DEFINED CONTRIBUTION PENSION SCHEMES

BNP PARIBAS ASSET MANAGEMENT

The asset manager for a changing world

CONTENTS

1. AN INTRODUCTION TO DIVERSIFIED PRIVATE CREDIT

With UK Defined Benefit (DB) pension schemes turning increasingly cashflow negative and traditional Liability Driven Investment (LDI) portfolios offering lower returns, schemes are turning to cashflow driven investing (CDI) to better match cashflows while generating higher risk-adjusted returns. Defined Contribution (DC) schemes too, can benefit from alternative credit through Diversified Private Credit (DPC) portfolios that enhance returns relative to listed credit and offer low volatility total return solutions that improve the risk/return profile of default fund offerings.

Many of the underlying asset classes that comprise DPC portfolios are contractual in nature, offer an illiquidity premia relative to listed equivalents, have lower default rates than equivalently rated investment grade credit (e.g. 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 and co-investment with the BNP Paribas Group.

About the authors:

- Julien Halfon -

Head of Pension Solutions

Julien is Head of Pension Solutions at BNP Paribas AM having joined in April 2018 from Mercer where he spent 6 years as Principal.
Prior to that Julien worked for Goldman Sachs, Aon, P-Solve and Lazard. With investment banking and consulting experience stretching over 26 years Julien has spent over 15 years advising institutional clients on structuring and implementing pensions and insurance solutions for national and cross-border clients.

julien.halfon@bnpparibas.com

- Philip Dawes -

Head of Sales (UK & Ireland)

Philip is Head of Sales (UK & Ireland) at BNP Paribas AM having joined in November 2017 from Allianz Global investors where he spent 16 years working with institutional clients. During his time with the Allianz Group, Philip was involved in the creation of a number of new products across multi-asset, listed and private markets, including the launch of the first UK fund to facilitate primary greenfield transactions in infrastructure debt for institutional investors.

philip.a.dawes@bnpparibas.com

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

2. THE VALUE OF DIVERSIFIED PRIVATE CREDIT

WHAT IS DIVERSIFIED PRIVATE CREDIT?

Diversified private credit portfolios allow DC pension schemes to access private market assets that would traditionally have been the preserve of banks. Encompassing direct lending to infrastructure projects, real estate projects and corporate entities, such exposures can dampen portfolio volatility and enhance the overall risk/return profile of default funds.

WHAT ARE TYPICAL DIVERSIFIED PRIVATE CREDIT ASSETS?

The universe of private credit assets available to pension schemes has expanded rapidly over the past decade. More stringent capital requirements on banks has seen the disintermediation of traditional financing models by asset managers and institutional investors across a broad range of asset classes such as:

- Infrastructure debt
- Commercial real estate debt
- Mid-market loans
- Asset backed securities
- Mortgage backed securities
- Social housing
- Ground rents

In creating a portfolio of secure income generating assets, diversification is of critical importance. Often idiosyncratic in nature, the underlying asset classes diversify well against each other and traditional liquid components of default fund portfolios, minimising tail risks.

Equally, a holistic multi-asset approach with active asset allocation minimises timing risks and reduces the potential for opportunity costs that traditional static allocations can suffer from. For DC schemes who may lack the scale and/or governance budget to make allocations to multiple, singular asset classes, a diversified private credit approach is an efficient means of exploiting private markets. Additionally as spreads are cyclical in nature a dynamic approach to asset allocation over time can help pension schemes find relative value in the market through time.

THE BENEFITS OF A PRIVATE CREDIT APPROACH

At BNPP AM, we believe a portfolio of secure private credit and real assets provides investors with enhanced returns (through the harvesting of the illiquidity premia) as well as other tangible benefits that liquid strategies do not. The incremental benefits of a private credit approach can be summarised as follows:

- Additional returns above gilts and investment grade credit
- Cashflows backed by high quality collateral
- Cashflows that provide inflation linkage
- Long-term cashflows
- Highly covenanted, secure income streams
- Limited market exposure
- Lower default rates
- Improved overall portfolio sharpe ratios

3. OUR APPROACH TO PRIVATE CREDIT AND REAL ASSETS

50
PRIVATE DEBT AND REAL ASSET PROFESSIONALS

BNPP AM's Diversified Private Credit strategy leverages the specialist investment teams that comprise the Private Debt and Real Assets (PDRA) investment group of over 50 investment professionals. In addition investors gain access to the origination capabilities of the wider BNP Paribas Group who themselves have origination teams focused on corporate lending, infrastructure debt and real estate across the globe. BNPP AM's investment teams have privileged access to this pipeline. With this structure BNPP AM is also able to originate loans with the bank to suit client portfolios e.g. converting typically short-dated, floating rate commercial real estate debt to long-dated fixed rate tranches.

BNPP AM's approach to diversified private credit relies on specialist investment teams accessing the underlying asset classes, namely Global Loans, 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.

EXPERIENCE IS EVERYTHING

BNP Paribas Group has been financing the real economy for **over 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 that deliver long-term performance.

A RESPONSIBLE INVESTOR

BNPP AM has been involved in responsible investment since 2002 and is recognised as best-in-class by the UN PRI. ESG 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. Furthermore, many of the underlying asset classes, such as infrastructure debt or social housing, have a tangible impact on the real economy providing additional societal benefits. The UN PRI has recognised this by defining social housing and SME lending as forms of **Impact Investing**.

To facilitate and embed ESG analysis across asset classes BNP Paribas Asset Management has a dedicated Global Sustainability Centre composed of **25 ESG specialists** with a diverse range of backgrounds including; consulting, advocacy and policy, NGOs, mainstream investments, sell-side analysis, ESG analysis and climate change.

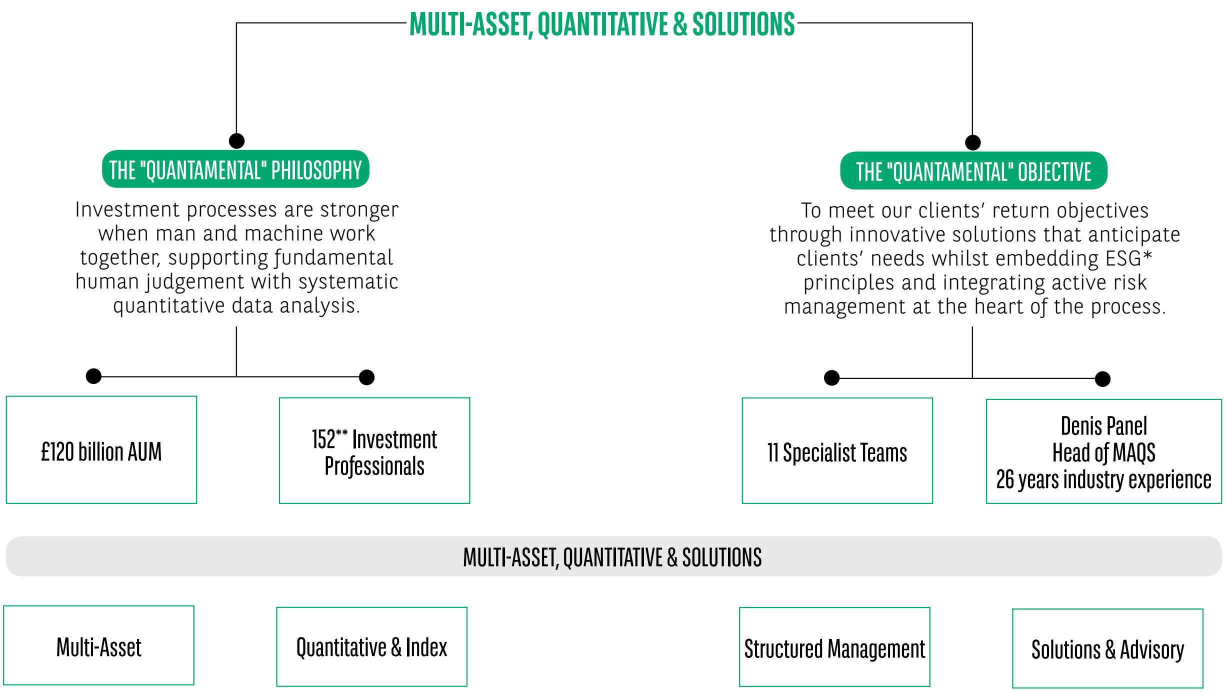
4. OUR APPROACH TO DIVERSIFIED PRIVATE CREDIT

HOLISTIC CASH MANAGEMENT AND ACTIVE ASSET ALLOCATION

Due to the cyclical nature of spreads that can affect singular asset classes, BNPP AM favours diversified private credit solutions that offer investors flexibility in the way that capital is deployed. This active asset allocation can ensure that capital is deployed to those areas of the market that offer a better relative value at any given point in time without compromising on credit quality. Traditionally for closed ended investment vehicles, this would have been true for the initial investment period (e.g. a 3-year ramp-up and drawdown of investor capital). Increasingly however, open-ended 'Evergreen' investment vehicles offer the ability for investors to deploy capital in tranches beyond a 3-year ramp-up period, embed active asset allocation over time and circumvent the traditional drawback of private debt investing i.e. as many of the underlying loans are amortising investors' allocation would traditionally decrease over time as principal and interest is repaid.

Beyond private credit origination, BNPP AM's Multi-Asset and Quantitative Solutions (MAQS) team are highly experienced in creating bespoke LDI/CDI multi-asset solutions, drawing on their longstanding fiduciary management capabilities.

The day-to-day management of Diversified Private Credit mandates/funds is the responsibility of our MAQS team, a dedicated multi-asset investment team that combines the best of both BNPP AM's fundamental and quantitative expertise. The MAQS team manages approximately £120bn of assets, as of December 2019, comprising over 150 experts and an experienced leadership team. The designated portfolio manager for BNPP AM's Diversified Private Credit Fund is responsible for the day-to-day management of the fund, capital calls, cash-management and active asset allocation allowing for a lower governance burden than multiple singular asset class investments.



* Environmental, Social and Governance
** Total figure includes support functions
Source: BNPPAM, AUM as of 31 12 2019
Note: AuM figures throughout this document exclude delegated pockets managed within MAQS.

DIVERSIFIED PRIVATE CREDIT PORTFOLIO CHARACTERISTICS

Diversified Private Credit can offer investors access to a broad range of underlying asset classes, transactions across the capital spectrum (e.g. senior or mezzanine investments) geographical diversification and various implementation options. For cashflow positive DC investors open-ended 'Evergreen' solutions have been developed that allow a proportion of the default fund to be invested in 'alternative, low volatility growth' assets providing scheme members with a total return.

Private credit is illiquid in nature and should be treated as a buy-and-hold, long-term investment. Care should be taken to analyse the scheme's liquidity budget, maturity and cashflow profile to ensure that a diversified private credit portfolio is consistent with the stated investment objectives. At BNPP AM we conduct an annual review of scheme characteristics (through an annual governance committee) to ensure that investments remain in the interests of the underlying members.

Many of the underlying asset classes that are used to create diversified private credit portfolios are amortising in nature. As a consequence, portfolios can generate meaningful volumes of cash which in traditional closed ended solutions would be paid to investors leading to decreasing exposure over time and the need to reallocate to subsequent fund vintages. Evergreen solutions, however, can re-invest monthly cashflows, principal repayments and coupons within the fund allowing for discretionary asset allocation over time. While we believe at BNPP AM we have a competitive advantage, with unrivalled access to the origination capabilities of a tier one global bank, one of the challenges of implementing private credit portfolios is the material time that it can take to source high quality assets. As credit terms, covenants and spreads are cyclical in nature, single asset class commitments can suffer as individual managers feel compelled to find assets irrespective of the assessment of the underlying environment.

Active asset allocation can allow a multi-asset private credit manager to allocate to where value exists at any point in time. However, even with this approach there is likely to be a lag between receipt of cashflow and ultimately the identification of a suitable asset. The simplest (and most common) way to solve such an issue is to 'park' assets in cash or liquid investment grade credit prior to identification of suitable assets.

Whilst providing the requisite liquidity such an approach may not be optimal as there is an opportunity cost and a cashflow risk associated with such an approach. BNPP AM together with BNP Paribas Group has designed a synthetic replication approach that can offer clients the desired liquidity and a spread to more traditional liquid investment grade credit. Alternatives do exist and depending on the underlying sleeves to be incorporated into the mandate, a synthetic portfolio can be built on a temporary basis using listed and synthetic assets. Such an approach is particularly valuable to DC pension schemes seeking evergreen exposure with monthly liquidity (contributions, principal repayments and interest) re-invested in an efficient manner.

A **SYNTHETIC REPLICATION** APPROACH GIVING CLIENTS THE DESIRED LIQUIDITY

For example, listed infrastructure (or utility) bonds can be used to provide a yield pick up to long-dated investment grade credit whilst offering a high degree of correlation to underlying infrastructure debt transactions. This is particularly pertinent as often they are used as the benchmark by which infrastructure debt managers provide marked to model valuations of their own assets.

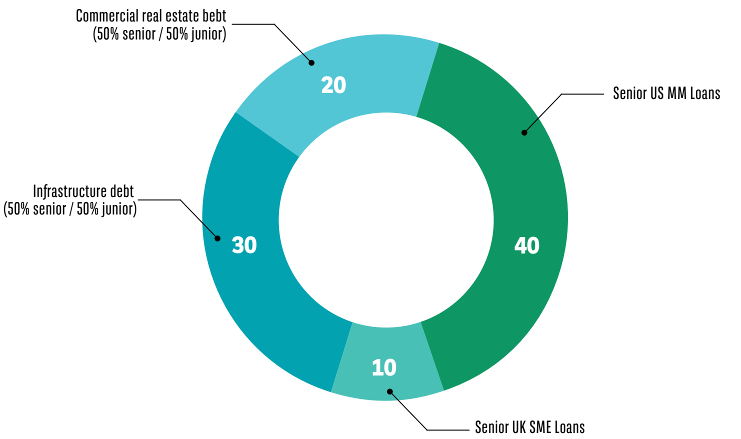
One step further would be to incorporate into the replication portfolio the use of over-the-counter **real estate, equity** and **credit derivatives** (like equity default swaps and credit-default swaps).

The model portfolio presented below assumes a total return allocation to a diversified portfolio of private credit incorporating global mid market loans, and a 50%/50% senior/junior allocation to infrastructure debt and commercial real estate debt. Based on current spread data the suggested asset allocation above would generate an expected return of 6.0% with a volatility of 4.0%.[2]

	Initial Asset Allocation (%)	Tenor	Expected spread (bps)
Senior US MM Loans	40	5-7-Yrs	LIBOR + 500-600
Senior Euro MM Loans	0	5-7-Yrs	LIBOR + 300-400
Senior UK SME Loans	10	5-7-Yrs	LIBOR + 700-900
Infrastructure debt (50% Senior/50% Junior)	30	10-12-Yrs	LIBOR + 225-275 / 350-450
Commercial real estate debt (50% Senior/50% Junior)	20	5-7-Yrs	LIBOR + 225-275 / 500-600
Social Housing	0	5-7-years	LIBOR + 100-150

Source: BNP Paribas Asset Management – January 2019.

ALLOCATION (%)



Source: BNPP AM as at March 2020.

2 No assurance can be given that investment objectives will be achieved.

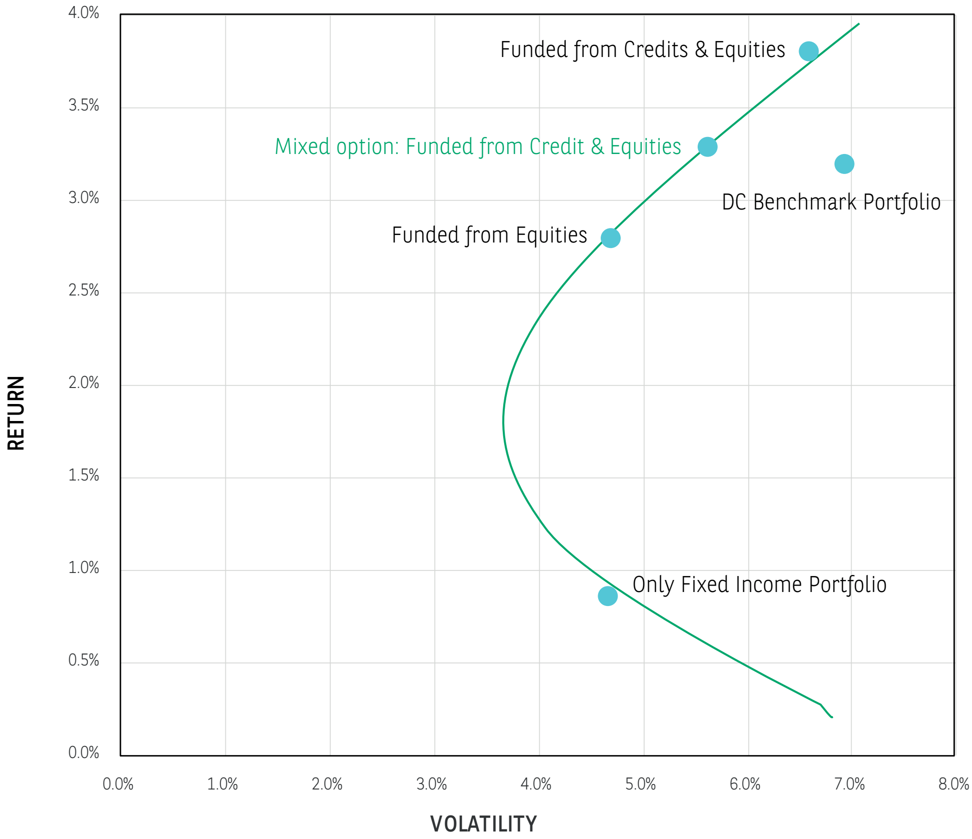
IMPACT ON DEFAULT DC PORTFOLIOS

As the private credit market is a diverse one, investors can seek diversification within the overall universe. However, as transactions offer limited market risk (particularly if transactions are fixed rate or index-linked) they also offer diversification benefits across an investors' overall portfolio. The chart below highlights these diversification benefits to a hypothetical portfolio comprising 20% Global Equities, 20% UK Equities, 30% Gilts 10-Year+ and 30% UK Investment Grade Credit. The chart indicates the forecast risk and return for this benchmark portfolio over a 15-year period based on our proprietary modelling. We have then modelled the impact on the hypothetical portfolio of funding a 20% allocation to the suggested illiquid asset allocation above from equities, credit and a mixture of the two. The chart in all cases highlights the reduction in volatility that is obtained from these cases indicating in two cases (i.e. other than if the illiquid portfolio is funded entirely from equities) that there is also an increase in return.

Asset Class	DC Benchmark Portfolio	Illiquid Assets Funded from Credits	Illiquid Assets Funded from Equity	Illiquid Assets Funded from Credits and Equity	Only Fixed Income Portfolio
Global Equities	20.00%	20.00%	10.00%	15.00%	
UK Equities	20.00%	20.00%	10.00%	15.00%	
UK Gilts 10yr+	30.00%	30.00%	30.00%	30.00%	50.00%
UK IG* Credit	30.00%	10.00%	30.00%	20.00%	50.00%
European/UK SME Loans		2.00%	2.00%	2.00%	
Infrastructure Debt		10.00%	10.00%	10.00%	
Comm. Real Estate Debt		6.00%	6.00%	6.00%	
US Mid-Market Loans		2.00%	2.00%	2.00%	
Total	100.00%	100.00%	100.00%	100.00%	
LT** investment horizon					
Return	3.20%	3.80%	2.80%	3.30%	0.90%
Volatility	7.00%	6.60%	4.70%	5.60%	4.70%
Information ratio	45.70%	57.60%	59.60%	58.90%	19.10%
Duration	8.4	7.2	8.9	8.1	14

*IG – Investment Grade
**LT – Long-Term
Source: BNP Paribas Asset Management, January 2020.

RISK/RETURN PROFILE OF THE MIXED DC OPTION AND EFFICIENT FRONTIER



Source: BNP Paribas Asset Management, January 2020
Past performance is not an indication of future performance

The current environment and our market visibility (in terms of origination volumes, spreads and credit risk) suggest that the following are key considerations:

- Flexibility and discretion enable managers to seek out the best value across and within asset classes and within the capital spectrum.

- Origination is increasingly difficult so seeking a manager with real depth minimises potential opportunity costs.

- Be strict with respect to product capacity limits so as not to create a portfolio comprising a high proportion of dry powder.

- Stick to your knitting; rather compromise market share than credit quality or pricing.

Overall value continues to exist within private credit (versus other available assets) with some asset classes demonstrating historic stability in this regard. This suggests that on both strategic and tactical levels, diversified private credit allocations have considerable merit for accumulation phase DC default design.

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TECHNICAL CONSIDERATIONS

A variety of fund structures exist that facilitate investment into private credit, though historically most have been closed-ended and inconsistent with the requirements of DC pension schemes. Non UCITs Retail Scheme (NURS) and Luxembourg Real Assets Investment Funds (RAIFs) are two such fund vehicles that can be both **open-ended** and **unitised**, allowing them to conform to DC platform's requirements.

Due to the illiquid nature of underlying assets within diversified private credit portfolios, daily prices do not exist. Typically portfolios are valued monthly, using marked to market valuation methodologies allowing for monthly dealing. The **valuation methodology** used is to attribute the illiquidity premium achieved for each transaction to a comparable liquid benchmark, providing a fair and transparent price to underlying members at each dealing point.

While fund solutions may be open-ended, **liquidity** is still a key consideration. As has been seen with NURS funds within the property sector, maintaining a cash buffer within the fund can act as a drag on overall portfolio returns. To address this, the **synthetic replication** sleeve can be used to maintain a liquid allocation within the fund and provide collateral for FX hedging purposes.

Further liquidity considerations include the maturity and liquidity profile of the DC scheme itself. For mature cash-flow negative pension funds total return 'Evergreen' solutions may not be compatible with member requirements. More suitable for this segment would be at retirement income paying variants. For those that are cash-flow positive and due to the average maturity of the member profile are likely to remain so for the next ten-years, total return solutions could be deemed suitable.

As with the model solution provided as an example earlier in this document the suggested allocation to illiquid assets is 20% of the overall default portfolio. The vast majority of scheme assets continue to exist within liquid areas of the market allowing for some flexibility in the instance of net redemptions. Rather than compelling the manager to dispose of high quality, illiquid assets to facilitate redemption requests it is also possible to net subscriptions with redemptions using the services of the scheme's platform provider.

For DC schemes that require additional liquidity mechanisms the strategic asset allocation can be tilted toward assets with a shorter weighted average life (WAL). Apart from infrastructure debt the asset classes modelled within this document have a WAL of <5-8-years and are amortising in nature. For schemes wishing to redeem their entire holding due to an evolution in the member profile, simply switching from an accumulating total return share-class to an amortising share-class would enable an orderly withdrawal over time.

Many open-ended solutions that provide access to private markets also embed within them redemption limitations linked to the NAV of the fund. This is one approach that can be taken. An alternative approach might be to seek liquidity provisions from BNP Paribas enabling a temporary sale of assets to a special purpose vehicle that acts as a warehouse for later repurchase by the fund.

Overall, while liquidity should be considered, the primary objective of diversified private credit portfolios is to trade this liquidity for the illiquidity premia attached to private markets. Providing the maturity profile of the underlying membership and associated cashflows are modelled and monitored on an ongoing basis, buy and hold 'Evergreen' solutions can be an attractive addition to default fund portfolios.

5. WHY BNP PARIBAS ASSET MANAGEMENT FOR DIVERSIFIED PRIVATE CREDIT

1.

ACCESS TO SPECIALIST PRIVATE CREDIT AND REAL ASSETS TEAMS

BNPP AM's Diversified Private Credit (DPC) 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.

3.

SUPPORTED BY AN A-RATED BANK INFRASTRUCTURE

Supported by an A-rated bank infrastructure BNPP AM's DPC 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. This allows the underlying teams to leverage proprietary origination, structuring and distribution capabilities from the wider BNP Paribas Group including **62 Commercial Real Estate Debt and Infrastructure Debt professionals**.

5.

BUNDLED SOLUTIONS

BNPP AM is able to leverage the capabilities of the BNP Paribas Security Services to offer institutional clients **bundled fund solutions utilising their fund and loan administration services**. Closed ended income generating solutions are available alongside total return "Evergreen" solutions.

2.

BESPOKE DYNAMIC IMPLEMENTATION

BNPP AM is able to create bespoke solutions for institutional clients. This can include segregated multi-asset private credit mandates, or fund solutions where closed and open-ended structures are created to facilitate investment from DB and DC pension schemes. The design, dynamic implementation, governance and reporting is overseen by a **dedicated team of over 150 multi-asset**, quantitative and solutions investment professionals.

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.

6.

IMPACT INVESTING WITH ESG EMBEDDED WITHIN THE CREDIT PROCESS

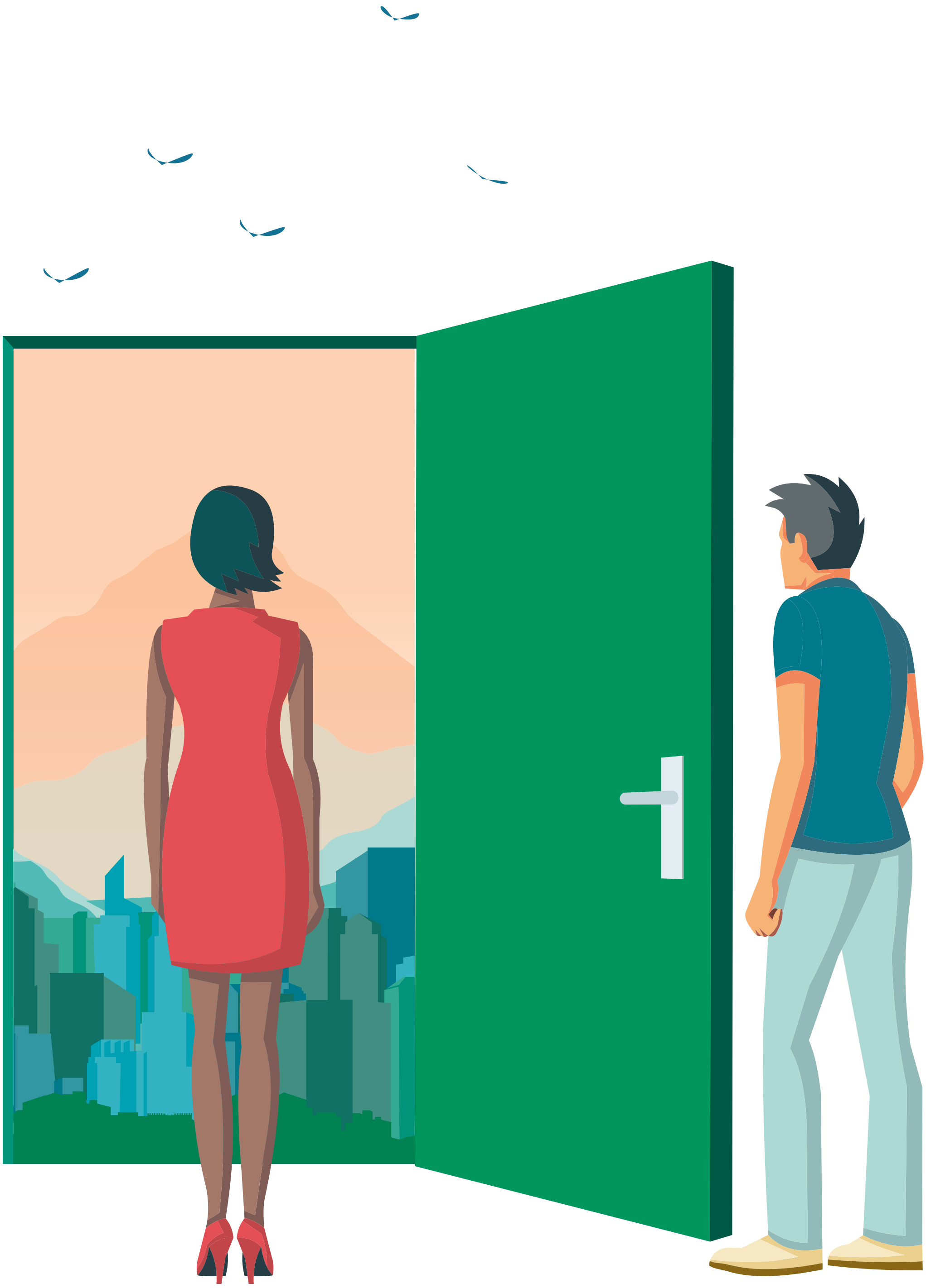
BNP Paribas Group has been financing the real economy for **over 150 years** with market leading positions in real estate and infra structure financing. The bank's UK growth plan is predicated on expanding its UK client base and increasing **sustainable lending** e.g. to UK housing associations. From 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.**

BNP PARIBAS ASSET MANAGEMENT

BNP Paribas Asset Management is the investment management arm of BNP Paribas, one of the world's major financial institutions.

- Managing **GBP 365 billion in assets**(1)
- A comprehensive range of eactive, passive and quantitative investment solutions covering a broad spectrum of asset classes and regions
- More than **500 investment professionals** and around **500 client servicing specialists** for individual, corporate and institutional investors
- More than **3000 employees**(1) in more than **30 countries**
- A **major player in sustainable** and responsible investing **since 2002**
- Backed by BNP Paribas Group, **one of the best rated banks in the world (A+)**(2)

Sources: BNP Paribas Asset Management as at March 2020
1 Joint Ventures included
2 Standard & Poor's, 23 April 2020



Sourcing DPC assets: Sourcing of DPC 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 DPC investments and necessitate the use of synthetic DPC portfolios. **Liquidity risk:** There is a risk that DPC assets may become illiquid if the economic or market situation deteriorates. Consequently, it may not be possible to sell or buy DPC assets at all or quickly enough before their expiry. **Mark-to-market risk:** Given the illiquid nature of DPC assets, their mark-to-market may be adversely affected by changing market conditions. **DPC portfolio risk:** Because of the inherent complexity of such a strategy and the lack of liquidity of some DPC assets, a DPC portfolio may not always deliver the expected cash flows. **Basis risk:** By nature, there is a difference between pension liability cash flows and DPC assets. It is important to keep this aspect in mind when structuring a DPC portfolio in order to minimize basis risk. **Governance risks:** Given the multiple DPC 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 DPC 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 DPC strategy.

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