Pricing risk in real estate

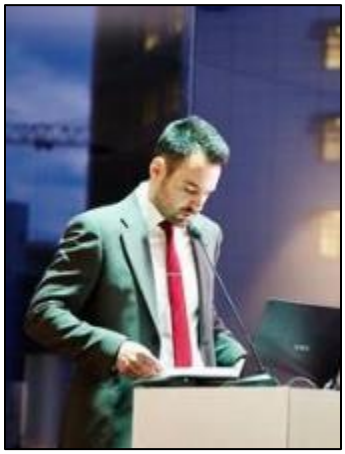
Extreme weather events and energy efficiency as decision determinants

Executive Summary

Date:	Monday, 16th March 2015, 18.00 – 21.00
Location:	Spanos Building, 1st Floor, 2 Amfitheas & Syngrou Avenue, 171 22 Nea Smirni, Athens

A. Welcome Speeches

Nikos Kountouriotis, Principal, Arbitrage Real Estate



In his welcome speech, Nikos Kountouriotis explained that the Greek real estate market is trying to find its pace following 6 years of continuous recession, which have reshaped the domestic market. In 2014 and before national elections were called, he reported that there was a shyly increase of investment activity, mainly in commercial and hospitality real estate. Total transactions resulted to roughly €1bn, mainly led by foreign funded and recently recapitalized domestic REICs. During the same period, international investors showed appetite for direct property investments and started evaluating opportunities across sectors. The residential showed some movement in summer housing as a result of tourism pick-up, better pricing and Schengen visa incentives.

Despite the good signs in 2014, Mr Kountouriotis noted that there was still a long way to recovery; especially because momentum was lost as a result of the new round of political instability. Notwithstanding also that competition from peripheral European countries, especially from Central Europe, was increasing. In this environment, he stated that the local real estate professionals are called to promote a domestic product, which suffers from institutional inefficiencies such as a volatile taxation, zoning complexities and lack of transparency, crucial deterrents to attract foreign capital. Despite the difficulties, Mr. Kountouriotis concluded that, with some political stability in place, it is in everyone's hands to work with synergies, economies of scale and honest cooperation towards a sustainable recovery path. He ended by inviting everyone to be transparent and collaborative in order to help "shape an adaptable, energy efficient, resilient, smart and competitive domestic real estate market in the years to come".

Stavros Damianidis, Managing Director, LDK Consultants

Stavros Damianidis emphasized that global climate change is a reality that affects the price, energy performance and insurance premiums of buildings, but Greece has been in many ways privileged with a very low occurrence of extreme weather events. “This does not mean that Greece should not pay attention to developing or refurbishing buildings based on the principles of climate resilience, sustainability and energy efficiency”, he said. “After all”, as Mr Damianidis explained, “the buzzwords of our era, climate resilience, informed investments and sustainability should be drivers in a country, where there is a very diverse, interesting and historic building stock in all sectors, including office, hospitality and residential.

In the next years, Mr Damianidis added that if the financial situation in Greece improves, many foreign investors will start looking again at the Greek market aiming for quality, well located and sustainable well-rented buildings. Therefore, the local developers and investors will need to focus their efforts not only on new high-class and resilient buildings but also on retrofitting existing ones in core locations making them more energy and space efficient. He concluded saying that “resilient and energy efficient buildings can be sold or rented out at a premium and undoubtedly attract the attention of foreign investors, whose capital is undeniably sought after”.

B. Keynote Speech - Dr. Sven Bienert

Theme: “Extreme weather and sustainability – how do they affect property values?”

Dr. Sven Bienert, Professor of Sustainable Real Estate at the University of Regensburg, presented the latest academic research results regarding the threat of extreme weather events and their impact on real estate and property values. He explained why weather risks should be considered as a key emerging driver to future investment strategies. He also highlighted the pay-off of green buildings, including trends in sustainable property investments.

Prof. Dr. Sven Bienert, kicked off his keynote speech by putting the dilemma between sustainability and profit. He explained that green policies and initiatives do not “clobber the economy” but as it has been proven many times, sustainability contributes to economic and financial success.

He started his presentation focusing on how extreme weather events affect property values. He explained that real estate values are being increasingly threatened by extreme weather events, such as storms, hail, flooding, droughts, tropical cyclones, and landslides. These extreme events have far greater relevance for real estate investors than the more frequently discussed effects of climate change, such as rising mean temperatures. He pointed out that the number of extreme weather events has doubled globally since the 1980s. The occurrence of such events is therefore escalating and is likely to continue, as climate change becomes more severe. He then presented briefly an overview of 2014 / 2015 extreme weather events.

Prof. Bienert continued by underlining that the new financial uncertainties caused by extreme weather are affecting the highest and best use of real estate throughout the world. “As real estate values account for about 3.5 times the GDP in developed countries, even relatively small changes in values have an enormous financial impact on economies”, he added. He also indicated that monetary losses related to real estate and infrastructure resulting from severe weather events have tripled globally the past decade, with direct losses

recorded by reinsurance companies amounting to US$150bn (€109.5bn) per annum. “In severely affected regions, losses have reached up to 8% per cent of GDP”. Estimates indicate expected monetary losses for buildings likely to double in some places in the near future, affecting as a result insurance premiums and total occupancy costs.

Dr. Bienert argued that the financial uncertainties caused by extreme weather were being considerably underestimated by real estate investors. Until recently, property portfolio allocations had rarely taken into account the science of climate change. “This is probably due to the absence of comprehensive risk models, tools and ready-to-process data that can be used in real estate forecasting models”, he explained. Total losses from extreme weather events are seriously underestimated as tracked data only accounts for direct losses and not consequential losses (e.g. a reduction in tourism) or indirect losses (e.g. reduced rent). “The depreciation of natural capital is also being ignored”, he said.

Dr. Bienert drew then attention to why real estate industry is still relatively passive. He gave a few reasons, notably that there is prevailing false belief that all damages are “insurable“, investments for adaptation cannot be passed on to users and also there is uncertainty of future hazard evolution. This has led to wrong asset allocations by a lot of portfolio investors, in which climate data are not embedded into real estate risk management systems. This has also shown that the insufficient cooperation of market participants (scientists vs. insurers vs. valuers vs. investors).

Dr. Bienert reasoned that the solution lies in the quantification of the downside-risk, basically the derivation elements of expected losses. He spoke about the ImmoRisk-Tool (Source: IRE|BS, 2013), in which there is a functional relationship between the variables, and more precisely risk is proportionate to hazard, vulnerability and value.

Dr. Bienert also spoke about green value pricing. Primarily, he set out what green buildings promise. Among other parameters, he stated the improvement in occupant productivity and satisfaction, lower tenant churn and improved loyalty, higher rents and lower operating costs, government subsidies and tax advantages and the generation of an added value. He is also spoke about “Green Pricing“in real estate academic research by providing examples on a property, company and portfolio level.

In closing his presentation speech, Dr Bienert summarized that:

- Monetary losses due to weather extreme will rise considerably.
- Real estate industry‘s portfolio allocation will be influenced by climate change to a greater extent.
- More resilient buildings and locations will become basic requirements.

He recommended to:

- Watch and monitor more closely up- and downsides due to climate change.
- Work on current portfolios (sales, acquisitions, upgrade/refurbishments etc.)
- Aim to promote “future proof” investments.

He concluded prompting the participants to “work on your current portfolio and future investment strategy” based on defined and quantifiable sustainability criteria to advantageously influence decision making in transaction (sales) and/or acquisitions. “The target rating for any real estate investment portfolio should be above industry standards in terms of sustainability and resilience credentials”, he ended his keynote speech.

C. Roundtable – "Climate change and energy efficiency as decision determinants on real estate investments"

C1. Introductory speeches

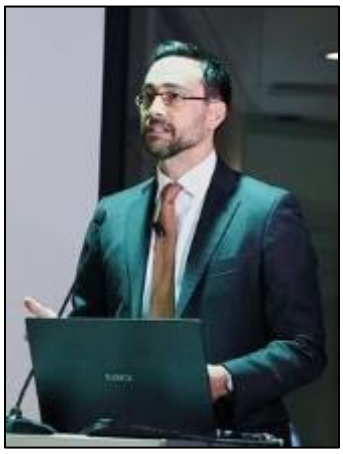
Ioannis Orfanos, Director, Green Value Associates (Moderator)

Ioannis spoke about the related EU and domestic policy landscape in buildings and on the quality of the Greek building stock. He described that the EU policy landscape for energy efficiency is primarily influenced by 2 pieces of legislation: the Energy Performance of Buildings Directive (EPBD) and the Energy Efficiency Directive (EED). Both directives strongly influence the market. As with all EU directives, individual member states, like Greece, are required to draft national-level legislation to fulfill their mandates. In the domestic landscape, the latest most energy efficient building code was introduced in late 2010. It is the Energy Performance of Buildings Regulation (EPBR) known as KENAK in Greece.

In EU, certain countries have proven to be more effective and innovative than others. The member states of Northern Europe tend to be the leaders in energy efficiency policy, though this is not uniformly the case. As an example, the Coalition for Energy Savings, an NGO, assessed the individual member states' energy efficiency action plans and found only 3 out of 27 to be of suitable quality and completeness to deliver on the 1.5% annually energy reduction target required by EED. Basically to reach EU's EED target, Ioannis indicated that policy making needs to triple in mandatory legislated targets thus "expect much more to come in terms of legislation", he added. Ioannis also clarified that "the focus on the existing building stock shall be in deep renovations and retrofits going forward".

He then presented some pictures showing the impact of weather events in domestic built environment. He stated "it wouldn't surprise me if we see more of these and more frequently going forward". He subsequently showed some graphs that demonstrated how aged and non-energy efficient the Greek building stock is. "30% of buildings in Greece are in the worst energy class", he stated. And "given that KENAK was introduced in late 2010 and due also to the crisis, only a handful of compliant commercial buildings have been developed since then". As an example, if the current domestic building stock was in compliance with KENAK, then there would be energy savings of 35-40% in offices or 40-45% in retail assets, 45-50% in educational buildings and 30-35% in healthcare facilities. "Hence the investment potential for energy efficiency in Greece is significant", he concluded.

Daniel Chang, Director of Asset Management in Hines Europe LLC



Daniel started his introductory speech by stating that "at Hines we like to pride ourselves on our commitment to sustainability and we try to be market leaders in finding ways to future proof our buildings against the risks of climate change. In preparation of this discussion, he explained that he got in touch with his colleagues in New York to understand how they coped with the aftermath of Hurricane Sandy, which was a devastating storm that caused US $33bn in destruction and 50 deaths in New York State alone.

He then reported that Hines had been commissioned to step in and help refurbish a severely damaged building. "And just to give you a sense of how badly flooded the area was, the entrance to shopping plaza literally next door, looked more like a lot swimming pool", he said showing a related picture. He then described that the buildings central plant located in the basement was completely damaged and needed to be rebuilt on a higher floor. Works took about a year and in the meantime the tenants had to move to temporary offices. "The project ended up costing a whopping $100m and to Dr Bienert's point, the costs were not fully covered by insurance", he said.

Thus, as Daniel explained, it's no surprise that real estate investment managers and occupiers are starting to feel pressure from their stakeholders to embrace sustainability. "Based on a survey carried out by Cushman & Wakefield, the property consultancy, 91% of occupiers where getting strong demand to embrace sustainability policies and 80% of owners said were getting strong demand from their investors to invest in sustainable properties", he added. Daniel made clear that a sustainable building can be a strong selling point and achieve higher rents. There is also evidence that green buildings sell at a premium. And also there are even studies showing that occupiers in greener buildings are being more productive.

However, as Daniel set it out, "the real question we grapple with as investment managers is determining how much to spend on sustainability?" This largely depends on what kind of real estate strategy they are looking at: is it a development or a refurbishment versus a holding strategy? It also depends "on how the sustainability risks sit among other risks – such as construction, leasing and political, to name a few", he amplified. At the end of the day, "a key step to determine our approach is to carry out a rigorous due diligence of each risk", he said. A rigorous due diligence process will help determine how much an investor should spend on sustainability and allow him to come up with a bespoke strategy.

To conclude, Daniel shared a few examples from different projects in London, Barcelona and Hamburg (Hafen City) where Hines addressed flooding risk with bespoke approaches. He also showed a picture from Hines first commercial net-zero building in US, in La Jolla California, where the building generates enough electricity to cover its own consumption. "More and more the real estate industry and regulatory bodies are moving in this direction", he ended his introductory speech.

Arnaud Henin, Director, Gommyr Power Networks and Cleantech Investment Expert

Arnaud pointed out that how we obtain and use energy is fundamentally changing. Key trends in the energy sector are driving a fundamental shift. From a standard centralized system to distributed localized systems because of

- Focus on clean technologies and renewables.
- Real-time measurement, big data analytics, smart control.
- Electrification of transport (Electric vehicles).
- Technology development and cost reductions (PV, batteries, IT).

This transformation leads to end-user empowerment, with more knowledge and more control on its consumption patterns and needs which will eventually lead to increased reliability and sustainability. Arnaud explained that Greece can benefit tremendously from this shift given its current status characterized by old energy intensive building stock, high emission intensity power, non-connected islands, large seasonal variation, large fuel imports, underinvestment in grid and good renewable resources

Arnaud indicated that "Real Estate is central to the energy shift". "Owners and investors need to understand the issues and play an important role" ", he added. Buildings will become energy hubs and consumers shift to 'prosumers' (producers + consumers) of energy. This shift is already under way in US and Japan driven by need for resilience and security of supply. Much initial adoption has been publicly supported. Underlying economics are quickly improving and will drive rapid future growth. "In ten years, home buyers will ask about the quality of the local microgrid like they evaluate local schools today", he commented.

Local investment and sponsors are critical in the process because investments are long term. However, because large amounts of financing are required upfront, projects must be developed to international standards to attract, wherever needed, foreign funding, too. Integrating localized energy solutions upfront is easier and more cost effective than retrofitting later.

"A holistic system approach is required and full benefits in Real Estate will be achieved only with more integration", Arnaud concluded.

John Papageorgiou, Senior Consultant, AON Risk Solutions

John explained that extreme weather has become a root cause in several property losses across the globe. Players in the real estate value chain such as property owners, developers and valuators are challenged to consider weather risks more systematically in order to avoid direct and consequential losses. The insurability of a property is also an issue worth to be considered, having in mind that the extreme weather events and their associated losses are issues that can potentially push up premiums and harden terms and special conditions. In parallel to the risks posed by extreme weather, John added that energy efficiency is an issue which has already been escalated to top ranks in many property owners agendas.

"Proactive approaches to loss prevention and risk mitigation are of paramount importance in the real estate industry", he stated. Due to the need to make buildings "greener" and more "energy efficient", the real estate industry needs to find "the golden ratio" between risk management and energy efficiency. "There have been several cases, where risk management and especially loss prevention initiatives have been in favour of energy efficiency", he said. On the other hand, several investments that can be made in order to improve the energy footprint of a building are positively affecting its risk profile. Having a property with an optimum risk profile is always a "plus" in loss prevention. "It is also a critical factor that improves insurability in the long term", he remarked.

"Risk awareness is the key message to all members of the Real Estate value chain. The long term benefits of energy efficiency are also a topic which has to be broadly communicated given their positive impact in the financial performance of every property", John said in his final remarks.

C2. Panel Discussion

The panel aimed to stimulate debate on how climate change, energy efficiency and sustainability affect global investment decision-making, asset allocation techniques, insurance policies, green premiums and grey discounts.

The panel consisted from:

- **Dr. Sven Bienert,** Prof. Regensburg University
- **Daniel Chang,** Director, Hines Europe
- **John Papageorgiou,** Senior Consultant, AON Risk Solutions
- **Arnaud Henin,** Director, Gommyr Power Networks

The panel discussion was moderated by Ioannis Orfanos, Director, Green Value Associates.

Dr Sven Bienert provided the academic context of “green value/pricing” and clarified how property investment decision making is influenced by energy efficiency and climate resilience. He was asked how energy efficiency retrofits increase a building’s overall value. He explained that energy-efficient buildings increasingly attract more and better tenants, who are willing to pay a higher price. He also mentioned that there are lots of significant paybacks from doing energy retrofits—big and small—on buildings. However, many investors and landlords are not still willing to do them - or, if they are, financiers aren’t willing to lend for them. As Sven explained, “it could be related to the still too many unknowns for the number-crunchers and valuation professionals”.

Daniel Chang provided the real estate investor point of view. He focused on investment decision making process, highlighting examples where energy efficiency and climate resilience played a determinant role in the investment acquisition process. When asked if he had ever been in a situation where real estate related risks derailed an investment, he confirmed and gave a specific example of a commercial building in London. Even though it ticked all the boxes (tenants mix, lease contracts, location, rent levels), it was not purchased because it was not energy efficient enough. EPC rating was G, which meant according to UK Energy Act that it could not be rented or sold after 2018. Daniel also asked if top executives need to be sold the case for reducing energy. He affirmed that investment decision making works better if top management prioritises sustainability.

John Papageorgiou from AON Risk Solutions focused on the associated risks, assessment techniques and potential insurance premiums. He explained insurance brokers’ stance on the subject. He argued that the exposure to extreme weather is not well understood outside the insurance sector. Many investors are simply not aware that extreme weather events pose a rising threat to property value and are therefore overlooking the related risks in their decision-making. When asked how finance is affected by the availability of property insurance, he replied explaining that insurance pricing is based on current exposure. If no property insurance can be provided, then the investor will need to finance the risks from his own pocket. And also that future changes in exposure will affect provision and pricing of insurance.

Arnaud Henin brought the technology aspect in the discussion. When asked initially how resilience can be financed, he highlighted the abundance of mature investable solutions, city-scale or asset based, coming out from energy efficiency and localised energy solutions. He is also spoke about adaptable and emerging technologies like domestic energy storage that will soon become cost-effective to be included in the financeable solution mix. He also pointed out that Greece is no different from other markets in terms of its clean tech potential. It just needs to focus on its competitive advantages, like renewable energy, microgrid and storage technology, especially in non-grid interconnected Greek islands, whose energy is currently produced by diesel generators. He also supported the idea that integrating renewable energy requirements in building policies is not only critical to achieve the required market transformation, but needs to happen much faster.

To conclude, as the panel acknowledged, a property investor needs to be doing 3 things:

- Rigorous due diligence
- Bespoke future proofing according to an investment strategy
- Be vigilant of changes in the industry (for example in legislation and technology).

The panel also stated that the climate impact will create winners and losers in commercial real estate, with some asset types benefiting from substantial reductions in costs and others pushed to performance extremes placing them at risk of climatic uselessness. It was reiterated that investors in real estate assets that are not up to a high standard on energy efficiency will be exposed to risk of obsolescence and high adjustment costs to improve their buildings.

And everyone in the panel agreed.

The risk of climate change and energy efficiency and their impact on real estate values are genuine, therefore, they should be considered as an important emerging parameter to investment decision making.

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