AMBER
INFRASTRUCTURE GROUP

INVESTING IN INFRASTRUCTURE: CENTRAL AND EASTERN EUROPE

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CONTENTS

Enery is a Vienna-headquartered renewable energy developer and operator with activities across the CEE

KEY TAKEAWAYS

- The Central Eastern European (CEE) region is one of the **fastest growing regions** in the European Union (EU) with a predominance of foreign investors actively investing, **endorsing the region's potential**
- There is a disparity between the necessary investment in infrastructure in the CEE and the funds available for deployment, particularly from institutional capital
- **Infrastructure** as an asset class is **extremely popular** with pension funds and insurance companies globally due to the long-term and low-risk nature of the asset class alongside other benefits
- However, pension funds and insurance companies in the CEE tend to **only invest a small portion of their assets under management** (AUM) in infrastructure due to a number of issues including regulatory restrictions
- This creates an environment whereby many of the infrastructure assets in the CEE are owned by governments and foreign investors who were attracted by the growth potential of the region
- There is a **need to develop the regulatory and policy landscape of the region** for local investors to enable participation in an asset class which offers stable, long-term returns, predictable cash flows and diversification benefits

1. INFRASTRUCTURE IN THE CEE

1.1 CEE OVERVIEW

The CEE region is undergoing a significant transformation, driven by investments in infrastructure and the energy transition. As governments across the region focus on modernising transportation networks, expanding digital infrastructure, and reducing carbon emissions, a wealth of opportunities are emerging for institutional investors, particularly pension funds, insurers and other Limited Partners (LPs).

With a population of over 110m and a combined GDP approaching €2.5tn, it is a region experiencing rapid growth as it converges with Western standards. Key to further unlocking this potential will be attracting fresh investments and finance mechanisms that can help bridge the region's significant infrastructure gap.

1.2 INVESTMENT LANDSCAPE

The CEE region continues to grow in economic stature and global standing. The share of funding originating outside Europe rose from 9% in 2022 to 21% in 2023[1]. It is indicative of a trend that there is a growing appetite for investment in the region, with awareness of the region expanding to wider international markets despite a fundraising and capital slowdown.

Reasons for optimism remain, with investment over the last 15 years rising across the board, with Lithuania and Estonia among the highest, with a cumulative increase of 157% and 114%, respectively. CEE has the distinct advantage of having cluster markets within its borders, with their own economic and investment identity. When combined, these clusters offer investors of all appetites opportunities to grow in markets and sectors at various stages of development.

From an investment standpoint, the region can be split into groups based on a combination of economic development, historical and geographical context, regulatory landscape and social cultures, among others: the Baltic states in the north (Lithuania, Estonia and Latvia), Central Europe (Czechia, Hungary, Poland, Slovakia) and the Balkans (Slovenia, Croatia, Romania, Bulgaria, Greece).

While each market is nuanced in its own way, part of the region's transformation calls for greater 'internal' connectivity, rather than solely the corridors that currently connect the region to Western Europe. By enhancing connectivity, the aim is for these specialist clusters to have seamless supply chains from a commercial, social and industrial perspective.

In order to achieve these goals, significant levels of funding and regulatory support are required, with new sources of capital crucial to meeting the investment needs of the region.

1.3 STATE OF PLAY - FACTORS INFLUENCING INVESTMENT

Historically leveraging a combination of funding mechanisms, including EU funds and national budgets, many CEE states are now further relying on private sector investments to bolster their economic growth and align with broader EU sustainable development and connectivity goals.

Despite a growing private sector participation, the CEE still lags behind Western Europe in investment:

FACTORS INFLUENCING INVESTMENT	
GEOPOLITICAL	Russia's invasion of Ukraine has spurred interest in CEE infrastructure redevelopment and supply chains. Ukraine's reconstruction is set to be one of the biggest undertakings of the 21st century, and CEE will play a critical role in facilitating trade and investment in Ukraine.

[1] 2023 Central & Eastern Europe Private Equity Statistics, Invest Europe, June 2024

MACROECONOMIC FACTORS	High inflation and volatility challenge stability, particularly outside the Eurozone. Despite this, CEE's lower entry costs and labour expenses make it attractive for nearshoring manufacturing and services.
LEGAL FRAMEWORKS	Given the propensity for bureaucratic inefficiencies and regulation/legislative changes across business operations, tax, labour etc., long-term investments can be viewed as challenging.
SOCIAL TRENDS	Education and trade skills are becoming critical in the CEE labour market. Significant efforts are being made to prevent 'brain drain', retain local talent and compete with labour markets in Western Europe.

1.4 INFRASTRUCTURE GAP

As a result of chronic underinvestment in the region throughout the 20th century, and in particular during the communist era, a significant backlog of improvements and advancements in infrastructure has slowed progress. Despite increasing interest and institutional funding, the region still struggles to attract sufficient capital for large-scale projects, leaving both quality and quantity of critical infrastructure development lagging behind Western Europe, North America and Australia. For instance, 9 of the 12 CEE countries rank in the lower half of the Infrastructure Index[2].

1.5 FUNDING GAP

The funding gap in the CEE region refers to the disparity between the necessary investment in infrastructure and the actual funds available for development. This gap is particularly evident in the infrastructure investment provided by institutional investors, including pension funds and insurance companies.

On average, CEE pension funds allocate a very small portion of their portfolios to alternatives (which includes infrastructure, real estate, venture capital, private debt and private equity) compared to their Western European counterparts - favouring traditionally safer investments in government bonds, listed equity and other EU-backed projects. As a result, pension funds are amongst the lowest contributors to infrastructure investment in the region.

The lack of participation and engagement can be attributed to several core factors, among them:

FACTORS INFLUENCING FUNDING GAP	
LOW-RISK APPETITE	Pension funds and insurers maintain more conservative approaches to risk, favouring listed equity and government bonds. As a result, alternative asset classes such as infrastructure are viewed with increased scrutiny.
REGULATORY CONSTRAINTS	Many CEE states have strict regulations limiting pension fund allocations within asset classes, an approach adopted as a means to protect pension savings. In some cases, pension funds can invest in infrastructure only via bonds or investing in the shares of listed infrastructure companies. In comparison, some Danish pension funds allocate roughly 10% of their total assets under management (AUM) to infrastructure, funding projects in renewables, transportation and utilities across Europe worth billions.
SMALLER FUND SIZE	Given the commitment required to infrastructure investment from a financial, regulatory and growth perspective, it remains out of reach for many of CEE's pension funds and other institutional funds; in order to spread risks, smaller fund sizes severely limit the pool of projects that can be supported.

For comparison, Western Europe's pension funds and insurers, along with industry leaders' Australia and Canada, benefit from diversified portfolios and mature ecosystems, allowing for greater confidence in alternative investments and the ability to capitalise on a broader range of investment opportunities.

[2] The Infrastructure Index is prepared annually by the Swiss-based International Institute for Management Development (2024)

2. PRIVATE INVESTMENTS IN INFRASTRUCTURE

Infrastructure assets are the networks and systems that provide essential services, facilitate economic activity and enable the movement or storage of people, goods, energy, data and water, and are instrumental to the smooth running of society. Infrastructure typically requires significant investment and, with stretched government balance sheets and increased debt, it is challenging for the public sector alone to fund projects.

As such, many governments encourage private investment in infrastructure to bridge the funding gap given the tangible benefits infrastructure can provide socio-economically. A report by McKinsey Global Institute estimated that every €1 of infrastructure investment can raise GDP by €0.2 in the long run[3].

2.1 HISTORY OF PRIVATE INVESTMENT IN INFRASTRUCTURE

While railways and ports have formed part of investor portfolios since the early 20th century, the private sector infrastructure asset class only fully emerged in the 1990s, following the privatisation of state utilities, telecommunication, and transportation companies in the preceding decade. This development began in Australia, followed by the UK and Canada, with further expansion occurring across Western Europe and the US during the 2000's.

Since the 2008 Global Financial Crisis, **the private infrastructure market has more than tripled in size**, with institutional investors now owning or operating a large proportion of economic infrastructure globally. **Over $550bn has been raised by unlisted infrastructure funds over the past ten years**– demonstrating the sector's growing importance in investor portfolios. The routes to market varied, with infrastructure investment facilitated through listed and unlisted as well as direct investment - and is now considered a mainstay across a majority of renowned institutional investors allocations.

Notwithstanding the fact that many governments have launched privatisation programmes over the 2000s, **Australia and Canada are still considered leaders in the infrastructure sector,** with an average target allocations to infrastructure of 5.5%, up 0.4% in 2024. Australian pension funds are seen as forerunners in the field, having been part of the privatisation of infrastructure assets since the early 1990s, whilst their Canadian counterparts are often referred to as leading infrastructure investors, given they led on direct investing in the early 2000s.

AUSTRALIA AS A PIONEER FOR INFRASTRUCTURE INVESTMENT

- Up until the 1980s Australian governments, commissioned, owned and operated much of Australia's major infrastructure and associated service operators
- Over the last 40 years, much of the country's public infrastructure as well as related businesses was privatised. This began with a high number of large-scale privatisations in the early 1990s, including airport privatisations by the federal government and a number of electricity assets in the state of Victoria
- Australian pension funds are now major investors in the country's economy, having played a substantial role in the privatisation programme and have an interest in much of the country's infrastructure
- Experts often point to Australia's scheme of superannuation as a reason for its success, having large consolidated pools of capital which can then allocate considerable sums to the country's infrastructure. Superannuation is a compulsory system of placing a minimum percentage of individuals income into a fund (currently 11% but rising to 12% by 2025) to support financial needs in retirement
- The scheme is invested in a range of assets to help grow balances so retirees can have the best possible retirement outcome. According to 2023 Industry Super Australia Report, over the next ten years the superannuation funds are projected to invest an additional A$31bn in private equity, which will include a significant allocation to infrastructure

[3] McKinsey Global Institute

CANADIAN MODEL OF PENSION FUND INVESTMENT

- Large Canadian pension funds such as OTPP, CDPQ and OMERS are considered early investors in infrastructure in the 2000s, second only to the Australians. There are currently over 50 public sector pension funds in Canada that have a combined AUM of over $2.35tn with the majority having a sizable allocation to infrastructure - often in excess of 10% of their AUM
- A key lesson from Canadian pension funds has been the benefit of the consolidation of the market facilitated by legislation. The Canadian model champions the internal capacity built by its larger funds. Consolidation has made it efficient to develop in-house expertise, reducing costs from external managers while assisting funds with greater access to investment opportunities
- Notable characteristics of successful Canadian investors include:
  - **Governance**: Canadian pension funds are known to have independent and professional boards able to understand sophisticated investment programmes related to alternative asset classes
  - **Internal Management**: Experienced internal investment management teams have been built up over the years
  - **Scale**: By pooling capital, the pension funds are able to fully leverage their size to create opportunities and invest alongside managers on a fee-free basis benefiting their end clients

There are a **number of similarities** between the two countries, a trust-based pension system, the absence of restrictive investment and solvency regulation, a mature PPP and broader infrastructure investment market and a relatively stable political environment.

2.2 CURRENT ALLOCATION TO INFRASTRUCTURE

Regardless of route to market over the last three decades, pension funds and insurance companies have started allocating significant resources to infrastructure. Institutional interest has been furthered by the low yield environment over the past decade and the appealing investment characteristics of infrastructure (covered in Section 2.3). With infrastructure now considered a mainstay in large and mid-sized institutional portfolios, over the past five years, smaller institutions and individuals have been looking at ways to benefit from the asset class.

Allocations across geographies continue to vary and infrastructure investment is not spread equally - with North America and Western Europe's investors allocating the most to infrastructure.

This disproportionality is demonstrated by the world's 75 largest institutional investors, who **allocated a total of $723bn to infrastructure in 2023**. [4] Of the top 75, 48 were public pension funds who account for a combined allocation of $500bn to infrastructure. Five of the top 10 institutional investors are Canadian pension funds, who on average are allocating ~16% of their AUM to the asset class. This compares to Europe, where pension funds typically allocate around 3-5%.

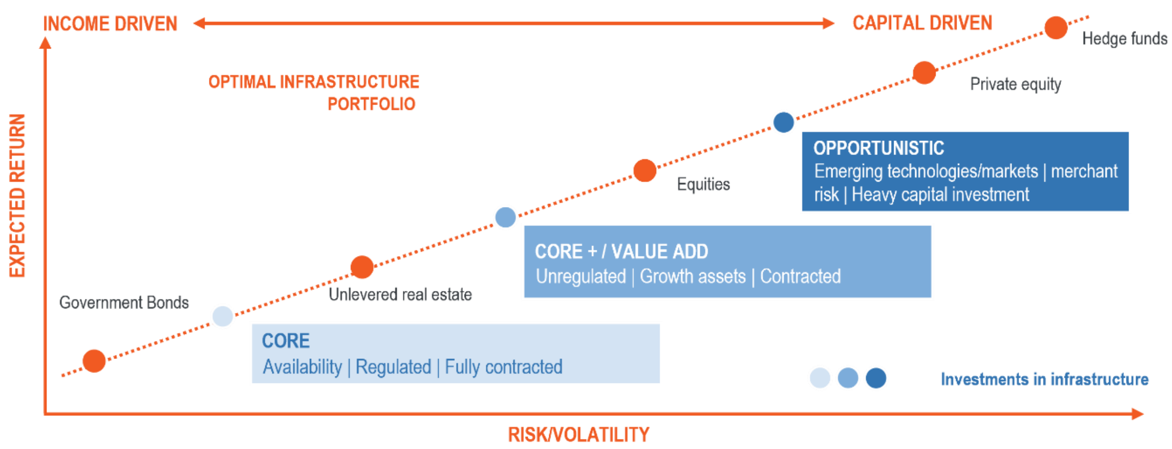
European governments are considering initiatives to drive investment into infrastructure given the number of benefits outlined in 2.2 below. In July, Germany proposed a 5% infrastructure quota for occupational pension funds. This is in stark contrast to the CEE where overall allocations to the sector across the 12 constituent members who form the wider region, are marginal.

[4] Infrastructure Investor, Global 75

2.3 BENEFITS OF INFRASTRUCTURE INVESTMENT

The link between infrastructure investments and long-term economic growth has long been established, hence the significant government support. However, given the size of the infrastructure gap and consequently the amount of capital required far exceeds the resources that countries can raise in a fiscally and macroeconomically responsible manner, there continues to be encouragement for institutional investors to invest.

Infrastructure is widely regarded as a comparatively low-risk asset class, with a longer-term investment scale than other alternative investments. Investment in this asset class is commonly seen as a longer-term yield play, rather than a short-term commitment focused on capital appreciation. Below illustrates where infrastructure sits on a relative risk return spectrum in comparison to other asset classes.



Source: *Amber*

A key benefit to infrastructure is that it has proven itself to be a resilient asset class through market cycles. Some of the key benefits of infrastructure investment include:

1. **Long-Term Stability:** Infrastructure projects offer stable, long-term returns. By investing in these assets, pension funds can match their liabilities effectively and ensure consistent income over time. As assets providing essential services with few or no competitors, demand is stable through periods of uncertain economic times. This helps generate stable cash flows for an investor. Furthermore, these cash flows are often predictable because they are determined by a monopolistic position, regulation or longer term contracts, as such making them suitable for investors with long-term obligations.

2. **Diversification**: Infrastructure investments provide diversification beyond traditional asset classes like equities and fixed income. They are known to display low correlation with other asset classes and public markets, especially over the longer term and so are of benefit to overall portfolio composition to manage risk and enhance overall portfolio stability.

3. **Inflation Hedge**: The majority of infrastructure assets have an inherent link to inflation either through regulation, concession agreements or contracts with rates that are set to rise in line with inflation rates. Where this is not the case and there is no explicit link, infrastructure business' monopolistic position can sometimes mitigate inflation risk.

4. **Longevity**: the asset class benefits from being less susceptible to technological changes and has a long-term outlook, with investors often being incentivised by governments or regulators to maintain the asset. Additionally, infrastructure investments typically benefit from lower operating and maintenance costs as a proportion of revenue.

5. **Enhanced Portfolio Returns:** The investment universe including unlisted infrastructure has the potential to unlock improved portfolio risk adjusted returns.

6. **Socio-Economic Growth Cycle:** Investing in local infrastructure not only drives immediate economic development but also generates long-term social benefits, empowering communities and businesses. This leads to increased economic activity, which in turn grows pension pools and enables further infrastructure investments, creating a sustainable cycle of growth.

3. INFRASTRUCTURE INVESTORS IN THE CEE REGION

Pension funds in the CEE region tend to allocate only a small portion of their assets to infrastructure. When these funds do invest in infrastructure, they often prioritise listed companies or funds whose investment focus is on Western Europe and North America. This approach highlights a significant outflow of capital that could otherwise be used to support and enhance local infrastructure. For example, CEE institutional investors are believed to be investors in Western European listed infrastructure companies like Ørsted, Engie, Deutsche Telekom, and Veolia.

As a result of this investment strategy, **local infrastructure such as transportation networks or renewable energy assets are either exclusively government owned or are supported by foreign investors**. These foreign investors are capitalising on the opportunities within the region, often taking control of critical infrastructure assets, which could otherwise be under local ownership if domestic pension funds were more actively engaged in the local market.

Cargounit, leading locomotive lessor in Central Europe

This situation presents several challenges. Firstly, it means that the returns generated from local infrastructure investments are being transferred abroad rather than benefiting the local economy. Secondly, it raises concerns about the control and influence that foreign entities have over infrastructure, which could have long-term strategic planning implications and national security. Finally, it represents a missed opportunity for local pension funds to invest in assets that could provide stable, long-term returns while simultaneously supporting regional economic development.

There is a growing recognition of the need to redirect some of these pension fund investments back into the local economy, particularly into infrastructure projects that can drive sustainable growth, improve public services, and create jobs. However, this would require a concerted effort from policymakers and regulators to create an enabling environment that encourages and facilitates such investments.

The backdrop for this change is well primed in both the pension fund and insurance investor markets. European regulations are already supportive of pension funds' investments in infrastructure, recognising the importance of such investments for portfolio diversification and long-term returns. Under the **IORP II Directive (Directive (EU) 2016/2341)**, pension funds can invest in private (unlisted) infrastructure companies or funds. The directive provides a framework that encourages pension funds to diversify their investments, including in alternative assets such as infrastructure, as long as investments are made prudently and in the best interest of the beneficiaries. The directive further underscores the importance of robust risk management, governance, and due diligence processes when engaging in such investments. Pension funds are required to ensure that their investment strategies are consistent with their risk tolerance, liquidity requirements, and the long-term interests of the beneficiaries. Additionally, the scope and extent of investments in unlisted infrastructure assets are subject to national regulations and the specific investment policies of each pension fund.

On the other hand, **Solvency II** is a regulatory framework for insurance and reinsurance companies in the EU. It primarily focuses on ensuring that these companies have enough capital to meet their obligations, thus protecting policyholders. Under Solvency II, infrastructure investments are recognised as a distinct asset class. They receive favourable capital treatment due to their typically stable and predictable cash flows, which align well with insurers long-term liabilities. To incentivise investment in infrastructure, Solvency II allows for reduced capital charges under certain conditions, especially for "qualifying infrastructure investments" that meet specific criteria related to stability and risk. Qualifying infrastructure investments are projects or entities that are considered low-risk due to their stable, long-term cash flows and have a clear regulatory framework or contractual protection. If an investment qualifies, the insurer can benefit from lower capital charges, which means they do not need to hold as much capital against these investments, making them more attractive from a regulatory perspective.

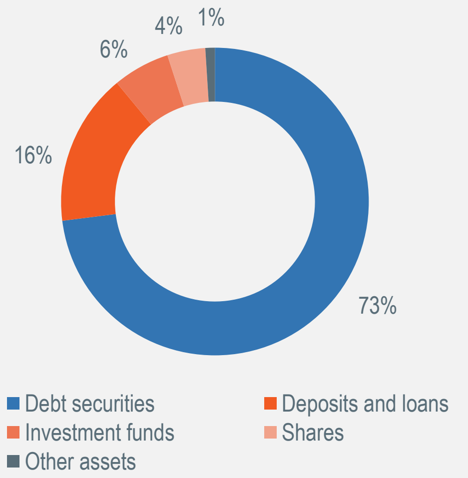
IORP II Directive and Solvency II are examples of frameworks that ascribe the appropriate level of risk to the infrastructure asset class for pension funds and infrastructure companies respectively. It may be beneficial for regulators in the CEE to take this into consideration.

3.1 PREDOMINANCE OF FOREIGN INVESTORS

Several prominent non-CEE pension funds from various countries have invested in the CEE region. These funds are attracted by the growth potential, higher yields, and diversification benefits offered by the region. According to Inframation's database, nearly 300 pension funds have invested in the CEE region, with data showing that these **pension funds have invested an average of 5.6% of their AUM in the infrastructure asset class.**

CASE STUDY: CZECH REPUBLIC

As of Q1 2024, Czech pension funds managed **€25bn of AUM** – an increase of 2.5% from 2023. Debt securities constituted the largest portion of the pension funds' assets, representing 73% of the total AUM. A significant share of these debt securities is invested in government bonds (66%), highlighting the funds' preference for perceived low-risk investments. Deposits and loans are another big component of the asset portfolio, accounting for 16% of AUM. The third largest asset class is equity securities. Of these, €1.1bn is invested in listed and unlisted shares, and €1.4bn in investment fund shares, reflecting a diversified approach to equity investments.



The allocation of assets within Czech pension funds underscores a predominantly conservative investment strategy, with a strong emphasis on debt securities, particularly government bonds. However, there is a noticeable shift towards equity securities, indicating a balanced approach to risk and return.

Although Czech pension funds allocate c.10% of their AUM to equity securities, with 6% invested in investment funds, they are not present on the list of pension funds investing in Czech infrastructure assets. As illustrated in the table below, the top 10 funds with the most significant investments in the Czech Republic are predominantly from Western Europe and Canada.

#	Name	Origin	Number of live investment in CZ	AUM (€bn)
1	British Columbia Investment Management Corporation (BCI)		5	153.8
2	Lothian Pension Fund & Lothian Buses Pension Fund		4	11.4
3	State Pension Fund of Finland (VER)		3	15.6
4	South Korean Military Mutual Aid Association		2	7.8
5	Stichting Pensioenfonds APB		2	500.0
6	Ontario Pension Board (OPB)		2	21.3
7	Varma Mutual Pension Insurance Company		2	50.2
8	UBS Investment Foundation 3		2	3.2
9	East Riding Pension Fund (ERPF)		2	7.4
10	Unipension		2	17.3

Source: Inframation

3.2 LOCAL INVESTORS: OBSTACLES TO INVESTMENT

One of the primary obstacles to investment is the political and regulatory environment of the market. The policy drivers of the CEE are undoubtedly nuanced and diverse but at their core, development is consistently high on all governments' agendas.

For investors such as pension funds and insurers, there is a high threshold for investment that needs to be met, balancing long-term stability and relative predictability with increased returns in a competitive environment. The risk profiles associated with investments are therefore closely linked to the regulatory sphere, with several other challenges facing CEE pensions funds when considering infrastructure investments:

1. **Regulatory Restrictions:** Pension funds face limits on how much they can allocate to unlisted infrastructure investments due to strict regulations (for instance c.1% of AUM in Romania and Bulgaria).
2. **Liquidity Requirements:** Infrastructure investments require long-term commitments, which may not align with the liquidity needs of investors.
3. **Perceived Risk:** CEE infrastructure projects are often seen as riskier compared to those in Western Europe or North America.
4. **Lack of Expertise:** Many CEE investors do not have the specialised knowledge required for managing infrastructure investments, because, as yet, they haven't developed internal infrastructure teams.
5. **Competition from Foreign Investors:** Foreign private equity and infrastructure funds have historically dominated the local infrastructure market, leaving limited room for domestic players to participate.
6. **Higher Cost Ratio:** Investing in infrastructure can come with higher costs, however higher returns on investments in infrastructure enable full coverage of these costs and provide an additional risk premium.

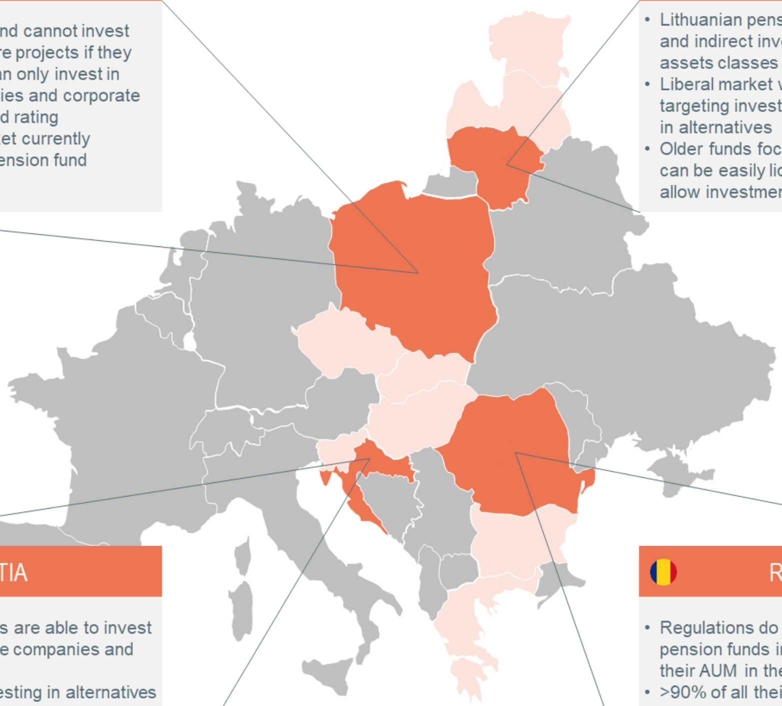
SELECTED MARKET OVERVIEW: PENSION FUNDS IN THE CEE

POLAND

- Pension funds in Poland cannot invest directly in infrastructure projects if they are not listed. They can only invest in publicly listed companies and corporate bonds with a very good rating
- The Polish stock market currently represents >90% of pension fund investments

LITHUANIA

- Lithuanian pension funds can make direct and indirect investments in alternative assets classes including infrastructure
- Liberal market with pension funds targeting investments of 15-20% of AUM in alternatives
- Older funds focus on investments that can be easily liquidated, younger funds allow investment in infrastructure



CROATIA

- Croatian pension funds are able to invest in private infrastructure companies and funds
- Recently, limits of investing in alternatives have increased to 20% of AUM
- In Croatia, real estate has tended to be the preferred form of alternative investment for many pension funds

ROMANIA

- Regulations do not allow Romanian pension funds invest more than 1% of their AUM in the alternative asset classes
- >90% of all their assets are invested in Romania
- Pension funds hold c.40% of the Bucharest Stock Exchange's free float and c.30% of trading volumes

Source : UKNF, Amber

4. CONCLUSIONS

As is the case in many emerging markets, the predominance of foreign investors in CEE represents in itself an endorsement of the region's potential - over 300 pension funds active in the region, with an average of 5.6% AUM invested in the infrastructure asset class. While Western Europe and the notable examples of Canada and Australia boast among the most developed investment models and policy landscapes, it also serves as a reminder of the **need to develop the regulatory and policy landscape for local investors**, who often find themselves unable to compete with foreign investment.

It is important to note the **varying stages of economic development** across the region. The investment environment in the Baltics and Croatia, for example, is more liberal in relation to infrastructure as an asset class, as well as the regulations governing investment compared to neighbouring markets such as Poland, Bulgaria and Romania, all of which highly regulate the investment landscape (*see Appendix 1*). Harnessing the industry knowledge and relative flexibility of global fund managers therefore provides an opportunity for local and regional investors alike to contribute to the region's growth - whilst playing a key role in developing the regulatory and governing landscapes across markets.

For first-time infrastructure investors in particular, the combination of an unlisted infrastructure fund coupled with an experienced fund manager - with a significant local presence in CEE - offers a balanced approach to market entry. From a strategic perspective, it offers **stable, long-term returns and predictable cash-flows** in an asset class that is ideal for investors looking to diversify their portfolios while mitigating risk. The region's evolving infrastructure landscape - particularly in energy, transport, digital and public infrastructure sectors - presents **untapped and inflation-proof potential** given the propensity for regulated and long-term agreements in a market actively seeking economic convergence with Western Europe.

By leveraging the expertise of a fund manager that offers comprehensive local coverage combined with global investment expertise, pension funds and insurers can be assured of informed decision-making and risk management, particularly given the nuances associated with markets operating at varying levels of economic development. As a result, the **benefits to investors remain significant**—diversification, long-term stability, and growth that aligns with sustainability and public benefit goals. As 2025 approaches, the increasing demand for infrastructure projects is set to continue, appealing to investors willing to engage in long-term commitments aligned with the region's broader societal and environmental goals.

R.Power, one of the fastest growing privately-owned renewable energy developers in Poland and a leading independent power producer ('IPP') active in solar PV and battery storage

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