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ANNEX N.8

PROJECT FINANCING DRAFT REPORT

JANUARY 2007





Project Finance draft report

1. Generalities

Project Financing is a particular financial technique with the aim of helping the collecting ability of financial means to build public works or works of public utility that can be managed with a foreseen profit. This is a particular form of a wider range of financial operations involving cooperation between Public and Private Bodies, the so called Public Private Partnerships (PPP).

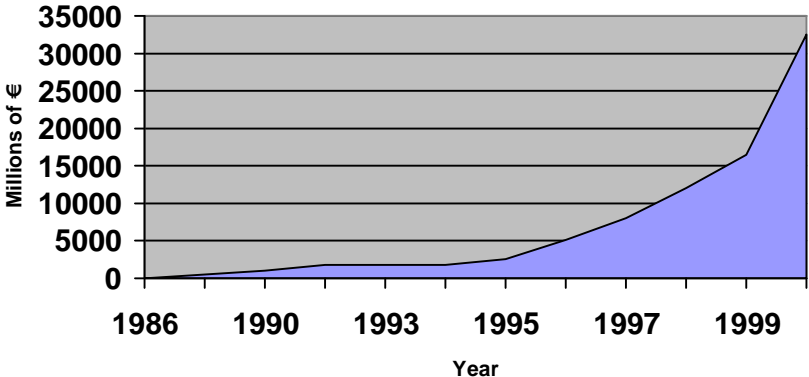
The need of finding new ways to finance public works is a crucial task for every European (and not only) Country: the current needs for infrastructures are such that the demand exceeds the supply so it is necessary to explore which are the forms of cooperation between public and private actors to acquire the required financial means and the operational tools necessary to the managements of public services like water, roads, parking, hospitals and so on.

The increasing prices in energy sector, induced in 1978 the United States Congress to publish the Public Utility Regulatory Policy Act (PURPA) with the aim to promote new forms of investments in electric power production: in fact the early applications of PF were done to build electric power plants and in combustible mining.

At the beginning of 90s, PF began to be applied in Europe too and the larger use of it was done in the United Kingdom which, till today, remains the only European Country which has an extensive experience in the application of the method.

Probably the most ambitious application of PF known in Europe, is the building of Eurotunnel under the English Channel which has shown, notwithstanding several problems happened during its construction, how powerful is the joining of private interests in construction of public works. The central aspect of the successful experience of UK in PF is in its general application in infrastructures and in buildings as the result of a strong political effort: it must be recalled in fact, that in 1992 the English Government passed an important initiative – the so called Private Finance Initiative (PFI) – whose aim was to create a favourable institutional context to promote the use of private capitals in the realization of public works. The results of this policy are shown in the following figure where it can be noted that in the UK since 1997 to 2000 year, there have been about 450 initiative in PPP with a total private investment of about 30.000 millions of €. The key concept is to improve the quality of public services and infrastructures according to the principle of the best use of public money (so called best value for money). Today PF is able to finance different kinds of initiatives in different sectors and in different geographical areas.

Investments with private capitals in UK



2. Origins of project financing

The idea of PF is rather simple in principle and has its origin in finding a way to realize an enterprise without a financial charge on the subject who has an interest in this enterprise. Since 1299 the English Crown negotiated a loan with the Frescobalds to expand a silver mine in Devonshire. The loan contract was based on the rights of the financing capitalists of controlling the mining incomes for one year.

The commercial expeditions of the 17th and 18th century were financed by the expeditions themselves: the financial capitalists financed the Dutch and British India

Companies in their business trips to Asia and they were refunded with a participations in sharing the goods.

Between 1840 and 1860 the most part of European Railway System was financed with a technique similar to the one we use today.

3. Definitions

PF can be defined as a “*way of building public works without financial charges on public administration*”. It is a complex financial and economic transaction with the aim at a specific investment (building a public work or management of a service) according to a proposal of private contractors – so called SPONSORS.

The most important experts on PF define it as a FINANCIAL ENTERPRISE WITH THE AIM AT AN ECONOMIC UNITY WHERE THE PRIVATE CONTRACTOR IS SATISFIED TO CONSIDER, FROM THE BEGINNING, CASH FLOWS AND PROFITS FROM THIS ECONOMIC UNITY AS THE ORIGIN OF FUNDS WHICH WILL LET HIM PAY THE LOAN AND WHERE, AT THE SAME TIME, THE ACTIVITY OF THIS ECONOMIC UNITY CAN BE CONSIDERED THE LOAN WARRANTY.

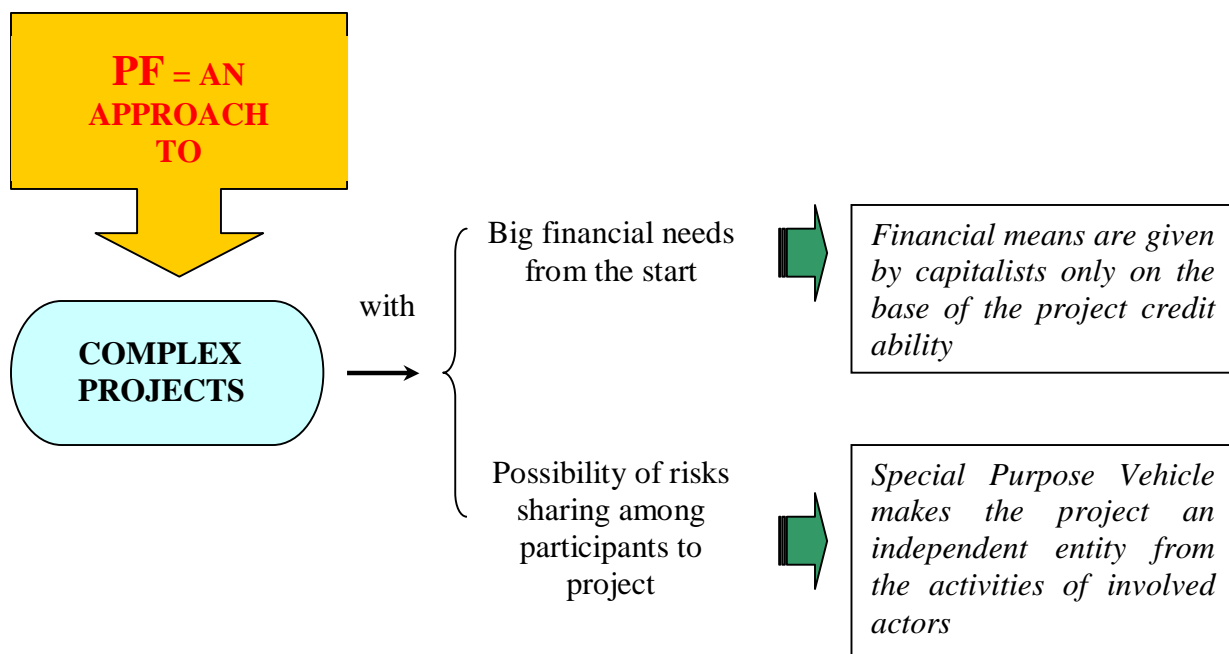
In order to plan a successful PF investment, some aspects must be considered:

1. The project has to be *financiable*: in other words it has to be able to produce a sufficient cash flow to cover costs, to reward financial capitalists and to give a satisfactory profit to sponsors. In one word the project can be defined SELF LIQUIDATING.
2. The project has to be carried on by a self – governing society, from a legal and a financial point of view (Special Purpose Vehicle: a society with the special project as its only aim). This fact warrants a legal and financial separation among this Project Society (SPV) and the sponsors (the so called *ring fence*): in this way PF can be considered an “*off balance sheet financing*”, respect to other sponsors’ activities.
3. It’s necessary to give to financial capitalists involved in the project, indirect securities based on agreements among all subjects interested in the project (included Public Administration, for example) so that the possibility of reimbursement for financial capitalists and other creditors is strictly limited to their financed activities.

From a strictly financial point of view, PF structures can be divided on the base of kind of reimbursement of financial capitalists of the project on the SPV shareholders:

- a) Without Recourse transactions - In these transactions financial capitalists (above all banks) cannot recourse on shareholders: in all these cases banks work in a not traditional way, assuming on themselves risks near the same as sponsors or, in other way, there must be a "third subject" (often a Public Body) who gives appropriate warrants;
- b) Limited Recourse transactions - In these transactions financial recourse on shareholders is limited in some way (in time, in amount or in kind);
- c) Total Recourse transactions - In these transactions the financial recourse on shareholders is total and the risk of the transaction relies only on shareholders: in these cases the basis of PF are rather weak.

PF is not simply a technique nor a simple financial means: it can be defined as a WAY to build, manage or finance complex projects



It is possible to use PF to carry out not only the building of Public Works (and their functional and economic management) but also all works of public utility that can be

managed with a foreseen profit: this means that the work carried out can be of private property too, but it must be functional to satisfy a Public Utility.

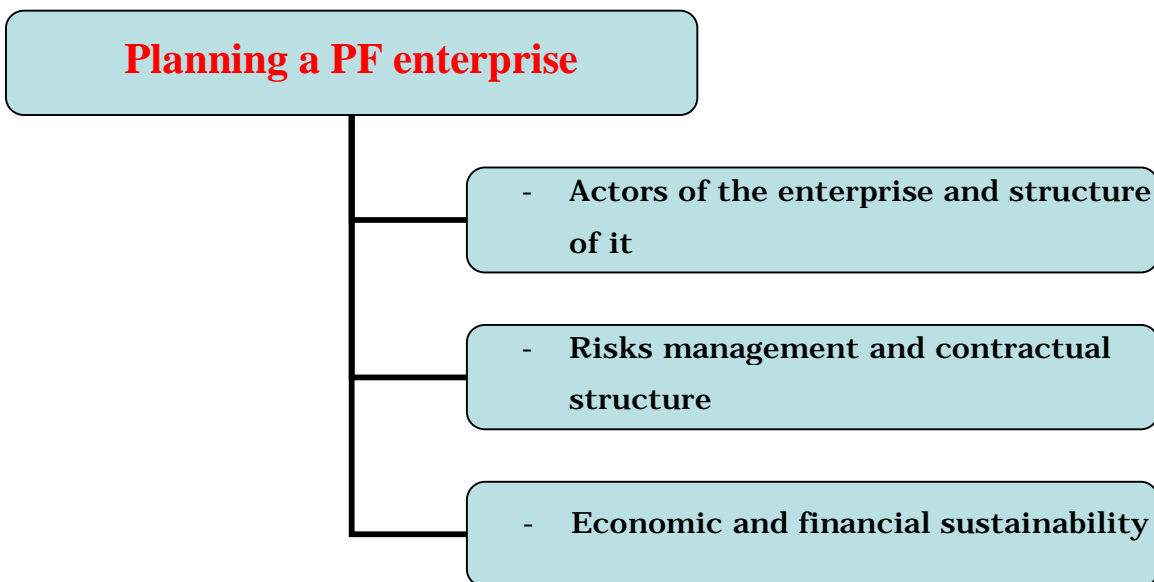
From a financial point of view, PF “works in a good way” only if a project is able to give a profit. Just considering the ability of different works to assure this profit, they can be divided as:

a) Cold works – They are works where social function is absolutely prominent and for this reason the prices for their use must be so low that they cannot be considered sufficient to give a satisfactory profit to sponsors (for example hospital building and their services): in this case the public administration interested in the project, must take in charge to assure the economic profit to sponsors. This can be done or paying a suitable price in addition to the right of sponsor of managing the services, or giving an additional profitable opportunity (for example the contextual construction of residential building).

b) Hot Works – They are works that can give a satisfactory (from an economic point of view) profit, so that they can be rightly defined SELF – LIQUIDATING (for example energy production plants, highways with a payment, car parking, recreation grounds Can be included in this group)

4. Base elements of PF

An PF enterprise cannot leave out the following aspects:



4.1. Actors and Structure of a PF enterprise

The main actors in a PF transaction are: the Public Body interested in the project, the Sponsors, the Financial Consultants, the Financial Capitalists, the General Contractor.

a) The Public Body has in charge to include the work in its investment plan, has to select the best offer among the various proposal received by potential sponsors interested in the work, has to dispatch the public contest to select the winner of the concession. The Public Body, in case of Cold Works, can give a financial supply to sponsor in order to assure economical and financial balance of the enterprise. In addition, in some cases, the Public Body can take part in supplying the risk capitals by mixed public and private companies and, if necessary, can give warrants to help in collecting funds.

b) The Sponsors are the main actors of PF: in fact they are the private subjects who can present their proposal of carrying out a public work or work of public utility to Public Administration, if this work is already included in the approved investment plan of the Administration. In addition, if their request is not included in the approved plan, they can ask to include it in the future plan too, but it will ever be in charge to the Public Body to decide whether the project will be really included or not.

The Public Administration has the interest to enlarge as widely as possible the field of possible sponsors, so, just for this reason, while originally the subjects who could be accepted as sponsors where only the same who could participate to building contests (phase of sponsor – constructor) actually, there are generally accepted (in Italian Law too) subjects that can be not builders nor managers, but for example, simple financial capitalists (phase of sponsor – not constructor nor manager). It's obvious that, in this second case, if this sponsor will be the subject who will take the building concession, before having it, he will be obliged to make an association with a builder.

c) The Financial Consultants are experts who help the Public Administration to select the best offer, from a financial point of view. They play an important role for sponsors too, in fact the sponsors' proposals must include a financial plan which has to show the economic sustainability of their proposals (for example must be considered matters on products, market trends, competition, political risks, economical returns, and so on).

d) Other important figures involved in PF projects are the Financial Capitalists. These are the subjects who give sponsor the needed financial capitals. This can be

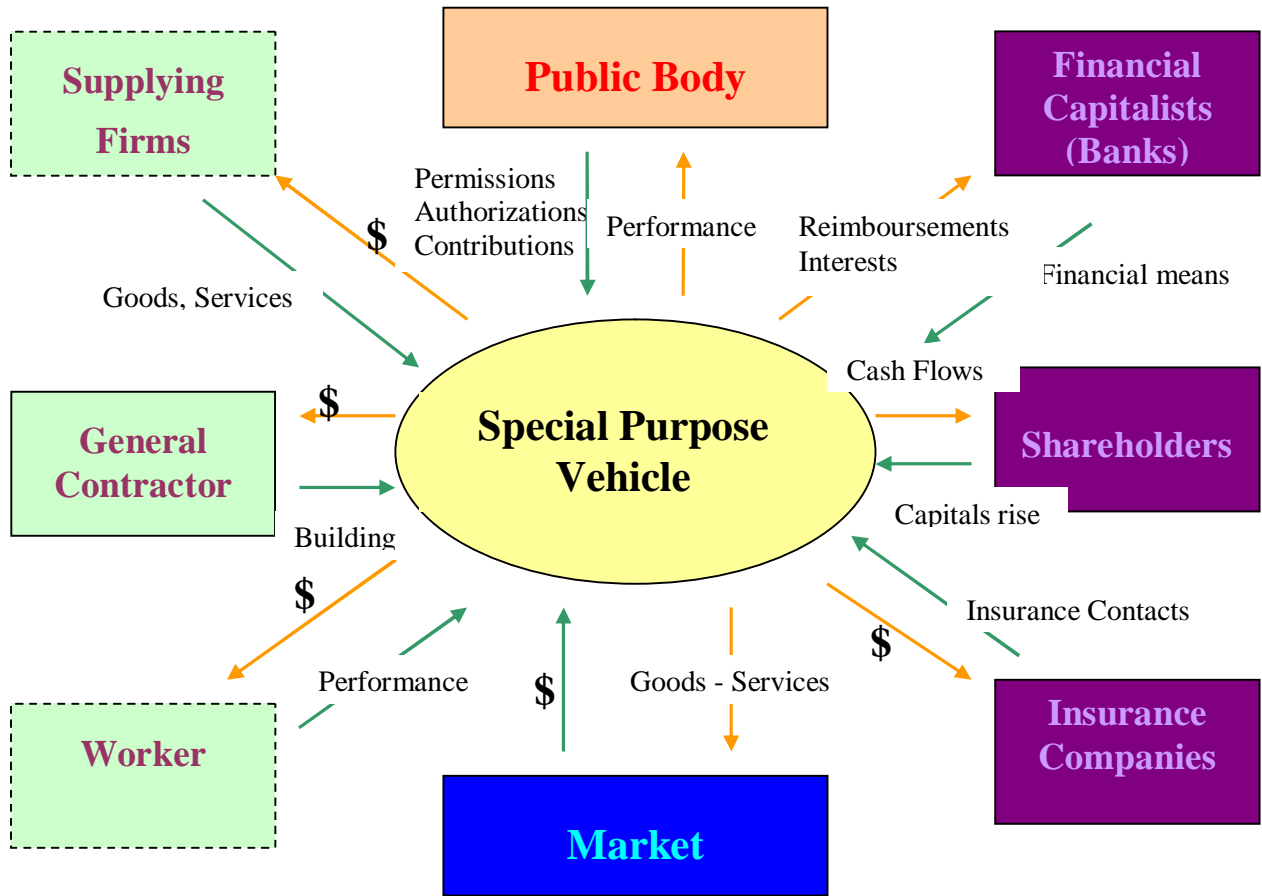
done in the form of the so called “risk capitals” (stock – holders of Project Society) and of the “debt capitals” (loans and other forms of debts).

The most important role among the subjects who supply the debt capitals, is occupied by banks. Considering the important financial obligation requested by financing public infrastructures, banks form a pool leaded by a big international bank who represents the pool in all transactions and proposes to partners the general conditions for loans.

The subjects who supply the risk capitals, are of different nature, in fact in this group we can find:

- Sponsors
- Builders
- Supplying firms
- Users of services
- Banks
- Stock Exchange (If Project Society is included in Stock List)
- Insurance Companies
- Investments Funds
- Public Bodies interested in the project

- e) The General Contractor is the builder who has in charge the obligation of execute the work according to the request of the winner of the concession. This subject must have the technical and organizing ability to carry on the work. In some cases the general contractor may join to sponsors to form an association. The structure of the enterprise and the relations among the actors of PF can be summarized in the following general scheme:



And in the case of Water Services, the scheme can be:



4.2. Risks management and contractual structure

The origin of success of PF as financial technique is represented by the possibility of risk sharing among a group of subjects, every one of which, has the ability of making these risks the lowest as possible. The total management of the risks of a project (including the contractual agreements) is called the *Security Package* of the project. The Security Package is the main element that secure the financial capitalists the reimbursement of their funds and probably is the most complex aspect in every PF transaction.

PF is often used to finance big projects and their dimension, even if a good property under some aspects, makes difficult to find capitalist financing them (for example in industrial sectors of combustible mining where PF is largely used, more than 50% of projects have a financial dimension bigger than one billion of US dollars). In addition, projects' lives can be divided in two clearly separated stages - the building and start up stage and the wok life stage - which have very different risks and cash flows. The first stage has technological and environmental high risks, while the second stage has stronger market and

political risks. The capital expenses happen above all in the first stage, while positive cash flows require the project reaches its work life. In order to assure a successful result it is necessary to have a strong coordination in order to prevent any potential interests conflict or "free riding" phenomena by one of several subjects involved in the transaction. In order to avoid (or minimize) these kind of risk in PF are used long term contracts and sharing financial structures. Special Purpose Vehicle works at the centre of a complex relationship network sharing the different kinds of risks with subjects able to make them the lowest. The "non recourse debt" clause, typical in PF investments, directly ties the positive cash flows of the project and the reimbursement of loan: this fact makes possible to have loan much higher than it would be possible using sponsors' balances, in fact, the average value of debts capital in a PF transaction is often about 70% (that is an high value!) In order to minimize the debt risk the banks often require the involvement of the public body: the financial capitalists hold the building and operative risks, while the market risks relies on Public Body who plays an important role in giving warrants against political risks too.

Speaking about the applied discount rates of loan respect to the time duration of loan, we find that in PF transaction are often preferred long term loans in fact in this case the possibility that the project value is lower a fixed limit is small; on the other side, however, a long term loan makes more uncertain the future value of the activity carried on by the project.

From the above mentioned simple considerations it is clear that an accurate risk analysis and a proper sharing of them is a crucial task in every PF enterprise. As an example is below indicated a typical table of array of risks:

ARRAY OF RISKS

Stage	Description	Public Body	Private Subject	Mixed
<i>Building</i>	<i>Risks the work is not realized in planned time, costs or characteristics</i>		X	
<i>Management</i>	<i>Risks the management costs are bigger than planned in budget or the services are of lower level than the one required</i>		X	
<i>Maintenance</i>	<i>Risks the maintenance costs are too big</i>		X	
<i>Availability</i>	<i>Risks the "amount" of services obtained by the project is too small</i>		X	
<i>Financing</i>	<i>Risk of lacking of financings at conditions according to economical and financial forecasts</i>		X	
<i>Request</i>	<i>Risk the request of services of the project is smaller than foreseen</i>	X	X	X
<i>Causes beyond control</i>	<i>Risk that an unforeseeable event can prevent a profitable management of the project</i>			X

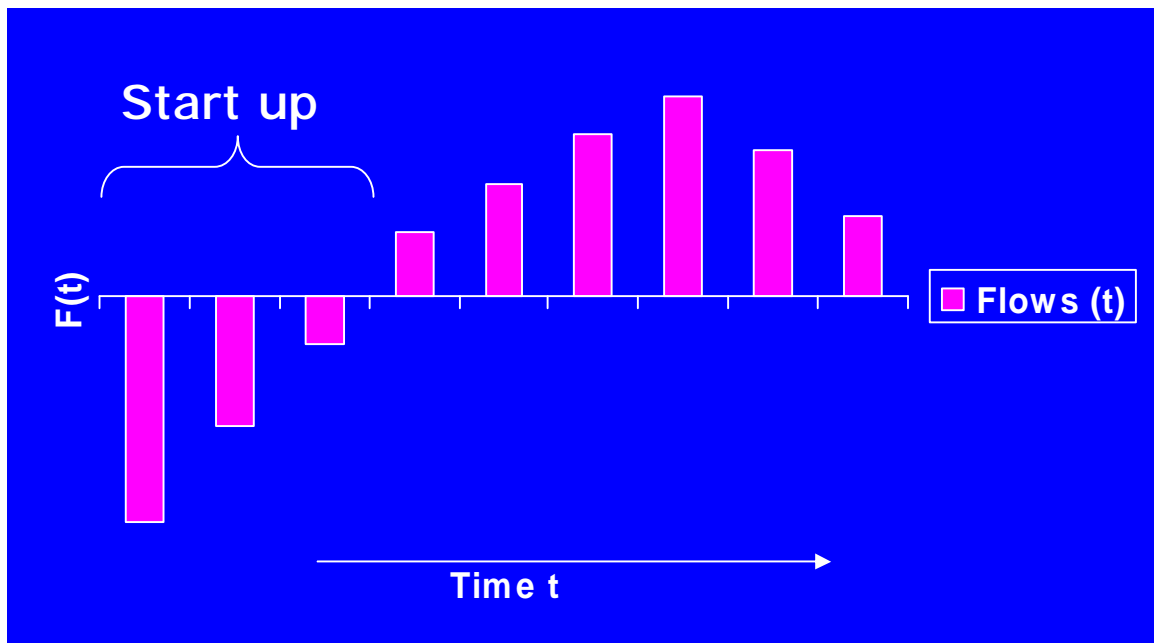
4.3. Economic and financial sustainability

There are several ways to make an economic and financial estimate of an investment, but in any case, every one of these must consider the following elements:

1. The requested and produced cash flows of the investment.
2. The time distribution of these investments;
3. The financial value of time;

About the first aspect, an investment can be considered as a going out cash flow, which produces corresponding going in flows: it is natural to consider an investment a good one if the amount of in flows is larger than out flows.

The following figure shows out flows (in start up phase) and in flows (during work life) of an investment



About the second aspect, it indicates that it is necessary to consider that these flows take place in different time period, so they have to be referred to a “same” time, with a specific process.

Finally, to consider the financial value of time means to have a way to compute the present value of future cash flows or the future value of present cash flows. This can be done with the following means:

The present value of future flows (F_1 at year 1, F_2 at year 2, ... and so on) is:

$$PV(\text{Present Value}) = \frac{F_1}{(1+k)} + \frac{F_2}{(1+k)^2} + \frac{F_3}{(1+k)^3} + \dots = \sum_{t=1}^n \frac{F_t}{(1+k)^t};$$

Where (F_t are cash flows of year t , n is the number of years of flows production, k is the discount rate (capitals cost).

The future value of present flows (F_1 at year 1, F_2 at year 2, ... and so on) is:

$$FV(\text{Final Value}) = F_1 \times (1+k)^n + F_2 \times (1+k)^{n-1} + F_3 \times (1+k)^{n-2} + \dots = \sum_{t=1}^n F_t \times (1+k)^{n-t};$$

Some of the most used economical indicators are here shown:

1. Payback Period (PBP) $\hat{=}$ It represents the requested number of years in order to obtain that negative cash flows are the same as positive flows. Every sponsor decides a limit time period in order to have out flows balanced by in flows so every project which has a PBP less than the fixed limit time period can be considered "interesting".

The formula for PBP can be written as:

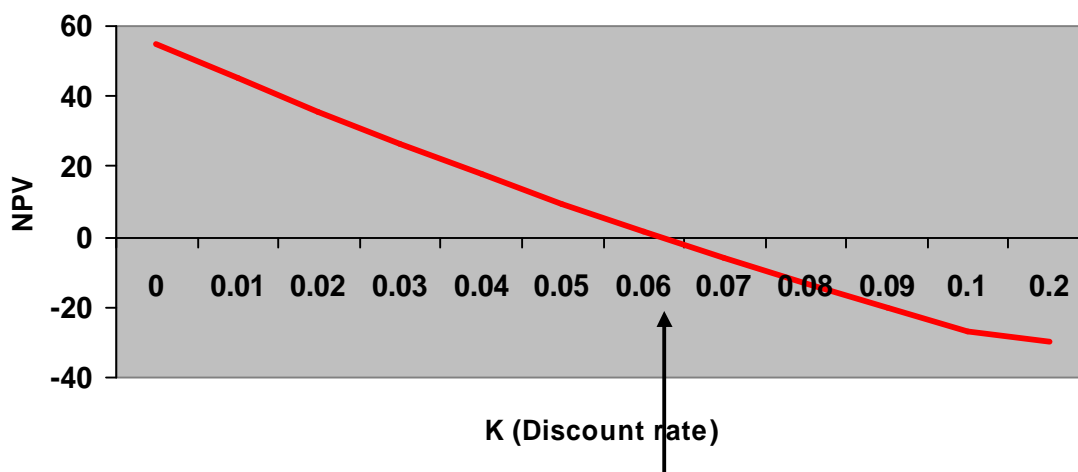
$$PBP(\text{PayBack Period}) = \frac{\sum_{t=1}^{PBP} F_t}{(1+k)^t} - F_0 = 0;$$

The above formula assumes that all negative flows happen at time 0.

2. Net Present Value (NPV) $\hat{=}$ It represents the incremental richness produced (if NPV is positive) or distructed (if NPV is negative) by the project. It can be written as:

$$NPV(\text{Net Present Value}) = \frac{\sum_{t=1}^n F_t}{(1+k)^t} - F_0;$$

If NPV is positive, the project is able to produce richness. If we look at the formula, we see that NPV decreases when k increases, as it is shown in the next graphic:



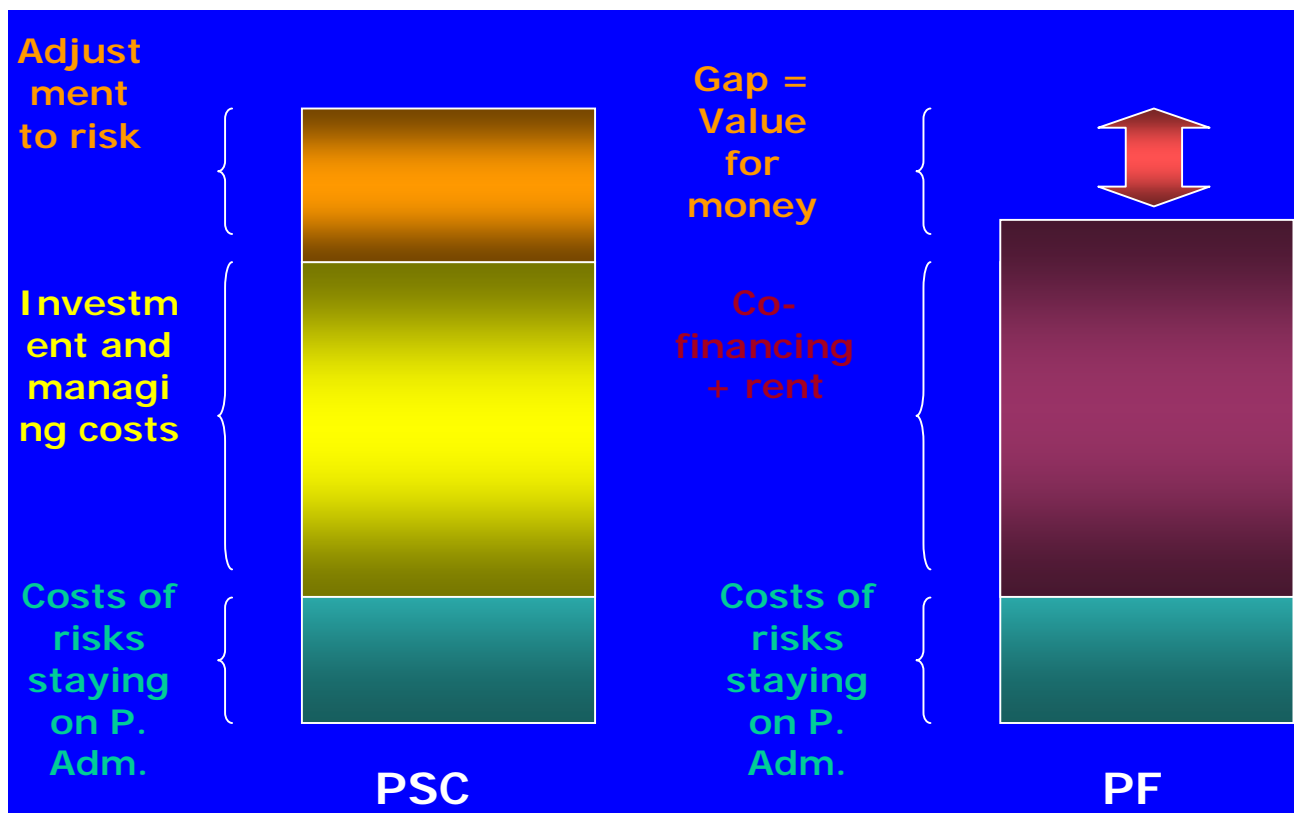
This value of K makes NPV=0

3. Internal Rate of Return (IRR) \hat{a} It represents that value of k (see above) that makes NPV equal to 0. IRR is an important indicator in fact if IRR is greater k (the interest rate), than the project profit is able to covers costs for the investment; if IRR is lower than k , the profit is too small.

When a Public Administration is deciding if PF is convenient respect to a traditional financing form, it has to consider with attention the risks tied to the investment. The risk sharing between the public and private actors in a PF work, is an essential aspect to estimate. In fact using PF in building public works gives the chance to reduce some typical risks of public woks: the increase of costs and of time.

If the project under study, is a financially free standing one, the only considerations that the public body has to do, are those about the rates applied to users: they must be consistent with the political vision of the public administration and the project main aim is to satisfy a public interest.

In the case of PF with a financial public supply, an indicator, of Anglo Saxon origin, can be used. It is the Public Sector Comparator (PSC). PSC can be defined as the hypothetical cost, adjusted to risk, of an investment financed with a traditional scheme of public procurement. This PSC must then be compared to PF cost. This comparison may be represented as in the following figure:



PF is convenient for a Public Administration if NPV of PSC is greater than NPV of PF or in other words:

$NPV [\text{adjustment to risk} + \text{Investment and managing cost}] > NPV [\text{Co financing} + \text{Rent}]$

The main difficulty in this comparison is to do a correct assessment risk in order to rightly estimate the "Adjustment to risk" term or , in other words, the financial value of risks transferred to sponsors in PF.

Following the above mentioned steps, a Public Administration can find PF as the most convenient form to carry out an investment. In this case the last question is:

What is the right public financial supply for a not free standing investment ?

The public supply must:

1. To assure the economic and financial balance of the project.
2. To cause the smallest financial engagement of the Public Body
3. To transfer investment risks to sponsor who has the ability to minimize them.

A way to give an answer to this question is the following:

The discount rate K used in the definition of NPV represents the capitals costs, or, in other words, the expected profit by sponsors: considering this fact, the Public Administration could give a financial supply in order to obtain a $NPV=0$ of project cash flows, computed with the discount rate expected by sponsors. In this way the Public Administration could assure the only profit represented by the expected k .

5. The DBFO case for highway building in United Kingdom

As we told at the beginning of this report, the European Country which has the best experience on PF is the United Kingdom. As a case study, we can consider the so called DBFO scheme used by Highway Agency (HA) of English Department of Transport for important projects of enlargement and restoration of the strategic road network.

One of the main problems regarding motorways and trunk roads in the UK, is the excessive request of new roads and the traffic congestion. To build new motorways and trunk roads is an immediate solution to the problem, but in long time period, this would generate new traffic increase and so new requests of roads and new traffic congestion problems: for this reason the strategic vision of HA is to promote initiatives

able to keep limited the request, even if, in the short time period, without any doubt, there is the need of building new infrastructures. In the next years the HA estimates that about the 25% of required investments can be obtained by Public Private Partnerships, according to DBFO scheme, as it happened at the end of 90s, when eight important works of the strategic road network were carried out.

These eight contracts have some common characteristics:

- Time length of the concession of 30 years
- The object is the building of a new road or highway stretch with, in some cases, the restoration of an existing stretch
- Maintenance of the new infrastructure and of the existing road (if any)
- Payment of a toll by HA whose amount is determined on the base of the traffic volume (the so called *shadow toll*)
- Determination of a requested residential life of the infrastructure at the end of the concession

Applying the PF technique, the HA has changed its role: before the PF application, HA was engaged in designing and managing infrastructures; with the choice of PFI (Private Finance Initiative), and more precisely with DBFO contractual scheme, HA is engaged in defining out specifications and service level specifications.

The main aims of DBFO scheme are:

- To allow building, maintenance and management of the strategic road network according to proper safety standards, with low environmental impacts and high benefits for users
- To transfer in a proper way, risks to private subjects involved in the enterprise
- To allow technical, economical and financial innovations of the enterprises
- To make the public investment the smallest as possible

The most important results obtained are:

- A lower cost, both in the building stage and during the work life of the infrastructures: the HA has estimated in some cases, savings of about 15%.
- The use of a standard contractual scheme (written just for highway works), has allowed to reduce the requested time to carry out the works.

This kind of contract fixes that the Public Body has to pay to SPV, a variable toll on the base of the number and dimension of the vehicles going along the road.

The structure of this shadow toll is a crucial aspect in the PF enterprises concerning roads construction. For example, the shadow toll used in DBFO scheme is based on:

- a) *The Traffic Volume* - The shadow toll decreases if traffic volume increases: if traffic is very low, the shadow toll will be high enough to allow the reimbursement of debt. In the English projects four levels of shadow toll are generally foreseen, according to four traffic levels (adjusted to the length of vehicles going along the road).
- b) *Service availability* - The shadow toll depends on the managing services availability and maintenance. For example when the road obtains its "Permit to Use" the parte of the shadow toll linked to availability is paid for 80% of its amount; when the "Completion Certificate" is obtained, then this parte of the shadow toll is paid for 100%.
- c) *Performance* - The part of the shadow toll based on performance is established considering two elements:
 - a. *The safety*
 - b. *The closure of stretch of road*

For example HA has paid the 25% of the estimated costs for every avoided accident in the first five years of the road life.

About the second aspect, the shadow toll takes into account a group of penalties computed on the base of the characteristics of the road closures (length of closed stretch, time duration, period of the year or of the week and so on).

In more recent applications, the shadow toll is based on more modern principles; among these we can remember:

The Availability Payment Mechanism - In this case relevant parameters are:

- a) The availability and fluency of roads, in a way to stimulate excellent performance in rush hours.
- b) Safety in a way to reduce the number of accidents.
- c) Respect of bus timetables, in order to promote the use of public means of transportation.

The Active Management Payment Mechanism – In this case relevant parameters are:

- a) The ability to prevent traffic jams with a decreasing toll at decreasing vehicles speed.
- b) The ability to prevent accidents.

6. Some legal aspects in PF work

As we told before, the European Country where PF has found its best applications is the UK. The reason of this fact is not only of historical origin: there are two important legal conditions which are of fundamental importance in order to help PF application. The first condition is the certainty of the contractual observance, and the second is a flexibility of legal system of the Country.

All these two conditions are typical of the so called "Common Law" Country (UK, USA), where there is not a written administrative legal system and for this reason is easy to satisfy the above written conditions. In the "Civil Law" Country (Italy for example), there is a complex administrative legal system which makes uncertain the possibility to satisfy the mentioned conditions (at least in short time).

For example here below it is briefly reported the proceedings foreseen by the Italian Law on Public Works (L. 109/1994):

At the beginning the sponsor makes his proposal on a work included in the approved investment plan of the Public Administration. The sponsor's proposal must include:

1. Technical Studies (By means of preliminary design with particular attention to territorial and environmental compatibility)
2. The scheme of concession contract
3. The economic and financial plan (this document must show the economic and financial balance of the project and must be subscribed by a bank who must certify the correctness of this plan)
4. The elements to select the most convenient offers in the contest for assigning the concession
5. The sponsor's financial warrants.

When the Public Administration has approved the sponsor's proposal, it has to select the most convenient subject to carry out this work. At this point it is possible to use different ways of selection: for example the Italian law use a double contest:

a) In a former stage, there is a public contest, on the base of the sponsor's proposal (the sponsor doesn't participate), to select the best 2 offers.

b) In a second phase, there is a negotiation with these 2 winners and the sponsor, in order to obtain the best offer.

Finally, at the end of these negotiated proceedings, if the sponsor is not the author of the best offer, he can conform his offer to the best one and so he can obtain the concession (in other words he has a pre-emption right).

At the end, if the final winner is the sponsor, he pays to the other 2 participants their costs for participating to the contest; if the sponsor is not the winner, he receives by the winner the amount of the expenses for his proposal.

As an example of how a complex legal system can be an obstacle to PF application we can remember, for example, that the pre-emption right accorded to sponsor by the Italian Law has been rejected by the EC as a disagreed legal disposition with the 43 and 49 articles of EC Treatment: this fact makes possible for the other participants to the contest to begin a long and uncertain legal dispute, that in any case, will damage the PF enterprise.

By the above mentioned few lines it is clear that in order to help a more extensive application of PF, it is of fundamental importance to promote those changes in the Laws which can remove the obstacles due to a complex legal system of the Countries.