

THE FUTURE OF DEFINED CONTRIBUTION PENSIONS

ENABLING ACCESS TO VENTURE CAPITAL
AND GROWTH EQUITY

SEPTEMBER 2019

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FOREWORD



SIMON CLARKE,
EXCHEQUER SECRETARY TO THE TREASURY

Since automatic enrolment was introduced in 2012, 8 million additional eligible employees are now participating in workplace pension schemes in the UK. This brought the total number of employees enrolled in a workplace pension to 18.7 million in 2018, with more than 90% of active savers outside the public sector saving in a Defined Contribution (DC) Scheme.

DC Schemes, therefore, need to be able to access a sufficiently broad range of investment opportunities to ensure that they are able to achieve the best possible outcomes for savers. I am committed to doing all we can to give pension providers and trustees access to a wide range of investments so that they can make the best choices for their members.

The UK is a world leader in financial services, with the country playing host to a unique investment ecosystem that has long been a driver of innovation and growth. As such, the UK's pension savers ought to be well-positioned to benefit from access to a diverse range of high-quality investment opportunities in saving for retirement.

This Study and HM Treasury's consultation 'Financing Growth in Innovative Firms' that preceded it, suggest that DC Schemes may not be fully achieving this goal. One aspect of this may be because many of the companies that see the highest growth are not publicly listed, as they receive their funding from private Venture Capital (VC) and Growth Equity (GE) funds. There is an opportunity for DC Schemes to consider how to invest more in such long-term, illiquid assets.

This Study shows there are good reasons for current investment approaches. Commercial and operational challenges skew DC allocations towards listed asset classes and strategies that are easier and cheaper to manage and trade. This situation requires addressing – and commitments to review, and where necessary, amend regulations which act as a barrier to unlisted investment must be followed up, and these effects monitored. Otherwise, DC savers may miss out, while overseas institutions, family offices, and high net worth individuals profit.

Investment of DC funds in VC/GE has the potential to benefit those saving for retirement, but could also have wider societal impact. Indeed, DC Schemes have an opportunity to inject significant levels of capital into VC/GE, funding the next generation of high growth businesses and benefitting the UK economy as a whole.

I would like to thank all participants for engaging in this Study which is a valuable contribution to the collective endeavour; and I encourage those in the VC/GE and pensions industries to consider what their role could be in unlocking DC Scheme investment in this high-growth asset class.

A handwritten signature in dark ink that reads "Simon Clarke". The signature is written in a cursive style and is positioned above a horizontal line that serves as a signature separator.

INTRODUCTION FROM THE FEASIBILITY STUDY CHAIR



PAUL NORRIS,
CHAIR, DC PENSIONS VC/GE FEASIBILITY STUDY

This Study was launched in Autumn 2018 by the Chancellor at the time, when a number of the largest DC pension providers in the UK committed to explore options for pooled investment in 'Patient Capital'.¹ Our remit has been to evaluate the case for DC Scheme investment in Venture Capital and private Growth Equity (VC/GE) and to outline how such a goal might be achieved, given the present constraints.

This is not easy ground. VC/GE is an inherently risky asset class requiring specialist expertise; portfolios need to be carefully constructed and well-diversified. It is challenging to accommodate current fee levels and structures within DC Scheme requirements: over time, new fee arrangements will be required if Schemes are to make significantly increased allocations to the asset class. Moreover, this is not a liquid asset class, nor should it pretend to be. Investment Vehicles need to be carefully designed and expectations managed accordingly.

In setting about our task, our guiding principle has been to enable better outcomes for people saving for retirement, with a focus on commercial solutions that could be implemented in the private sector. The aim here is to make this asset class accessible and affordable for DC Schemes, so that millions of UK workers enjoy a better retirement.

This Study was co-authored by the British Business Bank and Oliver Wyman, with funding provided by HM Treasury. The Study's Steering Panel provided input on our ideas over the course of the work, and I am extremely grateful for the considerable expertise and valuable guidance that they, alongside our other contributors, have brought throughout this process.

ACKNOWLEDGEMENTS

DC PENSIONS FEASIBILITY STUDY STEERING PANEL

Jason Bullmore, Workplace Investment Proposition Lead, Aviva

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Roland Tan, Director of Strategy and Business Development, British Business Bank

Samuel Wickett, Enterprise and Industrial Strategy, HM Treasury

Representatives from over fifty organisations were also interviewed for input during the Study. A list of those who wished to be acknowledged is provided in Appendix A.

EXECUTIVE SUMMARY

THE AIM OF THIS STUDY IS TO ENABLE BETTER LONG-TERM RETIREMENT OUTCOMES FOR THE UK'S DC SAVERS BY FACILITATING INVESTMENT IN PRIVATE MARKETS AND SPECIFICALLY IN VENTURE CAPITAL AND GROWTH EQUITY² (VC/GE)

Although UK DC Schemes can afford to take a long-term approach to investment, which allows them to invest in a broad range of asset classes, asset allocations are predominantly to listed investments (e.g. equities and bonds). Over time, this may not maximise value creation for savers. In particular, DC Schemes currently make little or no allocation to VC/GE, despite these assets having delivered strong returns over the long term. This Study explores the opportunity for DC Schemes to 'use their scale for good', by developing a proposition that could give the UK's DC savers affordable access to VC/GE.

THIS STUDY EXAMINES THE CASE FOR DC SCHEME INVESTMENT IN VC/GE, IDENTIFIES THE KEY RISKS AND CURRENT CHALLENGES TO ACCESS, AND PROPOSES SOLUTIONS TO OVERCOME THESE

This Study focuses specifically on the default strategies of DC Schemes,³ into which the vast majority of new members are enrolled (referred to as 'default funds'). Initial focus has been on developing solutions that could be applied by larger DC Schemes,⁴ which following sufficient evaluation and analysis, can thereafter be rolled out to the wider DC market. In addition, some of the solutions may also assist in facilitating DC investment in alternative asset classes in general.

THIS STUDY ADDRESSES THREE MAIN QUESTIONS:

1. Could investment in VC/GE improve retirement outcomes for DC members and what are the key risks DC Schemes face when investing?
2. How can DC Schemes access this asset class and how could establishing a 'pooled' Investment Vehicle help to achieve this?
3. What further actions need to be taken by the investment industry, government and regulators to facilitate DC Scheme investment in VC/GE?

To answer these questions, this Study has analysed the performance of over 5,000 funds globally and completed interviews with experts from more than 50 organisations across the pensions and VC/GE industries, as well as regulators and those in government.

INVESTMENT BY DC SCHEME DEFAULT FUNDS IN VC/GE ASSETS COULD ACHIEVE A ~7-12% INCREASE IN TOTAL RETIREMENT SAVINGS FOR THE AVERAGE 22-YEAR-OLD⁵

DC Schemes are only likely to invest in VC/GE if this significantly improves member retirement outcomes. Despite limited public data on VC/GE performance in the UK, this Study's analysis suggests that global VC/GE investments could improve the returns to members of DC default funds. Based on long term historic performance, the asset class has delivered an average return net of fees of 7% points a year higher than that seen in public equity markets.⁶ Aside from a period of weak performance from 1999 to the early 2000s, VC/GE funds have sustained this over the long term.⁷

VC/GE also provides high exposure to certain sectors (e.g. technology) that are better-represented in private markets and has a relatively low correlation to listed equity markets. This means that allocating to VC/GE would also improve the sector diversification of a default fund and reduce the level of volatility. The potential benefits accruing to DC Scheme members from such investments are therefore expected to be significant, particularly for younger savers. The average 22-year-old could expect to see an increase in total retirement savings in the range of ~7-12%. For younger members, allocation to VC/GE could reduce the 'deficit' in their pension pot by up to 60%.⁸ Moreover, the benefits of diversification that could come from allocation to a VC/GE portfolio means that young people would overall be exposed to lower risk through allocation to these assets.

INVESTING IN INDIVIDUAL VC/GE FUNDS IS INHERENTLY RISKY; THIS MAKES IT IMPORTANT THAT PORTFOLIOS ARE CAREFULLY SELECTED AND INVESTMENTS WELL DIVERSIFIED

Individual VC/GE assets represent a riskier investment than listed equities or bonds, presenting a much broader range of outcomes. DC Schemes therefore need to ensure they have a well-diversified exposure to this asset class. To achieve this, this Study proposes that DC Schemes invest through a pooled Investment Vehicle. This Vehicle would pool the assets of many Schemes and manage investment in a broad range of VC/GE funds. It may, in time, invest in companies directly. Such a Vehicle could be created and owned by an existing investment manager, or it could be created and jointly-owned by DC Pensions Schemes. There is more limited appetite for the latter option, on account of the complexity of setup and degree of expertise and infrastructure required.

Pooling assets would allow many Schemes to make a small allocation to VC/GE while still creating the overall scale needed to achieve diversification. Consultation during this Study indicates that the likely allocation by DC Schemes which invest in VC/GE would be in the region of ~5%. Pooling assets to create scale would also reduce the risk of over-exposure to any single business or VC/GE fund. Of the investment structures currently available, both an Investment Trust or an open-ended fund structure could provide the basis for an Investment Vehicle of this kind.⁹ In future, the Investment Association's proposed Long-Term Asset Fund may also prove to be a viable option.¹⁰

LIQUIDITY REQUIREMENTS NEED TO BE MANAGED CAREFULLY

VC/GE assets are fundamentally illiquid. Investors expect a higher return and in exchange accept they cannot redeem their capital until underlying investments have matured. As several recent market examples have shown, funds invested in illiquids cannot promise to offer more liquidity than that which is available from the underlying assets. Such an unmet expectation of liquidity, which in reality cannot be provided by the asset class, has in these examples led to some negative outcomes for investors.

An Investment Vehicle for VC/GE investments would therefore only be made available to professional investors, who are likely to have the knowledge base and experience to understand the potential risks and limitations of investing in illiquid assets. Their investment behaviour also tends to be better aligned with VC/GE fund managers, for example, in terms of the investment horizon and short-term capital requirements.¹¹

DC Schemes can manage the liquidity required for their members at the underlying default fund level (as only a small allocation would be in VC/GE assets). Members' needs for liquidity can thus be met without the risk of selling illiquid stakes prematurely.

Nonetheless, any such investment in illiquid assets necessarily increases liquidity risk for the DC Scheme, however small this increase might be. It is therefore important that pooled VC/GE Investment Vehicles (particularly open-ended vehicles) also have mechanisms that safeguard against the risk of becoming a forced seller of underlying assets; for example, gating¹² in the event that one of the invested schemes makes an exceptional redemption request. The key features of Investment Vehicle design and operations are detailed later in this report.

MANY DC SCHEMES REQUIRE LOWER FEES TO GAIN FULL ACCESS TO VC/GE ASSETS

The high costs and 'carry'¹³ associated with investment in VC/GE funds create a challenge for DC Schemes trying to access the asset class.

VC/GE fund costs are driven by the fact that managing an unlisted portfolio of high-growth companies is a labour and cost intensive process that requires a high degree of skill,^{14,15} particularly with regards to earlier-stage VC. In addition, due to the nature of the assets, funds may be small and there are lower economies of scale. As a result, VC/GE fund fees are typically significantly higher than those associated with many other asset classes (e.g. passive management of listed equities).

Despite this, the asset class remains attractive. This is because its strong historic performance suggests that, if sustained, the future return net of fees will still be higher than that of other asset classes, as well as bringing portfolio diversification benefits.

DC Schemes face a challenge in investment, however, in accommodating the high level of fees associated with VC/GE funds. Schemes are constrained in the amount that they can spend on investment and administration, both by commercial considerations, and by the regulatory 75 basis point cap on the total charges attributable to an individual member in the default fund. In particular, without changes to current VC/GE fee arrangements, the charge cap may in some circumstances make it difficult for DC Schemes to accommodate the carry due when investments are very successful. While various operational challenges can be overcome, this regulatory cap makes investment in the asset class less attractive for many DC Schemes.

Therefore, for DC Schemes to make significantly greater allocations to VC/GE assets, funds will need to develop new, 'DC-centric' fee arrangements. While this might initially constrain DC access to VC/GE funds, this Study anticipates that over time, as DC pensions becomes a larger source of capital, an increasing number of funds will be willing to make these kinds of changes.

This Study shows that the case for DC investment in VC/GE is strong and the challenges manageable. Stakeholders from industry, government and regulators now need to take action to make this happen.

TOP TEN FINDINGS

The Study's key findings are summarised below. Detailed analysis and case studies are provided in the chapters that follow.

CHAPTER 1 THE CASE FOR INVESTMENT IS STRONG

- 1. The global VC/GE asset class has outperformed stock markets on average over a sustained period.** For example, since 1970, the asset class has delivered an average 18% net return per year compared to 11% for the MSCI World Equity Index.^{16,17} VC/GE investments are illiquid, meaning they need to offer a premium relative to public markets. This premium has averaged 7% points per annum, although it has fluctuated over time. The dispersion of VC/GE fund returns is high; it is therefore desirable, to diversify at the fund level (and by implication at the underlying company level) as well as across investment vintages.
- 2. The average 22-year-old entering a default fund and following a 'lifestyle' approach¹⁸ could achieve a ~7-12% increase in their total retirement savings.** This is achieved by an average ~5% allocation to VC/GE over their working life and assumes a premium over listed equities that is in the range of what has been achieved historically.¹⁹

CHAPTER 2 CHANGES TO FEES AND COSTS SHOULD BE ENCOURAGED

- 3. Successfully managing a VC/GE portfolio requires a high level of skill²⁰, and is time, and cost-intensive.** This drives higher fees (~2% of committed capital a year, plus a carry payment at exit of 20% of the additional value created for funds exceeding an agreed hurdle, typically around 8% per year).²¹

Although fund costs decline at scale, managers with the best track record – those able to raise larger funds – typically maintain a traditional fee structure. This is a rational response for managers whose strategies are capacity constrained.

- 4. Many DC Schemes will require lower fees to access VC/GE funds.** Interviews with more than twenty VC/GE fund managers suggest that a subset within GE may currently be willing to innovate on fees. However, this Study encourages managers to develop more DC-centric arrangements over time, as DC Schemes are becoming an increasingly important source of capital. A number of new entrant VC managers have been successful during the last decade, often led by former entrepreneurs with technical expertise. However, they have not, so far, disrupted traditional fee arrangements. There is an opportunity to do so in order to attract significantly more investment from DC Schemes.

CHAPTER 3 EXISTING INVESTMENT VEHICLE STRUCTURES CAN BE USED TO ENABLE DC INVESTMENT IN VC/GE

- 5. Most Schemes prefer to invest in VC/GE through a pooled Investment Vehicle to enable broad diversification across the asset class.** This vehicle would centralise investment management and administration processes. The simplest approach to establishing such a Vehicle is for an existing investment manager to create it. There is limited appetite for a jointly-owned DC Pension Fund Investment Vehicle, on account of the complexity of set-up and the degree of expertise and infrastructure required. In time, several Investment Vehicles are expected to be established by investment managers. The size and number of these will be determined by how much DC funds want to invest.

-
6. **Using existing structures, an Investment Vehicle could be structured either as an Investment Trust or an open-ended unlisted fund, each of which has its own advantages and potential drawbacks** (see Chapter 3 for further details). The Investment Association's proposed Long-Term Asset Fund may also be a viable future option.²²

CHAPTER 4 THERE ARE SOLUTIONS FOR CORE OPERATIONAL CHALLENGES

7. **Investing in illiquid assets will always create some liquidity risk.** However, it is intended that VC/GE investments would only make up a small share (~5%) of the overall portfolio of a DC default fund. This means that DC Schemes can manage liquidity largely at the default fund level. An Investment Vehicle for VC/GE would not be expected to provide daily liquidity to investing DC Schemes. A Vehicle would draw on further mechanisms in exceptional circumstances (e.g. queuing/gating in an open-ended structure) to manage residual liquidity risk and ensure that dealing is aligned with the behaviour of underlying assets.
8. **Operational requirements for the valuation and equitable allocation of fees need to be fair and effective.** The unitised fund's Net Asset Value (NAV) would be based on the fair value of underlying assets, estimated using valuations provided quarterly by underlying funds. Carry would be accrued based on current valuations and subtracted from NAV to ensure fees are allocated equitably to investors.²³

CHAPTER 5 THERE ARE SOLUTIONS TO KEY CHALLENGES DURING THE EARLY INVESTMENT PERIOD

9. **When viewed in terms of Investment Vehicle NAV, the impact of the J-Curve²⁴ is relatively small and manageable.** The residual impact of the J-Curve can be minimised by the careful planning of new investments, the use of dilution adjustments, and other well-established investment management tools.
10. **Seeding an Investment Vehicle with an existing portfolio of assets would also help to mitigate the J-Curve.** In terms of the magnitude of seeding required, the Study estimates that seeding a portfolio with ~20%-40% of the initial target assets would create a sufficient foundation upon which to build up a fund. Over ~5 years, based on reasonable growth assumptions, this would account for ~10% of total fund assets. Purchase of VC/GE assets in the secondary market could provide part of the answer; however, whilst seeding is a strong advantage is it not a fixed requirement for success.

SUMMARY OF KEY RECOMMENDATIONS

This Study suggests the following actions can be taken by industry stakeholders to facilitate DC investment in VC/GE:

INFORMATION

The British Business Bank will continue to take the lead in improving the quality and availability of UK industry-level data on historic returns, increasing the broader transparency of the asset class. This will require support from the rest of the industry.

Current publicly-available data on VC/GE investment performance comes from a small number of sources and is sometimes inconsistent. While US fund data is relatively well established, data is more limited for the UK and other geographies. Improving data quality will help investment consultants, DC Schemes and Trustees alike to substantiate the case for investment.

The British Business Bank is taking a lead in developing a UK industry-level dataset on the returns of the asset class. VC/GE funds and the BVCA²⁵ can support this by continuing their work in disclosing high-quality data and disseminating this to pensions industry stakeholders as far as possible.

EDUCATION

As data improves, key stakeholders in the pensions industry such as investment consultants, data and analysis providers²⁶ and trade bodies can drive further education to validate the nature and value of the VC/GE asset class, in particular for DC Scheme Trustees.

DC Schemes historically have not had access to VC/GE investment opportunities and therefore knowledge of VC/GE is less extensive than of other asset classes. Trade bodies and investment consultants should work to inform DC Scheme Trustees of the nature and value of investment in VC/GE, helping to catalyse investment in the sector.

REGULATION

Planned changes to regulation that facilitate prudent DC investment in VC/GE should be taken forward; in the case of the charge cap, adjustments to the calculation methodology could further ease access to the asset class.

Following the work of the Patient Capital Review's Pensions Taskforce, several measures have been taken by the government and the regulators to help unlock DC investment in this asset class. This includes work by the CMA, DWP, FCA and TPR.²⁷

Nevertheless, without changes to current VC/GE fee arrangements, the charge cap may reduce the attractiveness for DC Schemes of investing in the asset class. In particular, if fund performance is very successful (and above what would be expected) then there may be risk that Schemes breach the cap.

INDUSTRY CHANGE

VC/GE fund managers and the pensions industry can work together to develop ways for DC Schemes to access the asset class, including through the creation of pooled Investment Vehicles.

To enable DC Schemes to invest at scale in VC/GE, coordinated action is required across key players in both the VC/GE and pensions industries to develop Investment Vehicles tailored to DC Schemes' operational, regulatory and commercial requirements.

In particular, DC Schemes, investment managers, and VC/GE fund managers should work together to develop reduced fees with DC-centric structures (e.g. charging AMC's on deployed capital rather than committed capital) that can facilitate access to this asset class.²⁸

“As long-term owners of capital, pension funds are ideally placed to invest in a long-term way and reap the benefits of building a portfolio of assets which can provide stable cash flows and diversification benefits for the next 15 or even 50 years.

To help ensure the continued success of pension schemes, it is important they have access to a broad range of investment approaches so that they can continue to invest in members’ best interests. We therefore support work to remove barriers to scheme investment in illiquids ”

The Pensions and Lifetime Savings Association

“The majority of Defined Contribution Scheme members have long time horizons. Trustees and DC investors have the opportunity to invest in a broad range of liquid and illiquid assets that optimise net risk adjusted returns. Venture Capital and Growth Equity, already a part of DB investment strategies, are assets that drive long term returns and stimulate innovation, jobs and the economy. As such, it is an ideal asset class for DC Investment. The proposed changes will make Venture and Growth Equity even more attractive and accessible to DC Investment ”

Ruston Smith, Chairman of Tesco Pension Fund

“The BVCA supports the ultimate goal of increasing the supply of venture capital and growth equity in the UK economy, including addressing the barriers holding back DC pension savers from investing in our asset class and benefitting from the illiquidity premium it brings. We welcome initiatives that will help to demystify what it means to invest in the asset class and enhance the understanding of the returns and costs entailed ”

The British Venture Capital and Private Equity Association

“This Study supports efforts to facilitate access to long-term investments for DC Schemes seeking to make such allocations, in order to improve diversification and increase the potential for uncorrelated returns, thus providing better outcomes for savers. Through enabling investment in a wider range of assets, new long-term investment opportunities for savers can be unlocked, and companies can be provided with much-needed funding ”

The Investment Association

CONTEXT AND OBJECTIVES OF THIS STUDY

THE CONTEXT OF THE FEASIBILITY STUDY

The UK has already created many of the conditions necessary for ensuring the dynamism of its economy for the next generation. This entrepreneurial environment is stimulating research and start-ups across the country to develop new technologies based on the UK's global strength and reputation in technology and innovation. The UK continues to be the top destination for Venture Capital (VC) investment in Europe, attracting around a third of all European VC investment.²⁹ Additionally, in 2018 small businesses raised equity finance worth £6.7 billion, an 11% increase in investment value compared to 2017.³⁰

Despite this, HM Government recognises the need to provide support for the scaling up of the UK's most innovative firms. To address this, the Government announced a ten-year action plan at the Autumn Budget 2017, designed to unlock over £20 billion in finance for innovative firms.³¹ In addition to this, HM Government committed to working with the pensions industry and its regulators to unlock further investment to deliver better returns for people saving for retirement. Autumn Budget 2018 announced a new package of measures to achieve this, including regulatory reforms, industry consultations, and the launch of new taskforces to consider ways in which pension schemes could improve offerings to their members.

The Feasibility Study arises out of these new initiatives and is tasked specifically with exploring the case for DC Pension Scheme investment in Venture Capital (VC) and Growth Equity (GE), and addressing the hurdles that currently prevent this. This Study was launched with the commitment from industry leaders to work with the British Business Bank to help solve these challenges and explore options for pooled investment in VC/GE. The Study was conducted from January to July 2019, chaired by the British Business Bank with support from Oliver Wyman and input from stakeholders in the DC pensions industry.³²

FOCUS, GUIDING PRINCIPLES AND SPECIFIC OBJECTIVES

The Feasibility Study's mission is to "create better outcomes for people saving for retirement" by examining the case for DC investment in VC/GE. It focuses specifically on two related aspects: how Defined Contribution (DC) Pension Schemes can allocate funds to VC/GE, and the design of an Investment Vehicle to overcome the regulatory, commercial, and operational hurdles that have historically held back DC Scheme investment in this asset class.

FIGURE 1:
KEY GUIDING PRINCIPLES AND OBJECTIVES OF THE FEASIBILITY STUDY

PRINCIPLES

- 1** Enable access to investments providing better outcomes at appropriate fee structures and levels
- 2** Promote investment in long-term assets that match investors' long-term horizons
- 3** Develop VC and GE solutions that could initially be applied by large DC Schemes, but could thereafter be rolled out to the wider DC market
- 4** Promote innovation in the VC/GE community to enable creation of an offering appropriate for DC Schemes
- 5** Work in collaboration with regulators and government to review and amend relevant regulation and guidance where appropriate

OBJECTIVES

- A** Examine the case for DC investment in VC and GE
- B** Address the structural challenges associated with DC Scheme investment in VC and GE
- C** Create a solution using a pooled Investment Vehicle to facilitate DC Pension Scheme investment in illiquid assets
- D** Communicate with the pensions community and market participants on the opportunities for investment in VC and GE as an asset class

CHAPTER 1

THE CASE FOR INVESTMENT IS STRONG

KEY FINDINGS

In ten years, workplace DC Scheme AUM is expected to reach £1 trillion, more than doubling in size from current levels.³³

The global VC/GE asset class has, on average, outperformed stock markets over a sustained period, delivering an average 18% annualised net return per year between 1970 and 2016.³⁴ This compares to 11% for the MSCI World Equity Index over the same period, an average VC/GE 'premium' of 7% points.³⁵

The volatility of individual VC/GE fund investments is high, but the diversified return for the asset class overall tends to have lower volatility than the equity markets. DC funds would benefit from diversifying their investments across different funds and vintages to reduce risk.³⁶

A 22-year old new entrant to a default fund following a 'lifestyle' strategy could achieve a ~7-12% increase in total retirement savings by investing in VC/GE. This is achieved by an average ~5% allocation to VC/GE over their working life and assumes a VC/GE premium based on a range relative to what has been achieved historically.³⁷ Allocating to VC/GE would give DC members access to some of the UK's fastest-growing and most innovative companies (that are not listed on public markets).

1.1

BENEFITS FOR DC SCHEMES FROM INVESTING IN VENTURE CAPITAL AND GROWTH EQUITY

Workplace DC Schemes are growing rapidly; however current allocations to alternative assets such as VC/GE are relatively low, as allocations have traditionally been focused on listed equities and bonds. Given the historical outperformance of VC/GE investments, there is significant potential for DC Schemes to improve outcomes for their members by investing in the asset class. This case is further examined below.

THE DC WORKPLACE PENSIONS MARKET IS GROWING RAPIDLY

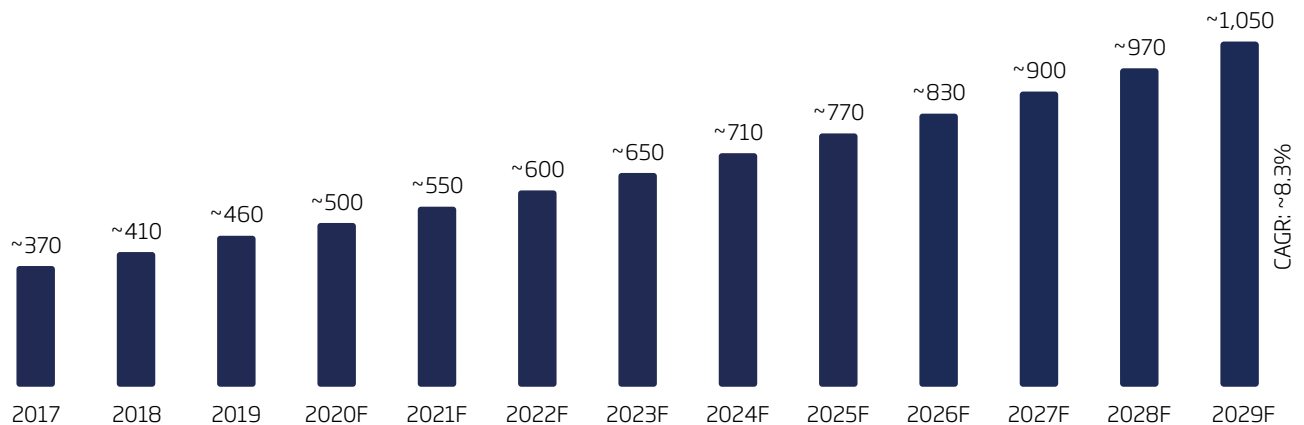
Workplace DC Pension Schemes are expected to grow rapidly in the coming years. Outside the public sector, DB Schemes are now mostly closed to new entrants and, increasingly, are also closed to future accrual.

Consequently, DC Schemes are becoming the main channel of saving for active members of pension schemes. Some 90% of all pension savers in the private sector are investing in a DC Scheme.³⁸

As illustrated in Figure 2, workplace DC Schemes are expected to reach ~£1 trillion over the next 10 years, growing at an annual rate of ~8%.³⁹ Whilst DC Schemes accounted for ~21% of total DB and DC workplace Assets under Management (AUM) in 2018,⁴⁰ the expected growth in DC assets means this figure is likely to rise significantly in the coming years.

FIGURE 2:

TOTAL WORKPLACE DC SCHEME AUM IS EXPECTED TO GROW TO OVER £1 TN BY 2029⁴¹
DC SCHEME AUM, £BN 2017-2029F



DC SCHEMES CURRENTLY MAKE MUCH LOWER ALLOCATIONS TO ALTERNATIVES THAN DB SCHEMES

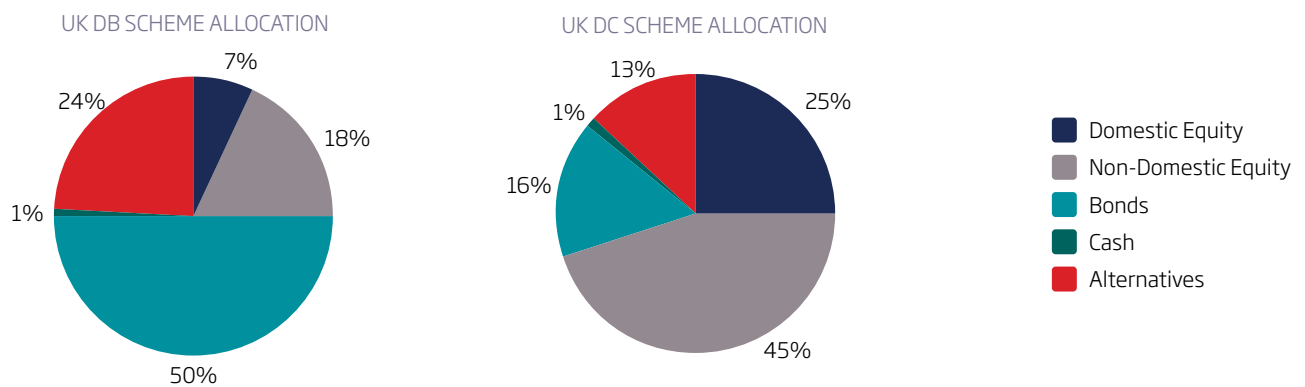
DB and DC Schemes both aim to deliver steady growth over a long period of time through investment in a diversified portfolio of assets. DC Schemes have a higher proportion of younger members, and consequently they tend to have longer time horizons. On this basis, illiquid alternatives, such as VC/GE, fit well with DC Scheme asset allocation strategies and provide an opportunity for DC Scheme members to benefit from the ‘illiquidity premium’ that long-term investors receive for locking up their funds for a sustained period of time.

The benefits for long-term investors of allocating to illiquid alternatives have been illustrated by research recently published by Cambridge Associates. This highlighted that endowments and foundations with a greater allocation to private investments achieved significantly higher returns than those with lower allocations.⁴²

For example, in the past two decades, funds with >15% allocation to private markets achieved a 1.6% point premium in median annualised returns vs. funds allocating only 5% to private markets (8.1% vs. 6.5%).⁴³ In addition, top decile performers in the Cambridge Associates’ dataset were shown to have steadily increased their allocation to private markets in recent years, pushing well beyond 15% allocations. In many cases, allocations were in excess of 40%.⁴⁴ It should be noted that the additional return of illiquid assets is associated with higher risk, particularly in terms of illiquidity and capital loss.⁴⁵

By contrast, current DC Scheme allocations to alternatives are low and significantly below those of DB Schemes. The average DB Scheme allocates ~24% of its investments to liquid and illiquid alternative assets, as shown in Figure 3. Even the largest DC Schemes have limited allocation to unlisted alternatives.

FIGURE 3: UK DC SCHEMES ALLOCATE SIGNIFICANTLY LESS TO ALTERNATIVE ASSETS SUCH AS VC/GE THAN UK DB SCHEMES⁴⁶



This difference in asset allocation is largely due to the regulatory and commercial environment in which DC Schemes operate. Regulation has consistently focused on increasing the transparency of cost and fund value. This has driven DC Schemes' investment strategies towards high liquidity, clear pricing, and low fees (e.g. passive management of listed equities). Moreover, DC Schemes' operational structures (e.g. frequent dealing and daily pricing) further encourage allocations to liquid markets⁴⁷ such as listed equities and bonds. Further details on these requirements are provided in subsequent chapters.

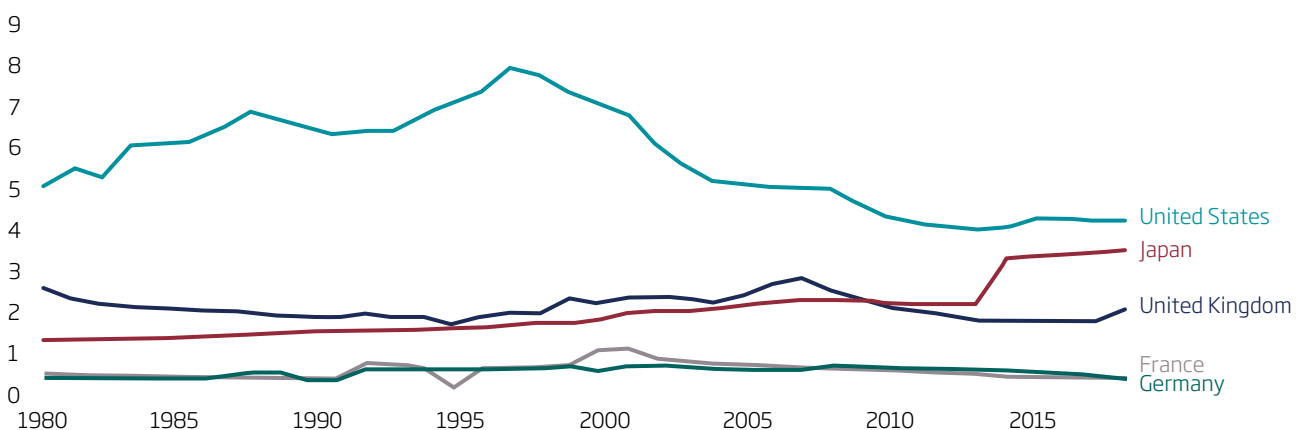
DC Schemes do need to maintain and manage some liquidity, because in the very long run all investments need to be monetised to pay member benefits. However, in the short to medium term an expanding DC scheme typically has much higher new money contribution inflows than the liquidity required (e.g. if some members need to access their savings prior to retirement and/or transfer assets to another scheme). It is therefore possible for Schemes to make an allocation to illiquid assets and manage the associated illiquidity risk, if doing so adds value both from a diversification and a returns perspective. Further details on liquidity are provided in Chapter 4.

THE DECLINE OF PUBLIC EQUITY MARKETS IS REDUCING THE RANGE OF INVESTMENTS ACCESSIBLE TO DC SCHEMES

The high allocation to listed securities presents a challenge for DC Schemes, because the number of listed assets continues to fall globally. In the UK and the US, the number of listed companies has declined by 26% since 2005 and by 50% since 1996. This trend continues unabated. In the UK, 500 firms have delisted in the ten years to 2015.⁴⁸ The impact on UK stock market capitalisation has been significant: since 1999, it has declined from 190% of GDP to 110%.⁴⁹ As diversity declines, DC members are exposed to the increased risk associated with more concentrated investment opportunities.

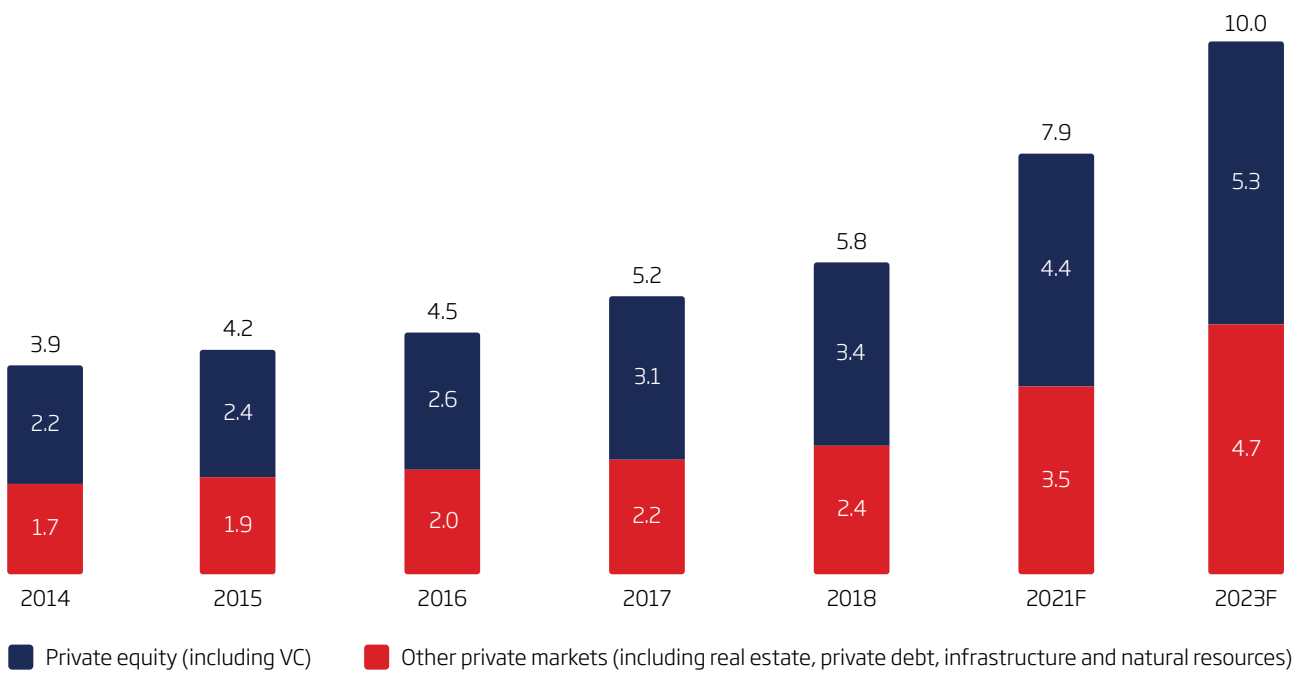
Figure 4 illustrates this decline in France, Germany, Japan, the UK, and the US. The key drivers of this decline include the increasing appetite for funding companies in the private markets and the rise of less capital-intensive business models (e.g. in technology companies), both of which reduce incentives to list. As a result of this change, listed assets strategies are becoming increasingly ineffective for gaining access to the entire universe of investment opportunities.

FIGURE 4:
THE NUMBER OF COMPANIES LISTED ON STOCK EXCHANGES HAS BEEN DECLINING⁵⁰
OF COMPANIES (000s)



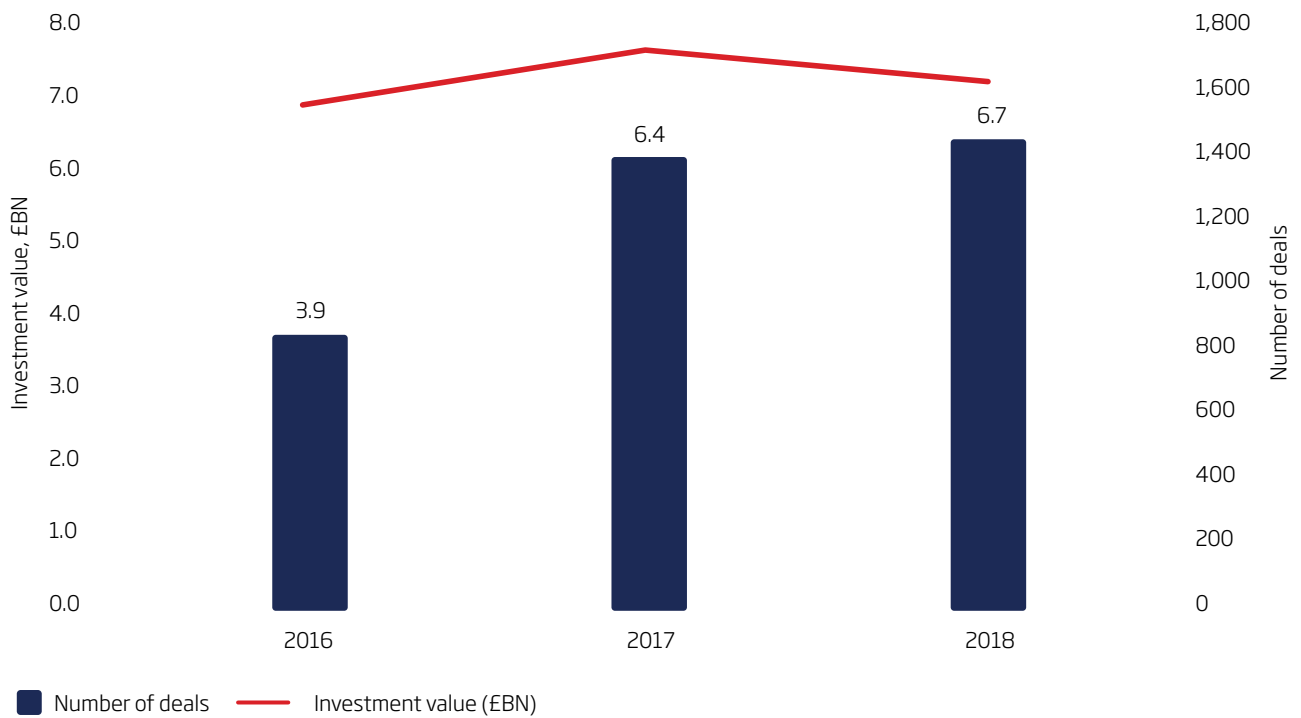
In contrast to listed equities, private markets have been growing rapidly and are expected to continue to do so. There has been a notable trend across high-growth sectors for companies to remain private for longer, prior to listing, which is helping to drive this. The increase in investment in private markets is shown in Figure 5.

FIGURE 5:
GLOBALLY, INVESTMENT IN PRIVATE MARKETS HAS BEEN GROWING RAPIDLY AND IS EXPECTED TO CONTINUE^{51,52}
AUM, US\$ TN



Investment in VC and GE has been growing particularly strongly in recent years. For example, equity investment in UK SMEs has grown from £3.9 billion in 2016 to £6.7 billion in 2018. This is shown in Figure 6.

FIGURE 6:
EQUITY INVESTMENT IN UK SMES HAS INCREASED SIGNIFICANTLY IN RECENT YEARS⁵³



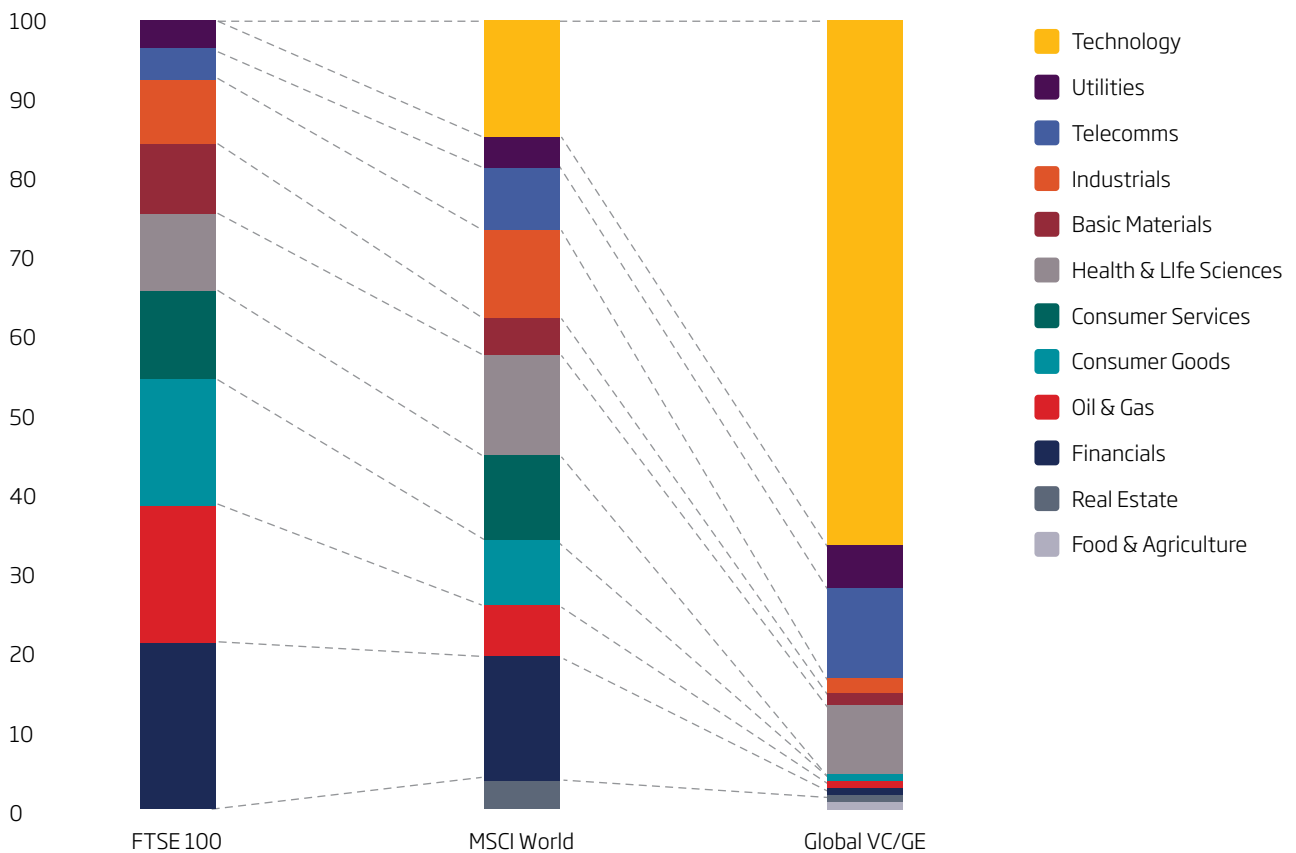
Much of this investment has been concentrated in high-growth areas such as technology, life sciences, and other intellectual-property based business. This includes some of the most innovative business in the UK, some of which are now valued at more than US\$1 billion or more (and so are considered 'unicorns'). As of June 2019, these unicorns included BrewDog, Darktrace, Deliveroo, Farfetch, Improbable, Just Eat, Graphcore, Monzo, OakNorth, Skyscanner, The Hut Group, TransferWise, and Revolut.

While many workers in their twenties and thirties are customers of these innovative and high-growth companies, they are currently unable to invest their retirement savings in them. Instead, their savings are invested in the more mature and lower-growth industries accessible on the stock market. This is shown in Figure 7, which contrasts investment by industry sector for listed equities (the FTSE 100 Index and the MSCI World Index) and for VC/GE.

FIGURE 7:

VC/GE INVESTMENTS IN 2018 WERE MORE CONCENTRATED IN NEWER INDUSTRIES SUCH AS TECHNOLOGY, COMPARED TO THE FTSE 100 AND MSCI WORLD INDEX^{54,55}

INDUSTRY FOCUS (%)



NET OF FEES, RETURNS FOR VENTURE CAPITAL AND GROWTH EQUITY HAVE HISTORICALLY BEEN HIGHER THAN THOSE FOR LISTED EQUITIES

The return and diversification benefits of investment in VC/GE have been significant. Analysis of over 5,000 funds, conducted as part of this Study, shows that global VC/GE has historically achieved materially better returns than tradeable equities, net of fees. Since 1970, global VC/GE assets have achieved an average ~18% net return per year compared to ~11% for the MSCI World Equity Index.⁵⁶ This represents an average 'premium' of approximately 7% points. Note, this Study acknowledges that there may be potential for survivorship bias to

positively skew data relating to investment fund performance.⁵⁷

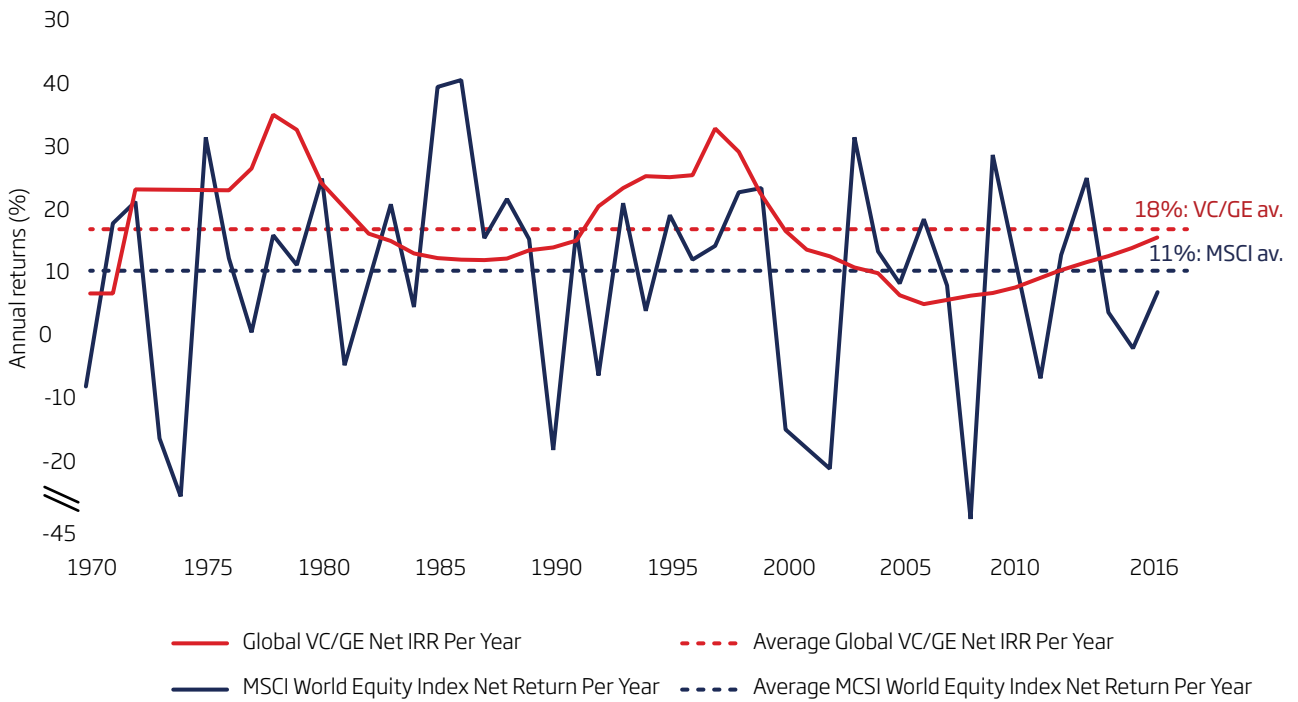
FIGURE 8:

GLOBALLY, THERE HAS BEEN A SIGNIFICANT HISTORICAL PREMIUM FROM INVESTING IN VC/GE^{58,59,60,61}



The historical outperformance of global VC/GE compared to tradeable equities is illustrated in the figure below. This shows how in most years since 1970 the global VC/GE asset class has outperformed listed equities.

FIGURE 9:
GLOBAL VC/GE HAS OUTPERFORMED TRADEABLE EQUITIES IN EACH DECADE SINCE 1970^{62,63,64,65}

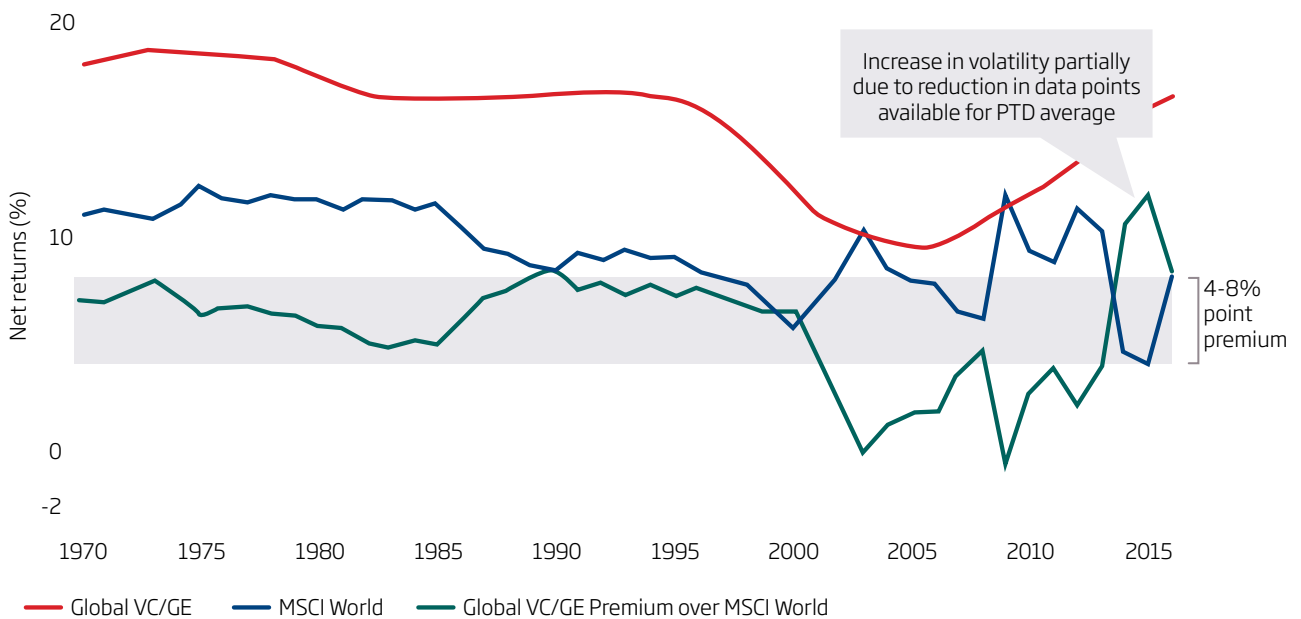


As is to be expected, there is some variability over time in the extent to which VC/GE assets have outperformed listed equities in any given period. This is driven by year-on-year variation in both VC/GE and MSCI World returns (see Figure 9), the latter being particularly volatile. Despite this variation, the average historical premium has predominantly remained in the region of 4-8% points.

When the average premium falls outside this range, it has exceeded 8% points more often than it has fallen below 4% points.⁶⁶ While there is some evidence of a small downward trend in the premium since 1970, the level of statistical confidence in this reduction is low.⁶⁷

The average premium to VC/GE investment over time is shown in Figure 10. This illustrates the rolling average returns to VC/GE compared to the MSCI World Index, as well as the rolling average premium. All the rolling averages start from 2016 and are calculated backwards - for example, data points for '1970' represent the average return between 1970 and 2016; data points for '2000' represent the average return between 2000 and 2016.

FIGURE 10:
THE AVERAGE 'PREMIUM' TO DATE FROM INVESTING IN VC/GE HAS REMAINED SIGNIFICANT OVER TIME^{68,69,70,71}



THIS STUDY'S RETURNS ANALYSIS IS BROADLY IN LINE WITH OTHER INDUSTRY-LEVEL RETURNS FIGURES

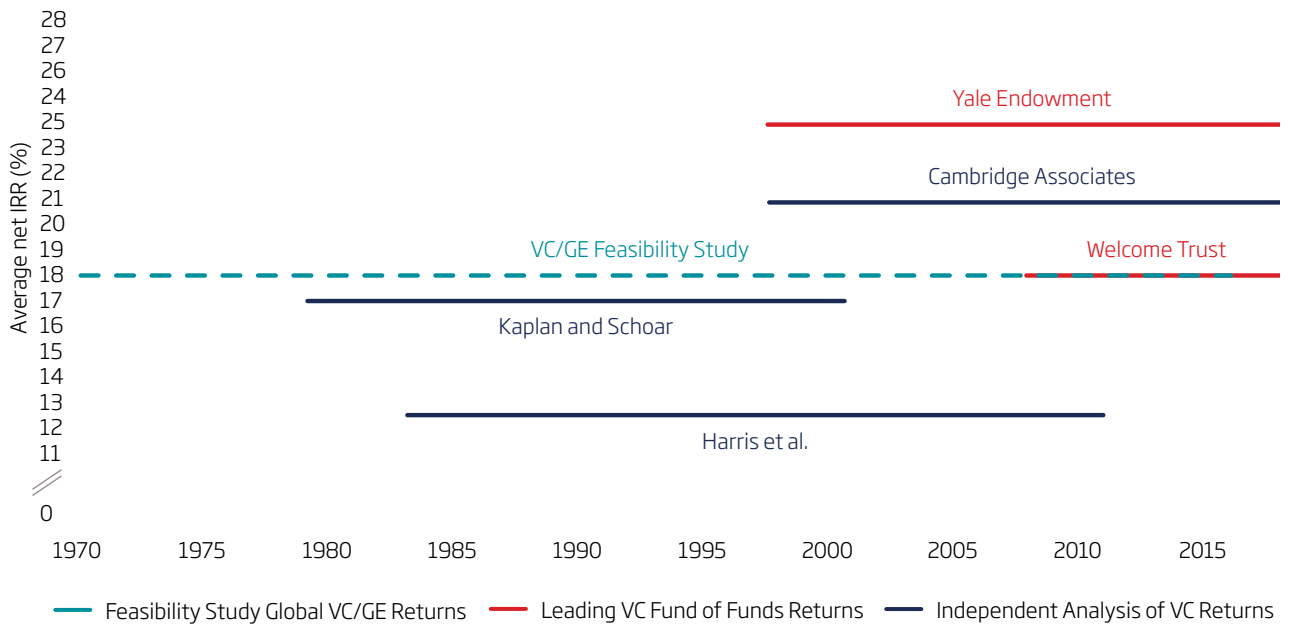
Data on VC/GE investment performance is limited in both granularity and scope, for example, there is currently insufficient data to robustly compare UK and global VC/GE returns. Further details are provided in Appendix C.

In recognition of inherent limitations of VC/GE data, this Study has therefore sought to corroborate its returns figures with third-party sources. These generally fall into

two categories: (1) independent analysis of VC returns, for example, by academics and investment professionals; and (2) returns of leading VC fund-of-funds (which provide prominent examples of what has been achieved). The industry-level returns figures from these sources are shown in Figure 11, with each bar representing the time period over which returns have been calculated. This figure demonstrates how this Study's analysis is broadly in line with figures produced by other independent analysis. Further details are provided below.

FIGURE 11:

THIS STUDY'S RETURNS ANALYSIS IS BROADLY IN LINE WITH OTHER INDUSTRY-LEVEL RETURNS FIGURES^{72,73,74,75,76}



1. Independent analyses of VC returns

The net returns of US VC have been analysed in a number of academic papers, with results broadly in line with this Study's analysis. Harris et al. found the average IRR of US VC funds to be 12.5% per year over the period 1984-2011.^{77,78} Historical analysis by Kaplan and Schoar showed returns of 17% per year averaged over an earlier period ending in 2001.^{79,80} Using the approach of a Public Markets Equivalent (PME), the research papers also measured VC performance relative to the S&P 500.⁸¹

Both Harris et al. and Kaplan and Schoar found that VC outperformed public markets by ~3% points per year (over the respective time periods studied). However, this is somewhat qualified by Harris et al., who highlight the underperformance of the 1999-2003 VC fund vintages. These years are followed by more modest over-performance compared to public markets in the subsequent years of the sample (ranging from zero to a ~1% point premium over public markets during 2004-08).

Analysis by Cambridge Associates on US VC returns⁸² over the past 25 years also produces figures that are broadly consistent with this Study's findings. The Cambridge data shows US VC returns averaged 13% per year during the period 2008-18, compared to this Study's ~11% for global VC/GE returns for the period 2008-16. The Cambridge research also uses a modified Public Markets Equivalent (mPME)⁸³ IRRs approach to measure VC performance relative to S&P 500. Through this analysis, they highlight significant variation in the VC premium over listed equities over the previous 20 years. For example, the VC premium over the S&P 500 varied from greater than 20% points (e.g. for the period 1993-2018, and 2018 as standalone year), to ~0% points (for the period 2008-18).

2. Returns of leading VC/GE fund-of-funds

As an additional reference point, this Study has also looked at published returns of large, prominent, and best-in-class institutional investors in VC/GE. Unsurprisingly, these investors show levels of returns that often exceed those seen elsewhere in this Study. For example, The Wellcome Trust⁸⁴ and Yale Endowment⁸⁵ reported average returns per year of 18% and 16% respectively for 2008-18, well above this Study's comparable figure of ~11% for 2008-16.

As discussed earlier in this report, there is limited historic data available on VC/GE returns. There is even less publicly available analysis and opinion on the prospects for future returns. However, one recent survey, conducted by NASDAQ-owned eVestment, has tried to quantify the outlook for such investments. This survey of investors⁸⁶ and fund-managers⁸⁷ in alternative asset classes found that most expected future VC returns either to stay the same or to increase. In general, respondents expected that most strategies (including venture capital) were more likely to see a future performance decrease than an increase. However, in contrast to the general trend, 53% of investors expected VC performance either to increase or stay the same; this figure rises to 71% for fund managers. eVestment's research also found that both investors and managers had consistently higher expectations of returns in VC and private equity than other alternative asset classes (including private debt, infrastructure and real estate).⁸⁸

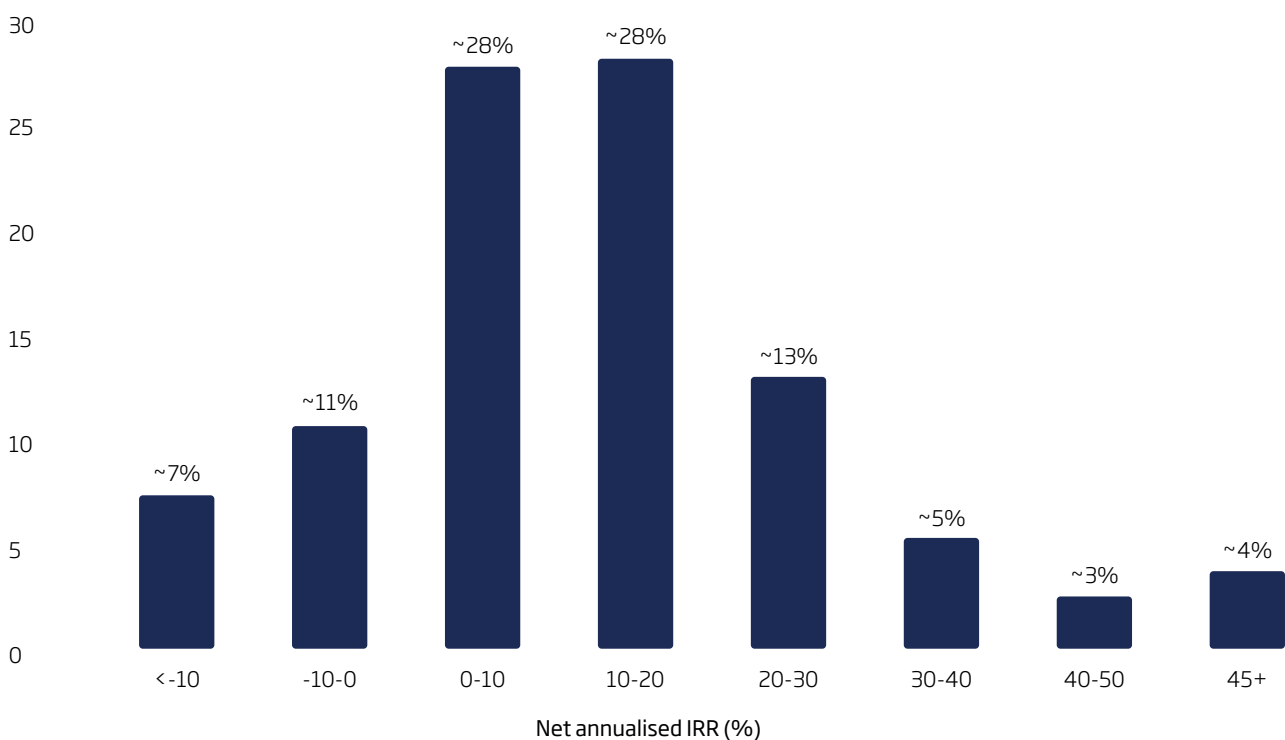
While this Study has not sought to predict the future level of VC/GE returns, there are two factors, in particular, which suggest the material premium over listed equities may continue. Firstly, investors in VC/GE are likely to continue to benefit from an illiquidity premium. Ang et al. (2014) suggests that investors may expect to receive a 4-6% premium to lock-up their capital for 5-10 years,⁸⁹ a time period in line with that for which capital must be committed in VC/GE funds. While such an illiquidity premium is not unique to VC/GE (and may reduce, particularly in periods when the supply of capital to illiquid assets is high),⁹⁰ it still may be a material factor in driving VC/GE outperformance. Secondly, investors in VC/GE are likely to continue to have relatively better access to very high growth companies (particularly those focused in sectors such as technology and life sciences). As discussed above, these innovative companies are increasingly remaining as private companies, and may therefore provide a source of outperformance for VC/GE investors.

THERE ARE INVESTMENT RISKS ASSOCIATED WITH VENTURE CAPITAL AND GROWTH EQUITY

While investment in VC/GE has the potential to generate significantly higher returns over the long term than listed equities, individual VC/GE funds (and, of course, individual company investments) represent a relatively risky investment⁹¹ with a broad range of outcomes. This is because returns in VC/GE are typically driven by a small number of 'star-performing' investments. This variation is shown in the distribution of returns for the individual VC/GE funds included in the global performance analysis cited above. In this sample, the standard deviation of individual fund returns was ~27%,⁹² compared to 14% for the MSCI World Index. There was also a left-hand skew to the fund performance distribution, with most funds falling below the mean. This distribution pattern is shown in Figure 12.

The distribution of global VC/GE fund returns highlights the importance of ensuring VC/GE portfolios have well diversified investments and the importance of fund selection. This drives two key proposals from this Study: firstly, that DC Schemes invest in a pooled VC/GE Investment Vehicle which in turn invests primarily in VC/GE funds, rather than directly into portfolio companies. This ensures VC/GE exposure is well diversified and achieves an outcome as close to the return for the asset class (as a whole) as possible, rather than being concentrated in a small number of companies; secondly, that VC/GE fund investments should be a small allocation (~5%) within a diversified multi-asset portfolio. This reduces the risk of over-exposure to a given VC/GE fund.

FIGURE 12:
THERE IS A RANGE IN PERFORMANCE OF INDIVIDUAL VC/GE FUNDS⁹³
 % OF GLOBAL VC/GE FUNDS, 1970-2016



By constructing diversified VC/GE portfolios, DC Schemes can achieve a significant increase in member returns, while reducing overall risk. Although the lack of available data makes measurement difficult, this Study estimates that the global VC/GE average return per year across all funds in the entire market has had a standard deviation in the range of 8%-11% since 1970.^{94,95,96} This is lower than that of the MSCI World Equity Index (of 14%) and demonstrates the benefits of achieving broad exposure to the asset class as a whole.

In addition, allocation to VC/GE is likely to improve diversification in a multi-asset portfolio. This is because the VC/GE asset class is relatively uncorrelated with listed markets. While VC/GE investments are exposed to the same broad macro-economic conditions as publicly listed equities, they may be less affected by short-term swings in investor sentiment that can result in volatility in public markets. This Study's analysis found a ~10% correlation between global VC/GE average returns and MSCI World Index returns (1970-2016). Independent estimates of this correlation vary. For example, analysis by Aberdeen Standard Investments⁹⁷ found a correlation of 42% between Global VC returns and US equities between 1990 and 2018,⁹⁸

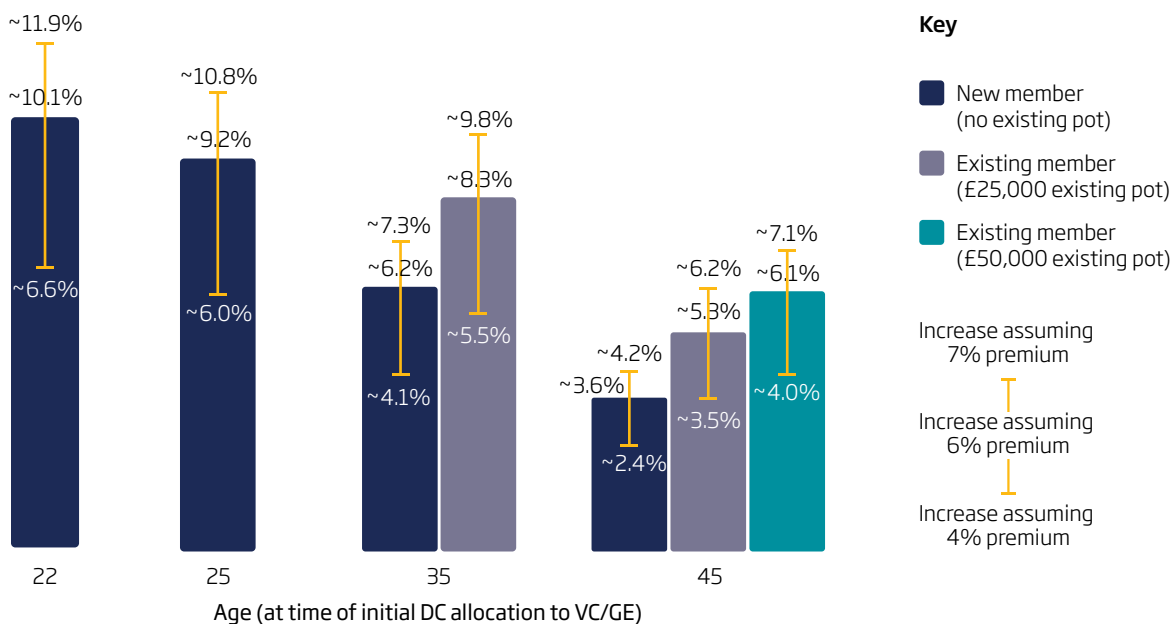
INVESTMENT IN VC/GE COULD BRING SIGNIFICANT BENEFITS FOR DC MEMBERS

The cumulative effect of outperformance of VC/GE assets compared with listed markets is that allocation to the asset class could be of significant benefit to retirement savers. In particular, investment is likely to benefit younger savers the most, and for some could reduce the 'deficit' in their pension pot by up to 60%.⁹⁹

This Study's consultation with DC Schemes and industry consultants indicates that those investing in this asset class would likely allocate ~5% of the default fund

to VC/GE. Based on this expectation and the historic performance of VC/GE assets, this Study's analysis suggests that a 22-year old, who enters a default strategy that follows a 'lifestyle' approach would achieve a ~7-12% increase in their total retirement savings at the point of retirement. Even for older workers, the potential increase in returns would be significant. For example, a 35-year old with £25,000 currently invested in retirement savings would see an ~6-10% increase in their lifetime retirement savings. The potential benefits for various groups of savers is illustrated in Figure 13.

FIGURE 13:
RETIREMENT INCOMES COULD BE SIGNIFICANTLY INCREASED BY VC/GE ALLOCATION



Investment assumptions

- Lifestyle investment strategy¹⁰⁰
- 5.05% nominal returns on non-VC/GE investments¹⁰¹
- 6% point VC/GE nominal premium over equities, with sensitivity bars representing 4-7% points premium over equities¹⁰²

Member assumptions

- £28,400 salary at time of DC initial allocation to the asset class¹⁰³
- 2.85% nominal annual salary growth¹⁰⁴
- 8% annual contribution rate¹⁰⁵
- Assumed retirement aged of 66 for those currently 59 or older, and 67 for those currently 58 or younger

As the previous analysis shows, investment in VC/GE has the potential to benefit younger savers the most, and it could make a significant difference in making up the current 'deficit' in their pension pots. For example, a 22-year old new entrant to a DC Scheme is currently required to contribute 8% of their salary to their pension pot (through a combination of employee and employer contributions). However, given existing DC Scheme asset allocation strategies, this level of contributions is unlikely to be sufficient to reach the target 'replacement rate' (i.e. the target level of income in retirement, relative to an individual's salary at retirement, as outlined by the Pensions Commission in 2004 and updated in 2012 by the DWP),¹⁰⁶ This means that individuals will have to make additional voluntary contributions if they are to enjoy this level of income in retirement.

Figure 14 illustrates the annual contributions required for a 22-year old new DC Scheme entrant to achieve their target replacement rate. Scenarios for two different individuals have been modelled:

- A. **For a saver on minimum wage**¹⁰⁷ who experiences a relatively low level of real income growth over their lifetime (1.5x).¹⁰⁸ Currently a 1.4 percentage point voluntary increase in contributions is required to meet their target replacement rate.¹⁰⁹ This is reduced by ~60% (to 0.5% points) through an allocation to VC/GE
- B. **For a saver on the average graduate salary**¹¹⁰ who experiences a relatively high level of real income growth over their lifetime (2x).¹¹¹ Currently a 9.2 percentage point increase in voluntary contributions is required to meet their target replacement rate.¹¹² This is reduced by 15% (to 7.7% points) through an allocation to VC/GE

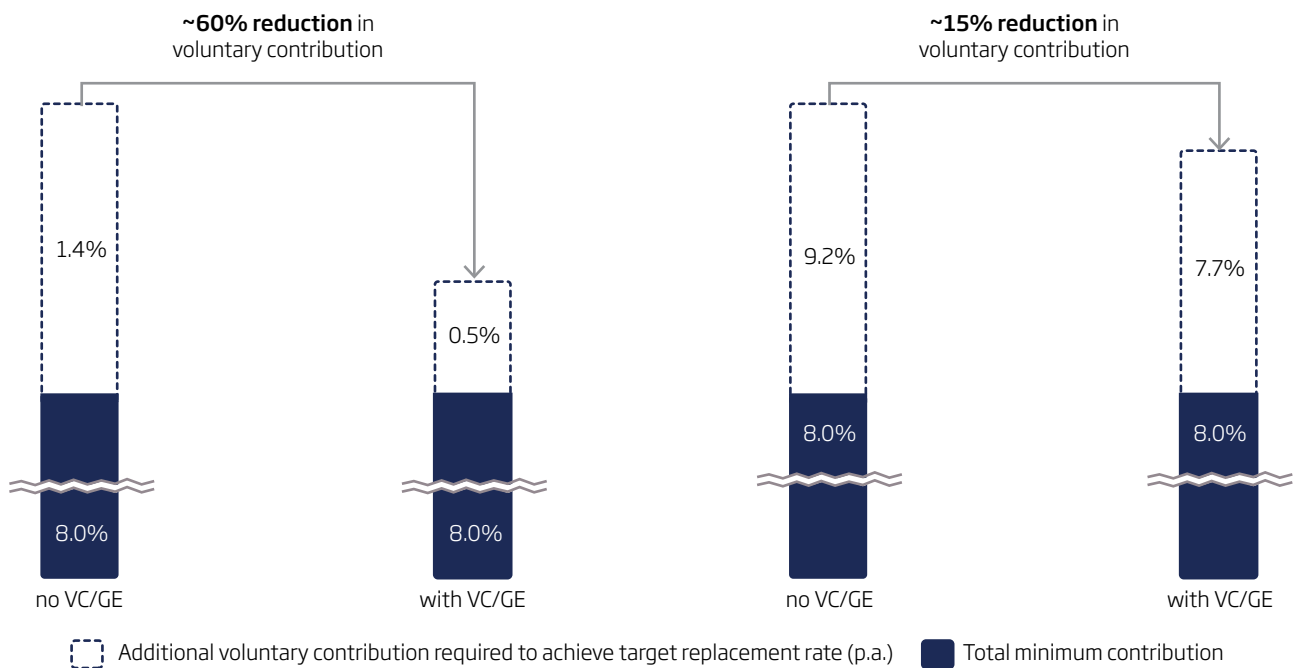
Both modelled scenarios demonstrate the importance of DC Schemes allocating to higher-returning asset classes such as VC/GE. Without these higher-returning investments, savers are very unlikely to reach their target replacement rates (and achieve the desired incomes in retirement) at current contribution levels.

FIGURE 14:

THE LEVEL OF ADDITIONAL VOLUNTARY CONTRIBUTIONS REQUIRED TO MEET TARGET REPLACEMENT RATES COULD BE SIGNIFICANTLY REDUCED BY VC/GE ALLOCATION¹¹³

A Minimum wage saver, 1.5x real income growth over lifetime

B Average graduate saver, 2x real earnings growth over lifetime



Investment assumptions

- ~5% weighted allocation to VC/GE through lifestyle strategy¹¹⁶
- 5.05% returns on non-VC/GE investments¹¹⁷
- 6% VC/GE premium over equities¹¹⁸

Employee assumptions

- 22-year old new entrant at time of DC allocation to VC/GE
- 8% contribution rate¹¹⁹
- £170 state pension per week¹²⁰

Replacement rate

- Percentage of final salary available as retirement income based on final pot size
- Target replacement rates provided by Pensions Commission based on income bracket¹²¹

1.2

WIDER ECONOMIC BENEFITS OF DC INVESTMENT IN VENTURE CAPITAL AND GROWTH EQUITY

Although the focus of this Study is on the benefits to individual retirement savers, DC investment in VC/GE would potentially bring wider economic benefits to the UK. The geographic focus of any DC investment in VC/GE would be determined by the investment manager (in consultation with invested Schemes). However, given the strength of the UK industry vs. other global markets (e.g. the UK is the third largest VC market globally after the US and China¹²⁰) it is reasonable to expect that there would be at least proportional investment in UK VC/GE funds.

The capacity of the UK sector to absorb such funding is well established. For example, in 2017, Her Majesty's Treasury's Patient Capital Review¹²¹ identified that there is an ongoing demand for capital from innovative, high-growth firms in the UK. These firms tend to depend on investment on VC/GE funds, whose main sources of capital include overseas institutions. These sources of capital might be constrained in the future as the investment activity of overseas institutions may be impacted by the changing nature of the UK's relationships with its foreign trading partners.

CURRENT FUNDING FOR VENTURE CAPITAL AND GROWTH EQUITY: IMPLICATIONS FOR DOMESTIC DC INVESTMENT

As discussed above, UK DC Schemes currently have a minimal allocation to alternative assets such as VC/GE. This is one reason why most funding for VC/GE investment is presently drawn from overseas sources of savings.

In 2017, VC and Private Equity firms saw a large increase in their funding. This was driven by ongoing favourable economics and the demand for private markets exposure. However, despite this growth, the firms headquartered in the UK sourced 80% of funding from overseas investors,

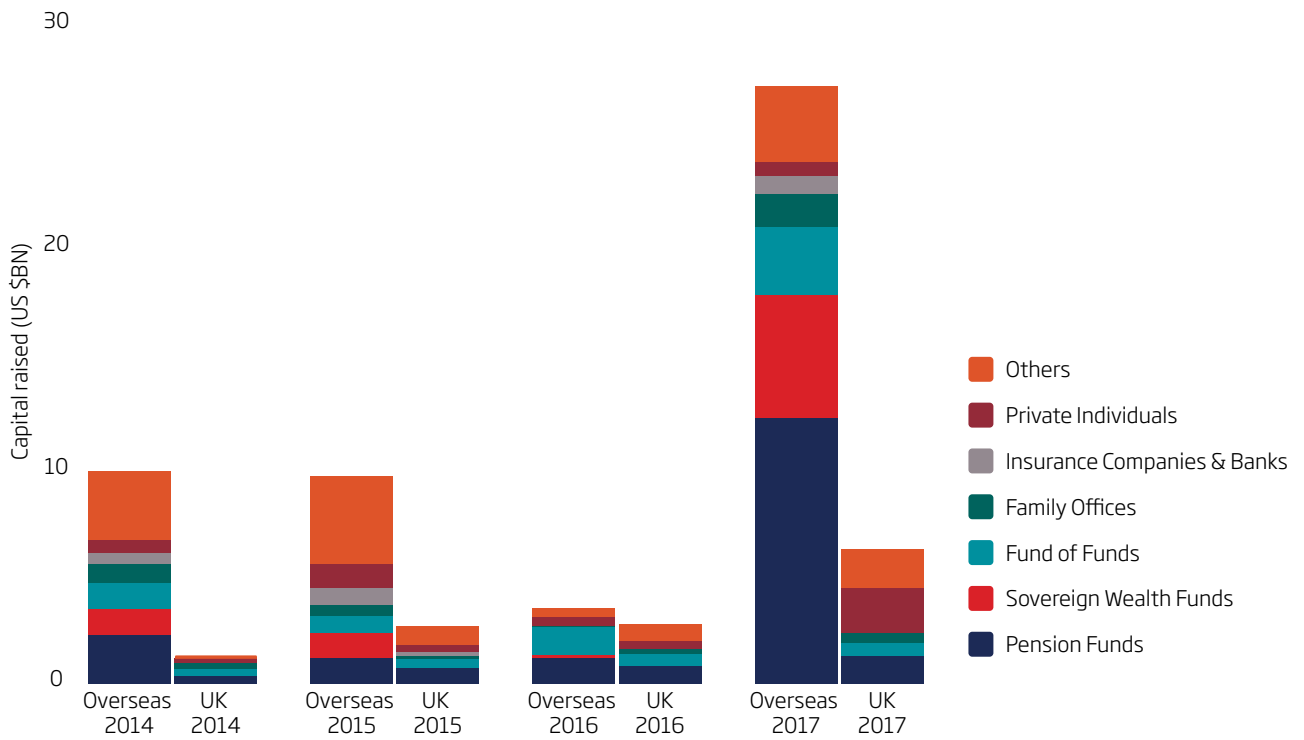
predominately from foreign pension and sovereign wealth funds. This is shown in Figure 15.¹²²

Given current funding sources, the UK may need to respond to changing institutional investor appetite as it defines its future relationship with key economic partners. It is also likely that investment by DB Schemes may reduce over time, as Schemes mature and increasingly focus on liquidity and cash flow matching.

This leaves the door open for DC Schemes to invest in VC/GE, improving potential member outcomes and contributing to wider societal needs. DC Schemes have the opportunity to become significant investors in the sector, providing an incentive for the VC/GE industry to innovate to meet DC requirements. Given the scale of the UK DC industry, this could spark a virtuous cycle, attracting the largest source of long-term capital in the UK to invest in those businesses which are essential for the long-term health of the UK economy.

FIGURE 15:

THE MAJORITY OF FUNDING FOR UK VC AND PE FUNDS COMES FROM OVERSEAS SOURCES^{123,124}



ENVIRONMENTAL, SOCIAL, AND GOVERNANCE CONSIDERATIONS

Environmental, Social, and Governance (ESG) factors are a growing concern for DC Schemes. Trustees are currently obliged to state the extent to which they take 'social, environment, and ethical' considerations into account in their investment principles. In addition, from October 2019, pension schemes with more than 100 members will be obliged to state their policy on taking account of 'financially material' ESG factors (e.g. considerations relating to climate change).¹²⁵

Investing in VC/GE could have a positive impact on DC Scheme engagement with ESG. Responsible investment is increasingly considered a fundamental part of value creation in private markets investment. Since the financial crisis, VC/GE funds (and private investors more generally) have materially increased their focus on integrating ESG factors into investment strategies, aiming to be better long-term stewards.¹²⁶

This has been driven both by pressure from LPs and regulators,¹²⁷ and by the recognition that considering ESG as part of the investment process both minimises risks and creates investment opportunities.

Engagement throughout this Study has confirmed that ESG considerations are an increasing priority for VC/GE fund managers and the wider investment industry. For example, fund managers such as Atómico, Hermes GPE, Octopus, Pantheon and Partners Group have publicly stated the importance they place on prioritising ESG considerations when defining their investment strategies. They are among many VC/GE investment managers that are signatories to the United Nations' supported Principles for Responsible Investment (PRI).¹²⁸ This sets out six key principles for incorporating ESG issues into investment practice and has attracted a signatory base representing a significant number of professionally managed investments.

In addition, industry associations representing VC/GE and other investment managers are increasingly focused on ESG considerations. For example, the UK Investment Association has established a Stewardship Reporting Framework,¹²⁹ which helps to support asset managers in publicly disclosing the breadth and range of their stewardship activities.

Given the above, VC/GE funds are well-placed to work with DC Schemes, focusing on stewardship, and taking a more sustainable approach to investment.

CHAPTER 2

CHANGES TO FEES AND COSTS SHOULD BE ENCOURAGED

KEY FINDINGS

Successfully managing a VC/GE portfolio requires a high degree of skill, and is cost-intensive, resulting in high fees. Costs are high for funds operating at low scale and the best performing managers (those able to raise larger funds) typically maintain a traditional '2 and 20' fee structure. This may be a rational response for top-performing managers whose strategies are capacity constrained. Alignment of interest for limited and general partners is regarded as critical to the generation of premium net investment returns.

Many DC Schemes require lower fees to access VC/GE funds. Interviews with VC/GE fund managers suggest that only a subset within GE are currently willing to consider changes. However, as DC becomes an increasingly important source of capital over time it is likely that DC investors will be able to leverage this to incentivise change. A number of new entrant VC managers have been successful during the last decade, often led by former entrepreneurs with technical expertise. Although new entrants have not - so far - disrupted traditional levels of fees, there is an opportunity to do so.

2.1

CURRENT FEES IN VENTURE CAPITAL AND GROWTH EQUITY

Although fee rates for Venture Capital and private Growth Equity are higher than those for other asset classes in which DC Schemes typically invest, they are not out of line with those charged for other alternative asset classes, such as Private Equity.

Most established VC/GE funds currently charge both a fixed annual management charge (AMC), and a variable performance element, or 'carry'. The AMC is typically taken annually as a percentage of total committed capital and is intended to cover the basic costs of running the fund. VC/GE funds tend to charge ~200bps AMC. The carry is calculated as a percentage of the total capital gain and is taken at the end of the life of the fund. It is only charged if and when returns cross a specified hurdle.¹³⁰

This hurdle ensures that investors only pay this charge if strong results are achieved, and then only after they have been delivered in cash at the end of the fund's life. The carry is typically charged on ~20% of returns for funds achieving over and above a typical 7-8% hurdle (i.e. below this level, the minimum capital gain, no carry is charged). This is designed to align the incentives for the fund managers with the interests of investors.

This combination of AMC and carry (known in the industry as '2 and 20') means that the fees for managing VC/GE funds are higher than those of other asset classes. This is mostly due to higher costs, which are driven by two main factors.

- Firstly, managing VC/GE funds is an inherently costly and time-consuming process. Sourcing and managing such investments requires extensive research and due diligence. Moreover, once the investments are made, they typically require greater ongoing management to realise their full value (this applies particularly to early stage Venture Capital). Successfully managing such a portfolio requires strong management expertise^{131,132}

- Secondly, because VC/GE fund investment ticket sizes tend to be lower than those for later stage investment funds (e.g. in Private Equity), economies of scale may be limited. Where the overall AUM ticket is larger (e.g. in mainstream Private Equity and at the later stages of Growth Equity), economies of scale can reduce unit costs and, in principle, fees

IMPLICATIONS FOR DC INVESTORS

DC Scheme providers are constrained on fees both by commercial considerations (e.g. internal fee budgets) and by regulatory considerations (e.g. the Government's cap on charges to members in DC default fund strategies).

This Study has identified that changes to fee arrangements are likely to be required to unlock large-scale DC investment in this asset class. Engagement with stakeholders from across the VC/GE industry suggests that, in the short-term at least, this is unlikely to happen at scale. For many of the best-performing funds, fees are expected to remain at current market levels. Rather, this Study notes that a small subset of GE managers are already, or are willing to, make changes to their fees. New entry and disruptive VC/GE models may be required, and without changes, access to this asset class is likely to continue to be inhibited.

THE ECONOMICS OF DC SCHEMES

In terms of commercial considerations, many DC Schemes are limited by their designated fee budgets in the amount they are able to spend on investment administration. These budgets are driven by competitive market dynamics and the economics of individual schemes.

The average current DC spend on investment and administration costs is around 45bps on total AUM.¹³³ However, factors unique to each DC Scheme will shape the precise level. These include AUM (i.e. larger providers and/or larger schemes may be able to achieve greater scale economies in administration) and scheme type.¹³⁴ In the case of Occupational Trusts with a corporate sponsor, fee budgets are less likely to be a constraint to investing in VC/GE. This is because the corporate sponsor will often pay for administrative costs. In contrast, for Master Trusts and Contract-Based insurers (i.e. bundled Schemes), fee budgets are more likely to be a constraining factor as they compete on a price basis.

In terms of regulatory considerations, the government's charge cap for the default strategies of DC Schemes limits member-borne charges to 75bps for all administration and investment costs across the entire portfolio.¹³⁵ If the performance of VC/GE funds proves to be unexpectedly strong (and therefore fees are higher than anticipated), it may be difficult for DC Schemes to manage the risk of a cap breach.

This Study has conducted detailed analysis of the potential impact of the charge cap, engaging with stakeholders in both the private and public sectors to discuss this issue. Assuming no changes to current VC/GE fee structures and levels, this analysis has led to the following conclusions:^{136,137}

- A DC Scheme allocating 5% of its default fund to VC/GE funds would not be expected to breach the charge cap under normal circumstances (whereby mean returns are achieved across the VC/GE portfolio)
- There is, however, a risk that a scheme could breach the charge cap under several plausible scenarios. For example:
 - Net returns from VC/GE investments above ~20% (this equates to top quartile performance from 2004-16),¹³⁸ paired with average returns (8%) on 'other' investments.¹³⁹ Equally, there could be a particularly strong year of upward revaluations and realisations across several underlying funds in a single year

- Higher allocation to VC/GE (above 5%)
- An equity market crash (e.g. 20% fall)¹⁴⁰
- Allocation to other alternative asset classes (which have higher fees than listed equities, and therefore take up some of the charge cap 'headroom' that would otherwise be available for VC/GE investments)

In the above cases, DC Schemes would need to manage and mitigate the risk of a charge cap breach; one of the options would be to sell down underlying assets. This would result in adverse outcomes for members, as it is usually difficult to offload VC/GE assets on a controlled basis and without significant value leakage. From this Study's extended engagement with the pensions industry, it is clear that, whilst DC Schemes would not be expected to breach the charge cap in normal circumstances, the potential risk of a breach would compound concerns around fees and deter many trustees and investment consultants from supporting investment in the asset class. This regulatory constraint is more likely to be binding on Occupational Trusts, as some smaller Occupational Trusts may not currently have the infrastructure to monitor and manage charge cap breach risk.

In the absence of any changes to current VC/GE fee arrangements, this problem could be alleviated by, for instance, amending the methodology used in the calculation for accounting for carry in the charge cap. For example, carry could be calculated as an average over a five-year rolling period. Such an amendment would retain member protections whilst giving DC Schemes greater flexibility in how they manage carry payments (both for VC/GE and other carry paying alternative asset classes). Further information is provided in Chapter 6, which details this Study's Recommendations.

THE CASE FOR REDUCED FEES AND CHANGES TO FEE STRUCTURES

In addition to examining whether changes to the charge cap calculation methodology may be required, this Study has sought to explore the potential for changes to fees within the industry itself. At the level of individual VC/GE funds, there are certain key features that could make a material difference to the viability of DC investment in VC/GE. These include:

- Where hurdle rates are used, removing GP catch-up from the calculation of carry payments
- Charging AMCs on deployed capital rather than committed capital; this would reduce the initial outlays from investors prior to returns being received
- Using alternative manager compensation models (such as phantom shares)¹⁴¹ to enable a reduction in or the removal of the carry
- Offering bespoke direct or co-investment opportunities (which do not involve an ongoing AMC)

This Study also highlights the need for fee reduction at the Investment Vehicle level relative to traditional fund-of-funds structures, charging AMCs on deployed capital with no carry at fund-of-funds level. An efficient cost structure (benefiting from scale) is likely to be a necessary requirement for DC Schemes to invest through a pooled investment vehicle (further details on the design and structure of this Investment Vehicle are provided in Chapter 3).

This Study has also examined examples of how a number of VC/GE funds have already made changes to fees. A few examples are set out in the following Case Studies.

Driving such changes will be challenging without risking adverse fund selection. This Study's engagement with more than twenty VC/GE fund managers throughout indicates that, in the short term, at least, there is limited appetite for changes to fee arrangements on a significant

scale. Inherently high costs of management make the economics of offering such a product challenging for funds operating at low scale. Moreover, because the top-performing managers across both VC and GE already have significant amounts of capital available to them, the potential scale offered by DC Schemes may not be sufficient incentive for them to reduce fees.

Despite this reluctance, some funds are willing to adopt different fee levels and structures. This is true, in particular, for a subset of managers in the Growth Equity space benefiting from larger investment ticket sizes and relatively passive later stage investments. A few already offer lower fee solutions appropriate for DC investors. One reason why these managers are willing to make changes is that GE funds tend to have a less labour-intensive investment process, making it easier for them to offer funds at lower cost. In some cases, however, there may be a risk associated with selecting managers based on their willingness to innovate on fees. This risk needs to be closely monitored to ensure that DC members are able to benefit from the asset class.

This Study continues to advocate changes to fee arrangements and encourages funds to consider how they might offer DC-centric solutions in the future. Conversations with asset owners and pension fund providers indicated that there is significantly more appetite to reduce and innovate on fees at the fund-of-funds level.

Given the situation described above, in the present environment, if DC Schemes invest in VC/GE, they will need to balance their investments across a spectrum of VC/GE funds that incur a variety of different fee levels. Such a portfolio could encompass both funds that adopt more traditional VC/GE fund fee levels and structures (e.g. '2 and 20'), blending these with co-investment and direct investment solutions, as well. Where possible, this would be combined with investment in funds offering more DC-centric fee solutions.

CASE STUDY

BAILLIE GIFFORD SCHIEHALLION FUND¹⁴²

KEY FACTS

- **Guernsey Investment Company** listed on the London Stock Exchange Specialist Funds Segment
- **~£365 million in Assets Under Management** (as of July 2019)
- **Investment focus of pre-IPO global growth equity**

Schiehallion is an example of changes to traditional fee arrangements in response to pension scheme demand

- Baillie Gifford's recently launched Schiehallion Fund was developed in partnership with a group of existing Baillie Gifford institutional clients, principally North American pension funds. Its global mandate is to invest in technology-backed disruptors worth >\$500 million
- The investment strategy is to invest directly in pre-IPO portfolio companies and to continue to hold these investments post-IPO, in cases where there is value in so doing
- Baillie Gifford has offered lower fee arrangements than typical industry standard, to tailor the product to its pension fund investors. Aspects of this include:
 - Management fee structure only (i.e., no carry or performance fees)
 - Management fees calculated on the share of Net Asset Value not held as cash, minimizing the fee burden on investors during the ramp-up period
 - Stepped fee levels, falling from 90bps to 70bps as NAV increases

CASE STUDY

PARTNERS GROUP GENERATIONS FUND¹⁴³

KEY FACTS

- **Open-ended, semi-liquid private markets product**
- **~£300 million Assets Under Management** (as of July 2019)
- **Global investments across private equity, infrastructure, private credit and buyouts**

The Generations Fund is an example of a DC-centric product innovating on dimensions such as fees, liquidity and valuation

- Drawing on fifteen years' experience managing the £4 billion 'Partners Fund' DB, Partners Group has used its expertise in private markets investment to develop its Generations Fund, a new DC-centric product
- Designed in partnership with DC Schemes, the fund was developed to meet common DC preferences and requirements with regard to fees, liquidity, dealing, and valuation:
 - A choice of two fee structures are offered: a flat-fee option, and a more traditional management fee plus performance fee option
 - Both fee structures employ a cap on the TER, limiting the total effect of the product on the DC charge cap
 - Generations Fund maintains a relatively high liquid allocation (~40%) to satisfy conservative DC interpretations of regulatory redemption requirements
 - The daily dealing and valuation mechanisms employed by Partners Group integrate well with existing DC platforms

CHAPTER 3

EXISTING INVESTMENT VEHICLE STRUCTURES CAN BE USED TO ENABLE DC INVESTMENT IN VC/GE

KEY FINDINGS

Based on initial engagement, most Schemes would prefer to invest in VC/GE through a pooled¹⁴⁴ Investment Vehicle to enable broader diversification across the asset class. The Investment Vehicle will centralise investment management and administration across DC Schemes. The simplest approach to establishing such a vehicle would be for an existing investment manager to create it.

Given existing structures, an Investment Vehicle could be structured either as an Investment Trust or an open-ended unlisted fund. Each structure has its own advantages and potential drawbacks.

Full cost transparency and robust governance mechanisms will be important, whichever structure is chosen.

3.1

OPTIONS FOR DC ACCESS TO VENTURE CAPITAL AND GROWTH EQUITY

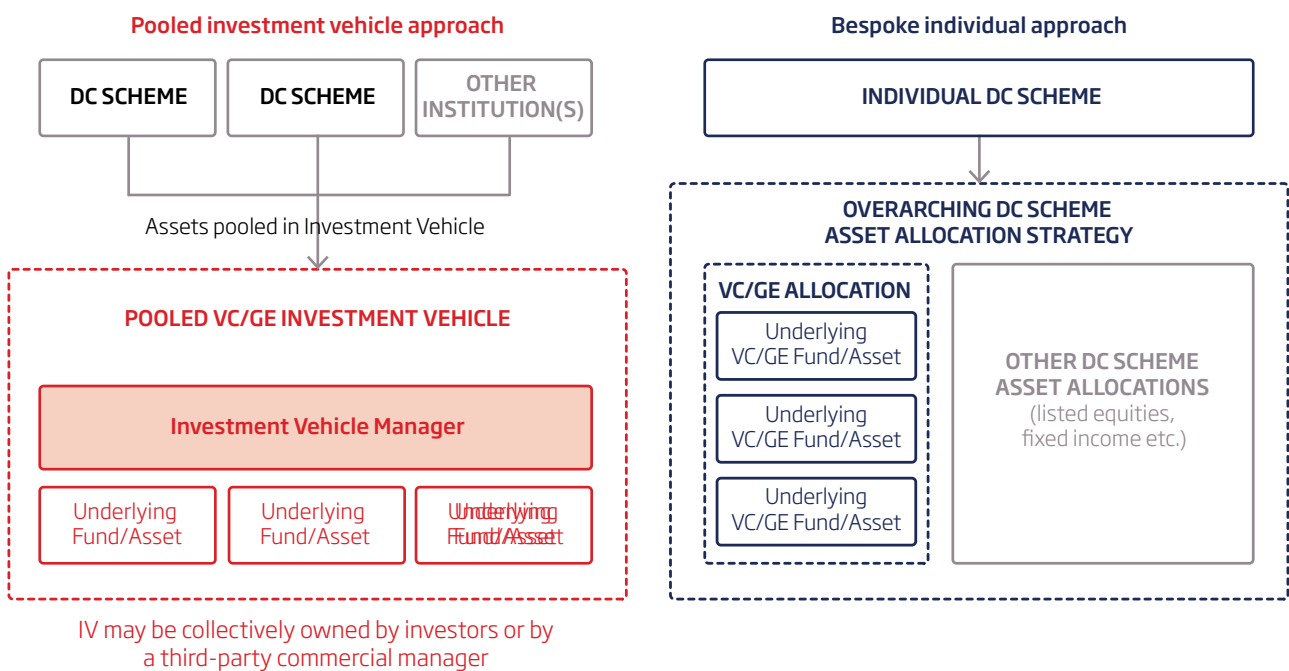
RATIONALE FOR USE OF A 'POOLED' INVESTMENT VEHICLE

For most DC Schemes it is more feasible to invest in a portfolio of VC/GE funds through an Investment Vehicle that pools the assets of many Schemes. The DC market in the UK is highly fragmented,¹⁴⁵ with over 30,000 DC Schemes in the private sector, and average assets per member at ~£4,000.¹⁴⁶ Therefore, a pooled vehicle can deliver key benefits of scale and diversification, as well as providing centralised management and administration processes. A few, large DC Schemes have the infrastructure and capital to independently develop bespoke mandates with VC/GE funds. However, this is unlikely to prove workable for the majority of Schemes.

It is expected that in either case, investments would initially be made in VC/GE funds with the option to move towards co-investment,¹⁴⁷ or direct investment,¹⁴⁸ in companies at a later stage. Investing in funds at the outset gives the benefits of a diversified exposure to VC/GE assets, without requiring the specialist expertise necessary to make direct investments. However, investing in VC/GE funds adds a layer of cost, as it is necessary to pay management fees to the VC/GE managers. Over time, as DC fund managers build up their expertise in VC/GE assets, making co-investments (alongside VC/GE funds), or direct investments (sourcing new investment opportunities independently) would help to bring down the overall costs of a VC/GE portfolio.

The two options for DC Scheme investment are shown in Figure 16:

FIGURE 16:
THERE ARE TWO OPTIONS FOR DC SCHEMES TO INVEST IN VC/GE



The key difference between the two approaches is whether a DC Scheme invests by owning units of a Vehicle that invests in VC/GE assets, or whether a Scheme owns the assets independently, without using a Vehicle. Further details are provided below:

Pooled Investment Vehicle approach

In a 'pooled' Investment Vehicle, many Schemes invest in a single Vehicle. Investment management and administration processes would be managed by this Vehicle (either internally or outsourced), in return for which Schemes would pay an ongoing management charge at the Vehicle level, alongside fees for underlying VC/GE fund investments. This Vehicle could work to define bespoke mandates with VC/GE providers in order to reduce cost for DC Schemes. Such a Vehicle would provide benefits of scale and diversification to investors.

Bespoke individual approach

Larger Schemes (with requisite internal capabilities) may be able to design their own solution. This would involve working with VC/GE fund managers directly to define bespoke mandates and/or invest alongside other LPs. At scale, a Scheme may also be able to develop the expertise required to move into co-investment alongside VC/GE funds or direct investment into VC/GE businesses. This approach is more commonly seen in overseas institutional pension Schemes (e.g. in the US or Canada) which have the scale for this approach to be economically viable.

It is noted that it may be more difficult to achieve the same degree of diversification across VC/GE with this approach. Given that a pooled vehicle is the more viable option for most schemes, this is the approach explored in detail in the chapters that follow.

OWNERSHIP OPTIONS FOR A 'POOLED' INVESTMENT VEHICLE

There are two options for the ownership of such a pooled Investment Vehicle: 1) it could be owned and managed by an investment manager; or 2), it could be jointly-owned by the major investing DC Schemes, which could either manage the Vehicle themselves or outsource management. In the case of 1), several Investment Vehicles, created and managed by different investment managers, are expected to be established.

Engagement to date indicates that Schemes would prefer to invest in a Vehicle set up and owned by an investment manager and so not bear the burden of making major investment, administration, and governance decisions.

The Investment Vehicle requires the necessary talent to source and manage a portfolio of VC/GE assets, as well as the infrastructure and client management capabilities to meet core DC operational requirements. Not only are existing investment managers more likely to have these capabilities in place, they are also best placed to leverage their scale and established expertise to create such a vehicle at a lower cost. Fund manager ownership would, therefore, ultimately be beneficial to DC Scheme members. This reasoning is explored further below:

1. Ownership by investment managers

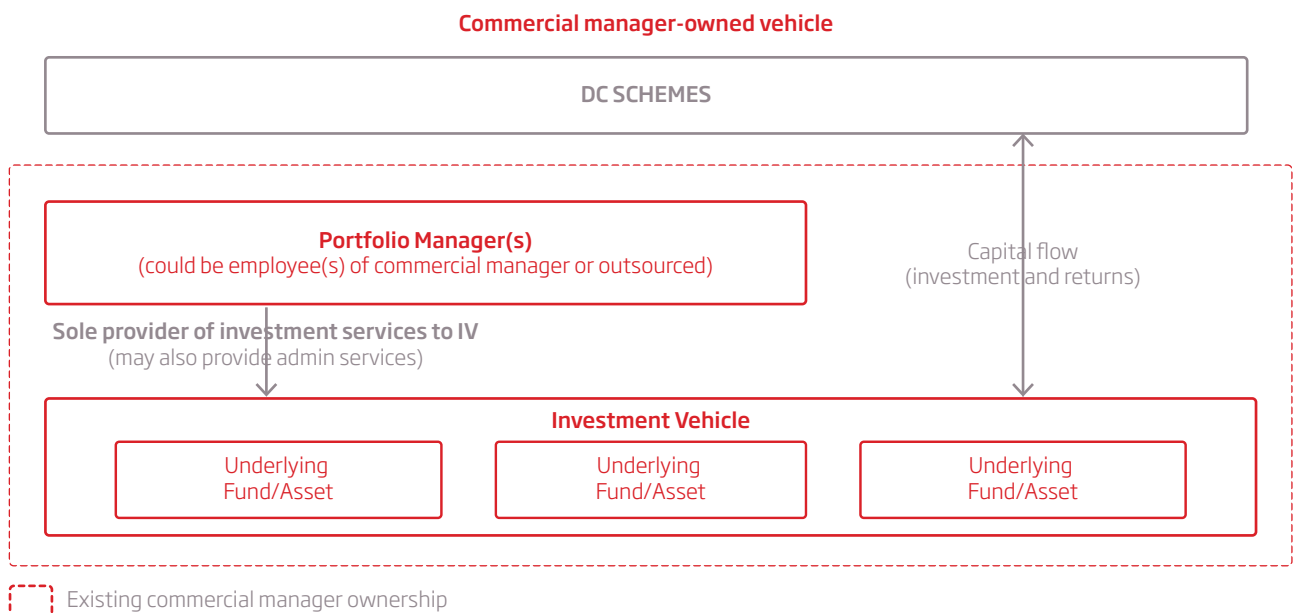
Established managers already have much of the infrastructure and capabilities required to establish a new vehicle embedded within existing systems. With this foundation, it will be easier for them to launch an Investment Vehicle for DC Schemes than if such a vehicle were to be launched as a greenfield operation. They are also likely to be able to do so at lower cost.¹⁴⁹ Nonetheless, it will be necessary for with DC Schemes to work closely with investment managers if they are to design a vehicle that fully fits with the core DC requirements (further details of which are provided in the Appendix E).

Figure 17 illustrates how DC Schemes could invest in a Vehicle owned and run by an investment manager. In time, it is expected that several Investment Vehicles, managed by different investment managers, could be established.

2. Jointly-owned Investment Vehicle

A jointly-owned Investment Vehicle would be a new, standalone entity, collectively owned by multiple DC Schemes. In this case, the owners need to agree among themselves the desired strategy, mandate, and operations of such a Vehicle. There are market examples of vehicles of this kind; however, there are several challenges associated with this approach. A jointly-owned Vehicle would not have any of the benefits of scale or pre-existing experience inherent in one created by an existing investment manager. Acquiring and building up the requisite capabilities is likely to prove to be a costly process. On account of this, there is currently no known appetite to launch a new, jointly-owned Vehicle.

FIGURE 17:
VEHICLES CAN BE OWNED AND MANAGED BY AN EXISTING INVESTMENT MANAGER



3.2

INVESTMENT VEHICLE STRUCTURE

Once the ownership of an Investment Vehicle has been established, it is necessary to determine the most suitable legal structure for such a Vehicle. 'Suitability' here encompasses how effectively the Vehicle can match the requirements of DC Schemes and underlying VC/GE funds in terms of operations, regulation, and governance.

This Study has concluded that, of the options currently available, either an Investment Trust or an open-ended unlisted vehicle could be sufficiently adapted to enable DC investment in VC/GE funds. There are different advantages and drawbacks associated with each of these, and preference for either will ultimately depend on the priorities and capabilities of a given investment manager.

OPTIONS FOR POOLED INVESTMENT VEHICLE STRUCTURE

The Study has assessed a range of existing options for the legal structure of a pooled Investment Vehicle. The reasoning behind this, as well as other potential structures considered, is outlined below.

For a structure to be considered viable for DC investment in VC/GE, there are three key questions that must be answered. These are set out in Table 1.

TABLE 1:
KEY QUESTIONS OF INVESTMENT VEHICLE DESIGN THE STUDY AIMS TO ADDRESS

Operations¹⁵⁰

How does this vehicle operate, and will this accommodate core DC requirements (in terms of e.g. liquidity, pricing)?

Regulation

Are the main regulatory frameworks for this vehicle suitable for institutional investment in illiquid assets?

Governance

Does this vehicle have sufficiently robust governance structures to safeguard the interests of DC investors?

Potential vehicle structures are differentiated by two key features: capital structure (open¹⁵¹ or closed-ended¹⁵²) and whether or not they are listed on an exchange. These have been used as the dimensions to assess vehicle options and the relative merits of each, as shown in Figure 18.

Based on these relative benefits and drawbacks, the Investment Trust and open-ended, unlisted vehicle are both viable structures. The following sections explore the operations, regulation, and governance of these structures in more detail, to demonstrate the arguments for and against the use of either structure.

FIGURE 18:
THE STUDY EXPLORED SEVERAL INVESTMENT VEHICLE STRUCTURES

	Open-ended	Closed-ended	
Listed	<p>Possible structure ETF¹⁵³</p> <p>Benefits Liquid and tradeable, which suits DC Scheme requirements; price = NAV/share</p> <p>Drawbacks Require daily disclosure and valuation of all holdings to support liquidity and pricing – not feasible for illiquid underlying assets</p> <p>Overall suitability: Low</p>	<p>Possible structure Investment Trust</p> <p>Benefits 'Closed' capital structure well-suited to illiquids; listing on exchange can provide liquidity</p> <p>Drawbacks More difficult for DC Schemes to invest capital regularly; price does not always equal NAV/share</p> <p>Overall suitability: High</p>	Listed
	<p>Possible structure e.g. OEIC, AUT, ACS¹⁵⁴</p> <p>Benefits Liquidity depends on liquidity of underlying assets; price = NAV/share</p> <p>Drawbacks 'Open' capital structure may put illiquid underlying holdings at risk if there are unexpected redemption requests</p> <p>Overall suitability: High</p>	<p>Proposed structure Limited Partnership</p> <p>Benefits Commonly used structure for investment in illiquids</p> <p>Drawbacks Provides minimal liquidity to investors, therefore DC Schemes would not be able to invest or withdraw capital in the short/mid-term</p> <p>Overall suitability: Low</p>	
Unlisted			Unlisted

INVESTMENT TRUST

Key advantages

Closed-ended structure highly suitable for illiquid assets; can be made accessible to institutional investors only; independent Board of Directors gives robust governance.

Key disadvantages

More difficult for DC Schemes to invest capital regularly into a closed-ended structure¹⁵⁵; listing on a stock exchange means share price is driven by market forces and may not move in line with NAV.

FIGURE 19:
INVESTMENT TRUSTS HAVE A CLOSED CAPITAL STRUCTURE
ILLUSTRATION OF CAPITAL FLOWS

INVESTOR BUYS SHARES

Shares must be **purchased** from an **existing** shareholder
Price is driven by **secondary supply** of/**demand** for shares
Underlying NAV remains constant

INVESTOR SELLS SHARES

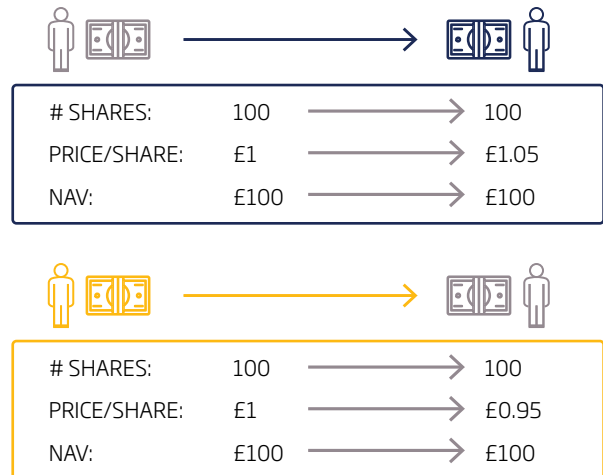
Shares must be **sold** to a new buyer
Price is driven by **secondary supply** of/**demand** for shares
Underlying NAV remains constant

Operations

There are two key distinctive features for the operations of an Investment Trust; the fact that they are (1) closed-ended and (2) listed on a stock exchange.

Closed-ended

In a 'closed-ended' vehicle, the number of shares in the vehicle typically remains fixed, while shares are bought and sold on a secondary market. New shares can only be created when the vehicle manager runs a formal share issuance. This has important ramifications for the way in which these vehicles can provide and manage liquidity, which are explored in greater detail in Chapter 4.3.



Listed on a stock exchange

An Investment Trust must be listed on a stock exchange. Therefore, like any other listed equity, the share-price is dictated by market forces, while the number of shares in issue remains fixed (unless the manager of the Investment Trust decides to issue new shares).

This creates the risk that the price of the Investment Trust may be volatile or fall to a discount to the underlying NAV of the fund, which may reduce returns to investors. This can to a degree be mitigated by reducing the shareholder base to a small number of long-term, institutional investors, who are unlikely to trade regularly. This can be achieved by listing an Investment Trust on the London Stock Exchange's Special Funds Segment, the advantages of which are explored in more detail below.

While the listing of an Investment Trust does create a risk of price volatility, the key benefit derived from listing on an exchange is that shares can always be traded on a secondary market. This provides an additional source of liquidity for investors. The full implications of this are further detailed in Chapter 4.2.

Regulation

An Investment Trust is registered as a company and must be listed on a stock exchange. In this case, a UK Investment Trust would be listed on the London Stock Exchange (LSE), either on the Premium Segment, or the Special Funds Segment (SFS). Core differences between these segments include which investors are permitted to trade on the exchange, the degree of 'free float' required for a company to list, and the necessary governance and disclosures required from a listed company.

The Study proposes that an Investment Trust set up for DC Scheme investment in VC/GE may be best suited to listing on the SFS. This is a specialist exchange designed for such funds, and has two key advantages:

- The SFS is open only to professional investors. Just as with an open-ended vehicle, this is preferable, as it reduces the risk of price volatility that may arise from frequent retail trading
- The SFS has a lower minimum free-float requirement than the Premium Segment. This means that only a small number of other (possibly non-DC) institutions would be required to invest for the shareholder base to be sufficiently diverse for the Investment Trust to qualify for listing

More details on the different listing segments and the reasoning laid out above are provided in the Appendix E.

Governance

The key differentiating feature of governance in an Investment Trust is that it has an independent Board of Directors. Unlike in open-ended vehicles, in an Investment Trust, the Board of Directors, which makes key decisions surrounding investment strategy and manager, must be independent from the management and is voted for by shareholders on an annual basis. This gives investing DC Schemes a greater degree of influence over key decisions in the Investment Vehicle.

OPEN-ENDED, UNLISTED VEHICLE

Key advantages

Open-ended structure makes it easier for DC Schemes to invest capital and is more familiar to DC Scheme investors; unit price of an open-ended vehicle will always be equal to underlying NAV.

Key disadvantages

Mechanisms are required to ensure that dealing and liquidity management practices are aligned with the requirements of illiquid assets, and current regulatory requirements make investment in illiquids complex for many kinds of open-ended vehicle. Governance is also not fully independent (although it is increasingly becoming so).

Operations

There are several different sub-types of an open-ended, unlisted vehicle;¹⁵⁶ however, fundamentally this structure is defined by the fact that it has an open capital structure, and its shares are not listed on any formal exchange.

FIGURE 20:

OPEN-ENDED VEHICLES HAVE AN 'OPEN' CAPITAL STRUCTURE
ILLUSTRATION OF CAPITAL FLOWS

INVESTOR BUYS SHARES

New shares are created

Share price = **NAV/share**

New capital inflows are **incremental** to **NAV**

INVESTOR SELLS SHARES

Existing shares are **cancelled**

Share price = **NAV/share**

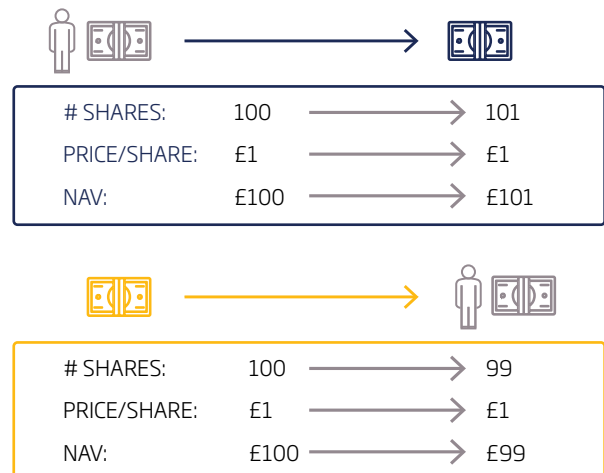
Investor redeems capital from NAV; **NAV decreases**

Open-ended

The capital structure of the vehicle is 'open', meaning that capital flows in and out of the vehicle through the creation or cancellation of shares, which directly impacts the NAV of the vehicle. This means that the activity of external investors in the fund can drive increases and decreases in NAV.

When an investor 'buys' shares, new shares are created, and the capital invested is added directly to the NAV as cash (until it is deployed in investments). When an investor 'sells' shares, the shares are cancelled, and the redeemed capital is deducted from the NAV, which will require a proportion of investments to be sold.

In an open-ended vehicle, investors have control over capital inflows and outflows. The implications for how an open-ended vehicle therefore manages liquidity are discussed in Chapter 4.3.



Unlisted

As shares are not traded on any secondary market but are simply created and cancelled as investors invest and redeem capital, the price of shares in an open-ended, unlisted vehicle will always be equal to Net Asset Value (NAV) per share. This means investors can always be sure that the value of their holdings is equal to the value of the underlying assets in the vehicle.

Regulation

An open-ended, unlisted vehicle is classed by the FCA and EU as a 'Collective Investment Scheme' (CIS) and depending on the specific legal structure chosen it may be regulated as:

- A UCITS (Undertakings for Collective Investment in Transferable Securities)
- A NURS (Non-UCITS Retail Scheme)
- A QIS (Qualified Investor Scheme)

Further details on the differences between these fund types is provided in the Appendix E.

For the purpose of investing in VC/GE, this Study proposes that an open-ended vehicle be set up as a QIS. This structure provides the greatest flexibility in terms of liquidity, pricing, and valuation rules, and is therefore best suited to enable investment in illiquid underlying assets (further discussion of these topics can be found in Chapter 4). QIS funds are also only accessible to professional investors, making them well-suited to this purpose.

Use of a QIS could be further facilitated by the FCA's implementation of their proposed changes to the Permitted Links regulations, as published in their 2018 consultation.¹⁵⁷ These rules currently limit the permitted investments for unit-linked life funds, which encompasses what is permissible for contract-based DC Schemes offered on insurance platforms.

Currently, the rules limit the types of unlisted assets that a unit-linked fund can invest in to assets that are "readily realisable in the short-term".

Under proposed changes, investment would be allowed in securities that are not "realisable in the short-term, provided that liquidity requirements at the level of the investment fund can be met". This would materially improve the potential for contract-based Schemes to invest in a QIS which had a high or 100% exposure to long-term illiquid assets, as this Study is suggesting.¹⁵⁸

For a contract-based scheme wishing to invest in a retail-available fund, it is also possible to use a NURS structure. However, a typical NURS is subject to a range of investment restrictions which significantly limit its ability to invest in illiquids. For instance, it can only make up to a 20% allocation to illiquid assets. It is possible to structure a NURS in such a way as to reduce these restrictions; a NURS operated as a FAIF can invest up to 100% in other unauthorised funds, meaning that it is able to make a 100% allocation to illiquids. Nonetheless, this adds a layer of structural and administrative complexity which is less attractive in comparison with a QIS. Moreover, a NURS FAIF is still subject to restrictions surrounding dealing and valuation which are ill-suited to a 100% allocation to VC/GE funds; it would therefore likely be necessary for a NURS to have some allocation to liquid assets to accommodate this.

A further potential option could be to develop new subsets of fund categories for this purpose. In particular, at time of writing the Investment Association has proposed a set of rules for a Long-Term Asset Fund (LTAF).¹⁵⁹ This would in essence be a further subset of the NURS regulations, offering greater flexibility around investment allocations and operations. This Study is supportive of any regulatory changes that will improve the options for an open-ended structure that can, with appropriate consumer protections, facilitate investment in illiquids.

IN FOCUS: THE FCA'S PERMITTED LINKS CONSULTATION¹⁶⁰

Background

In December 2018, the FCA consulted on the Permitted Links rules (COBS 21.3).¹⁶¹ The purpose of this was to address any “unjustified barriers” to investment in “a broader range of long-term assets in unit-linked funds, while continuing to offer an appropriate degree of investor protection.”

Key Outcomes (as of July 2019)

The conclusion of this consultation was for several proposals to be set out to increase the accessibility VC/GE assets for DC Schemes investing in unit-linked funds. It is hoped that the FCA will be active in driving forward the policy changes necessary for these proposals to be actioned.

- Clarification of existing requirements - increasing the information around permitted links requirements to clarify the regulator’s expectations, in areas where interpretation is perceived as a barrier to investment in VC/GE. This applies to areas such as the need for ‘daily’ vs. ‘regular’ pricing
- Revised wording to broaden investment range - broadening the range of assets and structures that qualify as ‘permitted links’ would allow greater access to VC/GE assets. Particularly relevant are:
 - The proposed changes to restrictions surrounding investment in illiquid assets that are not ‘readily realisable in the short term’
 - The removal or restrictions around investment in QIS open-ended funds

Governance

The key differentiating feature of governance in an open-ended, unlisted vehicle is the fact that the Board of Directors (or equivalent) need not be fully independent from the investment manager or the fund owner. Particularly in a scenario where, as this Study suggests, an open-ended Investment Vehicle is owned and run by an existing investment manager, it is likely that the Board, and therefore main governance and oversight for the Vehicle, will be mainly constituted of representatives from that investment manager.

It is possible to add an extra layer of independent governance through the use of an Advisory Board. This is a commonly-used structure, whereby members of an additional board are given 'rights of approval' over key decisions such as changes to investment strategy, investment restrictions (e.g. leverage limits), or valuation policies. An Advisory Board would help to safeguard the best interests of investors in the fund. Investment Advisory Committees (that have limited veto power but can 'note' disagreement with investment decisions) could also be used.

CHAPTER 4

THERE ARE SOLUTIONS TO CORE OPERATIONAL CHALLENGES

KEY FINDINGS

Investing in illiquid assets will always create some liquidity risk. However, VC/GE investments are likely to make up only a small share (~5%) of the overall default fund. This means that DC Schemes can manage liquidity largely at the level of the default fund.

Dealing is expected to be monthly, with no guarantee of liquidity on redemption requests. An Investment Trust structure can accommodate regular trading of existing shares, but in an open-ended vehicle dealing will be restricted to specific dates (likely monthly), and there will be no guarantees on the ability to sell units.

The underlying Investment Vehicle does not need to be priced daily, but DC Schemes must be able to generate a fair daily price at the default fund level.

As such, an Investment Vehicle could conduct valuations of underlying funds on a **quarterly basis**, which would underpin the Vehicle's unit price. For an open-ended vehicle, this price would equate to the calculated vehicle NAV; for an Investment Trust this will be the exchange quoted price, which will be influenced by NAV but will ultimately be driven by market forces.

Operational arrangements need to ensure the allocation of fees is both equitable and effective.

The unitised fund NAV is to be based on the fair value of underlying assets and calculated using quarterly valuations. Carry would be accrued based on current valuations and subtracted from NAV to ensure fees are allocated equitably to investors.¹⁶²

4.1

KEY OPERATIONAL REQUIREMENTS AND CHALLENGES FOR DC SCHEMES

DC Schemes have important requirements that need to be met before they can consider investing in a given asset class. These requirements can be split broadly into three categories:

Type 1

Those that are common to all DC Schemes

Type 2

Those that vary by type of DC Scheme (e.g. the main three variations being contract-based schemes, master trusts, and occupational trusts)

Type 3

Those that are idiosyncratic to a particular DC Scheme

This Study has found that the variations in operational requirements for DC Schemes of **Type 2** are minimal. This Study has therefore looked specifically at **Type 1**, those requirements that are common to all DC Schemes.¹⁶³ This chapter focuses on the operational challenges associated with meeting DC requirements for investing in a VC/GE Investment Vehicle.

These challenges, and the actions this Study proposes to mitigate them, are summarised in Table 2 and detailed in sections that follow. The specifics of the proposed mitigating actions can vary, depending on the legal structure chosen for the Investment Vehicle (i.e. open-ended fund versus Investment Trust). While both structures deliver similar long-term retirement outcomes for DC Scheme members, each faces different operational considerations.

TABLE 2:
 IMPORTANT CHALLENGES FOR A VC/GE INVESTMENT VEHICLE IN MEETING DC SCHEMES' OPERATIONAL REQUIREMENTS

DC requirement	Key challenge	Proposed mitigation(s)
<p>To provide members with daily pricing for tracking investment performance: Market practice is for DC Schemes to provide a daily unit price¹⁶⁴ so members can track the value of their benefits</p>	<ul style="list-style-type: none"> VC/GE funds are typically valued on a ~quarterly basis rather than daily¹⁶⁵ 	<ul style="list-style-type: none"> A VC/GE Investment Vehicle is unitised, with NAV per share based on quarterly valuations from underlying funds, with the possibility for the Investment Vehicle to make monthly updates, if this is considered necessary
<p>To provide liquidity to members: DC Schemes need to be able to meet member requests for liquidity (e.g. requests to draw down savings) and to invest new inflows in underlying investments on a periodic basis</p>	<ul style="list-style-type: none"> VC/GE assets are inherently illiquid; a VC/GE Investment Vehicle cannot provide the same level of liquidity to DC Schemes as available in listed asset classes In particular, investors will not always be able to redeem their capital and may not receive full fair value for their holdings if they seek to sell down their positions at short notice 	<ul style="list-style-type: none"> DC schemes must not expect a VC/GE vehicle to provide any regular liquidity DC Schemes would be expected to make only a small (~5%) allocation to VC/GE and manage the liquidity required for members at the default fund level Additionally, a VC/GE Investment Vehicle can draw on mechanisms such as crossing with new investment flows or gating (for an open-ended vehicle) or share issuance/buyback (for an Investment Trust) to manage capital in/out flows
<p>To allocate fees equitably between members: DC Schemes need to ensure members are charged equitably and pay only for the investment performance they have received</p>	<ul style="list-style-type: none"> The carry element of VC/GE funds fees is paid only when investments are realised, towards the end of the life of the fund;¹⁶⁶ this creates the risk that members investing late in the Investment Vehicle's life might pay for performance they have not received 	<ul style="list-style-type: none"> At any point in time, the Investment Vehicle can have some fund investments which have already exceeded the carry threshold and some which have not For those which have exceeded it, it is necessary to ensure that the unit pricing process at the Investment Vehicle level subtracts a provision for accrued carry from the NAV This means that if there are any trades, investors buy/sell units that are net of carry The provision for accrued carry can be based on its current face value or can be discounted to reflect the fact that it is only paid when underlying assets are sold

4.2

VALUATION AND PRICING FOR AN INVESTMENT VEHICLE

Market practice is for DC Schemes to provide a daily unit price at the default fund level, which is usually supported by daily pricing of their underlying investments. This is driven by the fact for that the most part, DC Schemes invest in assets such as listed equities, where NAV can easily be determined daily in the market.

The underlying Investment Vehicle does not need to be priced daily, but DC Schemes must be able to generate a fair daily price at the default fund level. As such, an Investment Vehicle can conduct valuations of underlying funds on a quarterly basis, which would underpin the Vehicle's unit price.

As discussed in Chapter 3, this Study proposes that DC Schemes invest in VC/GE assets through a pooled Investment Vehicle provided by a single investment manager. This Investment Vehicle needs to be unitised, with each DC Scheme owning a share of the Vehicle's units. The value of these units would be determined in relation to the vehicle NAV.

The Vehicle unit price will be equal to NAV per unit for an open-ended vehicle, and at a discount or premium to NAV for an Investment Trust (depending on market forces).

DETERMINING NET ASSET VALUE

NAV refers to the fair value¹⁶⁷ of an investment's assets, minus the fair value of its liabilities.¹⁶⁸

This Study therefore proposes that the NAV of any VC/GE investment vehicle is determined through a valuation mechanism based on two main elements:

1. **Quarterly valuations** provided by the underlying VC/GE funds. These would be reviewed and approved by the Valuation Committee of the Investment Vehicle, and externally audited on a semi-annual or annual basis

2. **Monthly valuation updates** could also be conducted by the manager of the Investment Vehicle (in exceptional circumstances, to reflect corporate actions or material changes in market environment)

All valuations (whether conducted by underlying funds or by the Vehicle's investment manager) would be conducted in line with best practice methodologies, for example as set out in the International Private Equity and Venture Capital Valuation (IPEV) Guidelines.¹⁶⁹

THE RELATIONSHIP BETWEEN NET ASSET VALUE AND UNIT PRICE

Depending on the legal structure of the Investment Vehicle, the relationship between the NAV per unit¹⁷⁰ and unit price¹⁷¹ (for Investment Trusts often referred to as 'share price') differs:

- **Open-ended, unlisted vehicle:** unit price is always equal to the reported NAV per unit
- **Investment Trust:** while likely determined in relation to reported NAV per unit, unit price is determined by market forces. This is because shares in an Investment Trust (akin to 'units') can be bought and sold on a secondary market

The implication of the above is that, for an Investment Trust, unit price of a VC/GE Investment Vehicle may diverge from NAV per unit. Depending on market supply and demand dynamics, shares may trade at a 'premium' or a 'discount' to NAV. As of June 2019, ~28% of the London-listed investment trust universe traded at a premium to NAV,¹⁷² with ~72% trading at a discount.¹⁷³

However, the implications of shares trading at a discount or premium to NAV are nuanced, and shareholders do not necessarily lose out if their shares trade at a discount to NAV. Indeed, it is only if a shareholder sells shares at a greater discount than when they bought them that the value of their holdings is diluted. As long as total share price return broadly tracks NAV return, there is minimal adverse impact for investors.

4.3

DEALING AND LIQUIDITY

DAILY DEALING IS NOT A REGULATORY REQUIREMENT

DC Schemes are required by regulation to provide members with sufficient liquidity to meet their needs (e.g. for drawdown or transfer).¹⁷⁴ While not a regulatory requirement, daily dealing has become the established norm because allocations have been focused on highly liquid asset classes (see Chapter 2 for further details).

In its Guidance, The Pensions Regulator states that liquidity management should be balanced against investment objectives:

“Most members will not have a need for immediate liquidity of their investments, and it may not always be beneficial for dealing to be carried out daily. You should think about the level of liquidity that your members need, e.g. in relation to likely transfers from the scheme, and in that context consider the liquidity constraints on certain fund structures.”

“You should seek to balance the liquidity of assets against the investment objectives. Holding too high a proportion of liquid assets may impact the level of investment return, and limit opportunity for diversifying your portfolio of assets.”¹⁷⁵

DC Schemes seeking to improve member returns with a small allocation (~5%) to VC/GE can meet these regulatory obligations without requiring the VC/GE Investment Vehicle to provide liquidity to its investors.

INVESTORS MUST NOT EXPECT THE INVESTMENT VEHICLE TO PROVIDE LIQUIDITY IN THE SHORT TO MEDIUM TERM

DC operations and regulation are based around an assumed position where the underlying investments are very liquid. This means that there are many detailed areas of operational design and Vehicle structure where the illiquid nature of the underlying investments needs to be reinforced to avoid falling into the trap of considering the VC/GE investment as just another liquid fund.

It is not possible for a Vehicle investing primarily in illiquid assets to guarantee to investors that they can trade at NAV. The ability to offer liquidity is strongly constrained by the illiquid nature of the investments; the only ‘natural’ sources of liquidity are returns of cash from the underlying VC/GE fund investments, and dividends (which are expected to be extremely rare). Any liquidity offering in excess of this would require the Investment Vehicle either:

- To hold liquid assets itself, which this Study’s engagement has suggested that DC investors would not want
- To sell underlying illiquid investments, where it is likely that any willing buyer would expect to pay less than NAV

Liquidity is also therefore an important factor in providing equity between investors.

Constraints on dealing are required to maintain equity between investors

Since an Investment Vehicle’s supply of liquidity is limited, it cannot be guaranteed to all. If there are more calls on liquidity than can be accommodated, liquidity must be ‘rationed’ between investors. In addition, there cannot be a situation where one investor’s need for liquidity could damage the interests of another. The most obvious example of this would be where the Vehicle sells an asset at below NAV to meet the liquidity requirement of one investor. In this case the value gap between the sale price and NAV would be spread between all investors, which in effect means that all investors are sharing the liquidity cost for the selling investor.

A key component of the rationale for investing in VC/GE is to harvest the illiquidity premium from investing in long term assets, where the investor does not have the right to call their funds back. If the penalty for calling funds back is shared across the different DC Funds in the Investment Vehicle, then this would create a conflict of interest. Even if the loss on sale was fully allocated to the selling investor, the other investors would still lose out through loss of scale and diversification. In addition, it is likely that the easiest assets to sell would also be the most attractive.

Therefore, the Investment Vehicle cannot guarantee that liquidity will be available at dealing dates, and where it is, it will have pre-determined rules for allocating it between different investors.

Using new inflows to provide liquidity to investors.

There will be a strong flow of new money into the Vehicle, because DC funds themselves are growing quickly and are likely to take several years to meet their target VC/GE allocations. Some of this flow will be needed to meet capital commitments made to the underlying VC/GE funds, and some will be required for new investments to meet diversification targets. However, where new money flows are strong and in excess of these requirements, liquidity can be improved by the ability to cross units between new money and selling investors. Again, this cannot be guaranteed but it would be a stated intention. The Investment Vehicle would need the operational capability to provide it, as well as sufficient governance to ensure that it is carried out equitably.

MANAGING LIQUIDITY BETWEEN DC SCHEMES AND A VC/GE INVESTMENT VEHICLE

As stated above, a VC/GE Investment Vehicle would not aim to provide liquidity to investors on a daily basis, due to the inherent illiquidity of its underlying investments. Given the regulatory requirements¹⁷⁶ and market context for DC Schemes looking to access the asset class, there are therefore two key implications:

DC Schemes are able to manage liquidity to

members at the default fund level. By making only a small allocation to VC/GE (~5% of the default fund), DC Schemes can ensure they hold enough liquid assets to meet member requirements without needing to draw on liquidity from a VC/GE Investment Vehicle. Individual Schemes will need to undertake their own analyses to determine exactly what level of illiquidity can be prudently accommodated in their overall allocation framework; however, engagement with the Steering Panel has indicated that member requirements can be accommodated with a ~5% allocation to VC/GE.

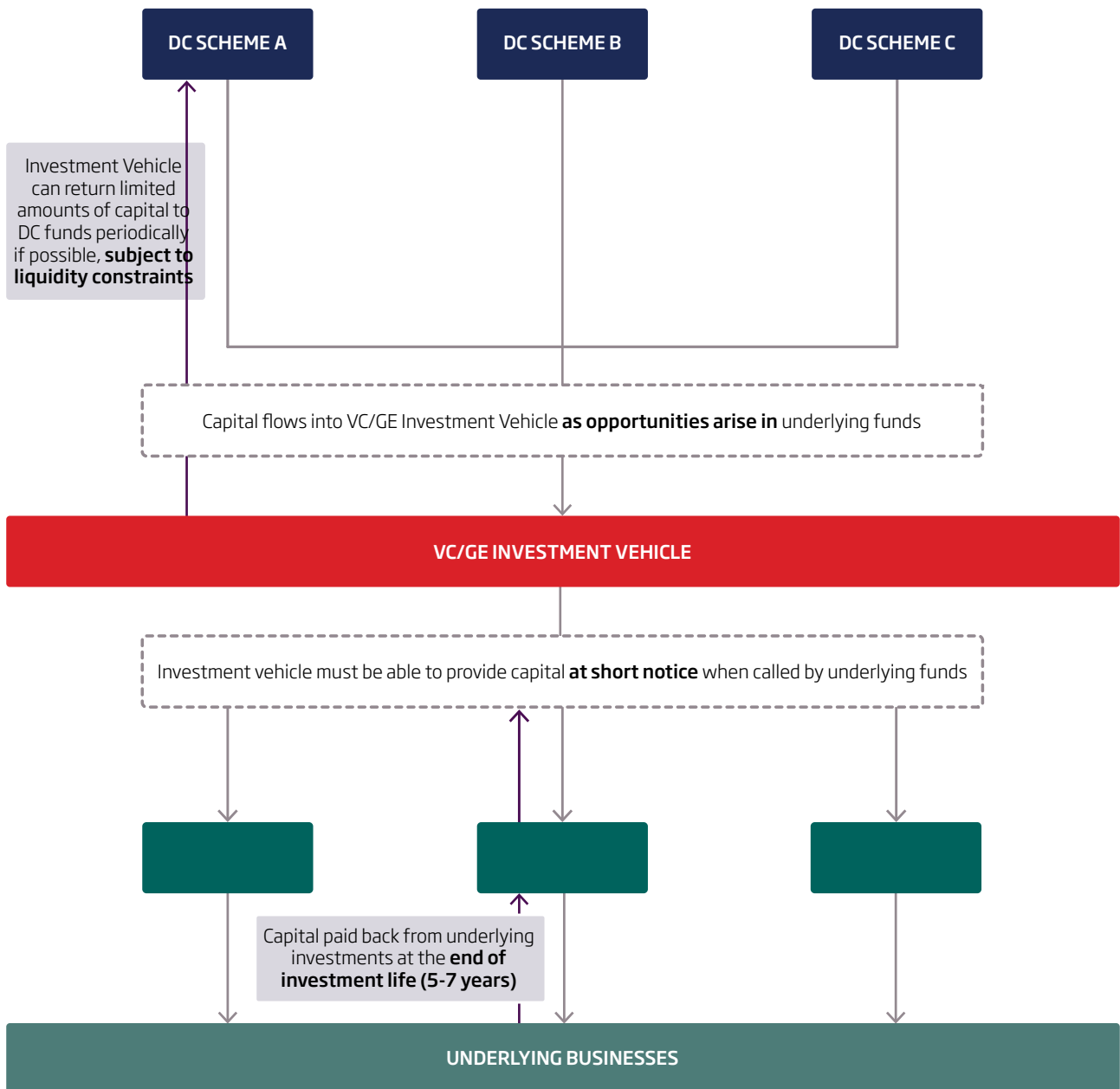
An Investment Vehicle would only be open to professional investors¹⁷⁷ or investors acting under professional advice,

who understand the challenges and risks associated with investing in illiquid assets. Practically, this means that a professional Trustee body or 'advisory' layer (for example, a contract provider) would be required before member contributions are invested in VC/GE. By implication, VC/GE investment would therefore only be an allocation for DC Schemes in the default fund, and not be an option into which individual members (who are 'retail' investors) can self-select.¹⁷⁸

Notwithstanding the above, an Investment Vehicle would be required to manage capital inflows (subscriptions) from the DC Schemes invested in the Vehicle on a regular basis (e.g. monthly), and outflows to them where this can be accommodated within liquidity constraints. In addition, the Investment Vehicle may also need to hold a low level of liquidity internally (i.e. cash or other highly liquid assets) in order to pay fund investment fees and the Investment Vehicle's own expenses.

An outline of the proposed flow of capital through a VC/GE Investment Vehicle is shown in Figure 21.

FIGURE 21:
AN INVESTMENT VEHICLE WILL NEED TO MANAGE CAPITAL FLOWS FROM DC SCHEMES TO UNDERLYING VC/GE FUNDS



MECHANISMS FOR DEALING AND LIQUIDITY MANAGEMENT IN THE INVESTMENT VEHICLE

Mechanisms for allowing inflows and outflows of capital from/to DC Schemes ('dealing and liquidity management') differ depending on the legal structure of the Investment Vehicle. For an open-ended, unlisted vehicle and an Investment Trust, these mechanisms are explored below.

Open-ended, unlisted vehicle

In general, an open-ended structure is a good fit with the typical DC operations for investing and redeeming capital from their investments. For listed assets, open-ended structures can easily accommodate the monthly inflows DC Schemes receive and the redemptions that may be requested to meet the demand for investment drawdown or switches.

However, this easy flow of capital becomes a challenge when the underlying investments are illiquid, meaning that capital cannot easily be deployed into, or redeemed from, underlying investments at short notice. When investments are illiquid, strong capital inflows may not match up with demand for new investment in underlying VC/GE funds, and could therefore lead to a build-up of cash in the Vehicle, and a drag on returns. High demand for capital outflows would not be able to be accommodated because it would require the sale of investments (as discussed above).

This Study therefore proposes that the Investment Vehicle would use 'queuing' and 'gating' mechanisms to manage inflows and outflows of capital from the Investment Vehicle:

- **Queuing** is the act of delaying new capital inflows (subscriptions). This would be required during periods of large inflows, for example when DC Schemes are building up their exposure to the VC/GE asset class
- **Gating** is the act of delaying capital outflows (redemptions). Gating is actively used in other DC asset classes (e.g. real estate) but in VC/GE the delays might need to be much longer to avoid the forced sale of underlying VC/GE fund investments. This means that there is a risk that gating could continue for the several years, or even for the lifetime of the underlying investments. The maximum period for gating as per investor expectations and FCA rules depends on the particular legal structure of the Investment Vehicle¹⁷⁹

In circumstances where inflows/outflows are particularly high, an open-ended vehicle can also suspend dealing fully. Suspension requires FCA approval and must be deemed by the regulator to be in the best interests of investors.

IN FOCUS: PROPERTY FUND GATING POST-BREXIT VOTE (2016)¹⁸⁰

Gating mechanisms used to protect underlying investments in open-ended funds

- Following the UK's vote to leave the European Union in June 2016, many property funds experienced large redemption requests.
- In response to these requests, funds worth ~£1.5 billion suspended dealing to protect their assets and avoid a forced sale of underlying investments.
- Following these suspensions, the FCA conducted a review which found that liquidity management tools used had been largely effective, particularly in preventing market uncertainty from escalating further.
- Several funds instead used price adjustments to discourage investors from making redemption requests. However, the FCA also highlighted several areas for improvement. For example, the quality of liquidity monitoring and management varied between funds, and many funds could have been clearer in their communications following what was a significant market event.

Investment Trust

An Investment Trust is 'closed-ended'¹⁸¹ with an independent Board controlling when primary capital¹⁸² flows into the Vehicle. From a liquidity perspective, this means it is better-suited to investment in illiquid underlying assets. However, such a structure does create a challenge for DC Schemes looking to invest new capital on a regular basis.

This Study therefore proposes that a combination of two mechanisms is used to enable DC Schemes to invest and redeem capital:

Share issuance and buyback

An Investment Trust designed for DC Scheme investment in VC/GE would be set up with an agreed programme of share issuance and/or buyback. By using mechanisms such as tap issuances¹⁸³ or C share issuances,¹⁸⁴ an Investment Trust can absorb new capital on a frequent (e.g. monthly) basis, without diluting existing investors in the fund.

Purchase and sale of shares on a secondary market

As shares of an Investment Trust are listed on a secondary market, DC Schemes could also trade on a regular basis in order to invest/redeem cash. However, this is contingent on market liquidity levels and is unlikely to work for large capital inflows/outflows. Given that a fund may be listed on the Special Funds Segment, and therefore only open to professional investors, it is likely to have a lower free float, and therefore lower liquidity, than funds listed on the Premium Segment.

THERE MUST BE A MECHANISM FOR INVESTORS TO DECIDE TO MOVE THE INVESTMENT VEHICLE INTO RUN-OFF

Both the proposed open-ended, unlisted vehicle and Investment Trust are expected to be perpetual. In the case of the open-ended unlisted vehicle, this means that there would be no guaranteed way in which investors could withdraw their money. This could present a significant barrier to investment, as investors may be concerned if they are unable to respond to adverse scenarios (e.g. poor investment performance, regulatory or legal changes, or a perceived conflict of interest between different investors). This could be resolved by providing investors with the right to move the Vehicle into 'run-off' when the fund is established. There are established market precedents for this (e.g. having it stated in the articles of the fund that it would be possible for shareholders to vote to move the fund into run-off).

4.4

EQUITABLE ALLOCATION OF FEES AMONG INVESTORS

DC Schemes need to ensure their members are charged equitably for their investments. However, the need for a VC/GE Investment Vehicle to pay carry to underlying VC/GE funds for strong performance creates a challenge.

For most VC/GE funds, annual management fees are fixed (e.g. at 2% on capital committed). These fees can, therefore, be pro-rated for investors entering or leaving an Investment Vehicle at any one period. However, because performance fees, such as carry¹⁸⁵ are variable and are only paid when strong outperformance has been achieved, if left unmanaged it is possible that investors in a VC/GE vehicle may end up paying for performance they have not received.

The Investment Vehicle can ensure that members are charged equitably by accounting for performance fees in the unit pricing process. Carry would be accrued to, and deducted from, the NAV of the vehicle. While some residual inequities may still remain with this approach, these have been assessed as being small enough in their impact to be acceptable to DC Schemes.

SCENARIOS WHERE RISK OF INEQUITY INCREASES

The risk of minor inequities cannot be removed completely. The Study has therefore conducted scenario modelling to test the impact of potential fee inequity.

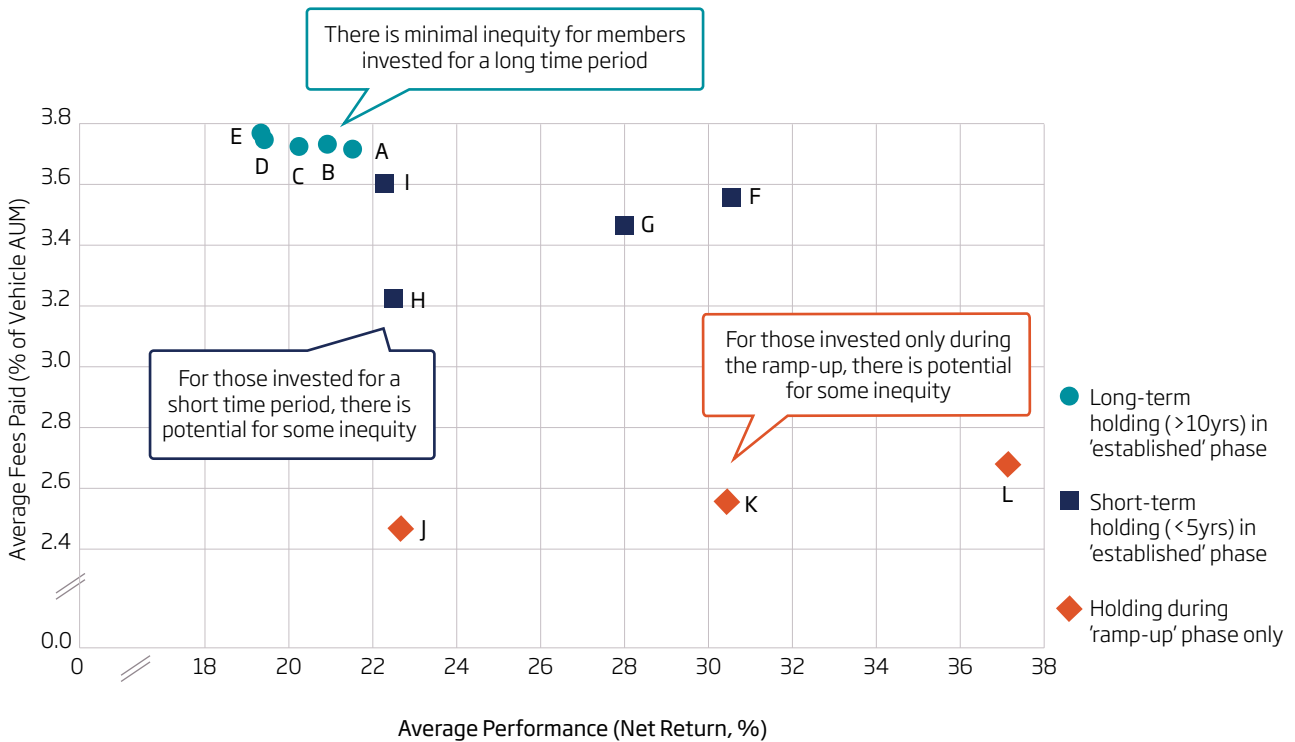
This Study's analysis looked at the average fees paid, and average returns received, for different illustrative members who were invested in a VC/GE Investment Vehicle. The members were each invested for a different period of time, and two different 'phases' were modelled. The first phase represented a 'ramp-up' period, defined as the time in which the Investment Vehicle is making its initial investments in VC/GE funds. During this period, it was assumed that the Investment Vehicle had not yet built up a diversified exposure to the asset class. The second phase represented an 'established' period. This was defined as the time in which the Investment Vehicle had a diversified exposure to VC/GE.

The analysis looked at three broad groups of DC Scheme members invested in the Vehicle. The outcomes for these members (in terms of fees relative to returns) are described in the text below and illustrated in Figure 22:

- **For members invested for a long time period** (more than ten years) during the established phase of the Investment Vehicle, there was minimal inequity. These members are represented by points A, B, C, D and E in the graphic below.¹⁸⁶ In the scenarios analysed, fee inequity for this group was a maximum of ~0.05%
- **For members invested for a short time period** (less than five years) during the established phase, there is potential for some inequity if performance is volatile. These members are represented by points F, G, H and I in the graphic below.¹⁸⁷ In the scenarios analysed, fee inequity for this group was a maximum of ~0.4%
- ◆ **For members invested only during the ramp-up phase**, there is the potential for some inequity. This is due to concentrated exposure to a small number of VC/GE funds. These members are represented by points J, K and L in the graphic below.¹⁸⁸ In the scenarios analysed, fee inequity for this group was a maximum of ~0.2%¹⁸⁹

FIGURE 22:

MATERIAL INEQUITY BETWEEN MEMBERS IS ONLY LIKELY DURING THE RAMP-UP PERIOD, AND FOR MEMBERS INVESTED FOR A SHORT TIME PERIOD



These potential inequities are small, and their impact is materially diluted by the fact that VC/GE is likely to make up only a small allocation in the default fund portfolio. At the default fund level, assuming a 5% allocation, such inequities would therefore be reduced to ~0.01-0.02% for all illustrative members considered in the above analysis. Inequities would be even lower if the default fund's allocation to VC/GE was below 5%.

Discussion with the Study's Steering Panel has indicated that this degree of residual inequity would, in general, be acceptable to DC Schemes, given the expected higher performance of VC/GE assets overall. However, this Study would recommend that actual residual inequities are monitored and disclosed as part of the Vehicle's governance and reporting processes.

CHAPTER 5

THERE ARE SOLUTIONS TO KEY CHALLENGES DURING THE EARLY INVESTMENT PERIOD

KEY FINDINGS

A number of issues relate specifically to the ramp-up period of a new Investment Vehicle. Of these challenges, the impact of the J-Curve¹⁹⁰ and the management of committed capital are the most important ones to consider:

- **The impact of the J-Curve on Investment Vehicle NAV is relatively small and manageable.** Careful planning of new investments, use of dilution adjustments, and several other established investment management tools can minimise residual impact
- **The potential lag, between the time capital is committed to an Investment Vehicle and when it subsequently deployed, can create a cash drag on returns.** This can be mitigated through use of contractual arrangements to manage capital drawdowns into the Investment Vehicle, and/or by drawing on a short-term lending facility

Seeding the Investment Vehicle with an existing portfolio of assets would also help to mitigate the effect of both the J-Curve and the lag between when capital is committed and when it is deployed.

5.1

KEY ACTIVITIES REQUIRED TO LAUNCH A VC/GE INVESTMENT VEHICLE

The previous chapter addressed several operational challenges associated with running a VC/GE Investment Vehicle (including those related to liquidity, valuation, and the equitable allocation of fees). This chapter looks at certain specific challenges associated with the activities required to launch and ramp-up an Investment Vehicle during the first three years of its existence. An overview of these activities, the key challenges, and proposed mitigations is provided in Table 3.

This Study's Steering Panel highlighted two particular points of concern with regard to these challenges. Firstly, the management of the J-Curve and, secondly, the need to reduce the risk of cash drag that could result from an imbalance in committed and deployed capital at the start of a vehicle's life. Deep dives into these two key issues are provided in the sections that follow.

TABLE 3:

SEVERAL CHALLENGES ARE ASSOCIATED WITH THE PRE-LAUNCH, LAUNCH, AND RAMP-UP OF AN INVESTMENT VEHICLE
PRE-LAUNCH

Key activity	Key challenge	Proposed activities
Recruit suitable talent and capabilities	<ul style="list-style-type: none">• Attracting high-quality talent for a new venture (including investment manager, client managers, investment support)• Establishing shortlist of potential managers• Assessing the suitability of potential managers• Negotiating appropriate compensation frameworks	<ul style="list-style-type: none">• Commercial managers could source talent internally, or recruit new employees (a new, jointly-owned Vehicle would have to source talent externally)• Possible to fast-track process by recruiting an entire team with pre-existing expertise
Build fund infrastructure and platform for the Investment Vehicle	<ul style="list-style-type: none">• Developing sufficient infrastructure to support an unusual investment vehicle¹⁹¹• Ensuring that the right checks and balances are in place to monitor and manage operational risks	<ul style="list-style-type: none">• For an existing investment manager, infrastructure is likely to be readily leverageable• Platform administration and requisite infrastructure can be outsourced
Develop and support understanding of VC/GE among key stakeholders	<ul style="list-style-type: none">• Developing analytical tools to support the case for investment in this asset class• Disseminating these materials to the right stakeholders	<ul style="list-style-type: none">• Support for intermediaries and other key stakeholders in building familiarity with asset class (including education/training programmes)

LAUNCH & RAMP-UP

Build a diversified portfolio of investments in VC/GE funds during initial years after launch	<ul style="list-style-type: none">• Managing J-Curve in returns (See following section for further detail)	<ul style="list-style-type: none">• Draw on manager expertise in planning investment schedule, use of dilution adjustments, and potential use of direct/co-investment, or seeding
Raise capital from investors and deploy it in targeted investments over a number of years	<ul style="list-style-type: none">• Managing committed vs. deployed capital while minimising cash drag (See following section for further detail)	<ul style="list-style-type: none">• Develop contractual arrangements between DC Schemes/provider and Investment Vehicle, or draw on short-term lending, to ensure reliable capital flows into the Vehicle when needed

5.2

MANAGING THE J-CURVE

When investing in a single VC or GE fund, investors typically experience a J-Curve profile in returns, with an initial dip in the early years of the fund.¹⁹² This can present a particular challenge in a VC/GE Investment Vehicle, as the continuous addition of new VC/GE funds to the overall investment portfolio over several years could in effect aggregate the impact of multiple J-Curves, thereby diluting investor returns. This Study has concluded, however, that the J-Curve effect would not be detrimental to investor outcomes if correctly managed.

The J-Curve effect is the result of the combination of three factors:

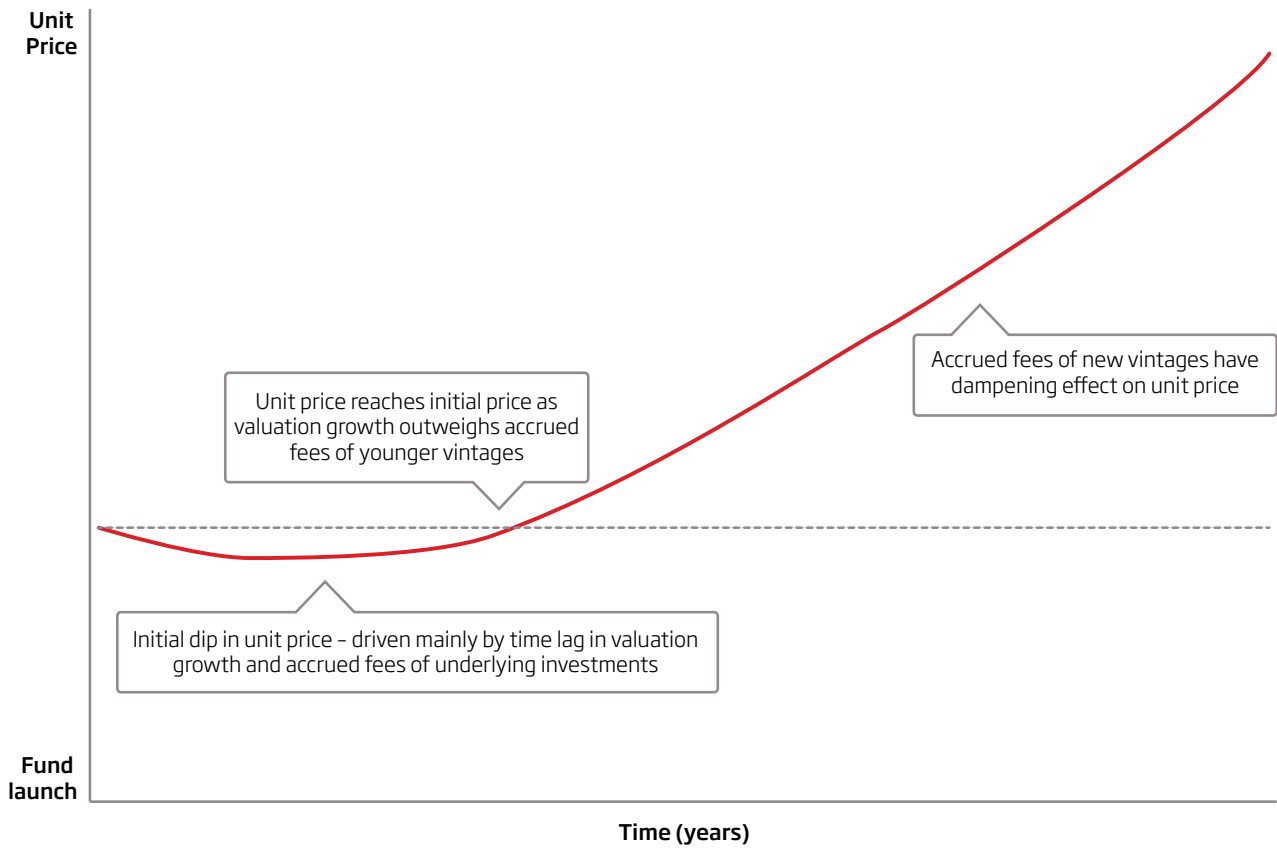
- There is often a time lag between the fund's investment in portfolio companies and valuation growth of these companies
- Management fees are currently charged by the VC/GE fund manager on capital committed (rather than that deployed). This means fees may be charged before investments have been made or have started to generate returns
- The cost of the fund's set-up and initial investments are typically paid by investors in the initial years of the fund (it is noted that the impact of this effect on the J-Curve is the smallest of the three)

As a result of these three effects, the unit price of a VC/GE fund tends to drop in the first one to three years following launch. A unit price profile illustrating the J-Curve effect is illustrated in Figure 23.

The depth and extent of the dip in Investment Vehicle unit price is driven primarily by the rate of investment in new VC/GE funds.

Although the predictability of this dip could create a potential disincentive for DC Schemes that might otherwise invest at the launch of an Investment Vehicle, it does mean that it can largely be controlled by the investment manager.

FIGURE 23:
THE UNIT PRICE OF AN INVESTMENT VEHICLE¹⁹³ MAY FOLLOW A J-CURVE PROFILE¹⁹⁴
ILLUSTRATIVE



This Study has concluded that the J-Curve is not a material barrier to DC Scheme investment in VC/GE for the following reasons:

1. When viewed in terms of NAV/unit of an Investment Vehicle, the impact of the J-Curve is minimal (as illustrated in Figure 23). This Study's modelling suggests that although the NAV/unit of the Investment Vehicle is likely to dip below its Year 0 value for a period of up to three years, this dip is of relatively short duration in comparison to the life of the Investment Vehicle. This characteristic can therefore be considered acceptable, given DC members' investment horizons.
2. There are several established investment management practices that can be used to minimise any residual impact of the J-Curve. These include investment and cashflow planning, the use of dilution adjustments, co-/direct investment, investment in later-stage funds, seeding and the purchase of secondaries. These practices are described further in Box A.

3. Around 90% of larger DC Schemes with a default fund employ a 'lifestyle' approach, in which member's asset allocations are moved towards more liquid and lower risk investments, such as bonds and cash, as they approach retirement age (typically, during the last five to ten years of the investment).¹⁹⁵ It is unlikely, therefore, that any individual member would be exposed to the initial dip in unit price of the Investment Vehicle without also experiencing the potentially rapid growth of the unit price in later years.¹⁹⁶ It is more likely that any given member would be invested in this asset class through a VC/GE Investment Vehicle over an extended period of time.

This Study assumes, given the flexibility of DC Schemes, that it is unlikely that members approaching retirement would be invested in an VC/GE Investment Vehicle, and so they would not at this point be exposed to the short-term downside risk of the J-Curve.

BOX A

INVESTMENT MANAGEMENT PRACTICES TO MINIMISE THE RESIDUAL IMPACT OF THE J-CURVE

1. Investment planning

An Investment Vehicle manager would be able to effectively control the Vehicle's NAV/unit profile by working closely with DC Schemes to plan the rate of their investment. This does not remove the J-Curve effect per se; however, it does ensure DC investors do not face an unexpected NAV/unit profile.

The planning of DC Schemes' rate of investment can also be used to smooth multi-year J-Curve effects. This can ensure the desired allocations to VC/GE are maintained. Furthermore, by taking such an approach, the Investment Vehicle manager will be able to reduce any residual inconsistency in returns caused by the various DC Schemes investing at different rates in the Investment Vehicle.

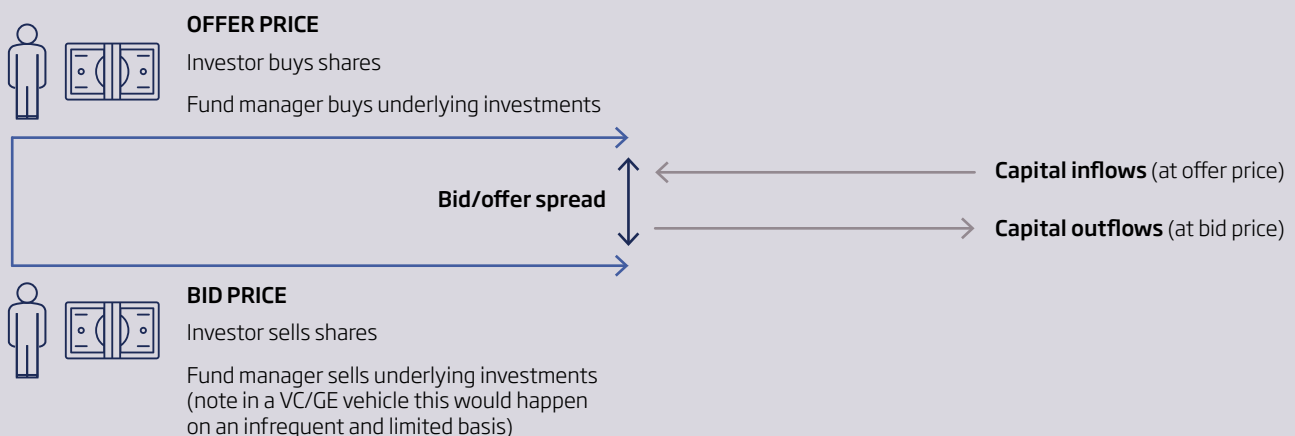
2. Dilution adjustment¹⁹⁷

One concern raised during this analysis was the fact that new investors entering an Investment Vehicle at a later stage (e.g. in years 2 or 3) could avoid any negative J-Curve effects, while benefiting from the uplift in returns that is expected to kick in from year ~3 onwards.

Moreover, the inflow of capital from new investors must be managed and deployed in new VC/GE funds, all of which involves additional cost, which could dilute the returns of existing investors. To mitigate this effect and ensure better equity between all investors, regardless of when they enter the vehicle, it is possible to use a 'dilution adjustment'.

A dilution adjustment is made to compensate existing investors for the additional costs and potential dilution of returns that could be associated with large-scale inflows from new investors entering the fund. In essence, the new investor pays additional charges for buying into the Vehicle, ensuring that they bear the burden of the new cost created, rather than existing investors paying for it.

When dilution adjustments are used, the investor pays the Offer Price when investing capital (reflecting the cost to the fund manager of buying additional underlying investments) and receives the Bid Price when taking capital out (reflecting the cost to the fund manager of selling underlying investments). The difference in NAV/share between these two prices is known as the Bid-Offer Spread.¹⁹⁸



Dilution adjustments only apply to open-ended vehicles, or to closed-ended vehicles in cases where they are open to investment transactions on a periodic basis, i.e. when units are created or redeemed.¹⁹⁹ In cases where shares are traded on a secondary market, as in that of an Investment Trust, prices are generally set by market forces, which typically take account of such effects.

3. Co-investment and direct investment

By investing directly in a portfolio of companies, an Investment Vehicle can eliminate the management fees it would otherwise pay to VC/GE funds. The elimination of such fees will also help to restrict the impact of the J-Curve on returns. However, making direct investments requires new internal capabilities and entails significant costs.

If an Investment Vehicle were to choose to invest directly, it is likely that it would only do so after building considerable skills in managing VC/GE funds. These capabilities would provide the basis for creating the capacity for making direct investments.

4. Investment in later-stage VC and GE

Investing in later-stage VC and GE funds can also reduce the impact of the J-Curve. This is due to the simple expedient that, because investments of such funds are in the later stages of development, this reduces the time it takes for these investments to achieve valuation growth. The fast-growing and cash-generating nature of later stage VC and GE investments means that returns to investors from such funds are more likely to be positive from the outset.

5. Seeding and purchase of secondaries

Depending on the availability and size of the seed portfolio, seeding an Investment Vehicle with an existing diversified portfolio of assets can largely eliminate the ramp-up challenges associated with the J-Curve (see section 5.4 for further details).

Purchase of secondary fund interests²⁰⁰ can also be used to mitigate any ongoing dampening effect of new fund J-Curves on Investment Vehicle returns. The purchase of a fund interest in an already mature VC/GE provides the opportunity to generate positive returns immediately, thereby countering the impact of the J-Curve that results from primary investments in new funds.

As well as taking actions to mitigate the impact of the J-Curve, a number of activities can also be undertaken to inform and educate key stakeholders on the impact of the J-Curve, as described in Box B.

BOX B

METHODS FOR INFORMING AND EDUCATING KEY STAKEHOLDERS ABOUT THE IMPACT OF THE J-CURVE

1. Transparent reporting

The use of transparent reporting templates in Investment Vehicle's regular publications can ensure that investors have a clear understanding of the drivers of overall returns. These templates could allow multiple views of the data: for example, investments can be categorised by the year they were made, with the performance for each year reported separately. Such reporting allows investors to isolate the effects of new funds' J-Curves on overall Investment Vehicle returns. There is established market precedent for this style of reporting for investment companies.

2. Stakeholder education

Initiatives can be used to familiarise key stakeholder groups about the nature of the VC/GE asset class, including the returns profile and time horizons of such investments. This information is important, given that the J-Curve is a structural characteristic of this asset class. It is critical that investors understand that an initially flat or negative return does not usually mean that the underlying investments are of poor quality. Further details of this are provided in this Study's Recommendations.

5.3

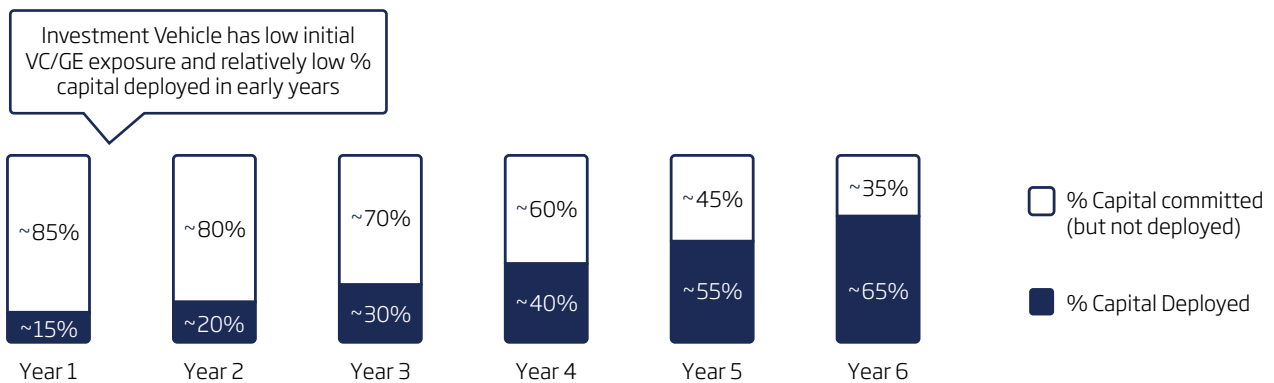
BALANCING COMMITMENTS AND DEPLOYMENTS IN THE INVESTMENT VEHICLE

This Study proposes that, in order to achieve the desired diversification across the VC/GE asset class, DC Schemes would benefit from using an Investment Vehicle to invest in VC/GE funds. This does not preclude the possibility of moving towards co-investment or direct investment sometime in future.

Building such a portfolio of positions in VC/GE funds creates a challenge in scheduling the commitment and deployment of capital.²⁰¹

The heart of the problem is the lag between commitment and deployment. It is possible that while the Investment Vehicle might be required to commit large sums of capital to the underlying funds, given the nature of the investments being made in VC/GE, a given fund might not actually deploy the capital for between three and five years. The cumulative effect of this could lead to a capital profile for the fund of funds that is similar to the one illustrated below. If the capital were to be held in the Investment Vehicle over this time, it would need to be held in a relatively liquid form. This would lead to a 'cash drag' that would pull down returns.

FIGURE 24:
THERE CAN BE A LAG BETWEEN THE COMMITMENT AND THE DEPLOYMENT OF CAPITAL IN NEW VC/GE FUND-OF-FUNDS
ILLUSTRATIVE EXAMPLE



Based on discussions with several major DC schemes, this Study has concluded that DC Schemes would prefer to manage liquidity in-house and do not want to provide capital to the Investment Vehicle in advance of it being invested. DC Schemes' preference is for committed capital to be transferred to the Investment Vehicle at the time of its deployment. The implication of this is that, at any given time, there would be minimal cash held in the Investment Vehicle.

How this would work in practice varies slightly, depending on the Investment Vehicle structure, as detailed in Box C. In both cases, mechanisms can be used to mitigate the risk of cash drag on DC Scheme returns.

BOX C

CAPITAL MANAGEMENT FOR DIFFERENT VEHICLE STRUCTURES

1. Open-ended vehicle

In an open-ended structure, capital can be readily invested at any given time. It is therefore the responsibility of the manager of the Investment Vehicle to agree with each DC Scheme investor (e.g. by contract) the proposed deployment schedule to the underlying funds. DC Schemes or their operators would then transfer liquidity into the Investment Vehicle when capital is called for by underlying investments.²⁰²

2. Investment Trust

New capital can only be added through a formal share issue. DC Schemes receive inflows each month from their members. It is likely, therefore, though by no means guaranteed, that an investing DC Scheme would be ready to buy new shares in an Investment Trust as and when they were issued. This arrangement will ensure that an Investment Vehicle will not struggle to raise new capital as and when it is needed. However, from a legal perspective, the Investment Vehicle would need sufficient contractual commitments to cover drawdowns for several future years into the future.

Since investing DC Schemes cannot be expected to commit contractually to buy such shares at the time they are issued, it is likely that the Investment Vehicle will need to draw on a short or medium-term debt facility to ensure that it always has sufficient available capital, as and when this is called upon by underlying funds. There is established market precedent for this arrangement.²⁰³

5.4

SEEDING

This Study has explored the potential to seed an Investment Vehicle from an already-diversified, mature pool of assets. Such seeding could be drawn either from fund positions or from direct investments. This approach has the following advantages:

- For the J-Curve: launching a vehicle with a portfolio that is diversified across various vintages of investment ensures that the Investment Vehicle does not experience a significant J-Curve in unit price. Eliminating the impact of the J-Curve in this manner would help reduce the risk of inequity between members
- For capital commitment and deployment: seeding an Investment Vehicle with a portfolio of existing investments makes it easier for investors to deploy capital more quickly. In general, returns and cash flows are more predictable in a mature portfolio of assets. This makes it easier for an investment manager to plan when and how future capital might be deployed, and when the Investment Vehicle might need to call for capital from external investors

There are several forms that this seeding could take:

- A portfolio of direct investments in VC/GE portfolio companies, or investments in VC/GE funds: this could be purchased off the balance sheet of an institutional investor
- A portfolio of direct investments in VC/GE portfolio companies, or investments in VC/GE funds: this could be purchased from a Defined Benefit Scheme, from the balance sheet of an institutional investor, or from another investor
- A secondary interest in a VC/GE fund or fund-of-funds: this could be purchased from the original owner²⁰⁴

In terms of the magnitude of seeding required for an Investment Vehicle, the Study estimates that seeding a portfolio with ~20%-40% of the initial target assets would create a sufficient foundation upon which to build up a fund. Over ~5 years, based on reasonable growth assumptions, this would account for ~10% of total fund assets.

These seeding options are likely to be contingent both upon the aims and resources of the investment manager launching the Investment Vehicle, as well as upon commercial negotiations. It is also worth noting that there is a degree of additional operational complexity and cost associated with seeding.

CHAPTER 6

RECOMMENDATIONS

This Study has been able to demonstrate that there is a strong case for DC investment into VC/GE. Moreover, many of the key challenges that have to date prevented investment can be overcome through a variety of operational and commercial solutions, and collaboration between players across the relevant industries. This said, further action is required from key stakeholders to drive future change and to ensure that the findings of this Study can be translated into tangible benefits for the UK's retirement savers. These actions are detailed in the section below.

6.1

INFORMATION

The British Business Bank will continue to take a lead in improving the quality and availability of UK industry-level data on historic returns, increasing the broader transparency of the asset class. This will require support from the rest of the industry.

Current publicly-available data on VC/GE investment performance is incomplete and sometimes inconsistent. While US fund data is relatively well established, data is more limited for the UK and other geographies. Improving this is a prerequisite for enabling the development of the analytical and advisory processes needed to substantiate the case for investment.

RECOMMENDED ACTIONS

- **The British Business Bank** will continue to take a lead in developing industry level data on the historic return of the asset class as a whole. The Bank will seek to act as a 'clearing house' for performance data and will aggregate information provided to it by fund managers. This data will be published regularly and be available in aggregated form for those in the investment industry to use and make comparison with other asset classes
- **VC/GE fund managers** are encouraged to disclose more, and more standardised, data on fund performance (as far as they are able), including to the British Business Bank, data providers (e.g. Preqin, Pitchbook), and industry associations (e.g. BVCA, Invest Europe). In particular, fund managers are encouraged to work with the British Business Bank and other industry bodies to investigate solutions that can help to standardise data collection in the industry, for example through the use of cloud-based platforms
- **The BVCA** will continue with its participation in cross-industry efforts to standardise cost reporting through the Cost Transparency Initiative and encourages the provision of data on returns²⁰⁵

6.2

EDUCATION

As data improves, key stakeholders in the pensions industry, such as investment consultants, data and analysis providers,²⁰⁶ and trade bodies can drive further education to validate the nature and value of the VC/GE asset class, in particular for trustees.

DC Schemes have not historically had access to VC/GE investment opportunities, and therefore knowledge of VC/GE is less extensive than for other asset classes.

It is critical to ensure that key stakeholders in the pensions industry are well-informed about the nature of VC/GE investments (e.g. long investment horizon, high expected returns and associated volatility; the importance of diversification; illiquidity of investments) to ensure DC Schemes to benefit from investment in the asset class.

RECOMMENDED ACTIONS

- **Trade bodies (e.g. the PLSA) and conference organisers** are encouraged to add this issue to the agenda of conferences and seminars/training events in order to drive wider collaboration and discussion of these issues across the industry
- **Investment consultants, investment managers and data providers** are also in a position to educate and inform DC Schemes and Trustees and should ensure they do so as part of the regular services they provide

6.3

REGULATION

Planned changes to regulation that facilitate prudent DC investment in VC/GE can continue to be driven forward.

Following the work of the Patient Capital Review's Pensions Taskforce, several measures have been initiated by government and regulators to help unlock DC investment in the asset class while continuing to safeguard key customer protections. This includes work by the FCA, TPR and DWP, for example:

- **FCA** Discussion Paper on "Patient Capital and Authorised Funds"²⁰⁷ (2018)
- **TPR** Guidance on Long-Term Investments for Pension Funds - Consideration of Patient Capital (VC/GE)²⁰⁸ (2018)
- **FCA** Consultation on "Illiquid Assets and Open-Ended Funds"²⁰⁹ (2018)
- **FCA** Consultation on changes to the "Permitted Links" rules²¹⁰ (2019)
- **DWP** Consultation on "Investment Innovation and Future Consolidation" (2019)

However, some areas of regulation still presents a challenge for DC Schemes looking to access the asset class. Government and regulators should therefore take a coordinated approach and consider how they can clarify these problem areas and, if it proves to be necessary, adapt regulation to facilitate DC Scheme access to VC/GE.

RECOMMENDED ACTIONS

- **The FCA** can continue to drive forward the proposals outlined in their "Permitted Links" consultation. As part of the implementation of its consultation proposals, the FCA could clarify the categorization of VC/GE investments within the new framework, as well as the level of the "liquidity" test specified in the consultation document
- **The FCA** can consider how they can support evolution in the UK Fund Regime that could facilitate investment in VC/GE; for instance, working with the Investment Association on its proposal for a Long-Term Asset Fund²¹¹
- **Stakeholders from across government** can continue to work together to assess the extent to which, in the absence of changes to fee arrangements, the Default Fund Charge Cap reduces the attractiveness of DC investment in VC/GE

As part of this engagement, consideration could be given to whether it is necessary to amend the calculation methodology for carry payments to reflect the multi-year nature of this type of fee (which is typically only paid when performance has been strong). For example, for the purposes of the charge cap, accrued carry could be calculated on a rolling average basis (over ~5 years), instead of on an annual basis. This would reduce the risk of DC Schemes breaching the cap when VC/GE investments are highly successful, whilst ensuring members are protected against paying high fees during periods when investment performance has not been commensurately strong.

Note, any assessment of the necessity of such a change should be holistic, and take into account broader contextual factors such as the impact of the proposed changes already outlined in the DWP's consultation on Investment Innovation and Future Consolidation.

6.4

INDUSTRY CHANGE

VC/GE managers and the pensions industry can use their scale for good, collaborating to develop ways for DC Schemes to access the asset class.

For DC Schemes to invest at scale in VC/GE, coordinated action is required across key players in both industries to develop Investment Vehicles that are tailored to DC Schemes' operational, regulatory and commercial requirements. In time, this will benefit both DC members and the VC/GE industry, by opening up a new source of capital.

RECOMMENDED ACTIONS

- **Investment Managers** can draw on the findings of this Study to launch commercially viable and DC-centric Investment Vehicles, providing DC Schemes with access to the VC/GE asset class and delivering long-term value for people saving for retirement
- **VC/GE fund managers** can take up the opportunity to attract capital from DC Schemes by engaging with them and with potential providers of an Investment Vehicle to develop a DC-centric model, that includes:
 - **New DC-suitable fee arrangements** (e.g. management fees charged only on deployed capital; reduced levels of carry). Initial engagement with VC/GE funds indicates that a subset of managers will be open to this, and this Study encourages them to take a lead in driving progress in this area
 - **A more active secondary market for holdings in VC/GE funds.** Managers should consider how they can encourage the development of a more active market for secondaries. This would mean that DC Schemes and commercial managers can draw more easily on secondaries as they seek to build VC/GE portfolios that are diversified by sector and investment maturity
 - **Greater emphasis on reporting on VC/GE fund managers' approach to stewardship and ESG integration.** This can demonstrate that investment in VC/GE is a core element of an ESG-integrated strategy for a DC Scheme. In turn, improved reporting will create a better market for stewardship by ensuring clearer alignment of incentives towards long-term value creation and improved and more consistent public disclosure of stewardship activities and outcomes. Reporting should be in line with published, industry-standard frameworks, such as the BVCA's 'Responsible Investment Toolkit',²¹² the UN PRI Reporting Framework,²¹³ or the Investment's Association's 'Stewardship Reporting Framework',²¹⁴ and can draw on those areas where managers and issuers engage jointly, as set out in the Investment Association's 'Long-Term Reporting Guidance',²¹⁵ for companies²¹⁶

-
- **The British Business Bank** will continue to play a key role in the development and support of the next generation of high-potential fund managers, broadening the potential pool of those that could offer DC-centric arrangements. As part of its Enterprise Capital Funds programme (which has to date generated £1.2 billion²¹⁷ of investment in VC/GE funds) the Bank will continue to invest in first-time and emerging fund managers. British Patient Capital will also continue to act as a catalyst and champion for UK VC, in particular by backing managers with new approaches to raising and investing patient capital. Finally, British Business Investments, through its Managed Funds programme, will this year begin allocating capital to experienced fund of fund managers raising new products with a patient capital mandate
 - **VC/GE trade bodies (e.g. the BVCA) can manage coordination between the Pensions Industry and VC/GE fund managers to promote investment**, for example through facilitating connections as part of joint-conferences, seminars and trainings

APPENDICES

Appendix A.

FURTHER ACKNOWLEDGEMENTS

We are very grateful to all those who were interviewed for input during the course of this Study. This included representatives from over fifty organisations from across the pensions industry, VC/GE industry, regulators and government. A list of those who wished to be acknowledged is provided below. Stakeholders from the following organisations were interviewed for input:

(* denotes Steering Panel member)

- Aberdeen Standard Life
- Anthemis
- Aon Hewitt
- Arix Bioscience Plc
- Association of Investment Companies
- Atomico
- Aviva/Aviva Investors*
- Baillie Gifford
- Balderton
- Barclays
- British Business Bank
- BGF
- BlackRock
- British Private Equity and Venture Capital Association
- Draper Esprit
- Edgehaven
- Equitix
- Financial Conduct Authority
- FPE Capital
- Hermes GPE
- HM Treasury
- HSBC UK Pension Scheme*
- IFM Investors
- Investment Association
- Kindred Capital
- Legal and General*
- Lane Clark & Peacock
- LocalGlobe
- London Stock Exchange Group
- Macfarlanes
- Mercer
- M3 Capital Partners
- NEST*
- Numis Securities
- Octopus Ventures
- Pantheon International Plc
- Partners Group
- Pensions and Lifetime Savings Association
- Poisson Management Limited
- Royal Bank of Scotland Retirement Savings Plan / RBS Investment Executive Limited
- Royal Mail
- Tesco Pension Fund*
- The Pensions Regulator
- Wellcome Trust
- Willis Towers Watson
- Woodford Investment Management

Appendix B.

GLOSSARY OF TERMS FOR THE STUDY

Alternatives

'Non-traditional' assets (i.e. not bonds or listed equities), including both liquid public investments (e.g. commodities, derivatives) and illiquid private markets (e.g. private equity, private debt, infrastructure, real estate, venture capital)

Annual Management Charge (AMC)

Fee charged by investment funds, typically applied as a percentage of assets in the fund. This fee is intended to cover the costs of running the fund on an annual basis and is automatically taken from the fund assets on a regular basis. It is separate to any carry/performance fees which may be paid out additionally to managers in years of strong returns

Auto-enrolment

A government initiative to help more UK workers to save for retirement. Under this initiative, it is compulsory for employers to enrol eligible workers into a pension scheme, and to pay money into the scheme. Eligibility is determined by age, salary, and terms of employment contract

Bundled DC Scheme

A DC Scheme where all costs for administration and investment are bundled together and paid by the Scheme itself. Master Trusts and Contract-Based Schemes are 'bundled', whereas Occupational Trusts are unbundled

Carry

Carry, or carried interest, is a share of profits allocated to the VC/GE fund manager, typically paid towards the end of the life of the fund as investments are realised. While the precise method for calculating carry depends on the specific legal agreement made with Limited Partners, it is usually calculated as a proportion of the capital gain of the fund

Catch-up

A model for calculating carry (sometimes referred to as 'preferred returns with catch-up') that is used by most funds with a hurdle rate. Under this model, investors take 100% of the return generated up to the hurdle rate; thereafter the investment manager takes 100% of the return as carry (i.e. the catch-up) until the point where returns are split in line with the carry rate (e.g. 20% to the investment manager, 80% to investors). All additional returns are then split in line with the carry rate

Charge cap

Cap on member borne charges in a DC Scheme default fund. It is expressed as a proportion of funds/assets under management, and defined in the Occupational Pension Schemes Regulation, 2015. The current level of the cap is 75 basis points

Closed-ended fund

Funds have a fixed number of shares/units that are issued subject to company law/ other constraints in fund constitution. Once issued, shares/units are usually only traded on a secondary market or redeemed on winding up the fund

Relevant fund-types: Investment Trust

Co-investment

Investments made directly into a portfolio company alongside a financial sponsor or other investor/fund who invests on the same terms

Committed capital

Capital that is committed to a given investment fund by an external investor, to be drawn down by the fund managers and deployed over the investment period of the fund

Contract-based DC Scheme

A DC pension Scheme provided by an insurer, where underlying members hold a policy with an insurer entitling them to benefits linked to a number of units in underlying funds

Corporate sponsor

A designated party that sets up a retirement plan for the benefit of a company's employees

DC Default Fund

A default fund is the fund into which a DC Scheme member will be invested upon automatic enrolment in their DC Scheme, if they do not actively seek an alternative investment option.

Defined Benefit pension scheme

A type of pension scheme where the employer/sponsor promises to pay out a specified amount to members upon their retirement (therefore the benefits owed to the member are defined). This amount is pre-determined by a formula, taking into account members' earnings history, tenure, and age, rather than depending on individual investment returns

Defined Contribution pension scheme

A type of pension scheme where an employee (and often also the employer) makes payments into their pension pot. This amount is usually specified as a percentage of annual salary (therefore the contribution made is defined). The final amount earned will depend on the contributions paid in, as well as the performance of investments within an employee's pot over their lifetime

Direct investment

Selection of/investment into individual businesses directly (i.e. portfolio companies) rather than into funds

Evergreen

A fund with an infinite investment horizon that can recycle capital continually (can be open or closed-ended)

Relevant Fund-types: Investment Trust, OEIC and ETF

Fixed term

A fund with an agreed, fixed life, after which time capital must be returned to the underlying investors (can be open or closed-ended)

Relevant fund-types: Limited Partnership

Free float

For listed investments, this represents the proportion of shares of a company that are in the hands of public investors, as opposed to being held by company directors, controlling interests, etc.

Fund of Alternative Investment Funds (FAIF)

The FAIF classification is a subset of the NURS categorisation for open-ended funds in the UK. The FAIF regulatory regime is designed to expand the range of assets available to retail investors. A fund established as a FAIF is therefore able to invest up to 100% of its assets in other unregulated funds, allowing UK retail investors to gain more exposure to alternative investment products (e.g. hedge funds)

Fund-of-funds investment

Selection of/investment into other investment funds (which themselves typically invest directly in underlying assets)

Private Growth Equity (GE)

Follows late stage venture capital, focused on relatively mature private companies looking to create value through profitable revenue growth

Hurdle rate

The minimum rate of return that must be achieved over committed capital and paid to investors before carry is accrued

Internal Rate of Return (IRR)

A measure of investment returns intended to account for the time value of money. The IRR represents the discount rate at which the net present value of all future cash flows from an investment are equal to zero. The IRR calculation is differentiated from others by the fact that it includes only internal drivers and does not account for external factors such as risk-free-rate or inflation

Master Trust

A trust-based DC Scheme which is open to employees of multiple employers (and sometimes others, such as self-employed people). Master Trusts are generally managed by an insurer or commercial provider, but have a board of trustees who have ultimate responsibility for ensuring that investment decisions made are in the best interests of the members

NURS (Non-UCITS Retail Scheme)

An open-ended fund categorised under the FCA's COLL Sourcebook as a Non-UCITS Retail Scheme (NURS). Within the category of NURS, there are further subcategories (e.g. FAIF – Fund of Alternative Investment Funds). Generally, a NURS can invest in a broader range of asset classes than a UCITS (e.g. Real estate), and has fewer restrictions in terms of e.g. borrowing, dealing and valuation

Open-ended fund

Fund number of shares changes as capital flows in/out. Fund participants have the right to redeem/sell their interest in the fund at a price related to the NAV of the fund

Relevant fund-types: OEIC, Unit Trust, ETF, ACS and Life Policy

**QIS regulatory status
(Qualified Investors Scheme)**

An open-ended fund categorised under the FCA's COLL Sourcebook as a Qualified Investor Scheme (QIS). A QIS is an authorised fund that is not UCITS or NURS; appropriate for institutional and professional investors only (no limits on illiquid/unlisted investments)

Replacement rate

The percentage of an employee's pre-retirement income that is paid out by a pension programme upon retirement

Trust-based DC Scheme

A legal arrangement, often sponsored by an employer for the employees, under which Trustees hold and invest assets of a DC Scheme on behalf of the members of the Scheme

UCITS (Undertakings for Collective Investments in Transferable Securities)

An open-ended fund categorised under the FCA's COLL Sourcebook as an Undertaking for Collective Investments in Transferable Securities (UCITS). A UCITS is intended to have the highest degree of investor protections and its investment universe is restricted based on what is deemed appropriate for retail investors

Unbundled DC Scheme

A DC pension where administration and investment costs are separate; an Occupational Trust is 'unbundled'

Venture Capital (VC)

Venture Capital is equity finance for businesses that have a high potential for significant growth and are generally at an early stage in their development. It is different to Private Equity, which is typically focused on equity funding for institutional or management buyouts in more mature companies. For this purposes of this report, Venture Capital encompasses Venture series (A+), early stage and late stage/expansion, but excludes seed capital

Appendix C.

INVESTMENT CASE: DATA SOURCES AND METHODOLOGY FOR ANALYSING VENTURE CAPITAL AND GROWTH EQUITY INVESTMENT PERFORMANCE

The following paragraphs detail the data sources and methodology used for this Study's analysis of global VC/GE returns. The outcomes of this analysis are shown in Chapter 1 of this document and have been cross-referenced with several independent data sources and published results of leading VC/GE investors.²¹⁸

DATA SOURCES

Preqin and British Business Bank proprietary data were used as the basis for this analysis. This Study considered the Preqin source to be the broadest and most consistent of those available. Information provided by Pitchbook and BVCA was also used to test the veracity of the data used. The data sources used, and the data samples included in the analysis are summarised in the tables below.

TABLE 4:
SEVERAL DATA SOURCES WERE USED AS PART OF THE ANALYSIS

	Pitchbook	Preqin	BVCA	British Business Bank
Source of information	Self-declared	Self-declared	Self-declared	Anonymously reported
Granularity of returns data	Fund level	Fund level	Industry level (averaged across funds)	Fund level
Granularity of fund type	VC, PE	Seed, early stage VC, late stage VC, Growth	VC, Buyout, Growth	Seed, early stage VC, late stage VC, Growth
Geographical focus	Global (bias to the US)	Global (bias to the US)	UK	UK

TABLE 5:
OVER 5,000 GLOBAL FUNDS WERE INCLUDED IN THE ANALYSIS²¹⁹

	Time frame	Global	UK
# of funds that reported returns	1970 - 2016	5,400	640
# of investment deals recorded	1985 - 2018	11,000	5,300
# of funds that reported capital raised	2003 - 2018	N/A	320

METHODOLOGY

The analysis examined the relative performance of global VC/GE investments against a benchmark for listed equities. The methodology for doing so is outlined below.

Scope of data on VC/GE investment performance

- The following definitions were used:²²⁰
 - **Venture Capital:** all private markets funds and investments classified as “Venture”, “Series (A+)”, “Early stage”, “Late stage/expansion”. Note: “Seed” funds and investments were excluded because they are not within the scope of this study
 - **Growth Equity:** all private markets funds and investments classified as growth. Mezzanine finance and buyouts were excluded as they are not within the scope of this Study
- Data covered fund vintages from 1970 to 2016. These represented the earliest and most recent VC/GE fund vintages for which reliable data was available. Some deal-level data from 2017 and 2018 was also analysed, however fund vintages for these years were not included as the vast majority had not yet reported a net IRR figure
- The analysis covers performance data for global VC/GE funds, therefore, for consistency we also used a global index (MSCI World) for our measure of listed equity performance

Measurement of VC/GE investment performance

- Individual fund returns were measured using the Internal Rate of Return (IRR) per annum at fund close.²²¹ Although other measures are also used, the IRR is a widely used measure of performance in the VC/GE industry and is comparable with the numerous studies on private markets performance.²²² It has been endorsed by the Chartered Financial Analyst Institute (CFAI) as the most appropriate measure of VC, GE and Private Equity performance
- All returns are ‘net’ returns to investors, taking into account all costs and fees, including carry

Calculation of VC/GE investment performance

- All VC/GE funds were assumed to have achieved their reported fund-closing net IRR per annum in each year of operation. For example, where data reported that (on closing) a fund had achieved 10% IRR per annum, this Study’s analysis assumed the fund achieved 10% IRR in Year 1, 10% IRR in Year 2, 10% IRR in Year 3 etc. This was assumed due to a lack of consistently available data on the year-on-year performance of individual VC/GE funds
- All VC/GE funds were assumed to have a seven-year life. This represents the average investment and holding period of the typical VC/GE fund, but excludes the time taken to liquidate investments. Sensitivity analysis showed no material difference in global industry returns using alternative fund life assumptions of between five and ten years
- Global VC/GE returns in a given year were calculated as the average return of all funds assumed to be running in that year (irrespective of vintage/ inception year). The global VC/GE returns in each year were then averaged to give returns over the specified time periods

Measurement and calculation of VC/GE investment risk

- Risk of VC/GE investment was measured as the standard deviation²²³ of annual returns. This is a commonly used metric in the investment industry, with larger variation in returns reflecting higher risk or volatility in performance (and thus a higher figure for the standard deviation)
- Two measures of VC/GE investment risk were detailed in the analysis: (1) Standard deviation of the industry-level annual return, which represents the risk of investing in the asset class as a whole; and (2) Standard deviation of fund-level returns, which represents the dispersion of returns or risk of investing in a given VC/GE fund

Data, definition and calculation of benchmark investment performance and risk

- VC/GE investment performance was compared against the MSCI World Equity Index, a broad global equity index that represents large and mid-cap performance across 23 developed markets countries²²⁴
- MSCI World returns were calculated as the change in the value of the index in a given calendar year.²²⁵ The expected return over a number of years was then calculated by averaging the respective annual returns. This was done to ensure expected returns reflected those for an investor hold the index for any given number of years during the period in question. Sensitivity analysis was also conducted by calculating the CAGR²²⁶ for different time periods. The CAGR reflects the average return for an investor for the entire period in question. The sensitivity analysis found that over longer time periods, the average annual return and CAGR are very similar

- Investment risk for the MSCI World was calculated as the standard deviation of the annual index return (where return is defined as above). This was the same basis on which VC/GE industry-level risk was calculated

LIMITATIONS

These analyses were conducted on a best-efforts basis using the available data. Although we consider that they are representative, we acknowledge there are several potential limitations due to gaps in the data:

- **Scope:** there are currently no robust data sources that cover the entire global VC/GE market from 1970-2016. This means it is difficult to compare the performance of VC/GE investments in specific countries or geographical regions (e.g. US vs. UK; Europe vs. Asia)
- **Self-declaration:** while the Preqin source provides the best available coverage of global VC/GE fund performance, the data is self-declared. This means there is potential for some 'survivorship bias' to positively skew information on investment performance. This is a common feature of all investment manager databases, including for managers of public equities and hedge funds. However, according to Cambridge Associates,²²⁷ the illiquid nature of VC/GE investments is in fact likely to reduce the survivorship effect relative to investment manager databases for listed securities. This is because, while underperforming listed securities funds may close and drop-out of the databases, private investment partnerships owning illiquid assets continue to exist and require reporting to their limited partners until the fund closes

-
- **Smoothing:** the available data typically covers only the closing net IRR per annum of VC/GE funds and, therefore, it has been assumed that all funds achieved the same net IRR in each year of operation. This means it is not possible to analyse changes in investment performance over a fund's life, for example, whether or not year-on-year returns varied due to factors such as the 'J-Curve' or macroeconomic shocks²²⁸
 - **Granularity:** the Preqin source does not provide details on underlying cash flows. This has meant that the fund-level IRR acts as the sole performance metric. In addition, no data is available on the performance of the individual underlying investments made by VC/GE funds. This means it is not possible to quantify the risk of direct or co-investment in VC/GE portfolio companies (hence it is possible only to quantify the risk of investing indirectly through funds)
 - **Evolution of the industry:** over the ~50 years of analysed investment performance there has been significant change in the VC/GE industry. For example, the industry has grown rapidly, become more professionalised, and there have been material regional shifts (whereas in 1970 it was almost entirely based in the US). As a result, returns figures over time may not always be completely comparable

Given the important gaps in the available data mentioned above, this Study calls for improvement in the quality and availability of information on the historic returns and risk for the VC/GE asset class. Further details of this recommendation are provided in Chapter 6.

Appendix D.

FEES AND COSTS: ASSUMPTIONS AND METHODOLOGY FOR ASSESSING SCENARIOS WHERE THERE MAY BE RISK OF CHARGE CAP BREACH

The following paragraphs detail the methodology and assumptions used for this Study's analysis of the potential for DC Schemes investing in VC/GE to breach the current default fund charge cap. The high-level outcomes of this analysis are described in Chapter 2 of this document and have been discussed with stakeholders from across both the private and public sectors.

Analysis overview and data sources

- For a simplified DC Scheme default fund allocating to two assets – VC/GE and 'other investments' – the analysis addresses two main questions:
 - What are the total charges over time associated with different levels of returns and asset allocations?
 - For a given DC initial allocation to VC/GE, what level of returns is required for the DC Scheme to breach the 75-basis point charge cap in five years or less?
- Returns data was drawn from the same sources as the Investment Case analysis (see previous Appendix):
 - VC/GE returns were calculated based on historical Preqin data
 - Returns on 'other investments' were proxied by the returns to the MSCI World Equity Index
- Returns data from 2004-2016 was included in the analysis, reflecting the returns that investors would have experienced from investing in these asset classes in the recent past

Modelling assumptions

- The assumed level and structure of fees and charges was based on the status quo in today's market:

- **Fees on underlying VC/GE investments:** 200 basis point management fee, with 20% carry over an 8% hurdle rate. Carry in this instance was assumed to be based on a 'catch-up' model, which is used by most funds with a hurdle rate. Under this model, investors take 100% of the return generated up to the hurdle rate; thereafter the investment manager takes 100% of the return as carry (i.e. the catch-up) until the point where returns are split in line with the carry rate (e.g. 20% to the investment manager, 80% to investors). All additional returns are then split in line with the carry rate
- **Fees on underlying 'other investments':** 46 basis points, covering DC platform/administration costs and management fees across other investments. This figure represents the midpoint of the 38-54 basis point average cited in the recent DWP consultation²²⁹
- **Fees at the fund of fund level:** no fees were included at the fund of funds level; however, these may be incurred if DC Schemes access the asset class through a pooled Investment Vehicle
- Capital flows and allocation were based on consultation with various stakeholders throughout the course of this Study. They reflect the likely allocation to VC/GE for a DC Scheme investing in the asset class, as well as a conservative approach to managing the risk of a potential charge cap breach:
 - **Initial default fund allocation to VC/GE:** a 5% 'Year 0' allocation to VC/GE was taken as the base case, but this was varied depending on the particular scenario analysed
 - **Allocation of new flows into the default fund:** the default fund was assumed to grow by 6% of Year 0 AUM per year (a high-level estimate used to account for ongoing contributions from existing members in the Scheme). Each year, all these new flows were allocated to 'other investments'

Appendix E.

OVERVIEW OF KEY REGULATORY FRAMEWORKS

This section provides an overview of the relevant regulatory frameworks for feasible Investment Vehicle structures - i.e. an open-ended vehicle (1) and an Investment Trust (2).

1. EU DIRECTIVE FOR COLLECTIVE INVESTMENT SCHEMES - UCITS, NURS, QIS²³⁰

TABLE 6: ANY AUTHORISED OPEN-ENDED FUND IN THE UK IS CATEGORISED AS ONE OF THE FOLLOWING:

	UCITS	NURS	QIS
Description	Fund is subject to the European UCITS Directive: key requirements related to risk, diversification, and investment strategy	Fund is governed under the Alternative Investment Fund Managers' Directive (AIFMD)	Fund is governed under the AIFMD and has the greatest investment and operational flexibility, allowing the vehicle to access a wide range of asset classes
Key features	<ul style="list-style-type: none"> • Open to retail and institutional investment • Very limited exposure to illiquid assets permitted (maximum 10% of NAV can be invested in illiquids) 	<ul style="list-style-type: none"> • Open to retail and institutional investors • Investment in illiquid assets limited to 20% for a normal NURS; requires structuring as a FAIF²³¹ to gain 100% access • Dealing and valuation points can be up to 6 months apart 	<ul style="list-style-type: none"> • Can only be marketed and sold to professional investors (not available to retail investors) • Can invest in a wider range of unlisted/illiquid assets • Few restrictions on asset allocation
Implications for VC/GE investment vehicle	Unfeasible option: Exposure to unlisted/illiquid investment is limited	Feasible option: However, scope is constrained by operational restrictions (listed above) on dealing and valuation	Preferred option: Most flexible operationally, and best suited to investment in illiquid underlying assets ²³²

 Option suggested by Study

2. LONDON STOCK EXCHANGE LISTING SEGMENT²³³

TABLE 7: A UK-LISTED INVESTMENT TRUST WILL BE LISTED ON THE LONDON STOCK EXCHANGE ON EITHER THE PREMIUM OR SPECIAL FUNDS SEGMENT

	Premium	Specialist Fund Segment (SFS)	Key implications
Minimum % free float requirement	25% minimum free float	No minimum free float; if <10%, fund must articulate how a fair and orderly market can develop	SFS allows more flexibility at launch - vehicle can be largely privately owned to reduce price volatility (e.g. 10% public, 90% private)
Investment restrictions	Cannot be more than 10% invested in other closed-ended funds	No restrictions	SFS much more feasible for a proposed Investment Vehicle invested ~100% in illiquid underlying funds
Retail suitable	Yes	No - SFS securities cannot make retail offers in their IPOs or placings	SFS better suited to institutional investors
Changes to investment policy	Shareholder approval required for significant changes	No specific requirements	Premium listing has more cautious standards of governance
Investment restrictions	No more than 10% invested in another single closed-ended fund	No restrictions	SFS more suited to VC/GE with a higher proportion invested in funds
Related party restrictions	Transactions with a 'related party' require a shareholder circular and shareholder approval	No obligation to comply with related party requirements: able to access capital at short notice from related parties	SFS will provide more flexibility when capital is required at short notice; however, lower governance standards may be a reputational concern

 Option suggested by Study

Appendix F.

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Notes

1. 'Patient Capital' is defined here as 'Venture Capital and Growth Equity' - the latter is used for clarity throughout the rest of this report
2. Growth Equity refers specifically to private growth equity
3. The strategy in which DC Scheme members are invested when auto-enrolled in their workplace pension scheme
4. Typically, larger Schemes will have their own internal capabilities
5. Oliver Wyman analysis. Assumes ~5% weighted allocation to VC/GE over working life and a 4-7% premium between VC/GE and other investments. See Chapter 2 for further details
6. The Study acknowledges that there may be potential for survivorship bias to positively skew data relating to investment fund performance - see Appendix C for further details
7. Oliver Wyman analysis using Preqin and British Business Bank proprietary data. VC/GE investments have achieved a ~18% p.a. net return vs. ~11% p.a. return for the MSCI World Index since 1970. See Chapter 2 for further details
8. 'Deficit' here is defined as the gap between the total contributions required for a DC Scheme member to reach their target replacement rate (i.e. their target level of income in retirement, relative to their salary at retirement), and current minimum contributions. Further details are provided in Chapter 2
9. Subject to strong additional liquidity risk management rules
10. This is a proposed fund structure designed by the Investment Association, specifically to hold long-term assets. Further details are expected to be released later this year
11. For example, in terms of the investment horizon and short-term capital requirements
12. Gating is the act of delaying execution of requests for redemption of capital. It is often used in asset classes where the underlying investments are less liquid, such as real estate (in which DC Schemes often invest)
13. 'Carry' or 'carried interest' is a variable performance fee, common to most private equity and VC/GE funds, paid to the manager to reward performance at the end of the life of the fund
14. Harris et al., Has Persistence Persisted in Private Equity? Evidence from Buyout and Venture Capital Funds, 2014
15. Kaplan and Schoar, Private Equity Performance: Returns, Persistence, and Capital Flows, 2005
16. Oliver Wyman analysis using Preqin and British Business Bank proprietary data. See Chapter 2 for further detail
17. The Study acknowledges that there may be potential for survivorship bias to positively skew data relating to investment fund performance
18. A 'lifestyle' fund is an investment fund that manages a diversified portfolio across assets with varying levels of risk over time. In the context of pensions investments, 'lifestyle strategies' typically invest in higher risk and higher return investments (e.g., equity and alternatives) during the earlier years of a member's savings, before shifting to lower risk and lower return investments (e.g., bonds and cash) as the member reaches retirement
19. Oliver Wyman analysis. Assumes 5% weighted allocation to VC/GE over working life and a 4-7% point premium between VC/GE and other investments. See Chapter 2 for further details
20. For example, see: Harris et al., Has Persistence Persisted in Private Equity? Evidence from Buyout and Venture Capital Funds, 2014; Kaplan and Schoar, Private Equity Performance: Returns, Persistence, and Capital Flows, 2005
21. The majority of funds that use a hurdle rate use a 'catch-up' model for calculating carry. Further details are provided in the Appendix
22. This is a proposed fund structure designed by the Investment Association, specifically to hold long-term assets. Further details are expected to be released later this year
23. Note, there would be no offsetting of the carry provision against any underlying funds that have yet to reach the hurdle rate of return
24. The 'J-Curve' effect is defined as the small dip in returns that investors may see in the early life of a VC/GE fund, where there is an initial outlay in costs and payment of fees is incurred but the fund investments have yet to see significant valuation growth
25. BVCA: the British Private Equity and Venture Capital Association, which is the industry body and public policy advocate for the private equity and venture capital industry in the UK
26. We expect the emergence of firms that meet investors' needs for analysis and data, analogous to those available for listed investments (e.g. Bloomberg)
27. CMA: Competition and Markets Authority; DWP: Department for Work and Pensions; FCA: Financial Conduct Authority; TPR: The Pensions Regulator
28. See Chapter 2 for further details
29. Dealroom.com, Investment Updated for Europe and Israel, 2018
30. British Business Bank, Small Business Equity Tracker, 2019 (Note, there was a 6% fall in the number of deals)
31. HM Treasury, Financing growth in innovative firms: one year on, 2018
32. Representatives from Aviva, L&G, NEST, The People's Pension, Tesco Pension Fund and HSBC UK Pension Fund comprised the Steering Panel and participated in ongoing discussions over the course of the Study, providing input and perspectives on key ideas. The Study acknowledges that by agreeing to participate, DC Pension Schemes do not commit to any future investments; however, they do express a genuine interest in the asset class and future opportunities that could be associated with it
33. Oliver Wyman analysis. See also: Oliver Wyman, The retirement franchise opportunity report, 2018
34. VC/GE returns are calculated based on IRR data. See Appendix C for further details
35. Oliver Wyman analysis using Preqin and British Business Bank proprietary data. See following sub-section for further details
36. Oliver Wyman analysis using Preqin and British Business Bank proprietary data. See following sub-section for further details
37. Oliver Wyman analysis. Assumes 5% weighted allocation to VC/GE over working life and a 7% premium between VC/GE and other investments. See following sub-section for further details
38. The Pensions Regulator, DC trust: presentation of scheme return data 2017-2018, 2019
39. Oliver Wyman analysis (note, includes funds retained post retirement in workplace DC Schemes). See also: Oliver Wyman, The retirement franchise opportunity report, 2018
40. Oliver Wyman analysis, and Pension Protection Fund, The Purple Book, 2018 (note total DB assets were estimated at ~£1,573 BN in 2018)
41. Oliver Wyman analysis (note, includes funds retained post retirement in workplace DC Schemes). See also: Oliver Wyman, The retirement franchise opportunity report, 2018
42. Cambridge Associates, Private Investing for Private Investors, Life can be better after 40%, 2019
43. Cambridge Associates analysis: Allocation calculated as average 20-year private investments allocation, using data on 132 endowments and foundations
44. Cambridge Associates, Private Investing for Private Investors, Life can be better after 40%, 2019
45. Cambridge Associates, Private Investing for Private Investors, Life can be better after 40%, 2019
46. Mercer, European Asset Allocation Survey Report, 2018; Schroders, 2016 FTSE DC Schemes Report, 2016
47. Underlying funds are only required to publish prices regularly, however the industry perception is that daily pricing is required.

- For further details, see: FCA, DP18/10: Venture Capital and Growth Equity” and “Authorised Funds Discussion Paper, 2018
48. All Party Parliamentary Group on Corporate Governance, Causes and Consequences of the Decline of the Public Corporation, 2016
 49. All Party Parliamentary Group on Alternative Investments, UK Pension Schemes and Alternative Investments Report, 2019
 50. Oliver Wyman analysis; All Party Parliamentary Group on Corporate Governance, Causes and Consequences of the Decline of the Public Corporation, 2016; World Bank 2019; London Stock Exchange, 2019
 51. Oliver Wyman and Morgan Stanley, Searching for growth in an age of disruption, 2019
 52. Forecasts are based on historic CAGRs
 53. British Business Bank, Small Business Equity Tracker 2019, 2019. Note equity deals included in the British Business Bank report meet the following criteria: (1) the recipient of the funding is a UK-based business; (2) there is no upper or lower limit for the sum invested; (3) the investment is visible, meaning that it has been publicly announced via press release or some other media; (4) The recipient of investment is a small or medium-sized business as defined by the European Commission. This includes primarily investments by Venture Capital investors, but also those by Family Offices, Angels, Angel Networks, Crowdfunding Platforms and Private Equity investors
 54. FTSE 100 and MSCI World allocations are as of December 31st, 2018 (these are stock figures, based on the composition of each indices at the measurement date). Global VC/GE allocations refer to 2018 investment deals (this is a flow figure, based on the number of deals in 2018). This is an indicative illustration of equities vs VC/GE and compares stock and flow
 55. Oliver Wyman analysis; Preqin, Private Capital Performance Update 2018, 2019
 56. VC/GE returns are calculated based on IRR data. See Appendix for further details
 57. Whilst the Preqin source used provides broad coverage of global VC/GE fund performance, data is self-declared. This means there is potential for some survivorship bias to positively skew information on investment performance. This is a common feature of all investment manager databases, including for managers of public equities and hedge funds. However, according to Cambridge Associates, the illiquid nature of VC/GE investments is in fact likely to reduce the survivorship effect relative to investment managers of listed securities. This is because, whilst underperforming listed equities managers may close and drop out of databases, private investment partnerships owning illiquid assets continue to exist and require reporting to the limited partners, even if the original manager ceases to exist
 58. Oliver Wyman analysis using latest available Preqin and British Business Bank proprietary data. Note, all VC/GE funds are assumed to have a seven-year life (representing an average investment and holding periods of VC/GE funds). Sensitivity analysis showed no material difference in overall industry return figures produced using alternative fund life assumptions of 5-10 years. VC/GE funds are also assumed to have achieved their reported fund-closing net IRR p.a. in each year of operation, as consistent data was not available for the year-on-year performance of individual funds
 59. Oliver Wyman analysis using MSCI World Data (note, MSCI World returns are provided as gross, however, this is assumed to be equal to net returns due to the very low marginal cost of passive management). All years cited are inclusive
 60. Preqin, 2018 Private Capital Performance Update, 2019
 61. The Study acknowledges that there may be potential for survivorship bias to positively skew data relating to investment fund performance
 62. Oliver Wyman analysis using latest available Preqin and British Business Bank proprietary data (note, all VC/GE funds are assumed to have a seven-year life, to represent the investment and holding periods of VC/GE funds. Sensitivity analysis showed no material difference in headline industry return figures produced using alternative fund life assumptions of 5-10 years. VC/GE funds are also assumed to have achieved their reported fund-closing net IRR p.a. in each year of operation, as consistent data was not available on the year-on-year performance of individual funds
 63. Oliver Wyman analysis using MSCI World Data (note, MSCI World returns are provided as gross, however, this is assumed to be equal to net returns due to the very low marginal cost of passive management). All years cited are inclusive
 64. Oliver Wyman analysis using latest available Preqin data and British Business Bank proprietary data; Source: Preqin, 2018 Private Capital Performance Update, 2019
 65. The Study acknowledges that there may be potential for survivorship bias to positively skew data relating to investment fund performance
 66. In the 47 years analysed, the rolling average premium was between 4% points and 8% points (inclusive) in 32 years (68%); above 8% points in 11 years (23%) and below 4% points in 4 years (9%)
 67. Analysis suggests a linear regression line for the British Business Bank VC/GE premium with an R-squared of 0.0063
 68. Oliver Wyman analysis using latest available Preqin and British Business Bank proprietary data (note, all VC/GE funds are assumed to have a seven-year life, to represent the investment and holding periods of VC/GE funds. Sensitivity analysis showed no material difference in headline industry return figures produced using alternative fund life assumptions of 5-10 years. VC/GE funds are also assumed to have achieved their reported fund-closing net IRR p.a. in each year of operation, as consistent data was not available on the year-on-year performance of individual funds
 69. Oliver Wyman analysis using MSCI World Data (note, MSCI World returns are provided as gross, however, this is assumed to be equal to net returns due to the very low marginal cost of passive management). All years cited are inclusive
 70. Preqin, 2018 Private Capital Performance Update, 2019
 71. The Study acknowledges that there may be potential for survivorship bias to positively skew data relating to investment fund performance
 72. Harris et al., Has Persistence Persisted in Private Equity? Evidence from Buyout and VC Funds, 2014
 73. Kaplan and Schoar, Private Equity Performance: Returns, Persistence, and Capital Flows, 2005
 74. Cambridge Associates, US VC: Index and selected benchmark statistics, 2018
 75. Wellcome Trust, Annual Report and Financial Statements 2018, 2018
 76. Yale Investments Office, 2018 Endowment Update, June 2018 (\$1 = £0.798)
 77. Harris et al., Has Persistence Persisted in Private Equity? Evidence from Buyout and VC Funds, 2014
 78. Harris et al. analysis conducted using performance data from Burgiss, containing a sample of 852 VC funds. The data contains information on all cashflows between LPs and the GP
 79. Kaplan & Schoar, Private Equity Performance: Returns, Persistence, and Capital Flows, 2005
 80. Kaplan & Schoar analysis conducted using performance data from Venture Economics, containing a sample of 577 VC funds with performance data. The data contains information on all cashflows between LPs and the GP
 81. Both Harris et al. and Kaplan and Schoar carry out the PME calculation by investing (or discounting) all cash outflows of the fund at the total return to the S&P 500 and comparing the resulting value to the value of the cash inflows (all net of fees) to the fund invested (discounted) using the total return to the S&P 500
 82. Cambridge Associates, US VC: Index and selected benchmark statistics, 2018
 83. Cambridge Associates Modified Public Market Equivalent (mPME) attempts to evaluate what return would have been earned had the dollars been deployed in the public markets instead of in private investments while avoiding the ‘negative NAV’ issue inherent in some PME methodologies

84. Wellcome Trust: £25.9bn AUM in 2018, 9.8% of assets allocated to VC/GE (24.8% to private equity overall). Source: Wellcome Trust, Annual Report and Financial Statements 2018, 2018
85. Yale Endowment: \$29.4 billion (~£23.5 billion) AUM in 2018, 19% of assets allocated to VC/GE. Source: Yale Investments Office, 2018 Endowment Update, June 2018 (\$1 = £0.798)
86. Investors and consultants (referenced as 'investors' throughout) included some of the world's largest pensions, endowments and fund-of-funds, with AUM of over \$76.5 billion and private markets AUM of over \$131 billion
87. Fund managers responding had AUM of over \$600 billion
88. For fund managers, the median expected return for VC was 20% (gross return). For investors, the median expected return was 14% (net return)
89. Ang, Illiquid Asset Investing, 2014
90. M&G Investments, Understanding the Illiquidity Premium, 2017
91. Investment risk is the probability or likelihood of occurrence of losses relative to the expected return on any particular investment
92. Ang et al. (2017) estimate a comparable 31.45% standard deviation for VC funds' returns
93. Oliver Wyman analysis using latest Preqin and British Business Bank proprietary data
94. Note, valuation approaches in the VC/GE industry could introduce an element of smoothing, which could reduce the calculated volatility
95. Oliver Wyman analysis using Preqin and British Business Bank proprietary data (Note: VC/GE funds are assumed to have achieved their reported fund-closing net IRR p.a. in each year of operation, as data limitations did not allow for inter-year valuation changes of individual funds, this smoothing is expected to have a second order effect on the fund level standard deviation)
96. This differs from the ~27% standard deviation in individual fund returns, as it is calculated across all funds in the entire market instead of for individual fund returns
97. Aberdeen Standard Investments analysis using Thompson Reuters, Bloomberg, and Burgiss data (31 June 1990 - 31 December 2018)
98. Kaplan et al, Venture Capital and its Role in Strategic Asset Allocation, 2002
99. 'Deficit' here is defined as the gap between the total contributions required for a DC Scheme member to reach their target replacement rate (i.e. their target level of income in retirement, relative to their salary at retirement), and current minimum contributions. Further details are provided below
100. Lifestyle strategy assumptions: 7.5% allocation to VC/GE until age 60, reducing linearly to 0% by age 65. Equivalent to ~5% weighted allocation over the entire accumulation period of the member, or a ~6% flat allocation throughout the entire period for a 22-year-old new member with no lifestyle strategy (assuming 6% premium over other investments)
101. Midpoint for the FCA's 'base' portfolio allocation. Note, the FCA base portfolio allocation is 60% equities, 20% government bonds, 10% corporate bonds, 7% property, 3% cash and money markets. See: FCA, Rates of return for FCA prescribed projections, 2017
102. Mid-point of typical observed range for VC/GE premiums over MSCI World (see sub-section above for details). The figures of 4% and 7% represent the (rounded) lower and upper quartiles of individual years' period-to-date average premium over the period 1970-2016. Oliver Wyman analysis using Preqin and proprietary British Business Bank data, MSCI World (1970-2016)
103. Median UK salary as per: ONS, 2019. Note, this only impacts on expected increase in retirement savings for those with an existing pension pot
104. Average annual growth rate of earnings, seasonally adjusted: ONS, 2019
105. Required annual total contributions (employer plus employee) from April 2019
106. DWP, Estimates of the number of people facing inadequate retirement incomes, July 2012
107. £15,000 initial salary in line with full-time minimum wage
108. Real income growth over entire working life, assuming 2% inflation. In line with nominal 2.85% average annual growth rate of earnings, seasonally adjusted. As per: ONS (2001-19)
109. Target replacement rate of 70% (i.e. band 2)
110. £20,000 initial salary in line with graduate-jobs.com average graduate salary £19,000-£22,000
111. Real income growth over entire working life, assuming 2% inflation (Equivalent to 3.55% nominal wage growth rate)
112. Target replacement rate of 67% (i.e. band 3)
113. The shortfalls in DC funding modelled here are similar in magnitude to those currently experienced by DB Schemes. In the two examples provided above, minimum contributions make up ~85% (A) and ~87% (B) of total contributions required to meet the given DC member's target replacement rate. For DB Schemes, recent TPR analysis found that the average ratio of assets to technical provisions (i.e. the current discounted value of future liabilities) is 88.5%. For further details, see: TPR, Scheme Funding Analysis, 2019
114. Average allocation weighted by pension pot size over the entire accumulation period of the member - achieved through a lifestyle strategy: 7.5% allocation to VC/GE for members aged below 60, allocation then subsequently reduces linearly to 0% by age 65
115. Midpoint for base portfolio allocation: FCA, Rates of return for FCA prescribed projections, 2017
116. Mid-point of typical observed range for VC/GE premiums over MSCI World (see sub-section above for details). 4% and 7% represent the (rounded) lower and upper quartiles of individual years' period-to-date average premium over the period 1970-2016. Oliver Wyman analysis using Preqin and proprietary British Business Bank data, MSCI World (1970-2016)
117. Required annual total contributions from April 2019
118. Inflated at 2% p.a. to produce state pension size on retirement
119. Band 1: 80% (0-15th percentile), Band 2: 70% (15-50th percentile), Band 3: 67% (50-75th percentile), Band 4: (75-90th percentile), Band 5: (90-100th percentile). See: Pensions Commission, Pensions: Challenges and Choices, 2004; DWP, Estimates of the number of people facing inadequate retirement incomes, 2012
120. Based on analysis of annual deal value on a country over the past ten years (based on nationality of portfolio company); Source: Preqin, 2019
121. HMT, Financing Growth in Innovative Firms: Consultation, 2017
122. Oliver Wyman analysis. See also: BVCA, Report on investment activity 2017, 2017
123. Oliver Wyman analysis of Preqin and BVCA data. See also: BVCA, Report on Investment Activity 2017, 2014-2017
124. The Study notes the large influx of capital from overseas investors in 2017, which was due largely to a significant increase in overseas pension fund and sovereign wealth fund investment in the UK. This increase was driven largely by several large investors, including the Abu Dhabi Investment Authority (ADIA), and the Canadian Pension Fund (CPPIB). Further details can be found in the BVCA's reports on Investment Activity
125. DWP, Pension Protection Fund (Pensionable Service) and Occupational Pension Schemes (Investment and Disclosure) (Amendment and Modification) Regulations 2018, 2018
126. BVCA, Responsible Investing Toolkit, 2019
127. Preqin, The Future of Alternatives, 2018
128. The PRI is the world's leading independent proponent of responsible investment. It works to understand the investment implications of environmental, social and governance (ESG) factors and to support its international network of investor signatories in incorporating these factors into their investment and ownership decisions

129. The Investment Association, Stewardship Reporting Framework, 2019
130. The majority of funds that use a hurdle rate use a 'catch-up' model for calculating carry. Further details are provided in Appendix C
131. Kaplan and Schoar, Private Equity Performance: Returns, Persistence, and Capital Flows, 2005
132. Harris, Jenkinson, Kaplan and Stucke, Has Persistence Persisted in Private Equity? Evidence from Buyout and Venture Capital Funds, 2014
133. Department for Work and Pensions, Investment Innovation and Future Consolidation: A Consultation on the Consideration of Illiquid Assets and the Development of Scale in Occupational Defined Contribution schemes, 2019
134. Types can broadly be categorised into either Bundled Schemes (Master Trusts and Contract-Based Insurers) or Unbundled Schemes (Occupational Trusts)
135. For details of costs included in the DWP Charge Cap, see: DWP, Investment innovation and future consolidation: a consultation on the consideration of illiquid assets and the development of scale in occupational defined contribution schemes, 2019
136. Oliver Wyman analysis using global Preqin and proprietary British Business Bank data (2002-18)
137. Further details on methodology and assumptions can be found in the Appendix
138. Oliver Wyman analysis using global Preqin and proprietary British Business Bank data (2004-16)
139. Net average returns of 'other' investments proxied using average return of MSCI World Index (2004-16)
140. For example, the S&P 500 Index fell ~20% between September 20th, 2018 and December 24th, 2018
141. Phantom shares give their holders the right to a cash payment at a designated time or in association with a designated event (e.g., achieving exceptional fund performance); these charges are paid by the investment manager, rather than being taken from fund returns
142. Baillie Gifford, Schiehallion Fund Prospectus, 2019
143. Partners Group, Generations Fund Documents, 2019; with approval from the Partners Group
144. In a 'pooled' Investment Vehicle, many Schemes would invest in a single Vehicle. This Vehicle would then invest in a range of VC/GE assets
145. DWP, Investment innovation and future consolidation: A consultation on the consideration of illiquid assets and the development of scale in occupational defined contribution schemes, 2019
146. The Pensions Regulator, DC Trust presentation of Scheme Returns Data 2018-9, 2019
147. Co-investment would involve a DC Scheme or Investment Vehicle making a direct investment into a company alongside a VC/GE fund investor
148. Direct investment would involve a DC Scheme or Investment Vehicle investing in VC/GE companies independently
149. A 'greenfield' project is one started from scratch without the foundation of any prior work
150. Implications relating to vehicle operations are further discussed in Chapter 4
151. In open-ended funds, the number of shares changes as capital flows in/out. Fund participants have the right to redeem/sell their interest in the fund at a price related to the NAV of the fund
152. Closed-ended funds have a fixed number of shares/units that are issued subject to company law/other constraints in fund constitution. Once issued, shares/units are usually only traded on a secondary market or redeemed on winding up the fund
153. ETF = 'Exchange Traded Fund'
154. OEIC = 'Open-ended Investment Company'; AUT = Authorised Unit Trust; ACS = Authorised Contractual Scheme
155. This Study proposes the use of regular share issuance and buyback (cf. Chapter 4.2) as a means of mitigating these difficulties, which is an effective, though arguably more complex means of managing capital in/outflows
156. An open-ended, unlisted vehicle could be, for instance, an OEIC, an Authorised Unit Trust, or an Authorised Contractual Scheme; however, the fundamental workings of these structures are not sufficiently differentiated for them to be addressed in this report
157. FCA, Consultation on Proposed Amendments to COBS 21.3 Permitted Links, December 2018
158. There is currently also a limit of 20% on the proportion of a unit-linked fund that can be invested in QIS. While not a significant barrier at present, proposed removal of this limit would also be positive
159. Investment Association, 2025 Vision Report, 2019
160. FCA, CP18/40: Consultation on proposed amendment of COBS 21.3 permitted links rules, 2018 (See Appendix for further details)
161. 'Permitted Links' rules apply to contract-based pension schemes that operate through unit-linked funds with life-insurers (this makes up a large proportion of Schemes). The rules specify the set of asset classes that are permissible for investment by such Schemes
162. Note: there would be no offsetting of the carry provision against any underlying funds that have yet to reach the hurdle rate of return
163. Note: requirements idiosyncratic to a given DC Scheme type 3 is outside the scope of this study
164. Although it is noted that there is no regulatory requirement for daily dealing
165. It is noted that this is only possible for certain kinds of open-ended vehicle (NURS operating limited redemption). See: FCA COLL 6.3
166. Exact timing of carry payments will depend on the specific LP Agreements
167. Where "fair value" is the price that would be received to sell an asset in an Orderly Transaction between Market Participants at the Measurement Date
168. An Investment Vehicle's liabilities would include any carry accrued against capital gains, or other funds owed by the vehicle
169. IPEV, Valuation Guidelines, 2018
170. NAV per unit is calculated as the net asset value of the Investment Vehicle, divided by the number of units (shares) in the Vehicle
171. Unit price of the Investment Vehicle is the price paid to buy/sell units in the Vehicle. It is not necessarily equal to NAV per unit
172. LSE Plc and Numis Investment Companies Research, 2019 (Note, this considers over 90% of London Listed Investment Company Universe of Numis Investment Companies Data)
173. This 'illiquidity discount' is to be expected, as shareholders take account of the fact that they would be unlikely to be able to realise the full fair value of all underlying holdings in the short term
174. For example, for contract-based DC Schemes offered by life insurers, the PRA demands, under the 'prudent person principle', that investments can be managed within the overall solvency requirements of the Scheme. The implication is that investment in illiquid assets should not compromise the overall ability of the DC Scheme to meet its funding requirements. See: PRA, The PRA Rulebook: Solvency II Firms: Investments Instrument, Ch. 2, 2015
175. The Pensions Regulator, Investment Guide for DC Pension Schemes, 2019
176. For example, TPR's Investment Guide for DC Pensions Schemes and the PRA's Prudent Person Principle
177. 'Professional investor' is defined as any institution or investor with sufficient investment education to access more 'sophisticated' financial products. This is defined as per the FCA's Handbook and is in accordance with the 'MiFID Org Regulation'
178. For example, most DC Schemes provide members with the option to select from a range of strategies when investing their retirement

- savings. The majority of members of DC Schemes remain in the default fund
179. Current FCA rules on gating depend on the legal classification of the open-ended vehicle. For vehicles categorized as a NURS, gating can be used for a maximum period of 6-months. For vehicles categorized as a QIS, there is flexibility to set dealing frequency, so long as it is outlined in the prospectus. Further details are provided in Chapter 3 and the FCA's Handbook
 180. FCA, Consultation on illiquid assets and open-ended funds and feedback to Discussion Paper DP17/1, 2018
 181. A closed-ended vehicle is one where the total number of shares remains fixed. See Chapter 3 for further details
 182. New capital that will increase the Net Asset Value of the vehicle, raised through a formal share issuance
 183. Tap Issuance: An agreed schedule of regular share issuances, effective for raising small sums of capital on e.g. monthly basis
 184. C Share Issuance: A means of raising larger sums of capital for investment without diluting existing shareholders. C Shares allow new capital to be raised in a separate share class, that will convert to ordinary shares as the new capital raised is deployed in underlying assets
 185. 'Carry' is a variable performance-based fee, paid out as a percentage of total capital gain (usually over a specified 'hurdle rate') at the end of the life of the fund
 186. Oliver Wyman and L&G analysis. In this scenario, the example members all had long-term holdings, held entirely during the 'established' phase: A (15 years), B (14 years), C (13 years), D (12 years), E (11 years)
 187. Oliver Wyman and L&G analysis. In this scenario, the example members all had short-term holdings, held entirely during the 'established' phase: F (2 years), G (4 years), H (2 years), I (4 years)
 188. Oliver Wyman and L&G analysis. In this scenario, the example members joined and left at different periods during the 'ramp-up' phase: J (5 years), K (4 years), L (3 years)
 189. Oliver Wyman and L&G analysis of a diversified VC/GE Investment Vehicle experiencing a 'ramp-up' phase and an 'established' phase. Modelling assumes (1) status quo fee characteristics for underlying funds (2% management fee, 20% carry, 8% hurdle); (2) recycling of closing funds; (3) variable fund returns and intra-fund year on year volatilities. Expected inequities were produced by comparing net returns and fees of members joining and leaving over different periods
 190. The 'J-Curve' effect is defined as the small dip in returns that investors may experience in the early life of a VC/GE fund, where there is initial outlay of cost and payment of fees, but fund investments have not yet seen valuation growth
 191. This includes, but is not limited to, administrative record keeping, regulatory and commercial reporting, operational infrastructure, and support teams, e.g. compliance, legal, marketing
 192. The 'J-Curve' is described across various dimensions, including Internal Rate of Return (IRR), cashflows and NAV/unit. It is also sometimes referred to as the "hockey-stick"
 193. Assuming an Investment Vehicle is an evergreen fund-of-funds investing in new fund vintages every year
 194. Assumptions: Realised returns from funds closing are recycled into new vintages; net price set at NAV/unit of Investment Vehicle (which reflects both management and performance fees)
 195. NAPF, Default fund design and governance in pensions, 2013. (Note: 'larger' Schemes are defined as those with more than 1,000 members.)
 196. Note: DC Schemes are not expected to resolve such difficulties for members that choose to leave the Scheme prematurely, for example, as a result of switching jobs. This approach is designed under the assumption that members do not leave the DC Schemes prior to retirement
 197. Note: there is existing market precedent for use of dilution adjustments; the Investment Vehicle would therefore be able to avail of this potential option
 198. It is noted that the Bid-Offer spread counts as an implicit cost; this does not factor into calculations of the charge cap or TER, but nevertheless can affect net returns to members if not managed carefully. See: The Pensions Regulator, Managing DC Benefits, Ch. 5: Value for Members, 2016
 199. Limited Partner/General Partner relationships (fixed-term closed ended vehicles) may employ equalization to ensure that all investors are treated as if they joined at the same time. This ensures that all members pay an equitable share of fees and costs (in proportion to their commitment size). While equalisation can eliminate the disincentives associated with the J-Curve phenomenon, it is not suitable for an evergreen Investment Vehicle
 200. An investment in which a fund interest or individual company holding is transferred from an existing investor, and as such is not made directly with the fund
 201. 'Commitment of capital' is the promise a sum of money to a fund for future investment; 'deployment of capital' is the act when the money so committed is actually invested in underlying assets
 202. This kind of arrangement for an open-ended structure will need to be worked out with DC Scheme investors on an individual basis; it would not be viable on a general commercial basis
 203. For instance, Pantheon International Plc draws on a short-term borrowing facility for this purpose. Source: Pantheon International Plc, Annual Report and Accounts, 2018
 204. This would involve buying out an original LP in a VC/GE fund, and taking over their position
 205. The Cost Transparency Initiative is a partnership between PLSA, The Investment Association, and LGPS Advisory Board that aims to provide a new institutional standard for institutional investment cost data. The initiative has created a set of templates and tools which together form a framework that investors can use to receive standardised cost and charges information from asset managers
 206. We expect the emergence of firms that meet investors' needs for analysis and data, analogous to those available for listed investments (e.g. Bloomberg)
 207. FCA, DP18/10: Patient Capital and Authorised Funds, 2018
 208. The Pensions Regulator, A guide to investment governance, 2018
 209. FCA, CP 18/27: Consultation on illiquid assets and open-ended funds and feedback to Discussion Paper 17/1, 2018
 210. FCA, CP18/40: Consultation on proposed amendment of COBS 21.3 permitted links rules, 2018
 211. The Investment Association, 2025 Vision, June 2019
 212. BVCA, Responsible Investment Toolkit, 2017
 213. UN PRI, UN PRI Reporting Framework, 2018
 214. The Investment Association, Stewardship Reporting Framework, 2019
 215. The Investment Association, Long Term Reporting Guidance, 2017
 216. Other reporting frameworks for responsible investing include the ESG Disclosure Framework (2013), the PRI Limited Partners Due Diligence Questionnaire (2015), and the ILPA Due Diligence Questionnaire (2018)
 217. HMT, Financing growth in innovative firms: one year-on, 2018
 218. For example, Yale Endowment Fund, Wellcome Trust
 219. This includes ~2000 VC/GE funds and ~3000 PE funds
 220. Note, each fund was classified as either VC or GE - there is no overlap between the two
 221. The internal rate of return (IRR) is a metric used to calculate the profitability of investments. The internal rate of return is a discount rate that makes the net present value (NPV) of all cash flows over the life of a fund equal to zero. Note, while this is typically the preferred method of performance reporting in the VC/GE industry, academic studies have often adopted a 'Public Markets Equivalent' adjustment to compare VC/GE performance with that of listed equities
 222. For example, see: BVCA, BVCA Private Equity and Venture Capital - Performance Measurement Survey 2017, 2018;

Cambridge Associates, US Venture Capital - Index and Selected Benchmark Statistics, 2019; Kaplan and Schoar, Private Equity Performance - Returns, Persistence and Capital Flows, 2005

223. Standard deviation is a statistical technique used to measure the average amount by which individual data points differ from the mean or, in this case, volatility in a market. Standard deviation was used to determine the spread of an asset's price/return from the average price/return
224. MSCI, [msci.com/world](https://www.msci.com/world), 2019. Note, MSCI World covers approximately 85% of the free float-adjusted market capitalization in each country. It does not offer exposure to emerging markets
225. The total return index was used - this tracks both the capital gains of the index over time, and assumes that any cash distributions (e.g. dividends) are reinvested back into the index
226. Compound annual growth rate
227. Cambridge Associates, 'US Venture Capital - Index and Selected Benchmark Statistics', 2018
228. The 'J-Curve' effect is defined as the small dip in returns that investors may experience in the early life of a VC/GE fund, where there is initial outlay of cost and payment of fees, but fund investments have not yet seen valuation growth
229. DWP, Investment innovation and future consolidation: a consultation on the consideration of illiquid assets and the development of scale in occupational defined contribution schemes, 2019
230. As defined and regulated by the FCA under Sourcebook COLL, 1.2, 2019, in accordance with the EU
231. Fund of Alternative Investment Funds (see Ch.3 or glossary for definition)
232. Contingent on FCA's proposed changes in Permitted Links to allow unit-linked funds to invest in assets that are not 'readily realisable in the short-term'; restriction of 20% for investment in QIS may also be removed as a result of the FCA proposals
233. London Stock Exchange, 2019

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