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Executive summary

The alternative investment industry, which now manages trillions of dollars, plays an increasingly critical role in society. It supports global capital markets, steers money towards attractive long-term and high-risk investments, promotes innovation, and improves how companies are governed and run.

Institutional and retail capital providers have increased their allocations to alternatives in the post-crisis years, whilst the industry has deepened its engagement with the wider financial sector in areas such as:

— the provision of debt capital (e.g. leverage for private equity buyout deals)

— the supply of market counterparties (e.g. for hedge funds executing trading strategies)

— essential services such as prime brokerage, record-keeping and M&A skills (e.g. for venture capitalists looking to exit a deal)

The complex set of relationships and dependencies within the financial sector mean that alternatives are impacted by regulations targeting both traditional financial institutions and alternative investment managers. Intended and unintended consequences for the industry, its beneficiaries, and society are the result.

For example, increased capital and liquidity requirements for banks and insurance companies have made it more expensive for them to hold risky assets on their books. As a result, alternative investors focused on infrastructure assets are finding that banks have a lower appetite for lending to such projects. Similar reasons have led banks to reduce their lending to small- and medium-sized enterprises (SMEs), a critical source of jobs. The result has been a growing number of alternative investment firms that raise private debt funds to supply SMEs with capital.

New bank capital and collateralization rules mean that it is more complex and expensive for banks to provide hedge funds with short-term financing. Together with reforms intended to shift over-the-counter (OTC) derivative trading onto exchanges and impose additional reporting requirements in pursuit of greater market transparency, this has made certain hedge fund strategies much less tenable. Proposed market reforms such as the financial transaction tax (FTT) in Europe and a number of other reforms that impact market liquidity have the potential to adversely affect alternative investment strategies.

Regulators have also seized the moment to reshape and strengthen the laws that directly govern the investment industry, including alternatives, in two important ways.

First, regulators have sought to improve the internal infrastructure and governance of investment managers, with increased institutional transparency being one of the primary objectives. New laws in the US and Europe require firms to report critical financial information, upgrade their operational and governance structures, use independent custodians for managing their assets, and maintain separate risk and valuation functions.

Second, regulators have sought to strengthen investor protections and increase product level transparency – concerning both risks and fees – for unsophisticated retail investors. These changes are important because the amount of capital flowing to alternatives from retail investors is predicted to grow sharply over the next decade. The new reforms are affecting many aspects of the alternative investment ecosystem.

- **Market liquidity:** Overall market liquidity will fall as a result of the regulations, which will negatively affect many alternative investment firms. However, in relative terms, they may be able to supply market liquidity, particularly during volatile periods.
- **Costs:** New regulations are imposing significant new operational, administrative, and transaction costs on alternative investment firms. Many of these will ultimately be passed on to institutional investors in the form of lower effective returns.
- **Innovation:** Regulations will reduce the quality and quantity of talent attracted to the traditional financial sector, with a resulting decline in innovative products and labour for the alternative investment industry to use or draw on.
- **Transparency:** The industry will be less opaque, improving the quality of decisions made by its capital providers and allowing the public to better judge how it should engage with alternative investment firms.
- **Barriers to entry:** Cost and regulatory complexity will create new barriers to entry for small and start-up firms that do not enjoy economies of scale in managing compliance expenses.
- **Access to capital:** Insurance companies and banks, may be constrained in their ability to provide long-term capital to the world economy. In addition, SMEs may struggle to access capital from traditional channels, though alternative investors are seeking to fill this gap.
- **Returns**: The new regulations have the potential to depress the profits available to the industry, potentially negatively affecting returns for its investors. However, the laws might spark business model innovation which could counter-balance this trend.

The effects will impact key stakeholders in different ways.

- **Alternative investors (GPs):** The new laws will increase the cost structure for most GPs, but the industry will benefit in the form of deeper relationships with LPs and potentially greater understanding and trust by the public. The business models employed by some hedge funds will be challenged, but the laws are also creating new opportunities for alternatives to expand, particularly within the private debt space.
- **Investors in alternatives (LPs):** Some traditionally active LPs (insurance companies and banks) will find it increasingly difficult to invest in alternatives, but most LPs will benefit from reforms that enable them to make better investment decisions, deepen their relationship with the industry, and reduce their cost of investing in alternatives.
- **The broader economy and the public:** The increased transparency of the industry will improve the understanding of alternatives and support a reduction in fees, whilst a reallocation of talent away from the financial sector might benefit the broader economy. However, increased transaction costs may offset some of the reduction in fees for LPs. In addition, SMEs and infrastructure may struggle to raise capital if new alternative investment funds are unable to fill the gap left by banks.

The largest and most complex overhaul of financial regulations since the 1930s has benefited society in many ways. It has also had a range of intended and unintended consequences for the alternatives industry, its beneficiaries, and society overall. The importance of alternatives to the global economy means that policy makers may wish to explore these consequences further, and mitigate undesirable outcomes wherever possible.

This means improving awareness of the connections between the alternatives industry and the wider financial industry, monitoring changes that occur as a result of regulatory reforms, and refining reforms where they negatively impact areas such as innovation, long-term investment, access to capital, or returns to capital providers.

Introduction and scope

Over the past thirty years, the alternative investment industry has grown to become an important part of the global financial system and economy. The process of investing requires engaging with investment banks, insurance companies, wealth and asset managers, rating agencies, exchanges, and custodians, and clearing houses. The outcome of the investments they make affect the funding levels of pension funds, sovereign wealth funds, endowments and foundations, and the millions of individuals on behalf of whom these institutions invest.

The industry proved resilient during the financial crisis and emerged stronger than before, but the same cannot be said for the traditional financial sector. Governments across the world responded by overhauling regulations governing the global financial system. It is too soon to fully tell how effective they will be or what unintended consequences they will have.

The goal of this report is to provide readers in the regulatory and policymaking communities and financial and investment industries with a perspective on how the new financial regulations have affected alternative investors and its beneficiaries thus far and how they may impact the industry going forward. The report is broken into three parts.

1. **Overview:** We review the new regulations that affect the banking and investment industries. We explain why the regulations were introduced, what they hope to achieve, and what aspects of the traditional and alternative investment systems will be affected by the changes.

2. **Impact:** We analyse how regulations have already impacted the alternative investment ecosystem and how they may affect it in the future. We focus on changes that affect topics such as liquidity, barriers to entry, operational costs, transparency, innovation, and returns.

3. **Implications and recommendations:** We assess what the changes mean for stakeholders such as alternative investors, capital providers, and the public. We conclude with recommendations for policymakers on how regulations could be refined in order to benefit society as whole.

This report assumes a familiarity with alternative investments, how they connect with the financial system, and their importance to society. However, for those more familiar with the traditional financial sector, we have included excerpts that cover these aspects from another report in the Alternative Investments 2020 series, *An Introduction to Alternative Investments*. Readers interested in an-depth overview of the industry are encouraged to read the full report.

For the sake of clarity, we will use the nomenclature below to describe key stakeholders:

Term	Description
LPs (Limited partners)	Asset owners that provide capital to alternative investment firms or divisions to invest on asset owners' behalf
GPs (General partners)	Firms that deploy capital in companies or securities on behalf of LPs/capital providers (such as private equity buyout or venture capital firms, or hedge funds)
Institutional investors	A subset of LPs comprised of institutions that invest capital with GPs (such as pension funds, endowments and foundations, and financial institutions)
Retail investors	A subset of LPs comprised of individuals that invest capital with GPs (such as high net worth or non-wealthy individuals or family offices)
Investors	An inclusive term that includes both GPs (who invest in securities and companies) and LPs (who may invest with GPs or directly in securities or companies)

Section 1

Overview of regulatory changes

The US and Europe are nearing the completion of the largest overhaul of financial regulations since the Great Depression. The changes affect every aspect of finance (Figure 1) and collectively they seek to ensure a more stable global financial system. This section provides an overview of how the new laws directly (investment regulations) and indirectly (bank and market regulations) affect the alternative investment ecosystem (Figure 2).

> "Banks are being incentivized to hold lower-risk assets that are more likely to hold their value during a crisis, thus preventing liquidity or solvency issues for the institution."

Figure 1: Overview of financial reforms in the United States and Europe by area

Regulatory reform	Legislative region	Leverage limits	Collateral requirements	Liquidity requirement	Central clearing	Proprietary trading / private equity limits	Trading tax	Brokerage fee limits	Deposit and reporting requirements	Compensation limits
Dodd–Frank Wall Street Reform and Consumer Protection Act, *(Dodd-Frank)*	United States	●	●	●	●					
§ 619 (12 U.S.C. § 1851) of the Dodd-Frank Act *(Volcker Rule)*	United States					●				
Foreign Account Tax Compliance Act *(FATCA)*	United States								●	
Third Basel Accord/Capital Requirements Directive *(Basel III/CRD IV)*	European Union	●	●	●				●	●	●
Undertakings For The Collective Investment of Transferable Securities V *(UCITS V)*	European Union								●	
Alternative Investment Fund Managers Directive *(AIFMD)*	European Union								●	
Solvency II Directive *(Solvency II)*	European Union	●	●							
Markets in Financial Instruments Directive II *(MIFID II)*	European Union							●	●	
European Market Infrastructure Regulation *(EMIR)*	European Union		●		●				●	
European Commission's Liikanen proposals (Liikanen proposals)	European Union					●				
Financial Transaction Tax *(FTT)*	European Union					●				
Packaged Retail Investment Products *(PRIPS)*	European Union								●	
International Financial Reporting Standards *(IFRS)*	United States / European Union		●						●	
Retail Distribution Review *(RDR)*	United Kingdom							●		

Source: World Economic Forum Investors Industries

● Areas affected

Figure 2: Implications of regulatory changes for different actors

Regulatory reform	Legislative region	Banks	Asset managers	Insurance companies	Pension funds	High-net worth / Retail investors	Hedge funds	Private equity	Venture capital
Dodd–Frank Wall Street Reform and Consumer Protection Act, *(Dodd-Frank)*		◆					☐	☐	
§ 619 (12 U.S.C. § 1851) of the Dodd-Frank Act *(Volcker Rule)*		◆					☐	☐	☐
Foreign Account Tax Compliance Act *(FATCA)*		◆	◆			◆	☐	☐	☐
Third Basel Accord/Capital Requirements Directive *(Basel III/CRD IV)*		◆	◆				☐	☐	
Undertakings For The Collective Investment of Transferable Securities V *(UCITS V)*			◆			☐	◆		
Alternative Investment Fund Managers Directive *(AIFMD)*			◆				◆	◆	☐
European Commission's Liikanen proposals (Liikanen proposals)		◆					☐	☐	☐
Solvency II Directive *(Solvency II)*				◆			☐	☐	
Markets in Financial Instruments Directive II *(MIFID II)*			◆				☐		
European Market Infrastructure Regulation *(EMIR)*		◆	◆	◆			☐		
Financial Transaction Tax *(FTT)*		◆	◆				☐		
Packaged Retail Investment Products *(PRIPS)*		◆	☐	☐		◆	☐		
International Financial Reporting Standards *(IFRS)*		◆			◆			☐	
Retail Distribution Review *(RDR)*			◆			◆			

Source: World Economic Forum Investors Industries

◆ Primary target ☐ Also affected

1.1. Overview of bank and market regulations

Bank and capital markets focused regulations

EU: European Market Infrastructure Regulation (EMIR)

The EMIR was established to govern the over the counter (OTC) derivatives market in the EU. It introduced a series of new rules and reporting requirements for how bilaterally and centrally cleared derivatives should operate.

EU: European Commission Financial Transaction Tax (FTT)

The FTT, which would apply to 11 nations within the EU, is still being negotiated. The proposed legislation would institute a tax on financial transactions, such as the sale of stocks, bonds, or derivatives.

EU: European Commission's Liikanen proposals (Liikanen proposals)

The Liikanen proposals focus on establishing regulations that determine the scope of activities that the 29 largest banks in the EU can engage in. Similar to the Volcker Rule, if adopted, the Liikanen proposals would restrict these banks from engaging in proprietary trading and prevent them from owning internal investment arms.

EU: Third Basel Accord / Capital Requirements Directive IV (Basel III/CRD IV)

Basel III and the related implementing legislation, known as CRD IV in the EU, introduce a wide range of updated standards for the global banking system. Areas of focus include new capital, liquidity, leverage, collateral, and reporting requirements and new compensation guidelines.

Global: International Financial Reporting Standards (IFRS)

IFRS are the global accounting standards that determine how most companies and financial transactions are reported. A number of standards, including those relating to collateral, were updated following the financial crisis.

US: Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank)

According to US President Barack Obama, the Dodd-Frank Act, is a "sweeping overhaul of the financial regulatory system…on a scale not seen since the reforms that followed the Great Depression."[1] The legislation focuses on the traditional financial system and includes regulations that govern capital markets, the banking system, and consumer finance and investments in the US.

US: Volcker Rule (part of the Dodd-Frank Act)

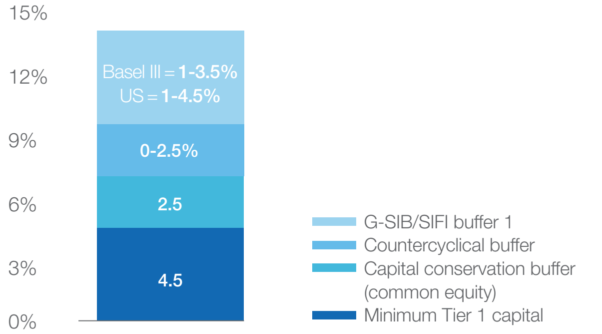
The Volcker Rule, part of the Dodd-Frank Act, restricts the ability of banks to use client capital to generate profits for the bank through investment or trading related activities. It also limits their ability to own internal investment arms, which historically included private equity buyout, venture capital, or hedge fund arms.

1.1.1. Bank capital and leverage requirements

Following the financial crisis, regulators have sought to increase the amount of capital held by financial institutions, which reduces the risk of an institution failing during a future financial crisis. The US (Dodd-Frank) and Europe (Basel III/CRD IV) accomplished this by increasing Tier 1 capital requirements. The concern that large and interconnected institutions may be "too big to fail" also led regulators to identify systemically important institutions and impose additional capital requirements (Figure 3), with different levels determined by Basel III and the US Federal Reserve for each institution based on a range of risk factors. Regulators are also requiring banks in the US and Europe to adhere to leverage ratios (Figure 4). Unlike Tier 1 capital requirements, which use risk-weighted assets as part of the formula for computing bank capital, leverage ratios are driven by simple asset volume and are thus unaffected by banks' internal risk models.

Figure 3: Minimum risk weighted Tier 1 capital ratios[2]

Basel III + US capital ratios, % of assets



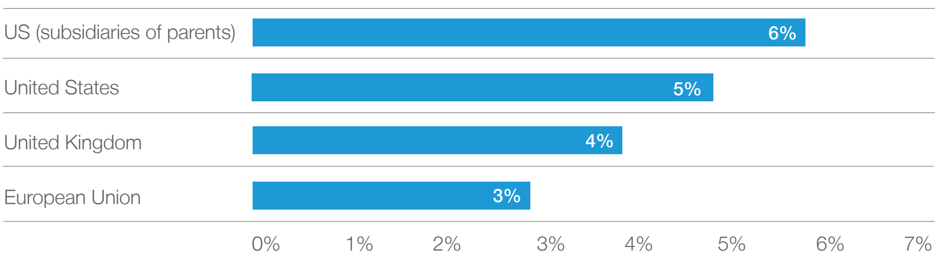
Source: Basel Committee on Banking Supervision, US Federal Reserve Board

1.1.2. Bank liquidity and collateral requirements

Banks are being incentivized to hold lower-risk assets that are more likely to hold their value during a crisis, thus preventing liquidity or solvency issues for the institution. In the US and Europe banks are now required to maintain a 30-day supply of cash and liquid securities. They must also adhere to updated IFRS guidelines that define whether assets can be counted towards the liquidity requirements (Figure 5). The new rules are stricter than before and reduce the credit given to structured products, which played an important role in the recent crisis. Similarly, the risk weightings applied to collateral have been tightened, with regulators incentivizing banks to hold instruments that are considered to be both liquid and low risk (Figure 6).

Figure 4: Leverage ratio (unweighted Tier 1 bank capital required)

Leverage ratio – Unweighted Tier 1 bank capital, % of assets



Source: World Economic Forum Investors Industries

Figure 5: Overview of how different kinds of assets count towards liquidity requirements

30-day supply of cash/liquid assets

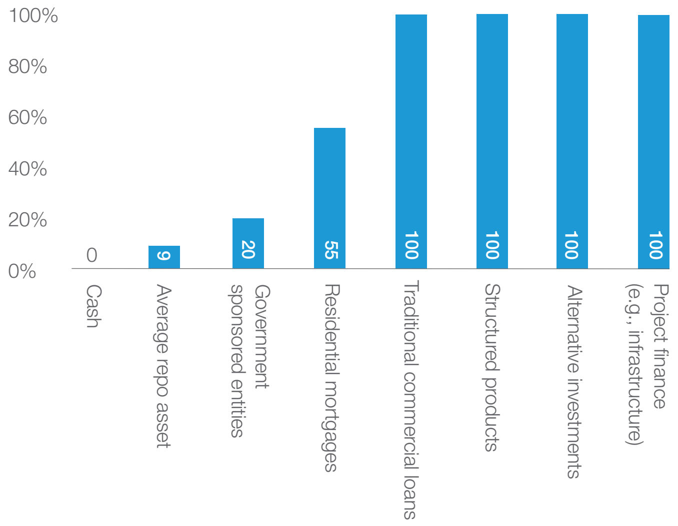
Tier	Tier 1	Tier 2a	Tier 2b
Coverage	Full credit	Partial credit	Lowest credit
Asset covered	Cash and sovereign debt	GSE securities[1]	Other assets

[1] GSE = Government sponsored entity (e.g., Fannie Mae, Freddie Mac)

Source: World Economic Forum Investors Industries

Figure 6: Risk-adjusted weighting as a percentage of different types of assets

Risk-adjusted weighting, % of asset value



Source: World Economic Forum Investors Industries

1.1.3. Over the counter derivatives

Regulators have tried to reduce the risk associated with the opaque and bespoke market of OTC derivatives. In the aftermath of AIG's sudden and immense losses tied to derivatives contracts, the US passed the Dodd-Frank Act and Europe introduced the EMIR. The new laws resulted in the standardization of many contracts, an increase in the number traded on third-party and central exchanges, and extensive new reporting requirements. Derivatives must now be marked to market each day and firms are required to post collateral that meets requirements similar to those imposed on banks. The aim is to reduce counterparty risk and provide greater transparency into the market, preventing the build-up of large and systemically important positions that are unknown to regulators or the market.

1.1.4. Money market funds

Money market funds are another area where regulators are seeking to reduce systemic risk. During normal times these funds represent a relatively anonymous, highly liquid, and critical source of short-term capital for the banking system and hedge funds, which is typically accessed through repo agreements. However, during a crisis, mark to market losses suffered by funds holding illiquid assets can result in runs, and at worst a liquidity crisis in the financial system. The US Securities and Exchange Commission (SEC) adopted new rules aimed at improving the stability of the system. They require institutional prime money market funds to use market based floating net asset values (government and retail funds will be exempt from this rule), allow funds to impose liquidity fees and suspend redemptions during periods of market upheaval, and require funds to provide greater transparency to investors with regard to the assets held.[3] Europe is also in the process of revising rules for money market funds, with similar liquidity, accounting, and transparency requirements – though there will likely be three different categories of money market funds, with slightly different rules for each type.[4]

1.1.5. Financial trading tax

Following the crisis, the EU's European Commission (EC) proposed a financial transaction tax, with three objectives. It would harmonize indirect tax legislation, ensure that the financial industry made a "fair and substantial contribution," and "create appropriate disincentives for certain transactions," a reference to high-frequency trading firms.[5] It would also generate an estimated €30 billion[6] in taxes. The original scope of the proposal has been narrowed due to legal concerns that it could not be applied to transactions outside of the EU. In addition, the number of nations within the EU that would be party to the proposed framework has fallen to 11, with countries such as the UK, Sweden, the Netherlands, and Denmark expressing their concerns that it would prove detrimental to financial markets. The passage of the 11 nation proposal may remain pending, but Germany has elected to move forward with related legislation that requires high-frequency trading firms to register with and receive approval from the national regulator, BaFin in order to operate.[7]

1.1.6. Transparency

Regulators are further trying to reduce systemic risks by increasing the level of transparency throughout the financial system. Laws such as Dodd-Frank in the US and Basel III and EMIR have introduced a series of new reporting requirements that help regulators assess the stability of individual firms and the system as a whole. In the US, efforts are led by the Federal Reserve and the newly created Financial Stability Oversight Council, whilst the European Banking Authority and the recently formed European Systemic Risk Board engage in similar work. The introduction of bank stress tests in both the US and Europe, which resulted in many institutions needing to raise additional capital, is one example of how this new information is being used.

1.1.7. Incentives within banks

Governments in Europe have sought to address concerns that bonuses based on short-term profits result in banks taking excessive risks over the mid-term, underwritten by the public purse. CRD IV introduced limits on the type and nature of compensation provided by banks, capping bonuses to no more than 100% of the fixed salary or up to 200% if the majority of the board approves. The United Kingdom remains opposed to any such limits, but it appears that the compensation limits will remain in the final language. No such limits exist in the US, making compensation one of the few areas of financial reform where there is no broad agreement in principle between European and US approaches.

1.2. Overview of investment regulations

Investment focused regulations

EU: Alternative Investment Fund Managers Directive (AIFMD)

AIFMD introduces new reporting requirements for alternative investment firms that manage, invest, or market funds in Europe must adhere to if they wish to operate in the EU.

EU: Markets in Financial Instruments Directive (MiFID II)

MiFID II is the newly revised regulatory framework that governs how financial intermediaries and service providers manage, trade, and reports their handling of financial instruments on behalf of clients in the EU.

EU: Packaged Retail Investment Products (PRIPs)

PRIPs sets the documentation standards for packaged investment products that asset or wealth managers, banks, insurance companies, or other financial institutions must provide to retail investors within the EU.

EU: Solvency II Directive (Solvency II)

Solvency II is the updated version of the regulations that govern the insurance industry in the EU. A primary focus of the legislation concerns the capital requirements that companies must adhere to.

EU: Undertakings for Collective Investment in Transferable Securities V (UCITS V)

UCITS V is the latest update to the reporting and operating regulations that govern how traditional investment funds are permitted to operate across the EU.

UK: Retail Distribution Review (RDR)

The RDR is a new law that establishes the guidelines for how investment advisors in the UK can engage with retail investors and how they are allowed to be compensated for their services.

US: Foreign Account Tax Compliance Act (FATCA)

FATCA requires individuals and financial institutions across the world to report the assets held by US persons (resident and non-resident) on an annual basis, with the objective of minimizing offshore tax evasion.

US: Jumpstart Our Business Startups Act (JOBS)

The JOBS Act sets new and reduced regulatory requirements for companies in the US seeking to raise capital, go public, or remain private.

1.2.1. Transparency and reporting

Regulators in the US and Europe are seeking to improve the transparency of the investment industry. Their intention is to protect consumers and prevent systemic risks from building up in an opaque fashion. Historically, alternative investors have not been subject to the same level of reporting requirements as traditional investment firms, but that changed with passage of Dodd-Frank and FATCA in the US and AIFMD and EMIR in Europe. The laws are broad in scope and affect most alternative investors across the world.

Dodd-Frank requires all alternative investment firms operating in the US register with the SEC, providing detailed information on how the firm is organized and operates and who invests with the firm.[a] However, unlike for listed companies, the SEC does not make information provided by alternative investors available to the public. FATCA is even broader in scope, requiring all GPs in the world that manage money on behalf of US persons to track and report the value of their investments to the US government. Outside the US, 42 other governments, including the EU and the United Kingdom, are seeking to enact laws that mirror the standards listed in FATCA.[8]

AIFMD requires that any fund seeking to invest or raise funds from individuals or institutions based in Europe must be domiciled in the EU or in a country that has been approved by EU regulators to participate in the passport process. Funds must track and provide the EU with a wide range of critical organizational and operational information. EMIR is much narrower in scope, primarily affecting hedge funds. The law requires that all over-the-counter derivative contracts are reported to regulators by both counterparties.

1.2.2. Institutional governance

Regulators in the US and Europe are pushing alternative investment firms to upgrade their governance structures and operating procedures. Dodd-Frank and AIFMD require them to appoint a chief compliance officer, implement a compliance program with formal policies and procedures, and conduct regular risk assessments and stress tests. AIFMD also mandates firms to use independent depositories when managing client funds, which in turn have their own governance and record keeping requirements.

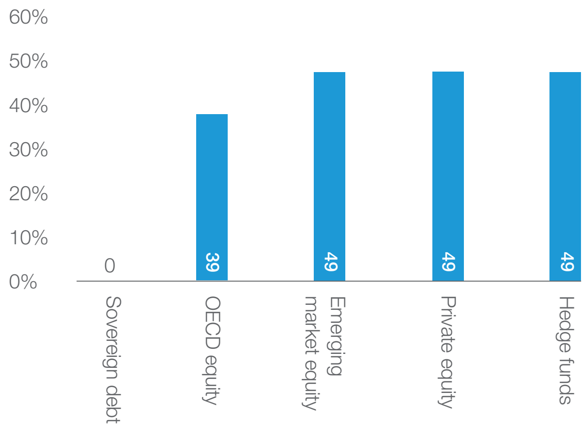
European regulators are instituting compensation limits for stand-alone asset managers, in an effort to better align the interests of investors and traditional asset managers. AIFMD and UCITS V would delay receipt of 40-60% of any bonus for three years, depending on the size of the bonus, and require 50% of bonuses to be paid in units of the fund overseen by the manager. The multi-year horizon reduces the incentive to generate short-term returns at the expense of long-term risks. However, unlike the limits governing European banks or their asset management arms, senior managers at stand-alone investment firms will not be subject to any hard caps on compensation.

1.2.3. Risk reduction for institutional investors

The near-collapse of AIG in 2008 during the global financial crisis gave EU regulators the impetus to update laws governing insurance companies into a single European-wide set of regulations under Solvency II that aims to boost resilience of insurance companies. The law updates the absolute levels of capital required and the risk weightings associated with each type of asset, reducing the risk profile of insurers by incentivizing them to hold investments perceived to be liquid and low risk. Sovereign debt will require far less capital than alternative investments such as private equity or hedge funds (Figure 7). Similar requirements were proposed for pension funds, in the form of the Institutions for Occupational Retirement Provision II (IORP II) directive, but they were ultimately not enacted in response to concerns that such risk restrictions would prevent pension funds from garnering the returns necessary to meet their liabilities.

Figure 7: Amount of Solvency capital required (SCR)[9]

Standalone capital requirements, %



Source: Allianz

1.2.4. Consumer protection

Historically, the alternative investment industry has not had to concern itself with consumer protection laws. However, consumers are increasingly seeking to invest in alternatives through mutual funds or related products, such as liquid alternatives. This retailization trend, described in detail in a sister report, *Alternative Investments 2020: The Future of Alternative Investments*, means that alternative investors need to monitor the efforts of regulators to strengthen the laws governing retail investors and investment products. The EU, UK and US have recently passed laws that will likely affect the alternative investment ecosystem.

[a] Operating in the US includes marketing to investors, maintaining staff in, or investing in the US; exemptions exist for venture capital firms, US based non-VC alternative investment firms with less than $150 million in AUM, and foreign non-VC alternative investment firms with less than $25 million in AUM are exempt from registration.

In the EU, the PRIPs reform introduces greater transparency into the retail investment market. A critical component of the proposal is the requirement that all packaged investment products include a Key Information Document (KID). This is a standardized non-technical document designed to allow retail investors to easily compare investment costs, expected risks, and performance data. An additional proposal covers the provision of an online calculator, enabling retail investors to easily compute, compare, and understand the fees charged for any given investment product. The act does not directly apply to alternative investment products, but the increased requirements and heightened regulatory activity will be of note to the industry as it expands into the retail space in the future.

Parts of the UK asset management industry are already being reshaped as a result of the passage of the RDR, which requires that investment firms unbundle fees and charge for their services upfront. Historically, retail investors were not charged for receiving investment services from a broker, but instead were charged fees on the products they invested in. A share of these fees was then refunded to the broker, which provided an economic incentive to encourage clients to invest in the products that yielded the highest rate of return for the broker. The misalignment in incentives meant, for example, that brokers had little incentive to offer low-cost ETFs relative to higher margin products. The RDR increases transparency in the industry, helping retail investors to compare products and firms and understand the cost of investing in each. The RDR, like PRIPS, does not yet have much impact on the alternative landscape, but it does demonstrate a trend towards increased transparency that the industry will need to consider in the future.

In the US, the impact of consumer protection laws is having a more immediate effect on the alternative investment industry. The JOBS Act removed restrictions that had prevented alternative investment funds from advertising to the general public or the accredited investors that are permitted to invest in such funds. Simultaneously, the SEC opened an investigation into the rapidly growing market for liquid alternatives and alternative mutual funds.[10] Many of the products and distribution channels that alternative investors might use to access retail capital in the future are covered by the investigation. Its conclusions may therefore be of direct relevance to alternative investment firms' strategies.

Section 2

Impact of regulations

Having reviewed the intent of the various financial reforms, we now turn to assess their direct and indirect impact on the alternative investment ecosystem. First, we will focus on how the reforms affect the broader financial system and its interface with alternative investors. Second, we will review how the reforms directly affect the alternative investment ecosystem.

> "New regulations have resulted in banks significantly reducing the amount of liquidity that they provide to the market."

2.1. Impact on the financial system

2.1.1. Market liquidity

Many alternative investors rely on liquid markets to operate. For example, hedge funds are an important user and provider of liquidity for a wide range of assets, whilst many different types of private equity and venture capital firms rely on capital markets to fund their acquisitions or provide exit opportunities when they sell. Yet recent regulations had the effect of reducing market liquidity in several areas.

2.1.1.1. Impact of capital requirements on provision of liquidity by banks

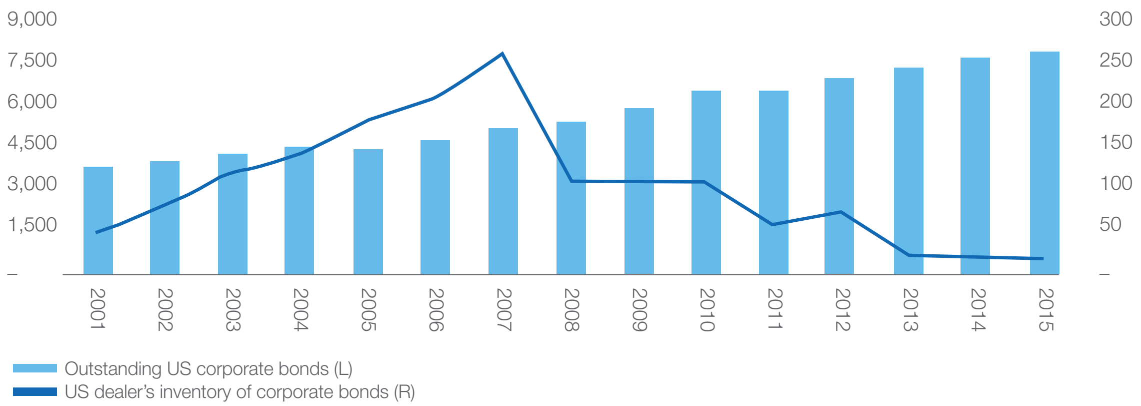
New regulations have resulted in banks significantly reducing the amount of liquidity that they provide to the market. For example, the primary dealer inventory of US corporate bonds held by banks has fallen by more than 80% since 2008 (Figure 9), whilst their share of the US Treasury market has fallen more than 50%.[11]

The fall in liquidity is due to several reasons. First, the Volcker Rule forced banks in the US (and potentially Europe, if the Liikanen proposals are adopted) to disband their proprietary trading units. Second, Basel III and Dodd-Frank made it notably less profitable to hold many types of assets on their books. Third, banks reduced the risk of not having enough Tier 1 capital during future crises by reclassifying assets as "held to maturity", instead of as "available for sale" (Figure 10). The former cannot be easily traded, whilst the latter need to be marked to market and thus increase the risk of creating capital shortfalls during turbulent periods.

Recognizing the underlying market need and the opportunity that it presents, hedge funds have responded by establishing liquidity platforms. Citadel, a large hedge fund, has built a platform capable of serving as a market maker for many securities. It now accounts for 14% of US daily stock volume, 20% of US listed stock options volume, and it is a top five firm in US Treasury futures and US interest rate swaps.[12] Hedge funds have also provided liquidity during periods of stress. US regulators, investigating wild swings in the US Treasury market in October

Figure 9: Inventory has declined significantly, whilst outstanding debt continues to rise[13]

Outstanding and inventory of US corporate bonds[1], $ billions

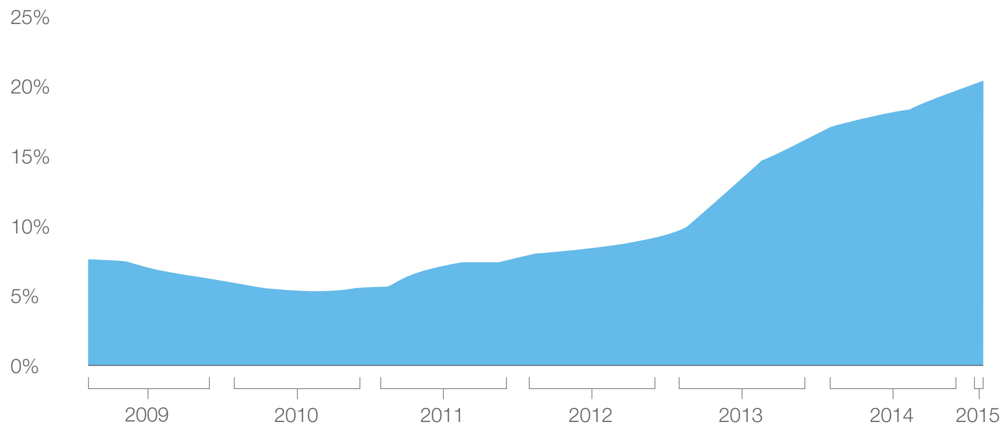


[1] Primary Dealer Statistics, Net Positions in Corporate Bonds as of June 3, 2015. Outstanding U.S. Corporate Bonds as of March 31, 2015.

Source: Federal Reserve Bank of New York, SIFMA

Figure 10: Inventory of assets marked as "held to maturity" by banks soars

Total held-to-maturity securities for commercial banks in US, % of all securities



Source: St. Louis Federal Reserve Bank

2015, discovered that hedge funds accounted for more than 70% of all trading activity during a crucial period of stress in the market, a time when many other providers reduced their participation.[14]

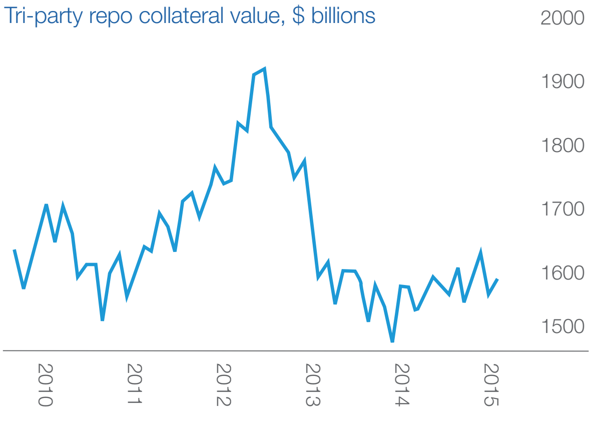
2.1.1.2. Impact of capital and collateral requirements on short-term lending markets

The impact of regulations such as Basel III, EMIR, Solvency II, and Dodd-Frank on liquidity in derivatives markets is less clear. The new regulations resulted in far more derivatives being traded on central exchanges, which have rigorous capital and collateral requirements. The availability of the high quality collateral required for such platforms has been affected by the quantitative easing policies of central banks, with the European Central Bank alone scheduled to acquire €60 billion of high quality collateral each month until September 2016.[15] It is estimated that the industry has a collateral shortfall against upcoming regulatory requirements of some $4-5 trillion globally and that number would double to $9 trillion with ratings cuts.[16]

In 2014, researchers at the London School of Economics found that tighter collateral requirements could make it difficult for investors to maintain their current levels of trading.[17] Earlier this year, Dennis McLaughlin, the chief risk officer for LCH.Clearnet, the largest interbank swaps clearer in the world, warned that LCH.Clearnet "could reach a point at which it has to stop accepting new trades for clearing, as they will be unable to conduct some $150bn of client funds through the market each day."[18]

The ability of hedge funds to provide liquidity is also undermined by new capital and leverage requirements imposed on banks. The laws increased the cost to banks of providing repo agreements, which has led to banks such as Goldman Sachs, Barclays, Bank of America, and Citi reducing their repo activity (Figure 11).[19] Such funding is critical for hedge funds, as repo agreements account for 47% of the capital that hedge funds borrow.[20] Barclays estimates that the changes increase the cost of funding for hedge funds in general by 10-20 bps, but highly leveraged strategies, such as fixed income arbitrage, can expect costs to increase by 40-80 bps.[21] Obviously, this would reduce the profitability of trades, in turn reducing their volume.

Figure 11: Repo volumes have fallen in recent years[22]



Source: Federal Reserve Bank of New York

While the new regulations obviously impact on liquidity and collateral availability for short-term lending markets, they also have served to increase market stability and confidence. This might ultimately mitigate their adverse impact for the across-cycle benefit of market participants. In the eyes of prominent regulators, it is a short-term price worth paying for the long-term good.

2.1.1.3. Impact of trading tax on liquidity provided by alternative investors

The proposed European FTT also has the potential to significantly reduce the liquidity that hedge funds provide to many markets, in addition to affecting interbank markets. The impact on equity markets in Europe could be substantial, as hedge funds utilizing high frequency trading techniques account for up to 50% of all trades on European stock exchanges.[23] Moreover, the International Capital Markets Association found that it could result in a 66% decline in the repo market[24] and the European Commission estimated that derivatives trading would fall by 75%.[25] The former was of particular concern, as a member of the governing council of the European Central Bank, Christian Noyer noted that: "The most important concern for the central banks [is] the risk of the total drying up of repo markets. That means the transmission of our monetary policy would be seriously impaired and the risk in terms of financial stability would not be negligible."[26]

2.1.2. Innovation

The creation of long-term value in any industry ultimately stems from its ability to attract and retain the best and brightest and for new ideas to be tested in the marketplace, either within an existing firm or by the creation of a new one. The new regulations seek to create a more robust and stable financial system that explicitly should be more "boring" than in the past. In doing so, they may impair the ability of the traditional financial sector to attract the talent required for innovation. This is relevant, as historically alternative investors have made extensive use of innovations tested by investment banks such as commodity-driven derivatives, interest rate swaps, and credit default swaps, high yield bonds and leveraged loans, and the repo market.

Compensation is a critical component for attracting and retaining human capital, which is why industry participants question the wisdom of placing hard limits on how banks can compensate their employees, which is what Basel III does. The limits only apply to banks in the EU, but not to stand-alone EU asset managers or financial institutions in the US or elsewhere. Even within the EU, there is discord, as asset managers at EU based banks are subject to a different set of compensation limits than their peers at stand-alone asset managers, which are governed by new limits proposed in UCITS V. The lack of consistency leaves EU banks and their asset management divisions at a disadvantage when competing for talent, the most important source of innovation.

The impact of new regulations can already be seen in the marketplace. The reduction in risk appetite and profitability has led the five largest US investment banks to reduce staff by 40,000 since the financial crisis, a decline of nearly 30%.[27] Asset managers and recruiters have noted a significant shift in talent from investment banks towards stand-alone traditional asset managers, which have had few new restrictions added to them since the financial crisis.[28] Moreover, the share of talent entering investment banks from top MBA programs such as Harvard, Wharton, LBS, Booth, and INSEAD have fallen by more than 50% from 2007 to 2013 [29] and many banks have felt obliged to improve the work/life balance of junior banking staff in order to attract new hires.[30, 31]

2.2. Impact on the alternative investment ecosystem

2.2.1. Innovation

The decline in the quantity and quality of talent flowing into the banking sector noted earlier may also reduce the degree of innovation that takes place within the alternatives industry. The industry has long relied on the traditional financial sector and investment banks in particular as a critical source of talent. Having worked at the heart of the financial system, new hires bring specific, relevant, and timely knowledge and ideas to an existing fund or start their own. Individuals who move are rewarded with nimbler and leaner organizational structures in which to utilize their ideas and compensation structures that allow them to capture a greater share of the value they create than would be the case at a bank. This benefits even the financial institutions losing talent, as the alternative investment industry typically outsources a significant amount of their operations to banks, paying high fees.[32, 33]

The influence of experience in banking is particularly strong amongst hedge funds and private equity firms. Most of the largest private equity firms in the world, including the Blackstone Group, KKR, Apollo Global Management, and TPG Capital, and more than half of the 25 largest hedge funds, include founders with prior experience in banking.[34] Given that most alternative investment firms have fewer than 100 investment professionals,[35] the industry has long relied heavily on hiring pre-trained staff at all levels of the organization (Figure 12).

Figure 12: Talent sourcing flow for alternative funds

Bank Division	Alternative Fund
Investment banking	Private equity related asset classes[1]
Sales & trading	Hedge funds
Research & asset management	Hedge funds

[1] Includes private equity buyouts, real estate, infrastructure, and private debt

Source: World Economic Forum Investors Industries

2.2.2. Operational cost

The cost of operating an alternative investment firm has increased as a result of regulatory changes and demands by LPs. Increased demand by institutions and regulators for greater transparency into the risk and performance of GP's funds routinely tops GP surveys. Fund managers believe this to be the most important driver of industry change and fund raising.[36, 37, 38] Moreover, 44% of GPs responded in a recent survey that they report more information to their LPs now than before the crisis and 32% do so more often than before, with both totals expected to increase over the next five years, particularly given that 48% of institutional investors are still dissatisfied with the level of reporting by their GPs.[39, 40]

Adhering to the new reporting and operational requirements set by regulators and desired by LPs will increase the cost and complexity of operating in the alternative investment industry. In order to conduct business, firms must now assess which reporting, depository, and clearing statutes they need to comply within Dodd-Frank, Basel III, FATCA, AIFMD, UCITS V, EMIR, and MiFID II and other regulations. Meeting all of the requirements is a costly endeavour, particularly affecting small firms and those seeking to enter the industry.

The act of providing information to regulators on the actions and operations of an alternative fund is far from trivial. The banking industry has already provided evidence: Andy Haldane, head of financial stability at the Bank of England, noted in his "Dog and Frisbee" speech that banks in Europe alone would likely need to add some 70,000 new full-time employees to meet the new regulations.[41] Recent research by BNY Mellon estimates that to set up the infrastructure necessary to comply with AIFMD will cost funds US$ 300,000 to US$ 1 million.[42]

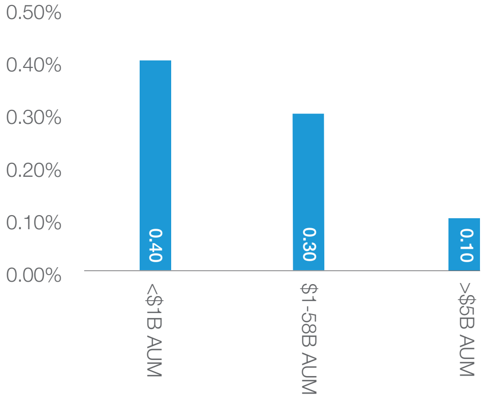
KPMG estimates that the new rules will increase the operational cost of fund management by 10%, costing funds $700,000 to $14 million depending on the size of the fund, on top of the $3 billion it estimates the industry has already spent to meet new regulations since the financial crisis.[43] The relative cost structure within fund management firms is also likely to change, as Capco finds that compliance historically accounts for 10-20% of internal budgets – a figure that has increased to 50%.[44] To reiterate, these changes in both absolute and relative cost allocations will be disproportionately hard for small and start-up funds to navigate.

2.2.3. Barriers to entry

Scale matters and nowhere more so than in asset management, where investment margins can be slim. Increasing the cost of fund management disproportionately affects new and small funds, which cannot spread the cost across a large existing base of assets under management (Figure 13). As a percentage of assets, compliance costs are four times higher (0.4% of AUM) for $100 million fund as for a $5 billion fund (0.1% of AUM).[45] A cost differential of 0.3% may sound trivial, but it is approximately 10% of the alpha (the risk-adjusted returns in excess of the given benchmark) that a typical hedge fund provides.[46, 47] The effect is not simply theoretical, as Citi estimates that hedge fund managers now need some $300 million in AUM just to break even.[48]

Figure 13: The relative cost of meeting regulatory requirements is much higher for smaller funds[49]

Estimated cost of compliance for North American hedge funds, % of AUM



Source: KPMG

Smaller funds might find that they are penalized by banks who no longer find them economical to serve, given new capital requirements. Robin Grant, chief operating officer at RS Platou Asset Management, notes that "smaller hedge fund managers may eventually have prime brokerage relations unilaterally severed, while others will face higher financing costs."[50]

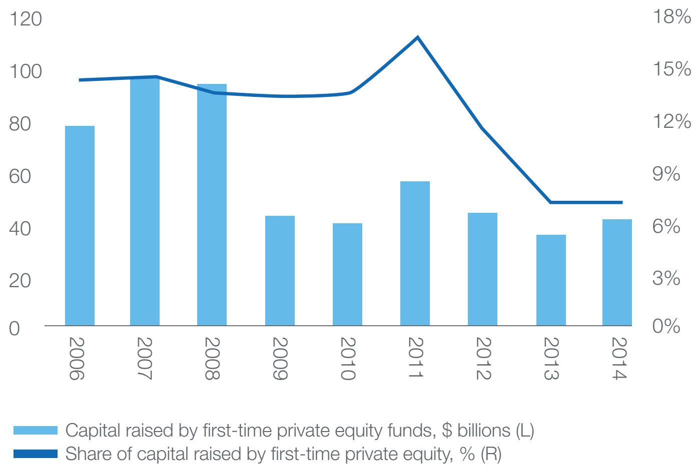
All non-EU funds and new funds in particular will also be constrained in their ability to raise capital from EU based LPs due to AIFMD restrictions, which requires that funds be domiciled in the EU or an approved jurisdiction and that they meet any additional registration requirements established by individual countries. The European Securities and Markets Authority (ESMA), which is responsible for proposing AIFMD guidelines for adoption, identified 22 countries that it will consider including in the AIFMD passport, but only 3 have been approved thus far (Guernsey, Jersey, and Switzerland).[51] The impact is clear, as a recent survey found that 85% of US based GPs and 75% of GPs in non-EU/UK/US jurisdictions were not compliant with AIFMD, with 42% of all GPs saying they will not try to market in the EU at all.[52] The result is another barrier for small or large funds seeking capital from one of the largest pools in the world (European LPs).

The increasing demands of institutional investors exacerbate the situation for new funds, as they often want firms to invest in an extensive institutional architecture before they are willing to invest with them. Small or new funds may receive a slight reprieve in the cost of compliance in Europe, as AIFMD does not apply to funds with below €100 million in assets under management, but they must still bear the cost of all the other regulations. Moreover, the exception may be a moot point. Institutional investors, the source of an estimated 74%[53] of hedge fund capital, often require a minimum investment in a fund of $10 million and stipulate that this sum should not constitute more than 10% of the fund. The result is a threshold high enough to require virtually all funds receiving institutional capital to meet all the existing and new regulatory burdens. The head of one big hedge fund allocator notes that: "if you're regulated by the FCA [Financial Conduct Authority] or the SEC, if you meet all the requirements of AIFMD [the EU directive on fund managers], then you're much more likely to get that cheque."[54]

The combination of increased demands by regulators and institutional investors is already driving industry consolidation, with the top 5% (389 firms) of firms managing 87% of all global hedge fund assets under management.[55] This may not matter so long as new and innovative firms retain the ability to enter and challenge the incumbents. However, the increased cost of compliance may be fundamentally undermining that proposition. Ed Lopez, executive vice-president of SunGard's asset management business, sums up the trend: "While the 'too big to fail' firms continue to raise assets, boutiques run the risk of being 'too small to succeed'."[56] The effect can be seen in a decline in the number of new private equity firms (Figure 14) and hedge funds launched (Figure 15a), an increase in the number of hedge funds that liquidate each year (Figure 15b) and the resulting increase in the share of hedge funds that have more than five years of experience (Figure 15c).

Figure 14: The absolute and relative share of capital raised by first-time private equity funds has fallen[57, 58, 59]

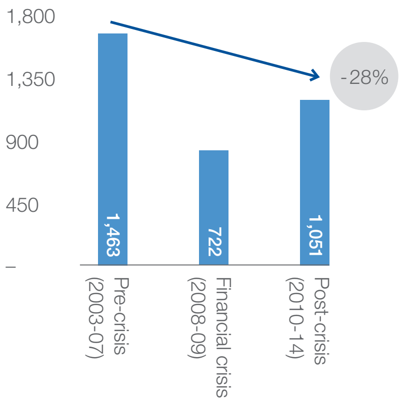
Funds raised by start-up private equity buyout firms, $ billions and %



Source: Preqin

Figure 15a: The number of hedge funds launched per year has fallen by nearly 30% since before the financial crisis[60]

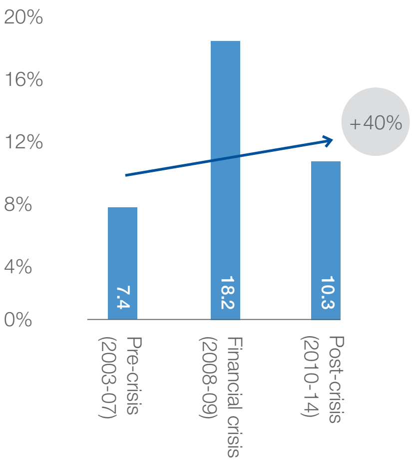
Average number of hedge funds launched each year



Source: HFR

Figure 15b: The rate at which hedge funds close has risen by 40% since the financial crisis[61]

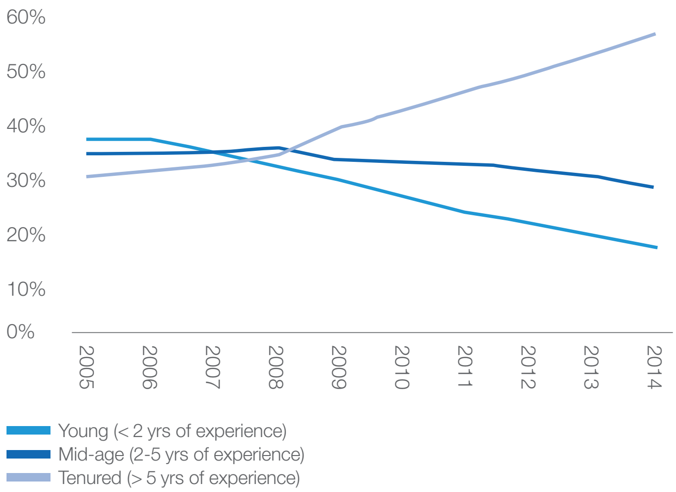
Average number of hedge fund liquidations each year, % of total number of hedge funds



Source: HFR

Figure 15c: The share of young and mid-age hedge funds has fallen significantly since the financial crisis[62]

Share of hedge funds by age, %



Source: Evestment

2.2.4. Access to capital

The wave of new financial regulations and proposals is reducing the ability of small and medium sized enterprises (SMEs) and infrastructure providers to obtain the capital they need. Few doubt that investments in new technologies, infrastructure, or operational processes benefit society in the long-term. However, such investments require prolonged investment periods, limited liquidity, and entail more risk than investing in a typical government bond. Yet banks and some institutional investors are incentivized by new laws to reduce the capital they provide to such investments. The changes are also affecting the alternative investment industry, with the laws creating new hurdles for some types of firms, whilst creating new opportunities for others.

2.3.4.1. Direct financing of small and medium enterprises (SMEs) and infrastructure

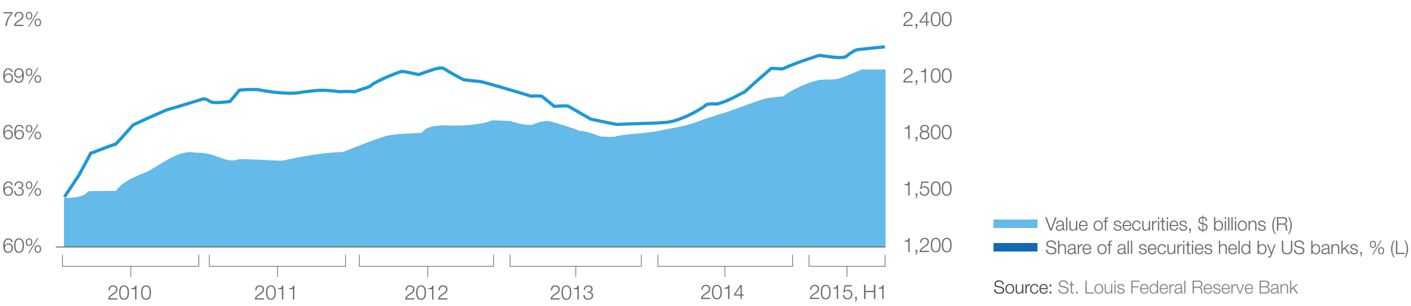
Banks are critical sources of capital for SME businesses and project finance. However, the new capital, collateral, leverage, and liquidity requirements in the US and Europe effectively penalize banks for underwriting and holding such loans on their balance sheets and incentive them to hold lower risk assets such as sovereign debt.[63] PWC estimates that EU banks have lost €408 billion in lending capacity due to the need to hold €85 billion extra in high quality assets.[64] Bain and the Institute of International Finance find that lending to SMEs in leading European countries fell by 47% from 2008 to 2013.[65]

Packaging and distributing debt into structured products is also problematic due to both dried up securitization markets and increased regulation. Completing complex deals that require the use of derivatives to manage and distribute risk is harder than before the crisis, since such deals must also adhere to the new derivative related capital and collateral requirements. While this is beneficial in curbing some of the more opaque pre-crisis structures, it also has effects on transactions in other asset classes, such as infrastructure.

The shift towards safe assets can already be seen. One example is the increase in the holdings of government backed securities by US banks (Figure 16), with a similar rise in cash or equivalent holdings by European banks.[66] In contrast, the number of UK banks providing financing for public-private partnerships fell around 90%, from 60 banks before the crisis to only a handful by 2013, with total financing falling 75% from £8 billion to £2 billion over the same period.[67]

Figure 16: US banks have increased their absolute and relative holdings of safe assets

US Treasury and agency securities held by US banks, % of all securities held by banks and $ billions



Source: St. Louis Federal Reserve Bank

2.3.4.2. Indirect financing of small and medium (SME) businesses and infrastructure

The demand for private debt and alternatives more broadly will also be negatively impacted by regulations that create disincentives for financial institutions to invest in alternatives. The laws affect banks and insurance companies in Europe in particular. Banks, through their balance sheets, have historically accounted for 6%[68, 69] of all alternative assets, which amounts to ~$400 billion. However, the capital requirements set forth in Basel III make it prohibitively expense for them to hold such investments.

Solvency II imposes similar capital related requirements on insurance companies in Europe that will significantly reduce their willingness to invest in alternatives. Insurance companies are the largest institutional investors in Europe, managing some €12 trillion,[70] and account for 10% of the private debt market.[71] With their long-term and stable investment horizons, they would seemingly be the ideal holder of pools of risky and illiquid securities, but the new laws constrain their ability to provide long-term capital to the global economy.

With Solvency II in its current form, alternative investment funds will find access to the largest pool of savings in Europe much more difficult. Saker Nusseibeh, chief executive of Hermes, the fund manager of the BT pension scheme, notes that EU regulators have, "forced the savings industry not to invest in the long term in Europe" and that "if regulation in Europe forces the industry not to invest for long-term growth, I am not sure how they expect the industry to find another way forward."[72] That said, it is worth nothing that European regulation is still evolving – and as an encouraging development, infrastructure assets have recently been given more lenient capital treatment in the context of the European Capital Markets Union.[73]

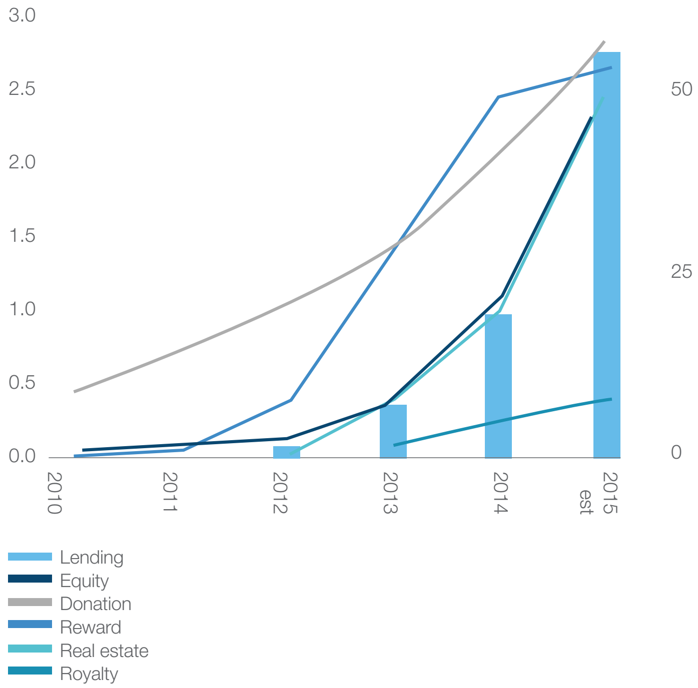
2.3.4.3. Growth in financing from non-traditional providers

The decline in lending activity by traditional financial players is creating new opportunities for entrepreneurs, GPs, and institutional investors. An example is the global crowdfunding industry, which uses technology driven platforms to connect savers and borrowers and reduce the cost of doing so. The nascent industry is growing rapidly and is expected to supply entrepreneurs and businesses with more than $50 billion of capital in 2015 (Figure 17). The alternative investment industry is also seeking to address the SME financing gap, with private debt AUM tripling from 2006-2015 to $465 billion.[74]

Institutional investors are also seeking to fill the gap, both directly and indirectly. Large LPs, such as sovereign wealth funds and pension funds, provide capital directly to crowdfunding platforms to invest in loans,[75] with 80-90% of all funding for Prosper and the Lending Club, leading marketplace lending platforms, coming from institutional investors.[76] In fact, they now allocate an average of 5.6% of their portfolio to private debt firms, with 54% currently investing in it and another 13% considering it.[77] For an in-depth review of non-bank financing, please refer to our sister report *Alternative Investments 2020: The Future of Capital for Entrepreneurs and SMEs.*

Figure 17: A range of crowdfunding models have grown rapidly in recent years[78, 79, 80, 81, 82]

Global crowdfunding new issuance by type, $ billions



Source: Massolution, Wangdaizhijia, Morgan Stanley, World Economic Forum Investors Industry analysis

2.2.5. Returns

The collective impact of new regulations, in the absence of business model innovation by the alternative investment industry, is likely to reduce industry returns. Transaction, operating, and administrative costs are likely to increase at a firm level. The recent decline in fees, from the traditional 2% in management fees and 20% in performance fees, to today's actual average of 1.6% and 18%, may well be stopped by this secular increase in cost structure, resulting in lower net returns than would otherwise be the case.[83]

The increase in costs varies by asset class. Hedge fund returns will suffer the most due to their trading related activity. Transaction costs for trading corporate bonds will rise by an estimated 0.12% as a result of reduced liquidity and higher bid/ask spreads, which reduces the total investment value by up to 5% over a 40 year investment horizon according to PWC.[84] The consultancy also estimates that the loss in liquidity would increase corporate yields by 0.3%, which could result in mark to market losses on existing corporate debt holdings of €82 billion for institutional investors based in Europe.[85]

Section 3

Implications and recommendations

In this section we shift from assessing the impact of new regulations on the financial system to how they impact specific stakeholder groups, including GPs, LPs, and the public. We conclude by providing recommendations for policy makers with regard to how certain regulations could be improved upon and why society would be better off as a result. Figure 18 summarizes the key implications for stakeholders and the potential impact on each of the core alternative asset classes.

“The financial regulations may help the industry to grow in the long-term, in spite of the challenges that it creates along the way.”

Figure 30: Impact of new financial regulations on alternative investment actors

Scale of impact: High ● Moderate ●

Impact on the stakeholder (positive/negative)

	Implications for:	Description	GPs				LPs		Society	
			Venture capital	Private equity	Hedge funds	Other GP[1]	Primary LPs[2]	Banks/ Insurance Co.'s	Individuals	Business
Bank	Market liquidity	Reforms could depress trading volumes and increase volatility during a financial crisis		− (Moderate)	+ (Moderate), − (High)		− (Moderate)		+ (High), − (Moderate)	+ (Moderate), − (Moderate)
Bank	Innovation	Banks play a reduced role as a source of innovative products used by GPs		− (Moderate)	− (Moderate)	− (Moderate)			+ (Moderate)	
Investments	Innovation	The pool of innovative talent flowing from banks to GPs falls		− (Moderate)	− (Moderate)	− (Moderate)			+ (Moderate)	+ (Moderate)
Investments	Operational cost	Reforms impose significant new costs on GPs		− (Moderate)	− (High)	− (Moderate)	+ (Moderate)		+ (Moderate)	
Investments	Barriers to entry	Cost and regulatory complexity will form new barriers to entry for GPs		− (Moderate)	− (Moderate)	− (Moderate)	− (Moderate)		− (Moderate)	
Investments	Access to capital	LPs that could benefit from alternative investments may be denied access	− (Moderate)	− (Moderate)	− (Moderate)	+ (High)		− (High)	− (Moderate)	− (Moderate)
Investments	Transparency	Reforms require greater transparency by GPs and creates pressure for more in the future		+ (Moderate), − (High)	+ (Moderate), − (High)	+ (Moderate)	+ (High), − (Moderate)	+ (Moderate)	+ (Moderate)	
Investments	Returns	The cumulative impact of these challenges is likely to be a fall in returns to investors	− (Moderate)	− (Moderate)	− (Moderate)	− (Moderate)	+ (Moderate), − (Moderate)		+ (Moderate), − (Moderate)	

1 Includes GPs such as private debt, infrastructure, and real estate funds
2 Includes LPs such as pension funds, sovereign wealth funds, and endowments and foundations

Source: World Economic Forum Investors Industries

3.1. Implications for alternative investment firms (GPs)

The financial regulations may help the industry to grow in the long-term, in spite of the challenges that it creates along the way. The need for most firms to upgrade their institutional architecture and provide greater transparency into their operations will likely enable them to attract more capital from institutional investors and increase the level of trust in the industry by the public. It will make it possible for more firms to develop deeper relationships with their LPs, a trend that we discuss in more detail in our sister report *Alternative Investments 2020: The Future of Alternative Investments.* The changes will also continue to provide the industry with growth opportunities in the form of private debt.

However, the impact of the new laws on GPs will vary widely by asset class and size, with benefits and costs spread unevenly throughout the industry. For example, venture capital firms are not affected by many of the regulations and exempted from others. The same cannot be said for private equity firms or hedge funds.

Hedge funds are affected by the widest array of new regulations and proposals, as most make extensive use of capital markets. They face higher transaction costs as well as reduced access to liquidity and funding from banks, depressing returns. At the firm level, operational and compliance related costs have increased significantly, with the smallest funds shouldering the largest relative burden. The ability of new firms to both form and survive will prove more difficult than in the past, which will spur further consolidation amongst the largest and most experienced firms. In the near term, the industry may benefit from an inflow of talent from banks, as they disband their proprietary trading arms. However, firms will need to upgrade their talent sourcing model in the future, as they will no longer be able to rely heavily on banks for talent and innovative ideas. This will further drive consolidation, as larger firms will be in a better position to deploy internal development programs.

Private equity is also affected by the new regulations. The most immediate impact will be the increased transparency that comes with new reporting requirements. In 2014, the US SEC found that more than 50% of PE firms were not in full compliance with regulations or had illegally collected fees.[86] It later settled lawsuits brought against firms related to collusion[87] and misallocating expenses[88] and noted that the industry can expect more such actions in the future.[89, 90] The result has been increased disclosure for existing firms, more transparent terms for new funds,[91] and calls for even more disclosure by senior US elected officials.[92]

The impact will be a reduction in profitability for most GPs, as they will eventually internalize many of the expenses that they currently pass on to LPs (though the impact on net returns will likely be not material).

New regulations are also enabling private debt to become one of the fastest growing segments within the alternatives universe. Such funds are filling the gap left by banks that have reduced their loan books in order to meet new regulatory requirements. The structural reduction in loan capacity bodes well for the future growth of the segment. Though such loans are not as highly regulated as those made by banks, they are unlikely to prove systemically relevant for two reasons. First, they are not based on fractional reserve lending and thus are not highly leveraged. Second, LPs cannot engage in a "run on the fund," since the underlying capital is locked up in an illiquid vehicle.

3.2. Implications for investors in alternatives (LPs)

New regulations will have a mixed effect on LPs and institutional investors in particular, but overall, they should benefit from the changes. However, doing so will not come without costs and the ability of LPs to capture these benefits will vary markedly. Moreover, some LPs may find it difficult to invest in alternatives all together due to regulatory changes.

The impact of new regulations will affect insurance companies in Europe and banks in the US and Europe more than any other type. The former face new Solvency II capital requirements that make it costly for them to invest in alternatives all together. The latter must contend with laws that collectively make it very difficult for them to invest in alternatives as LPs (and not at all as a GP). Moreover, AIFMD will affect all LPs in Europe, as it will limit their ability to invest in GPs that are not domiciled in Europe. Collectively, LPs may find it difficult to access top GPs and may see a reduction in expected returns and the overall diversification of their portfolios as a result.

Other LPs will be able to reap the benefits of the new regulations, including lower management fees, greater transparency, and potentially deeper relationships with preferred GPs. The increased transparency will make it easier for institutional investors to garner support from the public and governing boards to invest in alternatives. Large and sophisticated LPs that invest directly with GPs, such as pension funds and sovereign wealth funds, will benefit the most. Their scale, sophistication and relationships will put them into a favourable negotiation position to further their interests.

The increased institutional sophistication of LPs will also make it easier for them to develop new investment relationships with GPs, which include co-investing, separately managed accounts, and joint-ventures. Smaller and less sophisticated investors will also benefit indirectly, as pressure on GPs to reduce the fees they charge often results in a lower level of fees for all LPs.

Translating the new data that LPs will get from GPs and regulators into better investment decisions and lower management fees will not come for free. Rather, LPs will need to either devote resources developing the internal capacity to analyse the data or pay a consulting firm to do so on their behalf. Even veteran investors such as CalPERS have been struggling with this for some time and recently acknowledged that they "can't track it today."[93]

3.3. Implications for the public

Similar to other stakeholders, the public will broadly benefit from the financial reforms, but there remain areas where specific groups may bear the unintended costs of the regulations. The topics most likely to affect the public concern innovation, market liquidity, transparency, access to capital and portfolio returns.

In contrast to the financial community, the public may well benefit from regulations that make the real economy more attractive to talented individuals. A similar period of financial regulatory tightening took place in the 1930s and academics find that the best and brightest in society shifted their attention to non-finance industry endeavours.[94] Recent research also finds that financial deregulation in the US led to labour productivity declines in non-financial industries[95] and additional research finds that it particularly affects research and development heavy industries.[96] Thus, the regulations may result in a more optimal balancing of talent in the economy.

Pension fund beneficiaries, high net worth individuals, and taxpayers should expect to benefit from new transparency and reporting requirements in several ways. First, it can improve the net returns of investing in alternatives by enabling LPs to pressure GPs to reduce otherwise opaque fees or expenses. The process can be slow, as we discuss in a related research paper,[97] but over the mid to long-term fees do tend to fall. Second, it enables LPs to make better decisions on behalf of the public and increases the trust of the public in both the LPs that represent them and in the industry they are indirectly investing in. Third, the volatility and demands made on the public purse are reduced, to the extent that fees fall (and returns commensurately increase) and better investment decisions are made.

Unfortunately, regulations could also impose new costs on businesses and LPs and their beneficiaries in the form of new capital markets related transaction costs. The reduction in market liquidity, as mentioned earlier, might potentially reduce the total investment value of retirement portfolios by an estimated 5%.[98] It could also increase the risk and cost of trading investments during turbulent times. Businesses could face relatively higher borrowing costs due to an increase in borrowing spreads related to reduced liquidity.

In the near term, SMEs will struggle to obtain financing from the traditional financial system. The funding shortfall has led to the creation of a range of innovative new products and platforms. The growth of non-traditional forms of lending, with alternative investors playing a key role, could provide a range of new channels for SMEs to access capital. Shadow lending at present remains lightly regulated, so the growth of this segment will depend in large part on how aggressively governments seek to regulate it.

3.4. Recommendations for policy-makers and regulators

The overhaul of global financial regulations has led to a more transparent and less leveraged financial system. The risk of the financial crisis repeating itself, at great cost to society, has been reduced and regulators around the world should be commended for their efforts in achieving this. This report has highlighted such efforts in relation to the alternative investment industry and noted how many stakeholders, including institutional investors and their beneficiaries, are better off as a result. Given the immense scale of the regulatory reforms, it is inevitable that some unforeseen consequences will arise. Earlier we identified some of these issues and now we would like to provide some recommendations for regulators to consider as they refine and revise existing laws and proposals.

1. **Incorporate secondary effects on the alternative ecosystem when crafting bank regulations**

   Alternative investors have become an important part of the global economy and financial system and a key provider of liquidity for markets, capital for infrastructure, technology, and operational improvements that support the economy, and returns that fund retirement systems. Regulators should recognize the importance of alternatives by explicitly including a cost/benefit analysis of the impact on alternative investments when drafting regulations intended for other parts of the financial system. Regulations should also acknowledge and adjust for the heterogeneity of the alternative investment industry, particularly with relation to capital, leverage, liquidity, and collateral requirements.

2. **Conduct a cost benefit analysis that incorporates the likely impact on end users (LPs)**

   Often lost in the complexity of the global financial system are the retirees, employees, and citizens that trust their capital to LPs to manage on their behalf. These parties may be multiple links removed from the target of a new law or proposal that reduces liquidity, increases funding costs, or increases transaction, operational, or administrative costs for financial actors. However, such actions often translate into lower returns for the ultimate beneficiary, which is why any new law that targets GPs should explicitly consider the expected impact on LP returns.

3. **Streamline the AIFMD passport requirements process**

   Restricting the ability of GPs outside the EU to raise capital from EU based LPs is detrimental to GPs and LPs alike. The constraints reduce the amount of capital that GPs based in countries such as the US, China, or Brazil can raise from LPs to invest in businesses or assets in their country or further afield. It also reduces the ability of European based LPs to diversify their portfolios or invest with top non-EU based GPs. All stakeholder groups involved would benefit if the passport process was streamlined so that non-EU GPs could raise capital from EU based LPs.

4. **Consider long-term investment needs when finalizing Solvency II capital requirements**

   The financial crisis highlighted the risks that can be created when long-term investments are funded with short-term and liquid capital. European insurance companies are long-term and patient investors that manage one of the largest pools of capital in the world, but Solvency II is incentivizing them to hold liquid and often short-term oriented assets. Society would be better off if large LPs like insurance companies were able to provide capital to long-term oriented alternative investments. The recent announcement of changes to the Solvency II regime for infrastructure assets in the context of the European Capital Markets Union is a step in the right direction.[99]

5. **Establish a tiered system for complying with regulatory requirements based on AUM**

   End users and society benefit from innovative and competitive industries. Recognizing the disadvantages that small companies and start-ups face when seeking to compete with incumbents, regulatory requirements often increase in line with the scale and complexity of the business. The alternative investment industry would benefit from a similar scaling of regulatory requirements based on the total AUM of a firm, potentially adjusted for the amount of leverage employed. Doing so would reduce barriers to both entering and surviving in the industry. It would also reflect the potential risk associated with the firm.

6. **Standardize reporting guidelines for private equity related asset classes**

   New laws require private equity firms to disclose more organizational and operational details to regulators than ever before. However, the ability of LPs to audit, analyze, and compare data across firms, funds, and the underlying companies and assets that they indirectly own remains challenging, given that the information provided is not standardized. Establishing standard industrywide reporting guidelines would allow LPs of all sizes to easily compare one investment with another, which would enable them to make higher quality decisions on behalf of their constituents.

7. **Withdraw financial transaction tax**

   Liquidity is critical to the proper functioning of markets. Reduced liquidity results in higher transaction and funding costs, and increased volatility for market participants. Enacting a financial transaction tax would ultimately prove detrimental to financial actors and the beneficiaries that they act on behalf of and offer few benefits in return. Many nations in Europe, such as the United Kingdom, Ireland, the Netherlands, Poland, and Sweden have already opted out of the legislation. The remaining 11 might consider doing the same.

Conclusion

The financial industry is in the midst of implementing a series of regulatory reforms that, while critically important for the security of the global financial system, will have intended and unintended consequences for the alternatives industry.

Banking and financial industry reforms will affect the capital flows into alternative investments (e.g. reducing flows from the banking and insurance sectors) and also affect the services that support and sustain alternative investors (e.g. the provision of counterparties for many hedge funds).

Meanwhile, investment industry reforms that improve investment firm infrastructure and transparency may also substantially increase compliance costs and create barriers to entry to the alternatives industry.

Policy makers face a challenge in assessing the wider impact of regulations because their attention is often focused on a particular industry (e.g. banking, or insurance) or region (e.g. the US, Europe). However, the alternatives industry is composed of a heterogeneous set of global players which use a diversity of strategies, particularly in the case of hedge funds.

It is not easy for policy makers and regulators to foresee how a single regulation will impact alternatives. Even when a new rule is aimed squarely at the industry, it is not easy to quantify the potential consequences, e.g. in terms of increased costs and the degree to which these will be passed through to end investors.

For example, investors disbarred or discouraged from investing in alternatives cannot benefit from the above-average long-term returns or diversifying effects of various alternative asset classes and may struggle to meet important long-term commitments and liabilities as a result. Similarly, increasing reporting requirements may directly benefit the financial system and indirectly benefit LPs, but it may also make it more difficult for new and potentially innovative firms to form and survive.

Regulators face particularly tough choices in balancing the management of risks made visible by the global financial crisis against the more opaque risk that regulation will reduce the future economic benefits flowing from alternative investing, such as the ability to fund infrastructure or transformative new technologies or industry practices. Over the last three decades the economic benefits flowing from alternative investments have helped to shape the global economy and the industry is part of the solution to many of tomorrow's most intractable economic problems.

Thinking through these issues will only become more urgent over the next few years as demographic demands on retirement systems grow and capital begins to flow in earnest from retail investors around the world into the global alternatives market. Increasingly, constructive solutions will have to account the connected nature of the financial system as well as the multitude of stakeholders involved.

Appendix

1. What are alternative investments

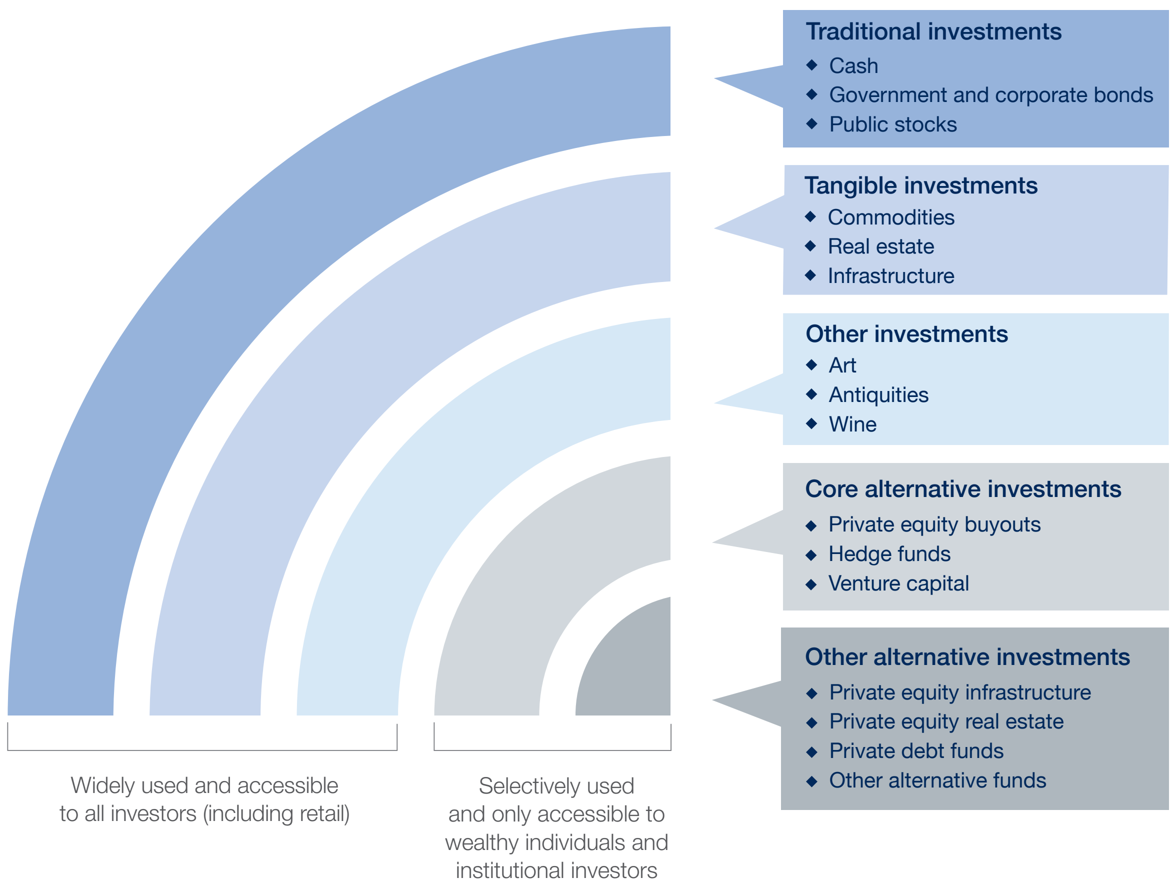
1.1. Definition of alternative investments

In its broadest definition, alternative investment assets – are those which are not part of traditional asset classes such as cash, stocks, or bonds that retail investors are most familiar with. Such a definition would encompass investing in mainstream assets such as real estate or commodities or luxury goods such as art or wine. However, for this report, alternatives will be those which have historically utilized distinctive fund structures and which only wealthy individuals and institutions have had access to. Alternatives will thus encompass a wide range of asset classes, including private equity real estate and private equity infrastructure funds, secondary funds, and private debt funds. In particular, this report will focus on three asset classes: private equity buyouts, hedge funds, and venture capital. Historically, these three have played the most important role in the evolution of the industry and have accounted for the vast majority of the capital allocated to alternatives. Figure A1 provides an overview of different types of mainstream and alternative investments, while Figure A2 shows how alternatives fit into the broader cycle of investing savings into businesses or assets.

1.2. Investment characteristics

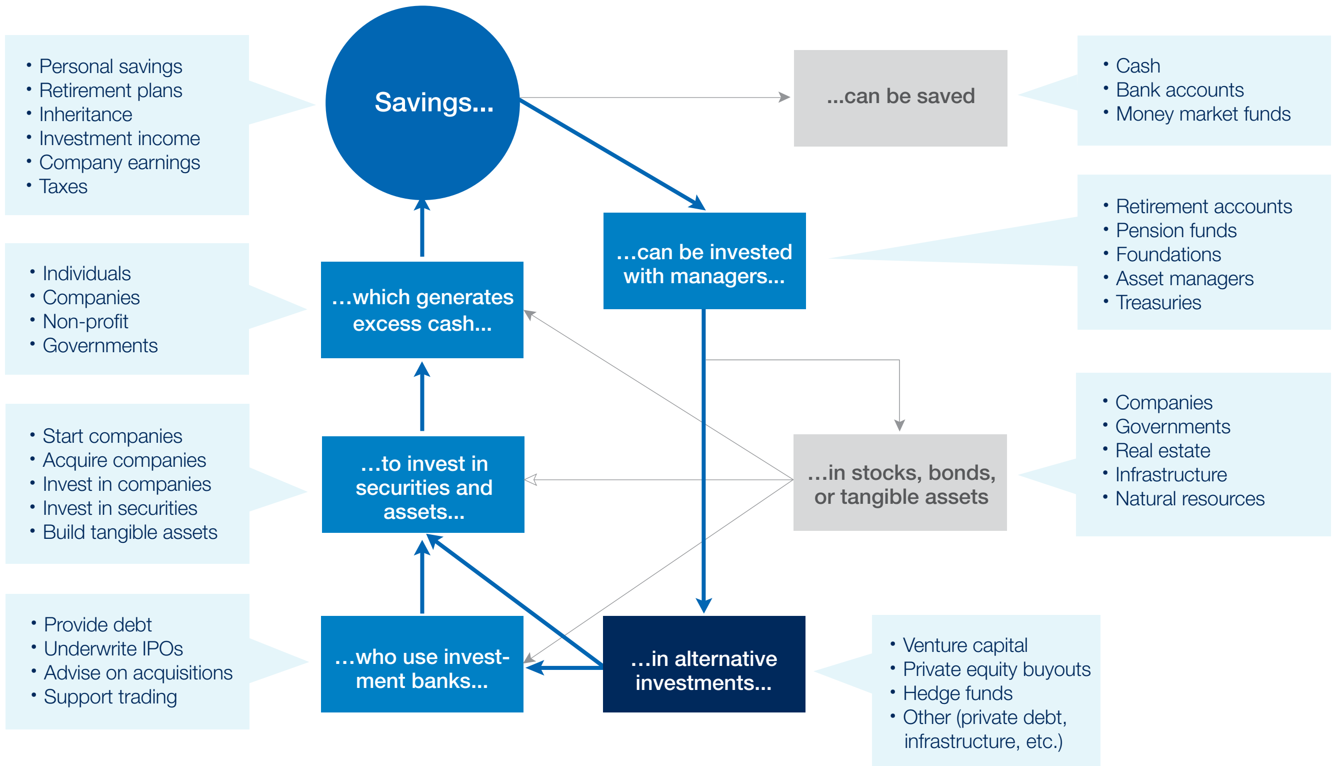
Alternatives offer investors a distinct set of attributes that are not commonly found in mainstream investments such as public stocks or government or corporate bonds. These typically include one or more of the following attributes: long term, high risk, or illiquid investments that are associated with higher returns; low correlation with traditional assets to deliver diversification benefits; inflation-hedging benefits; and scalability (the ability to absorb large investment sums). Figure A3 shows the degree to which these and other investment attributes are available to investors in each of the three core alternative asset classes.

Figure A1: Overview of different types of investments



Source: World Economic Forum Investors Industries

Figure A2: The investment cycle



Source: World Economic Forum Investors Industries

Figure A3: Expected investment attributes for core alternative investment asset classes

VC Venture capital **PE** Private equity buyouts **HF** Hedge funds — Very low … Very high

	Implications for:	Description	VC	PE	HF
Performance	Target returns[1]	Produces net returns to investors	Very high	High	Moderate
	Risk	Variance in returns and risk of losing capital	Very high	High	Moderate
Investment attributes	Correlation with other assets[2]	Correlation with other assets (lower is better)	Moderate	Very high	High
	Inflation-linked	The asset typically adjusts for inflation	Very low	Low	Very low
	Liquidity	Ability to easily sell the asset when needed	Low	Low	Moderate
	Scalability[3]	Ability to deploy large sums of capital	Low	Very high	Very high

1 Over a 10yr horizon; Very high returns = >20%, high = 10-20%, moderate = 5-10%, low = 0-5%, very low = 0%
2 Correlation with equity markets; Very high = 80-100%, high = 60-79%, moderate = 40-59%, low = 20-39%, very low = 0-19%
3 The ability of an LP to deploy large amounts of capital efficiently with fund managers and/or in co-investments

Source: Cambridge Associates, Hedge Fund Research, RREEF, JPMorgan, Coller Capital, Preqin

1.3. Different types of alternative investments

1.3.1. Hedge funds

Hedge funds manage more than $3 trillion (40% of all alternative capital), which makes them a large and important part of the industry. Geographically, the industry is highly concentrated. Most of the capital is managed in the US (70%) and Europe (21%), with managers in the New York area (50%) and London (18%) overseeing two-thirds of all global capital.[100, 101] Still, hedge funds make investments across the globe and in all sectors of the economy. Overall, there are more than 8,000 hedge funds,[102] with the top 25 managing 29%[103, 104] of all assets under management.

1.3.2. Private equity buyouts

Private equity buyout firms have been a large and high profile part of alternative investing since the 1980s. The asset class is the second largest segment within alternative investing, with private equity buyout firms managing $1.4 trillion. Firms invest in dozens of countries across the globe, though companies in the US (50%) and Europe (26%) receive a disproportionate share of the capital.[105]

They invest across a wide range of industries and in companies ranging from small businesses to Fortune 500 companies worth billions. Globally, there are approximately 1,000 firms, with the 25 largest managing 41% of the total assets under management.[106]

1.3.3. Venture capital

Venture capital is the best known alternative asset class and can trace its history back to 1946. Today, venture capital firms manage more than $400 billion in assets under management.[107] Geographically, investments and firms are highly concentrated in a handful of countries, with the US alone attracting nearly 70% of global investments.[108] Investments are concentrated in industries and sub-sectors that rely on the development of new technologies, with information technology, biotechnology, internet related media and consumer, and energy companies receiving a large share of all annual investments. Most firms specialize in just one or two life stages of a company, with most focusing on either seed and early stage businesses or late and expansion stage companies. There are nearly 1,500 venture capital firms globally, with the top 25 firms managing 25% of the global assets under management.[109]

1.3.4. Other types of alternative investments

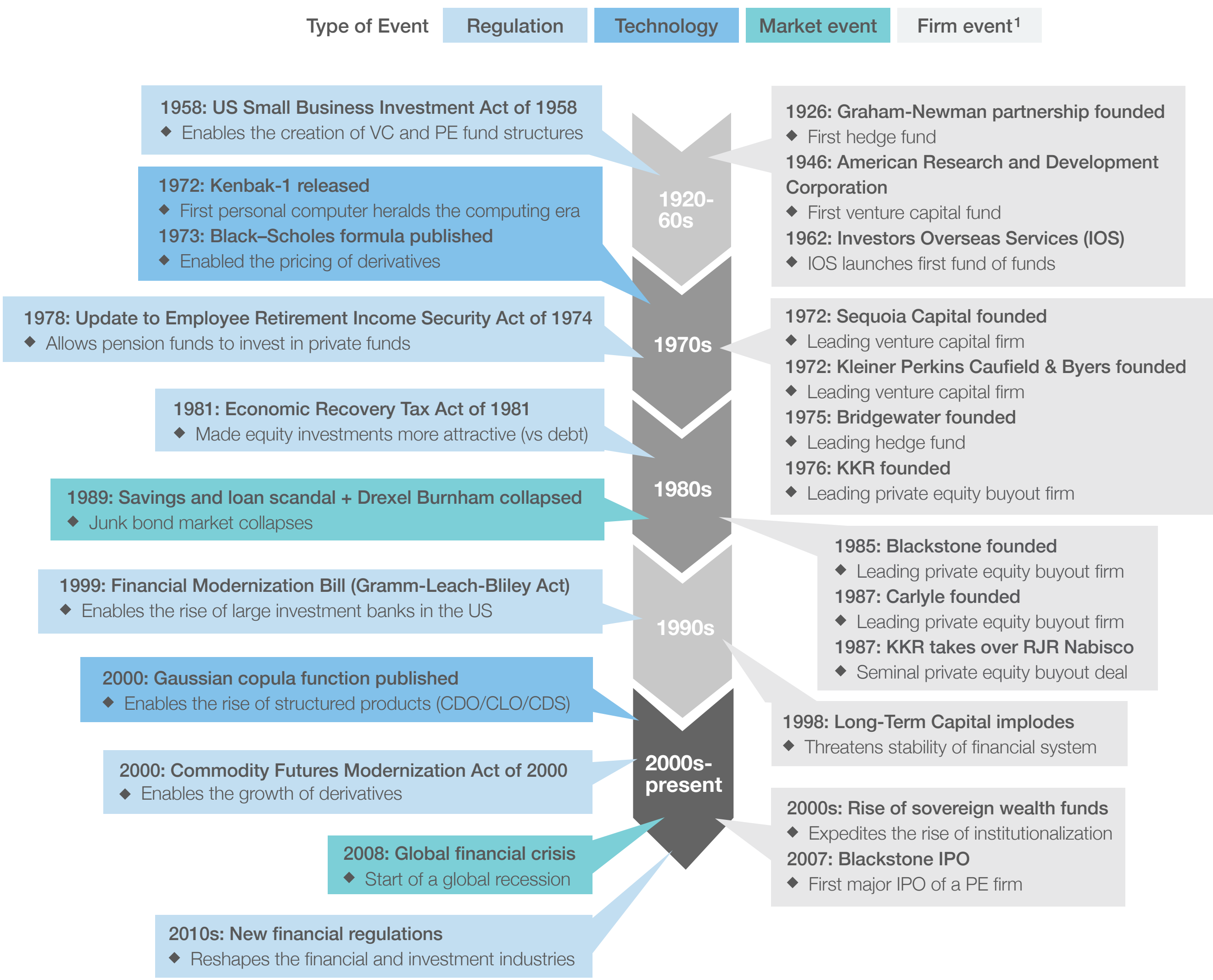
The attractiveness and success of the alternative investment structure has led investors to apply it to a range of investments beyond the core asset classes described above. Some asset classes are unique to alternative investing. Examples of this include secondary funds and growth equity funds. Other funds apply the alternative fund structure to traditional investments. Examples of this include private equity infrastructure funds, private equity real estate funds, and private debt funds (including mezzanine, distressed debt, direct lending).

Collectively, non-core alternative investment funds manage $2.07 trillion, with private equity real estate, private debt, private equity infrastructure, and growth equity accounting for 85% of this.[110] The geographic focus varies by asset class, but the majority of capital is invested in developed countries. These funds invest in all industries of the global economy and in every part of the capital structure. The size of the target company or security also varies widely, from growth stage companies to multi-billion dollar real estate portfolios or infrastructure projects. There are well over 1,000 non-core funds and each asset class has a diversity of funds of varying sizes and specialties.

2. A brief history of alternative investments

Private investors, largely in the form of wealthy individuals, have deployed capital in companies since before the Industrial Revolution. However, it was not until the mid to late 20th century that today's alternative investment industry began to take shape in the United States (Figure A4). The industry has since grown from a handful of firms in the US managing a few billion dollars to thousands of firms spread across the world that now manage more than $7 trillion on behalf of investors. The key drivers behind this growth have been regulatory changes and technological innovation in the US and global market events.

Figure A4: Key moments in the history of alternative investments



[1] The firms referenced here are illustrative examples – only space constraints prevent us from mentioning the many other outstanding firms that played important roles throughout the history of alternative investments

Source: World Economic Forum Investors Industries

2.1. Regulatory changes

Three laws supported the birth and initial growth of the alternatives industry and two additional laws enabled the industry to scale up dramatically in the 2000s.

1. **US Small Business Investment Act of 1958:** The law supported private investment in small businesses and innovation. It legally enabled the creation of venture capital and private equity buyout fund structures and allowed them to use leverage. Alternative investors found the legal structures particularly attractive, as fund profits could typically be treated and taxed at lower capital gains rates and not as income, which is usually taxed at higher rates.

2. **US Department of Labor update (1978) to the Employee Retirement Income Security Act of 1974 (ERISA):** This update lifted an earlier restriction placed on pension funds from investing in privately held securities, thereby enabling them to invest in alternative investments.

3. **Economic Recovery Tax Act of 1981:** The law reduced capital gains taxes, which increased the attractiveness of equity investments relative to debt. As a result, institutional investors, such as pension funds, increased their allocation to alternative investments.

4. **Financial Services Modernization Bill (Gramm-Leach-Bliley Act) of 1999:** The law effectively repealed the U.S. Banking Act of 1933 (Glass-Steagall Act) and enabled the creation of large universal banks in the US, whose activities supported the dramatic increase in the scale of private equity buyouts and hedge funds in particular.

5. **Commodity Futures Modernization Act of 2000:** This law clarified that most types of over-the-counter derivatives, which are not traded on exchanges, would not be subject to government oversight. The law enabled the growth of derivatives, used extensively by hedge funds, to grow unchecked by any regulatory constraints.

2.2. Technological change

The technology revolution, in part funded by alternative investors (venture capital), and innovative ideas by academics also played a pivotal role in the history of alternative investments. The dramatic increase in computing power transformed financial markets and made it possible to record, track, move, store, and analyse previously unmanageable and unthinkable amounts of data. In addition, academic innovations in the form of the Nobel Prize winning Black-Scholes options pricing formula (1973) and the application of the Gaussian copula theorems to financial instruments (2000) enabled investors to quickly and easily price complex financial products such as derivatives and structured securities, which supported their rapid growth and increased liquidity in markets overall.[111, 112] Hedge funds benefited immensely from these changes, as their business models often rely on the large and liquid markets and/or accessing, analysing, and valuing large amounts of data or complex financial instruments.

2.3. Market events

Building upon the aforementioned foundations, the alternative investment industry has grown with each passing decade.

1980s: The economic boom and growth of the high yield (junk bond) market proved critical to the growth of private equity buyouts, as firms used the debt to acquire much larger companies than they would have been able to otherwise.

1990s: Strong market returns, in large part driven by venture capital backed companies, generated large amounts of private wealth, which served to fuel investments in hedge funds.

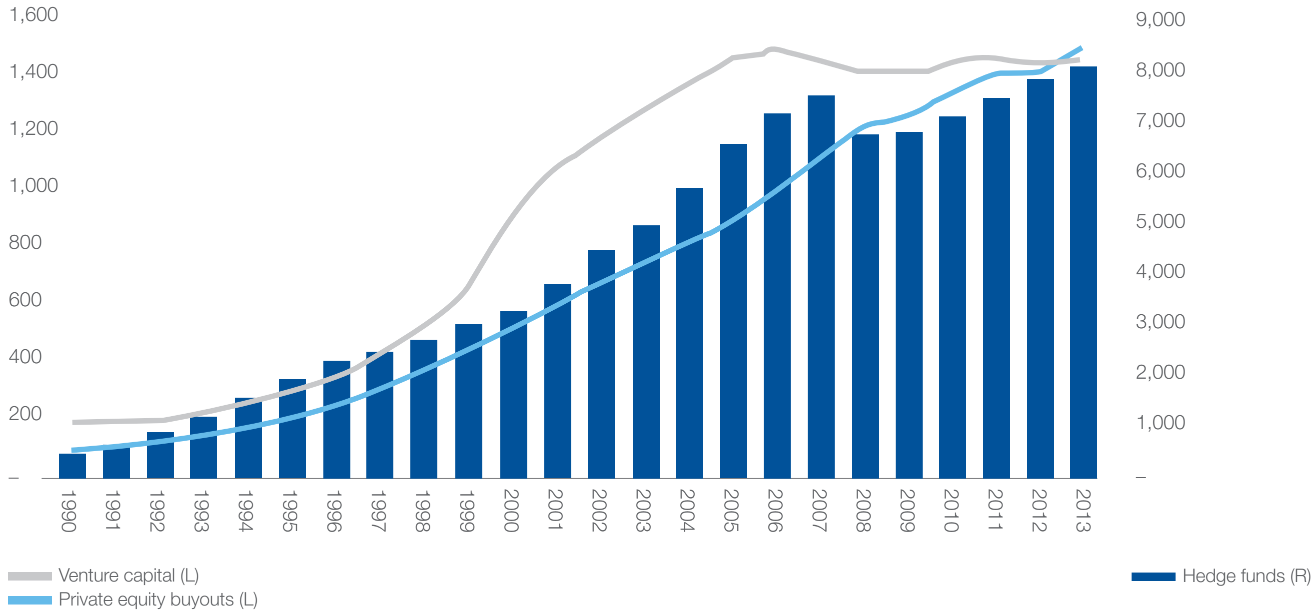
2000s: Investments in venture capital fell significantly following the dotcom crash. However, the credit driven economic resurgence allowed private equity buyouts and hedge funds to scale up to new heights.

2010s: Alternative investments performed well relative to traditional investments during and after the financial crisis. The result was an increase in demand for alternative investments, which enabled the growth of non-core alternative investments.

Today, the alternative investment industry is truly global in both breadth and depth. More than 10,000 firms (Figure A5) mange some $7 trillion in assets under management (Figure A6). The capital is invested across the globe in companies at every stage of development and in every imaginable industry sector. The industry has expanded beyond the core and now includes a range of additional asset classes. Some are specific to alternatives, such as secondary funds, which seek to acquire stakes in existing alternative funds, while others utilize private equity style fund structures and investment techniques to target traditional asset classes such as real estate, infrastructure, or private debt.

Figure A5: Growth of core alternative asset classes[113]

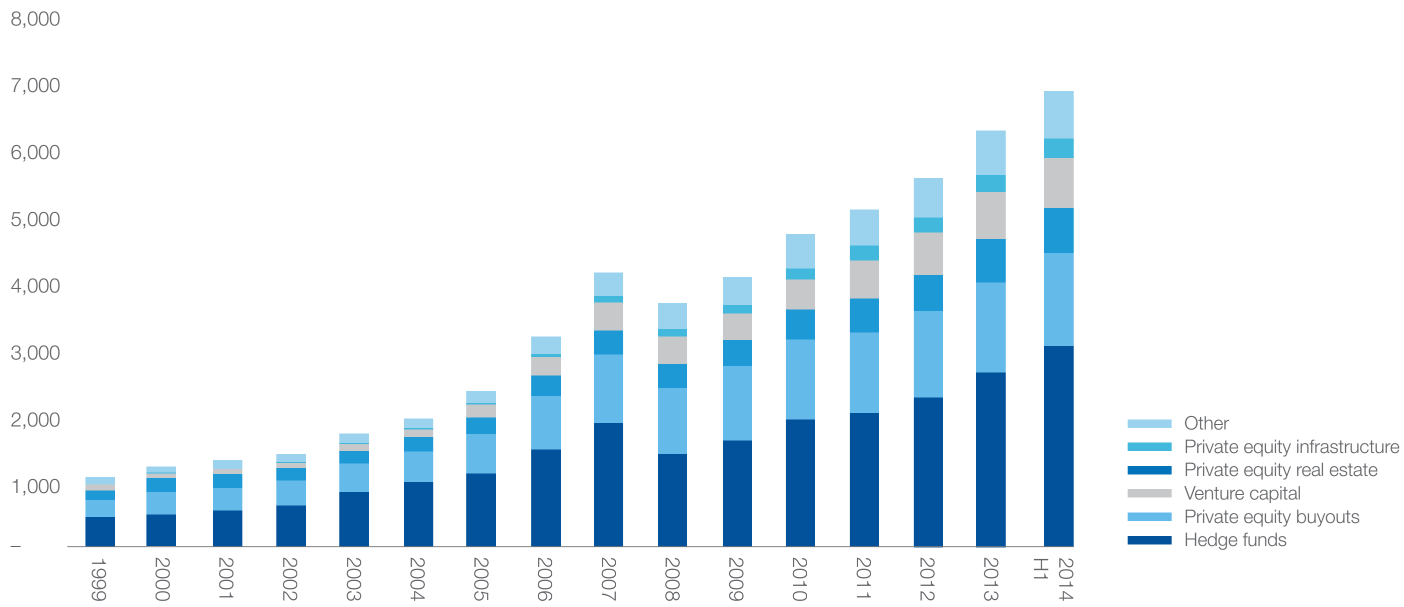
Total number of hedge funds, private equity buyout, and venture capital firms



Source: Preqin, HFR

Figure A6: Growth in assets under management by asset class[114, 115]

Total alternative assets under management, $ billions



Source: Preqin, Hedge Fund Research

3. Source of capital

Sources of capital for the industry have evolved over time, simultaneously supporting the rise of alternative investment and leading to changes in the industry itself. The capital base has steadily shifted from small scale long-term investors (e.g. wealthy individuals) to the large institutional investors (e.g. pension funds) that provide most of the capital today. Below we discuss both the different sets of drivers, as well as a number of specific types of investors.

Three sets of drivers underpin investment demand for alternative investments, with each seeking a distinct set of attributes that alternatives can offer (Figure A7). Different classes of investors are usually aligned with one of these three groups.

Figure A7: Primary drivers for investors in alternative investments

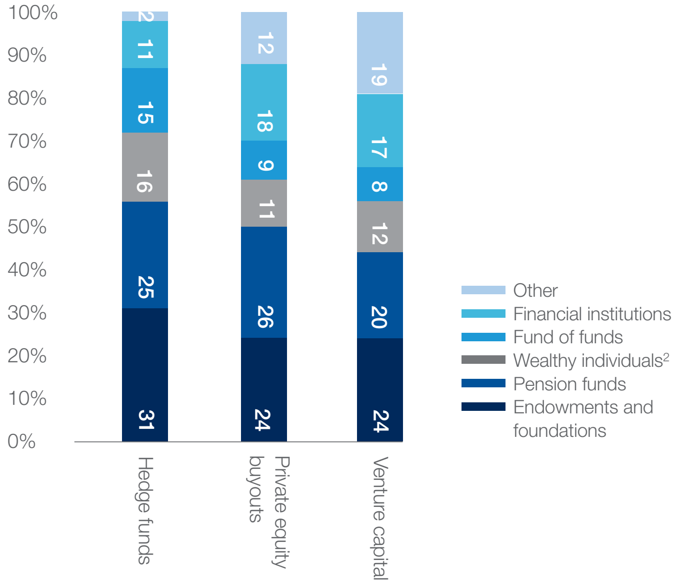
Investment drivers	Examples of investors	Primary attraction to investors
Long-term	• High-net worth individuals • Foundations • Endowments • Sovereign wealth funds	• High returns • Illiquidity premium • Scalability (for SWFs)
Liability driven	• National pension funds • State/city pension funds • Teachers pension funds • Corporate pension funds	• High returns • Inflation-linked • Steady cash flow • Scalability
Diversification driven	• Banks • Asset managers • Insurance companies • Corporations	• Diversification • High returns • Inflation linked

Source: World Economic Forum Investors Industries

The pool of investors that allocates capital to alternative investments is vast and diverse, and encompasses both institutional and retail investors. The number of institutional investors alone that invest in alternatives exceeds 4,800,[116] with the majority all allocating capital to at least two alternative asset classes.[117] A wide range of investors dedicate capital to alternative assets (Figure A8), with a wide variance in allocations (Figure A9). However, over 70% of this capital comes from only three types of institutional investor: pension funds, sovereign wealth funds, and endowments/foundations (Figure A10).

Figure A8: Breakdown of investors in core alternative investment asset classes by number of investors[118, 119, 120]

Percentage of the number of investors[1]



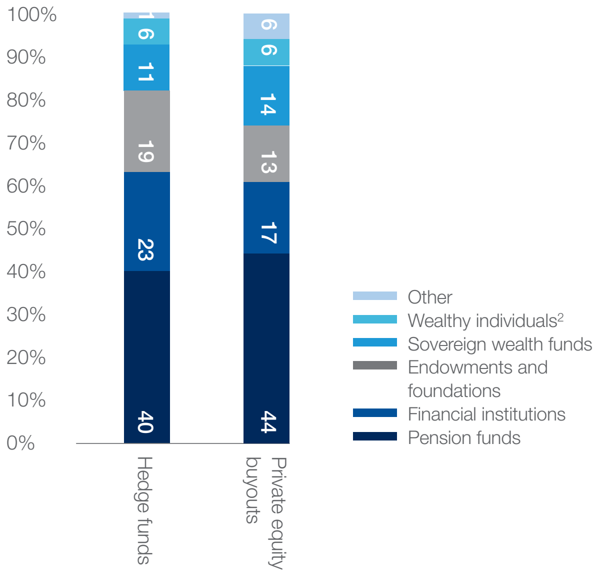
1 Includes institutional investors that have invested in hedge funds or that have a preference for or previously invested in private equity or venture capital funds

2 Includes high-net worth investors, wealth management and family offices

Source: Preqin

Figure A9: Breakdown of investors in core alternative investment asset classes by capital invested[121, 122]

Percentage of assets under management[1]



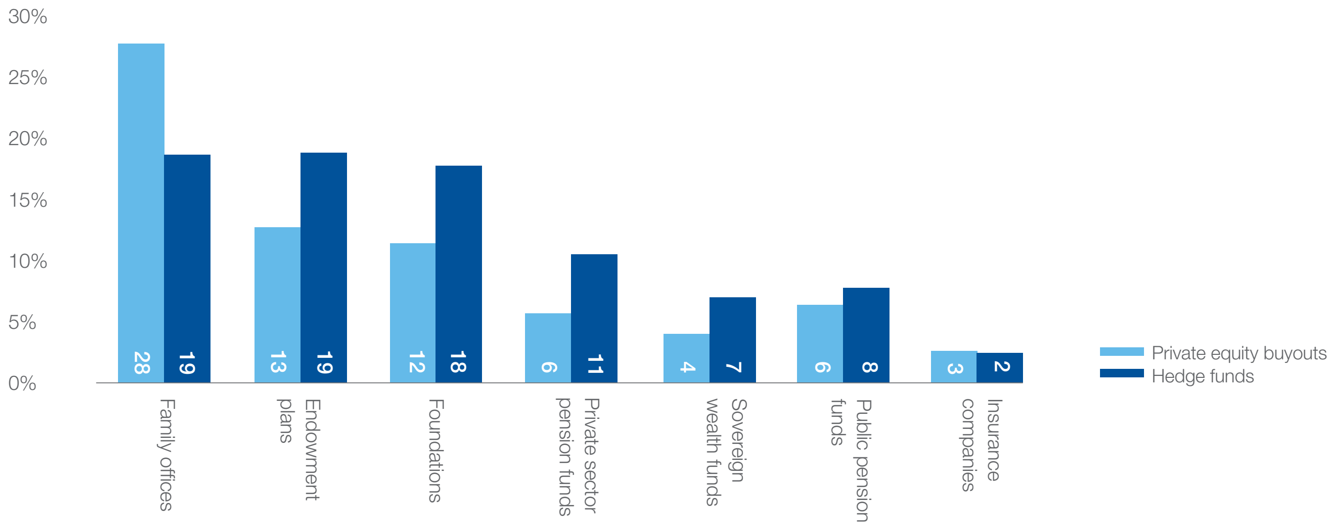
1 Excludes fund of hedge funds, and fund of funds and asset managers for private equity firms

2 Includes high-net worth investors, wealth management and family offices

Source: Preqin

Figure A10: Average allocation to private equity buyout and hedge funds by select investor type[123, 124]

Average allocation as a percentage of total portfolio allocation



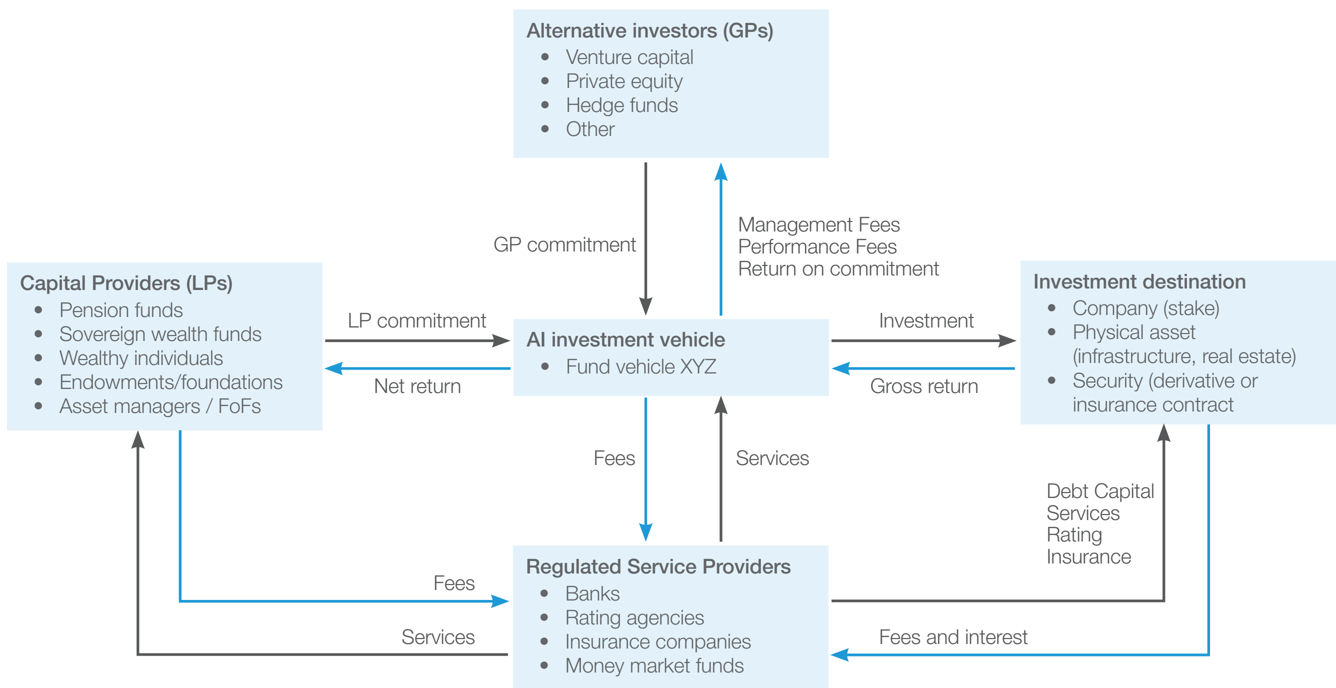
Source: Preqin

4. Role in the financial system

The alternative investment industry is part of a much broader financial ecosystem (Figure A11). Since the 1980s, the industry has relied on banks, insurers, and other types of financial intermediaries to supply leverage (debt financing), provide critical services such as transaction support, act as counterparties, and generate new financial products – as we describe in more detail below. Growth in the alternatives is therefore somewhat dependent upon the future shape and health of the wider financial system, which in turn is undergoing a profound set of reforms following the global financial crisis that began in 2008.

Figure A11: Alternative investment firms within the wider financial system

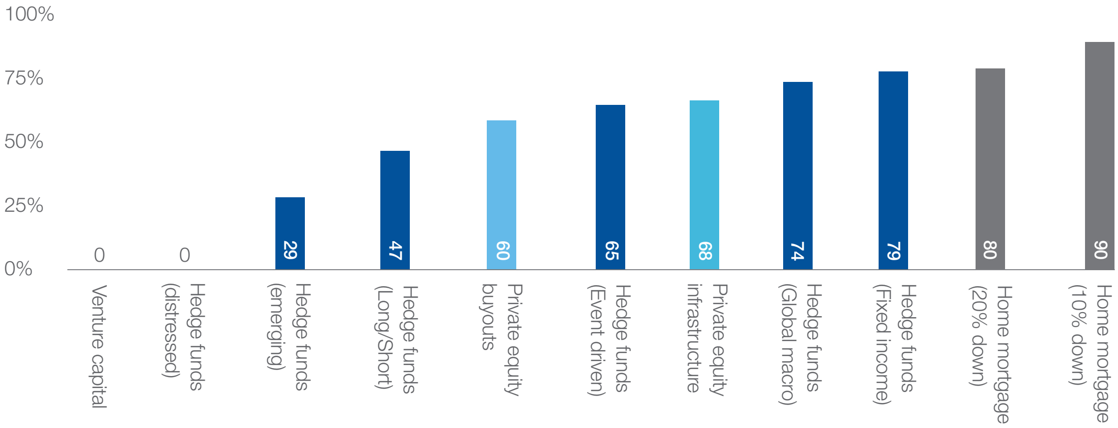
Regulatory/Policy/Societal Environment



Source: World Economic Forum Investors Industries

Figure A12: The average amount of debt (leverage) used by different investment strategies [125, 126, 127]

Debt as a percentage of the total deal value



Source: Preqin, Citi, William Blair

4.1. Leverage

A critical way in which the financial industry supports alternative investing is through directly and indirectly providing loans in the form of debt financing. The impact of this can hardly be overstated, with asset classes such as private equity buyouts, hedge funds, and private equity infrastructure relying on debt financing to pay for 50% to 80% of their investments (Figure A12). Their ability to apply leverage allows these firms to pursue larger targets and to improve returns (or reduce) returns.

4.2. Services

Beyond services relating to the provision of debt, traditional financial intermediaries and institutions also provide an extensive array of services to alternative investors. Institutional investors, financial institutions, and asset and private wealth managers help to direct capital to alternative investors. Investment banks provide M&A and transaction support to private equity, coverage and sponsorship of IPO's or trade sales for venture capital, and prime brokerage and treasury services to hedge funds. Ratings agencies rate the bonds and loans that private equity firms issue. Prime brokerage and treasury units provide the transaction services record keeping required to track all investment flows and ownership.

4.3. Counterparties

The role of a counterparty is a critical one, particularly for hedge funds. The creation and trading of standardized equity and fixed-income products, as well as bespoke derivatives contracts requires large, liquid, and sophisticated counterparties. A significant amount of hedge fund activity relies heavily on the availability of these services.

4.4. Product innovation

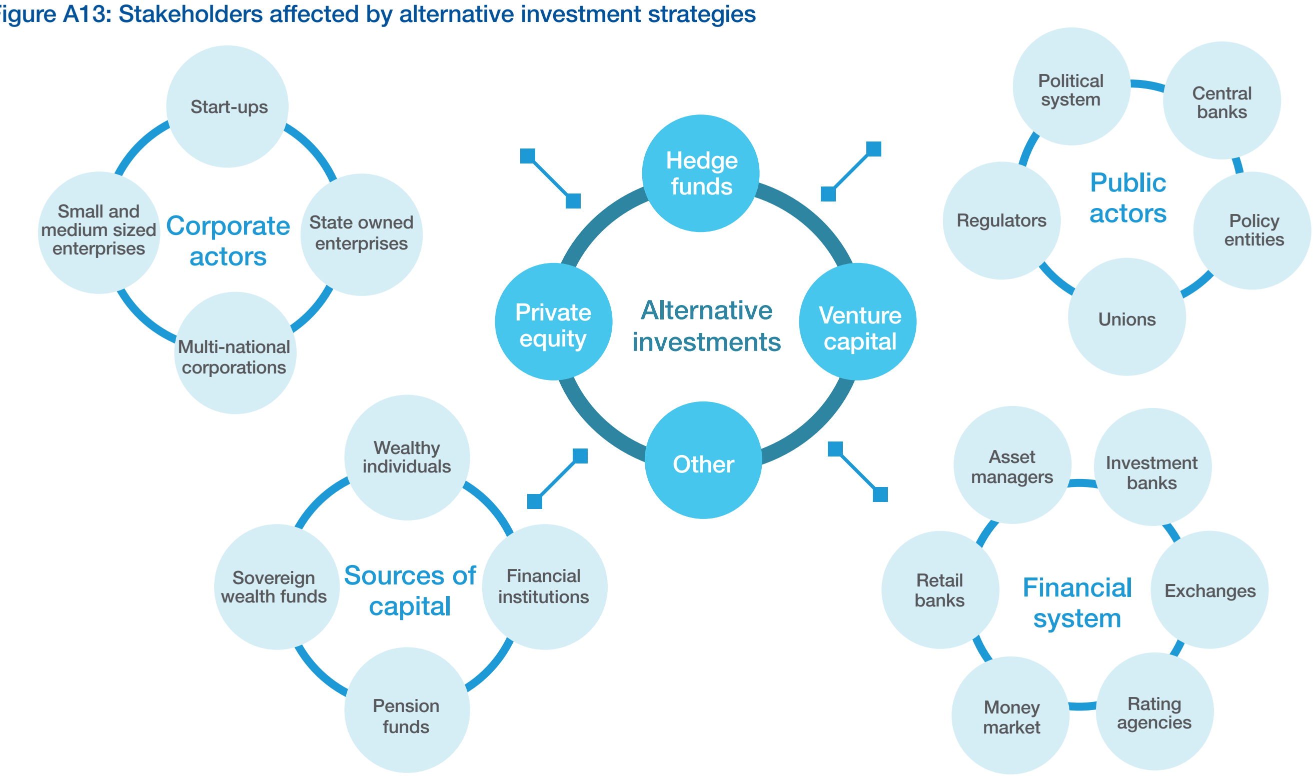
Innovation by the financial sector has influenced the rise of the alternative industry, particularly over the past decade. The creation of structured products such as CDO's and CLO's that packaged junk grade fixed income securities into investment grade instruments is probably the clearest example of financial innovation that enabled the industry to grow in size and scale. The products enabled private equity firms to issue far more debt than they likely would have been able to otherwise. Many of said products were then acquired by hedge funds, which often used additional leverage from the banks to acquire them. The issuance of cov-lite and PIK loans during the last cycle is another example of financial innovation that benefited the industry. Historically, new financial products have often resulted in asset bubbles and crises, as many financial actors did not understand the risk associated with them or how interconnected they were to other parts of the financial system. The crash of the high yield bond market ("junk bonds") in the late 1980s, the Long-Term Capital Management, and the crash of real estate related CDO/MBS securities during the financial crisis are notable examples.

5. Role in society and the economy

The alternative investment industry plays an important role in society and its actions affect a wide range of stakeholders through their impact on the world's capital markets and, especially, the real economy (Figure A13). Figure A14 qualitatively summarizes the academic literature discussed below with regard to how each major alternative asset class affects society (positively, negatively, or both).

As we discuss below, capital markets benefit through mechanisms such as increased market liquidity and lower transaction costs, while alternative investment drives the real economy through its direct economic impact (e.g. improving retirement outcomes for millions of people) and through other key mechanisms such as the promotion of innovation (e.g. funding new technologies).

Figure A13: Stakeholders affected by alternative investment strategies



Source: World Economic Forum Investors Industries

Figure A14: Stakeholders affected by alternative investment strategies

Negative side effects ● Mild □ ▣ ▦ ■ High positive benefits

AI's contribution to the economy

		Description	VC	PE	HF
Capital markets	Liquidity	• Enables investors to buy/sell assets when they want	▣		■
	Financial innovation	• Develops new and innovative products, but these can produce new risks as well		▦	■ ●
	Long-term capital	• Provides the capital needed to invest in long-term projects	■	▣	
	High-risk capital	• Provides capital to projects that are too risky for normal investors	■	▣	
	Transaction costs	• Supports businesses and consumers by reducing the cost of deals/trades	▦		■
Real economy	Economic impact	• Increased GDP growth • Increased competition within industries	■	▣	
	Innovation	• Funds the technologies that will change the world tomorrow	■	▣	
	Employment	• VC creates new employment • PE slightly decreases employment[2]	■	□ ●	
	Corporate governance[1]	• Strengthens governance structures • Reduces principal-agent issues	▦	■	▣ ●
	Firm productivity	• Improves the productivity of firms • Invests in new research	□	■	

[1] Concerns have been raised that activist hedge funds may focus too much on short-term results

[2] Research has shown that private equity buyouts often result in both new jobs being created and existing jobs being eliminated, with a slight decrease in overall employment as a result

Source: World Economic Forum Investors Industries

Acronyms

PRIPS = Packaged Retail Investment Products

FATCA = Foreign Account Tax Compliance Act

AIFMD = Alternative Investment Fund Managers Directive

FTT = Financial Transaction Tax

UCITS = Undertakings for Collective Investment in Transferable Securities

RDR = Retail Distribution Review

MIFID = Markets in Financial Instruments Directive

Dodd-Frank = Dodd-Frank Wall Street Reform and Consumer Protection Act

Volcker Act = Volcker Rule within the Dodd-Frank Wall Street Reform Protection Act

CRD = Capital Requirements Directive

Basel = Basel Accord

Solvency = Solvency Directive

EMIR = European Market Infrastructure Regulation

European Commission's Liikanen proposals = Liikanen proposals

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Endnotes

1 Obama, Barack, *Remarks of the President on Regulatory Reform*, 17 June 2009, speech presented at The White House, Washington DC.

2 *PWC, G-SIB capita: A look to 2015,* 2014.

3 Caccese, Michael S., Clair E. Pagnano, Rita Rubin and George P. Attisano, Summary of New Money Market Fund Rules Adopted by the SEC, K&L Gates, 5 August 2014, http://www.klgates.com/summary-of-new-money-market-fund-rules-adopted-by-the-sec-08-05-2014/.

4 Deloitte, *MMF Regulation: CNAV calm after the capital-buffer storm*, 2015.

5 European Commission, *Implementing enhanced cooperation in the area of Financial Transaction Tax (FTT)*, 2014.

6 Dizard, John, "One last chance to stop the financial transaction tax. Again", *Financial Times,* 24 April 2015

7 Cave, Tim, "HFT firms face German slowdown after rules change", *Financial News*, 3 February 2014.

8 Houlder, Vanessa, "Global tax standard attracts 42 countries", *Financial Times,* 13 February 2014.

9 Nacken, Dennis and Christian Schmitt, "Solvency II is Causing a Paradigm Shift", *Allianz Global Investors*, June 2013, http://www.updatemagazineonline.com/theme/regulierung/solvency-ii-is-causing-paradigm-shift.

10 Chung, Juliet and Kirsten Grind, "SEC Launches Examination of Alternative Mutual Funds", *Wall Street Journal,* 12 August 2014.

11 Walker Barton, Suzanne and Anchalee Worrachate, "Bond Dealers Enfeebled as Liquidity Woes Boost Derivatives", *Bloomberg*, 2 June 2015, http://www.bloomberg.com/news/articles/2015-06-01/bond-dealers-enfeebled-as-liquidity-breakdown-boosts-derivatives.

12 Burne, Katy, "Citadel Makes Inroads into Swaps Arena", *Wall Street Journal*, 22 June 2015

13 Jones, Kathy A., "Bond Market Liquidity Could Shrink When Rates Rise", *Charles Schwab*, 15 June 2015, http://www.schwab.com/public/schwab/nn/articles/Rate-Hike-Could-Cause-Market-Liquidity-Problem-for-Bonds.

14 Rennison, Joe, "High-frequency traders: bond market scourge or saviour?", *Financial Times*, 1 September 2015

15 Rennison, Joe and Philip Stafford, "Repo market faces structural challenge", *Financial Times*, 18 June 2015

16 Garcia, Cardiff, "A new collateral estimate with a cautionary note", *Financial Times*, 29 May 2013.

17 Anderson, Ronald W. and Karin Joeveer, "The Economics of Collateral", *The London School of Economics*, April 2014, http://www.dtcc.com/~/media/Files/Downloads/WhitePapers/LSE%20Report.pdf.

18 Rennison, Joe and Philip Stafford, "LCH. Clearnet sounds alarm over declining use of repo", *Financial Times*, 16 June 2015

19 Tracy, Ryan, "Banks Retreat From Market That Keeps Cash Flowing", *Wall Street Journal*, 13 August 2014.

20 Barclays, *Evolution of the Hedge Fund Financing Model*, 2012.

21 Barclays, *Evolution of the Hedge Fund Financing Model*, 2012.

22 Rennison, Joe and Philip Stafford, "Repo market faces structural challenge", *Financial Times*, 18 June 2015

23 Cave, Tim, "Europe's high-speed traders under pressure to fine-tune", *Financial News*, 18 November 2013.

24 Stevenson, Alexandra, "Bank funding threat from EU tax", *Financial Times*, 8 April 2013.

25 European Commission, *Commission Staff Working Document Impact Assessment*, 2013.

26 Carnegy, Hugh, and Michael Stothard, "France central bank chief says Robin Hood tax is 'enormous risk'", F*inancial Times*, 27 October 2013.

27 Noonan, Laura, "Investment banking: Titans retreat", *Financial Times*, 25 August 2015

28 Turner, Matt, and Mike Foster, "Bankers jump to buyside after pocketing bonus", *Financial News,* 3 March 2014.

29 Economist staff, "Banks? No, thanks!", *Economist*, 11 October 2014.

30 Gellman, Lindsay and Shayndi Raice, "Banks Reassess Internship Programs, Relax Rules for Junior Employees", *Wall Street Journal*, 11 January 2014.

31 Baer, Justin, and Daniel Huang, "Wall Street Staffing Falls Again", *Wall Street Journal*, 19 February 2015.

32 Dai, Shasha, "Private Equity Firms Paid Biggest Share of Fees to Investment Banks This Year", *LBO Wire*, 20 September 2013.

33 FT Alphaville, "Private equity firms paid $11bn in fees to banks in 2006", *FT Alphaville Blog*, 5 January 2007, http://ftalphaville.ft.com/2007/01/05/1644/.

34 Taub, Stephen, "The 2015 Hedge Fund 100", *Institutional Investor*, 27 May 2015.

35 Preqin, 2011 Global Private Equity Report, 2011.

36 State Street Corporation, *State Street 2013 Alternative Fund Manager Survey: Executive Summary*, 2013.

37 Grant Thornton, *Global Private Equity Report 2013/14*, 2013.

38 SEI, *The SEI 2013 Private Equity Survey*, 2013.

39 State Street Corporation, *State Street 2013 Alternative Fund Manager Survey: Executive Summary*, 2013.

40 SEI, *The SEI 2013 Private Equity Survey*, 2013.

41 Fleming, Sam, "The age of the compliance officer arrives", *Financial Times*, 24 April 2014.

42 BNY Mellon, *AIFMD Will Reduce Choice and Increase Costs for Fund Managers and Investors* [Press release], 22 July 2013.

43 KPMG, *2013 KPMG/AIMA/MFA Global Hedge Fund Survey*, 2013.

44 Goff, Sharlene, "Tighter rules bear down on wealth managers", *Financial Times*, 27 November 2013.

45 KPMG, *The Cost of Compliance,* 2013.

46 Ibbotson, Roger G., Peng Chen, CFA and Kevin X. Zhu, "The ABCs of Hedge Funds: Alphas, Betas, and Costs", *Financial Analysts Journal*, vol. 67, no. 1, 2011, pp. 15-25.

47 Woolley, Mark, "Show Me the Alpha", *BlackRock*, Spring 2014, http://www.blackrock.com/investing/literature/whitepaper/spring-2014-currents-show-me-the-alpha.pdf.

48 McCrum, Dan, "Two and twenty is long dead and buried", *Financial Times*, 9 December 2013.

49 KPMG, *The Cost of Compliance*, 2013.

50 Watkins, Jon, "Hedge funds face collateral conundrum", *The Trade*, 10 August 2015, http://www.thetradenews.com/news/Asset_Classes/Derivatives/Hedge_funds_face_collateral_conundrum.aspx.

51 Citi, *Hedge Fund Industry Snapshot*, 2014.

52 Jones, Sam, "Regulation changes the way hedge funds grow", *Financial Times*, 22 October 2013.

53 FinAlternatives Staff, "Hedge Fund Assets Hit $2.337 Trillion", *FinAlternatives,* 7 October 2013.

54 Jones, Sam, "Regulation changes the way hedge funds grow", *Financial Times*, 22 October 2013.

55 Bollen, Jennifer, "First-time private equity funds find their feet", *Financial News*, 16 July 2015

56 Duong, Jessica, "The Troubles of First-Time Funds", *Preqin Private Equity Spotlight*, 1 April 2014, https://www.preqin.com/docs/newsletters/pe/Preqin_PESL_Apr_14_First_Time_Funds.pdf.

57 McCrum, Dan, "Zombie hordes thrive, await further hedge fund corpses", *FT Alphaville Blog*, 25 March 2014

58 McCrum, Dan, "Zombie update: the silent hedge fund apocalypse", *FT Alphaville Blog*, 19 June 2015, http://ftalphaville.ft.com/2015/06/19/2132429/zombie-update-the-silent-hedge-fund-apocalypse/.

59 McCrum, Dan, "Zombie update: the silent hedge fund apocalypse", *FT Alphaville Blog*, 19 June 2015, http://ftalphaville.ft.com/2015/06/19/2132429/zombie-update-the-silent-hedge-fund-apocalypse/.

60 eVestment, Impact of Size and Age on Hedge Fund Performance 2015 Edition, 2015.

61 Bain / Institute of International Finance, *Restoring Financing And Growth To Europe's SMEs*, 2013.

62 PWC, *Impact of bank structural reforms in Europe: Report for AFME*, 2014.

63 Bain/Institute of International Finance, *Restoring Financing And Growth To Europe'S Smes: Four Sets Of Impediments And How To Overcome Them*, 2013.

64 PWC, *Impact of bank structural reforms in Europe: Report for AFME*, 2014.

65 AltAssets Staff, "Infrastructure debt enters the frame with promise of long-term yield", *AltAssets*, 31 January 2014, https://www.altassets.net/features/infrastructure-debt-enters-the-frame-with-promise-of-long-term-yield.html.

66 PreQin, *2015 Global Hedge Fund Report*, 2015.

67 Borda, Joseph, "North America-Based Private Equity Investors' Appetite for Buyout Funds – January 2015", *PreQin*, 14 January 2015, https://www.PreQin.com/blog/101/10592/private-equity-buyout-funds.

68 European Venture Capital Association, *Private equity industry puts forward plan to help unlock €12 trillion of investor capital for Europe's businesses* [Press release], 13 May 2015.

69 Isaac, Fiona, "The Regulatory Effect on Private Debt Investors", *Preqin Blog,* 29 January 2015 https://www.preqin.com/blog/0/10693/regulations-private-debt.

70 Marriage, Madison, "Asset managers are not keen to bankroll EU infrastructure", *Financial Times*, 15 September 2013.

71 European Commission, New Eu Rules To Promote Investments In Infrastructure Projects [Press release], 30 September 2015.

72 Preqin, *Global Private Debt Fund Market Approaches $500bn in AUM* [Press release], 19 March 2015.

73 Kortekaas, Vanessa, "Investors seeking high returns bid for unpaid invoices", *Financial Times*, 13 June 2013.

74 Athwal, Nav, "The Disappearance Of Peer-To-Peer Lending", *Forbes*, 14 October 2014, http://www.forbes.com/sites/groupthink/2014/10/14/the-disappearance-of-peer-to-peer-lending/.

75 Preqin, *Preqin Special Report: Private Debt*, 2014.

76 Cendrowski, Scott, "Alibaba's online bank could be a quick hit. Then what?", *Fortune*, 10 April 2015, http://fortune.com/2015/04/10/alibabas-online-bank-could-be-a-quick-hit-then-what/.

77 Massolution, *2015CF Crowdfunding Industry Report*, 2015.

78 Morgan Stanley, *Global Marketplace Lending: Disruptive Innovation in Financials*, 2015

79 Massolution, *2015CF Crowdfunding Industry Report*, 2013.

80 Massolution, *2015CF-RE Crowdfunding for Real Estate*, 2015.

81 Marriage, Madison, "Germany blocks Caribbean hedge funds", *Financial Times*, 24 November 2013.

82 PWC, *Impact of bank structural reforms in Europe: Report for AFME*, 2014.

83 PWC, Impact of bank structural reforms in Europe: Report for AFME, 2014.

84 Banerjee, Devin, "SEC Finds Illegal or Bad Fees in 50% of Buyout Firms", *Bloomberg*, 6 May 2014, http://www.bloomberg.com/news/articles/2014-05-06/sec-finds-illegal-or-bad-fees-in-50-of-buyout-firms.

85 Sender, Henny, "KKR, Blackstone and TPG pay $325m to settle collusion lawsuit", *Financial Times*, 7 August 2014

86 McKenna, Francine, "KKR fine signals heightened SEC focus on private equity", *MarketWatch*, 30 June 2015, http://www.marketwatch.com/story/kkr-fine-signals-stronger-sec-focus-on-private-equity-2015-06-29.

87 Flood, Chris, "SEC issues fresh warning to private equity", *Financial Times*, 31 May 2015

88 Bowden, Andrew J., *Spreading Sunshine in Private Equity*, 6 May 2014, speech presented at Private Equity International (PEI), Private Fund Compliance Forum 2014, New York, NY

89 Willmer, Sabrina and Alan Katz, "Private Equity Not So Private as Fees Revealed at Blackstone", *Bloomberg*, 31 December 2014, http://www.bloomberg.com/news/articles/2014-12-31/blackstone-opens-up-about-hidden-fees-as-sec-pushes-transparency.

90 Flood, Chris, "US calls for clarity on private equity fees", *Financial Times*, 22 July 2015

91 Diamond, Randy, "CalPERS hampered by fee complications", *Pensions & Investments*, 15 June 2015, http://www.pionline.com/article/20150615/PRINT/306159977/calpers-hampered-by-fee-complications.

92 Philippon, T. and A. Reshef (2012). Wages and Human Capital in the U.S. Finance Industry: 1909-2006. Quarterly Journal of Economics 127 (4), 1551-1609.

93 Kneer, Christiane, The Absorption of Talent into Finance: Evidence from U.S. Banking Deregulation (September 5, 2013). De Nederlandsche Bank Working Paper No. 391.

94 Cecchetti, Stephen G. and Kharroubi, Enisse, Why Does Financial Sector Growth Crowd Out Real Economic Growth? (February 2015). BIS Working Paper No. 490.

95 Jacobides, Michael and Jason Rico Saavedra, *The Shifting Business Model of Private Equity: Evolution, Revolution, and Trench Warfare*, Coller Institute of Private Equity, 2015, September.

96 PWC, *Impact of bank structural reforms in Europe: Report for AFME*, 2014.

97 European Commission, New Eu Rules To Promote Investments In Infrastructure Projects [Press release], 30 September 2015

98 TheCityUK, *Hedge Funds*, 2013.

99 Forrer, Alison, "New York: The Largest Hedge Fund Hub by Assets under Management – February 2014", Preqin, 27 February 2014, https://www.preqin.com/blog/101/8451/hedge-fund-assets.

100 Hedge Fund Research data

101 Hedge Fund Research data

102 Institutional Investors Alpha data

103 Preqin data

104 Preqin data

105 Preqin data

106 Ernst and Young, *Adapting and evolving: Global venture capital insights and trends 2014*, 2014.

107 Preqin data

108 Preqin data

109 Jones, Sam, "The Formula that felled Wall St", *Financial Times*, 24 April 2009.

110 Salmon, Felix, "Recipe for Disaster: The Formula That Killed Wall Street", *Financial Times*, 16 February 2009.

111 Preqin data

112 Preqin data

113 HFR data

114 Preqin, *2015 Global Hedge Fund Report*, 2015.

115 Preqin, *Private Investor Outlook: Alternative Assets*, H1 2015, 2015.

116 Preqin, *2015 Global Hedge Fund Report*, 2015.

117 Borda, Joseph, "North America-Based Private Equity Investors' Appetite for Buyout Funds – January 2015", Preqin, 14 January 2015, https://www.preqin.com/blog/101/10592/private-equity-buy-out-funds.

118 Parker, Lisa, "Investors in Venture Capital Vehicles vs. Investors in Buyout Vehicles – February 2015", Preqin, 12 February 2015, https://www.preqin.com/blog/101/10785/lps-in-vc-buyout-vehicles.

119 Preqin, 2015 Global Hedge Fund Report, 2015.

120 Preqin, *Private Investor Outlook: Alternative Assets,* H1 2015, 2015.

121 Young, Harry, "Changes in Investors' Allocations to Private Equity", Preqin Private Equity Spotlight, 1 March 2014, https://www.preqin.com/docs/newsletters/pe/Preqin_PESL_Mar_14_Changing_Allocations.pdf.

122 Preqin, *2015 Global Hedge Fund Report*, 2015.

123 William Blair, *Leveraged Finance Market Update*, 2015.

124 Citi, *Hedge Fund Industry Snapshot*, 2014.

125 Lerner, Josh, "Boom and Bust in the Venture Capital Industry and the Impact on Innovation", Federal Reserve Bank of Atlanta Economic Review, vol. 2002, No. 4, 2002, pp. 25-39.

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