

# *Infrastructure*

## *Funding the future*

Greece

December 2014

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## *Executive summary*

# Executive Summary

- According to OECD, global **infrastructure needs\*** are expected to increase along the years to around \$ 55 trl by 2030
- Oxford Economics study estimated that the **global infrastructure spending\*** will reach \$ 44 trl up to 2025
- In Greece, the **infrastructure investment gap** is between **1.2 pp of GDP** (against the European average) or **2.4 pp of GDP** (against historical performance) translating into **€ 2.5bln to € 5bln new spending per year**
- Infrastructure investments have an **economic multiplier of 2x** which can boost demand of other sectors. The construction sector will be enhanced creating new **employment opportunities** on a regular basis, **attracting foreign investors** and improving economic growth
- Greek infrastructure backlog has grown enormously during the crisis - **amounting to €20bln- 34%** accounting for **energy projects**, while **55%** coming from **rail and motorway projects**
- Announced **tourist infrastructure** and **waste management** projects (latter are financed through PPPs) are estimated at **11%** of total pipeline budget are key to development and improvement of quality of life
- **Traditional funding sources**, such as loans and government contribution are becoming **less sustainable** over the years, shifting the financing focus to the **private sector**. Historically in Greece, **private funding** was limited to about **15% of total budget**, while **public sector** (State and EU) **accounted for around 40%**
- **PPPs** and **Project Bonds** will provide a **significantly higher** private sector participation in infrastructure funding adding a low risk element in institutional financiers' portfolios.
- **Project bond issuance** have been growing in Europe as an **additional source of funding** for infrastructure projects

*\* excluding telecoms and social infrastructure*

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# *Infrastructure investment*

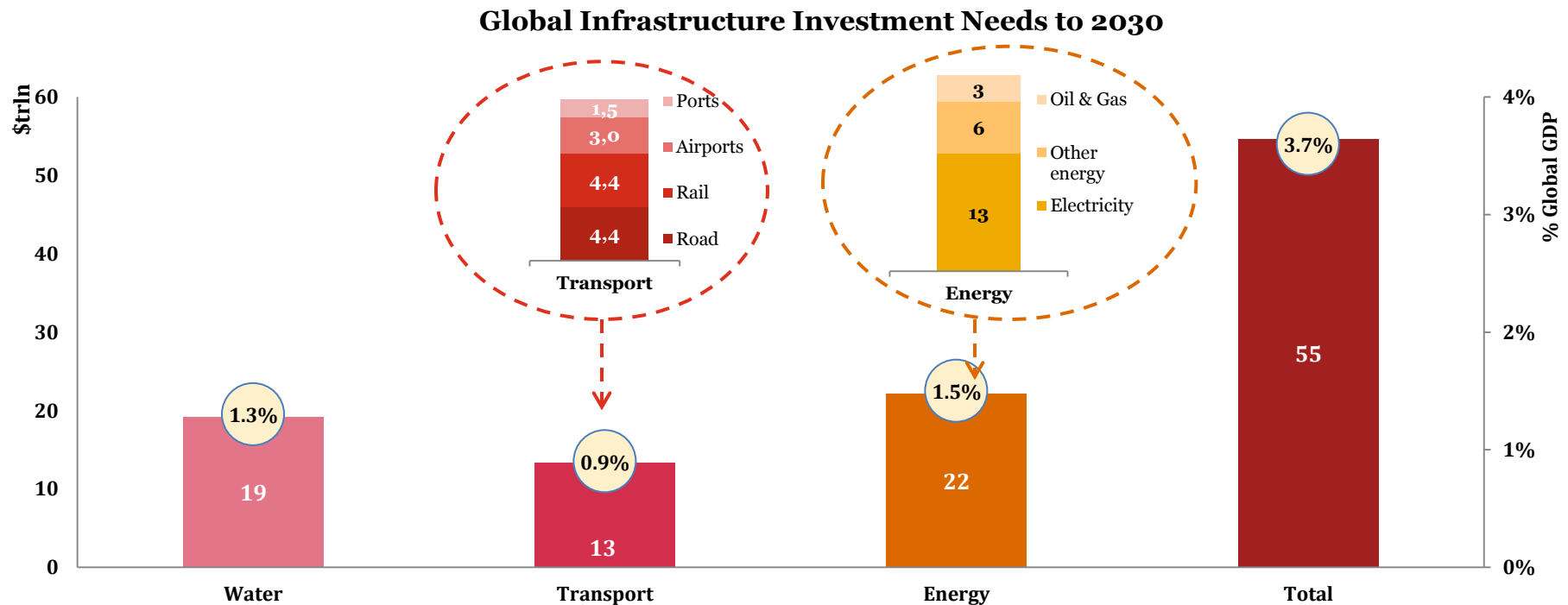
# Definition of infrastructure

- *“Infrastructure is the system of public works in a country, state or region, including roads, utility lines and public buildings”*  
OECD
- *“Infrastructure is “the basic framework for delivering energy, transport, water & sanitation and information & communication technology (ICT) services to people affecting directly or indirectly their lives”*  
World Bank

- Information & Communications Technology, according to the World Bank, refers to **physical telecommunications systems and networks** (cellar, broadcast, cable, satellite, postal) and **the services that utilize them** (Internet, voice, mail, radio, and television)
- In the study, we have included projects with regards to **transport** (airport, ports, roads & rail), **energy** (electricity, oil & gas) as well as **water & sewage**, whilst **ICT** and **Social Infrastructure** (e.g. Hospitals, Schools, Public Buildings, Sport Structures and Green Areas) **have been excluded**

# According to OECD, global infrastructure demand requires around \$ 55 trln investments by 2030

- From 2010-2030, **3.7 % of global GDP** needs to be invested in electricity, oil & gas, road & rail transportation and water infrastructure
- Traditional funding sources are no longer sustainable to cover the rapid increase in infrastructure projects, which- according to OECD- are expected to reach **\$2.8 trln annually by 2030**

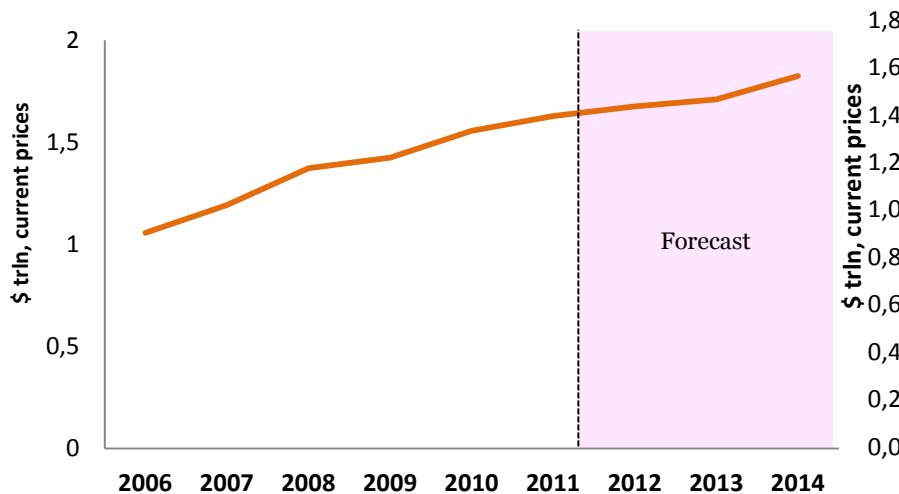


Source: OECD (2006, 2007, 2012a), EIB

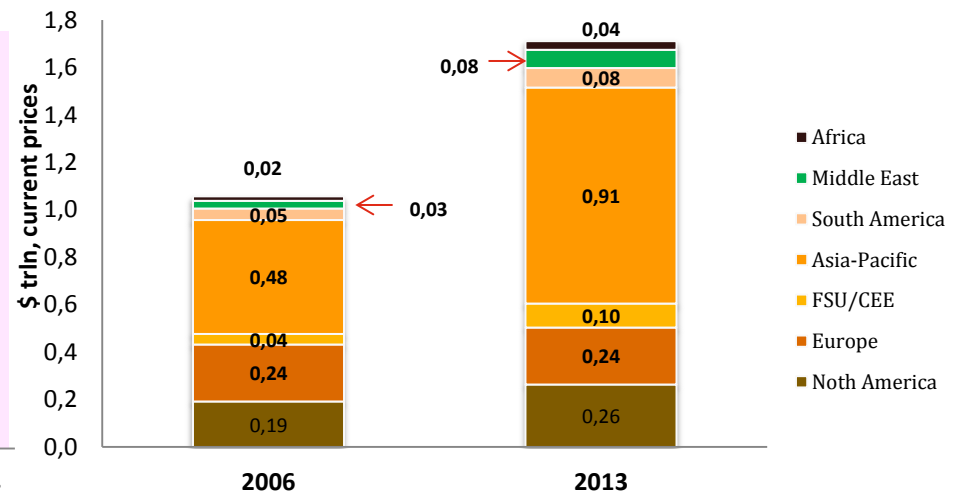
# Oxford Economics study estimated global infrastructure spending to reach \$ 44 trln by 2025

- **Annual infrastructure spending by 2025** is estimated at \$ **2.2trn** or **2.75%** of Global GDP in order to cover the growing needs of each country
- **Emerging markets drive total infrastructure investments.** Specifically, major geographical **shift** in infrastructure spending **from Eastern to Western countries**. China and other parts of Asia account over 50% of the infrastructure spending (up by about 10pps compared to 2006), while Western Europe accounts only for 15% (3pps decline)

Global Infrastructure Spending



Emerging markets account to half of the infrastructure spending



Source: Oxford Economics

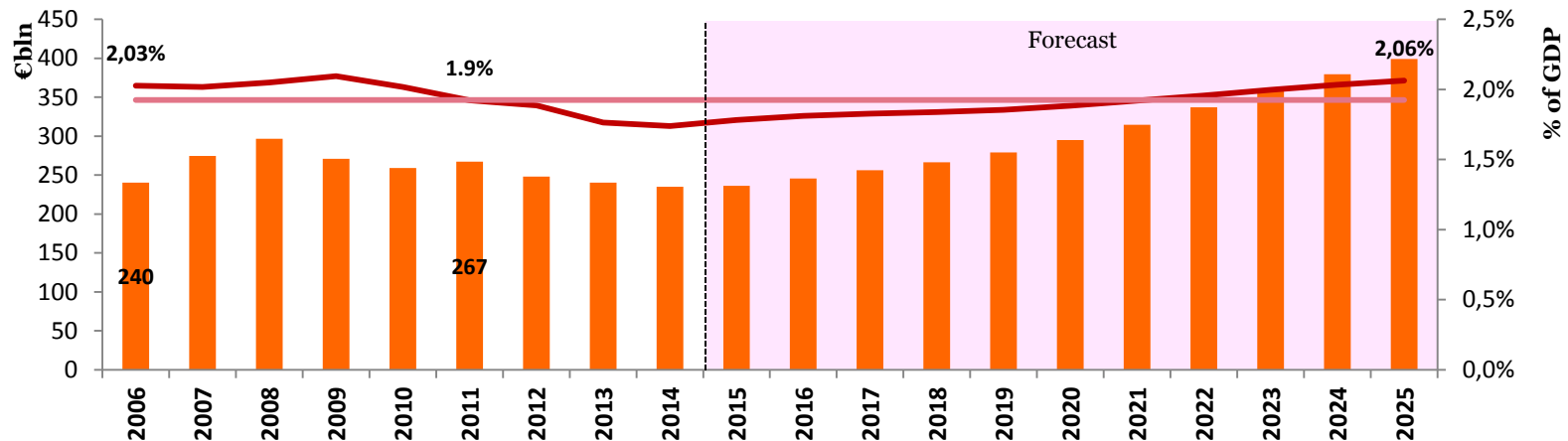
Source: Oxford Economics



## ***Infrastructure spending in Europe is estimated to reach € 400 bln by 2025***

- European infrastructure spending has been **affected by the financial crisis** and started to **bounce back in 2014**
- The average annual spending stands at **€ 225 bln** or equivalently **c.1.9%** of the European GDP
- Europe needs substantial infrastructure investment and diversity of funding models to return to a sustained growth path
- New tools in order to boost infrastructure spending across Europe, have been instituted by the European Commission, such as the “**Connecting Europe Facility**” (CEF) and “**Project Bond Initiative**” (PBI)
- The World Economic Forum estimated that **for every dollar spent on a capital project globally, an economic return between 5% and 25% is generated\***

**European Infrastructure Spending**



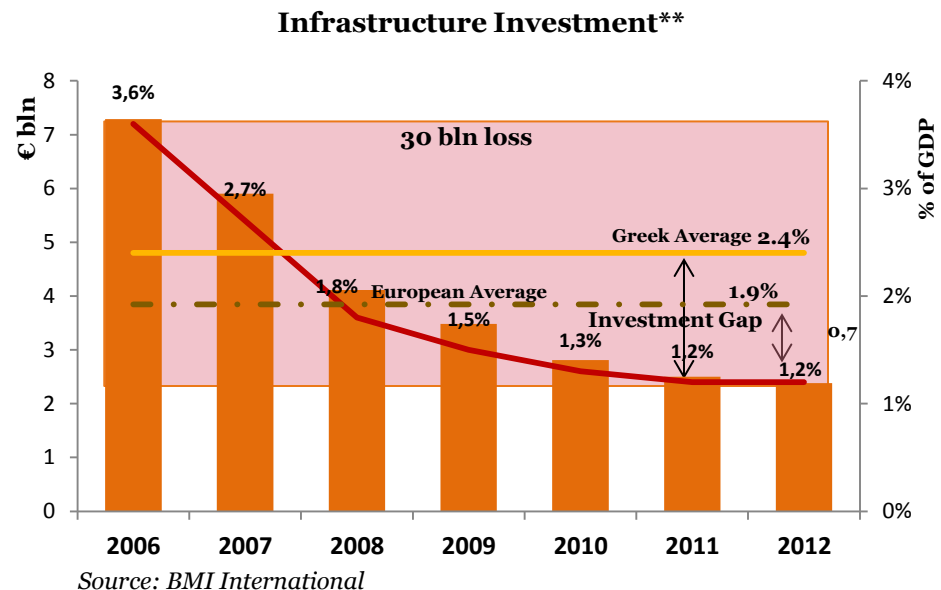
Source: Oxford Economics

Oxford Economic data include: Germany, France, Italy, Netherlands, Spain, Sweden and the UK

\*For every dollar spent on public economic infrastructure National Gross Domestic Product (GDP) is further increased by between US\$0.05 to US\$0.25

# Infrastructure in Greece - 1.2pp of GDP investment gap

- Infrastructure in Greece is severely affected from the deep recession. Total value of infrastructure projects has **decreased by c. 67%** between 2006 and 2012, while its stake in Greek GDP has **fallen by 2.4pps** within the same period
- The erosion of Infrastructure Investment from 2006 to 2012 resulted a **€30bln** loss translated to **€4.3bln** annual loss (**ca 2% of GDP**)
- The scale both of announced infrastructure projects and infrastructure backlog need about **€20bln up to 2022** or c. **€ 2.6bln** on an annual basis
- Infrastructure investments in Greece have an **economic multiplier of around 2x\***, which can boost demand of other sectors and lead Greek economy to growth



**BMI Infrastructure Investment** includes: Transport Infrastructure (Roads, Bridges, Railways, Airports, Ports and Waterways) and Energy & Utilities (Power Plants, Transmission Grids, Oil & Gas, Pipelines and Water infrastructure)

\*\*Infrastructure Investment data is derived from GDP by output figures from ELSTAT. Specifically, it measures the output of the Infrastructure industry over the reported 12-month period in nominal values. As it is derived from GDP data, it is a measure of value added within the industry, hence it does not measure the nominal value of all inputs used in the infrastructure industry

*\*for every Euro spent on infrastructure, GDP is further increased by € 1 (KEPE, 2013)*

# Impact of infrastructure spending on Greek GDP

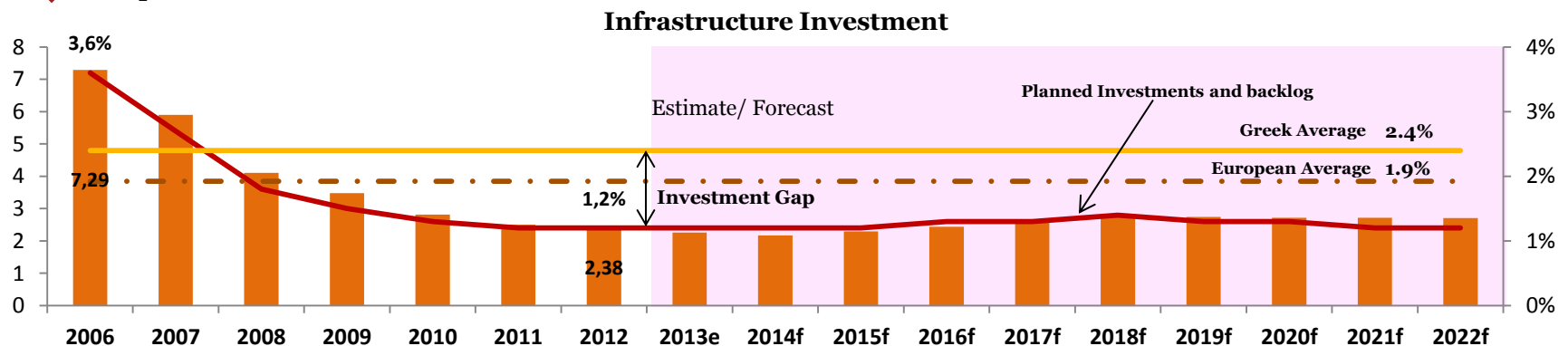
Greece has invested less in infrastructure over the previous years, mainly due to restricted public budget and political instability

↓ Greek infrastructure investment **dropped by 2.4 percentage points of GDP** between 2006-2012

↓ One of the **key indicators** of infrastructure spending is **cement production** - widely used across the sector. According to Elstat, **5.3m tons** have been produced in 2013, a significant **drop of 52%** compared to FY2009 pre-crisis period

↓ According to Elstat data, **total employees directly or indirectly** related to infrastructure amount to c. **528k employees \*(15% of total employed persons)** posting a significant **decline of 36%** compared to 2009 (**18.3% of total employed persons** in 2009)

↓ In 2013, **direct sector employees dropped by 49%**, while indirect employment accounted for a 21% drop compared to 2009



Source: BMI International

\*Direct sector employment: manufacturing, construction, water supply & waste management, electricity & gas supply

Indirect sector employment: transportation & storage, real estate activities, wholesale, retail & repair of motor vehicles

Infrastructure Projects

PwC

December 2014

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## ***In Summary – Infrastructure investments have significant magnitude***

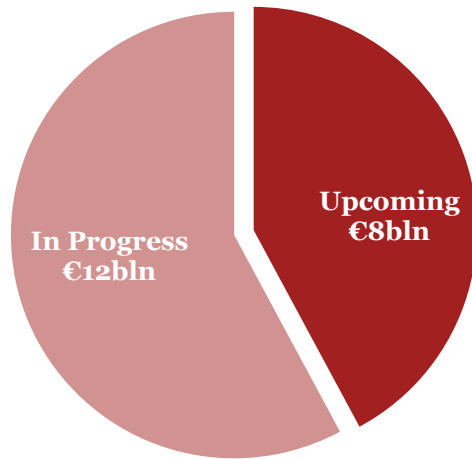
- There is a substantial **need for infrastructure investment** globally expected to reach between **\$2.2trln** to **\$2.8trln** per annum in the period to 2030 or **2.75% – 3.52%** of global GDP
- In the European Union, the required annual infrastructure investments account for **€ 225 bln** or equivalently **c.1.9%** of the GDP
- In Greece, the **infrastructure investment gap** is between **0.7 pp of GDP** (against the European average) or **1.2 pp of GDP** (against historical performance), which translates into **€ 2.5bln to € 5bln new spending per year**
- Such spending, with a **high multiplier**, will have a very strong impact on GDP and employment

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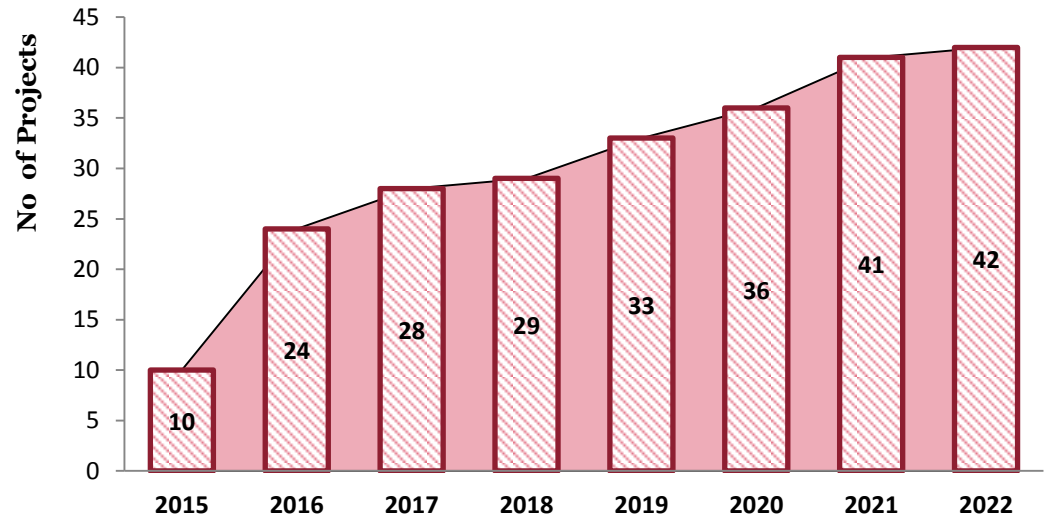
## *Greek infrastructure projects pipeline*

# Pipeline of Greek Infrastructure projects (2014-2022)

Budget Breakdown\*



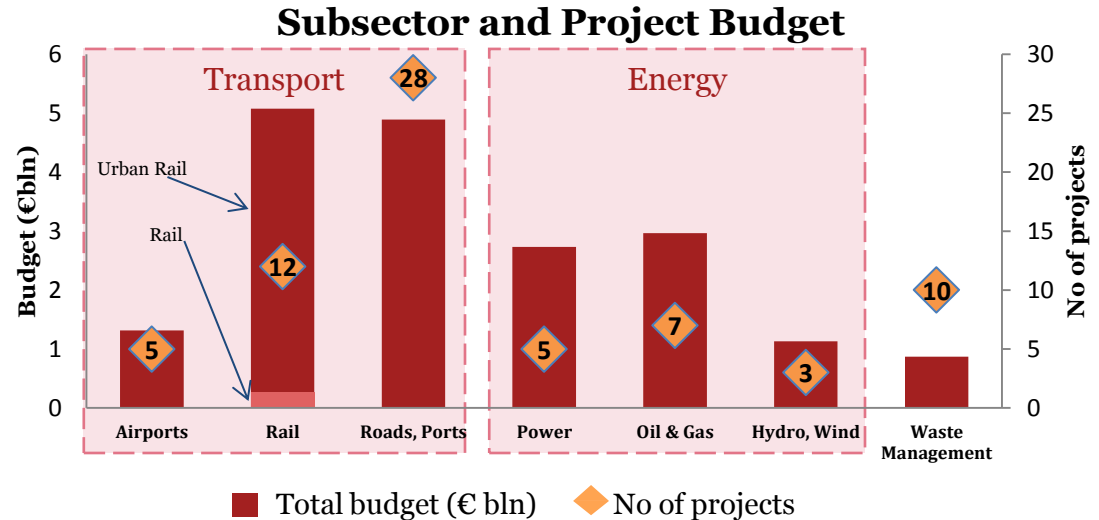
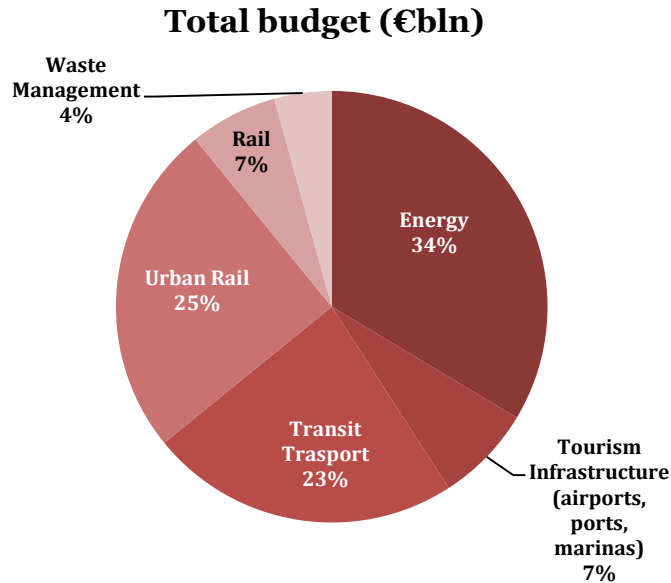
Completion year  
(Cummulative)



- ✓ **Total pipeline** of infrastructure projects in Greece up to 2022 amount to **€ 20.1bln** (in progress and upcoming)
- ✓ **58%** of the total budget accounts to projects that have **already started**
- ✓ **57%** of the infrastructure projects will be **delivered in 2015 and 2016** amounting around to **€5.8bln**
- ✓ *The expected completion dates of **28 projects** of total value **€ 2.3bln** remain unknown*

\*Infrastructure backlog and total budget of upcoming projects

# Sectoral split of the Greek infrastructure pipeline



- ✓ From a total of around **71 projects** that will be delivered within the following 8 years, **28** refer to **Roads and Ports**, **12** to **Rail** and **10** to **Waste Management** (announced recently)
- ✓ **Energy** accounts for 16 projects (**34% total pipeline** budget) consisting mainly of projects in oil & gas and electricity
- ✓ **32%** of the total pipeline budget constitute **rail projects** (12 projects), while **23%** (14 projects) represent **motorways**

## Energy accounts for around € 6.8bln of investments

- **Trans- Adriatic Pipeline** of 867 total klm will supply Natural Gas from Azerbaijan to Europe through Greece, Albania and Italy, with a normal daily capacity of 27.1 mln m<sup>3</sup>
- **IGB** Natural Gas pipeline of 182km length will connect the Greek and Bulgarian existing networks, with daily transport capacity of 13.7 mln m<sup>3</sup> and approximately 3-5 bln m<sup>3</sup> per year
- **LNG Terminals:**
  - **Alexandroupoli Independent Natural Gas System:** New offshore LNG and a system of subsea and onshore pipeline with a length of 29 km (4 km onshore and 25 km offshore), with a daily capacity of 16.8 mln m<sup>3</sup> /day
  - **Aegean LNG:** Floating storage (capacity of 170 k m<sup>3</sup> LNG) and processing terminal (annual send-out capacity of 3-5 bln m<sup>3</sup> ) in Kavala Bay
- **Attica – Crete Interconnector** (part of the **Euro-Asia Interconnector**): 310 km underwater electric cable interconnecting Crete with mainland with a capacity of 1,000 MW
- **Ptolemaida V Power Plant:** New single lignite power plant of 600 MW (PPC)

No	Upcoming Interconnection Projects	Remaining Budget (€mln)	Start Date	Estimated Completion Date*
1	<b>TAP</b> (Trans - Adriatic Pipeline)	1,500	2015	2019
2	<b>Electricity Interconnectors</b> (Attica-Crete, Cyclades, Maritsa East (BG) - Nea Santa (GR))	1,149	N/A	2021/2016/2020
3	<b>LNGs</b> (Alexandroupoli LNG, Kavala LNG)	615	N/A	2016
4	<b>Kavala storage facility</b> (Undeground Storage facility)	400	N/A	2018
5	<b>IGB</b> (GR-BG Natural Gas pipeline)	250	2014	2016
6	<b>Revurthoussa Islands 3rd LNG Tank Storage</b>	129	2013	2016
7	<b>Gas Compressor Station</b> (Kipoi)	70	2016	2019
	<b>Total Budget</b>	<b>4,113</b>		

No	Upcoming Energy Projects	Remaining Budget (€mln)	Start Date	Estimated Completion Date
1	<b>Ptolemaida V Power Plant</b> (lignite fired)	1,394	2015	2019
2	<b>Wind power plants</b> (Crete Wind Park with Hydro-pumped storage, Rodopi)	630	N/A	N/A
3	<b>Amfilohia Hydro-pumped storage</b>	502	N/A	2020
4	<b>Rhodes Power Plants</b>	189	N/A	N/A
	<b>Total Budget</b>	<b>2,715</b>		

\* Commissioning date

Source: Press, PwC calculations



## Rail projects pipeline amount to € 6.4bln with 80% accounting to urban projects

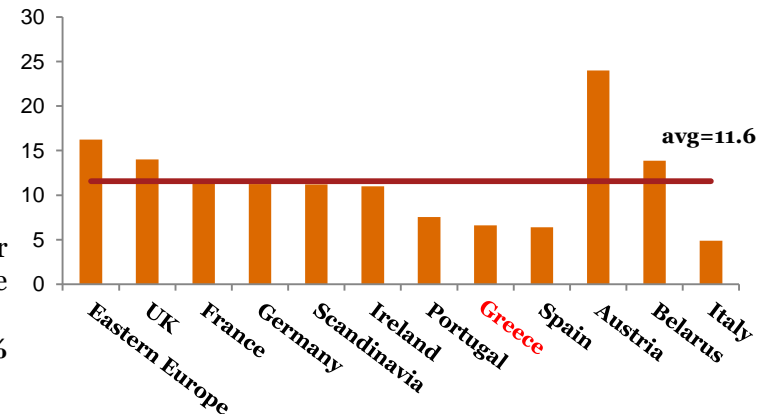
- The majority of the progress represent urban transport
- Extension of **Athens metro to Piraeus** (6 new stations) **connecting the Athens Airport with the Port of Piraeus** increasing current capacity to **123k passengers**
- Construction of **Metro in Thessaloniki** and extension to Kalamaria (14.3km) serving 315k passengers per day
- **Tram** extension from Neo Faliro to Piraeus (3.3km) with an annual capacity of 10-12mln passengers
- Construction of double rail tracks and upgrading of signaling and electrification will **improve customer service** and **time of travel** rendering rail an efficient alternative for **long distance travel**
- Construction of Rail Hub in Thriassio pedio with a **cluster of 80 rail trucks** to support container and cargo trains, creating one of the **largest commercial railway in Europe** and the **largest in the Balkans**
- **Connection with the European rail** through Bulgaria (Promachonas) and FYROM (Idomeni)
- Most of the railway projects in pipeline are co-financed from the NSRF (2007-2013) program

No	Upcoming Urban Projects	Details	Remaining Budget (€mln)	Start Date	Estimated Completion Date
1	<b>Attiko Metro</b>	<ul style="list-style-type: none"> <li>• Extension of Line 3 to Piraeus</li> <li>• New Line 4</li> </ul>	3,869	2012	2022
2	<b>Thessaloniki Metro</b>	<ul style="list-style-type: none"> <li>• Base line</li> <li>• Extension to Kalamaria</li> </ul>	1,156	2006	2021
3	<b>Athens Tram</b>	Extension to Piraeus	51	2013	2016
	<b>Grand Total</b>		<b>5,077</b>		
No	Upcoming Ergose Projects	Details	Remaining Budget (€mln)	Start Date	Estimated Completion Date
1	<b>Ergose</b>	<ul style="list-style-type: none"> <li>• Kiato-Rododafni</li> <li>• Rododafni-Psathopyrgos</li> </ul>	682	2006	2016
2	<b>Ergose</b>	Tithorea- Domoko	364	2013	2017
3	<b>Ergose</b>	Thriassio Pedio Rail hub	101	2013	2016
4	<b>Ergose</b>	Palaiofarsalos - Kalambaka	44	2015	2017
5	<b>Ergose</b>	Athens - Thessaloniki – Promachona (Signaling system)	41	2015	2017
6	<b>Ergose</b>	Volos – Larissa (electrification of railways)	35	N/A	N/A
7	<b>Ergose</b>	Piraeus - Athens - Three Bridges	28	2005	2015
8	<b>Ergose</b>	Polikastro - Idomeni	24	2015	2016
9	<b>Ergose</b>	Agia Paraskevi- Menemeni Thessaloniki	20	2014	2016
	<b>Grand Total</b>		<b>1,339</b>		

# Major motorways investment backlog is around € 4.6bln

- **Ionian Odos** will serve and **connect 3 main ports** (Patra, Astakos, Igoumenitsa) and **3 airports** (Araksos, Aktio, Ioannina) while also connecting Western Greece with the rest of the country
- **Olympia Odos** will **decrease the travel time** between Athens and Patra **by 20%** offering safer transport conditions
- **Egnatia Odos Vertical Axes** will connect the main part of Egnatia Motorway with **Albania, Bulgaria and FYROM**
- Major motorway projects (Ionian, Olympia, Egnatia odos) are expected to occupy more than **25k employees** in total during the construction period
- **Relative cost of major motorways building per klm** of major motorways to be constructed is **€5.2mln/klm**, while the respective average European figure stands at **€11.6mln/klm** (Infrastructure Journal, 2010)
- **The reduction in road accidents** is expected to be more than **37%** according to the European Commission

**Relative Cost of Road Building in Europe  
(€ mln/ klm)**

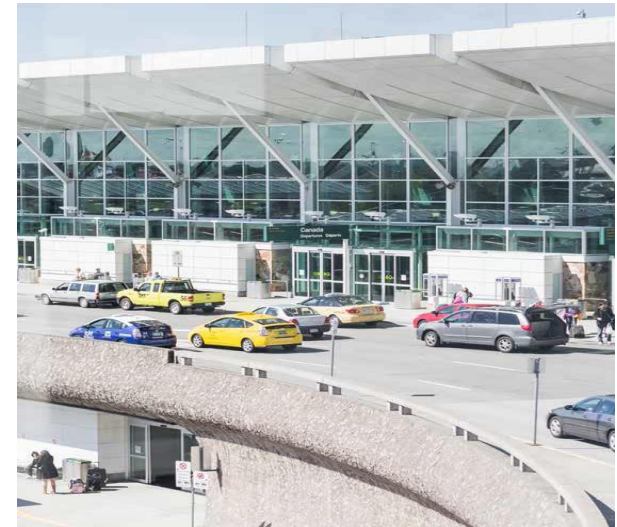


Source: Infrastructure Journal, 2010

No	Upcoming Projects	Details	Total Klm	Total Budget (€mln)	Remaining Budget (€mln)	Start Date	Estimated Completion Date
1	<b>Olympia Odos</b>	Korinthos-Patra -Pyrgos & Kalo Nero-Tsakona	232	2,200	1,168	2008	2015
2	<b>Ionian Odos</b>	Main road, Vertical axis	245	1,430	829	2010	2016
3	<b>Aegean Motorway</b>	Raches Fthiotidas- Klidi Imathias	230	1,300	195	2007	2015
4	<b>Egnatia Odos</b>	Vertical Axes	486	1,099	985	2011	2016
5	<b>Regional Roads</b>	Katerini, Eleusina-Yliki, Thessaloniki-Kassandra & Thessaloniki-Doirani	77	689	637	2016	2021
6	<b>Underwater tunnel</b>	Salamina, Leukada	6	400	400	2016	2021
7	<b>Flyover</b>	Thessaloniki	5	205	125	2012	2015
8	<b>Nea Odos</b>	Metamorfosi-Skarfeia	173	200	40	2007	2015
9	<b>Crete Northern Highway</b>	Agios Nicolaos-Kalo Chorio, Gournes -Chersonissos & Panormos-Exantis	29	182	162	2009	2019
10	<b>Maliakos Bay</b>	Lamia override & Stilida-Raches	23	87	14	2006	2015
	<b>Total</b>		<b>1,506</b>	<b>7,791</b>	<b>4,556</b>		

# For the tourism product upgrading around € 1.5bln will be spent

- Greece is a significant global tourist destination, attracting **18mln arrivals in 2013** while expecting an **increase of 15%** in 2014, **ranking 17<sup>th</sup>** as a **world destination** and **11<sup>th</sup> in Europe**
- Upgrading Greece to a global destination includes:
  - Upgrading and building new **International Airports** to support the rise in tourism expected in the following years
  - Upgrading vital **ports to serve as transit** and facilitate interconnection with neighbor countries
  - Building luxury marinas in Mykonos & Kefalonia** (Argostoli) - islands with increased traffic during the summer
  - Layrio mega yacht marina**, which could support 65 mega yachts
  - Upgrading and building key marina hubs (**Alimos, Kalamaria, Chios, Crete, Glyfada, Zakynthos & Katakolo, Patra, Pylos and Rhodes & Kos**) to meet the increasing demand in marine tourism



No	Upcoming Projects	Remaining Budget (€mln)	Start Date	Estimated Completion Date
1	<b>Regional Aiports</b>	330	N/A	N/A
2	<b>Kasteli Airport</b> in Heraklion	800	2015	2020
3	<b>Chania Airport</b> building upgrade	91	2013	2016
4	<b>Macedonia Airport</b> upgrade	71	2005	2016
5	<b>Igoumenitsa Port</b> upgrade	57	2008	2017
6	<b>Port of Patras</b> upgrade	46	2012	2016
7	<b>Key Marinas</b>	46	N/A	N/A
8	<b>Ioannina Airport</b> upgrade and new terminal	25	2010	2015
9	<b>Luxury marines</b> (Mykonos, Argostoli)	9	N/A	N/A
10	<b>Layrio Mega Yacht</b>	4	N/A	N/A
	<b>Total Budget</b>	<b>1,479</b>		

# Waste Management projects need about € 0.9bln

- Greece is one of the few member States that still uses landfill for most of its waste and draws penalties. The amount of **Municipal Solid Waste landfilled in 2010 was 4.2mln tons.**
- On December 2014, the **European Court of Justice** concluded to a **€10mln fine** for Greece for uncontrolled waste disposal sites and landfill use, in contrast to the EC Waste Directive. In addition, the court requires immediate implementation of the relevant policies and warns Greece with a **additional €14mln** for each six-month period of delay
- Since 2013, **10 Waste Management projects** out of 14 have been announced, reaching €872mln, while the remaining 4 (in Attica) have been recently postponed
- The Integrated Waste Management System in Western Macedonia is the first waste management project awarded through PPPs which will serve 300k people in Northern Greece. It has been announced as the **“Waste Deal of 2013”** (World Finance)
- **All of the announced projects will be financed through PPPs and are estimated to create 2,500 new jobs during the facilities’ operation and 3,000 new jobs during construction works throughout Greece**

No	Upcoming Projects	Remaining Budget (€mln)	Start Date	Estimated Completion Date
1	Waste management ( <b>Alexandroupoli</b> )	145	N/A	N/A
2	Waste Management ( <b>Peloponissos</b> )	130	N/A	N/A
3	Waste management ( <b>Achaia</b> )	128	N/A	N/A
4	Waste management ( <b>Epirus</b> )	125	N/A	N/A
5	Waste management ( <b>Aetoloakarnania</b> )	80	N/A	N/A
6	Center of Sewage Treatment ( <b>Koropi- Paiania</b> )	79	2013	2015
7	Waste management ( <b>Kerkyra</b> )	70	N/A	N/A
8	Integrated Waste Management System ( <b>Western Macedonia</b> )	45	N/A	N/A
9	Waste management ( <b>Ilia</b> )	40	N/A	N/A
10	Waste management ( <b>Serres</b> )	30	2014	2015
	<b>Grand Total</b>	<b>872</b>		

Source: Press, PwC calculations

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## ***In Summary – Investments between €2.5 bln – €5 bln annually will have positive impact on GDP and employment***

- In Greece, there are about **€ 20bln of infrastructure projects** either in progress or tendered to be completed by 2022
- **Transport and energy** account for almost 90% of the total projects
- Investment in **upgrading the tourist product** (7%) and **improving waste management** (4%) is key to development and improvement of quality of life
- Annual spending between **€ 2.5bln - € 5bln** for infrastructure is possible if there are **no undue delays** in the tendering of the projects
- Infrastructure Investment is expected to boost GDP and employment

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## *Funding of Greek infrastructure*

# Funding Greek infrastructure projects



**State & EC**  
~40%

- Historically **State's** contribution in major projects accounts to **15%-20%** while the remaining is financed from **EU funds**
- Examples of EC financing with regards to infrastructure projects include **NSRF 2014-2020 in Greece** (€ 4.4bln ), while **Connecting Europe Facility (CEF)** will commit **€ 50bln across European Countries** for transport, energy and telecom projects

**Other state contributions**

- **Concessionary funding** for the major motorways is split on average to **25% toll revenues**

**EIB and Banks**  
~45%-50%

- **EIB's** contribution to a project's cost is limited to **50%** of the overall amount established during appraisal
- Between 2009-2013, **EIB invested €7.9bln** in Greek infrastructure projects (17% in energy, 31% in transport, 8% in waste management, 6% in Social infrastructure & 26% in small medium scale projects)
- **EIB** works with other banks, either co-financing projects or in security structures
- Greek Banks have announced the **financing of infrastructure projects by €3bn** (including Kasteli Airport, Regional Airports, Underwater tunnels in Lefkada and Salamina, Eleusina-Yliki road axis)

**Private**  
~ 10%-15%

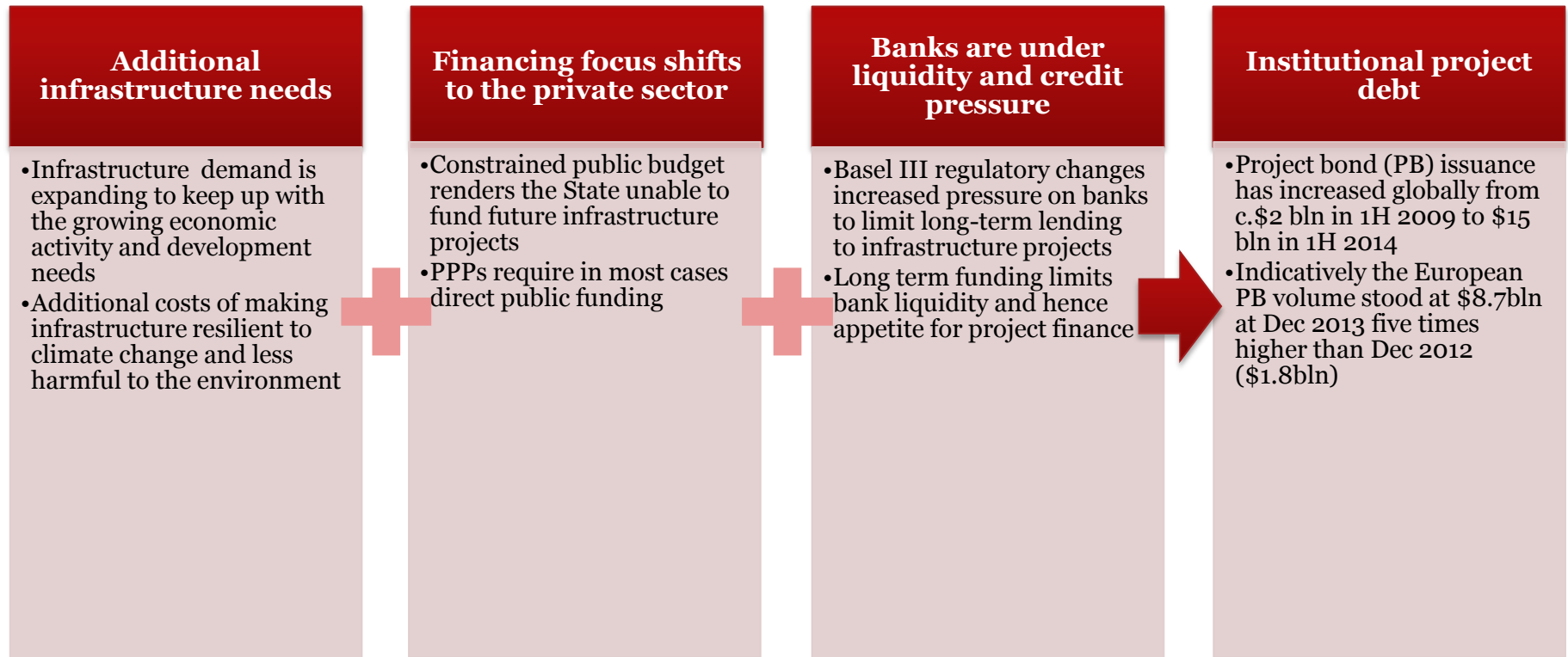
- **Private equity** historically amounted to **below 15%** of total project budget

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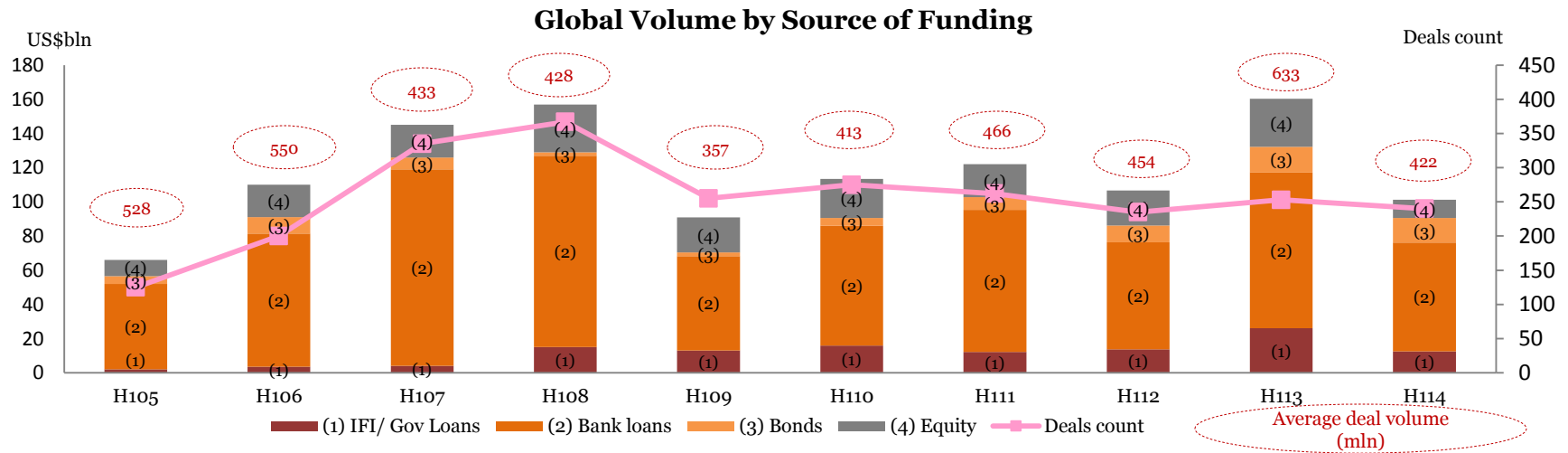
## *Sources and instruments of funding*



# *Traditional funding sources are no longer sustainable*



# Global volume by source of infrastructure funding

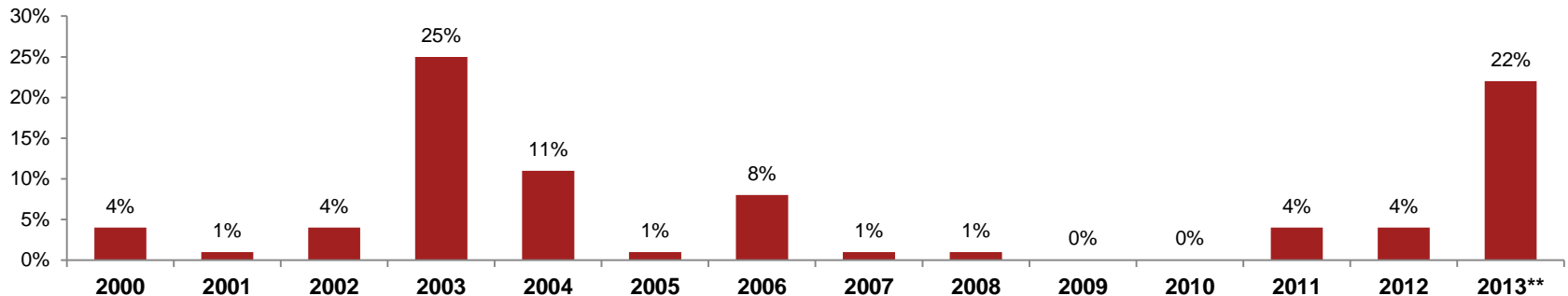


Source: IJ Global Review H1 2014

- **Pension funds and insurance companies** look for long-dated assets and **attractive alternatives** to government and corporate bonds
- **Bond** financing volume on 1H2014 rose by **600%** vs 1H2009
- **Equity** accounted on average to **10%** of total financing, covered mainly with bank loans
- Overall high volatility in **IFIs/ Government Loans**, indicative of fragile debt markets

# ***Project Bonds issuance in Europe have been increasing as an additional source of funding for infrastructure projects***

**Bond as % of Project debt Financing (CEF\* sectors EU28)**



Source: Dealogic and EU Commission

\*Transport, Energy and ICT

\*\* 8 months from Jan to Aug 2013

## **Indicative examples**

### **Belgium**

- ✓ A11 motorway (PBCE, €557.9mln)
- ✓ Brussels Airport (partial refinancing)

### **Germany**

- ✓ A7 motorway extension (PBCE)
- ✓ Open grid Europe

### **France**

- ✓ Marseille L2 ring road (30-year PPP total cost of construction € 620mln)
- ✓ Superfast Broadband (PBCE)

### **Italy**

- ✓ Rome Airport

### **Netherlands**

- ✓ Ministry in The Hague
- ✓ Zaanstad Prison

### **Spain**

- ✓ Castor Gas Storage Project (PBCE, total size €1,400mln)

- **Project Bond Initiative** is a risk sharing instrument created in 2012 by **EU Commission and EIB** aiming to enable project bonds attractive to capital market investors in the sectors of **transport, energy and ICT**
- PBI intends to **complement existing sources** of project financing (bank & emerging debt funds)
- According to EC report, a **PBI pilot phase** was set up in 2012 with **EU Budget of € 230mln**, EIB projects approval phase is estimated to reach 2014, while **final close will reach 2016**

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## *Conclusions*

# Conclusions

- Global infrastructure investment is expected to reach between \$2.2trln to \$2.8trln per annum in the period to 2030
- **Global infrastructure investment** stands at c. **3.7%** of GDP, while **European infrastructure investment** is limited to around **2% of GDP**
- In **Greece, infrastructure investment** as a percentage of GDP shrank from **3.6%** in 2006 to **1.2% in 2012**, a cumulative **€30bln** loss (**€4.3bln** on an annual basis), severely affected by the deep recession and subsequent budgetary constraints
- Between 2009-2013, the construction sector and specifically **cement production** dropped by a 52% whilst **direct infrastructure employment** went down by 49%
- Infrastructure investments are vital for the Greek economy having a high **economic multiplier (ca. 2x)** which can boost consumption and investment in other sectors
- There is a large number of projects in pipeline amounting to **€20bln** up to 2022. The **34%** represents **energy, 55% railways and motorways**, while the remaining **11%** consists of **tourism infrastructure and waste management** projects
- The key problem for revitalizing infrastructure investment is access to long term funds
- Historically in Greece, **private funding** covers about **15% of total budget**, while **public sector** (State and EU) accounts for **around 40%**, with the remaining financing coming **from bank loans**
- The growing **need for infrastructure spending**, combined with the extremely **constrained capacity of state funding and the limitations of the Greek banks** call for new financing tools
- **PPPs and Project Bonds** will provide a **significantly higher** private sector participation in infrastructure funding adding a low risk element in institutional financiers' portfolios