



Multi-Region Assistance Project- Revolving Investment for Cities in Europe (MRA-RICE) Case Study – Milan

Case study

September 2018

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1 Financial instruments for urban development in Milan

1.1 Introduction

The case study for the city of Milan focuses on the potential set-up of a city fund, simulating how investments could be structured and matched with selected investment priorities of the city. The MRA-RICE blueprint builds on the elements collected from the other case studies, from the cities of London, Manchester and The Hague. Within this scope, two potential areas of intervention are considered:

- The **urban development project**, with the example of the regeneration of the municipal markets (“*Mercati Comunali*”);
- **Energy efficiency**, with the example of the energy efficiency renovation of multi-apartment residential buildings.

On this basis, the analysis carried out focuses on the identification of the financial products and the requirements for the city fund in terms of operational management. For the operational example in the two aforementioned sectors, the study is based on the information provided by the Municipality of Milan, including information from the project pipeline and from studies conducted in the past.¹

1.2 Context

Milan has defined the strategic goal to turn the city and its metropolitan area into a “smart city”.

Through a process of citizen engagement, the Municipality of Milan has identified a development strategy which is focused on the application of smart processes across a variety of thematic areas, among which:

- **sustainable urban mobility**, with the aim of promoting sustainable mobility to reduce transportation environmental impact;
- **urban lab**, making Milan a national and European lab where piloting smart, green and inclusive urban policies;
- **environment and energy**, with the aim of reducing the use of scarce resources and decrease the negative impact on the environment in order to improve the quality of life of its citizens;
- **social inclusion and diversity**, with the aim of promoting diversities, which can create values.

To support the investments needed to implement the transition to a smart city, Milan has studied the possibility to set up a FI focusing its scope on the following two sectors among the different topics that identify a smart city strategy:

¹ Feasibility study for the set-up of an urban development fund for the city of Milan (2016).

- **urban development**, which includes projects that, through the requalification of buildings (including municipal markets, farmsteads and sporting centres) and the development of innovative and/or improved functions and services, aim at improving the quality of life of citizens,
- **energy efficiency**, tackling both private and public projects, with the goal to reduce CO₂ emissions with benefits for the environment.

Such sectors are in line with impact investment principles, in which the Municipality of Milan is increasingly developing interest. In the development of the FI, impact investment will be one of the main drivers, influencing the project assessment process.

The choice of the regeneration of the municipal markets, with their significant positive social impact, especially on the suburban areas, counterbalancing their moderate profitability, moves in this direction.

1.3 Main features of the city fund blueprint

1.3.1 Good practice

The analysis provided below shows how the funds analysed in other cities in Europe can provide examples of good practice, which are relevant and could potentially be replicated when creating Milan's city fund, in particular relating to:

1. Fund structuring;
2. Funding;
3. Fund management;
4. Financial products for urban development and energy efficiency (the two area of intervention for this case study).

These aspects will be considered in the analysis provided below.

1.3.2 Fund structuring

The city fund can be structured as a one single fund or as a multi-sector fund composed of separate sub-funds in order to reflect individual needs of the city.

- In London, **the MEEF is designed as a single fund**: this is particularly effective once the fund has a well-defined scope, which could typically be limited to one sector.
- The Hague has set up the **Holding Fund HEID**, composed of several city funds (i.e. ED Fund, FRED Fund, Homeowner associations “*Vereiniging van Eigenaren*” (VVE) Fund) with separate legal entities. **The holding fund structure in The Hague** has allowed to create **sector-specific city funds**, managed according to separate investment strategies. The holding fund structure gives a **high degree of flexibility** at the level of each fund. It can also invest in other existing city funds.

1.3.3 Funding

To maximise the funding available at city fund level, **the city's resources should be leveraged with other public and private sources of financing**. In this context, it has to be highlighted that

ESIF is managed at regional level, by the region of Lombardy, acting as the Managing Authority; as a consequence, the city of Milan does not have direct access to these funds.

- The **LGF** and the **MEEF** are examples of funds, which were able to crowd in both public and private investors from the early stage. The investor set-up of the MEEF includes the regional funds coming from the ERDF, as well as GLA contribution and private sector financing. As part of this, the private sector brings in the most important share of contribution (60%). It was able to attract these investors by proposing different risk profiles and investment horizons, depending on the investors' risk appetite and investment strategy and showing that the investment decisions of the fund were taken by an independent and professional Fund Manager.
- In **Manchester**, the **GMCA** was involved in the design, creation and implementation of the investment strategy. Strategic future investors, such as the GM Pension Fund, were involved in the discussions since fund set-up. This helped to develop an ecosystem of investors from an early stage, who could invest in the fund at different levels and timings of the transactions.

1.3.4 Fund management

In all the city funds analysed as part of the study, the funds had **an independent Fund Manager**. This arrangement increases the trust of private investors and therefore their willingness to invest.

For the set-up of the HEID Fund in The Hague, as well as the Evergreen Fund and the LEEF in London, the support provided by the EIB in the early stage was useful to have an early rollout of the city funds and to build capacity internally on the management of financial instruments. Hence, the use of **technical assistance** could be pivotal in ensuring a fast and effective roll-out of the city fund.

1.3.5 Financial products for urban development and energy efficiency

Good practice in the area of **urban development** includes:

- The **FRED Fund in The Hague**, providing loans to businesses, which can prove that they cannot access financing through commercial banks. The interest rates are aligned with market standards. Loans cover up to 90% of the total project costs. In order to qualify for (co-) financing from the FRED, a project must at least meet a number of conditions, such as have a clear commercial rationale, an internal rate of return and social added value.
- The **Evergreen Fund in Manchester** offers loans for development phases of commercial property and regeneration projects. As it is generally the case for commercial property investments, loans are disbursed in several tranches, which are provided monthly following the projects realisation. This approach enables to reduce the risk of default. Loans are disbursed at market rates. The fund has put in place an innovative way of refinancing, by selling a package of well performing loans that exceeded the initially agreed repayment period since the development phase took longer than planned. The trusted institutional investor, who was a member of the steering group since the fund's creation, overtook substantially developed investments, with a required rate of return, the fund unlocked its

liquidity, while the borrowers continued to receive the financing, despite having exceeded the repayment period. Further information on the Evergreen Fund can be found in the dedicated case study.

A good practice in the financing of **energy efficiency in residential multi-apartment buildings** is the **VVE fund in The Hague**. This fund finances investments of homeowner associations. It targets homeowner associations with a maximum of nine apartments. The VVE Fund provides exclusively collective loans to the homeowner association; no guarantees are required. The loan amounts range from EUR 2,500 to EUR 15,000 per apartment. A maximum of 50% of the loan amount can be spent on regular maintenance. At least 50% of the loan must be invested in energy efficiency measures. Depending on the amount, the loan can be repaid in 10 to 15 years, with interest rates of 2.6% to 3%.

1.4 Identifying the specific financial products for Milan's city fund

In the following sections, the study carries out an assessment of the urban development project *Mercati Comunali* and the energy efficiency project related to the refurbishment of multi-apartment residential buildings, to identify which financial products could be envisaged on the basis of the respective investment needs.

2 Municipal markets

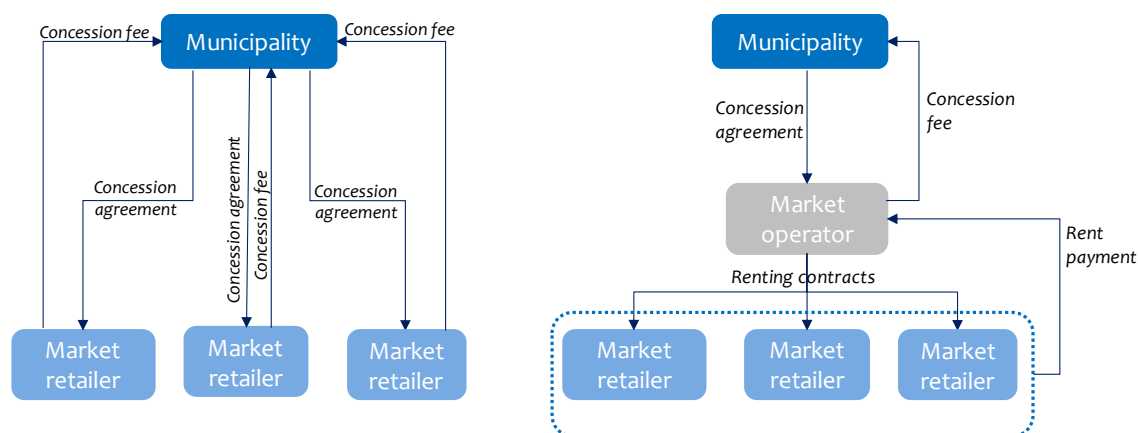
This section investigates the potential options for the intervention of a city fund to finance the renovation of Milan's municipal markets.

2.1 Context

Of the 23 municipal markets based in Milan, 17 municipal markets require renovation measures, for a total investment of EUR 18.7 m.² Each municipal market comprises a number of market stalls, managed by different retailers. The number of market stalls in each market can vary substantially;³ on average, each market has 12 retailers, managing approximately 22 market stalls.

The owner of the markets is the Municipality. The Municipality grants concessions to the market operators, for each individual market. For most of the markets, the concession agreements are put in place between the market retailers and the municipality. A new way of managing the markets, which was implemented already in two markets, foresees that the market operators pay a concession fee to the Municipality and rent the available market stalls to the market retailers. The two models of concession are illustrated in the figure below. The following analysis is based on the assumption that all markets will eventually have a collective concession agreement, put in place through one operator. Hence, this hypothesis is considered for the development of the current case study.

Figure 1: Functioning of the concession agreements



The obligations of the market operators relating to carrying out ordinary and extraordinary maintenance works are set in the concession agreement. For the concession agreements analysed as part of the study⁴, the market operators had the obligation to carry out ordinary, as well as extraordinary maintenance works, including the refurbishment of the markets.

² Mercati comunali coperti. Comune di Milano, Direzione Economia Urbana e Lavoro, Unità Progettazione Economica, Febbraio 2018

³ The markets analysed had between 4 and 47 stalls.

⁴ The concession agreements received from the Municipality of Milan are those issued for the markets of Lorenteggio and S.ta Maria del Suffragio.

2.2 Financing needs

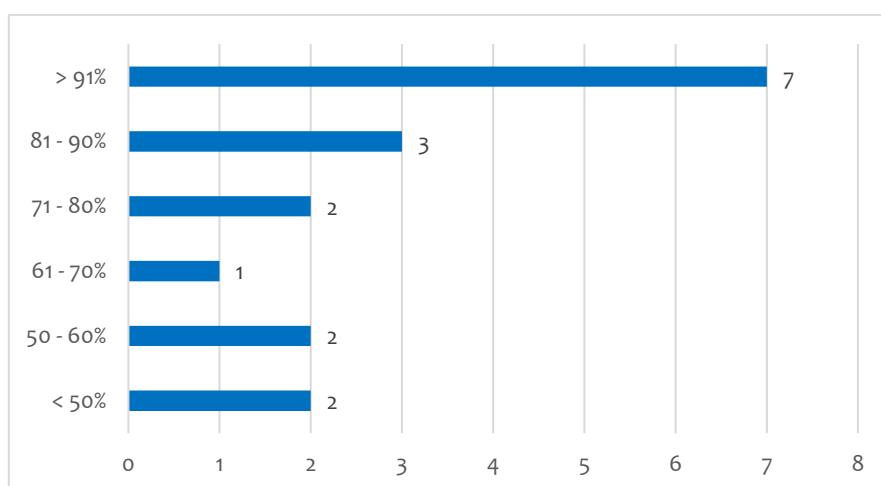
The renovation of the municipal markets requires investments estimated by the Municipality at EUR 13 m, which would cover only for basic works; the investment required for each market range from EUR 200 k to EUR 1.2 m. The specific financing needs for each market assessed as part of the case study are based on a high-level analysis, building hypotheses based on the available information.

Since the information provided did not disclose the income levels, the overall profitability and financial risk of each municipal market, assumptions and proxies were set up as part of this analysis to analyse the potential level of profitability and risk of the markets.

- It is assumed that the **occupation rate** of the market stalls (i.e. the percentage of market stalls, which are currently rented) is positively correlated to the profitability of the markets; hence, a **high occupation rate indicates a profitable market**.
- The **rate of unpaid liabilities** in each market can be considered correlated to the risk level of each market. **A higher rate of unpaid liabilities indicates a higher financial risk related to the market**. The amount of unpaid liabilities for each market refers to the liability for the payment of the market space to the municipality (“*canone*”).

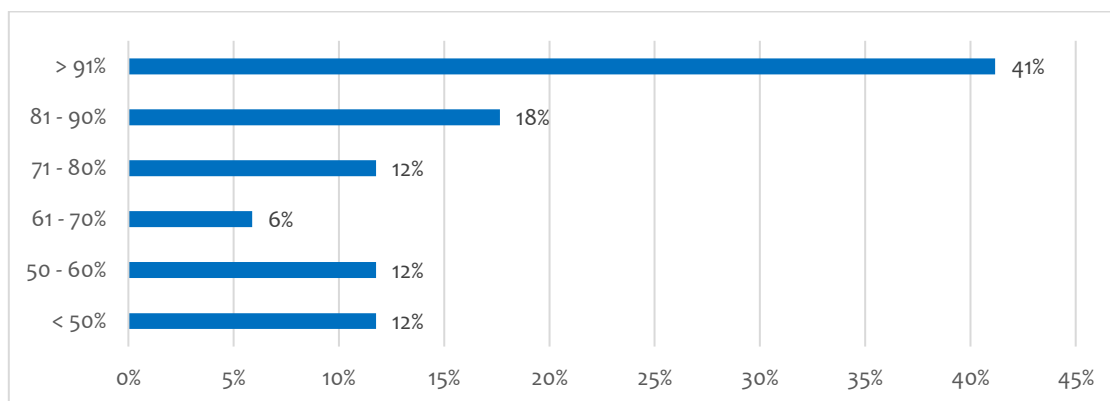
The next figures show the distribution of the municipal markets, based on the occupation rate, in absolute terms and in relative terms: seven municipal markets, or 41%, have an occupation rate above 90%. The distribution of the remaining 10, representing 59% of the markets, spans from 50% to 90%.

Figure 2: Occupation rate of the municipal markets (number of markets)



Source: PwC analysis (2018), based on data from the Municipality of Milan

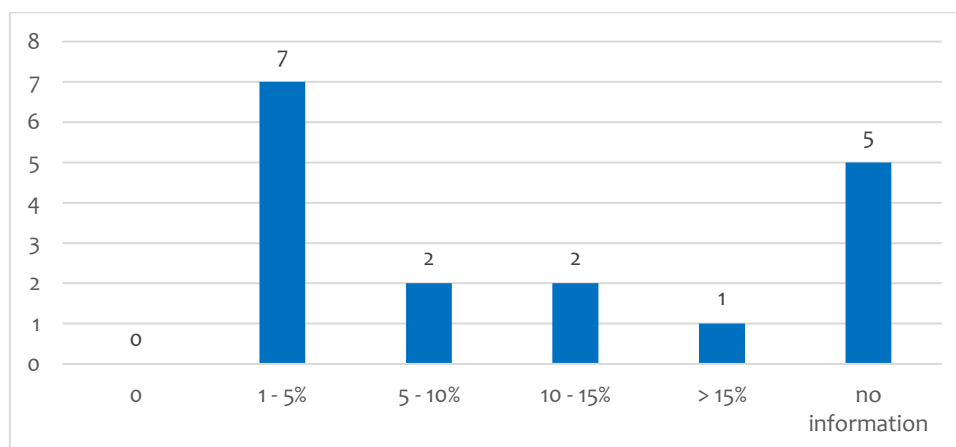
Figure 3: Occupation rate of the municipal markets (percentage)



Source: PwC analysis (2018), based on data from the Municipality of Milan

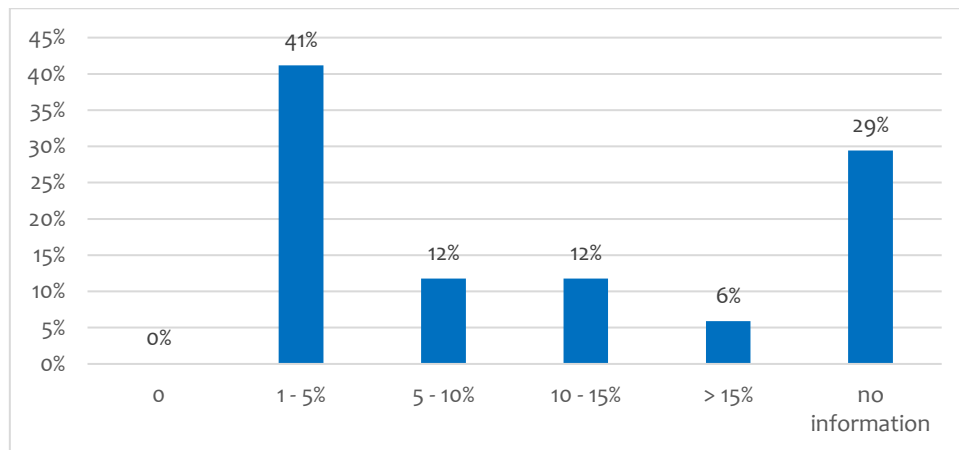
The analysis of the amount of unpaid liabilities is based on the 12 markets for which data was available; this corresponds to 70% of the markets for which renovation measures are required. The figure below shows the distribution of these markets for different levels of risk; almost half (41%) of the markets which feature outstanding payments have low rates of unpaid liabilities, comprised between 1 and 5%.

Figure 4: Rate of unpaid liabilities of the municipal markets (number of markets)



Source: PwC analysis (2018), based on data from the Municipality of Milan

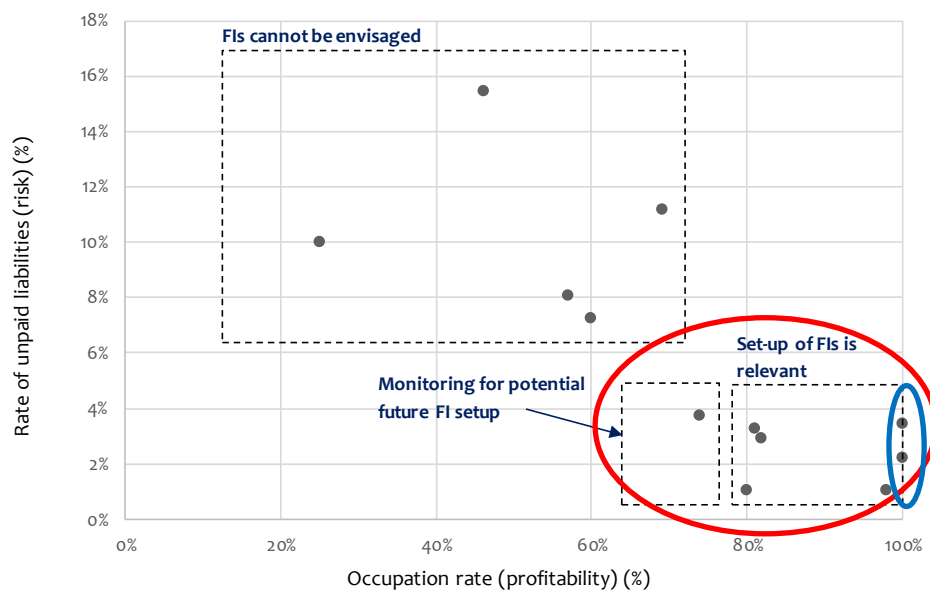
Figure 5: Rate of unpaid liabilities of the municipal markets (percentage)



Source: PwC analysis (2018), based on data from the Municipality of Milan

As expected, the analysis shows that there is a positive correlation between high occupation rates and low unpaid liabilities, thus a strong profitability is potentially related to low risk levels, as shown in the graph below. Furthermore, the graph shows that different groups of markets can be considered, as explained below.

Figure 6: Profitability and risk levels of the municipal markets (*) and implications for the set-up of a Financial Instrument (FI)



Source: PwC analysis (2018), based on data from the Municipality of Milan

(*) The analysis above considers 12 of the 17 municipal markets, for which complete data was provided concerning both unpaid liabilities and the occupation rate.

** Markets in the blue circle should not have problems to access to the financial market (good return and low risk), while the ones in the red circle could present problems because of the risk/return parameters. For those a FI should be considered. The others have too high risk also for a FI (require a grant to be retrofitted)

It is possible to distinguish among markets, which have:

- **A profitability of 80% or above and a risk profile comprised between 1% and 5%.** While their profitability is high, and they are relatively low risk compared to the other markets, these

operators might still have difficulties to access finance at market conditions (due to lending cost and tenors). Depending on the different contexts, a concessional lending or a guarantee instrument could allow to bridge the financing gap. This case concerns six municipal markets. Due to the high correlation between high occupation rates and low unpaid liabilities, it is possible to make assumptions that the markets for which no data on unpaid liabilities is provided, but which have an occupation rate of 80% or above, should be expected to have similar risk levels and hence belong to the same category. As a consequence, another five markets can be considered as part of the same category, totalling 11 projects. These represent 65% of the municipal markets analysed as part of the study and cover investment needs worth EUR 14 m.

- **A profitability below 80% and a risk profile still below 5%.** This is the case of one municipal market. In the current situation, the market is not suitable for a financial instrument, since low profitability levels might make it impossible to repay debt financing. However, with a marginal improvement of the financial conditions of this market, this investment could become relevant for a financial instrument thanks to its relatively low risk levels. Financial Instruments could still be envisaged for this category in a near future. The market should be monitored, to improve the bankability of the project or to find additional streams of revenues, with the medium-term objective to include it within the group of markets, which have a high profitability and a low risk profile.
- **A profitability below 80% and a risk profile above 5%:** the five markets in this category have profitability levels of 20 to 70% and risk levels comprised between 7% and 16%. In this case, a financial instrument might not be an appropriate tool for intervention, since the income generated would not be sufficient to pay back the investment. Due to the difficult financial situation, the market operators would not be able to generate sufficient revenues to repay the full amount of the loan. For this reason, the deployment of financial instruments for these markets cannot be envisaged. These markets account for 29% of the total markets and require an investment of EUR 3.4 m. In this case, grant instruments could be a relevant solution for the financing of a part or the total investment.

Based on the above analysis, financial instruments could be developed for 11 of the 17 markets, showcasing a profitability of 80% or above and a risk profile of 1% to 5%. One market has a similar degree of risk and a slightly lower profitability; this market should be monitored and receive tailored support if required, to improve its profitability and being able to access financial instruments in a second phase. For the markets which have a profitability below 80% and a risk profile above 5%, the use of grants for the financing of a part of the total investment might be required. This grant could be complemented by a financial instrument (i.e. a concessional loan).

Should a loan instrument be put in place, the market operators could act as borrowers. To better assess the borrowing capacity of the market operators, it would be necessary to have access to relevant financial data (EBITDA⁵, cash flows). This would allow to verify whether these businesses generate enough cash flow to repay commercial loans or if concessional loans are required (i.e. reduced interest rates, a longer loan maturity). Moreover, while the project itself could generate

⁵ Earnings Before Interest, Taxes, Depreciation and Amortisation

enough cash flows, it will also be necessary to analyse the creditworthiness of the market operators.

There are examples, such as Lisbon and Seville, where a financial instrument supported the renovation of city markets involving PPP procedures, which allowed for larger scale investments. In this case, PPP investments might be considered when the set-up of a dedicated special purpose vehicle, which could pool financing from different private and public investors, is envisaged. The concession is an alternative situation, which is better suited for smaller scale investments, with a limited number of investors or with a single investor, in which case the definition of a special purpose vehicle is not foreseen as part of the investment.

2.3 Proposed financial products

The types of financial products, which could be considered for the municipal markets, are a guarantee or a concessional loan instrument.

A **concessional loan instrument** could be a valid option, as debt provides direct access to finance to the market operators. Concessional loans come at predefined conditions, which could be adapted to suit best the market requirements (i.e. low interest rate, grace period). A grace period could be relevant, as it would allow to defer the loan repayments upon completion of the refurbishment works. The interest rates should be defined in order to ensure that the investment repayment is in line with the amount of profits, which can be generated by the markets.

A **guarantee** could facilitate access to debt financing and reduce the borrowing cost (lower risk premium), ensuring lower or no collateral requirements and reduced or no risk premiums of commercial loans. In this analysis, all markets tend to have a certain degree of unpaid liabilities, which translates into higher risk levels. The guarantee instrument can in this case reduce the risk profile of these investments, and considerably facilitate access to commercial debt.

3 Energy efficiency in residential buildings

3.1 Context

This section focuses on how the city fund could intervene to finance energy efficiency in residential multi-apartment buildings, constituting a large proportion of the city's dwellings. The city of Milan has 42,980 residential buildings;⁶ it can be estimated at approx. 10 apartments for each building.⁷

The investments in energy efficiency renovation in Italy can be partly financed through a national **tax credit** for energy efficiency renovation (*ecobonus*). Fiscal incentives vary depending on the type of works undertaken; in general, they cover approx. 65% of the total investment.⁸ The total tax incentive granted is reimbursed over a 10 years period. The tax incentives are only accessible to the owner of the apartment, and, for the shared building areas, to the building co-owners. Energy service companies (ESCOs) and other private entities can intervene to buy the fiscal incentives from the home owners; these entities can apply a discount, which according to an operator can amount to approx. 20% to the total amount of financing.⁹ This operation is also called **credit assignment** (*cessione del credito di imposta*). Its role is going to be explained further on in the text. This case study is based on the assumption that the tax credit is going to continue existing in the upcoming years. However, should the tax credit not be confirmed in the future budget laws the case study would change significantly.

3.2 Financing needs

The financing needs are calculated based on the data gathered as part of the project *Sharing Cities*.¹⁰ The information collected and used for the case study refers to three multi-apartment buildings renovated as part of the *Sharing Cities* project. The key data, referring to the financing costs, is provided below.

Table 1: Input data from the *Sharing Cities* project and reference multi-apartment building used for the analysis of financing needs

	Building 1	Building 2	Building 3	Reference multi-apartment building
Total investment cost (€)	571,050	256,684	467,402	474, 847
N. apartments	54	28	36	39
Investment/	10,575	9,167	12,983	12,073 ^(*)

⁶ Istat, 2018

⁷ Istat specifies that on average 28 persons live in each residential building in Milan; taking into consideration that the average number of family members is 2.5, there should be approximately 11 dwellings in each house.

⁸ Ecobonus: Legge Bilancio 2018. Renovate Italy, 2018.

⁹ A2A Presentation, 2018

¹⁰ EU-funded study conducted in Milan and other European cities to develop, among other, strategies for the financing of energy efficiency investments.

apartment (€)				
Current energy costs/apartment (€/year)	997	494	550	741
Energy costs after refurbishment/apartment (€/year)	407	231	270	323
Energy savings	59%	53%	51%	56%

Source: Sharing Cities project

(*)The weighted average of the investment per apartment for the reference building amounts to EUR 10,976. The investment for each apartment does not take into account the planning costs (i.e. energy audit, project planning). Hence, a further 10% were added to the total investment for each apartment to account for these expenses.

Based on this, the building taken as a reference for this study has the following characteristics:

Table 2: Investment costs and tax credits for reference multi-apartment building

	Reference multi-apartment building	Share by apartment
Total investment cost (€)	470,859	12,073
N. apartments	39	/
Current energy costs (€/year)	28,899	741
Energy savings after renovation (%)	56%	56%
Energy savings/year (€/year)	16,302	418
Tax credit (%)	65%	65%
Tax credit/year (€/year)	30,605	785
Total tax credit (€)	306,051	7,847
Credit assignment (%)	80% ¹¹	80%
Credit assignment (€)	244,840	6,278

Sources: Calculations based on the data provided by Sharing Cities and A2A

3.3 Potential financing options

To identify the applicable financial products for this investment, it is important to first recognise the key players who could carry out the investment required for the energy efficiency refurbishment works. These could be:

- Each homeowner, through individual loans;
- The homeowner association, representing the buildings' homeowners, mobilising a collective loan;
- A third-party financing entity, such as an ESCO.

These options need to be considered based on the current regulatory context:

¹¹ Based on the example provided by A2A

- **Individual loans for energy efficiency refurbishments:** the conditions applicable to individual loans for energy efficiency in housing (tenor, interest rates and collateral requirements) vary depending on whether home owners have already other debt commitments in which the apartment is used as a collateral (i.e. mortgage). In this case, homeowners are neither allowed to use this collateral for a new loan for energy refurbishment, nor to increase the amount of financing of the existing mortgage. As a result, homeowners are required to take consumer loans, which have high interest rates (6 – 12%¹²) and have a short tenor (approx. 2 - 3 years¹³). These conditions are not appealing to the financing requirements of energy efficiency renovations, which have a return of investment of 10 to 30 years, depending on the works performed and on the availability of subsidies/tax incentives.
- **Collective loans for energy efficiency refurbishments:** while collective loans seem to be still a niche market, a number of commercial banks in Italy are starting to have a dedicated offer. As part of the project *Sharing Cities*¹⁴, the bank involved in the project offered a loan to homeowner associations with a tenor of five years and interest rates of approx. 3%; no guarantees were required. To be eligible, homeowner associations¹⁵ needed to prove that the rate of unpaid liabilities did not exceed 20% within the last two years. While the other loan conditions were aligned with the market, it seems that the interest rates of 3% was granted specifically for the project; commercial collective loans would typically have interest rates of 5% without collateral requirements. Despite this, collective loans generally seem to benefit from better financing conditions than individual loans (longer tenor, no guarantee requirements). This is also confirmed by the project *Sharing Cities*. Of the five buildings renovated in the project of *Sharing Cities*, four of them financed this intervention using a collective loan. The owners of the fifth building used private savings. For the collective loans, the homeowner association acted as the borrower. The homeowners transfer their repayment amount to the administrator of the homeowner association, which collects the contributions and transfers the total repayment to the bank. If one of the co-owners defaults, the other co-owners pay for his/her share; the administrator of the homeowner association is then allowed to recover the sum from the defaulting co-owner. For the projects conducted as part of the *Sharing Cities* project, one bank provided financing to all the projects. As explained above, the provision of a collective loan is largely dependent on the financial conditions of the homeowner association (low rate of unpaid liabilities).
- **Third party financing**¹⁶: the current regulatory framework applicable to fiscal incentives does not give access to tax incentives to third parties, such as ESCOs. As a consequence, the

¹² The average interest rate on consumer loans of less than 15 000 € is 11.75%. Source: Soglie usura secondo trimestre 2018, Rilevazione dei TEGM ai fini della Legge sull'usura (n. 108/96, art. 2). Indicazione del TEGM nel rispetto del D. Lgs. 29.12.06, n. 303, con modifica dell'art. 116 del Testo Unico Bancario. URL: https://www.e-consel.it/pdf/soglie_usura.pdf

¹³ Information based on the stakeholder interviews.

¹⁴ The information provided on the terms applicable to collective loans derives directly from the project *Sharing Cities*.

¹⁵ According to the law n.220/2012 and the Sentence of the Court of Cassation n. 19663/14, the homeowner association is a management entity without legal personality acting through an administrator, without interfering with the rights of the owners.

¹⁶ Third party financing applies to a third party entity carrying out the total energy efficiency investment in the building and recovering these costs through the utility bills of the building owners; in principle, these costs should be

overall investment, which needs to be financed by the ESCO, is significantly higher than if it was financed directly by the building's owners or the homeowner association; the tax incentives, accounting for 65% of the total investment, could not be mobilised in this case. Due to this constraint, this option does not seem to be profitable compared to the other two options proposed. Thus, ESCO financing is not considered as a viable solution as part of this case study. In this case, if the tax credit could be transferred to the ESCO, the ESCO model could be an interesting option, as it would allow to bypass the homeowners' financing.

As the key barrier is to convince owners to undertake these works, the ESCO model would have quite an advantage to convince owners to perform energy efficiency initiatives.

Based on this analysis, financing the energy efficiency renovation with **collective loans seems the option, which could have the highest potential for widespread use. Therefore, the upcoming analysis focuses on the types of financial instruments, which could be provided to improve the conditions applicable to collective loans for homeowner associations.**

3.4 Analysis of the financing options applicable to collective loans

When analysing the conditions applicable to the collective loan and the potential market barriers and failures, two financing options need to be considered:

- Option 1: the tax credit generated by the energy efficiency renovation is recovered in 10 years;
- Option 2: the tax credit generated by the energy efficiency renovation is sold to an external entity/firm and a discounted amount is recovered within one year (credit assignment).

As both cases are currently implemented on the market, the financing conditions applying in these scenarios need to be considered in order to evaluate the type of financial instrument which could best intervene in this context.

Option 1 – 10-year tax credit

In this first option, it is assumed that the tax credit is paid on an annual basis, for 10 years. The initial investment required and the amount of annual savings generated are shown in the table below, for a reference apartment and for a reference building block. As shown in the table, financial savings of approx. EUR 1,200 are generated from the tax credit and the energy savings achieved, for each apartment.

partially offset by the energy savings achieved as a consequence of the energy refurbishment works; as such, the increase in utility bills should be only marginal.

Table 3: Calculation of the tax incentives and credit assignments, which can be mobilised for the retrofit of a reference multi-apartment building and by apartment

Option 1 – Tax refund in 10 years		
	Reference apartment	Reference multi-apartment building
Total investment/apartment (€)	12,073	474,847
Total tax credit (€)	7,848	306,072
Tax credit/year (€)	785	30,605
Energy savings/year (€) (energy efficiency savings)	418	16,302
Total savings/year (€) (Tax credit and energy efficiency savings)	1,203	46,907
Total savings/month (€) (Tax credit and energy efficiency savings)	100	3909

Source: Calculations based on the data from Sharing Cities and A2A

The loan-financing scenario considered is a 5-year loan, with 5% interest rates and constant annuities; this scenario refers to the standard market conditions, which are applicable to home owner associations.¹⁷

The table below shows the financing conditions applicable to these loans; these values are shown for one reference apartment, as they give a better visibility on the affordability of the investment rather than if a cumulated value would be analysed for the entire building block.

This analysis shows that the tax credit is the most important contribution to the financial savings. The 5-year loan generates monthly instalments of approx. EUR 230. This amount is only covered by half by the financial savings, which can be generated. The net cost of the loan is particularly high in the first year, when the tax credit cannot be accessed. In the first 12 months, the monthly instalments for a 5-year loan amount to approx. EUR 200.

Table 4: Financing conditions applicable to commercial collective loans

Financing conditions applicable to a commercial collective loan		
	Share by apartment	Reference multi-apartment building
Loan amount (€)	12,073	470,847
Tenor	5 years	5 years
Interest rate (%)	5% (*)	5% (*)
Yearly instalment (€)	2789	108,771
Monthly instalment (€)	232	9,048
Net cost year 1		

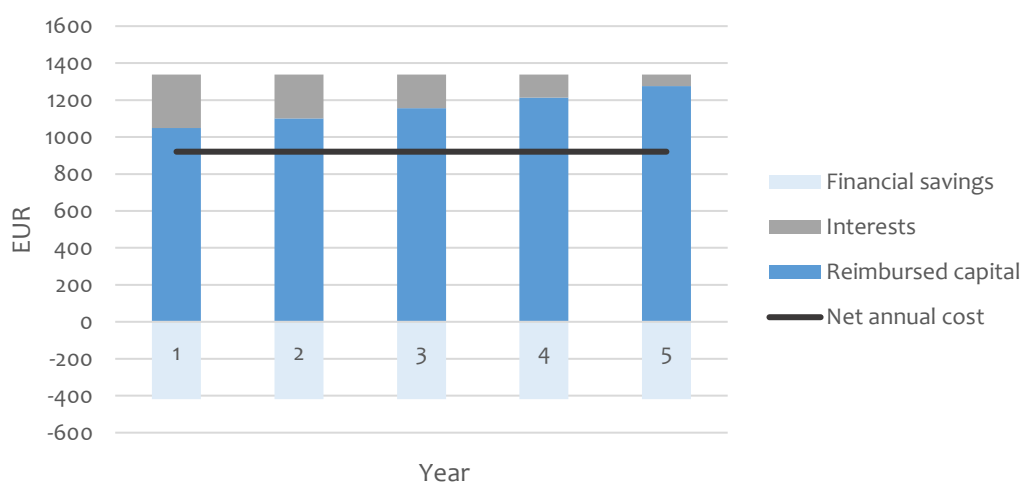
¹⁷ Based on the interview conducted with Teicos, as part of the Sharing Cities project

Financing conditions applicable to a commercial collective loan		
	Share by apartment	Reference multi-apartment building
Energy savings/month (€)	35	1365
Net cost/month (€)	198	7722
Net cost years 2 - 5		
Financial savings/month (tax credit) (€)	65	2535
Energy savings/month (€)	35	1365
Net cost/month (€)	132	5148

(*) Average interest rate applied for collective loans to HOAs by the commercial bank which financed loans as part of the Sharing Cities project

The figure below shows that the net annual cost of the loan is slightly inferior to the total loan cost; the financial savings intervening are evenly distributed during the repayment period, but are relatively limited.

Figure 7: Loan repayment and financial savings over time for a 5-year loan with 10-year tax credit



Source: PwC analysis (2018), based on data from the Sharing Cities and A2A

Option 2 – 1-year tax credit (credit assignment)

In this option, the tax credit recovered with a discount of 20% (also called credit assignment) is used to repay a part of the initial investment. The total loan amount required is thus of approx. EUR 5,800 per apartment.

The loan terms remain unchanged from the commercial loan described in Option 1. The loan financing scenario considered is a 5-year loan, with 5% interest rates and constant annuities; as specified above, this scenario refers to the standard market conditions, which are applicable to home owner associations.

The total loan amount (EUR 112) is relatively low; however the financial savings achieved per month are still limited (EUR 35 per month). Hence, in this scheme, the savings generated do not contribute substantially to the loan repayment.

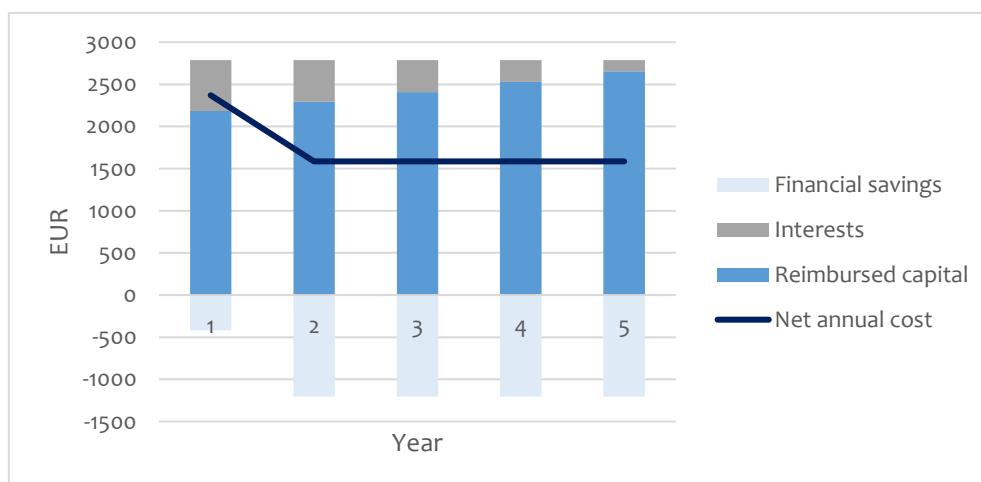
Table 5: Calculation of the credit conditions applicable to a commercial collective loan with the use of the credit assignment mechanism

Financing conditions applicable to a commercial collective loan		
	Share by apartment	Reference multi-apartment building
Total investment (€)	12,073	470,847
Credit assignment (€)	6,278	244,847
Loan amount (€)	5,795	226,012
Tenor	5 years	5 years
Interest rate (%)	5% (*)	5% (*)
Monthly instalment (€)	112	4,368
Net cost years 1 - 5		
Energy savings/month (€)	35	1,365
Net cost/month (€)	77	3,003

(*) Average interest rate applied for collective loans to HOAs by the commercial bank which financed loans as part of the Sharing Cities project

A loan with a long tenor (i.e. 10 years) could be considered as a relevant option to reduce the monthly instalments and align them with the energy savings; to be financially viable, this loan should have an interest rate lower than the market interest rate. The figure below shows that the financial savings achieved are less important in the first year, but from the second year they cover approx. half of the loan instalments; hence, the net annual cost of the loan is particularly high during the first year of repayment.

Figure 8: Loan repayment and savings over time for a 5-year loan with credit assignment



Source: PwC analysis (2018), based on data from the Sharing Cities and A2A

3.5 Proposed financial products

When the tax credit is recovered on a yearly basis (Option 1), a 5-year loan does not seem well adapted for the repayment of the energy efficiency investment. The yearly instalments account for almost double of the amount of savings which can be achieved. Moreover, in this case, the tax credit is not refunded until the end of the first year of loan repayment. This could be a potential hurdle for low-income households, who have no own savings and have a limited discretionary income.

If the tax credit is paid out in a lump sum (Option 2), the commercial loan of five years is the most suitable solution to finance the investment. The credit agreement decreases the total loan amount, bringing the monthly instalments to approx. EUR 100.

In both options, no guarantee is required from the homeowner association to access loan financing. As such, the provision of a guarantee instrument could be useful only to extend the tenor, and/or to reduce the interest rate. Based on this analysis, a concessional loan instrument could be the most relevant option to be implemented. This instrument could have the following characteristics:

- **The tenor should be of at least 10 years to be aligned with the tax credit scheme:** the tax credit being collected over a 10-year period, it is important that the loan provided has the same duration as the tax incentive. This could allow the homeowners to cover a substantial part of the total loan repayment with the tax credits received. Depending on the investments, the financial needs of the target recipients and on the recovery of the tax credit as a credit assignment, the tenor could be further extended (up to 15 years), or the interest rate could be reduced (up to 0%).
- **A grace period of one year should be provided:** since the tax credit is awarded for the first time only one year after the actual investment, it would be relevant to include a grace period of one year to bridge this period. This is particularly relevant for low-income households, who might not have sufficient disposable income for the repayment of the loan instalments, if no separate sources of income are provided.

The conditions which could apply to the concessional loan are shown in the table below.

Table 6: Simulation of a concessional loan for homeowner associations

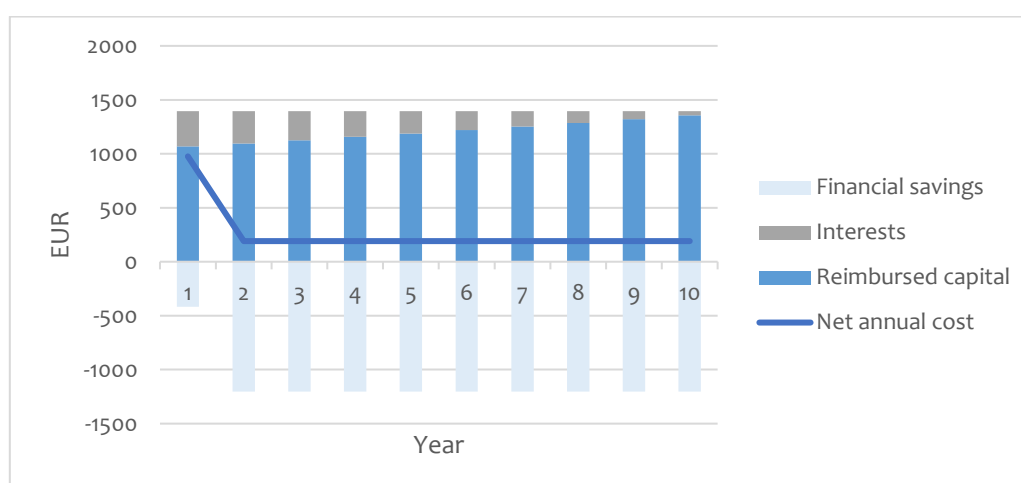
Simulation of a concessional loan for homeowner associations		
	Share by apartment	Reference multi-apartment building
Loan amount (€)	12,073	470,847
Tenor	10 years	10 years
Interest rate (%)	2.7% (*)	2.7% (*)
Yearly instalment (€)	1,394	54,355
Monthly instalment (€)	116	4,530

Simulation of a concessional loan for homeowner associations		
	Share by apartment	Reference multi-apartment building
Net cost year 1		
Energy savings/month (€)	35	1,365
Net cost/month (€)	81	3,165
Net cost years 2 - 10		
Financial savings/month (tax credit) (€)	65	2,551
Energy savings/month (€)	35	1,365
Net cost/month (€)	16	1,186

(*) Average interest rate applicable to commercial loans in Italy, 12/2017 (ABI)

The figure below shows how the savings generated by the investment cover almost completely the cost of the loan; the net annual cost of the loan remains therefore limited.

Figure 9: Loan repayment and savings over time for a 10-year loan with 10-year tax credit



Source: PwC analysis (2018), based on data from the Sharing Cities and A2A

4 Conclusions

The analysis has shown that the city fund set up for Milan could cover **multiple sectors** and propose dedicated financial products for each of these sectors.

More specifically, for the two areas of investment specified, namely:

- Urban development projects, such as the refurbishment of the municipal markets;
- Homeowner associations, for energy efficiency investments in multi-apartment buildings.

The two financing options, which could be explored, are that of providing a concessional loan, or a guarantee product, for both of these sectors. For the concessional loan, longer repayment periods, grace periods and lower interest rates would be particularly relevant for energy efficiency investments, to ensure that the financial savings achieved can cover a substantial part of the loan instalments.

The structuring of the city fund could include thematic sub-funds and could provide financing directly or through financial intermediaries.

4.1 Main conclusions on the financial products

The analysis of the **municipal markets** has shown that 11 of the 17 markets, which need to undergo renovation measures, have a profitability of 80% or above and a risk profile of 1% to 5%. For these markets, a financial instrument could be a relevant financing option, as it could allow to lower their risk profile and facilitate the access to loan financing. For the less profitable markets, which have also higher risk profiles, the provision of grants for a part or the total amount of the investment, would be recommended. Depending on the market's profitability, this grant could be complemented by a financial instrument (i.e. a concessional loan).

The assessment of the **energy efficiency in multi-apartment buildings** was conducted for the provision of collective loans to homeowner associations.¹⁸ Commercial loans do not seem to fit to the repayment of energy efficiency investments: the first tax credits can be accessed only one year after the initial investment; hence, only limited savings are available to finance the first year's loan instalments; due to the short loan duration, which is not aligned with the tax credit refund, the monthly instalments outweigh substantially the savings generated. In this context, it would be advisable to put in place a **concessional loan, with a duration of 10 years and a grace period of approximately one year**. The possibility of a longer tenor (up to 15 years) and a low interest rate could also be explored depending on the financial conditions of the target recipients. If the total investment is distributed on a 10-year to 15-year loan, the monthly instalments are aligned with the savings generated and the tax credit reimbursed. This minimises the risk of default, as an income stream is generated parallel to the loans. Furthermore, the set-up of a grace period would align the loan repayment period with the actual tax credit repayment, thus reducing the risk of default in the first year of the loan.

¹⁸ Information based on the stakeholder interviews conducted.

To conclude, the analysis has confirmed the requirement to develop two financial instruments for different areas of investment (urban development and energy efficiency). The set-up of these instruments as part of a city fund is presented in the next section.

4.2 Proposed blueprint of the city fund

To structure a city fund, the city needs to:

1. Identify the relevant profiles of investors;
2. Define the products and focus areas of the new financial instruments; and
3. Define the structure of the city fund.

4.2.1 Investors

The blueprint of the city fund should be set up considering **potential investors**, as well as their risk and return profiles. Public funds play an important role in financing the **junior tranche of investment**, i.e. providing the highest risk profile of the investment. The public investors who can be considered for this investment could be the municipality of Milan, the regional authority of the Lombardy Region (using public contributions, i.e. ESIF) and the national government. International Financial Institutions, local Philanthropic Investors and National Promotional Investors could invest in the **quasi-equity tranche**. The **senior tranche** could be covered by European public investors, such as: the EIB, the national promotional bank and private investors, such as commercial banks.

4.2.2 Products and focus areas

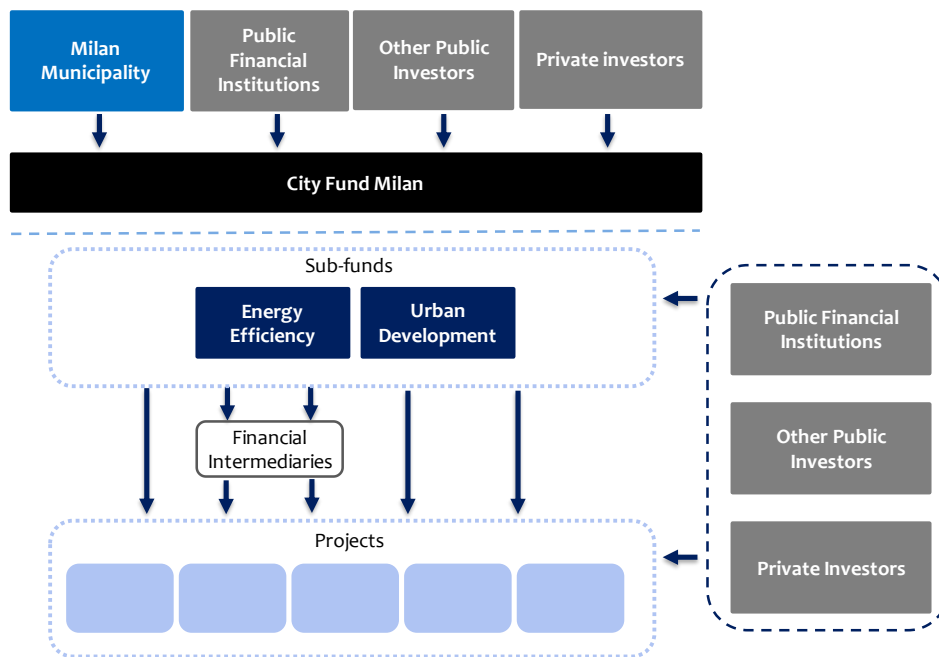
Based on the high-level assessment performed, financing needs may exist in both areas of investment analysed: energy efficiency and urban development. Financial instruments providing loans and/or guarantees could help covering these financing needs.

4.2.3 Structure of the city fund¹⁹

The city fund can be structured as a fund with a single or with multiple compartments. For Milan, where multiple thematic areas have been identified, in which a city fund could invest, the fund structure should allow to have separate funds for each area of investment. The set-up of the city fund is illustrated in the figure below.

¹⁹ Further information on the structure of the city fund will be provided within the Phase 2 report.

Figure 10: Structure of the city fund



The city fund should be structured as a multi-thematic city fund, covering the areas of urban development and energy efficiency; it would be advisable to create separate sub-funds for each sector covered.

4.3 Points for further discussion

While this analysis can be a starting point for the set-up of the city fund, it is necessary to conduct a detailed market assessment to develop concrete propositions on the type of financial instruments to be implemented (i.e. volume of financing to be provided, potential co-investors, fund structuring). Further to this, the financial instrument should be tested on the market (i.e. soft market testing), to verify the potential market interest for the financial instruments proposed.