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Project Financing and Verticalization in Infrastructure Project Evaluation. A Case Study of Abengoa

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Project Financing and Verticalization in Infrastructure Project Evaluation: a Case Study of Abengoa¹

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Introduction

The gradual transfer to private companies of public utility services that once constituted public services or monopolies held mostly by state-owned companies has fundamentally changed the business environment for heavy engineering companies. Until the 1970's engineering companies used to be hired by public utilities or governments to build new infrastructure. But from the 80's, many countries started to promote public auctions for the provision of the infrastructure services themselves: toll roads, airports, power plants, water services, etc. The logic behind this policy change was that competition for the provision of infrastructure services would lead to lower costs for consumers and, if proper regulation is place, could also result in better quality of service than the old concession or public service model.

With this policy change, competition for construction contracts moved to the actual bidding process for infrastructure assets. As public auctions for infrastructure services usually include the construction and maintenance of the infrastructure assets themselves, heavy engineering companies now take part in the bidding process for new concessions. This new business environment requires that engineering companies own some of the infrastructure assets they build, as construction contracts tend to be awarded to companies participating in the winning consortia in public auctions for concessions or for long term contracts for infrastructure services. Thus, participation in such consortia, often as a major investor, became vital to heavy engineering firms.

This new competitive environment has led companies that originally focused their activities on heavy construction to assemble large portfolios of infrastructure assets. Among the companies that have adopted this new strategy, several Spanish firms are noteworthy: Abengoa (power generation, transmission lines and water services), OHL (transportation), ACS (transportation) Isolux (transportation and transmission lines) and Elecnor (wind power generation and transmission).

¹ This paper was presented at ICOPEV 2011 - International Conference on Project Economic Evaluation. University of Minho, Guimarães, Portugal, 28-29th April, 2011.

The business model of these companies has as main characteristics:

- i. Rapid growth of the portfolio of concessions and contracts for infrastructure services;
- ii. Aggressive pricing in public auctions for concessions and infrastructure services;
- iii. The use of highly leveraged financing structures including intensive use of Project Financing.

The case of Abengoa is particularly interesting because this company discloses its financial strategy in detail and allows us to understand how it is possible to build such a highly leveraged capital structure, without compromising access to capital markets or hindering further investments in fixed assets. This company has grown fast for many years, winning long term public infrastructure contracts and building the required infrastructure assets. Furthermore Abengoa's business model proved resilient as it resisted to the financial crisis that began in 2008: abengoa's growth was not halted and it did not lose access to debt markets. The feat is remarkable, because after the crisis financial markets severely penalized such highly indebted companies. Some performance figures are illustrative of the company:

- i. Revenue growth of 19% per year between 1999 and 2009. Revenue growth of 10% between 2008 and 2009.
- ii. EBITDA growth of 24% per year between 1999 and 2009. EBITDA growth of 34% between 2008 and 2009.
- iii. Shareholders' equity amounting to less than 10% of total assets in 2009.

The Abengoa's business model involves:

- i. The use of debts both at the project level (Project Financing) and at the holding company level (Corporate Financing).
- ii. Vertical integration of activities, with operations both in the provision of infrastructure services and in the provision of services required by infrastructure projects (especially heavy construction).

This paper is structured as follows: after this introduction (1), section (2) presents the strategies adopted by heavy engineering companies. In (3) we make a bibliographic revision of corporate finance and project financing and finally, in (4) we present Abengoa's case study and (5) we conclude.

I - Heavy Engineering Companies' Investment Strategies

When playing a role as investor in auctions for concessions or for the provision of infrastructure services became vital to get construction contracts, heavy engineering companies faced the problem of funding the participation in new capital intensive projects. It is not a trivial issue, as companies with a business model based solely on construction tend to have little access to long-term capital.

A company specializing in heavy engineering has a highly cyclical business. On the ascending phase of the economic cycle, investment projects are plentiful and business growth in the construction sector tends to be far greater than GDP growth. But during the crisis, new projects are usually scarce and the portfolio of construction projects shrinks sharply.

Given the cyclical nature of heavy engineering business and the fact that projects are relatively short spanned (engineering projects with four years or more are uncommon) it is a kind of business that has trouble getting long term debt. Moreover, high uncertainty regarding future cash flows makes raising equity for construction companies both difficult and expensive.

One strategy is to act as investor in infrastructure projects to ensure participation in the bidding process, only to sell the stake in the projects as soon as possible. The construction company acts as an investor to obtain a construction contract, but becoming an investor is not a long term proposition, as infrastructure services are not considered as a core activity. If the company adopts this strategy, it tries to sell its stake in the project to release capital for new projects that will bring new construction contracts.

Although this first strategy is perfectly feasible, it does have its drawbacks. The main one is that cash flows remain volatile and, therefore, access to long term capital is still an issue. Moreover, selling a stake in a new project can be difficult in a bear market and even in normal market conditions a good sell of such an illiquid asset may take quite some time. Therefore, one cannot really count on recouping equity committed to a new infrastructure project at a fixed date.

Another strategy, the one that Spanish several heavy construction companies adopt, is to become a long-term investor in infrastructure assets. It consists in building a corporate structure with both heavy engineering companies and companies dedicated to infrastructure services. Obtaining a construction contract is still one of the motivations for investment in new infrastructure assets. But construction is no longer the company's core activity, as ownership of infrastructure assets becomes a long-term commitment. This second business strategy explores the synergy between construction business and infrastructure services.

The first aspect of the synergy between construction and investments in infrastructure services is achieving a greater stability of cash flows. Predictable cash flows may serve as collateral for debt at the corporate level. Infrastructure projects usually have stable, non cyclical revenues which one can use as collateral to raise funds at the special purpose company level (SPC) to finance

construction. But a portfolio of infrastructure SPC's generates a steady source of non-cyclic dividends that in turn can serve as a basis for raising long term debt at the holding company level. Of course, as dividends received by the holding company are subordinated to debts at the SPC level, corporate debts at the holding company level tend to be rather expensive. But the very ability to raise long term debt is a distinct strategic advantage over a dedicated heavy engineering only company.

The second aspect of the synergy between construction business and infrastructure services is vertical integration. Infrastructure companies always hire heavy construction companies to build infrastructure assets. But if they hire another company within the same group to provide construction services, there is a vertical integration gain. The same business opportunity, a concession of a toll road, for example, will generate cash flows for two companies belonging to the same group: the SPC that owns the toll road and the construction company that builds it. Vertical integration gains render holding companies that own both concessions and heavy engineering companies very competitive in public auctions for concessions infrastructure services and therefore such auctions tend to be dominated by such companies and by consortia that include construction companies acting as long term investors.

The third aspect of the synergy between construction business and infrastructure services is the ability to manage construction budgets and construction payables in order to implement financial engineering strategies. Like most suppliers, construction companies are usually chosen through competitive bidding and, therefore, their construction budgets tend to be rigid. But if both the infrastructure SPC and the engineering company that builds its assets belong to the same owner, there is room to design a construction budget that will be the most effective one from a consolidated point of view. Notably, one can hire only suppliers that accept long-term trade payables, thereby releasing capital for other corporate needs.

As stated before, one of the main challenges for a company that plans to build its own infrastructure assets is to raise long term resources to finance the new assets. Project financing at corporate financing are the obvious choices. But if the company consistently achieves positive working capital from a consolidated point of view, working capital can also be an important long term source of cash. Positive working capital can be achieved if suppliers accept very long payment cycles, either through supplier's credit or through a scheme where banks are ready to discount trade payables issued by the construction company.

Of course this strategy has a financial cost, as suppliers will charge more if they are paid through long-term receivables. But the upside is that banks and rating agencies usually classify trade payables as operational liabilities and, therefore, do not find that they increase credit risk substantially.

All Spanish engineering companies that act as long term infrastructure investors fully explore all the three aspects of the synergy between construction business and infrastructure services. The largest of these companies is ACS. It

followed this strategy with such commitment that has come to name itself after it (ACS stands for "Actividades de Construcción y Servicios" or Construction and [infrastructure] Service Activities). But other Spanish companies adopt the same business model: OHL, Elecnor, Isolux and Abengoa. All of them have:

- i. large portfolios of infrastructure services projects;
- ii. at least one engineering company in the group;
- iii. achieve high leverage through corporate debts at the holding company level and project financing;
- iv. use working capital as a long term source of cash.

II- Project Financing for Infrastructure Projects

This section presents the main features of Project Finance, which is one of the main financing structures used by heavy engineering companies in infrastructure projects.

2.1 Definition and History

We can define Project Finance (PF) as a financing structure, most appropriated to infrastructure projects, in which project assets and project cash flows are the main collaterals.

Nevitt & Fabozzi (2000) define Project Finance (PF) as financing to an independent economical unit, in which lenders are satisfied mostly with cash flows generated by this unit as the source of funds to pay the loan and the economical unit is given as collateral for the debt.

Esty (2003) points out that PF implies the creation of a legally independent company for the specific asset (project), which is financed through non-recourse debt.

The idea of financing a project having the cash flows generated by the project itself as collateral is not recent. In 1299 a Florentine bank financed a silver mine project owned by the British crown in Devon having as collateral only the mine production. Other examples are European commerce with Asia in the XVIIth century, which was financed through a stake in the value of transported goods. In the 1930's, loans for oil drilling in Texas used to be paid with oil production. In the US Electricity Industry a big step was taken in 1978 with the approval the Public Utility Regulatory Policies Act (PURPA) by the Congress, through which utilities were to sign long term contracts with independent power producers that used renewable sources, such as wind and solar power production, and energy-efficient thermal processes such as cogeneration units. These projects used to be Special Purpose Companies (SPC) that took non-recourse loans.

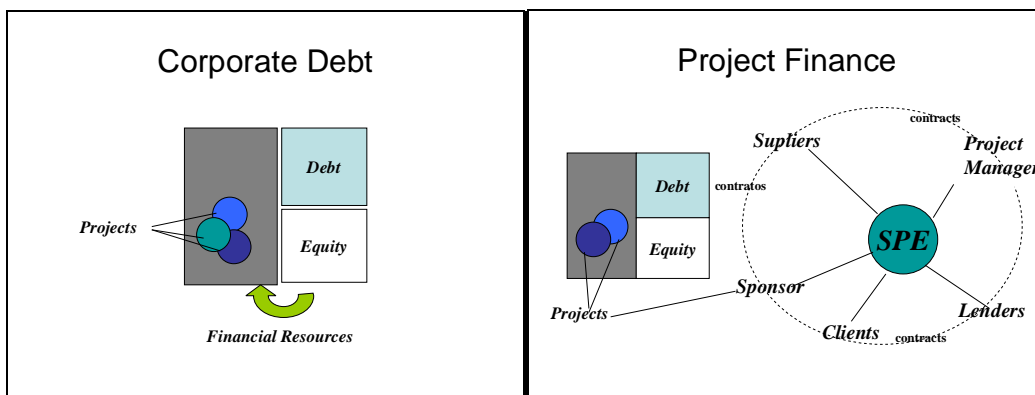
There are two ways to finance of projects at the corporate level: equity and debt. When a company does not have capital to develop its projects it can issue stocks or take loans in capital markets. The company's assets are used as collateral for corporate debts. In case of default, the lenders can take the assets given as collateral in order to recover the totality or part of their investments.

One of the main differences between Project Finance and Corporate Finance relates to collateral. Unlike Corporate Finance, where all assets are collateral, in the Project Finance rights related to project cash flows and project assets are accepted as the main collaterals. Project Finance debts are usually *non-recourse* debts, that is, banks have no rights to assets belonging to the project owners in case of default. When the SPC debts are non-recourse debts, project risks do not interfere in the company's risk as far as credit rating is concerned.

Many contracts between parties involved in the project need to be made in order to make the Project Finance feasible. A Special Purpose Company (SPC), that is a legal entity external to the sponsor (the company that has the main interest in the project), must be constituted. Project participants, such as clients and suppliers, frequently play a role as stockholders in the SPC. Figure 1 illustrates the difference between the structures of corporate finance and project finance.

Figure 1

Difference between structures of corporate and project finance.



Source: Prepared by the Authors.

An important issue for Project Finance feasibility is the projects financial design. As project cash flows are one of the main collaterals, the project must be designed in a way that cash flows are predictable, otherwise lenders will not accept to grant non-recourse financing. This is one of the main reasons why Project Financing is frequently used in infrastructure projects – such as electrical energy, telecom, toll roads, etc – for which it is possible to estimate cash flows with certain accuracy.

The main issue of Project Finance is risk mitigation achieved mostly through contracts parties involved in the project. The goal here is to reduce project cash flows variability. Financial engineering is used to reduce risk while maintaining an attractive project rate of return, thereby achieving both lenders' and SPC partners' objectives.

2.2 The Several Parties Involved in a Project Finance

A Project can have a wide variety of participants. The main ones are listed below:

- i. Sponsor – It is the company that is trying to make the project possible by assembling the Project Finance structure. An oil company using Project Finance to assemble an oil field project is a good example of sponsor.
- ii. Lenders – They could be banks, governments, leasing companies, multilateral development agencies, or even – sometimes – suppliers or clients that have direct interest in the Project. Independently of other interests, the lenders always try to obtain an adequate remuneration of his resources, i.e.: a risk-return relation that justifies the loan.
- iii. Suppliers – The suppliers of the main inputs for project may participate in the Project to guarantee demand for their products and make partnerships with their strategic clients. Commonly, suppliers sign contracts obliging them to provide inputs with predetermined prices in order to mitigate the project's risk.
- iv. Clients – Some important clients can participate in a Project Finance. It generally happens when the output of the project is an important input to a clients' business. It is common that clients sign long term contracts obliging them to buy products under predetermined conditions in order to mitigate project risks.
- v. Managers – Some companies – sometimes engineering companies or investment banks – which have the role of coordinating the project.
- vi. Governments – When the national strategic interests are involved, governmental participation in Project Finance as lender or partner of the project is common.
- vii. Law Firms – Considering the large number of contracts involved in Project Finance assembly, Law Firms are a very important party to a Project Finance.

2.3 Sources of Funding

A Project Finance can have one or many sources of funding. Some of the main kinds of funding used in Project Finance assembly are presented as follows:

- i. Senior Debt – They are loans given by banks or other lenders which – in case of default or bankruptcy – have priority in relation over other loans.
- ii. Subordinated Debt – They are loans usually given by sponsors which are subordinated to senior debts. Convertible corporate

bonds and corporate bonds with performance fee are examples of subordinated debts. These loans usually, but not necessarily, pay higher rates of return than senior debts (SD). They may also have some additional benefits to SD, for example a stock option.

- iii. Junior Debt – These loans are characterized for having higher rates of return and, many times, other advantages such as convertibility in stocks. In general these loans are given by financial institutions.
- iv. High Risk Bond (Junk Bonds) – They are the last loans to receive in case of project bankruptcy and generally pay big spreads comparing to the other loans.
- v. Suppliers Credit e Tied Credits – They are credits given by equipment and raw material suppliers. Many multilateral development agencies give credits to finance the purchase of raw materials, products and equipment produced by national suppliers.
- vi. Leasing – The lease of the equipment is one of the most common and important kind of funding to Project Finance.
- vii. Sweat Capital – It is a common contract whereby suppliers of services or equipment accept that if costs exceed a certain threshold, the excess cost should be invested as capital in the enterprise.
- viii. Development Banks and Multilateral Development Agencies – The support of these agencies can be fundamental to private sector's interest in a project. Many times the presence of Multilateral Development Agencies enables lower interest rates, because as privileged creditors, they have a default risk reduction.

2.4 Legal Structure

As it was said earlier, Project Finance implementation is usually related to the establishment of a Special Purpose Company (SPC). In addition to the SPC many contracts are generated. The main contracts involved in Project Finance are:

- i. Project Contracts – Contracts for construction, operation, maintenance and supply of raw material for the project.
- ii. Insurance Contracts – Insurance contracts to ensure the project construction and project assets.
- iii. Escrow Account – Centralizing bank account in whereto all project revenues are directed.
- iv. Financing Contracts – Contracts made between SPC and Senior Lender in which there is usually a clause for additional collateral during construction phase. When there are many lenders there must be a collateral sharing agreement between them.
- v. Long Term Contracts for the Supply of Raw Material – Contracts made between SPC and the main suppliers of Project Finance in

order to guarantee the supply of raw materials as well as to define prices and quantities required by the project.

- vi. Shareholders Agreement and other documents regarding partners' rights and obligations – These contracts define several shareholders' obligations and rights such as the partners' investment commitment, sponsors' responsibilities, dividend policy, among others.
- vii. "Off-Take" Contracts – They are long term contracts of guaranteed supply that can be used as collateral for loans.

2.5 Project Finance versus Corporate Finance

There are many distinctive features in Project Finance compared to Corporate Finance and they should be analyzed in order to be understood which structure is better for each project.

As it was written earlier, one of the main distinctions between these two financing models is the fact that a Project Finance is structured to have little impact on the sponsor's credit risk. This does not mean that lenders will give out collaterals in a Project Finance, but that these collaterals will be structured in a way that have little effect on the sponsor's credit risk. Typically if the project is well structured, it will be able to issue non-recourse debt, which has little impact in the sponsors' credit rating

While in Corporate Finance banks analyze the general payment capacity of a company, in Project Finance they analyze cash flows and assets of the project separately from the sponsor's activities. This implies that SPC and the sponsor may have a different credit ratings.

In Corporate Finance the lenders do not interfere in corporate management and can, at best, oblige the company to follow some rules of stated financing contract (financial covenants, for instance). On the other hand, in Project Finance creditors make a routine check of the project's financial performance and project managers have little room to manage the project's money.

Lenders in Corporate Finance have a wide range of company's resources as collateral, which implies the diversification of risk in the portfolio of the company's assets. In the Project Finance lenders have little or no access to sponsor's funds or resources. The risk exposure of lenders is protected by the project structure and by contracts between the project's participants. Project risks are allocated to the participants that are better equipped and willing to accept them.

Comparatively Corporate Finance is structured quickly whereas Project Financing uses to be very time consuming. In Corporate Finance, investments in new projects can be financed, at least partially, by cash flows generated for other pre-existent projects. The assembly of Project Finance is considerably

more expensive and slower than Corporate Finance and sponsors often have little flexibility in SPC capital allocation.

Project Finance does not increase the sponsor's default probability. Despite Project Finance contractual terms being usually very restrictive, they are restricted to the project level. A portfolio of projects financed using non-recourse Project Finance may increase the overall corporate leverage as a steady flow of project dividends to the parent company may enable it to issue new corporate debt.

2.6 Risk Mitigation

The focal point of a Project Finance is the analysis and the distribution of the risks among the project participants. Risk changes over time, being larger during construction phase and smaller when the project is operational. In the initial phase of the project, when investments are generally made in the construction, project cash flows are negative. At this phase the sponsors may take corporate loans (frequently bridge-loans) while the long term, non-recourse loan is being structured. As the project begins to generate positive cash flows or when most risks have been reduced, corporate loans are changed to non-recourse, long term, Project Finance loans.

Each participant in a Project Finance must understand the risks that are being assumed and, furthermore, whether these risks can really be assimilated. Engineering Companies should consider if they are able to guarantee that building on time and if they can assimilate fines for delays. Suppliers, for example, should evaluate if they are able to ensure fixed prices or price caps for their products, while clients should evaluate if they are able to purchase raw materials or products with fixed prices or floor prices. Sponsors should consider whether they have sufficient experience to manage the project or whether it is better to hire another company to operate the project. Several risks may also be reduced or extirpated by instruments such as insurance contracts or derivatives in financial market.

2.7 Characteristics of Projects Funded By Project Finance

What are the main characteristics of projects funded by Project Finance? With the intention to answer this question Esty (2003) presents a research done with collected data from 1997 to 2001 in the international market. This research reveals that in these five years were invested US\$ 601.2 billion in projects with average value of US\$ 504 million, being 12% of the projects with investments over US\$ 1 billion. Approximately 85% of the projects came from the industries: electric, telecom, transport, oil & gas and petrochemical. The average initial financial leverage (debt/total capital) was 70% and construction time was 2 years on average. The average duration of sale contracts was approximately 20 years, and only 13% of this amount had a maturity over 25 years. The average concessions time was 28 years and approximately 14% of concessions had a maturity over 30 years.

III - A Case Study of Abengoa

3.1 History and Activities

Abengoa was founded in the 1940's in Seville as a small engineering company specialized in electric assembly projects. The company grew in the Spanish market and, from the 1970's it started to diversify its activities internationally. But it was only from the 1990's on that the company started to invest in infrastructure assets, both in Spain and abroad.

Today Abengoa is a diversified group that focuses on three activities:

Engineering and construction:

Engineering and Construction includes the traditional engineering activity in the energy, water and information technology sectors, in which Abengoa has more than 70 years of experience in the market. The company's specialization is carrying out complex turn-key projects for solar-thermal plants, solar-gas hybrid plants, conventional generation plants, transmission lines, water infrastructures (such as large-scale desalination plants), biofuel plants and critical control systems for infrastructures, among others.

Concession-type infrastructures:

It consists of an extensive and young portfolio of proprietary concession assets that generate revenues that are governed by long term sales agreements with formats such as take-or-pay contracts, tariff contracts or power purchase agreements (PPAs). This activity includes the operation of solar plants, transmission lines, co-generation plants and desalination plants. These assets generate no demand risk and Abengoa's focus is operating them as efficiently as possible.

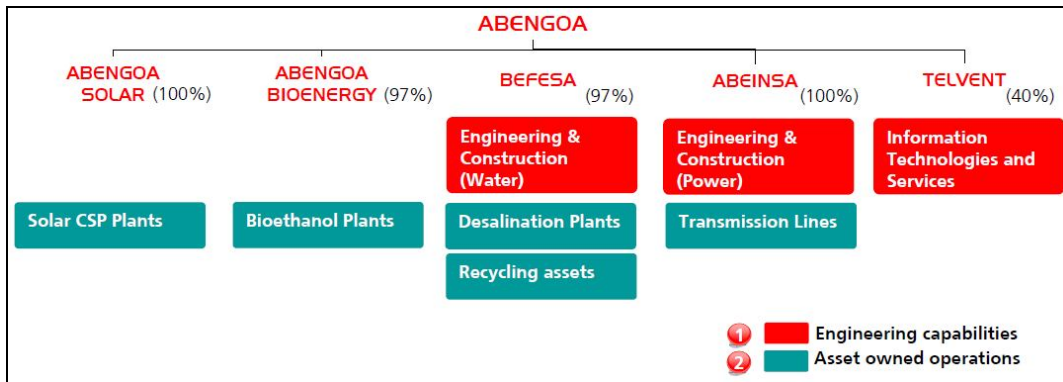
Industrial production:

This activity incorporates some businesses with commodity risk, such as biofuels or recycling steel dusts and salt slag. The company has an important leadership position in the geographical markets in which it operates, with proprietary assets. (Source Abengoa web site: Our Company)

3.2 Abengoa's Corporate Structure

Figure 2 shows Abengoa Corporate Structure. Befesa and Abeinsa are heavy engineering companies and Telvent is the IT Company. Abengoa Solar, Befesa and Abeinsa all own concession-type infrastructures, while Abengoa Bioenergy and Befesa own industrial assets.

Figure 2
Abengoa Corporate Structure.



Source: Abengoa’s Credit Update 2010.

Abengoa is today a geographically diversified company. Figure 3 shows Revenues broken down by region, showing that 50% of Abengoa’s revenues come from US, Brazil and Latin America.

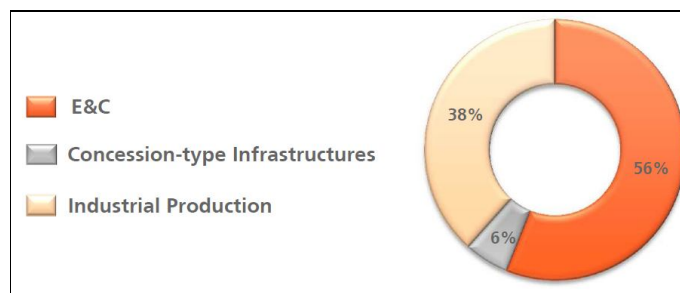
Figure 3
Revenue breakdown by region: 2010



Source: Abengoa’s 2010 Earnings Presentation

As far as revenue is concerned, the most important activity is Engineering and Construction (E&C), accounting for 56% of total revenue (Figure 4)

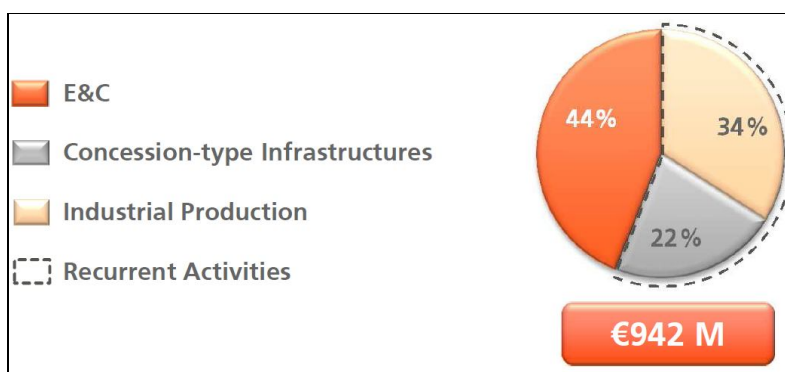
Figure 4
Abengoa 2010 Revenue breakdown by activity.



Source: Abengoa's 2010 Earnings Presentation

Although concessions and infrastructure services account for only 6% of consolidated revenue, they are responsible for 22% of total EBITDA. Moreover, recurrent activities account for 56% of total EBITDA, while only 44% come from cyclic, Engineering and construction businesses.

Figure 5
Abengoa's 2010 EBITDA breakdown by activity.

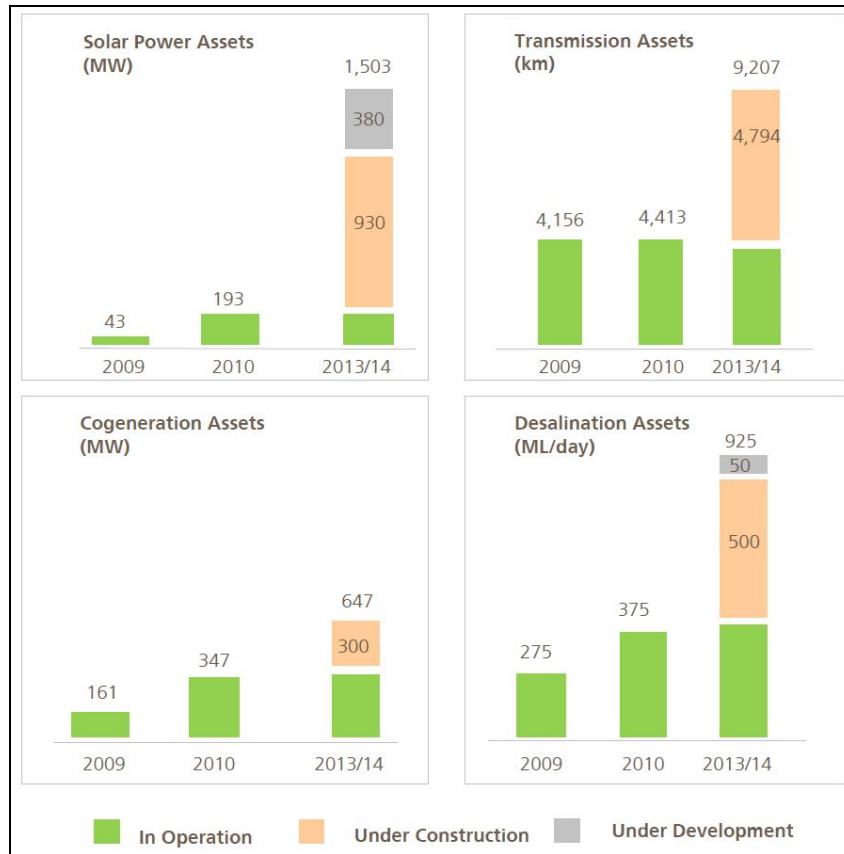


Source: Abengoa's 2010 Earnings Presentation

3.3 Abengoa's Strategy

Abengoa's current investment strategy focuses on new concession-type project assets, built by Abengoa's Engineering companies. Abengoa is already committed to new projects that will multiply by 5 its solar assets, double its transmission assets and more than double its desalination assets as shown in Figure 6.

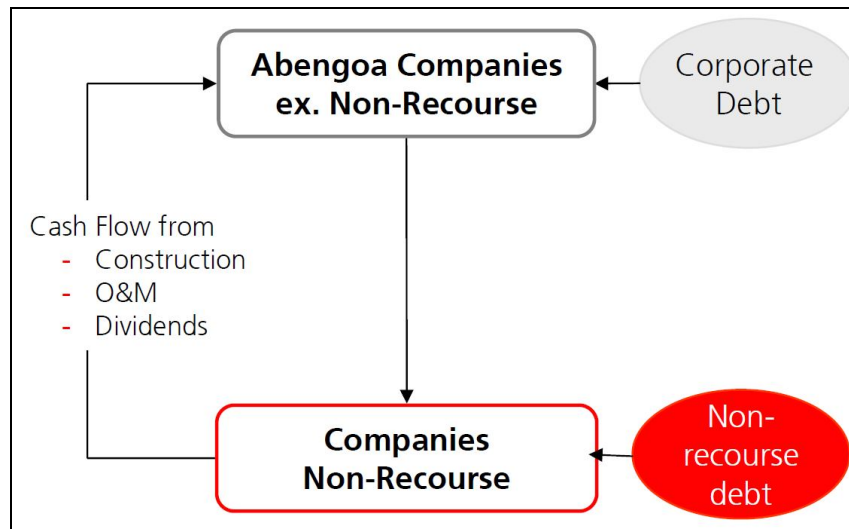
Figure 6
Abengoa's Assets.



Source: Abengoa's 2010 Annual Report

Abengoa fully explores all the synergies between construction activities and infrastructure services. Figure 7 shows part of this strategy. Abengoa's Financial strategy involves access to long term, corporate debt at the Abengoa companies level (Abengoa issues debt mostly through the holding company, but other operational companies may also issue corporate debt). Abengoa parent companies receive cash-flows from project companies both through dividends, through construction contracts and through O&M contracts with parent companies. Infrastructure project companies also issue long term debt, but this debt is non-recourse, project financing debt. Project financing is an important part of the strategy as banks that lend long-term resources to Abengoa parent companies do not consider non-recourse debt as part of Abengoa's net debt.

Figure 7
Abengoa's Financial Strategy.



Source: Abengoa's 2010 Credit Update 2010.

3.4 Abengoa's Evaluation Model

When Abengoa evaluates a new project the synergies between parent companies and project companies are fully taken into account. Figure 8 shows a Solar Plant Project simplified cash-flow. Besides dividends, construction and O&M cash-flows for parent companies are taken into account. Non-recourse debt cash flows are treated with the project cash flow and corporate interest payments are also reckoned with.

Figure 8
Solar Plant Project Simplified Cash Flow.

EUR in millions		year	-1	-2	1	2	3	4	5	6 - 34
Construction Business										
a	FCF from construction, development, equipment, technology fees...	20	20							
Corporate & Operational Business										
b	FCF from Management Fees and O&M Margins				1	1	1,25	1,3	1,3	47
Financial Investment										
	Capital Expenditure	125	125							
c	Abengoa equity funding	-44	-44							
Project Cash-Flows										
1	FCF before debt Service				26	26	26	26	26	790
2	Project Finance Net Interest				-11	-11	-11	-11	-11	-107
3	Project Finance debt drawdown/(amortisation)	81	81		-3	-3	-3	-4	-5	-144
1 + 2 + 3	Excess cash-flow for Shareholders				12	12	12	11	10	539
a - c = d	Net cash-flow for Abengoa pre-operation	-24	-24							
e	Cash-flow for Abengoa post-construction (dividends + b)				9	9	9	9	9	597
f	Net Corporate Interest exp. after taxes	-1	-3		-3	-3	-3	-3	-3	-81
d + e + f	Net cash-flow for Abengoa	-26	-27		6	6	6	6	6	516

Assumptions :

- 250 M€ investment cost
- 65% non-recourse debt @ project level
- 100 GWh net annual production of electricity
- Pool price + Premium = 330 €/Mwh

Source: Abengoa's Credit Update 2010.

A rough estimation of the gains obtained through this vertical integration, high leveraged strategy in Solar Plant Project was made from the example above. The solar project itself (Financial Investments and Project Cash Flows) will yield a 9% Internal Return Rate (IRR). When all the cash flows are fully accounted for, the consolidated IRR raises do 12,6%.

3.5 Abengoa's Economical and Financial Performance

In this section, it is presented an analysis of the last ten years of Abengoa's financial statements, in order to assess the effect of its strategy in its economical and financial performance.

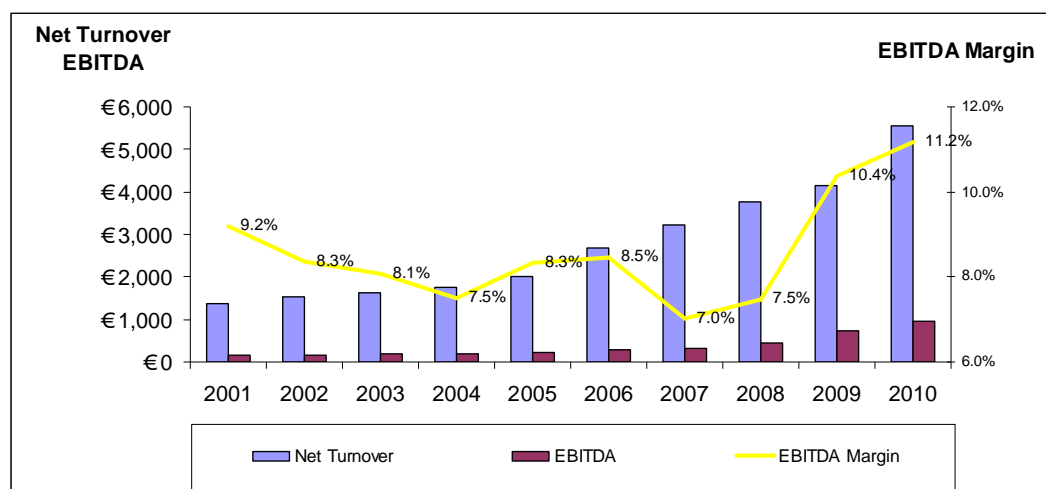
As it can be seen in table 1 and figure 9, Abengoa's Net Turnover and EBTIDA have been increasing substantially since 2001, respectively by 16.8% and 21.2% of CAGR, which made its EBITDA Margin change from 9.2% in 2001 to 11.2% in 2010.

Table 1
Abengoa's Net Turnover, EBITDA, Interest and Profits: 2001-2010

in <input type="checkbox"/> Million	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Net Turnover	1,379.9	1,521.4	1,635.3	1,746.1	2,023.5	2,677.2	3,214.5	3,769.2	4,147.3	5,566.0
EBITDA	166.5	174.7	185.2	183.8	221.7	295.4	322.9	459.3	750.0	942.0
Interests	79.9	99.5	76.6	78.3	58.8	91.9	140.5	293.9	181.4	368.4
Profits	41.5	43.5	47.0	52.4	66.0	100.3	120.4	140.4	170.3	207.0

Source: Abengoa's Financial Statements 2001 to 2010

Figure 9
Abengoa's Net Turnover, EBITDA, EBITDA Margin: 2001-2010.



Source: Abengoa's Financial Statements 2001 to 2010

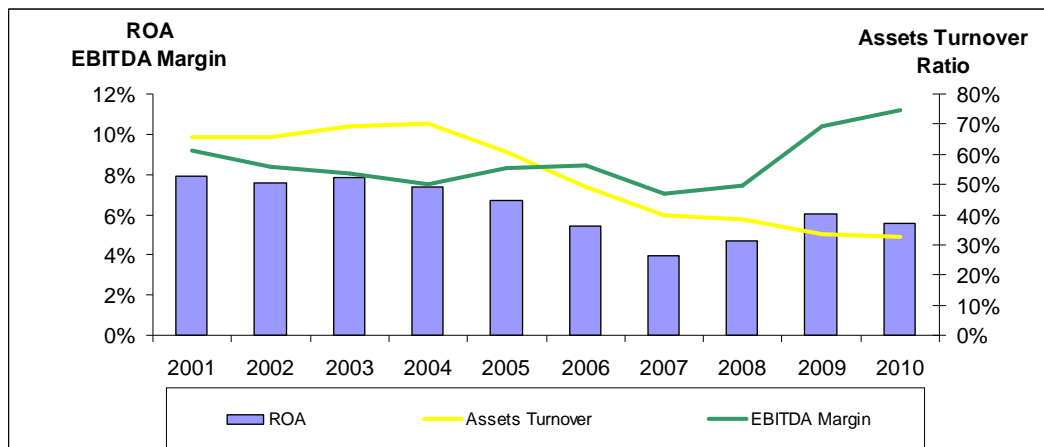
On the other hand, as it can be seen in table 2 and figure 10, as the Total Assets of Abengoa has been growing by 26.1% of CAGR, the Asset Turnover ratio has been decreasing in the same period, which made Abengoa's ROA also decrease from 7.93% in 2001 to 5.55% in 2010.

Table 2
Abengoa's Assets Turnover, EBITDA Margin and ROA: 2001-2010

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Assets Turnover	66%	66%	69%	70%	61%	49%	40%	38%	34%	33%
EBITDA Margin	9.19%	8.35%	8.06%	7.50%	8.34%	8.47%	7.01%	7.45%	10.38%	11.16%
ROA	7.93%	7.56%	7.84%	7.38%	6.67%	5.44%	3.98%	4.69%	6.06%	5.55%

Source: Abengoa's Financial Statements 2001 to 2010

Figure 10
Abengoa's ROA, Assets Turnover and EBITDA Margi: 2001-2010.



Source: Abengoa's Financial Statements 2001 to 2010

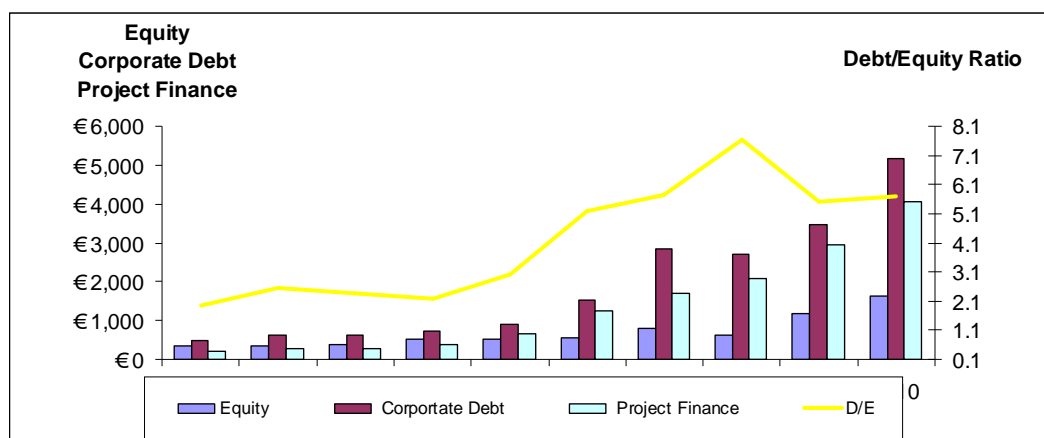
Most of this huge increase in assets has been financed by new debt – corporate debt and project financing – taken by Abengoa, which made its D/E ratio change from 1.9 to 5.7 in the last decade. Table 3 and figure 11 show the evolution of Abengoa's capital structure composition in the period of 2001 to 2010.

Table 3
Abengoa's Capital Structure: 2001-2010

in <input type="checkbox"/> Million	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Total Debt	696.6	881.0	877.8	1,108.2	1,561.0	2,790.2	4,538.8	4,780.7	6,415.5	9,211.7
Corporate Debt	495.0	611.1	608.1	743.4	890.1	1,536.4	2,849.7	2,688.0	3,482.1	5,161.6
Project Finance	201.6	269.9	269.7	364.8	670.8	1,253.9	1,689.2	2,092.7	2,933.4	4,050.1
Equity	363.1	351.6	377.9	522.2	526.2	541.1	797.5	627.5	1,171.0	1,630.3
Debt/Equity Ratio	1.9	2.5	2.3	2.1	3.0	5.2	5.7	7.6	5.5	5.7

Source: Abengoa's Financial Statements 2001 to 2010

Figure 11
Abengoa's Capital Structure: 2001-2010



Source: Abengoa's Financial Statements 2001 to 2010

Abengoa's higher leverage has not hindered its access to debt markets. Actually, banks do not perceive an increase in total debt as an increase in corporate risk, since a large part of total debt consists in project financing. Abengoa's long term corporate debt has only one covenant: Net Corporate Debt/Corporate EBITDA. Cash, debts and EBITDA in projects financed by non-recourse debt are not taken into account. Only corporate cash, corporate debt, corporate EBITDA (including project dividends) are considered for its 3.0 Net Corporate Debt/Corporate EBITDA covenant. By this standard, Abengoa still has room for new corporate debt as Net Corporate Debt/Corporate EBITDA has ranged from 1.17 to 1.84 from 2007 to 2009.

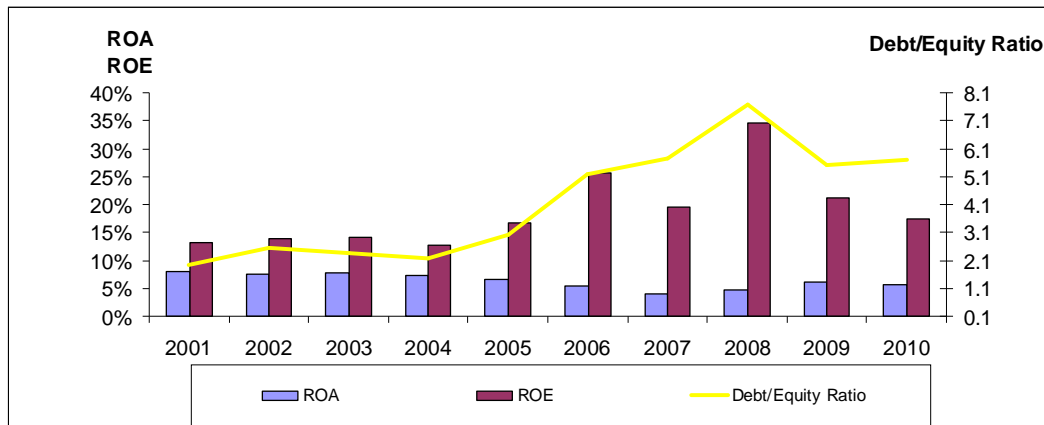
However, as a consequence of the greater total financial leverage Abengoa's ROE has substantially increased, even considering the increase in its interest expenses. On the other hand, higher leverage also brought a higher beta and consequently Abengoa's cost of equity also increased in the same period, as it can be seen in table 4 and figure 12.

Table 4
Abengoa's Cost of Capital: 2001 - 2010

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Debt/Equity Ratio	1.9	2.5	2.3	2.1	3.0	5.2	5.7	7.6	5.5	5.7
Beta	0.30	0.33	0.52	0.71	0.85	1.55	1.22	1.05	1.20	1.60
Ke real	5.4%	5.2%	5.4%	5.9%	6.1%	9.7%	8.1%	5.7%	7.2%	9.6%

Source: Abengoa's Financial Statements 2001 to 2010

Figure 12
Economic Performance and Financial Leverage: 2001-2010



Source: Prepared by the Authors.

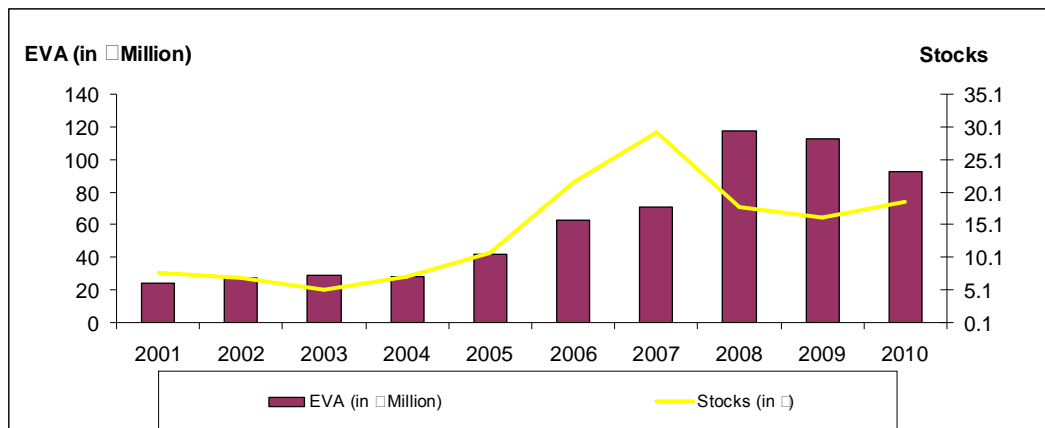
However, taking into consideration the rise in value created for Abengoa's stockholders in the last ten years, the final economical result of Abengoa's financial strategy has been extremely positive. As it can be seen in table 5 and figure 13, Abengoa's EVA had a substantial growth from 2001 to 2010, which largely explains the performance of Abengoa's stock in the period.

Table 5
Abengoa's Economic and Stock Price Performance: 2001-2010

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
ROE	13.1%	14.0%	14.2%	12.7%	16.7%	25.7%	19.5%	34.5%	21.2%	17.4%
Ke real	5.4%	5.2%	5.4%	5.9%	6.1%	9.7%	8.1%	5.7%	7.2%	9.6%
EVA (in □ Million)	24.3	27.4	29.2	27.9	41.9	62.4	70.6	117.3	112.3	92.8
Stocks (in □)	7.7	6.9	5.1	7.1	10.7	21.6	29.1	17.7	16.2	18.5

Source: Abengoa's Financial Statements 2001 to 2010. Prepared by the Authors.

Figure 13
Abengoa's Economic and Stock Price Performance: 2001 - 2010



Source: Abengoa's Financial Statements 2001 to 2010. Prepared by the Authors.

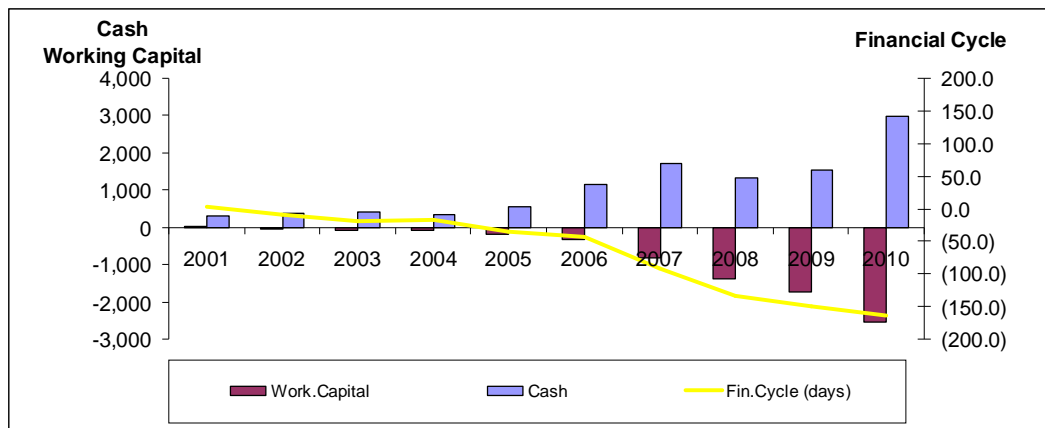
Finally, table 6 and figure 14 point out another interesting effect of Abengoa's strategy, the huge financial cycle reduction from 2.4 days to -164.8 days between 2001 and 2010, which consequently implied in an increase of cash position caused by working capital reduction.

Table 6
Abengoa's Financial Cycle, Working Capital and Cash: 2001 - 2010

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Fin.Cycle (days)	2.4	(9.7)	(20.0)	(17.4)	(34.6)	(43.5)	(91.3)	(133.0)	(149.3)	(164.8)
Work.Capital	9	(41)	(91)	(84)	(195)	(323)	(815)	(1,392)	(1,720)	(2,547)
Cash	320	376	426	357	567	1,136	1,698	1,334	1,546	2,983

Source: Abengoa's Financial Statements 2001 to 2010. Prepared by the Authors.

Figure 14
Abengoa's Financial Cycle, Working Capital and Cash: 2001 - 2010



Source: Abengoa's Financial Statements 2001 to 2010. Prepared by the Authors.

Conclusions

Abengoa successfully evolved from business strategy focused on heavy engineering to include both construction activities and long term investments in infrastructure assets. Abengoa fully explores all aspects of the synergy between construction business and infrastructure services:

- i. As a substantial part of Abengoa's corporate cash flows come from non-cyclic infrastructure projects dividends, Abengoa has access to long-term corporate debt at the holding company level.
- ii. Long term debts and corporate cash flows that are ultimately derived from infrastructure projects (project construction cash flows, project O&M cash flows and project dividends) are used to finance equity in new projects that, in their turn, issue non-recourse project finance debts to help fund construction of infrastructure assets. As new projects generate new construction, O&M and dividends, they increase the holding company's ability to issue more long term debt.
- iii. Construction budgets are managed to produce payables with long maturities. As a consequence, working capital is a source of cash in Abengoa's financial model.

This financial model has led to a highly leveraged capital structure. Nonetheless, Abengoa has managed to properly allocate risk in order to preserve access to debt markets. Credit risk is mitigated because a large part of Abengoa's consolidated debt consists in non-recourse project financing. Working capital is also used as a source of long-term resources. As neither non-recourse debt and working capital are considered in Abengoa's main corporate debt covenant (net corporate debt/net corporate EBITDA), Abengoa's highly leveraged capital structure is not an object to raising new debts the corporate level to finance equity investments in new projects.

Abengoa has an ambitious investment plan. Abengoa will more than triple its Solar and desalination assets by 2013-14. By that date, Abengoa will have almost doubled its cogeneration assets it will have more than doubled its transmission assets.

As every highly leveraged company, Abengoa needs strict financial discipline to successfully fulfill its investment plan. Abengoa only commits to a new investment project when financing is secured both at the project and at the holding company level. This is the main reason why Abengoa consistently accumulates large volumes of cash. As of December 2010 Abengoa had roughly € 3 billion in cash.

Abengoa's track record in from 2001 to 2010 is an outstanding one. Rapid growth was achieved mostly through investing in fixed assets, a large part of which are infrastructure assets. Abengoa's highly leveraged financial strategy leads to very competitive pricing in public auctions for infrastructure assets as one can infer from Abengoa's low Return on Assets (ROA), ranging from 4% to 6% from 2006 to 2010. Were not Abengoa a highly leveraged company a low ROA would translate in a low Return on Equity (ROE). But through leverage, achieves ROE from 17% to 26% in the same period. As a result, Abengoa created value for the stockholder during the whole period analyzed here: the company boasts a positive Economic Value Added (EVA) in every single year from 2001 to 2010.

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