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# A Methodology for Determining the Profitability Index of Real Estate Initiatives Involving Public–Private Partnerships. A Case Study: The Integrated Intervention Programs in Rome

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**Abstract:** In the European Union, real estate initiatives involving public–private partnerships (PPPs) are characterized by the payment of a charge, which is generally used for public purposes (and works). In Italy, since the 1990s, PPPs have also been used to start negotiated initiatives giving the possibility of modifying town planning forecasts. Such initiatives are aimed at increasing the value of private properties and, through the charge, financing public works. This charge was regulated only in 2014 with the change of Article 16, paragraph 4, point d-ter of the Presidential Decree 380/2001 (Consolidated building law) and was named the "extraordinary urbanization contribution" (or simply the "extraordinary contribution"). The extraordinary contribution makes it possible to finance public works with private monetary resources. The amount of the extraordinary contribution is not less than 50% of the capital gain that is produced by real estate initiatives concerning modifications to town planning forecasts. A crucial issue of the this kind of PPPs has always been the appraisal of the capital gain of real estate initiatives due to changes in town planning forecasts. The factors to be considered while evaluating the extraordinary contribution, the appraisal tools and procedures to be used in assessing the capital gain are not indicated at regulatory level. However, an over 20 years' practice has been consolidating the use of an analytical procedure for the appraisal of the transformation value to be used in evaluating the extraordinary contribution. In this procedure, the evaluation of the profitability index of real estate initiatives appears critical: in fact, the capital gain depends upon this element. At the same time, this topic is substantially neglected by the scientific debate. In this paper, a methodology has been defined, which is structured on the Build-Up Method and allows the profitability index (or rate of return) of a real estate initiative to be evaluated. Through a test, the developed methodology has been used in a case study: the appraisal of the extraordinary contribution in three integrated intervention programs in the city of Rome.

**Keywords:** profitability index; extraordinary urbanization contribution; appraisal; real estate; transformation value; hope value approach; public–private partnership

## 1. Introduction

The definition of action strategies to address the problems regarding the "urban dimension" has been a major topic in the scientific debates (both European and Italian) starting from the 1990s with a considerable increase in the latest economic downturn (2008–2019).

The subject of such debates has been the definition of new procedures able to generate growth, competitiveness and physical renewal of the territory through urban redevelopment and limited use

of public resources [1–3]. In this context, public–private partnerships (PPPs) have played a significant role, particularly considering the scarcity of public resources in several European Union (EU) countries.

Since the 1990s the European Union has introduced instruments that have been implemented by the member states and provide for recourse to PPPs both to activate wider negotiation-type real estate initiatives for territorial redevelopment (NPPPs) (e.g., in Europe: Urban Pilot Projects Urban I (1994–1999) and Urban II (2000–2006)) and to undertake traditional public-interest works (TPPPs) (e.g., in Europe: Design Build Finance Transfer, Service Contracts, Management Contracts, Build Lease Transfer, Design Build Finance Operate, Concession, and Build Operate Own; in Italy: Project Financing, Leasing in Costruendo, Building and Management Concessions); some European Union countries welcomed the PPPs experience and issued standards and new instruments within their regulations to put in force NPPPs and TPPPs.

The EU member states have used PPPs (both traditional and negotiating) differently; at the European level there is a prevalence of TPPPs compared to NPPPs [2,4].

In Italy, instead, most of the real estate initiatives (both greenfield and brownfield), as implemented by the majority of Municipalities/Local Governments/local authorities over the years, have been based on NPPPs [4–7]: new planning tools—the so-called complex programs (Established by national law no. 179/1992 and subsequently regulated by the regions with specific laws) (integrated intervention programs, urban redevelopment programs, and urban rehabilitation programs)—have been encoded to meet the needs of PPPs, with particular reference to NPPPs.

These new tools have established a new modus operandi (way of operating) in land governance by local authorities (LAs); with complex programs, in fact, LAs can negotiate and accept real estate initiative proposals submitted by private entities (real estate developers) as an exception to municipal planning instruments (general regulatory plans, hereinafter GRPs). A necessary condition for the use of these tools by LAs is the establishment of financing measures "alternative" to public contributions (such as the so-called "extraordinary urbanization contribution" or "extraordinary contribution"). They are among the most important ways of financing public works in light of the scarcity of available public resources.

The extraordinary contribution is therefore included in the economic contribution that, although with different amounts and modalities, is expected to be charged to private developers/contractors launching new real estate initiatives in the European Union countries within the NPPP scenario [2,4].

Since the introduction of NPPP-based processes the main issue of scientific debates has concerned the balance between public interests (of which public administrations, viz. LAs, are the carriers) and private interests (of which private entities, viz. real estate developers, are the carriers).

In this context, where a specific regulatory guidance regarding the extraordinary contribution of urbanization is missing, the first NPPP-based real estate initiatives in Italy, which were promoted and carried out almost exclusively by private contractors, were used as driving forces for low-risk financial profits (without commitments and special guarantees for the public), rather than as tools for public interest objectives [8–11].

However, despite the lack of any regulatory references for over 20 years, the extraordinary contribution has become "common" in NPPPs for many LAs, when they have granted permissions to build by changing their GRPs (regarding both indexes and usage) and making the payment of an extraordinary contribution a condition for above-mentioned permission.

Even though it had already been operating in many LAs for over 20 years, the payment of extraordinary urbanization contribution were regulated at a national level only in 2014 by article 17, paragraph 1, point g of law 164/2014, which included article 16, paragraph 4, point d-ter of Presidential Decree 380/2001 (Consolidated Building Law).

In line with LAs operating practices, the extraordinary contribution within current Italian legislation represents a charge, which is configured as an extra cost over primary and secondary urbanization costs, amounting to not less than 50% of the capital gain (or a greater value) generated by real estate projects in areas or buildings through modifications to the (local) GRP. For these reasons,

the extraordinary urbanization contribution has acted since 2014 as a fundamental opportunity for territorial development and regeneration.

The extraordinary contribution has to be referred to the capital gain of real estate initiatives changing a GRP (both greenfield and brownfield). When town planning modifications, exceptions or changes in expected use by the private real estate developer proposing the initiative result in an increase of the value of buildings or areas, the payment of the extraordinary contribution is required.

Even before the 2014 regulatory innovation, the extraordinary contribution: (i) had already been regulated by specific legislation in some regions; (ii) it was already used by many LAs, regardless of its being locally regulated or not. Albeit national and regional legislation (where present) have established the entity of the extraordinary contribution compared to the capital gain, the factors to be considered in the evaluation of the extraordinary contribution and the appraisal procedure to be used have not been so far indicated clearly. In this context, for the appraisal of extraordinary contribution, most of the LAs have independently opted for the analytical procedure as the instrument for estimating the transformation value (see Section 2).

Even though this procedure appears to be very useful, also considering that the European Central Bank coded it as "Hope Value Approach" in 2014 within the Asset Quality Review Phase 2 Manual, the analysis of a sample of LAs having independently managed and evaluated the extraordinary contribution highlights a serious methodological shortage in the implementation of the transformation value procedure.

It particularly consists in not considering the specific profitability index when estimating the extraordinary contribution; the estimate of the profitability index of a settlement real estate initiative, to be related to the characteristics and risks of the initiative itself, appears therefore necessary, this parameter affecting the profits (extra-ordinary) and, consequently, the capital gain as well as the extraordinary contribution.

In the settlement framework, the techniques which may be used to determinate the rate of return, include the following: the Weighted Average Cost of Capital (WACC) [12–14], the Build-Up Method [15,16], and, although offering an indirect support, the Property and Market Rating Method (PAM) of the European Group of Valuers Association (TEGoVA) [17]. The WACC is the minimum rate of yield investors require as the return for their contribution of capital [12–14]. Instead, the Build-Up Method presents several ways of calculating the rate of return, based upon the identification and total sum of all the specific yield differentials of a production initiative [15,16]. Finally, the PAM attributes a risk index (to which a rate of return can be associated) to a real estate initiative through a multi-criteria-type aggregative-compensator procedure [17]. Despite these models, the evaluation of the profitability index specifically related to real estate initiatives (2019) is a neglected topic in the scientific debates.

Thus, the objective of this paper is structuring a methodology based on the "Build-Up Method" and apt for determining the profitability index used in the transformation value analytic assessing procedure (or Hope Value Approach) for the calculation of the extraordinary contribution.

The procedure, although built to respond to problems mainly encountered in Italy, can be effectively used in any international context where the contribution by private real estate contractors for territorial urbanization and infrastructuring is envisaged.

In this sense, the procedure must include an assessment tool to be effectively used by LAs within NPPPs. This will make it possible to estimate a fair contribution in relation to the risks associated with the real estate initiative.

Section 2 of this paper will analyze materials and methods as bases for the development of the methodology; in particular: (i) the extraordinary contribution legislation/regulation in Italy (regional laws); (ii) techniques usable to determine the profitability index; (iii) the procedure presently used to evaluate the extraordinary contribution: the transformation value analytic assessing procedure, focusing on the difference between operational practices and methodological procedures. In Section 3, in relation to the issues identified while calculating a suitable profitability index (related to the specific

nature of real estate initiative for which the extraordinary contribution is evaluated), a methodology will be proposed via the operational declination of the Build-Up Method. This methodology will allow the definition of a profitability index (rate of return) to be used in the transformation value analytic assessing procedure or in the Hope Value Approach evaluation, the procedure aimed at evaluating the extraordinary contribution. In Section 4 the proposed procedure will be applied to estimate the extraordinary urbanization contribution of three integrated intervention programs (IPPs) in the city of Rome and in Section 5 the results obtained will be presented. In Section 6, the conclusions of this work will be discussed.

## 2. Materials and Methods

### 2.1. Extraordinary Contribution in Italy

In this section, research has been carried out relating to the presence of the extraordinary contribution in regional legislation (laws, administrative acts, regulations) across the 20 regions of Italy. Subsequently, the methods for calculating/evaluating the extraordinary contribution in the context of LAs were sought, using as reference the regulatory framework of a sample of 20 LAs.

With regard to the presence of the extraordinary contribution within Italian regional legislation, the research showed that (in 2018):

- 11 regions (Valle d'Aosta, Lombardy, Trentino Alto-Adige, Friuli Venezia Giulia, Tuscany, Molise, Campania, Basilicata, Puglia, Calabria, and Sardinia) have not included the extraordinary contribution in their regulatory system and therefore national level provisions are in force (article 16, paragraph 4, point d-ter of Presidential Decree 380/2001);
- 6 regions (Liguria, Emilia Romagna, Umbria, Lazio, Abruzzo, Sicilia) have included the extraordinary contribution within their regulations, through the simple adoption of national level predictions. Lazio and Abruzzo have acknowledged the extraordinary contribution within specific rules relating to the "upgrading" (through specific regeneration law) of existing housing stock;
- 3 regions (Piemonte, Veneto, Marche) have included the extraordinary contribution in their regulations, offering a definition of the methods used for calculating it.

Table 1 summarizes the findings from the 20 regions of Italy.

With regard to the pursuit of a method of evaluating the extraordinary urbanization contribution in the LAs setting, the administrative documents of 20 LAs (Albisola Superiore, Ancona, Biella, Bussoleno, Caraglio, Cavaion Veronese, Carmagnola, Cuneo, Falconara Marittima, Ferrara, Fiano Romano, Finale Ligure, Novi Ligure, Lecce, Roccagloriosa, Roma, San Benedetto del Tronto, Thiene, Venezia, and Vescovana) were analyzed and the regulations for the evaluation of the extraordinary contribution were obtained from them.

Between the various LAs in the survey sample, a substantial conformity emerged in the regulatory practice relating to the extraordinary urbanization contribution.

Table 2 summarizes the findings from the 20 LAs examined.

**Table 1.** The extraordinary contribution within regional legislation in Italy.

| Region | Presence of Legislation Relating to the Extraordinary Urbanization Contribution | Regulatory Reference | Size | Reference to the Calculation Methods | Calculation Method |
|---|---|---|---|---|---|
| Valle d'Aosta | No | - | - | - | - |
| Piemonte | Yes | D.G.R. n. 22-2974 del 29/02/2016 | ≥50% capital gain | Yes | Capital gain = market value (new location area) − market value (previous location area) |
| Liguria | Yes | L.R. n. 16/2008 art. 38 c. 6-bis | ≥50% capital gain | No | - |
| Lombardia | No | - | - | - | - |
| Trentino Alto-Adige | No | - | - | - | - |
| Veneto | Yes | L.R. 11/2004 art. 6 | ≥50% capital gain | Yes | Capital gain = value buildable area − value area in current condition |
| Friuli-Venezia Giulia | No | - | - | - | - |
| Emilia-Romagna | Yes | L.R. 15/2013 art. 30 c. 3 lett. F | ≥50% capital gain | No | - |
| Toscana | No | - | - | - | - |
| Marche | Yes | D.G.R. n. 1156/2012 art. 14 | ≥50% capital gain | Yes | Capital gain = market value after transformation − market value before transformation − transformation cost |
| Umbria | Yes | L.R. n. 1/2015 art. 35 c. 1 lett. D) | ≥50% capital gain | No | |
| Lazio | Only in reference to urban regeneration programs | L.R. 7/2017 art. 2 | ≥50% capital gain | No | - |
| Abruzzo | Only in reference to recovery of existing housing stock | L.R. 40/2017 art. 3 | ≥50% capital gain | No | - |
| Molise | No | - | - | - | - |
| Campania | No | - | - | - | - |
| Basilicata | No | - | - | - | - |
| Puglia | No | - | - | - | - |
| Calabria | No | - | - | - | - |
| Sicilia | Yes, only transposition of national legislation | L.R. 16/2016 art. 7 | ≥50% capital gain | No | - |
| Sardegna | No | - | - | - | - |

**Table 2.** The extra contribution within the regulatory practice of a sample of LAs in Italy.

| Region | Province | LA | Ref. | In Alignment with Art 16, c. 4, pt. d-ter of P.D 380/2001 | Estimation Method for Capital Gain (CG) or Extraordinary Contribution (EC) Considering Market Value (MV) and Cost (K) | Criterion/Method for Estimating Capital Gain |
|---|---|---|---|---|---|---|
| Veneto | Vicenza | Thiene | D.C.C. n. 34 of 20.03.2015 | Yes | CG = MV project to be carried out − costs | Transformation value |
| Veneto | Venezia | Venezia | D.C.C. n. 200 of 22.12.2015 | Yes | CG = MV property after transf. − MV property before transf. − K | Transformation value |
| Liguria | Savona | Finale Ligure | D.C.C. n. 48 of 31.03.2015 | Yes | CG = MVafter transformation − value property development before transformation | Transformation value |
| Piemonte | Alessandria | Novi Ligure | D.C.C. n. 10 of 08.04.2015 | Yes | CG = MV project to be carried out − (costs + MV property before transformation) | Transformation value |
| Veneto | Padova | Vescovana | D.C.C. n. 11 of06.06.2015 | Yes | CG = MV project to be carried out − (costs + MV property before transformation) | Transformation value |
| Piemonte | Biella | Biella | D.C.C. n. 62 of 21.07.2015 | Yes | CG = MV new predicted area − MV previously predicted area | Transformation value |
| Marche | Ancona | Ancona | D.C.C. n. 86 of29.09.2015 | Yes | EC = [(MV after transformation − MV before transformation)*coefficient incidence area/2] * building potential | Transformation value |
| Puglia | Lecce | Lecce | D.C.C. n. 111 of 14.12.2012 | Yes | CG = MV property after transf. − MV property before transf. − K | Transformation value |
| Liguria | Savona | Albisola Superiore | D.C.C. n. 42 of 09.11.2015 | Yes | CG = MV property after transf. − MV property before transf. − K | Transformation value |
| Piemonte | Torino | Carmagnola | D.C.C. n. 88 of 09.12.2015 | Yes | CG = MV property after transf. − MV property before transf. − K | Transformation value |
| Piemonte | Torino | Bussoleno | D.C.C. n. 21 of17/03/2010 | Yes | CG = MV new predicted area − MV previously predicted area | Transformation value |
| Piemonte | Cuneo | Caraglio | D.C.C. n. 34 of 05.05.2016 | Yes | CG = MV new predicted area − MV previously predicted area | Transformation value |
| Veneto | Verona | Cavaion Veronese | N.D. | Yes | CG = MV new predicted area − MV previously predicted area | Transformation value |
| Lazio | Roma | Roma | D.A.C. n. 128/2014 | No, min. 66.6% of the CG | CG = MV new predicted area − MV previously predicted area | Transformation value |
| Piemonte | Cuneo | Cuneo | D.C.C. n. 62 of 25.10.2016 | Yes | CG = (MV after transformation with new destination-K related) − (MV ante transformation with old destination − K related) | Transformation value |
| Lazio | Roma | Fiano Romano | D.C.C. n. 76 of 24.11.2011 | Partial, included between 40% and 60% of the CG | CG = MV new predicted area − MV previously predicted area | Transformation value |

**Table 2.** *Cont.*

| Region | Province | LA | Ref. | In Alignment with Art 16, c. 4, pt. d-ter of P.D 380/2001 | Estimation Method for Capital Gain (CG) or Extraordinary Contribution (EC) Considering Market Value (MV) and Cost (K) | Criterion/Method for Estimating Capital Gain |
|---|---|---|---|---|---|---|
| Marche | Ancona | Falconara Marittima | D.C.C. n. 31 of 08.04.2016 | Parial, buildable areas CS min 55% CG | CG = (MV after transformation with new destination - K related) − (MV ante transformation with old destination − K related) | Transformation value |
| Campania | Salerno | Roccagloriosa | D.C.C. n. 23 of21.06.2017 | Yes | CG = MV property after transf. − MV property before transf. − K | Transformation value |
| Marche | Ascoli Piceno | San Benedetto del Tronto | D.C.C. n. 37 of 27.05.2017 | Partial; min 50% CG buildable areas, min 60% CG areas partially buildable, min 70% CG free areas | CG = (MV after transformation with new destination-K related) − (MV ante transformation with old destination − K related) | Transformation value |
| Emilia Romagna | Ferrara | Ferrara | D.C.C. n. 4 of 04.04.2016 | Partial discounts predicted | CG = MV new predicted area − MV previously predicted area | Transformation value |

### 2.2. Techniques Usable to Determinate the Rate of Return

With reference to what already synthetically illustrated in Section 1, among the techniques that can be used to determine the rate of return are counted: WACC, Build-Up Method, PAM.

By estimating the WACC, which represents the weighted average cost of capital, a company or an investor can establish the return of an investment verifying the suitability in relation to the risks connected to the intervention itself. The WACC is an integral and founding element of the Discounted Cash Flow method:

$$WACC = k_d * (1 - t) * \frac{D}{E + D} + k_e * \frac{E}{E + D} \tag{1}$$

where:

$k_d * (1 - t)$ = cost of debt net of taxation (interest rate paid net of tax deductibility of financial charges);

D = value of the debt encumbered by interest;

E = value of equity (equity);

$k_e$ = cost of equity.

In the Build-Up Method [15,16], the profitability index r must be calculated by the sum of the different economic yield differentials (dx):

$$r = d_{(1)} + d_{(2)} + \ldots + d_{(n)} = \sum_{x=1}^{n} d_{(x)} \tag{2}$$

The differentials express the risk in the variability of yield (ya = min yield; yb = max yield) specific for each defining factor of the operational risk involved in a construction initiative:

$$y_a < d_{(n)} < y_b \tag{3}$$

Therefore, the application of the Build-Up Method requires the definition of the various differentials that characterize the operational risk related to the production initiative and the specific value of each of these differentials.

TEGoVA proposes the so-called PAM that does not directly allow the estimate of the rate of return, but defines the risk associated with the real estate initiative, according to which a rate of return can then be assigned. The scale used to estimate the risk of real estate investment in this model consists of a gradation consisting of 10 levels, on the basis of which level 1 represents an excellent rating, while level 10 represents a bad rating. Starting from the identification of different criteria for the appraisal of the rating, to each criterium is assigned an index of importance (weight) and a score (judgment) from 1 to 10 where 1 represents a very low risk and 10 represents a very high risk. Through the weighted aggregation of the judgments it is thus possible to establish a global risk index (from 1 to 10) to which to associate, an appropriate rate of return.

### 2.3. The Transformation Value to Evaluate the Extraordinary Contribution: The Difference Between Operational Practices and Methodological Procedures

The research carried out on the evaluation methods and techniques for the appraisal of extraordinary contribution (Section 2.1), showed as this charge depends on the capital gain obtained from real estate initiatives which involve modifications in the GRP. In the various regulations examined, two calculation procedures are, in summary, proposed to estimate the capital gain:

1.  a first one:

$$CG = TVpt - TVat \tag{4}$$

where:

CG is the financial capital gain of the initiative;

TVpt (*post*/after transformation) is the transformation value of the real estate initiative that can be achieved according to the modifications to the GRP, to be evaluated through the analytical procedure of estimation for the transformation value;

TVat (*ante*/before transformation) is the transformation value of the real estate initiative that can be achieved according to GRP prevision (no modifications); in this case the estimation procedure used depends on the object being assessed (area that cannot be built on, building area, condition of building, property to be redeveloped, etc.).

The transformation value is evaluated in both cases using:

$$TV = MVpt - \Sigma k \tag{5}$$

where:

- MVpt (*post*/after transformation) is the market value of the assets that can be built in the real estate initiative;
- $\Sigma k$ is the sum of all the transformation costs (technical costs of construction, construction levies related to building permits, financial interests, overheads, developer's profits, etc.);

2. or a second one, representing an alternative simplified formula for transformation value:

$$TV = MVpt - (\Sigma k + MVat) \tag{6}$$

where:

- TV corresponding to the financial capital gain of the real estate initiative;
- MVpt (*post*/after transformation) is the market value of the assets that can be built in the real estate initiative;
- $\Sigma k$ is the total sum of the transformation costs (technical costs of construction, construction levies related to building permits, financial interests, overheads, developer's profits, etc.),
- MVat (*ante*/before transformation) is the market value of the asset involved in the real estate initiative before it is started (area that cannot be built on, building area, condition of building, property to be redeveloped, etc.).

In both procedures, the methods for estimating the capital gain require use of the analytical procedure to estimate the value of transformation. In the first case, we are dealing with the differences between the transformation values of real estate initiatives considering their usage in town planning both *ante* and *post* intervention. In the second case, the estimation of the capital gain coincides with the value of transformation to be calculated by including in the costs of the transformation and the previous market value of the areas and or buildings involved in the intervention.

Both methods for calculating the extraordinary urbanization contribution noted in Italian practices represent a simplification of the traditional indirect analytical calculation procedure of the transformation value [18]:

$$TV = \frac{MV(pt) - \sum Kp}{(1 + r')^n} \tag{7}$$

where:

MV(pt) is the market value of the assets built in the area of intervention;

$\Sigma kp$ = is the total sum of all production costs (construction costs, urban planning costs, technical expenses, general and administrative expenses, building permit fees, financial costs, developer's profit, other expenses necessary for building construction);

r' = is the specific profitability index for the real estate initiative;

n = is the time required to finish the real estate initiative (expressed in number of years).

The insertion, in the calculation formula, of a specific profitability index relevant to the particular initiative being evaluated has not been noted in any of the resolutions (and related attachments) examined. The various procedures observed in the LAs examined, take into account various issues as the technical costs of construction in the direct costs, construction levies and related building permits, financial interests, overheads, and even the profit of the developer. This last cost item is generally a fixed percentage (as stated in the regulations) of all the other costs of transformation or of the market value after transformation and is intended as a "regular average profit" for the real estate sector. It must be considered that the financing of settlement transformation operations is usually composed of equity capital for the acquisition of the asset undergoing transformation and debt capital to cover the production costs.

This approach can be considered a "simplification" which presupposes that all settlement transformation initiatives in a particular territory are "ordinary" and of average "complexity" and business "risk".

However, this approach can have a negative effect on the appraisal of the extraordinary contribution:

- if the initiative is particularly "simple" and therefore less risky than an "ordinary" real estate initiative, to evaluate a profit commensurate with an "ordinary" real estate initiative, results in an unjustified increase of this outlay—and consequently all costs—to the detriment of the capital gains, and is seemingly a "loss of revenue" for the LA, considered as "damage to the treasury", as the extraordinary contribution is connected to the capital gain;
- if the initiative is particularly "complex" and therefore riskier than an "ordinary" real estate initiative, to estimate a profit commensurate with an "ordinary" real estate initiative results in an unjustified decrease of this expenditure bringing a consequent risk of the initiative being halted by the constructor, and therefore a lack of revenue relative to the extraordinary contribution.

To calculate the extraordinary contribution it is therefore necessary to put into practice a transformation value using the traditional procedure, by considering a profitability index directly related to the real estate initiative for which the extraordinary contribution is being evaluated [19–23].

In summary, the profitability index represents the yield which increases the minimum "direct" profit of the developer-investor acceptable for the industrial sector (in the present case the real estate), therefore it must be identified by the operational risk of the real estate initiative and that depends on the defining factors of the real estate initiative itself. These include risk-free rates in the financial market, real estate sector risks, risks associated with the location of the intervention, risks related to the type of real estate assets produced by the initiative, technical risks, urban risks and financial risks [24–34].

These factors result in an operational risk owing to the volatile nature of operating cash flows, and derives mainly from the possibility that the real estate initiative is unable to earn revenue.

Therefore, profitability index, also named rate of return, demonstrates the profitability that the real estate developer can expect from the real estate initiative, such as: $MV(pt) - \Sigma kp$. If the financial interests on the capital needed to support the project costs (assuming, as usual, that the costs of the settlement transformation initiative are paid for by borrowed means) are considered among the costs of the transformation ($\Sigma kp$), it follows that the difference: $MV(pt) - \Sigma kp$ represents the Investment value of the real estate initiative [16,35–38].

Performance indicators (e.g., profitability index, IRR) usually represent the actual return on the investment value and include the profits of those who have supported the investment. It follows that the return on the investment must be considered as a discount rate of the difference: $MV(pt) - \Sigma kp$; as a result the profitability index includes the real estate developer's profit. When using the traditional indirect analytical method to evaluate the transformation value it should not therefore be included among the costs of the transformation or only be considered as an ordinary profit [26].

### 3. Methodology for the Construction of the Profitability Index in the Transformation Value (Build-Up Method)

In this section, a methodological proposal (hereinafter the "procedure") is structured to define the profitability index of a real estate initiative involving GRP modifications. The procedure represents an operational declination of the Build-Up Method, a methodology that allows the creation of the profitability index as the sum of the various yield differentials, which depends upon the different defining factors of the actual initiative [24–34].

On this basis, the Build-Up Method is used to determine the profitability index for a real estate initiative in GRP modifications. Returning to what was already briefly explained in Section 2, the factors that distinguish the operational risk of a real estate initiative subject to extraordinary contribution and therefore different to the GRP are:

risk-free rates in the financial market ($d_1$), coinciding with those relating to assets free from the risk of debtor insolvency and changes in interest rates on the market; therefore, the performance indicators of government bonds or interbank rates such as the EurIRS rate may be used, with a uniform deadline on the projection horizon;

real estate risk ($d_2$) subject to the specific features that characterize the real estate sector (activities subject to regulatory, administrative, legislative, fiscal and environmental norms, etc.) from which derives the yield spread required to invest in the real estate market with a risk-free asset. It represents the minimum risk level for an investment that does not involve other factors that will increase the specific real estate risk;

risk related to the location of the initiative ($d_3$) resulting from the specific market to which the asset fits in to. It consists of risk at both a national level (primary and secondary areas) and a local level (quality of and future developments planned in the designated area, neighborhood and street). The more attractive a location proves for consumers, the smaller the risk. The elements include the economic performance of the local market, the infrastructure, the transport routes and accessibility;

risk related to the type of property ($d_4$) inferred from the specific types of intervention of each sort of property with different physical characteristics and a different market, thus resulting in different rates. It is linked to the possibility of interchangeability of use and by the user;

technical risk ($d_5$) derived from changes in the expenses and timescale of the building construction. This also includes the risks connected with the similarity of the finished building to the initial project plans (building site phase risks);

town planning risk ($d_6$) related to the different housing and planning situations that require different procedural processes. It is therefore linked to uncertainty about the schedule and obtaining the necessary permits for real estate development;

financial risk ($d_7$) consisting of a higher return required for borrowing which, due to the priority of payment with respect to equity, increases the risk of damaging the latter. It is determined by applying a multiplier based on the financial leverage model that considers the effect of the financial structure and the differential with respect to the amount of related debt and the tax benefits.

Considering the 7 previous differentials and putting in action the previous formula 4, it is possible to define the equation, according to the Build-Up Method, for the evaluation of the specific profitability index of real estate initiatives that modify GRP, as follows [16,39]:

$$r = d_{(1)} + d_{(2)} + d_{(3)} + d_{(4)} + d_{(5)} + d_{(6)} + d_{(7)} \tag{8}$$

For each operational risk factor, based on analysis of a sample of real estate evaluations conducted by independent valuation companies (data available at December 2018), the following intervals of "standard" values for each differential have been drawn up [40–45]:

$$d_{(1)} = depending\ to\ financial\ market$$
$$2.50\% < d_{(2)} < 4.00\%$$
$$0.50\% < d_{(3)} < 2.00\%$$
$$0.50\% < d_{(4)} < 4.00\%$$
$$0.50\% < d_{(5)} < 1.50\%$$
$$0.00\% < d_{(6)} < 7.50\%$$
$$1.50\% < d_{(7)} < 3.50\%$$

Each differential must be placed within its proposed range in relation to the category of risk in which in the settlement transformation initiative falls. Five risk categories, corresponding to 5 different possibilities (Very High (VH), High (H), Medium (M), Low (L), and Very Low (VL)) have been defined for each differential (excluding the $d_{(1)}$). For each differential (excluding the $d_{(1)}$), it is possible to define correlations between the risk categories VH, H, M, L, and VL and the relative reference values through linear interpolation.

Assuming that the risk category VH corresponds with the full risk probability (100%) and therefore the highest differential value ($y_b$) and the VL risk category represents the total absence of risk (0%) and therefore the value of the lowest differential ($y_a$), using linear interpolation, it is possible to define the differential values for the other risk categories H, M, and L and consequently the range of values for each risk category:

$$y^* = y_a + \frac{y_b - y_a}{x_b - x_a}(x^* - x_a) \tag{9}$$

In order to calculate the profitability index it is therefore necessary to identify for each of the factors representing the operational risk of a real estate initiative that modify GRP, the specific level of risk (VH, H, M, L, VL) and then to calculate the relative differential (Table 3). The results obtained for the differentials as predicted using the Build-Up Method establishes the specific profitability index for the real estate initiatives with modifications in GRP.

This procedure was applied for each of the 7 risk factors that characterize real estate initiatives involving GRP modifications. Therefore, the values of the 7 differentials have been defined in relation to the 5 risk categories and accordingly the threshold values.

**Table 3.** Differential threshold values in relation to risk categories in real estate initiatives.

| Factors Defining the Operational Risk of an Intervention Subject to Extraordinary Contribution | | Risk Category | | | | |
|---|---|---|---|---|---|---|
| | | Very High (VH) | High (H) | Medium (M) | Low (L) | Very Low (VL) |
| Risk free rates in the financial market | ($d_1$) | depending to financial market | | | | |
| Risk of the real estate sector | ($d_2$) | 4.00% | 3.63% | 3.25% | 2.88% | 2.50% |
| Risk connected to the location of the intervention | ($d_3$) | 2.00% | 1.63% | 1.25% | 0.88% | 0.50% |
| Risk connected to the property type | ($d_4$) | 4.00% | 3.13% | 2.25% | 1.38% | 0.50% |
| Technical risk | ($d_5$) | 1.50% | 1.25% | 1.00% | 0.75% | 0.50% |
| Town planning risk | ($d_6$) | 7.50% | 5.63% | 3.75% | 1.88% | 0.00% |
| Financial risk | ($d_7$) | 3.50% | 3.00% | 2.50% | 2.00% | 1.50% |

## 4. An Application of the Methodology in Order to Evaluate the Extraordinary Contribution in Three Integrated Intervention Programs in Rome

With the new GRP approved in 2008, the city of Rome laid down the use of IIPs as ordinary tools for applying their strategic choices and forecasts for article 14 of the Technical Implementation Standards (TIS).

However, about 10 years after the approval of the new GRP, in view of 165 planned urban initiatives to be implemented through IIP (85 IIP projects with mainly residential functions, 80 residential IIPs with mainly non-residential functions), only 4 active initiatives related to non-residential IIPs (Ciampino, Pietralata, Tomba di Nerone, and Santa Palomba) have been started, and the promulgation of the preliminary tender to start has been arranged for 3 non-residential IIP initiatives (Ficarone, Santa Colomba, and Settebagni) which therefore are in the start-up phase; no residential IIPs are in progress [46].

Among the causes related to the long delays in the implementation of almost all the IIPs envisaged in the GRP of Rome, there is the significant extraordinary contribution imposed on the owners of land and properties included within the perimeters of the IIP, which pursuant to art. Twenty of the TIS of the new GRP, amounts to 66.6% of the capital gain that the IIP generates. This parameter, established by Municipality of Rome, and the subject of several legal proceedings over time, which ended with recognition of its legitimacy by the Council of State (sentence 4545 of 2010), is therefore higher than the 50% threshold that was established in 2014 by the Italian legal system.

The legitimization of the extraordinary contribution by the Council of State in 2010, even in the absence at the time of a national legal reference, has led to the need to provide rules governing the application of the extraordinary contribution as well as the procedures needed to assess it.

Through the Deliberation of the Capitoline Assembly (DAC) no. 128 of 11 December 2014, the Regulations concerning the "Determination of the extraordinary urbanization contribution pursuant to Article 20 of the Technical Implementation Standards of the General Regulatory Plan currently in force, and Article 14, paragraph 16, letter f, of the law of 30 July 2010 no. 122" were approved (hereinafter the "regulations"). With these regulations, the previous measures issued for this area have become outdated with the implementational circulars, which were issued on 20 December 2012 and 13 April 2013 [47].

In particular, within these regulations, calculation methods have been defined. Thus establishing the criteria and coefficients to be used to calculate the capital gain subject to the extraordinary contribution, with the aim of creating a homogeneous and uniquely defined procedure for all IIP implementing bodies.

The regulations established that the highest value to which the extraordinary contribution can be applied should be calculated by:

$$CG = TV1 - TV2 \tag{10}$$

where:

CG is the capital gain that can be deducted from the real estate initiative subject to an extraordinary contribution;

TV1 is the transformation value calculated with the parameters of the new urban usage;

TV2 is the transformation value calculated using the parameters of the existing urban planning destination; in case of land which was previously not built upon, the agricultural value of the area can be taken directly.

The regulations establish that for to estimate the transformation value, the calculation equation would be (similarly to case 1 in paragraph 3):

$$TV = MVpt - \sum Cn - MVat \tag{11}$$

where:

- TV is the transformation value;
- MVpt is the market value (*post*/after transformation) of the transformed building commodities as defined by the most up-to-date quotations reported by the Real Estate Market Observatory of the Land Agency (OMI);

-   $\Sigma Cn$ is the sum total of all the processing costs (Cn) incurred by the transformation of the property, which are as follows:

    1.  technical costs of construction of the building assessed in a parametric way using the values per square meter (sqm) of the building taken from the pricelist of the College of Engineers and Architects of Milan (DEI latest edition available at the time the estimate is undertaken), with reference to the specific destination of use;
    2.  the costs of making the area suitable and improving connections, between 2% and 5% of the technical construction costs of the building;
    3.  the costs related to the charges associated to article 16 of the Presidential Decree. n. 380/2001 to be calculated as laid down by the LA of Rome;
    4.  the costs of professional services/technical costs and additional unforeseen circumstances, between 8% and 12% of the technical costs of building construction, making the area suitable and improving connections;
    5.  marketing expenses, between 2% and 3%, which is to be applied to the market value of the finished building commodities (MVpt);
    6.  financial charges, which are to be calculated considering the cost of debt capital, for the time horizon (generally set at 5 years) of planning and construction for which the interest on the debt is the sole responsibility of the implementing body. The cost of debt capital namely the interest rate to be applied is equal to that of the EurlRRS/Euribor plus Spread for the term of a fifteen-year final loan;
    7.  the profit, or gross margin, of the developer ranging between 15% and 25% of the market value of the finished building commodities (MVpt);

-   MVat is the market value (*ante*/before transformation) of the building product in its current condition.

The regulations of the LA of Rome do not consider the component relating to the discounted value resulting from the previous formula.

In the application that follows the extraordinary contribution (parametric unit) will be estimated for the 3 IIPs (Ficarone, Santa Colomba and Settebagni), which are in the start-up phase:

1.  calculation hypothesis no. 1, in accordance with the regulations of Rome (therefore not taking into consideration any discounts in the estimation of the value of transformation);
2.  calculation hypothesis no. 2, taking into considering this upgrade to the methodology proposed by the Municipality of Rome, inserting the proposed procedure within the same methodology as the regulations. This upgrade allows for the estimation of the transformation value using the formula:

$$TV = \frac{MVpt - \sum Cn - MVat}{(1 + r')^n} \tag{12}$$

where:

-   TVpt, ΣCn and MVat are calculated as stipulated in the regulations with the exception of C6 cost component related to profit or gross margin; in the regulations is indeed proposed for C6 cost component a range between 15% and 25% of MVpt; in the present case for C6 cost component will be considered the "normal" profit for real estate sector to increase of the specific yield ("extra-ordinary" profit) of the real estate initiative (IPP) through discounting to a profitability index/ratio r'. In this regard, a parameter has been conventionally adopted for C6 cost, equal to 10% of the market value of the finished building commodities; it is must considered approximate and in round numbers for the purposes of the present application. It should be specified that the appraisal of this parameter would require more in-depth analyses and investigations; previous

studies in this field show the threshold for "ordinary" profit can in fact be generally lower, not higher than the 10% parameter [48–50];

- r′ is calculated according to the procedures proposed previously in Section 4;
- n is calculated taking into account a "standard" duration of the initiatives (3 years). It should be noted that, in the appraisal, the time factor associated with the parameter "n" assumes a primary importance; a longer duration of the real estate initiative results in an exponential increase of the discount rate.

## 5. Results

In accordance with the procedure proposed in Section 4 we proceeded at the outset to calculate the specific profitability index for the 3 integrated programs that are being tested (using data available at December 2018).

The profitability index was estimated in accordance with the procedure proposed in Section 4, taking into consideration after the analysis of IPPs documents [46]:

For IPP Ficarone:

(1) a risk-free rate from 2018 equal to 0.50%;
(2) "Very high" risk related to the real estate sector, due to awareness of durable contraction in the real estate market;
(3) "Very High" risk related to the location of the intervention, in a poorly urbanized area about ten kilometers away from the city centre of Rome;
(4) "Very High" risk related to very high division of land and real restate properties;
(5) "High" technical risk, considering the possible lengthy timescales (for the opening of construction sites and the consequent cost fluctuations connected to the carrying out of the intervention;
(6) "Medium" town planning risk linked to the partial uncertainty of a favorable outcome to the project considering the complexity of procedural approval of IPP;
(7) "Medium" financial risk, in which a financial debt structure at 50% is assumed for the execution of the initiative;

For IPP Santa Colomba:

a risk-free rate from 2018 equal to 0.50%;
"Very high" risk related to the real estate sector, due to awareness of durable contraction in the real estate market;
"Very High" risk related to the location of the intervention, in a poorly urbanized area about ten kilometers away from the city centre of Rome;
"Very High" risk related to very high division of land and real estate properties;
"High" technical risk, considering the possible lengthy timescales for the opening of construction sites and the consequent cost fluctuations connected to the carrying out of the intervention;
"Medium" town planning risk linked to the partial uncertainty of a favorable outcome to the project considering the complexity of procedural approval of IPP;
"Medium" financial risk, in which a financial debt structure at 50% is assumed for the execution of the initiative;

For IPP Settebagni:

(1) a risk-free rate from 2018 equal to 0.50%;
(2) "Very high" risk related to the real estate sector, due to awareness of durable contraction in the real estate market;
(3) "Low" risk related to the location of the intervention, near the highway route;

(4)  "Very High" risk related to very high division of land and real estate properties;

(5)  "High" technical risk, considering the possible lengthy timescales for the opening of construction sites and the consequent cost fluctuations connected to the carrying out of the intervention;

(6)  "Medium" town planning risk linked to the partial uncertainty of a favorable outcome to the project considering the complexity of procedural approval of IPP;

(7)  "Medium" financial risk, in which a financial debt structure at 50% is assumed for the execution of the initiative.

A summary is displayed below (Table 4) relating to the assessment of the estimated profitability index using the proposed method (Section 4).

**Table 4.** Rate of profitability index evaluation for the IIP Ficarone, Santa Colomba and Settebagni.

| Factors Defining the Operational Risk of IPP Subject to Extraordinary Contribution | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | Ficarone | | Santa Colomba | | Settebagni | |
| Risk free rates in the financial market | $(d_1)$ | - | 0.50% | - | 0.50% | - | 0.50% |
| Risk of the real estate sector | $(d_2)$ | VH | 4.00% | VH | 4.00% | VH | 4.00% |
| Risk connected to the location of the intervention | $(d_3)$ | VH | 2.00% | H | 1.63% | L | 0.88% |
| Risk connected to the property type | $(d_4)$ | VH | 4.00% | VH | 4.00% | VH | 4.00% |
| Technical risk | $(d_5)$ | M | 1.25% | M | 1.25% | M | 1.25% |
| Town planning risk | $(d_6)$ | M | 3.75% | M | 3.75% | M | 3.75% |
| Financial risk | $(d_7)$ | H | 2.50% | VH | 2.50% | H | 2.50% |
| Total | | | 18.00% | | 17.63% | | 16.88% |

Therefore, the capital gain and consequently the extraordinary urbanization contribution were determined using the two calculation hypotheses, with reference to the implementation of the indirect analytical procedure for the estimation of the transformation value, also considering as benchmarks the parameters (to evaluate market value and transformation Costs) included in the regulations approved by the LA of Rome (so called DAC no. 128/2014).

Table 5 shows that the extraordinary contribution of IPP Ficarone (estimated according to the D.A.C. n. 128/2014) is equal to €/cubic meter (cm) 87.67. By applying the proposed methodology, the extraordinary contribution related to the peculiarities of the IPP Ficarone real estate initiative could once more be estimated: it is equal to €/cm 60.78, down by 30.68% with respect to the extraordinary contribution estimated according to the regulations in force.

**Table 5.** Capital gain and extraordinary contribution in IPP Ficarone.

| Transformation Value of Integrated Intervention Programme Ficarone in Rome | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Market Value** | | | | | | | |
| | IPP parameters | | Regulation n. 128/128 (evaluation hypothesis 1) | | | Proposed method (evaluation hypothesis 2) | |
| UMV | Unitary Market Value | €/sqm | From Real Estate Observatory—Revenue Agency | | 2200 | From Real Estate Observatory—Revenue Agency | 2200 |
| **Construction cost** | | | | | | | |
| C0 | Total technical costs | € | From typological price lists | | 1050 | From typological price lists | 1050 |
| C1 | Costs of making the area suitable and improving connections | 2–5% of C0 | 2.00% | of € 1050 | 21 | 2.00% of € 1050 | 21 |
| C2 | Costs related to the charges associated with art. 16 of Pres. Decr. n. 380/2001 | 10% of C0 | 10% | of € 1050 | 105 | 10% of € 1050 | 105 |

**Table 5.** *Cont.*

| | **Transformation Value of Integrated Intervention Programme Ficarone in Rome** | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| C3 | Costs of professional services, technical and unforeseen additional costs | 8–12% of C0+C1 | 8.00% | of € | 1071 | 86 | 8.00% | of € | 1071 | 86 |
| C4 | Marketing expenses | 2–3% of TMV | 2.00% | of € | 2200 | 44 | 2.00% | of € | 2200 | 44 |
| C5 | Financial charges | 5% of C0+C1+C2+C3 | 5.00% | of € | 1262 | 63 | 5.00% | of € | 1262 | 63 |
| C6 | Profit of the developer | 15–25% of TMV | 15.00% | of € | 2200 | 330 | 10.00% | of € | 2200 | 220 |
| TC | Total construction costs | C0+C1+C2+C3+C4+C5+C6 | €/sqm | | | 1699 | €/sqm | | | 1589 |
| | **Evaluation of Transformation Value** | | | | | | | | | |
| MVbt | Market Value before transformation | | negligible | | | | negligible | | | |
| TVud | Transformation Value (undiscounted) | | TMV-TC | €/sqm | 501 | | TMV-TC | € | | 611 |
| q^n | Industrial profitability rate (from Table 4) | | $q = (1 + r')^n$ | | - | | $q = (1 + r')^n$ | | | 1.6430 |
| TV | Transformation Value (discounted) | | TVud/q^n | €/sqm | 501 | | TVud/q^n | €/sqm | | 372 |
| | **Capital gain** | | | | | | | | | |
| PMV | Present Market Value * | €/sqm(l) ** | From market research | | 25 | | From market research | | | 25 |
| PMVh | Present Market Value (referred to buildable sqm; 3.2 sqm(l) to build 1 sqm | €/sqm | PMV*3.2 | | 80 | | PMV*3.2 | | | 80 |
| CG | Capital gain * | €/sqm | TV-PMV | | 421 | | TV-PMV | | | 292 |
| | | €/cm | TV-PMV/3.2 | | 131.64 | | TV-PMV/3.2 | | | 91.26 |
| | **Extraordinary urbanisation contribution** | | | | | | | | | |
| ECU | Extraordinary urbanisation contribution (art. 20 TSI of GRP of Rome) | CG*66.6% | €/cm | 87.67 | | | CG*66.6% | €/cm | | 60.78 |

* Previous destination hypothesis: territorial building index of 1 cubic meter/square meter; destination of land before transformation: agricultural. ** sqm(l): square meter referred to the land; in the other part of the table sqm is referred to buildable surface (inter height 3.2 m).

Table 6 shows that the extraordinary contribution of IPP Santa Colomba (estimated according to the D.A.C. n. 128/2014) is equal to €/cm 87.67. By applying the proposed methodology, the extraordinary contribution related to the peculiarities of the IPP Santa Colomba real estate initiative could once more be estimated: it is equal to €/cm 61.51, down by 29.84% with respect to the extraordinary contribution estimated according to the regulations in force.

**Table 6.** Capital gain and extraordinary contribution in IPP Santa Colomba.

| | **Transformation Value of Integrated Intervention Programme Santa Colomba in Rome** | | | | | | |
|---|---|---|---|---|---|---|---|
| | **Market Value** | | | | | | |
| | IPP parameters | | Regulation n. 128/128 (evaluation hypothesis 1) | | | Proposed method (evaluation hypothesis 2) | |
| UMV | Unitary Market Value | €/sqm | From Real Estate Observatory—Revenue Agency | 2200 | From Real Estate Observatory—Revenue Agency | | 2200 |
| | **Construction cost** | | | | | | |
| C0 | Total technical costs | € | From typological price lists | 1050 | From typological price lists | | 1050 |
| C1 | Costs of making the area suitable and improving connections | 2–5% of C0 | 2.00% | of € | 1050 | 21 | 2.00% | of € | 1050 | 21 |
| C2 | Costs related to the charges associated with art. 16 of Pres. Decr. n. 380/2001 | 10% of C0 | 10% | of € | 1050 | 105 | 10% | of € | 1050 | 105 |
| C3 | Costs of professional services, technical and unforeseen additional costs | 8–12% of C0+C1 | 8.00% | of € | 1071 | 86 | 8.00% | of € | 1071 | 86 |

**Table 6.** *Cont.*

| | Transformation Value of Integrated Intervention Programme Santa Colomba in Rome | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| C4 | Marketing expenses | 2–3% of TMV | 2.00% | of € | 2200 | 44 | 2.00% | of € | 2200 | 44 |
| C5 | Financial charges | 5% of C0+C1+C2+C3 | 5.00% | of € | 1262 | 63 | 5.00% | of € | 1262 | 63 |
| C6 | Profit of the developer | 15–25% of TMV | 15.00% | of € | 2200 | 330 | 10.00% | of € | 2200 | 220 |
| TC | Total construction costs | C0+C1+C2+C3+C4+C5+C6 | €/sqm | | | 1699 | €/sqm | | | 1589 |
| | **Evaluation of Transformation Value** | | | | | | | | | |
| MVbt | Market Value before transformation | | negligible | | | | negligible | | | |
| TVud | Transformation Value (undiscounted) | | TMV-TC | €/sqm | | 501 | TMV-TC | € | | 611 |
| $q^n$ | Industrial profitability rate (from Table 4) | | $q = (1 + r')^n$ | | | - | $q = (1 + r')^n$ | | | 1.6276 |
| TV | Transformation Value (discounted) | | $TVud/q^n$ | €/sqm | | 501 | $TVud/q^n$ | €/sqm | | 376 |
| | **Capital gain** | | | | | | | | | |
| PMV | Present Market Value * | €/sqm(l) ** | From market research | | | 25 | From market research | | | 25 |
| PMVh | Present Market Value (referred to buildable sqm; 3.2 sqm(l) to build 1 sqm | €/sqm | PMV*3.2 | | | 80 | PMV*3.2 | | | 80 |
| CG | Capital gain * | €/sqm | TV-PMV | | | 421 | TV-PMV | | | 296 |
| | | €/cm | TV-PMV/3.2 | | | 131.64 | TV-PMV/3.2 | | | 92.36 |
| | **Extraordinary urbanisation contribution** | | | | | | | | | |
| ECU | Extraordinary urbanisation contribution (art. 20 TSI of GRP of Rome) | | CG*66.6% | €/cm | | 87.67 | CG*66.6% | €/cm | | 61.51 |

\* Previous destination hypothesis: territorial building index of 1 cubic meter/square meter; destination of land before transformation: agricultural. \*\* sqm(l): square meter referred to the land; in the other part of the table sqm is referred to buildable surface (inter height 3.2 m).

Table 7 shows that the extraordinary contribution of IPP Settebagni (estimated according to the D.A.C. n. 128/2014) is equal to €/cm 148.25. By applying the proposed methodology, the extraordinary contribution related to the peculiarities of the IPP Settebagni real estate initiative could once more be estimated: it is equal to €/cm 103.99, down by 29.90% with respect to the extraordinary contribution estimated according to the regulations in force.

**Table 7.** Capital gain and extraordinary contribution in the IPP Settebagni.

| | Transformation Value of Integrated Intervention Programme Settebagni in Rome | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **Market Value** | | | | | | | |
| | IPP parameters | | Regulation n. 128/128 (evaluation hypothesis 1) | | | Proposed method (evaluation hypothesis 2) | | |
| UMV | Unitary Market Value | €/sqm | From Real Estate Observatory—Revenue Agency | | 2700 | From Real Estate Observatory—Revenue Agency | | 2700 |
| | **Construction cost** | | | | | | | |
| C0 | Total technical costs | € | From typological price lists | | 1150 | From typological price lists | | 1150 |
| C1 | Costs of making the area suitable and improving connections | 2–5% of C0 | 2.00% | of € 1050 | 21 | 2.00% | of € 1150 | 23 |
| C2 | Costs related to the charges associated with art. 16 of Pres. Decr. n. 380/2001 | 10% of C0 | 10% | of € 1150 | 115 | 10% | of € 1150 | 115 |
| C3 | Costs of professional services, technical and unforeseen additional costs | 8–12% of C0+C1 | 8.00% | of € 1171 | 94 | 8.00% | of € 1173 | 94 |

**Table 7.** *Cont.*

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Transformation Value of Integrated Intervention Programme Settebagni in Rome** | | | | | | | | | |
| C4 | Marketing expenses | 2–3% of TMV | 2.00% | of € | 2700 | 54 | 2.00% | of € | 2700 | 54 |
| C5 | Financial charges | 5% of C0+C1+C2+C3 | 5.00% | of € | 1380 | 69 | 5.00% | of € | 1382 | 69 |
| C6 | Profit of the developer | 15–25% of TMV | 15.00% | of € | 2700 | 405 | 10.00% | of € | 2700 | 270 |
| TC | Total construction costs | C0+C1+C2+C3+ C4+C5+C6 | €/sqm | | 1908 | | €/sqm | | 1775 |
| **Evaluation of Transformation Value** | | | | | | | | | |
| MVbt | Market Value before transformation | | negligible | | | | negligible | | |
| TVud | Transformation Value (undiscounted) | TMV-TC | €/sqm | | 792 | | TMV-TC | € | 925 |
| $q\hat{}n$ | Industrial profitability rate (from Table 4) | $q = (1 + r')\hat{}n$ | | | - | | $q = (1 + r')\hat{}n$ | | 1.5967 |
| TV | Transformation Value (discounted) | $TVud/q\hat{}n$ | €/sqm | | 792 | | $TVud/q\hat{}n$ €/sqm | | 579 |
| **Capital gain** | | | | | | | | | |
| PMV | Present Market Value * | €/sqm(l) ** | From market research | | 25 | | From market research | | 25 |
| PMVh | Present Market Value (referred to buildable sqm; 3.2 sqm(l) to build 1 sqm) | €/sqm | PMV*3.2 | | 80 | | PMV*3.2 | | 80 |
| CG | Capital gain * | €/sqm | TV-PMV | | 712 | | TV-PMV | | 499 |
| | | €/cm | TV-PMV/3.2 | | 222.61 | | TV-PMV/3.2 | | 156.05 |
| **Extraordinary urbanisation contribution** | | | | | | | | | |
| ECU | Extraordinary urbanisation contribution (art. 20 TSI of GRP of Rome) | CG*66.6% | €/cm | | 148.25 | | CG*66.6% €/cm | | 103.93 |

\* Previous destination hypothesis: territorial building index of 1 cubic meter/square meter; destination of land before transformation: agricultural. \*\* sqm(l): square meter referred to the land; in the other part of the table sqm is referred to buildable surface (inter height 3.2 m).

Table 8 shows a summary of the results of the implementations as applied.

**Table 8.** Summary of the results.

| **Extraordinary Urbanisation Contribution Evaluation** | | | | |
|---|---|---|---|---|
| **Extraordinary Urbanisation Contribution (art. 20 TSI of GRP of Rome)** | **Regulation no. 128/128 (Evaluation Hypothesis 1)** | **Proposed Method (Evaluation Hypothesis 2)** | **Differences** | **Surplus** |
| | A | B | C = A − B | D = C/A |
| Ficarone | 87.67 | 60.78 | 26.89 | 30.68% |
| Santa Colomba | 87.67 | 61.51 | 26.16 | 29.84% |
| Settebagni | 148.25 | 103.93 | 44.32 | 29.90% |

The results demonstrate the presence of a surplus, that is to say, a portion of the extraordinary contribution not commensurate with the actual characteristics of the real estate initiatives that the IIP represents. This surplus, which is significant because in the 3 case studies it ranges about 30%, therefore, it constitutes an "excessive" contribution, especially if we consider the conditions in which it comes into effect, and its creation as a mandatory contribution. Thus it can give rise to an element of inertia in the implementation of the real estate initiatives connected to the IIP under analysis.

## 6. Conclusions

A LA as part of its territorial governance can resort to models of partnership-based negotiation where they can, at their discretion, give the go ahead for real estate initiatives which differ to the GRP even if they are private proposals [2], provided that they comply with the provisions of article 16, paragraph 4, point d-ter of Presidential Decree 380/2001. Furthermore, an extraordinary urbanization

contribution must be included in addition to the permit fees and at least equal to 50% of the capital gain that can be expected from the initiative.

An analysis of Italian operational practices for calculating the extraordinary urbanization contribution highlighted the suitability of an analytical procedure for obtaining the transformation value based on the appraisal of capital gain. Operating problems were noted regarding its "generally widespread" application, due to not taking into proper consideration in yield/profit issues and the particular details of each transformation initiative, which decide the variability of the return.

The accurate appraisal of the extraordinary urbanization contribution can greatly influence the success of a real estate initiative. An incorrect calculation (*ex post*) of this charge may result in an income loss if the extraordinary contribution is too low in comparison to the actual capital gain (which can be deduced from the financial results of the initiative). Conversely it may cause an interruption of the initiative (*in itinere*) if the extraordinary contribution is excessive compared to the actual capital gain, as the profit margin of the real estate developer may end up being reduced, thus rendering the initiative not cost-effective when taking into account the risks involved.

A procedure was proposed in order to overcome the critical issues encountered, which anticipates a use of the Build-Up Method to calculate the profitability index in relation to the different factors that define the real estate initiative. The exploration of the procedure (using the range of differentials employed by independent valuation companies) has provided the first results, which consist of specific yield spreads by level of risk for the characteristics of real estate initiatives that vary from town planning.

The results obtained from the application show that the calculation of the extraordinary urbanization contribution is influenced by the "risk" factors that characterize the real estate initiatives.

The testing undertaken leads to the presumption that a revision of the regulations referred to in the DAC no. 128/2014, by way of an upgrade in the procedures proposed therein, incorporating the methods outlined here for calculating the profitability index, may have positive effects upon the inertia in which to date (2018) has afflicted the implementation of the IIPs.

Further changes to the procedure (which push it in the direction of PAM) are: (i) the introduction of new factors, which define real estate initiatives; (ii) for each factor that characterizes real estate initiatives modifying GRP, the introduction of sub-factors to which the specific conditions of each risk category can be attributed: VH, H, M, L, VL; (iii) the conditions related to the specific risk categories; (iv) models which define the differentials even in the absence of "comparisons".

A LA, through the proposed procedure, can validate real estate initiatives that modify GRP with greater certainty as regards the verification of the extraordinary contribution in compliance with article 16 paragraph 4 point d-ter) of Presidential Decree 380/2001, thus protecting itself from eventual economic damage, and at the same time guaranteeing economic and financial practicability for the of the initiative's construction firm.

Although the procedure has been built to respond to a specific problem in an EU Member State (Italy), it can also be effectively used in other Member States where real estate initiatives involving NPPPs can be implemented.

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