Int. Journal for Housing Science, Vol.36, No.2 pp.109-121, 2012
Published in the United States

CONSTRUCTION IN SPAIN: CRISIS 2007-2010 AND FUTURE PROSPECTS

L. Villegas, C. Carrasco, I. Lombillo, C. Liaño and J. Balbás
University of Cantabria, Spain. R&D Group in Building Technology (GTED-UC)
e-mail: luis.villegas@unican.es

ABSTRACT

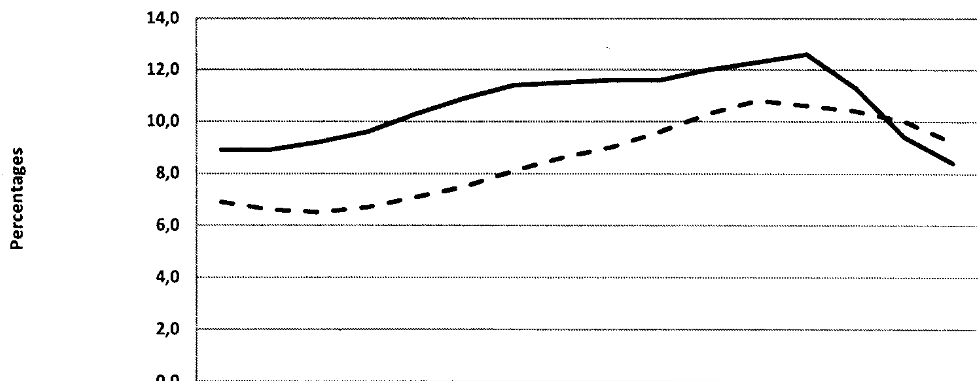
This Paper looks at the importance of construction in Spain, which accounts for 11% of the country's employment and its GVA (gross value added) is 10% of GDP (gross domestic product), also relate these figures to the values that Europe EU-27 offers and with the four most powerful economies of Europe. It also reflects that the Spanish construction companies are an important reference in the world. We compare the main indicators of the Spanish construction in 2007, when economic activity in this sector was frantic, with values of 2010, three years after the onset of the global financial crisis which started in USA. The obtained results allow to quantify the extent of the problem of the construction sector in Spain: Employment generated, production and other indicators show that the activity of this sector has fallen to levels of the second half of the 90' of the past century; or, a decline of 12 to 15 years. Also add that the deterioration has not stopped and the analyzed variables have dropped even more in 2011. Then it analyzes the different areas of Spanish construction activity and, in light of their developments and its comparison with the European situation, the logical behaviour is predicted for the near future: Specifically, it appears that residential construction, which has built homes at a big rhytem during the last decade, should follow a similar production rate than the average of Western Europe and how the field of rehabilitation and maintenance of buildings will increase its role in the coming years, in line with that has happened in most developed countries of the EU. It collects also appropriate strategies that have adopted the large Spanish construction companies to limit the risks of relying solely on a specific market economy: Internationalization and diversification of their activities, especially in the area of construction and operation of concessions in infrastructures of transports.

0146-6518/01/109-121, 2012

Key words: Construction, Spain, Economical Crisis, Building, Residential, Rehabilitation, Civil Engineering, Infrastructure, Internationalization, Concessions.

The importance of construction in Spain and Europe

Construction in Spain is a key sector in the economy: In the period 2001 to 2010 is directly responsible (Figure 1), on average, of the 11,2% of the country's employment and its GVA (gross value added) of the 9,7% of GDP (gross domestic product).



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
% GDP	6,9	6,6	6,5	6,7	7,1	7,5	8,1	8,6	9,0	9,6	10,3	10,8	10,6	10,4	10,0	9,2
% Employment	8,9	8,9	9,2	9,6	10,3	10,9	11,4	11,5	11,6	11,6	12	12,3	12,6	11,3	9,4	8,4

Figure 1 : Participation (in %) of the Spanish construction in the employment and, its GVA, in GDP: Period 1995 to 2010 (Sources: SEOPAN and INE).

The construction sector is also significant in the economy of the European Union (Table 1): In 2009 provided 7,1% of jobs and its domestic production represented a 9,9% of GDP. Also had 3 million companies.

Table 1 : European Construction, EU-27, data in 2009. (Source: FIEC 2010).

7,1% of Europe´s total **employement**: 14,9 million operatives.	Construction production: **9,9% of GDP**	**3 million enterprises** (93% with fewer than 10 operatives.

Table 2 shows the distribution (in %) of the total domestic production of European construction (1,17 billion euros) in the five countries with the largest economy of the EU-27, also the percentage of total construction output in these countries with respect to its GDP and employment in the sector, respect to the total of their country.

Table 2 : Production of the European Construction EU-27 (FIEC 2010) and employment generated (EUROSTAT) in 2009: Comparison between five big countries of reference.

Construction in EU-27 (2009): Production and employment.		**Germany**	**Spain**	**France**	**Italy**	**United Kingdom**	**Rest of countries**
Thousands of million Euros (and % of EU27)	1173 **(100%)**	245 **(20,9%)**	163 **(13,9%)**	161 **(13,7%)**	144 **(12,3%)**	120 **(10,2%)**	340 **(29%)**
% of production in each country relative to its GDP	**9,9%**	**10,2%**	**15,5%**	**8,4%**	**9,4%**	**7,6%**	---
% of employment of each country	**7,9%**	**6,6%**	**10,0%**	**7,3%**	**8,5%**	**8,2%**	---

Spain has in recent years occupied a position of prominence in the European construction industry, its production exceeds the average (around 10% GDP) in EU-27. Also, the values listed in Table 2 and Figure 1 show the relative weight that the construction has in Spain in relation to other countries with which we compare: In other words, more employment generated and participation in the GPD.

The importance of building in the economy of a country is, indeed, much more significant than indicated by the figures mentioned, due to the dragging effect it has on other economic activities. Thus, directly affects the technical services of architecture, engineering and testing of control, the manufacturers (construction products, machinery, furniture, etc.), transportation, etc. In Spain it is estimated that the direct impact of construction activity in the industry and services may involve in the national GDP a similar figure to the percentage value that it brings directly (Ref. 4). Add also the indirect beneficial effect involving the created constructions, either in the case of new infrastructure (transport dynamic, time savings, fewer accidents, etc.), as in the new building (improvement of working conditions, comfort, better hospital care, etc.).

The report "Construction activity in Europe" of the FIEC (June 2010) reflects the multiplier effect of construction on the job: It is estimated that for every person working in this sector generates two other jobs in other activities, in Europe this represents 44,6 million workers depend directly or indirectly from the construction sector.

Finally, to note that the Spanish construction is technologically very well prepared and their great builders occupy a worldwide reference. The following data collected illustrate the statement:

- Spain and Saudi Arabia recently signed (January 2012) a contract for construction and subsequent operation of the "high-speed rail line (AVE) Mecca-Medina," a project budgeted at 6736 million of euros.

- Spain had in 2010 sixty large tunnels equipment, the third country in the world ranking of these machinery behind China and Japan. This has led to major underground construction work: For example, the new Gotthard rail tunnel under the Alps in Switzerland (57 km long), the largest tunnel in London "Crossrail" linking Heathrow Airport with the downtown or in the construction of the first metro line in Panama, among others.

- In the publication "European Powers of Construction" EPoC 2010 (Ref. 5) are collected the top 50 listed construction companies ranking by sales: Grouping these firms by country and classifying them in terms of sales, the first four positions are shown in Table 3: As can be seen Spain, with 7 firms, ranks 2nd in the list, behind France, and its leader company is ACS (that occupies the 4th place of the most powerful construction firms of Europe).

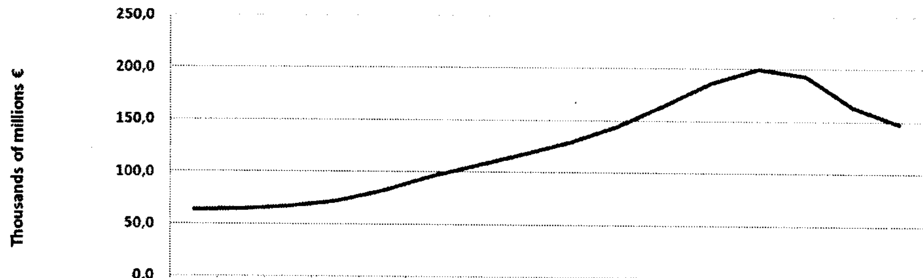
Table 3 : Four European Countries that top the list ranked by volume of sales, which companies are in the "Top 50 European Powers of Construction" (EPOC 2010).

Country	**Total sales (thousands of million €)**	**Number of Companies**	**Average Sales (thousands of million €)**	**Leading company in the country (Sales)**
France	78,2	3	26,1	Vinci SA (33,4)
Spain	56,5	7	8,1	ACS SA (15,4)
United Kingdom	38,3	13	2,9	Balfour Beatty Plc (12,3)
Germany	29,3	3	9,8	Hochtief AG (20,2)

The impact of the 2007 crisis in the Spanish construction

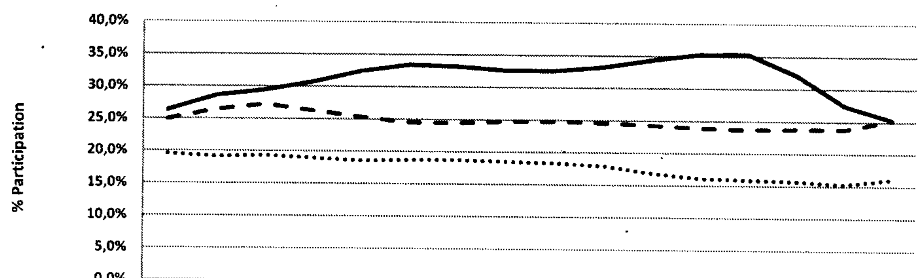
The global economic crisis that began in USA in 2007 has greatly affected the countries of the European Union and in particular to Spain whose construction has been particularly damaged.

Indeed, the Spanish construction was in full swing in 2007, with a record production of 200 thousands of million Euros: Figure 2 shows the domestic production of this sector and the proportion that account the building activities (about 75% of total) and civil engineering works (25% remaining) over the period 1995-2010. Also in Figure 3 breaks down the participation (in %) of each subsector of the building area.



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Total ——	63,9	64,8	67,2	72,6	82,4	95,7	106,7	117,5	129,3	144,7	165,2	186,9	200,5	193,5	164,3	148,1
Building %	70,8%	74,2%	76,0%	76,0%	76,3%	76,7%	76,4%	75,9%	75,8%	75,8%	75,5%	75,4%	74,9%	71,7%	66,5%	66,6%
Civil Engineering %	29%	25,8%	24,0%	24,0%	23,7%	23,3%	23,6%	24,1%	24,2%	24,2%	24,5%	24,6%	25,1%	28,3%	33,5%	33,4%

Figure 2 : Production of the Spanish construction in "thousands of million Euros" (at market prices) between 1995 and 2010 (Own development. Source: SEOPAN).



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
—— Residential	26,3%	28,6%	29,4%	30,8%	32,4%	33,4%	33,2%	32,7%	32,7%	33,3%	34,4%	35,3%	35,3%	32,1%	27,4%	25,3%
······· Non residential	19,6%	19,2%	19,3%	18,9%	18,6%	18,7%	18,7%	18,5%	18,3%	18,0%	16,9%	16,1%	15,9%	15,7%	15,3%	16,1%
– – - Rehab. & Maint.	24,9%	26,4%	27,2%	26,3%	25,3%	24,5%	24,5%	24,8%	24,8%	24,6%	24,3%	23,9%	23,7%	23,8%	23,8%	25,2%

Figure 3 : Breakdown of participation (in %) of the various subsectors of the building field in the total production of the Spanish construction: Between 1995 and 2010 (Source: SEOPAN).

But from 2008, the activity decreased sharply and hit the various sector actors and activities: Table 4 assesses the impact of the crisis in 2007-2010, looking at different indicators of construction. Table 4 shows that in the three years 2008 to 2010 the chosen indicators are significant declines, ranging from 26% to 80% compared to 2007 values of reference. In 2010 their amount back to those who were in the second half of the 90's, and even before: So, a reversal of the same of about 12 years. To note that in only three years the sector has lost more than a million jobs. Figure 4, which shows the evolution of cement consumption (in tons) in Spain, can illustrate the extent of the crisis in construction in Spain.

Table 4 : Changes in various indicators of the Spanish construction activity in the period 2007-2010. (Sources SEOPAN and INE).

Indicator of construction activity in Spain	**Value in 2007**	**Value in 2010**	**Fall (in %) of 2010 compared to 2007**	**Previous year in which the indicator had a similar value to 2010**
Participation of construction GVA in GDP	12,6%	8,4%	33,3%	Previous to 1995
Construction output in "thousands million €"	200,5	148,1	26,1 %	2004
Number of "million of jobs" in the construction sector	2,70	1,65	38,8%	1999
Apparent consumption of cement (thousands of tons)	56	24,5	56,3%	1996
Ready-mix concrete production (million m3)	90	39,1	56,6%	1999
Number of "thousands of houses" started	616	124	79,9	Previous to 1995
Number of "thousands of houses" completed	637	280	56,1	1996
Public tender (thousands million €)	37,40	21,95	41,3%	2001

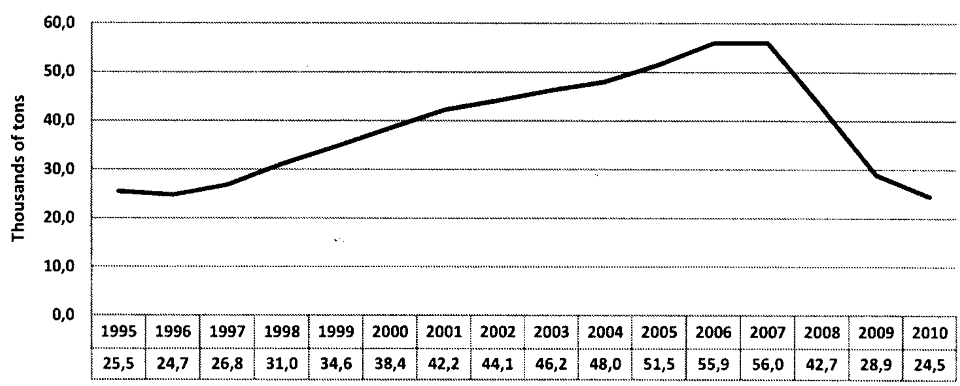
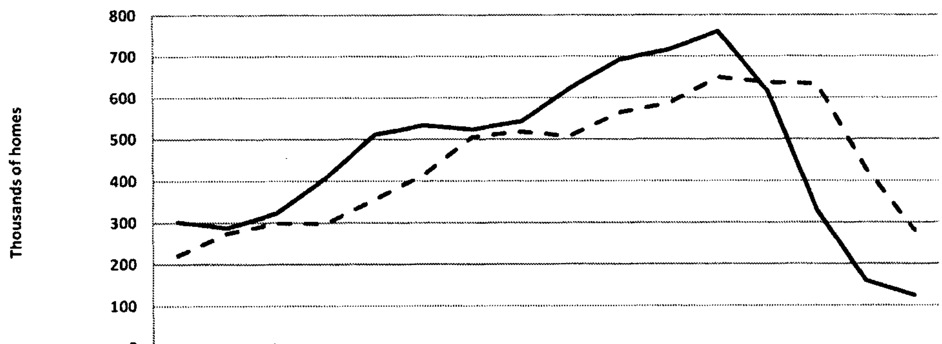


Figure 4 : Evolution of cement consumption (thousands of tons) in Spain: Between 1995 and 2010 (Own development. Source: INE).

Although the data included in the paper ending in 2010, during 2011 the overall activity of the Spanish construction has continued to decline, while slowing the fall, and it is expected that the background of the crisis will be reached in 2012: The five years 2008 to 2012 will mean, therefore, a real disaster for this industry.

Analysis of the different sectors of activity and future prospects for the Spanish construction

At this time the various agents in the sector that have survived, probably with cuts in their companies, are considering how to proceed once the crisis finally ends. In what follows we will analyze first the situation of different sectors of the construction activity in Spain and comment on the possible future scenario for the same; and thereafter, will describe the different strategies that are being raised and fields of activity could bring new business opportunities. The residential building sector has been for Spain, during many years before the crisis, the main market of the Spanish construction, with a share of around 33% of total sector output (Figure 3), from 2009 this percentage has decreased, yet in 2010 accounts for 25% of total activity. Figure 5 shows housing started and completed during the period 1995 to 2010: It is evident as for 8 consecutive years (2001 to 2008) were built more than 500 thousands homes per year, which exceeds the completed any of the countries of the EU-27.



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Started	302	287	323	408	511	534	524	543	624	692	716	760	616	328	159	124
Completed	221	274	299	299	356	416	505	518	508	564	587	649	637	633	428	280

Figure 5 : Number of "thousands of homes" started and finished in Spain between 1995 and 2010 (Own development. Source: INE).

Table 5 shows the houses built during the years 2004 to 2008 by three of the major European countries: In those five years, Spain has built more than three million homes, more than double the number built by Germany and nearly four times the finished by the United Kingdom.

Table 5 : Number of housing completed in Spain, Germany and the UK in the period 2004-2008. (Sources R1 and R6).

Total number of housing built in 2004-08	**Spain**	**Germany**	**United Kingdom**	**Spain/Germany**	**Spain/ United Kingdom**
	3.069.987	1.156.416	791.670	2,65	3,88

Also point out that due to this excess in the construction of new residences (fruit of the "housing bubble") in Spain is now the order of 1 million homes completed unsold and the order of half a million of initiated ones and whose works have been stopped because of the crisis. On the other hand, it is estimated that under normal conditions (outside of "situations of speculation" as those that have been lived in Spain in the period 1998-2007, with nearly 6 million housing starts in total) the Spanish market can absorb the order of 300 thousands homes per year (Ref. 4). That is, it will take several years for the situation returns to normal and absorb unsold housing stock.

It should be added also that the participation of the residential building in the construction output of the countries of Western Europe (EU-15) is around 25%, well below the Spanish percentage (33%) before the crisis (Figure 3). All of the above, indicates that the construction of residential buildings will not be a good work area for the Spanish construction in the immediate future: In the medium term it is expected that the housing figures in Spain will reach values similar to those other European countries of similar size and it is expected that, "learned the lesson" of what happened in the period 1998-2007, this phenomenon of the "housing bubble" will be not repeated in Spain in the near future. The area of non-residential building has been for Spain in the order of 17% of construction output (Figure 3), broadly similar to what happens in Western Europe (EU-15): It is estimated therefore that this section of the construction is embedded and does not expect changes in the near future. The field of rehabilitation and maintenance of buildings is contributing to the Spanish construction output 25% of the total (Figure 3), well below what is in EU-15, where it gives the order of 37%: It is expected here a substantial change in the Spanish construction activity, to greater works in this area, in line with what has happened in most developed countries of Europe.

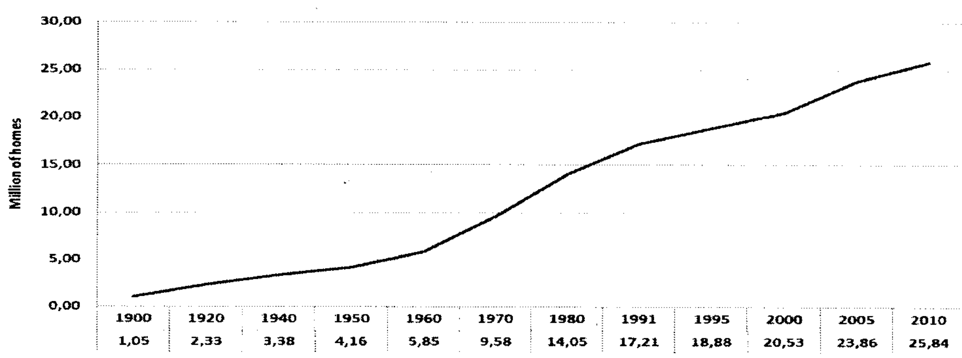


Figure 6 : Evolution of number of "million homes" in Spain: Period 1900 to 2010 (Source: INE, Ref. 2).

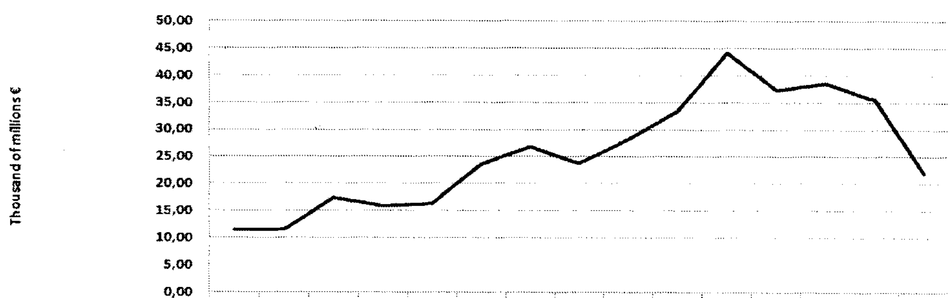
Spanish administrations, and society in general, positively accept the idea of rehabilitation and urban renewal, which means less consumption of economic and natural resources (environmental sustainability) and better use of existing housing stock, improving their safety, habitability, energy efficiency and accessibility.

Figure 6 shows the evolution of the number of dwellings in Spain over the last century: At present the Spanish housing stock is about 26 million, of which around 6 million (25% of total) are more 50 years old (built before 1960). It is now, rather than increasing the number of homes, especially considering the volume they are not sold, the time of improving the existing stock.

This linked to the idea of rehabilitation and conversion of existing tourist areas and improvement of historic areas, in line with sustainable tourism development and landscape protection: Caring for both coastal and inland areas, related these ones to cultural tourism that is growing in Spain, given the enormous wealth of heritage of the country.

The field of civil engineering works in Spain is assuming around 25% of the construction activity (Figure 2), slightly above the EU-15, which accounts for around 21% of the work. The development of infrastructure in Spain is financed primarily from investments made by public authorities (State, Regions and Municipalities).

Figure 7 shows the evolution that has had the public tender in Spain in the last 15 years (Ref. 7): It may be noted that the investment in the country has been in the period 2001-2010 an average of 3,4% of GDP, also, as previously discussed, how these public funds have been dedicated, in that decade, 70% to civil engineering works and the remaining 30% to the building field. The economical crisis has made that in the year 2010 investment has been reduced to little more than half that was in the previous three years, what has led to a major slowdown in the construction of new infrastructure.



	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Total	11,53	11,57	17,49	15,96	16,32	23,73	26,83	23,91	28,30	33,45	44,21	37,40	38,51	35,48	21,95
Building %	21%	31%	26%	28%	28%	31%	27%	30%	26%	31%	30%	29%	26%	29%	37%
Civil Engineering. %	79%	69%	74%	72%	72%	69%	73%	70%	74%	69%	70%	71%	74%	71%	63%
(Pub. Tender/ GDP) %	2,4%	2,3%	3,2%	2,8%	2,6%	3,5%	3,7%	3,1%	3,4%	3,7%	4,5%	3,5%	3,5%	3,4%	2,1%

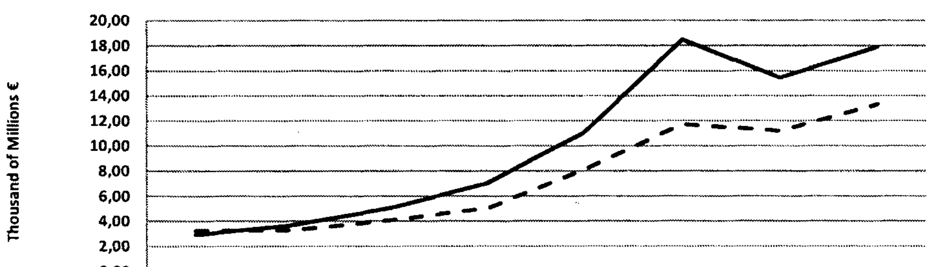
Figure 7 : Public tendering of works in Spain from 1996 to 2010 (Source: Ministry of Infrastuctures, R7).

To note that given the infrastructure needs that remain in Spain (modernization of the rail network goods transport, new roads, improvement of urban infrastructure, sewage, etc.), no substantial changes are expected in the contribution of this area activity to the total construction output: Once the crisis is over, the field of civil engineering works will remain a fundamental part of the Spanish construction, with similar participation rates to the average in Europe.

The internationalization of business activities: It comes to bringing the know-how and experience of the companies to other countries with greater construction activity, so that the company is not dependent on a single market. In fact, this strategy has been successfully explored in recent years by Spanish more dynamic companies and this is, in part, one of the reasons that has made them to survive to the decline of work in Spain during the commented crisis.

Figure 8 shows the evolution of contracting and billing abroad, in the period 2003-2010, of the large Spanish construction companies and shows the positive developments taking in that period: The billing has multiplied by four in the 7 years between 2003 and 2010. On the other hand, the contracting in the last three years is around 18 thousand million Euros per year.

Table 6 shows how in the last three years 2008-2010, Europe accounts for two thirds of sales outside of the Spanish construction companies and America 25% of the total.



	2003	2004	2005	2006	2007	2008	2009	2010
Billing	3,24	3,27	4,06	5,05	8,12	11,70	11,18	13,32
Contracting	2,90	3,70	5,06	7,06	11,10	18,47	15,44	17,92

Figure 8 : Contracting and billing abroad by the large Spanish construction companies, between 1995 and 2010 (Own development. Source SEOPAN).

Table 6 : Billing abroad by Spanish construction companies in the period 2008-2010. Percentages in the different geographic areas (Own development. Source SEOPAN).

Billing abroad in 2008-2010	Europe	North America	Central and South America	Rest of the world
36,2 thousands of millions of €	66,5%	13,2%	12,1%	8,3%

The diversification of business activities aims to find new areas of work for companies: Concessions for construction and operation of public works (design, construction and infrastructure management), management and maintenance of public services (provision of water, wastewater treatment, cleaning of parks and gardens, etc.), raid into the field of energy (wind, marine, etc.). This has also been explored, with success, by the great Spanish construction groups, initially born as conventional builders. Spain is, globally, the top of the largest dealerships of transport infrastructure (roads, railways, airports, ports, etc.). Table 7 (with SEOPAN data) shows the list of countries with the highest number of concessions for construction and operation, with an investment exceeding 50 million $, in the period 1985-2010: Spain with 264 contracts accounts for 41,1% of the contracts of the USA registry PWF, Public Works Financing, since 1985.

Table 7 : Concessions in construction and operation of transport infrastructure in the period 1985-2010. (SEOPAN 2010 and PWF).

Total number of concessions (% of total)	Spain	France	Australia	Germany	China	Other countries
643 100%	264 41,1%	97 15,1%	45 7%	44 6,8%	44 6,8%	149 23,2%

Table 8 prepared using data from Public Works Financing 2010 (Ref.8), contains the total investment PWF carried out, in millions of dollars, for the 10 largest dealerships in the world, since 1985 when recording began: Can be seen that Spain has 4 large companies in this relationship and has executed 48% of the total investment made by these concessionaires.

Table 8 : Number of concessions and total investment carried out by the 10 world leaders in construction and operation of transport infrastructure in the period 1985-2010. (PWF 2010).

Transport Developers ranked by Invested Capital	Spain	France	Germany	Australia	Total of Concessionaires
Number of companies	4	3	2	1	10
Number of concessions	172	73	36	36	317
Million $ (% total)	133.667 47,8%	72.847 26,1%	38.905 13,9%	34.154 12,2%	279.573 100%

Conclusions

In the last decade, 2001 -2010, construction in Spain was 11% of the country's employment and its GVA the 10% of GDP: These figures show the importance of this sector in the Spanish economy. If we compare them with the mean values of the EU-27 and with the ones of the biggest countries in Europe, towards which is tending Spain, it appears that this sector is dimensioned above what is usual in the EU- 27.

The economic crisis of 2007, that has severely affected the USA and the EU, has had a special role in the Spanish construction: Its activity logs and economic indicators have fallen to levels of the late twentieth century. It can be said that the oversizing of the sector, compared to the usual in Europe, has had these negative consequences.

It has been shown how residential construction has been for a long period, 1998 to 2007, running an excessive number of flats (in the period 2003 to 2007 over 600 thousand units per year, with a maximum of 760 thousand in 2006), very above the reasonable and customary in Europe: The so-called "housing bubble" has had later on a high price, after this the activity has sunk and will have to wait several years to restore the normal (construction levels about half of those in the five above).

Non-residential building and civil engineering works have had a workload in line with other EU countries: Overcoming the current crisis, they will return to an activity similar to that before, what is considered normal.

The rehabilitation and maintenance of buildings and urban renewal in the near future will experience an increase in activity, in line with what has happened in most developed countries of Europe. Spain has begun to evaluate positively these policies represent the best use of existing housing stock and promote sustainability of land and environment.

It has also been stated how the strategies of internationalization and diversification of the business, that have followed the large Spanish construction companies to limit business risks, are adequate and that they have managed these firms to overcome the impact of the reduction of works to has brought the economic crisis in Spain.

The model of concentration and mergers carried out by these big construction companies, allowing them to address larger-scale works, worldwide, could be an example to other business groups that could achieve the right scale to compete in a global economy scenario.

References

1. SEOPAN "Economic Report 2010" (and of previous years).
2. INE. National Statistics Institute of Spain.
3. FIEC June 2010 (European Construction Industry Federation) "Construction Activity in Europe".

4. Free College of Emeritus "The construction sector in Spain: analysis, perspectives and proposals." Spain, 2010.
5. EPoC 2010 "European Powers of Construction". June 2011.
6. Basque Observatory of Housing "Rehabilitation and urban regeneration policies in Europe". October 2010.
7. Ministry of Fomento. Government of Spain.
8. Public Works Financing "2010 International Major Projects". PWF database.